

FINAL

Final Report

No. 4 Separator Release

Former Philadelphia Energy Solutions Refinery Facility ID No. 51-33624
3144 West Passyunk Avenue, Philadelphia, Pennsylvania

Prepared for

Philadelphia Energy Solutions Refining and Marketing LLC
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Acronyms and Abbreviations

25 Pa. Code	Title 25 Pennsylvania Code
Act 2	Pennsylvania Land Recycling and Environmental Remediation Standards Act
AOI	Area(s) of Interest
AST	aboveground storage tank(s)
ASTM	American Society for Testing and Material
BaA	benzo(a)anthracene
BaP	benzo(a)pyrene
BbF	benzo(b)fluoranthene
BghiP	benzo(g,h,i)perylene
bgs	below ground surface
COPC	chemical(s) 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"
12-DCA	1,2-dichloroethane
EDB	1,2-dibromoethane or ethylene dibromide
the Facility	former Philadelphia Energy Solutions refinery
ft	feet or foot
ft ²	square feet
in	inch or inches
mg/kg	milligrams per kilogram
MSC	medium-specific concentration(s)
NIR	Notice of Intent to Remediate
Non-Res	non-residential
NorthStar	NorthStar Contracting Group, Inc.
PADEP	Pennsylvania Department of Environmental Protection
PAH	polycyclic aromatic hydrocarbons
PESRM	Philadelphia Energy Solutions Refining and Marketing LLC
PID	photoionization detector
ppm	parts per million
RL	reporting limits
the Site	No. 4 Separator release area location within the former Philadelphia Energy Solutions refinery facility
S-GW	soil-to-groundwater
SHS	Statewide Health Standard(s)



TDS	total dissolved solids
Terraphase	Terraphase Engineering Inc.
124-TMB	1,2,4-trimethylbenzene
135-TMB	1,3,5-trimethylbenzene
VISL	vapor intrusion screening level

Certification

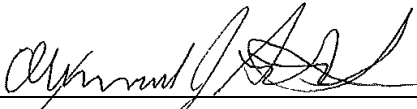
Pursuant to the requirements of the Pennsylvania Land Recycling and Environmental Remediation Standards Act (Act 2), adopted May 19, 1995, which states:

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:

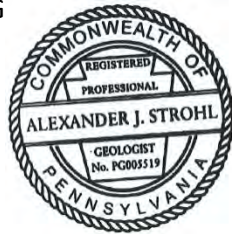
*Final Report, No. 4 Separator Release, Former Philadelphia Energy Solutions Refinery Facility ID No. 51-33624
3144 Passyunk Avenue, Philadelphia, Pennsylvania, dated April 2024.*

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



Alexander J. Strohl, PG
Project Geologist

April 8, 2024
Date



ajs

Executive Summary

Terraphase Engineering Inc. (Terraphase) has prepared this Final Report, on behalf of Philadelphia Energy Solutions Refining and Marketing LLC (PESRM), to detail the results of the environmental activities completed at the location of a release which occurred in October 2022 due to a combination of mechanical and electrical failures which caused an overflow from the No. 4 Separator unit (the Site). The No. 4 Separator is one of the oil water separators that removed oil from wastewater during refinery operations, decommissioning, and demolition. The Site is located within the former Philadelphia Energy Solutions Refinery (the “Facility”), an approximately 1,300-acre property situated in a highly developed area of Philadelphia. The refinery ceased operations in 2019 and has since been undergoing demolition and redevelopment activities.

A Notice of Intent to Remediate (NIR) for the Site was submitted to Pennsylvania Department of Environmental Protection (PADEP) on March 12, 2024 (eFacts 874442). The No. 4 Separator serviced multiple areas near aboveground storage tanks (AST) with varying contents, therefore the type of petroleum product released was likely a mixture. The release area was approximately 6,700 square feet (ft²) and approximately 10,900 gallons of fluids were estimated to have been discharged. NorthStar Contracting Group, Inc (NorthStar) conducted a prompt interim response, including the deployment of containment booms and sweeps on the Schuylkill River and excavation of visually impacted soil.

Based on results of initial and attainment soil sampling, the chemical concentrations in soil identified during the initial sampling event and following excavation, demonstrate attainment of the Statewide Health Standard (SHS). Terraphase concludes that all the requirements of the SHS have been met, and as such, PESRM qualifies for the cleanup liability protection for chemicals associated with the release as detailed in Section 7 of this Final Report.

1 Introduction

Terraphase Engineering Inc. (Terraphase) has prepared this Final Report, on behalf of Philadelphia Energy Solutions Refining and Marketing LLC (PESRM), to detail the results of the environmental activities completed at the location of a release which occurred in October 2022 due to a combination of mechanical and electrical failures which caused an overflow from the No. 4 Separator unit (the Site). The No. 4 Separator is one of the oil water separators that removed oil from wastewater during refinery operations, decommissioning, and demolition. The Site is located within the former Philadelphia Energy Solutions Refinery (the “Facility”), an approximately 1,300-acre property situated in a highly developed area of Philadelphia. The refinery ceased operations in 2019 and has since been undergoing demolition and redevelopment activities. The Site location is depicted on **Figure 1**. The environmental activities at the Site were performed in accordance with the applicable provisions of the *Land Recycling and Environmental Remediation Standards Act* (Act 2), Title 25 Pennsylvania Code (25 Pa. Code) Chapter 250 Section 204 and 312, administered by the Pennsylvania Department of Environmental Protection (PADEP), to obtain the associated release of environmental cleanup liability.

A Notice of Intent to Remediate (NIR) for the Site was submitted to PADEP on March 12, 2024 (eFacts 874442). A copy of the NIR was also submitted to the local municipality (City of Philadelphia) and a legal notification was published in the *Philadelphia Inquirer* with service to the area. As the NIR indicates, soil at the Site will be remediated to the Statewide Health Standard (SHS). In addition, notification of this Final Report submittal to PADEP was sent to the City of Philadelphia and a legal notification regarding this submittal was published in the *Philadelphia Inquirer* with service to the area. Copies of all notification documents are included in **Appendix A**.

Because the No. 4 Separator serviced multiple areas near aboveground storage tanks (AST) with varying contents, the type of petroleum product released was likely a mixture. As such, the soil samples collected were analyzed for the comprehensive PADEP Shortlist for Petroleum Products (i.e., 1 through 5). The incident resulted in an impacted area of approximately 6,700 square feet (ft²). NorthStar Contracting Group, Inc (NorthStar) conducted a prompt interim response, including the deployment of containment booms and sweeps on the Schuylkill River and excavation of visually impacted soil.

This report was prepared in accordance with the applicable provisions of the Act 2, 25 Pa. Code Chapter 250 Sections 204 and 312. It provides a summary of the environmental investigation activities, soil remediation activities, an ecological evaluation, and demonstrates attainment of the SHS. The Final Report is organized as follows:

- Section 2 details the site setting, including operational history, site topography, geology, and hydrogeology.
- Section 3 includes the selected standard and a summary of current and reasonably anticipated future land and groundwater use at and in the vicinity of the Site.
- Section 4 discusses the release, soil remediation (i.e., removal activities) and subsequent RI.
- Section 5 presents the Ecological Screening Evaluation.
- Section 6 details the public notifications completed for the Site.



- Section 7 summarizes the demonstration of attainment.
- Section 8 provides the post-remediation care plan.
- Section 9 summarizes the conclusions of the Final Report.
- Section 10 provides the references used in the preparation of this report.

2 Site Setting

This section presents the site setting and includes a description of the Site, the operational history, topography, geology, and hydrology of the Site and the surrounding area.

2.1 Site Description

The Facility, a former 1,300-acre refinery, is situated in a highly developed area of the City of Philadelphia, Philadelphia County, Pennsylvania (**Figure 1**). The Facility was developed with large tanks, buildings, pipelines, roads, and was formerly used as a petroleum refinery. The Site is the location of a release which occurred due to an overflow from the No. 4 Separator at the northern portion of the Girard Point Refinery, just south of the Schuylkill River (39.90974, -75.20866). Stormwater runoff in the vicinity of the Site enters the stormwater system via several storm drains and the 137 Crude Unit. Runoff is then held in Tank 1136 before it is channeled through the No. 4 Separator, processed through the Girard Point Industrial Wastewater Treatment Plant, and ultimately discharged to the Schuylkill River. The Site is also within the bounds of the Evergreen Resources Group, LLC (Evergreen)¹ Area of Interest (AOI) 7. The nearest residential area is located approximately 0.9 miles east of the Site.

The Site is currently uncovered and without structures and can be accessed by on-site workers and personnel via an unpaved road connecting to Schuylkill Avenue, approximately 875 feet (ft) to the east-southeast of the Site. The Facility is fenced and secured, and the Site is not accessible to individuals other than on-site workers and personnel. The Schuylkill River is located adjacent to the northern perimeter of the Site.

2.2 Operational History

The Facility operated as a petroleum refinery between 1860 and 2019. The refinery ceased operations in 2019 and has since been undergoing demolition and closure activities. Multiple AST and associated pipelines were formerly present near the Site, and decommissioning of the AST and appurtenances began in May 2021.

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.

2.3 Topography

Topography at the Facility is generally flat, with the exception of remaining tank containment dikes. Regional topography slopes gently to the west towards the Schuylkill River and to the south towards the Delaware River. The ground surface in the area of the Site is approximately 2.6 ft, City Datum², though ground surface elevations vary across the Facility.

2.4 Regional Geology and Hydrogeology

The Facility is located within the Atlantic Coastal Plain Physiographic Province of Pennsylvania. The Atlantic Coastal Plain is a physiographic province that is defined as having a flat topography, underlain by unconsolidated sediments that thicken to the southeast. The Coastal Plain deposits are sand, gravel, silt, and clay which drape over crystalline igneous and metamorphic rocks. In general, the resulting sediments are approximately 250 ft thick along the Delaware River. These sediments unconformably 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 fill material, which was placed for the purpose of reclaiming lowlands along the banks of the tidal Delaware and Schuylkill Rivers during industrialization. Below the fill material, sediments consist of gray, muddy deposits with occasional sand, gravel, and organic-rich lenses. These sediments were deposited in floodplain, channel, and marsh environments through the Holocene. The most recent deposits are poorly consolidated and below the water table, as a result of their relatively young geologic age and position along the Schuylkill River (tributaries and creeks). Below the Holocene deposits is Pleistocene glacial outwash, commonly referred to as the “Trenton Gravel” along the Delaware River valley. Cretaceous-age sand and clay units making up the Potomac-Raritan-Magothy aquifer system underly the Pleistocene deposits.

The sedimentary record near the Facility 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.

2.5 Local Geology and Hydrogeology

During the initial investigation, soil at the Site was investigated to approximately 15 ft below ground surface (bgs). Anthropogenic fill³ up to 15 ft thick was observed in soil cores collected in several of the

² Philadelphia City Datum

³ As has been recognized by PADEP (2018), the historic use of fill in and around the Facility has resulted in the identification of certain constituents (e.g., polycyclic aromatic hydrocarbons [PAHs], lead) in soil in various locations at elevated concentrations which may not be associated with releases to the environment from Facility-related activities.



soil borings installed at the Site. Soil beneath the fill layer generally consists of brown, black, and gray sands and silt. During the initial soil sampling, saturated soil was encountered between 3 and 10 ft bgs.

Local geology is generally consistent with the regional geology described above. Investigations in the vicinity of the Site (in Tank Group 06 and AOI 7) indicated the presence of fill up to 5 ft thick. Soil beneath the fill layer generally consists of dark gray to black gravelly and sandy clays. During initial investigation activities, soil observed from the surface to depths ranging from 3 to 15 ft bgs were reported to consist of sandy and clayey fill material with gravel, brick, wood, glass, and coal. Soil encountered during attainment sampling was generally consistent with the lithology identified during the initial investigation.

Groundwater at the refinery has historically been interpreted to flow to the south toward the convergence of the Delaware and Schuylkill Rivers. However, based on the Site Characterization conducted by PESRM in Tank Group 06, groundwater in the unconfined aquifer in the vicinity of the Site has been interpreted to flow generally toward the Schuylkill River to the north. Groundwater at the Site was not investigated during investigation activities; as such, the hydrogeology for the Site is based on the findings of the Tank Group 06 Site Characterization and GHD's AOI 7 Remedial Investigation Report (GHD 2017). Beneath the Site, 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 ft bgs (GHD 2017). Groundwater, which may have been encountered during the initial soil investigation between 3 and 10 ft bgs, was not encountered during soil removal or attainment sampling activities.

3 Selection of Standards

This section discusses planned land and groundwater use at the Site. It also discusses the standard selected by PESRM for the Site and which Medium-Specific Concentrations (MSC) have been identified as applicable based upon current and reasonably anticipated future land and groundwater use.

3.1 Land and Groundwater Use

Currently, the Facility (which includes the Site) is undergoing decommissioning, demolition, environmental investigation, and predevelopment activities. The land is zoned for Industrial Use⁴. The Site, which is generally flat, is currently uncovered and lightly vegetated.

As noted in the parcel map included in **Appendix B** and as captured in the conceptual imagery developed by Hilco Redevelopment Partners (<https://www.thebellwetherdistrict.com/>), the area encompassing the Site is being redeveloped. Current and reasonably anticipated future land use in the area of the Site 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

⁴ <https://openmaps.phila.gov/>.

will function as barriers to direct contact exposure. Once redevelopment plans have been finalized, in accordance with the 2012 Buyer-Seller Agreement and the 2020 First Amendment to that Agreement, 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.

3.2 Selected Standard

PESRM has selected the SHS for the Site. Based upon current and reasonably anticipated future land and groundwater use at and in the vicinity of the Site, the following MSCs and screening criteria have been used to evaluate the results of soil sampling conducted at the Site. Concentrations in soil were compared against the following MSCs:

- Non-Residential (Non-Res) Direct Contact Numeric Values for Surface Soil (0-2 ft bgs)
- Non-Res Direct Contact Numeric Values for Subsurface Soil (2-15 ft bgs)
- Non-Res Soil-to-Groundwater (S-GW) Numeric Values for Used Aquifers (Total Dissolved Solids [TDS] $\leq 2,500$)

In order evaluate the sampling results to determine if constituent concentrations could represent a potential vapor intrusion source, in accordance with the *Land Recycling Program Technical Guidance Manual* (PADEP 2021), the following generic PADEP SHS vapor intrusion screening levels (VISL) were used:

- Non-Res Soil VISL⁵

⁵ As noted in Section 3.1, potential future vapor intrusion exposure will be evaluated once redevelopment plans have been finalized. Because there is no current vapor intrusion exposure in the area, the pathway is incomplete and the results of the comparison of soil concentrations to VISLs does not impact attainment of the SHS. In accordance with Sections III.E.3, IV.A, and IV.H of the *Technical Guidance Manual* (2021), in attaining the SHS, PESRM will continue to maintain the SHS by establishing institutional controls and, as needed, engineering controls to ensure no unacceptable vapor intrusion exposure to occupants of future buildings on the property.



4 Release, Soil Remediation, and Remedial Investigation

The following sections describe the release which occurred at the Site, the soil remediation activities, and the remedial investigation.

4.1 Release and Response

On October 8, 2022, a release from the No. 4 Separator occurred as a result of an overflow from the unit due to a check valve failure and backflow from Tank 1136 to the No. 4A Separator. Based upon the information provided by NorthStar, the oil and water level rose over a portion of the Separator's wall and then flowed along the overland grade of the adjacent roadway and eventually reached the bulkhead along the Schuylkill River. Oil and water then migrated through gaps in the sheet pile bulkheads and entered the Schuylkill River. Oil and water also entered the on-site sewer system and overflowed at several sewer box (i.e., 137 Unit Sewer Box, 137 Unit Sewer Box 01, and 137 Unit Sewer Box 02) and sewer inlet (i.e., Sewer 01 through 07) locations along the bulkhead as shown on **Figure 2**. The release area was approximately 6,700 ft² and approximately 10,900 gallons of fluids were estimated to have been discharged.



Location of the area impacted by the release event (NorthStar)

NorthStar notified the PADEP and the National Response Corporation of the release on October 8, 2022 and conducted a prompt interim response. This response included deployment of containment booms and sweeps on the Schuylkill River, application of approximately 25 bags of oil dry material, isolation and removal of oil contaminated debris, removal of the contaminated debris between the sheet pile walls, and vacuuming of oil and water from around the exterior of the sewer boxes that overflowed. In addition, the release area was covered with a heavy polyethylene sheet and weighed down with sandbags to prevent the migration of contaminants in anticipation of a forecasted rain event.

In the Incident Report dated October 11, 2022, NorthStar described the nature of the release to the Schuylkill River stating:

“At this time we believe the volume that entered the river to be truly minimal given the size of the entryway available for the oil to gain access to the river, which was limited to the interlocking space of the sheet piling adjacent to the separator. No other avenues have been identified that show evidence of providing a pathway to the river.”

Surficial soil (between 6 and 12 inches [in] bgs) in the eastern portion of the release area was removed using an excavator and screened for signs of impact. Though initially identified as being impacted by the release, it was later determined that the western portion of the originally noted release area was not impacted and therefore surficial excavation was not completed in the area. Excavated soil was stockpiled adjacent to the excavation on a heavy liner and covered with reinforced polyethylene sheeting. A waste characterization sample was taken from the stockpile before disposal. Approximately 106 tons (approximately 70 cubic yards) of soil were excavated and transported off-site for disposal at the Chemical Waste Management, Inc. facility in Sulphur, Louisiana. Attainment samples in the excavation area were collected in September 2023, as described in Sections 4.2 and 4.3. Due to the transient nature of the release and the immediate response by NorthStar to remove contamination from the Schuylkill River, further characterization of the river was not necessary. Documentation provided by NorthStar, including the estimated dimensions of impact and photos of the release, are included in **Appendix C**. Disposal documentation is provided in **Appendix D**.

4.2 Sampling Procedure

Section 4.3.1 describes the initial sampling performed to characterize the release area and to demonstrate attainment of the SHS in affected areas. Section 4.3.2 describes the additional post-excavation sampling performed in the eastern section of the release area to demonstrate attainment of the SHS. Pursuant to 25 Pa. Code Sections 250.703(d) and 250.707(b)(1)(i), attainment sampling was performed within the excavation area. Sampling locations were selected using PADEP's Systematic Random Sampling Workbook, an Excel spreadsheet developed by PADEP to determine random sampling points within an area or volume subject to attainment evaluation. Grab soil samples were taken from the top half foot of soil from each designated location.

All samples were submitted for the following comprehensive list of chemicals: benzene, cumene, ethyl benzene, 1,2-dibromoethane (EDB), 1,2-dichloroethane (12-DCA), methyl tert-butyl ether, toluene, 1,2,4-trimethylbenzene (124-TMB), 1,3,5-trimethylbenzene (135-TMB), xylenes (total), anthracene, benzo(a)anthracene (BaA), benzo(a)pyrene (BaP), benzo(b)fluoranthene (BbF), benzo(g,h,i)perylene (BghiP), chrysene, fluorene, naphthalene, phenanthrene, pyrene, and lead. These chemicals are consistent with PADEP's Short Lists of Petroleum Products inventory (Table III-5 of the *Land Recycling Program Technical Guidance Manual* [PADEP 2021]). The material released would have been a mixture

of water and unleaded petroleum products. While lead was included in the analyses performed, its potential presence would not be related to the release at the Site.⁶

Soil samples submitted for analysis were placed directly into laboratory provided glassware and stored on ice in a cooler under appropriate chain of custody protocol. The soil samples were analyzed for volatile organic compounds and semi-volatile organic compounds by United States Environmental Protection Agency methods 8260B and 8270C, respectively. Laboratory analytical services were provided by Alpha Analytical, Inc. of Westborough, Massachusetts, a PADEP-certified laboratory. Field notes detailing the sampling and soil borings logs from the initial sampling event are provided in **Appendix E**. Copies of the laboratory data deliverables are included as **Appendix F**.

4.3 Remedial Investigation

4.3.1 Initial Soil Sampling

Between February 26, 2023, and March 7, 2023, Terraphase conducted initial soil sampling activities in and around the release to characterize the nature and extent of chemicals of potential concern (COPC) in soil in the area of the No. 4 Separator as a result of the release. A total of 19 soil borings were installed and biased toward the release areas; six borings were installed within the observed release area (i.e., SEP4-SB02, 03, 04, 07, 08, 09); four were installed just outside of the originally observed release area (i.e., SEP4-SB01, 06, 05, 10); two shallow soil borings were installed in the unconsolidated soil and gravel between the sheet pile walls (i.e., SEP4-SB18 and 19); and seven borings were installed adjacent to the affected sewer boxes and inlets (i.e., SEP4-SB11 through 17).

Two soil samples were collected from each boring, except SEP4-SB03 where three samples were collected. Given the nature of the release, the most heavily impacted soil was expected to be encountered within the first 6 in of soil in areas that had not been excavated. Consistent with this hypothesis, soil within the first 6 in of ground surface was observed to be visibly stained and odiferous. As such, one sample was collected from the surface soil, 0 to 0.5 ft bgs. The second sample was collected from the 6-in interval above the water table. A third sample was collected from SEP4-SB03 since the highest photoionization detector (PID) readings did not correlate with the top of the water table (i.e., from 3.5 to 4.0 ft bgs, at a depth above the water table).

Petroleum-like odors and visual impacts were noted in each boring installed during the investigation. A sheen was observed below the water table in borings SEP4-SB04, 05, 06, 07, 08, 09, 10, 13, and 17. Stronger petroleum-like odors and the highest PID readings (up to 596 parts per million [ppm]) were recorded in boring SEP4-SB19 between the sheet pile walls.

⁶ As has been recognized by PADEP (2018), the historic use of fill in and around the Facility has resulted in the identification of certain constituents, including lead, in soil in various at elevated concentrations which may not be associated with releases to the environment from Facility-related activities. The identification of lead in soil at concentrations greater than MSCs in some of the soil samples collected in this area is consistent with pre-Existing conditions identified by Evergreen in AOI 7, and the result of anthropogenic fill. The concentrations are not the result of this release.

As shown on **Table 1** and **Figure 3**, the chemical concentrations were below the Non-Res S-GW SHS MSCs.

4.3.2 Attainment Sampling

Surface soil (between 6 and 12 in bgs) was removed from the northeast portion of the area noted as originally impacted by the release by NorthStar during the initial response to the release on October 11, 2022. As discussed in Section 4.1, NorthStar defined the area over which soil was removed based upon PID screening, olfactory evidence, and visual observations of the extent of staining. As shown on **Figure 4**, using PADEP's Systematic Random Sampling tool, eight post-excavation attainment sampling locations were identified and sampled on September 22, 2023. The post-excavation attainment soil samples were collected from the first soil-like material at the base or sidewall of the excavation⁷. The results of the soil sampling did not identify any chemicals in soil at concentrations greater than the applicable MSC (**Table 2** and **Figure 5**) confirming attainment of the SHS in this area.

Laboratory results are provided in **Appendix F** and outputs of PADEP's Systematic Random Sampling Workbook are included in **Appendix G**.

4.4 Analytical Limits Evaluation

For non-detect COPC, reporting limits (RL) were compared to the SHS MSC and VISL to determine the degree to which possible elevated RLs could impact the demonstration of attainment. Only one COPC (i.e., EDB), was not detected in soil and exhibited a maximum RL greater than the S-GW MSC and VISL, as summarized below.

Chemical	Max Analytical Limit (mg/kg)	Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC (mg/kg)	Non-Res Soil Vapor Intrusion Screening Level (mg/kg)
1,2-Dibromoethane	0.047	0.005	0.0013

As shown in the table, the maximum reported analytical limit for EDB is 0.047 milligrams per kilogram (mg/kg), which exceeds the Non-Res S-GW MSC and Non-Res VISL of 0.005 and 0.0013 mg/kg, respectively. Out of 51 samples in total, 19 of the samples had an RL greater than the Non-Res S-GW MSC and Non-Res VISL with an average RL of 0.032 mg/kg. EDB was historically used as a scavenger for lead in anti-knock gasoline mixtures⁸ and up until the ban of leaded gasoline in the 1990s could have been present in gasoline-related releases to the environment. Since this release occurred in 2022, EDB would not be present in soil. As a result, despite this uncertainty, it does not impact the attainment of SHS for this release. Because EDB was not detected in soil and not expected to have been released to

⁷ Sample SEP4-SB21 was collected from 1.5-2.0 ft below original grade because gravel material (i.e., non-soil-like material) was present in the upper 1 ft of the soil column.

⁸ <https://www.atsdr.cdc.gov/toxprofiles/tp37.pdf>



the environment as a result of this release, EDB is not included in the request of liability protection under Act 2.

5 Ecological Screening Evaluation

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

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

- Step 1: Presence of Light Petroleum Product Constituents; and
- Step 2: Site Size.

As indicated on Figure II-16 of the *Land Recycling Program Technical Guidance Manual* (PADEP 2021), after completion of the initial screen (Steps 1 and 2), the remediator may be able to determine that no further ecological screening is required.

Step 1: Presence of Light Petroleum Product Constituents

The first step in the ecological screening process is to determine whether the chemicals present in on-site surface soil (soil at a depth of up to 2 ft) or sediment are related only to light petroleum products (i.e., gasoline, jet fuel A, kerosene, #2 fuel oil/diesel fuel), which have relatively low polycyclic aromatic hydrocarbon content (American Society for Testing and Material [ASTM] International E1739-95⁹). If light petroleum product chemicals (including benzene, toluene, ethyl benzene, and xylene) are the only chemicals detected on-site, then the screening process moves to Step 9 (Final Report: No Further Ecological Evaluation Required). Although light petroleum product chemicals are present in the post-excavation soil samples, sampling results also indicate the presence of other chemicals. The screening process continues to Step 2 (Site Size).

Step 2: Site Size

The second step in the ecological screening process is determining the area of exposed and contaminated surface soil (soil at a depth of up to 2 ft) and sediment that are of potential ecological concern. The minimum areas are: 2 acres of exposed and contaminated surface soil or 1,000 ft² of contaminated sediment. If the area of the site is smaller than the specified minimum areas, then the screening process moves to Step 9 (Final Report: No Further Ecological Evaluation Required).

⁹ ASTM International, Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites, 2015.

Because no sediment is present at the Site and the area of the impact (0.15 acres) is less than the minimum, no further ecological evaluation is required.

6 Public Notifications

Terraphase submitted a NIR to PADEP on March 12, 2024 (eFACTS No. 874442). A copy of the NIR was sent to the local municipality (City of Philadelphia) and a legal notification was published in *The Philadelphia Inquirer* with service to the area. The NIR indicated that PESRM intended to remediate soil at the Site to attain the SHS. In addition, notification of this Final Report submittal to PADEP was sent to the City of Philadelphia and a legal notification regarding this submittal was published in the *Philadelphia Inquirer* with service to the area. Copies of the notification documents are included in **Appendix A**.

7 Demonstration of Attainment

This section provides a summary of the chemicals detected in soil at the Site based on the characterization activities and how the efforts to remediate soil have resulted in conditions which attain the SHS. The attainment soil samples were collected from the base and sidewall of the excavation. The results of the soil sampling conducted in February and March 2023, as well as sampling conducted in September 2023, did not identify any chemicals in soil at concentrations greater than the applicable MSCs. As such, these data demonstrate attainment of the SHS in each area affected by the release.

As discussed in Section 4, sampling conducted to characterize the Site and attainment sampling conducted subsequent to soil removal activities has demonstrated attainment of SHS for the following chemicals:

Volatile Organic Compounds

- Benzene
- Cumene
- Ethyl Benzene
- 124-TMB
- 135-TMB
- Toluene
- Xylenes (total)

Semi-Volatile Organic Compounds

- Anthracene
- BaA
- BaP
- BbF
- BghiP
- Chrysene
- Fluorene
- Naphthalene
- Phenanthrene
- Pyrene

8 Post-Remediation Care Plan

In accordance with Sections III.E.3, IV.A, and IV.H of the *Land Recycling Program Technical Guidance Manual* (PADEP 2021), institutional and, as needed, engineering controls will be implemented as part of a post-remediation care plan to maintain attainment of the SHS, in the event that occupied buildings are planned in proximity to the Site.

As an institutional control, prior to their construction and occupancy, on-facility buildings which could be occupied in the future will be subject to vapor intrusion investigation and evaluation to determine if conditions (i.e., volatilization of COPC from soil, groundwater, and/or light non-aqueous phase liquid) could pose an unacceptable risk to occupants. As needed, vapor mitigation systems will be incorporated into the design and construction of such buildings as engineering controls where potentially unacceptable vapor intrusion risks are identified. These activities and use limitations will eliminate the potential for future unacceptable exposures to COPC at the Site via vapor intrusion.

9 Summary and Conclusions

Terraphase has prepared this Final Report, on behalf of PESRM, to detail the soil removal and RI undertaken at the Site. The activities described in this Final Report were performed in accordance with the applicable provisions of 25 Pa. Code Section 250.

Following the initial release from the No. 4 Separator, a prompt interim response was completed, including a shallow surface soil excavation. Based on results of attainment soil sampling, the identified chemical concentrations demonstrate attainment of the SHS. Terraphase concludes that all the requirements of the SHS have been met, and as such, PESRM qualifies for the cleanup liability protection for petroleum chemicals associated with the release.

10 References

Evergreen. 2021. Letter to Ms. Lisa Strobbridge. *RE: PADEP Comments – Public Involvement Remedial Investigation Report*. eFACTS PF No. 780190. August 28.

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

Pennsylvania Department of Environmental Protection (PADEP). 2021. *Land Recycling Program Technical Guidance Manual*. March 27.

—. 2018. *RE: ECB – Land Recycling Program, Act 2 Technical Memo Summary, Sunoco Philadelphia Refinery AOI-8 Remedial Investigation Report* eFACTS PF No. 749898, 3144 Passyunk Avenue, City of Philadelphia, Philadelphia County. March 22.

Terraphase Engineering Inc. (Terraphase). 2023. *Site Characterization Report – Tank Group 06*. June.

Tables

- 1 Initial Soil Analytical Results
- 2 Attainment Sampling Soil Results



Table 1
Initial Soil Analytical Results
No. 4 Separator Release Area
Philadelphia Energy Solutions Refining and Marketing LLC, Philadelphia, PA

Location				SEP4-SB01	SEP4-SB01	SEP4-SB02	SEP4-SB02	SEP4-SB03	SEP4-SB03	SEP4-SB03	SEP4-SB04	SEP4-SB04
Field Sample ID				SEP4-SB01-0.0-0.5	SEP4-SB01-9.5-10.0	SEP4-SB02-0.0-0.5	SEP4-SB02-9.5-10.0	SEP4-SB03-0.0-0.5	SEP4-SB03-3.5-4.0	SEP4-SB03-9.5-10.0	SEP4-SB04-0.0-0.5	SEP4-SB04-9.5-10.0
Collection Depth (ft)	Non-Residential	Non-Res Used	PADEP Non-	0.0 - 0.5 Below	9.5 - 10.0 Below	0.0 - 0.5 Below	9.5 - 10. Below	0.0 - 0.5 Below	3.5 - 4.0 Below	9.5 - 10.0 Below	0.6 - 1.1 Below	10.1 - 10.6 Below
Sample Method	Direct Contact	Aquifer	Residential Soil	Ground Surface	Ground Surface	Ground Surface	Ground Surface	Ground Surface	Ground Surface	Ground Surface	Original Ground Surface	Original Ground Surface
Sample Date	Surface Soil	(TDS ≤ 2500)	Vapor Intrusion	Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring
Comments	(0-2 ft)	Soil-to-GW MSC	Screening Value	2/28/2023	3/6/2023	2/28/2023	3/6/2023	2/28/2023	3/6/2023	3/6/2023	2/28/2023	3/6/2023
Volatile Organic Compounds												
Benzene	280	0.5	0.13	ND (0.00046)	ND (0.00057)	ND (0.00044)	ND (0.0009)	0.00034 J (0.0005)	0.056 (0.04)	ND (0.0006)	0.015 J (0.023)	ND (0.00043)
Cumene	10000	2500	2500	0.00015 J (0.00093)	ND (0.0011)	ND (0.00089)	ND (0.0018)	0.0015 (0.001)	2 (0.081)	ND (0.0012)	4.8 (0.045)	ND (0.00087)
Ethyl Benzene	880	70	46	ND (0.00093)	ND (0.0011)	ND (0.00089)	ND (0.0018)	0.00083 J (0.001)	0.11 (0.081)	ND (0.0012)	0.14 (0.045)	ND (0.00087)
Toluene	10000	100	44	ND (0.00093)	ND (0.0011)	ND (0.00089)	ND (0.0018)	ND (0.001)	0.14 (0.081)	ND (0.0012)	0.052 (0.045)	ND (0.00087)
1,2,4-Trimethylbenzene	4700	300	300	ND (0.0018)	ND (0.0023)	ND (0.0018)	ND (0.0036)	0.002 (0.002)	0.48 (0.16)	ND (0.0024)	2 (0.091)	ND (0.0017)
1,3,5-Trimethylbenzene	4700	93	93	ND (0.0018)	ND (0.0023)	ND (0.0018)	ND (0.0036)	0.0012 J (0.002)	0.42 (0.16)	ND (0.0024)	2 (0.091)	ND (0.0017)
Xylenes (total)	7900	1000	990	ND (0.00093)	ND (0.0011)	ND (0.00089)	0.00052 J (0.0018)	0.0026 J (0.001)	0.56 (0.081)	ND (0.0012)	0.7 (0.045)	ND (0.00087)
Semivolatile Organic Compounds												
Anthracene	190000	350	--	ND (0.1)	0.21 (0.11)	0.065 J (0.11)	0.59 (0.14)	0.77 (0.12)	3.8 (0.62)	0.12 (0.12)	0.56 (0.12)	0.31 (0.13)
Benzo(a)anthracene	130	340	--	0.055 J (0.1)	0.6 (0.11)	0.12 (0.11)	0.81 (0.14)	0.84 (0.12)	5 (0.62)	0.38 (0.12)	0.55 (0.12)	0.66 (0.13)
Benzo(a)pyrene	91	46	--	0.06 J (0.14)	0.81 (0.15)	0.15 (0.15)	1.6 (0.19)	1.4 (0.16)	4.2 (0.83)	0.53 (0.16)	0.57 (0.16)	0.88 (0.17)
Benzo(b)fluoranthene	76	170	--	0.066 J (0.1)	0.84 (0.11)	0.16 (0.11)	1.4 (0.14)	1.2 (0.12)	5.5 (0.62)	0.56 (0.12)	0.51 (0.12)	0.91 (0.13)
Benzo(g,h,i)perylene	190000	180	--	0.053 J (0.14)	0.38 (0.15)	0.12 J (0.15)	1.4 (0.19)	1.1 (0.16)	2.1 (0.83)	0.28 (0.16)	0.46 (0.16)	0.6 (0.17)
Chrysene	760	230	--	0.054 J (0.1)	0.68 (0.11)	0.17 (0.11)	1.3 (0.14)	1.3 (0.12)	6.2 (0.62)	0.4 (0.12)	1.1 (0.12)	0.69 (0.13)
Fluorene	130000	3800	--	ND (0.17)	0.23 (0.19)	0.03 J (0.18)	0.4 (0.24)	0.59 (0.2)	10 (1)	0.071 J (0.2)	0.9 (0.2)	0.22 (0.21)
Indeno(1,2,3-cd)pyrene	76	18000	--	0.04 J (0.14)	0.43 (0.15)	0.11 J (0.15)	1.1 (0.19)	0.82 (0.16)	2 (0.83)	0.31 (0.16)	0.31 (0.16)	0.62 (0.17)
Naphthalene	66	25	25	0.032 J (0.034)	1.5 (0.038)	0.34 (0.037)	2.7 (0.048)	3.7 (0.041)	9.7 (0.21)	0.64 (0.04)	0.82 (0.04)	2.4 (0.042)
Phenanthrene	190000	10000	--	0.033 J (0.1)	0.41 (0.11)	0.14 (0.11)	0.95 (0.14)	1.9 (0.12)	31 (0.62)	0.28 (0.12)	1.7 (0.12)	0.79 (0.13)
Pyrene	96000	2200	--	0.084 J (0.1)	1.1 (0.11)	0.24 (0.11)	1.8 (0.14)	1.8 (0.12)	13 (0.62)	0.57 (0.12)	1.6 (0.12)	1 (0.13)

- Notes:
- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
 - 2 No concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
 - 3 No concentrations exceed the Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC.
 - 4 Italicized concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

ND - Not Detected

J - Estimated Concentration

Table 1
Initial Soil Analytical Results
No. 4 Separator Release Area
Philadelphia Energy Solutions Refining and Marketing LLC, Philadelphia, PA

Location				SEP4-SB05	SEP4-SB05	SEP4-SB06	SEP4-SB06	SEP4-SB06	SEP4-SB07	SEP4-SB07	SEP4-SB08	SEP4-SB08
Field Sample ID				SEP4-SB05-0.0-0.5	SEP4-SB05-4.5-5.0	SEP4-SB06-0.0-0.5	SEP4-SB06-4.0-4.5	SEP4-SB06-4.0-4.5-DUP	SEP4-SB07-0.0-0.5	SEP4-SB07-4.5-5.0	SEP4-SB08-0.0-0.5	SEP4-SB08-4.5-5.0
Collection Depth (ft)	Non-Residential Direct Contact Surface Soil (0-2 ft) MSCs	Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC	PADEP Non-Residential Soil Vapor Intrusion Screening Value	0.6 - 1.1 Below Original Ground Surface	5.1 - 5.6 Below Original Ground Surface	0.0 - 0.5 Below Ground Surface	4.0 - 4.5 Below Ground Surface	4.0 - 4.5 Below Ground Surface	0.0 - 0.5 Below Ground Surface	4.5 - 5.0 Below Ground Surface	0.0 - 0.5 Below Ground Surface	4.5 - 5.0 Below Ground Surface
Sample Method				Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring
Sample Date				2/27/2023	3/6/2023	2/28/2023	3/7/2023	3/7/2023	2/28/2023	3/6/2023	2/28/2023	3/6/2023
Comments	Field Duplicate											
Volatile Organic Compounds												
Benzene	280	0.5	0.13	0.0078 J (0.019)	ND (0.00056)	ND (0.0004)	ND (0.00067)	ND (0.00074)	0.031 (0.029)	ND (0.025)	0.0014 (0.00038)	0.11 (0.021)
Cumene	10000	2500	2500	7.2 (0.039)	0.0048 (0.0011)	ND (0.00079)	0.017 (0.0013)	0.0052 (0.0015)	15 (0.058)	0.42 (0.05)	0.012 (0.00077)	0.15 (0.041)
Ethyl Benzene	880	70	46	0.21 (0.039)	0.00026 J (0.0011)	ND (0.00079)	ND (0.0013)	ND (0.0015)	0.12 (0.058)	ND (0.05)	0.00047 J (0.00077)	0.052 (0.041)
Toluene	10000	100	44	0.088 (0.039)	ND (0.0011)	ND (0.00079)	ND (0.0013)	ND (0.0015)	0.08 (0.058)	ND (0.05)	0.00057 J (0.00077)	0.045 (0.041)
1,2,4-Trimethylbenzene	4700	300	300	2.9 (0.078)	0.0021 J (0.0022)	ND (0.0016)	0.0021 J (0.0027)	0.00075 J (0.003)	3.8 (0.12)	ND (0.1)	0.0041 (0.0015)	0.078 J (0.083)
1,3,5-Trimethylbenzene	4700	93	93	1.1 (0.078)	0.00061 J (0.0022)	ND (0.0016)	0.00086 J (0.0027)	0.0003 J (0.003)	4.5 (0.12)	ND (0.1)	0.0034 (0.0015)	0.033 J (0.083)
Xylenes (total)	7900	1000	990	2.7 (0.039)	0.001 J (0.0011)	ND (0.00079)	0.0038 J (0.0013)	0.0011 J (0.0015)	3.4 (0.058)	0.043 J (0.05)	0.0024 J (0.00077)	0.23 J (0.041)
Semivolatile Organic Compounds												
Anthracene	190000	350	--	0.13 (0.11)	3.2 (0.14)	0.21 (0.11)	4.4 (0.13)	1.5 (0.13)	0.55 (0.33)	0.6 (0.33)	0.14 J (0.29)	ND (0.1)
Benzo(a)anthracene	130	340	--	0.49 (0.11)	1.2 (0.14)	0.39 (0.11)	4.9 (0.13)	1.9 (0.13)	0.52 (0.33)	1 (0.33)	0.19 J (0.29)	ND (0.1)
Benzo(a)pyrene	91	46	--	0.51 (0.14)	1.1 (0.18)	0.5 (0.15)	4.3 (0.18)	2 (0.17)	0.47 (0.44)	1.1 (0.44)	0.19 J (0.39)	ND (0.14)
Benzo(b)fluoranthene	76	170	--	0.62 (0.11)	1.3 (0.14)	0.48 (0.11)	4.8 (0.13)	2.2 (0.13)	0.43 (0.33)	1.2 (0.33)	0.19 J (0.29)	ND (0.1)
Benzo(g,h,i)perylene	190000	180	--	0.36 (0.14)	0.91 (0.18)	0.43 (0.15)	1.5 (0.18)	0.96 (0.17)	0.47 (0.44)	0.79 (0.44)	0.21 J (0.39)	ND (0.14)
Chrysene	760	230	--	0.61 (0.11)	1.4 (0.14)	0.39 (0.11)	5.2 (0.13)	2.1 (0.13)	0.87 (0.33)	1.2 (0.33)	0.24 J (0.29)	ND (0.1)
Fluorene	130000	3800	--	0.14 J (0.18)	5.8 (0.23)	0.057 J (0.18)	4.5 (0.22)	1.4 (0.21)	0.78 (0.55)	0.62 (0.54)	0.066 J (0.48)	0.017 J (0.17)
Indeno(1,2,3-cd)pyrene	76	18000	--	0.3 (0.14)	0.72 (0.18)	0.34 (0.15)	1.6 (0.18)	1.1 (0.17)	0.28 J (0.44)	0.61 (0.44)	0.14 J (0.39)	ND (0.14)
Naphthalene	66	25	25	0.58 (0.036)	12 (0.23)	0.91 (0.037)	10 (0.22)	4 (0.042)	1.5 (0.11)	2.5 (0.11)	0.4 (0.096)	0.038 (0.035)
Phenanthrene	190000	10000	--	0.6 (0.11)	2.6 (0.14)	0.5 (0.11)	9.8 (0.66)	2.9 (0.13)	1.9 (0.33)	2 (0.33)	0.32 (0.29)	0.035 J (0.1)
Pyrene	96000	2200	--	0.9 (0.11)	2.4 (0.14)	0.62 (0.11)	13 (0.66)	4.8 (0.13)	1.2 (0.33)	2.3 (0.33)	0.43 (0.29)	0.024 J (0.1)

- Notes:
- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
 - 2 No concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
 - 3 No concentrations exceed the Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC.
 - 4 Italicized concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:
ND - Not Detected
J - Estimated Concentration

Table 1
Initial Soil Analytical Results
No. 4 Separator Release Area
Philadelphia Energy Solutions Refining and Marketing LLC, Philadelphia, PA

Location				SEP4-SB09	SEP4-SB09	SEP4-SB10	SEP4-SB10	SEP4-SB11	SEP4-SB11	SEP4-SB12	SEP4-SB12	SEP4-SB13
Field Sample ID				SEP4-SB09-0.0-0.5	SEP4-SB09-4.5-5.0	SEP4-SB10-0.0-0.5	SEP4-SB10-4.5-5.0	SEP4-SB11-0.0-0.5	SEP4-SB11-4.5-5.0	SEP4-SB12-0.0-0.5	SEP4-SB12-2.5-3.0	SEP4-SB13-0.0-0.5
Collection Depth (ft)	Non-Residential Direct Contact Surface Soil (0-2 ft) MSCs	Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC	PADEP Non-Residential Soil Vapor Intrusion Screening Value	0.0 - 0.5 Below Ground Surface	4.5 - 5.0 Below Ground Surface	0.5 - 1.0 Below Original Ground Surface	5.0 - 5.5 Below Original Ground Surface	0.0 - 0.5 Below Ground Surface	4.5 - 5.0 Below Ground Surface	0.0 - 0.5 Below Ground Surface	2.5 - 3.0 Below Ground Surface	0.0 - 0.5 Below Ground Surface
Sample Method				Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring
Sample Date				2/28/2023	3/6/2023	2/27/2023	3/6/2023	2/28/2023	3/7/2023	2/28/2023	3/7/2023	2/28/2023
Comments												
Volatile Organic Compounds												
Benzene	280	0.5	0.13	ND (0.00053)	0.021 (0.02)	0.02 J (0.026)	0.028 (0.027)	ND (0.00052)	ND (0.00067)	ND (0.0004)	0.00058 (0.0004)	ND (0.00035)
Cumene	10000	2500	2500	0.00014 J (0.0011)	0.39 (0.039)	8.9 (0.052)	2.8 (0.055)	ND (0.001)	ND (0.0013)	ND (0.0008)	0.0078 (0.00081)	ND (0.00071)
Ethyl Benzene	880	70	46	ND (0.0011)	0.054 (0.039)	0.25 (0.052)	0.2 (0.055)	ND (0.001)	ND (0.0013)	ND (0.0008)	0.0026 (0.00081)	ND (0.00071)
Toluene	10000	100	44	ND (0.0011)	0.039 (0.039)	0.18 (0.052)	ND (0.055)	ND (0.001)	ND (0.0013)	ND (0.0008)	ND (0.00081)	ND (0.00071)
1,2,4-Trimethylbenzene	4700	300	300	ND (0.0021)	0.21 (0.078)	3.4 (0.1)	0.64 (0.11)	ND (0.0021)	ND (0.0027)	ND (0.0016)	0.0054 (0.0016)	ND (0.0014)
1,3,5-Trimethylbenzene	4700	93	93	ND (0.0021)	0.064 J (0.078)	1.3 (0.1)	0.036 J (0.11)	ND (0.0021)	ND (0.0027)	ND (0.0016)	0.00098 J (0.0016)	ND (0.0014)
Xylenes (total)	7900	1000	990	ND (0.0011)	0.4 (0.039)	3.2 (0.052)	0.23 J (0.055)	ND (0.001)	ND (0.0013)	ND (0.0008)	0.0048 J (0.00081)	ND (0.00071)
Semivolatile Organic Compounds												
Anthracene	190000	350	--	0.29 (0.12)	0.18 (0.1)	0.26 (0.11)	0.21 (0.12)	ND (0.11)	0.27 (0.12)	ND (0.11)	0.11 (0.11)	ND (0.11)
Benzo(a)anthracene	130	340	--	0.53 (0.12)	0.15 (0.1)	0.51 (0.11)	0.45 (0.12)	0.056 J (0.11)	0.55 (0.12)	ND (0.11)	0.26 (0.11)	0.033 J (0.11)
Benzo(a)pyrene	91	46	--	0.57 (0.15)	0.1 J (0.14)	0.49 (0.15)	0.54 (0.16)	0.076 J (0.14)	0.96 (0.16)	ND (0.14)	0.36 (0.14)	ND (0.14)
Benzo(b)fluoranthene	76	170	--	0.62 (0.12)	0.069 J (0.1)	0.61 (0.11)	0.67 (0.12)	0.074 J (0.11)	0.95 (0.12)	ND (0.11)	0.41 (0.11)	0.048 J (0.11)
Benzo(g,h,i)perylene	190000	180	--	0.49 (0.15)	0.044 J (0.14)	0.34 (0.15)	0.44 (0.16)	0.085 J (0.14)	0.65 (0.16)	ND (0.14)	0.27 (0.14)	0.043 J (0.14)
Chrysene	760	230	--	0.56 (0.12)	0.29 (0.1)	0.66 (0.11)	0.52 (0.12)	0.06 J (0.11)	0.71 (0.12)	ND (0.11)	0.48 (0.11)	0.039 J (0.11)
Fluorene	130000	3800	--	0.074 J (0.19)	0.15 J (0.18)	0.23 (0.18)	0.19 J (0.2)	ND (0.18)	0.18 J (0.2)	ND (0.18)	0.06 J (0.18)	ND (0.18)
Indeno(1,2,3-cd)pyrene	76	18000	--	0.36 (0.15)	0.026 J (0.14)	0.27 (0.15)	0.39 (0.16)	0.055 J (0.14)	0.63 (0.16)	ND (0.14)	0.2 (0.14)	0.026 J (0.14)
Naphthalene	66	25	25	1.5 (0.038)	0.035 (0.035)	0.8 (0.037)	1 (0.041)	0.064 (0.036)	2.8 (0.04)	0.038 (0.036)	0.24 (0.036)	ND (0.036)
Phenanthrene	190000	10000	--	0.82 (0.12)	0.14 (0.1)	0.69 (0.11)	0.83 (0.12)	0.055 J (0.11)	0.77 (0.12)	0.024 J (0.11)	0.28 (0.11)	0.036 J (0.11)
Pyrene	96000	2200	--	0.99 (0.12)	0.63 (0.1)	1.2 (0.11)	0.85 (0.12)	0.099 J (0.11)	0.7 (0.12)	0.03 J (0.11)	0.63 (0.11)	0.066 J (0.11)

- Notes:
- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
 - 2 No concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
 - 3 No concentrations exceed the Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC.
 - 4 Italicized concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:
ND - Not Detected
J - Estimated Concentration

Table 1
Initial Soil Analytical Results
No. 4 Separator Release Area
Philadelphia Energy Solutions Refining and Marketing LLC, Philadelphia, PA

Location				SEP4-SB13	SEP4-SB14	SEP4-SB14	SEP4-SB15	SEP4-SB15	SEP4-SB15	SEP4-SB15	SEP4-SB16	SEP4-SB16	SEP4-SB17
Field Sample ID				SEP4-SB13-4.0-4.5	SEP4-SB14-0.0-0.5	SEP4-SB14-9.5-10.0	SEP4-SB15-0.0-0.5	SEP4-SB15-4.0-4.5	SEP4-SB15-4.0-4.5-DUP	SEP4-SB16-0.0-0.5	SEP4-SB16-4.0-4.5	SEP4-SB17-0.0-0.5	
Collection Depth (ft)	Non-Residential Direct Contact Surface Soil (0-2 ft)	Non-Res Used Aquifer (TDS ≤ 2500)	PADEP Non-Residential Soil Vapor Intrusion	4.0 - 4.5 Below Ground Surface	0.0 - 0.5 Below Ground Surface	9.5 - 10.0 Below Ground Surface	0.0 - 0.5 Below Ground Surface	4.0 - 4.5 Below Ground Surface	4.0 - 4.5 Below Ground Surface	0.0 - 0.5 Below Ground Surface	4.0 - 4.5 Below Ground Surface	0.0 - 0.5 Below Ground Surface	
Sample Method	MSCs	Soil-to-GW MSC	Screening Value	Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring	
Sample Date				3/7/2023	3/1/2023	3/7/2023	2/28/2023	3/7/2023	3/7/2023	3/1/2023	3/7/2023	2/28/2023	
Comments	Field Duplicate												
Volatile Organic Compounds													
Benzene	280	0.5	0.13	0.055 (0.038)	ND (0.00052)	0.0004 J (0.00068)	ND (0.00032)	0.018 J (0.037)	0.017 J (0.033)	0.044 (0.037)	0.16 (0.03)	ND (0.00038)	
Cumene	10000	2500	2500	0.057 J (0.077)	0.0024 (0.001)	0.018 (0.0014)	ND (0.00064)	3.5 (0.075)	2.6 (0.065)	2.6 (0.073)	7.1 (0.06)	0.00052 J (0.00076)	
Ethyl Benzene	880	70	46	0.029 J (0.077)	ND (0.001)	0.0011 J (0.0014)	ND (0.00064)	0.022 J (0.075)	0.021 J (0.065)	0.1 (0.073)	0.18 (0.06)	ND (0.00076)	
Toluene	10000	100	44	0.073 J (0.077)	ND (0.001)	ND (0.0014)	ND (0.00064)	0.065 J (0.075)	0.048 J (0.065)	0.22 (0.073)	0.058 J (0.06)	ND (0.00076)	
1,2,4-Trimethylbenzene	4700	300	300	0.066 J (0.15)	0.011 (0.0021)	0.023 (0.0027)	ND (0.0013)	0.2 (0.15)	0.16 (0.13)	0.54 (0.15)	41 (0.6)	ND (0.0015)	
1,3,5-Trimethylbenzene	4700	93	93	0.019 J (0.15)	0.003 (0.0021)	0.0077 (0.0027)	ND (0.0013)	0.06 J (0.15)	0.046 J (0.13)	0.23 (0.15)	14 (0.12)	ND (0.0015)	
Xylenes (total)	7900	1000	990	0.23 J (0.077)	ND (0.001)	0.0065 J (0.0014)	ND (0.00064)	0.55 (0.075)	0.43 (0.065)	0.68 (0.073)	12 J (0.06)	ND (0.00076)	
Semivolatile Organic Compounds													
Anthracene	190000	350	--	0.28 (0.13)	ND (0.1)	ND (0.16)	ND (0.1)	0.37 (0.1)	0.2 (0.1)	1.7 (1.2)	1.1 (0.1)	ND (0.11)	
Benzo(a)anthracene	130	340	--	0.33 (0.13)	0.024 J (0.1)	ND (0.16)	0.026 J (0.1)	0.88 (0.1)	0.1 (0.1)	3 (1.2)	1.5 (0.1)	0.051 J (0.11)	
Benzo(a)pyrene	91	46	--	0.27 (0.17)	ND (0.14)	ND (0.21)	ND (0.14)	1 (0.14)	0.093 J (0.14)	2.7 (1.7)	1.4 (0.14)	0.071 J (0.14)	
Benzo(b)fluoranthene	76	170	--	0.34 (0.13)	ND (0.1)	ND (0.16)	0.03 J (0.1)	1.2 (0.1)	0.082 J (0.1)	3 (1.2)	1.8 (0.1)	0.071 J (0.11)	
Benzo(g,h,i)perylene	190000	180	--	0.22 (0.17)	0.03 J (0.14)	ND (0.21)	0.05 J (0.14)	0.48 (0.14)	0.05 J (0.14)	1.6 J (1.7)	0.68 (0.14)	0.079 J (0.14)	
Chrysene	760	230	--	0.6 (0.13)	0.021 J (0.1)	ND (0.16)	0.028 J (0.1)	1 (0.1)	0.17 (0.1)	4.1 (1.2)	1.4 (0.1)	0.057 J (0.11)	
Fluorene	130000	3800	--	0.88 (0.22)	ND (0.17)	ND (0.26)	ND (0.17)	0.83 (0.18)	0.68 (0.17)	2.3 (2.1)	2.2 (0.17)	ND (0.18)	
Indeno(1,2,3-cd)pyrene	76	18000	--	0.2 (0.17)	ND (0.14)	ND (0.21)	0.024 J (0.14)	0.58 (0.14)	0.039 J (0.14)	1.5 J (1.7)	0.78 (0.14)	0.052 J (0.14)	
Naphthalene	66	25	25	0.91 (0.044)	0.043 (0.035)	0.036 J (0.052)	0.027 J (0.035)	0.31 (0.035)	ND (0.034)	1.5 (0.42)	6.2 (0.035)	0.029 J (0.035)	
Phenanthrene	190000	10000	--	2.4 (0.13)	0.026 J (0.1)	ND (0.16)	0.029 J (0.1)	1.6 (0.1)	0.93 (0.1)	7.5 (1.2)	6 (0.1)	0.049 J (0.11)	
Pyrene	96000	2200	--	0.8 (0.13)	0.037 J (0.1)	ND (0.16)	0.039 J (0.1)	1.2 (0.1)	0.3 (0.1)	6.7 (1.2)	3.2 (0.1)	0.085 J (0.11)	

- Notes:
- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
 - 2 No concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
 - 3 No concentrations exceed the Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC.
 - 4 Italicized concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:
ND - Not Detected
J - Estimated Concentration

Table 1
Initial Soil Analytical Results
No. 4 Separator Release Area
Philadelphia Energy Solutions Refining and Marketing LLC, Philadelphia, PA

Location					SEP4-SB17	SEP4-SB18	SEP4-SB18	SEP4-SB19	SEP4-SB19	SEP4-SB19
Field Sample ID					SEP4-SB17-4.5-5.0	SEP4-SB18-1.5-2.0	SEP4-SB18-4.0-4.5	SEP4-SB19-1.5-2.0	SEP4-SB19-1.5-2.0DUP	SEP4-SB19-4.5-5.0
Collection Depth (ft)	Non-Residential Direct Contact Surface Soil (0-2 ft) MSCs	Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC	PADEP Non-Residential Soil Vapor Intrusion Screening Value		4.5 - 5.0 Below Ground Surface	1.5 - 2.0 Below Ground Surface	4.0 - 4.5 Below Ground Surface	1.5 - 2.0 Below Ground Surface	1.5 - 2.0 Below Ground Surface	4.5 - 5.0 Below Ground Surface
Sample Method					Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring	Grab - Boring
Sample Date					3/7/2023	3/1/2023	3/1/2023	3/1/2023	3/1/2023	3/1/2023
Comments	Field Duplicate									
Volatile Organic Compounds										
Benzene	280	0.5	0.13		0.048 (0.036)	0.033 (0.03)	0.034 (0.03)	0.53 (0.045)	0.52 (0.045)	0.41 (0.047)
Cumene	10000	2500	2500		2.6 (0.073)	30 (0.3)	5.9 (0.061)	4.8 (0.09)	6.5 (0.09)	5.6 (0.093)
Ethyl Benzene	880	70	46		0.052 J (0.073)	0.91 (0.059)	0.26 (0.061)	0.31 (0.09)	0.45 (0.09)	0.3 (0.093)
Toluene	10000	100	44		0.092 (0.073)	0.39 (0.059)	0.17 (0.061)	0.15 (0.09)	0.22 (0.09)	0.18 (0.093)
1,2,4-Trimethylbenzene	4700	300	300		0.12 J (0.15)	16 (0.12)	2.8 (0.12)	2.4 (0.18)	5.1 (0.18)	0.34 (0.19)
1,3,5-Trimethylbenzene	4700	93	93		0.045 J (0.15)	6.2 (0.12)	0.94 (0.12)	0.94 (0.18)	2 (0.18)	0.12 J (0.19)
Xylenes (total)	7900	1000	990		0.74 (0.073)	7.7 (0.059)	1.7 (0.061)	1.5 (0.09)	2.4 (0.09)	1.5 (0.093)
Semivolatile Organic Compounds										
Anthracene	190000	350	--		1.2 (0.11)	0.25 (0.11)	0.69 (0.12)	2.1 (1.5)	4 (0.71)	2 (0.79)
Benzo(a)anthracene	130	340	--		1.3 (0.11)	0.38 (0.11)	1.3 (0.12)	0.85 J (1.5)	2.2 (0.71)	0.59 J (0.79)
Benzo(a)pyrene	91	46	--		0.89 (0.15)	0.4 (0.15)	1.4 (0.16)	ND (2)	1.7 (0.94)	0.37 J (1)
Benzo(b)fluoranthene	76	170	--		1 (0.11)	0.34 (0.11)	1.8 (0.12)	0.7 J (1.5)	2.3 (0.71)	0.38 J (0.79)
Benzo(g,h,i)perylene	190000	180	--		0.4 (0.15)	0.26 (0.15)	0.81 (0.16)	0.33 J (2)	0.94 (0.94)	0.21 J (1)
Chrysene	760	230	--		1.4 (0.11)	0.57 (0.11)	2.4 (0.12)	1.2 J (1.5)	3.1 (0.71)	0.83 (0.79)
Fluorene	130000	3800	--		2 (0.19)	0.35 (0.18)	0.2 (0.19)	4.5 (2.4)	9.3 (1.2)	5.4 (1.3)
Indeno(1,2,3-cd)pyrene	76	18000	--		0.34 (0.15)	0.21 (0.15)	0.63 (0.16)	ND (2)	0.88 J (0.94)	ND (1)
Naphthalene	66	25	25		ND (0.037)	1.5 (0.036)	1.3 (0.039)	3 (0.49)	8.1 (0.24)	3.4 (0.26)
Phenanthrene	190000	10000	--		3.3 (0.11)	0.99 (0.11)	0.95 (0.12)	13 (1.5)	22 (0.71)	14 (0.79)
Pyrene	96000	2200	--		3.5 (0.11)	0.77 (0.11)	3.3 (0.12)	2.2 (1.5)	5.2 (0.71)	1.6 (0.79)

- Notes:
- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
 - 2 No concentrations exceed the PADEP Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft).
 - 3 No concentrations exceed the Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC.
 - 4 Italicized concentrations exceed the PADEP Non-Residential Soil Vapor Intrusion Screening Value.

Abbreviations:

ND - Not Detected

J - Estimated Concentration

Table 2
Attainment Sampling Soil Analytical Results
No. 4 Separator Release Area
Philadelphia Energy Solutions Refining and Marketing LLC, Philadelphia, PA

Location				SEP4-SB20	SEP4-SB21	SEP4-SB22	SEP4-SB22	SEP4-SB23	SEP4-SB24	SEP4-SB25	SEP4-SB26	SEP4-SB27
Field Sample ID				SEP4-SB20-0.0-0.5	SEP4-SB21-1.5-2.0	SEP4-SB22-0.5-1.0	SEP4-SB22-0.5-1.0D	SEP4-SB23-0.67-1.17	SEP4-SB24-1.0-1.5	SEP4-SB25-1.0-1.5	SEP4-SB26-0.5-1.0	SEP4-SB27-1.0-1.5
Collection Depth (ft)	Non-Residential Direct Contact Surface Soil (0-2 ft) MSCs	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to- Groundwater MSCs	Non-Residential Vapor Intrusion Screening Values	0.0 - 0.5 Below Original Ground Surface	1.5 - 2.0 Below Original Ground Surface	0.5 - 1.0 Below Original Ground Surface	0.5 - 1.0 Below Original Ground Surface	0.7 - 1.2 Below Original Ground Surface	1.0 - 1.5 Below Original Ground Surface	1.0 - 1.5 Below Original Ground Surface	0.5 - 1.0 Below Original Ground Surface	1.0 - 1.5 Below Original Ground Surface
Sample Method				Grab - Attainment (Sidewall of Excavation)	Grab - Attainment (Base of Excavation)	Grab - Attainment (Base of Excavation)	Grab - Attainment (Base of Excavation)	Grab - Attainment (Base of Excavation)	Grab - Attainment (Base of Excavation)	Grab - Attainment (Base of Excavation)	Grab - Attainment (Base of Excavation)	Grab - Attainment (Base of Excavation)
Sample Date				9/22/2023	9/22/2023	9/22/2023	9/22/2023	9/22/2023	9/22/2023	9/22/2023	9/22/2023	9/22/2023
Comments							Field Duplicate					
Volatile Organic Compounds												
Benzene	280	0.5	0.13	ND (0.0006)	ND (0.0005)	ND (0.00067)	ND (0.00066)	ND (0.00072)	ND (0.00051)	ND (0.00058)	ND (0.00042)	ND (0.00053)
Cumene	10000	2500	2500	0.0049 (0.0012)	0.0038 (0.001)	ND (0.0013)	ND (0.0013)	0.00055 J (0.0014)	0.00039 J (0.001)	ND (0.0012)	ND (0.00083)	ND (0.001)
Ethyl Benzene	880	70	46	0.00028 J (0.0012)	ND (0.001)	ND (0.0013)	ND (0.0013)	0.0035 (0.0014)	0.0081 (0.001)	0.00086 J (0.0012)	0.0025 (0.00083)	ND (0.001)
Toluene	10000	100	44	ND (0.0012)	ND (0.001)	ND (0.0013)	ND (0.0013)	ND (0.0014)	ND (0.001)	ND (0.0012)	ND (0.00083)	ND (0.001)
1,2,4-Trimethylbenzene	4700	300	300	0.0011 J (0.0024)	0.001 J (0.002)	ND (0.0027)	ND (0.0026)	0.00052 J (0.0029)	ND (0.002)	ND (0.0023)	ND (0.0017)	ND (0.0021)
1,3,5-Trimethylbenzene	4700	93	93	0.00042 J (0.0024)	0.0004 J (0.002)	ND (0.0027)	ND (0.0026)	ND (0.0029)	ND (0.002)	ND (0.0023)	ND (0.0017)	ND (0.0021)
Xylenes (total)	7900	1000	990	0.0014 J (0.0012)	ND (0.001)	ND (0.0013)	ND (0.0013)	0.017 (0.0014)	0.033 (0.001)	0.0034 J (0.0012)	0.011 (0.00083)	ND (0.001)
Semivolatile Organic Compounds												
Anthracene	190000	350	--	0.1 J (0.12)	ND (0.11)	0.12 (0.12)	0.054 J (0.13)	0.47 (0.12)	ND (0.12)	ND (0.11)	ND (0.1)	0.078 J (0.1)
Benzo(a)anthracene	130	340	--	0.53 (0.12)	0.09 J (0.11)	0.33 (0.12)	0.14 (0.13)	0.72 (0.12)	0.086 J (0.12)	0.055 J (0.11)	ND (0.1)	0.49 (0.1)
Benzo(a)pyrene	91	46	--	0.52 (0.16)	0.098 J (0.14)	0.36 (0.16)	0.14 J (0.17)	0.64 (0.16)	0.068 J (0.16)	0.062 J (0.14)	ND (0.14)	0.44 (0.14)
Benzo(b)fluoranthene	76	170	--	0.63 (0.12)	0.11 (0.11)	0.46 (0.12)	0.19 (0.13)	0.66 (0.12)	0.086 J (0.12)	0.081 J (0.11)	ND (0.1)	0.53 (0.1)
Benzo(g,h,i)perylene	190000	180	--	0.31 (0.16)	0.058 J (0.14)	0.25 (0.16)	0.16 J (0.17)	0.42 (0.16)	0.05 J (0.16)	0.053 J (0.14)	ND (0.14)	0.23 (0.14)
Chrysene	760	230	--	0.52 (0.12)	0.09 J (0.11)	0.35 (0.12)	0.16 (0.13)	0.84 (0.12)	0.12 (0.12)	0.064 J (0.11)	ND (0.1)	0.43 (0.1)
Fluorene	130000	3800	--	0.032 J (0.2)	ND (0.18)	0.047 J (0.2)	ND (0.21)	0.7 (0.2)	ND (0.2)	ND (0.18)	ND (0.17)	0.018 J (0.18)
Naphthalene	66	25	25	0.2 (0.04)	0.03 J (0.036)	0.17 (0.04)	0.17 (0.043)	1.3 (0.04)	ND (0.039)	0.038 (0.036)	ND (0.034)	0.12 (0.035)
Phenanthrene	190000	10000	--	0.27 (0.12)	0.048 J (0.11)	0.48 (0.12)	0.15 (0.13)	1.3 (0.12)	0.045 J (0.12)	0.038 J (0.11)	ND (0.1)	0.19 (0.1)
Pyrene	96000	2200	--	0.68 (0.12)	0.1 J (0.11)	0.63 (0.12)	0.23 (0.13)	1.2 (0.12)	0.17 (0.12)	0.081 J (0.11)	ND (0.1)	0.64 (0.1)

- Notes:
- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
 - 2 No concentrations exceed the Non-Residential Direct Contact Surface Soil (0-2 ft) MSCs.
 - 3 No concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
 - 4 No concentrations exceed the Non-Residential Vapor Intrusion Screening Values.

Abbreviations:

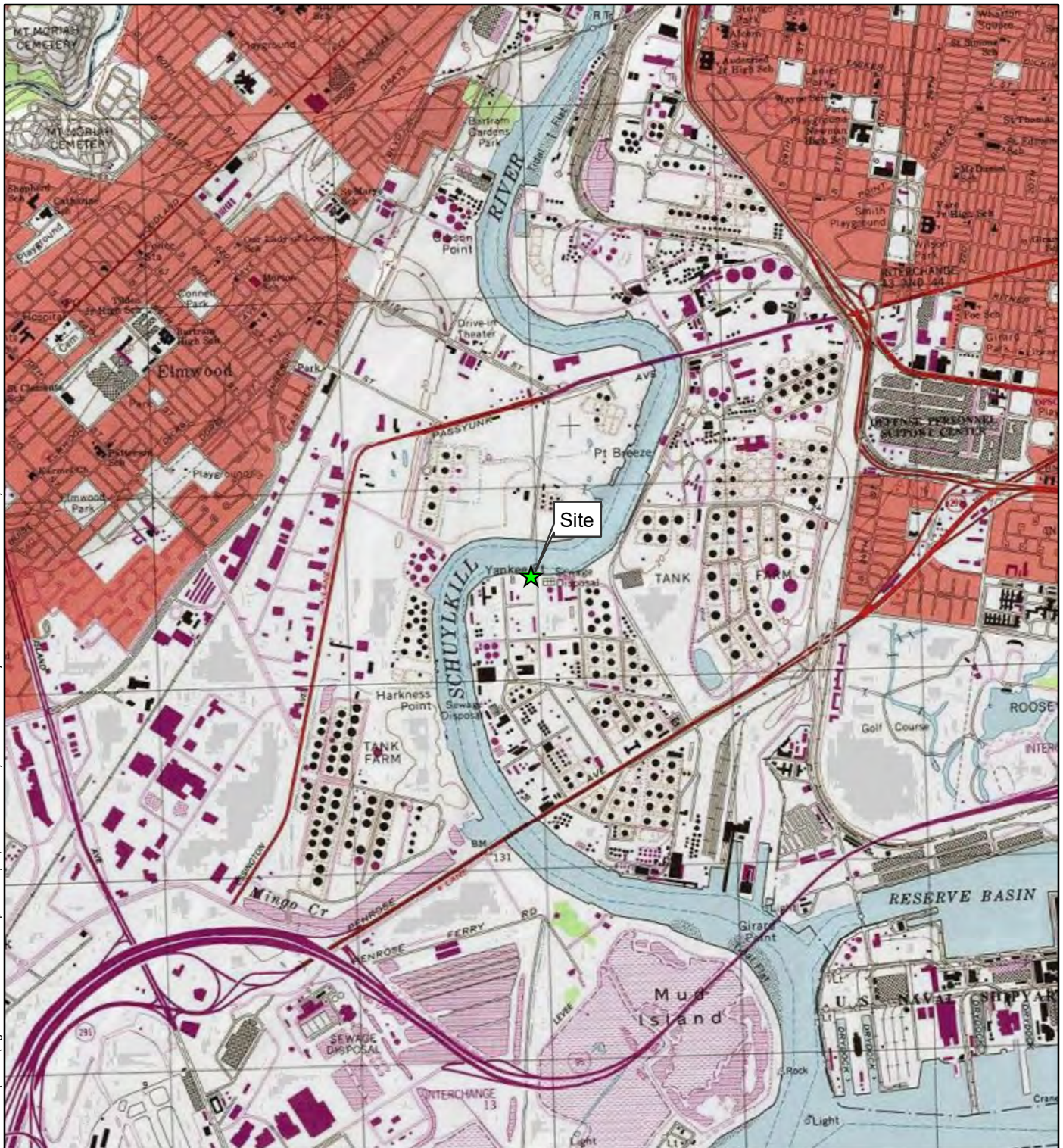
ND - Not Detected

J - Estimated Concentration

Figures

- 1 Site Location Map
- 2 Site Layout
- 3 Initial Soil Sampling Results
- 4 Attainment Sampling Proposed Soil Sampling Locations
- 5 Attainment Sampling Soil Results





0 2,500 5,000 Feet
1 inch = 2,500 feet



Legend

★ Site Location

Base Map: USGS Philadelphia (1995) 7.5 Minute Quadrangle.

SAFETY FIRST



CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

PROJECT: No.4 Separator Release Area

PROJECT NUMBER: P044.001.012

Site Location Map

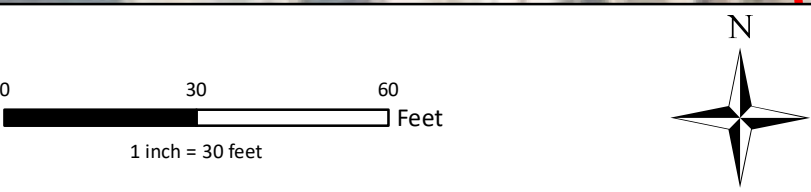
FIGURE 1



File: N:\GIS\Prj\044_001_PESRM-PES\MXDs\No. 4 Separator Release Area\ForRIR\Figure 4 - Attainment Sampling Proposed Soil Sampling Locations.mxd 2/7/2024 Created by: M.Civilillo Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

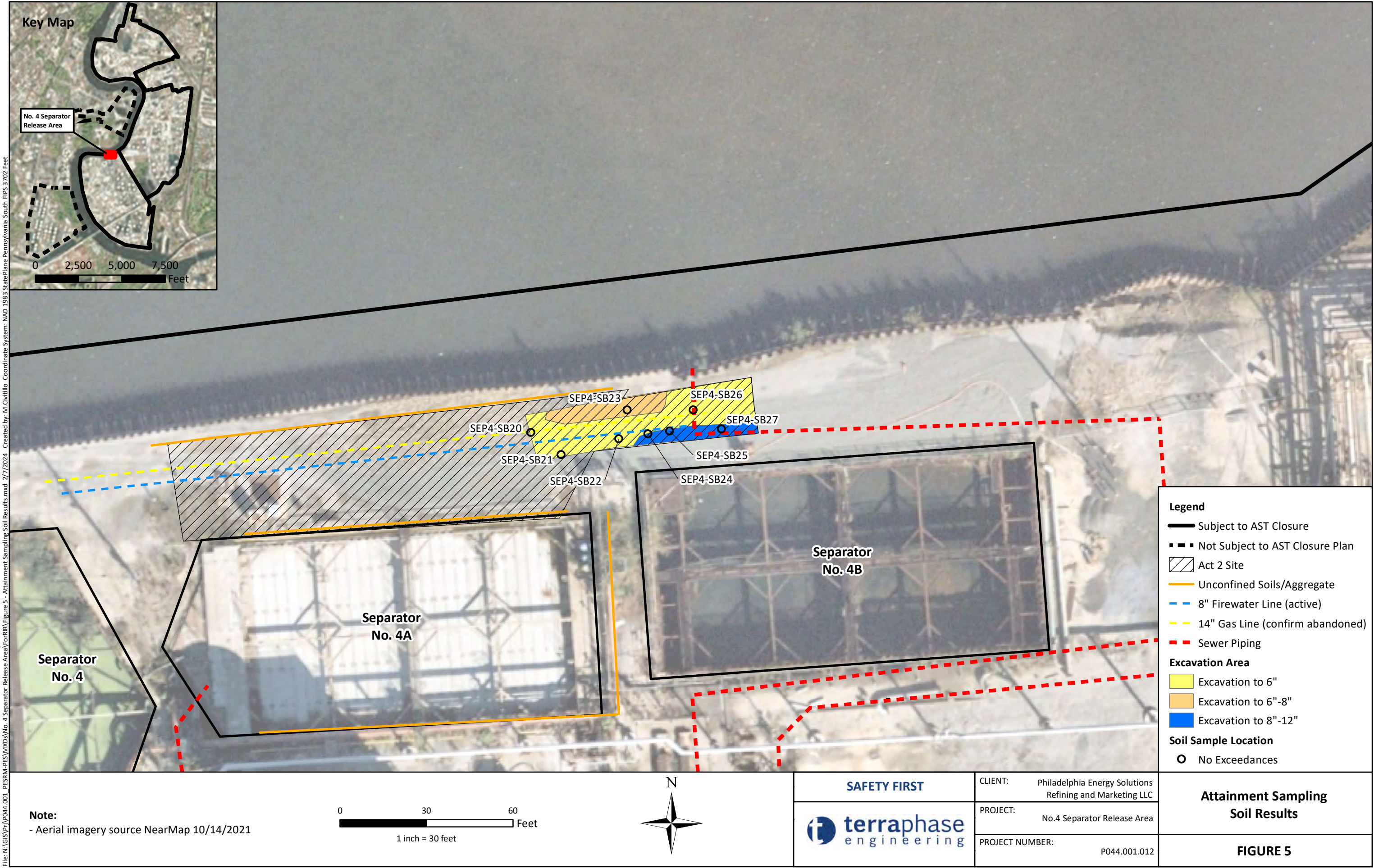


Note:
- Aerial imagery source NearMap 10/14/2021



SAFETY FIRST 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Attainment Sampling Proposed Soil Sampling Locations
	PROJECT: No.4 Separator Release Area	
	PROJECT NUMBER: P044.001.012	

FIGURE 4



File: N:\GIS\Prj\044.001_PESRM-PES\MXDs\No. 4 Separator Release Area\ForRIR\Figure 5 - Attainment Sampling Soil Results.mxd 2/7/2024 Created by: M. Civitillo Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

Appendix A

Notification Documentation



NOTICE OF INTENT TO REMEDIATE

For DEP Use Only

PF # _____

Rem ID # _____

Date: March 12, 2024

NIR Status:

☒ New☐ Revised

Act 1995-2 requires four general information items to be included in the NIR: the general location, listing of contaminants, intended use of property, and proposed remediation measures. In addition, indicate the standard(s) to be obtained and attach a scaled site map (if available). Certain project amendments or changes will require submission of a revised NIR, a new public notice, and a new notification to the municipality. Changes to information marked by (**) or (††) indicate when a new NIR and new public and municipal notices are needed. DEP should also be notified of any significant changes to the initial NIR submission, including the change of future use of the property, contaminants added or removed, change of standards from site-specific to background or Statewide health, any change in the media being investigated, or change of any contact information.

Property Name No. 4 Separator ReleaseFormer Name(s)/AKA Former Philadelphia Energy Solutions RefineryAddress/Location 3144 W. Passyunk AvenueCity Philadelphia Zip Code 19153**Municipality(s) Philadelphia County(ies) Philadelphia County

Tax Parcel ID# (if known) _____

Latitude 39 ° (deg). 54 ' (min) 35 " (sec)Longitude 75 ° (deg). 12 ' (min) 31 " (sec)Horizontal Collection Method GISHorizontal Reference Datum NAD83 Reference Point see Figure 1 attached☐ **Wish to participate in the DEP/EPA [One Cleanup Program](#).Contact the Land Recycling Program Manager for details at landrecycling@pa.gov.

EPA ID#, if known _____

DEP ID#(s), if known 51-33624

(i.e., eFACTs primary facility ID#, storage tank facility ID#, water quality permit #, etc.)

Date Release Occurred (if known) October 8, 2022Date each municipality was notified of any plan or report submitted under any remediation standard
March 8, 2024Place the newspaper name and date that your notice of your plan/report submission was published
The Philadelphia Inquirer, March 11, 2024

** A change in municipality, the addition of a new municipality, or deciding to participate in the DEP/EPA One Cleanup Program requires a new NIR to be submitted with new public and municipal notifications.

Contamination, Land Usage, and Proposed Remediation Section

Provide a brief description of the site contamination, to the extent known, in plain language (e.g., fuel oil spill, historical chemical industrial area, etc.), the current and intended future use of the property in the box below.

On October 8, 2022, a release from the No. 4 Separator occurred as a result of an overflow from the unit due to a check valve failure and backflow from Tank 1136 to the No. 4A Separator. NorthStar Contracting Group, Inc. (NorthStar) is a contractor for the property owner, Philadelphia Energy Solutions Refining and Marketing LLC (PESRM), responsible for operating the on-Site industrial wastewater treatment plants. Based upon the information provided by NorthStar, the oil and water level rose over a portion of the Separator's wall and then flowed along the overland grade of the adjacent roadway and eventually reached the bulkhead along the Schuylkill River. Oil and water then migrated through gaps in the sheet pile bulkheads and entered the Schuylkill River. Oil and water also entered the on-site sewer system and overflowed at several sewer box (i.e., 137 Unit Sewer Box, 137 Unit Sewer Box 01, and 137 Unit Sewer Box 02) and sewer inlet (i.e., Sewer 01 through 07) locations along the bulkhead. The release area was approximately 6,700 ft² and approximately 10,900 gallons of fluids were estimated to have been discharged.

The future use of the property is expected to be non-residential.

Provide a general description of proposed remediation measures.

NorthStar notified the PADEP and the National Response Center of the release on October 8, 2022 and conducted a prompt interim response. This response included deployment of containment booms and sweeps on the Schuylkill River, application of approximately 25 bags of oil dry material, isolation and removal of oil contaminated debris, removal of the contaminated debris between the sheet pile walls, and vacuuming of oil and water from around the exterior of the sewer boxes that overflowed. In addition, the release area was covered with a heavy polyethylene sheet and weighed down with sandbags to prevent the migration of contaminants in anticipation of a forecasted rain event. The excavated soil was transported to Waste Management, LA for recycling. Soil sampling was conducted to fully characterize the area and to support an evaluation in accordance with the requirements of Act 2 to determine whether additional action is warranted.

Standards Selection Section

Check all the boxes that apply for the appropriate contaminant groups according to the standard(s) and media of the remediation to be performed.

NOTE: Either the site-specific standard or a special industrial area requires a 30-day public and municipal comment period.

Contaminant Groups	Background		Statewide Health–Residential		Statewide Health–Non-Residential		††Site-Specific Standard		††Special Industrial Area	
	Soil	GW	Soil	GW	Soil	GW	Soil	GW	Soil	GW
Aviation Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diesel Fuel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel Oil No. 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel Oil No. 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"/>
Fuel Oil No. 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"/>
Fuel Oil No. 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel Oil No. 6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kerosene	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jet Fuel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leaded Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
New Motor Oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unleaded Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Used Motor Oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chlorinated Solvents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inorganics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lead	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MTBE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other Organics	<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"/>
PAHs	<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"/>
PCBs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pesticides	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PFAS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

GW: groundwater

†† Changing the selected standard from either background or Statewide health to the site-specific standard, changing to a combination of standards that includes the site-specific standard, or choosing the special industrial area designation requires a new NIR submission with new public and municipal notifications.

Please list individual contaminants here, by environmental medium and cleanup standard (optional):

Soil (Statewide Health - Non-Res): benzene, cumene, ethylbenzene, toluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, xylenes, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, fluorene, naphthalene, phenanthrene, and pyrene.

Property Owner, Remediator/Participant, and Consultant

Complete the form below for each recipient obtaining a release of liability upon approval of the final report. Attach additional sheets as necessary.

Property Owner

Contact Person/Title Anne R. Garr / Assistant Secretary eFACTs Client ID(If Known) Facility No. 51-33624
 Phone Number (312) 283-4469 Email Address agarr@hilcoglobal.com
 Company Name Philadelphia Energy Solutions Refining and Marketing LLC EIN or Federal ID # _____
 Address (street, city, state, zip) 3144 West Passyunk Avenue, Philadelphia, PA 19153
 Client Type (choose from list below) Limited Liability Company

Client Types:

Association/Organization

Authority

County

Estate/Trust

Federal Agency

Individual

Limited Liability company

Limited Liability Partnership

Municipality

Non-Pennsylvania

Government

Other (Government)

Other (Non-Government)

Partnership-General

Partnership-Limited

Pennsylvania Corporation

School District

Sole Proprietorship

State Agency

Consultant

Contact Person/Title Kevin Long/Principal Consultant Email Address kevin.long@terrphase.com
 Phone Number 609-236-8171, ext 93 Company Name Terraphase Engineering Inc.
 Address (street, city, state, zip) 100 Canal Pointe Blvd, Suite 110, Princeton, NJ 08540

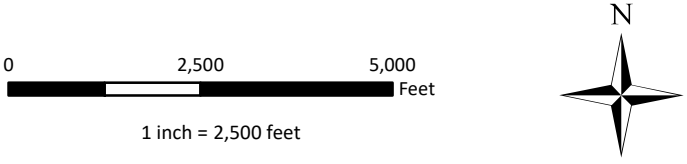
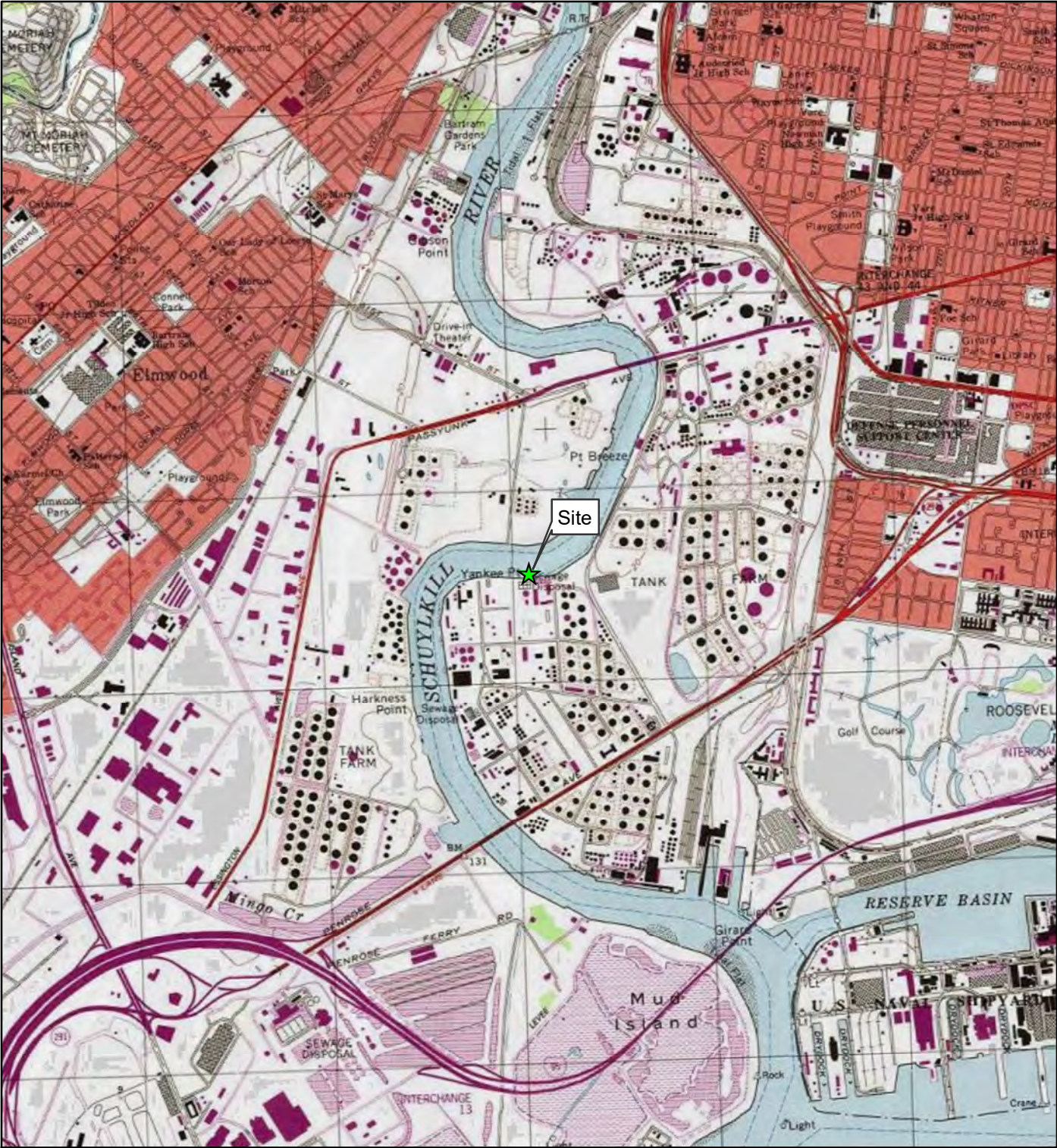
Other Participant (Remediator)

Contact Person/Title Anne R. Garr / Assistant Secretary
 Relationship to Site Owner
 (e.g. remediator, participant in cleanup if other than owner, etc.)
 Phone Number (312) 283-4469 Email Address agarr@hilcoglobal.com
 Company Name Philadelphia Energy Solutions Refining and Marketing LLC EIN or Federal ID # _____
 Address (street, city, state, zip) 3144 West Passyunk Avenue, Philadelphia, PA, 19153

Preparer of Notice of Intent to Remediate

Name Kevin Long Title Principal Consultant
 Phone Number 609-236-8171, ext 93 Email Address kevin.long@terrphase.com
 Company Name Terraphase Engineering Inc.
 Address (street, city, state, zip) 100 Canal Pointe Blvd, Suite 110, Princeton, NJ 08540


File: N:\GIS\Prj\P044.001_PESRM-PE\WDX\No. 4 Separator Release Area\20240214\ Figure 1 - Site Location Map.mxd 2/14/2024 Created by: M.Civillito Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Legend

★ Site Location

Base Map: USGS Philadelphia (1995) 7.5 Minute Quadrangle.

SAFETY FIRST 	CLIENT:	Philadelphia Energy Solutions Refining and Marketing LLC
	PROJECT:	No. 4 Separator Release Area
	PROJECT NUMBER:	P044.001.012

Site Location Map

FIGURE 1



March 8, 2024

Ms. Leigh Anne Rainford
Program Manager
Philadelphia Department of Public Health
Environmental Health Services
321 University Avenue – 2nd Floor
Philadelphia, PA 19104

sent via email to LeighAnne.Rainford@Phila.gov and UPS, Proof of Delivery Requested

**Subject: Notice of Intent to Remediate
0.032-acre Area at the Former Philadelphia Energy Solutions Refinery
No. 4 Separator Release
3144 West Passyunk Avenue, Philadelphia, PA 19153**

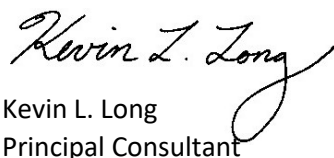
Dear Ms. Rainford:

The Land Recycling and Environmental Remediation Standards Act (Act 2) requires that a Notice of Intent to Remediate (NIR) be provided to the municipality in which the site is located. In accordance with this provision of Act 2, Terraphase Engineering Inc. (Terraphase), on behalf of Philadelphia Energy Solutions Refining and Marketing LLC (PESRM), is formally notifying you of PESRM's intent to remediate the above-referenced site to the non-residential Statewide Health Standard. A copy of the NIR, which will be sent to the Department of Environmental Protection (DEP), is enclosed. This notice will also be published in the Pennsylvania Bulletin, and a summary of the notice will be placed in a local newspaper.

Should you have any questions or comments regarding the proposed remediation, please contact me at kevin.long@terraphase.com or 609-236-8171, ext. 93.

Sincerely,

for Terraphase Engineering Inc.


Kevin L. Long
Principal Consultant

KL:cs

Enclosure: Notice of Intent to Remediate

cc: Julianna Connolly (jconnolly@hilcoglobal.com)
Amy Piccone (apiccone@hilcoglobal.com)

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number

1Z75YA670120611804

Weight

0.50 LBS

Service

UPS Next Day Air®

Shipped / Billed On

03/07/2024

Delivered On

03/11/2024 9:54 A.M.

Delivered To

PHILADELPHIA, PA, US
Received By

BROWN

Left At

Office

Please print for your records as photo and details are only available for a limited time.

Sincerely,

UPS

Tracking results provided by UPS: 03/12/2024 9:09 A.M. EST

**Notice of an Intent
to Remediate to an Environmental Standard.
(Sections 302(e)(1)(ii), 303(h)(1)(ii),
304(n)(1)(i), and 305(c)(1))**

Pursuant to the Land Recycling and Environmental Remediation Standards Act, the act of May 19, 1995, P.L. 4, No. 1995-2., notice is hereby given that Philadelphia Energy Solutions Refining and Marketing LLC (PESRM) will submit to the Pennsylvania Department of Environmental Protection a Notice of Intent to Remediate (NIR) a site located at 3144 West Passyunk Avenue, Philadelphia. This NIR states the site is an approximate 0.032-acre area referred to as the “No. 4 Separator Release Area” at the former Philadelphia refinery. The site has been found to be contaminated with petroleum constituents in soil. PESRM has selected the Statewide health cleanup standard and the remediation measures consisted of soil excavation and disposal. The proposed future use of the property will be non-residential (i.e., commercial/industrial) use.

The Philadelphia Inquirer

100 S. INDEPENDENCE MALL W, STE 600, PHILADELPHIA, PA 19106

Affidavit of Publication

On Behalf of:
TERRAPHASE ENGINEERING
1100 E HECTOR ST
SUITE 416
CONSHOHOCKEN, PA 19428

STATE OF PENNSYLVANIA COUNTY OF PHILADELPHIA:

Before the undersigned authority personally appeared the undersigned who, on oath represented a and say: that I am an employee of The Philadelphia Inquirer, LLC, and am authorized to make this affidavit of publication, and being duly sworn, I depose and say:

1. The Philadelphia Inquirer, LLC is the publisher of the Philadelphia Inquirer, with its headquarters at 100 S. Independence Mall West, Suite 600, Philadelphia, PA 19106.
2. The Philadelphia Inquirer is a newspaper that which was established in in the year 1829, since which date said daily newspaper has been continuously published and distributed daily in the City of Philadelphia, count and state aforesaid.
3. The printed notice or publication attached hereto set forth on attached hereto was published in all regular print editions of The Philadelphia Inquirer on

Legal Notices

as published in Inquirer Legals in the issue(s) of:

3/11/2024

4. Under oath, I state that the following is true and correct, and that neither I nor The Philadelphia Inquirer, LLC have any interest in the subject matter of the aforesaid notice or advertisement.



Nancy S. Fisher

Notary Public

My Commission Expires:

Commonwealth of Pennsylvania - Notary Seal
Nancy S Fisher, Notary Public
Philadelphia County
My Commission Expires June 27, 2027
Commission Number 1433937

Ad No: 158592

Customer No: 104799

COPY OF ADVERTISEMENT

Notice of an Intent to Remediate to an Environmental Standard. (Sections 302(e)(1)(ii), 303(h)(1)(ii), 304(n)(1)(i), and 305(c)(1))

Pursuant to the Land Recycling and Environmental Remediation Standards Act, the act of May 19, 1995, P.L. 4, No. 1995-2., notice is hereby given that Philadelphia Energy Solutions Refining and Marketing LLC (PESRM) will submit to the Pennsylvania Department of Environmental Protection a Notice of Intent to Remediate (NIR) a site located at 3144 West Passyunk Avenue, Philadelphia. This NIR states the site is an approximate 0.032-acre area referred to as the "No. 4 Separator Release Area" at the former Philadelphia refinery. The site has been found to be contaminated with petroleum constituents in soil. PESRM has selected the Statewide health cleanup standard and the remediation measures consisted of soil excavation and disposal. The proposed future use of the property will be non-residential (i.e., commercial/industrial) use.



April 1, 2024

Ms. Anne R. Garr
Philadelphia Energy Solutions Refining and Marketing LLC
3144 West Passyunk Avenue
Philadelphia, PA 19153

Re: Receipt of Notice of Intent to Remediate
Statewide Health Standard
No. 4 Separator Release
eFACTS PF No. 874442
eFACTS Activity No. 59941
3144 West Passyunk Avenue
City of Philadelphia
Philadelphia County

Dear Ms. Garr:

This letter acknowledges receipt of your Notice of Intent to Remediate (NIR) on March 12, 2024, pertaining to the subject property and submitted in accordance with the Land Recycling and Environmental Remediation Standards Act (Act 2). The procedures set forth in Act 2 must be followed in order for this site to qualify for the liability protection provided by the Act. If in the future you choose to select either the Site-Specific Standard or choose to use the special industrial area provisions in Subchapter E of the Chapter 250 regulations, you will need to resubmit the NIR and follow the requirements relating to public involvement plan coordination with the local municipality. Please contact this office if you need advice on these requirements.

A Final Report, accompanied by the required fee, should be submitted to the Department of Environmental Protection (DEP) upon completion of remediation. Include documentation verifying compliance with the public notification requirements.

Additional technical and program information can be found at www.dep.pa.gov, under Business>Land>Land Recycling. Also, please refer to the Land Recycling checklists which are helpful in assuring reports are complete before submittal. DEP uses the checklists to perform administrative and technical completeness reviews when plans and/or reports are submitted. It is strongly encouraged to include the appropriate completed checklist with your Final Report submission. Land Recycling checklists can also be found at the website under 'Forms, Checklists & Notifications' link.

Please refer to the enclosed Standard Attachment for considerations of other programs which may be applicable to this property.

Matthew Sabetta is the project officer assigned to your project and will be working with you towards the remediation of this property. Frequent contact is encouraged between your representatives and our staff. If you have any questions or need further clarifications of our procedures, please contact the project officer by email at msabetta@pa.gov or by telephone at 484.250.5788.

Sincerely,

C. David Brown, P.G.
Professional Geologist Manager
Environmental Cleanup and Brownfields

Enclosure: Standard Attachment

cc: Philadelphia Department of Health
Mr. Long (Terraphase Engineering Inc)
Mr. Sabetta, PG
Ms. Bass
Re 30 (cb24ecb) 874442-03292024-NIR

FINAL REPORT SUMMARY

The Final Report Summary (FRS) is a brief report consisting of set of data required in addition to the Act 2 Final Report. The summary is used in part as a reference to the Final Report Approval Letter which conveys liability relief to the remediator and other applicable persons. It is of value long after the remediation to be used by the public and Department in understanding key information about the site and remediation.

This use is increased by the fact that it will ultimately be merged into the Department's eFACTS system, which allows the public to have the ease of computer access to environmental information at sites. For more information, see www.ahs.dep.pa.gov/eFACTSWeb/default.aspx. Finally, the summary will be used by the Department to help to better assess the status and the level of success of the program. In the past, numbers of sites remediated has been tracked. With the inclusion of this summary information, progress can be tracked in many specific ways, including identification of individual chemical constituents, and the mass treated, removed or managed safely in place.

Identification

Property Name No. 4 Separator Release

Property Descriptor Former Philadelphia Energy Solutions Refinery

Address / Location

Address 3144 West Passyunk Ave

City Philadelphia Zip Code 19153

Municipality(s) Philadelphia County(ies) Philadelphia County

Latitude 39 ° (deg). 54 ' (min) 35 " (sec) Longitude 75 ° (deg). 12 ' (min) 31 " (sec)

Horizontal Collection Method GIS

Horizontal Reference Datum NAD83 Reference Point See Figure 1 attached

Property Specifics

Size of Property 1,300-acre Number of Sites 1

Combined acreage of sites 0.15

Remediation

Standards attained or special industrial area attainment. (Check all that apply. Can use multiple.)

☐ Background ☒ Statewide Health ☐ Site-Specific ☐ Special Industrial Area

Proposed future property use - scenario for which the attainment of Statewide Health standard is demonstrated

☐ Residential ☒ Non-residential

List of contaminants

Soils

Chemical Name	CAS Number	Mass Contaminant Treated or Removed (lbs.)	Mass Contaminant Managed on Site (lbs.)
Benzene	71-43-2	0.003	
Cumene	98-82-8	0.007	
Ethylbenzene	100-41-4	0.006	
1,2,4-trimethylbenzene	95-63-6	0.015	
1,3,5-trimethylbenzene	108-67-8	0.012	
toluene	108-88-3	0.006	
Xylenes	1330-20-7	0.006	
Anthracene	120-12-7	0.050	
Benzo(a)anthracene	56-55-3	0.050	
Benzo(a)pyrene	50-32-8	0.067	

Groundwater

Chemical Name	CAS Number	Mass Contaminant Treated or Removed (lbs.)	Mass Contaminant Managed on Site (lbs.)
Soils Continued			
Benzo(b)fluoranthene	205-99-2	0.050	
Benzo(g,h,i)perylene	191-24-2	0.067	
Chrysene	218-01-9	0.050	
Fluorene	86-73-7	0.083	
Naphthalene	91-20-3	0.018	
Phenanthrene	85-01-8	0.053	
Pyrene	129-00-0	0.053	

Remediation

Number of sampling rounds for groundwater attainment: NA

Special Features

Non-use aquifer approval date: NA

Area-wide background approval date: NA

Amount of waste removed other than soil or groundwater (cubic yards): NA

☐ Municipal ordinance prohibiting groundwater use:

☒ **Post remediation care plan:**

In accordance with Sections III.E.3, IV.A, and IV.H of the Land Recycling Program Technical Guidance Manual (PADEP 2021), institutional and, as needed, engineering controls will be implemented as part of a post-remediation care plan to maintain attainment of the SHS, in the event that occupied buildings are planned in proximity to the Site. As an institutional control, prior to their construction and occupancy, on-facility buildings which could be occupied in the future will be subject to vapor intrusion investigation and evaluation to determine if conditions (i.e., volatilization of COPC from soil, groundwater, and/or light non-aqueous phase liquid) could pose an unacceptable risk to occupants. As needed, vapor mitigation systems will be incorporated into the design and construction of such buildings as engineering controls where potentially unacceptable vapor intrusion risks are identified. These activities and use limitations will eliminate the potential for future unacceptable exposures to COPC at the Site via vapor intrusion.

Other Programs

- ☐ Key Site
- ☐ Multi-site Agreement; Date: _____
- ☐ Enterprise Zone
- ☒ Keystone Opportunity Zone

Administrative

- ☐ Municipality request for public involvement plan

Deed notification

- ☐ Deed acknowledgment:

NA

- ☐ Environmental covenant:

NA

Cleanup cost (\$): 50,000

Jobs created/saved: NA

Narrative: Provide property history and description, site characterization findings, site description, summary of remediation, summary of attainment demonstration, description of pathway elimination, engineering and institutional controls, and benefits of land reuse, when applicable.

On October 8, 2022, a release from the No. 4 Separator occurred as a result of an overflow from the unit due to a check valve failure and backflow from Tank 1136 to the No. 4A Separator. NorthStar Contracting Group, Inc. (NorthStar) is a contractor for the property owner, Philadelphia Energy Solutions Refining and Marketing LLC (PESRM), responsible for operating the on-site industrial wastewater treatment plants. Based upon the information provided by NorthStar Contracting Group, Inc. (NorthStar), the oil and water level rose over a portion of the Separator's wall and then flowed along the overland grade of the adjacent roadway and eventually reached the bulkhead along the Schuylkill River. Oil and water then migrated through gaps in the sheet pile bulkheads and entered the Schuylkill River. Oil and water also entered the on-site sewer system and overflowed at several sewer box and sewer inlet locations along the bulkhead. The release area was approximately 6,700 square feet. Following the initial release, a prompt interim response was completed, including a shallow surface soil excavation. Soil sampling was conducted to fully characterize the area and to support an evaluation in accordance with the requirements of Act 2. Based on results of attainment soil sampling, the identified chemical concentrations demonstrate attainment of the Nonresidential SHS MSCs and all the requirements of the SHS have been met.

Remediator / Property Owner / Consultant. Complete the form below for each recipient obtaining a release of liability upon approval of the final report. Attach additional sheets as necessary.

Remediator

Contact Person/Title Anne R. Garr/Assistant Secretary eFACTS Client ID* Facility ID No. 51-33620
 Relationship to Site Owner Client Type* LLC
 (e.g. owner, remediator, participant in cleanup, consultant, etc.)
 Phone Number (312) 283-4469 Email Address agarr@hilcoglobal.com
 Company Name Philadelphia Energy Solutions Refining and Marketing LLC EIN or Federal ID # _____
 Street Address 3144 W. Passyunk Avenue
 City Philadelphia State PA Zip Code 19153

Property Owner

Contact Person/Title Anne R. Garr/Assistant Secretary eFACTS Client ID* Facility ID No. 51-33620
 Relationship to Site Owner Client Type* LLC
 (e.g. owner, remediator, participant in cleanup, consultant, etc.)
 Phone Number (312) 283-4469 Email Address agarr@hilcoglobal.com
 Company Name Philadelphia Energy Solutions Refining and Marketing LLC EIN or Federal ID # _____
 Street Address 3144 W. Passyunk Avenue
 City Philadelphia State PA Zip Code 19153

Consultant

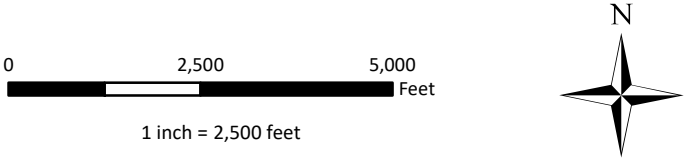
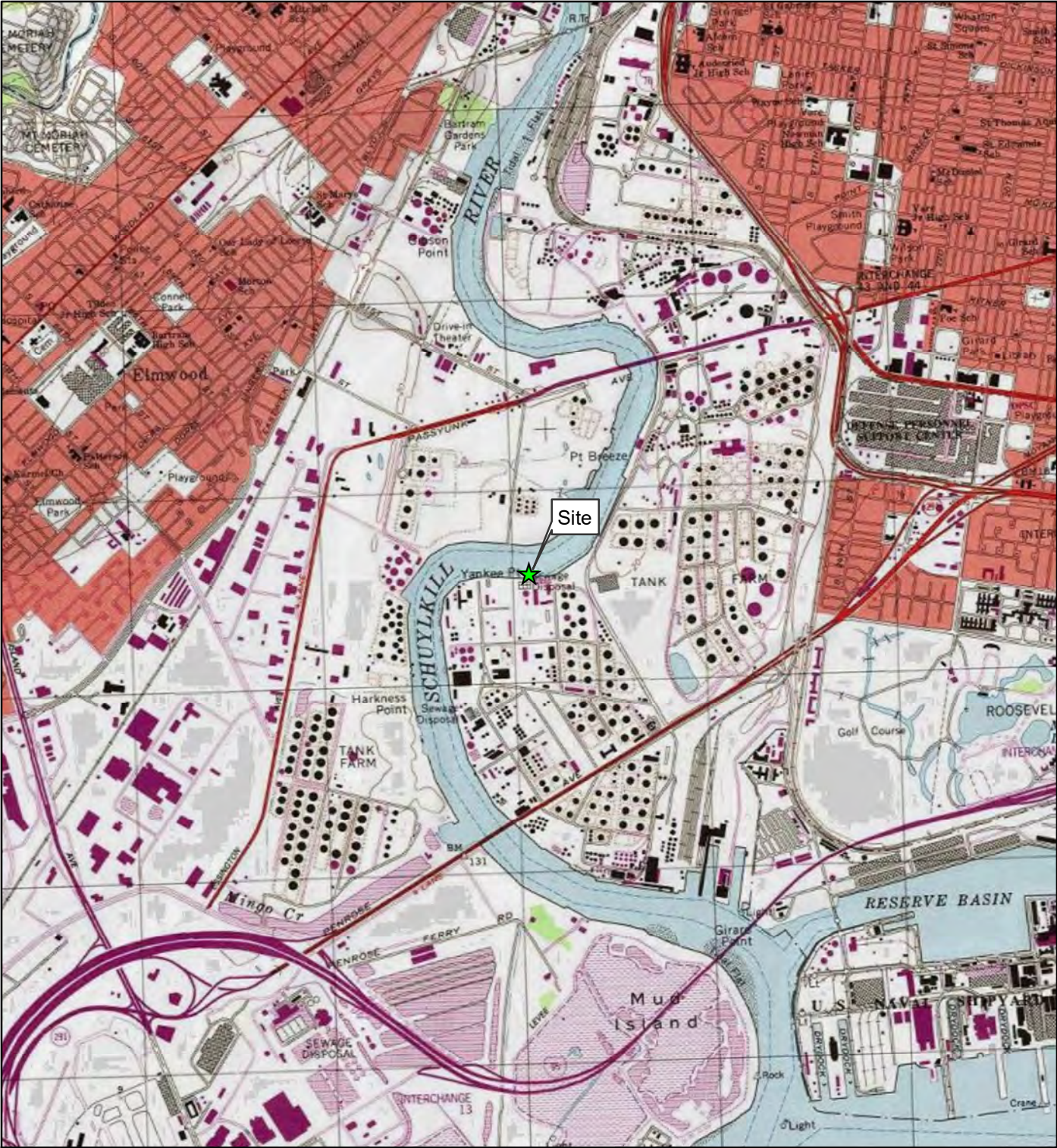
Contact Person/Title Kevin Long / Principal Consultant eFACTS Client ID* _____
 Relationship to Site Consultant Client Type* Corporation
 (e.g. owner, remediator, participant in cleanup, consultant, etc.)
 Phone Number 609-236-8171, ext 93 Email Address kevin.long@terraphase.com
 Company Name Terraphase Engineering Inc. EIN or Federal ID # *27-3543127*
 Street Address 100 Canal Pointe Blvd, Suite 110
 City Princeton State NJ Zip Code 08540

*Include eFACTS Client ID (if known) – “Client Types” below:

Association/Organization	Limited Liability Company	Partnership-General
Authority	Limited Liability Partnership	Partnership-Limited
County	Municipality	School District
Estate/Trust	Non-Pennsylvania Government	Sole Proprietorship
Federal Agency	Other (Non-Government)	State Agency
Individual	Pennsylvania Corporation	

Attachments: In addition to the data entered in this FRS, the Department requests scanned image(s) of a map view of the site indicating, at a minimum, the boundaries of the "site" relative to the locations of the adjacent property boundaries. The location of the site (as defined by Act 2) is that which will receive the liability relief conveyed by Act 2, Chapter 5. The maps may portray other features but should clearly show the Act 2 site boundaries. You may also attach other applicable image files or attachments. These files should be in Adobe Acrobat (*.pdf), GIF (*.gif) or JPEG file interchange format (*.jpg).


File: N:\GIS\Prj\044_001_PESRM-PE\WDX\No. 4 Separator Release Area\20240214\ Figure 1 - Site Location Map.mxd 2/14/2024 Created by: M.Civillito Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Legend

★ Site Location

Base Map: USGS Philadelphia (1995) 7.5 Minute Quadrangle.

SAFETY FIRST 	CLIENT:	Philadelphia Energy Solutions Refining and Marketing LLC
	PROJECT:	No. 4 Separator Release Area
	PROJECT NUMBER:	P044.001.012

Site Location Map

FIGURE 1

**Notification of Receipt of a Final Report
(for Statewide health standard).
(Sections 302(e)(2), 303(h)(2))**

Notice is hereby given that Philadelphia Energy Solutions Refining and Marketing LLC (PESRM) will submit a final report to the Pennsylvania Department of Environmental Protection, Southeast Regional Office, to demonstrate attainment of the Statewide health standard for the No. 4 Separator Release area (eFACTS 874442) within the Former Philadelphia Refinery located at 3144 West Passyunk Avenue, Philadelphia, Pennsylvania. PESRM has indicated that the remediation measures taken have attained compliance with the Statewide health cleanup standard established under the Land Recycling and Environmental Remediation Standards Act.

This notice is made under the provision of the Land Recycling and Environmental Remediation Standards Act, the Act of May 19, 1995, P.L. #4, No. 2.

The Philadelphia Inquirer

100 S. INDEPENDENCE MALL W, STE 600, PHILADELPHIA, PA 19106

Affidavit of Publication

On Behalf of:
TERRAPHASE ENGINEERING
1100 E HECTOR ST
SUITE 400
CONSHOHOCKEN, PA 19428

STATE OF PENNSYLVANIA COUNTY OF PHILADELPHIA:

Before the undersigned authority personally appeared the undersigned who, on oath represented a and say: that I am an employee of The Philadelphia Inquirer, LLC, and am authorized to make this affidavit of publication, and being duly sworn, I depose and say:

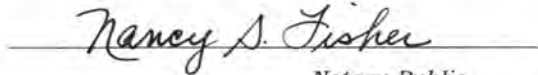
1. The Philadelphia Inquirer, LLC is the publisher of the Philadelphia Inquirer, with its headquarters at 100 S. Independence Mall West, Suite 600, Philadelphia, PA 19106.
2. The Philadelphia Inquirer is a newspaper that which was established in in the year 1829, since which date said daily newspaper has been continuously published and distributed daily in the City of Philadelphia, count and state aforesaid.
3. The printed notice or publication attached hereto set forth on attached hereto was published in all regular print editions of The Philadelphia Inquirer on

Legal Notices

as published in Inquirer Legals in the issue(s) of:

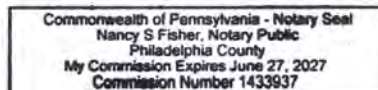
4/6/2024

4. Under oath, I state that the following is true and correct, and that neither I nor The Philadelphia Inquirer, LLC have any is interest in the subject matter of the aforesaid notice or advertisement.



Notary Public

My Commission Expires:



COPY OF ADVERTISEMENT

Notification of Receipt of a Final Report (for Statewide health standard). (Sections 302(e)(2), 303(h)(2))

Notice is hereby given that Philadelphia Energy Solutions Refining and Marketing LLC (PESRM) will submit a final report to the Pennsylvania Department of Environmental Protection, Southeast Regional Office, to demonstrate attainment of the Statewide health standard for the No. 4 Separator Release area (eFACTS 874442) within the Former Philadelphia Refinery located at 3144 West Passyunk Avenue, Philadelphia, Pennsylvania. PESRM has indicated that the remediation measures taken have attained compliance with the Statewide health cleanup standard established under the Land Recycling and Environmental Remediation Standards Act. This notice is made under the provision of the Land Recycling and Environmental Remediation Standards Act, the Act of May 19, 1995, P.L. #4, No. 2.

Ad No: 160995

Customer No: 104799



April 4, 2024

Ms. Leigh Anne Rainford
Program Manager
Philadelphia Department of Public Health
Public Health Services
321 University Avenue – 2nd Floor
Philadelphia, PA 19104

sent via email to LeighAnne.Rainford@Phila.gov and UPS, Proof of Delivery Requested

Subject: Notice of Final Report Submission (eFACTS 874442)
No. 4 Separator Release
Former Philadelphia Energy Solutions Refinery
3144 West Passyunk Avenue
Philadelphia, PA 19153

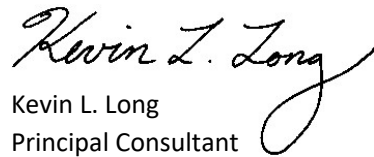
Dear Ms. Rainford:

This letter provides notice that Terraphase Engineering Inc. (Terraphase), on behalf of Philadelphia Energy Solutions Refining and Marketing LLC (PESRM), will submit a final report to the Department of Environmental Protection for the No. 4 Separator Release area (eFACTS 874442) within the Former Philadelphia Refinery located at 3144 West Passyunk Avenue, Philadelphia, Pennsylvania. The final report indicates that the remediation performed has attained compliance with the Statewide health cleanup standard.

This notice is made under the provision of the Land Recycling and Environmental Remediation Standards Act, the Act of May 19, 1995, P.L. 4, No. 2.

Sincerely,

for Terraphase Engineering Inc.


Kevin L. Long
Principal Consultant

KL:cs

cc: Julianna Connolly (jconnolly@hilcoglobal.com)
Amy Piccone (apiccone@hilcoglobal.com)

Alexander Strohl

From: Leigh-Anne Rainford <LeighAnne.Rainford@phila.gov>
Sent: Friday, April 5, 2024 6:56 AM
To: Alexander Strohl
Cc: Rachel Weaver; Nick Scala; Kevin Long; Connolly, Julianna; Piccone, Amy; Chris Voci
Subject: Re: Notice of Final Report Submission - Former PES Refinery - No. 4 Separator Release

Received.

Thank you.

****Please note our address change***

Leigh Anne Rainford, MPH
Program Administrator of Food Protection and Environmental Engineering
Environmental Health Services | Philadelphia Department of Public Health
7801 Essington Avenue – 2nd Floor | Philadelphia, PA 19153
Phone: (215) 685 – 7497 | Fax: (215) 382 – 1210
LeighAnne.Rainford@Phila.gov



From: Alexander Strohl <alexander.strohl@terrphase.com>
Sent: Thursday, April 4, 2024 1:08 PM
To: Leigh-Anne Rainford <LeighAnne.Rainford@phila.gov>
Cc: Rachel Weaver <rachel.weaver@terrphase.com>; Nick Scala <nick.scala@terrphase.com>; Kevin Long <kevin.long@terrphase.com>; Connolly, Julianna <jconnolly@hilcoglobal.com>; Piccone, Amy <apiccone@hilcoglobal.com>; Chris Voci <chris.voci@terrphase.com>
Subject: Notice of Final Report Submission - Former PES Refinery - No. 4 Separator Release

External Email Notice. This email comes from outside of City government. Do not click on links or open attachments unless you recognize the sender.

Ms. Rainford,

Attached to this email is a copy of a letter issued to you today by Terraphase on behalf of Philadelphia Energy Solutions Refining and Marketing LLC (PESRM). The letter provides notification to the Philadelphia Department of Public Health of a submission of a final report relating to the investigation and remediation of the No. 4 Separator Release. This area is located at the former Philadelphia Energy Solutions (PES) Refinery at 3144 W. Passyunk Ave., in Philadelphia. The report indicates that the remediation performed has attained compliance with the Statewide health cleanup standard.

Thank you.

Alexander Strohl, PG

Project Geologist

1100 East Hector Street, Suite 400

Conshohocken, PA 19428

C: 570.447.0558

www.terrphase.com



This e-mail (including any attachments to it) is intended solely for the use of the individual(s) or entity named above. It may contain confidential or privileged information. If you are not the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this communication is strictly prohibited. If you have received this communication in error, please notify the sender immediately and delete the original message.



Land Recycling Program Transmittal Sheet for Plan/Report Submission

Instructions: Please provide all requested information in each of the four sections. This transmittal sheet shall accompany any plan/report submitted to the Department under the Land Recycling Program. Proper completion of the Transmittal Sheet will assist Department review and may avoid a finding of plan/report deficiency. The Facility ID number can be obtained from the Department's Environmental Cleanup Program in the region where the site is located.

Section 1 - Site Identification

eFACTS Facility ID 874442_____

Site Name No. 4 Separator Release

Site Address 3144 West Passyunk Ave., Philadelphia, PA 19153

Municipality and County Philadelphia, Philadelphia County

Section 2 - Remediation Standard . . Plan/Report . . Fees

Identify the remediation standard being pursued and the type of plan/report being submitted. Please note required Department fees follow each type of plan/report.

Check the relevant standard and the type of plan/report being submitted.

☐ Background Standard
Final Report (\$250 fee)

☒ Statewide Health Standard*
Final Report (\$250 fee)

☐ Site-Specific Standard

☐ Special Industrial Area

☐ Remedial Investigation Report
(\$250 fee)

☐ Work Plan
(no fee)

☐ Risk Assessment Report
(\$250 fee)

☐ Baseline Environmental Report
(no fee)

☐ Cleanup Plan (\$250 fee)

*A final report submitted under a combination of cleanup standards should be accompanied with a fee representing the higher of the two standards' final report fee.

☐ Final Report (\$500 fee)*

Ensure your check covers all required fees and is made payable to the **Commonwealth of Pennsylvania**.

Section 3 - Municipal/Public Notice Confirmation

There are two stages in the Land Recycling Program where municipal and public notices are required. Read the information associated with each stage. You will be asked to confirm that information establishing your compliance with these notification requirements has been included with this submission.

☐ Check here if you are planning to meet the Background or Statewide Health Standard and your Final Report has been submitted within 90 days of the release.

Indicate date of release here _____

No further completion of this section is required if your Final Report for these two standards conforms to the 90 day time frame.

Stage 1 - Notice of Intent to Remediate (NIR)

- ☒ Check here to confirm you have included proof that a copy of your NIR was provided to each municipality where your site is located. Proof will be a copy of your cover letter and a copy of a signed certified mail receipt slip from the municipality.
- ☒ Check here to confirm a copy of a proof of publication document from a newspaper serving the area of your site has been included with this submission.
- ☐ Check here to indicate that a Site-Specific Standard or a Special Industrial Area is involved and a municipal request was received for development of a public involvement plan. The plan/report submission shall include municipality and public comments, which were submitted, and your responses to those comments.

Stage 2 - Cleanup Plan/Report Submission

4/4/2024 Place date here that each municipality was notified of any plan or report submitted under any of the three remediation standards.

Philadelphia Inquirer 4/6/2024 Place the newspaper name and date that your notice of your plan/report submission was published.

Section 4 - Project Contact

On the lines below, place the name, company, mailing addresses and business phone number of the individuals who can be contacted regarding this submission:

Consultant

Contact Person/Title: Kevin Long / Principal Consultant

Phone Number 609-236-8171, ext 93

Email Address kevin.long@terrphase.com

Company Name: Terraphase Engineering Inc.

Mailing Address (street, city, state, zip)

100 Canal Pointe Blvd, Suite 110, Princeton, NJ 08540

Remediator

Contact Person/Title: Anne R. Garr / Assistant Secretary

Phone Number (312) 283-4469

Email Address agarr@hilcoglobal.com

Company Name: Philadelphia Energy Solutions Refining and Marketing LLC

Mailing Address (street, city, state, zip)

3144 West Passyunk Avenue Philadelphia, PA 19153

Other

Contact Person/Title: _____

Relationship to Site _____

(e.g. owner, participant in cleanup, responsible party, etc.)

Phone Number _____

Email Address _____

Company Name: _____

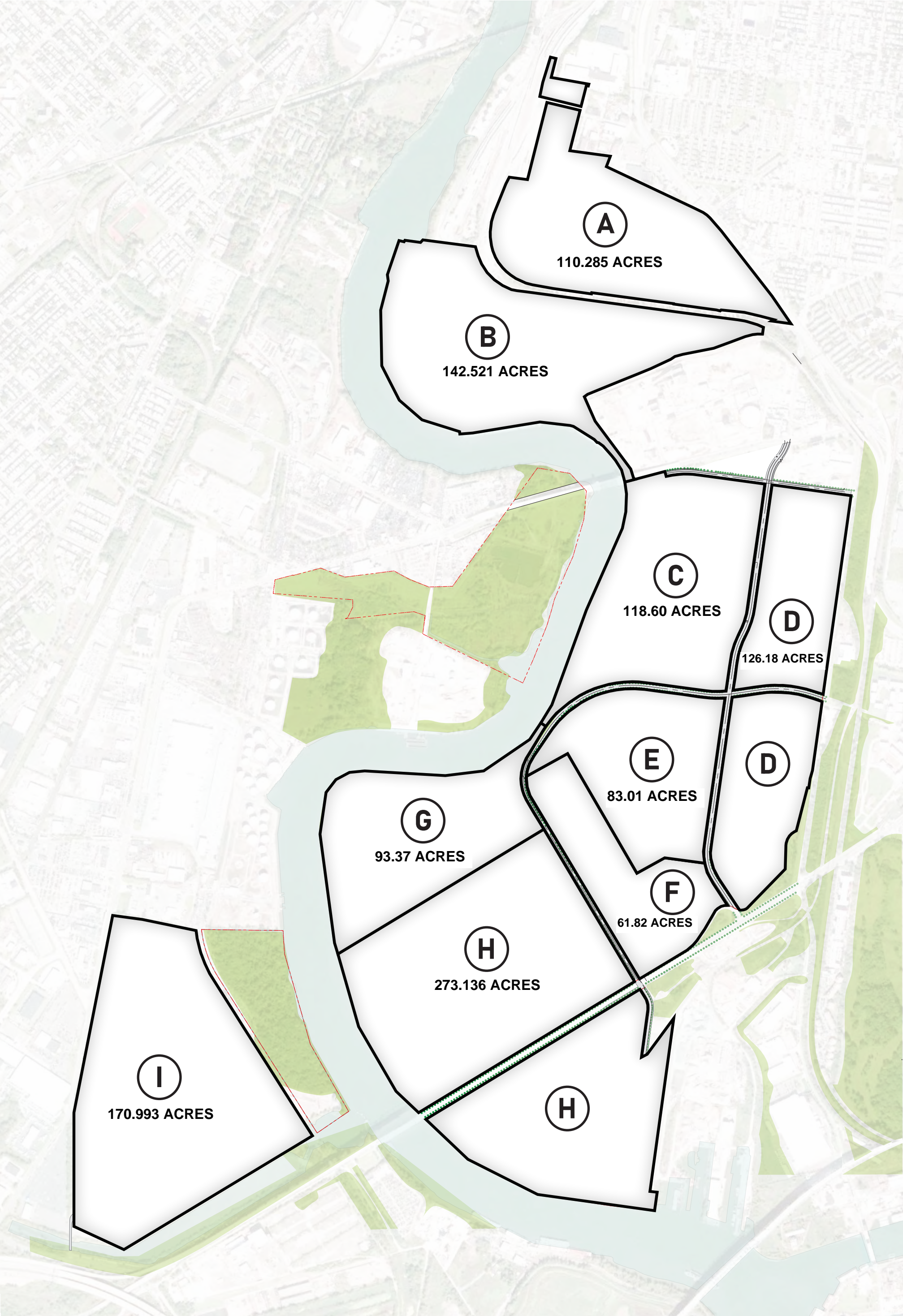
Mailing Address (street, city, state, zip)

Appendix B

Parcel Map



INDIVIDUAL PARCEL MAP



Appendix C

NorthStar Interim Response Documentation





ENVIRONMENTAL INCIDENT REPORT

Date of Incident: 10/8/2021

Time of Incident: 2330 hrs.

Date of Report: 10/11/2021

10/21/2022

Report Author: Robert Armstrong
Sr. Project Manager, NorthStar Contracting Group, Inc.

Current Revision Date:

Incident information & Location:

At 2330 hrs. Mike Kenney (Emergency and Incident Response Coordinator) was notified that oil was seen in the river along the bulkhead near #4 separator. Mr. Kenney, subsequently made the notification to the NRC and the Pennsylvania DEP. A potential combination of mechanical and electrical failures have been isolated and currently appear to be the likely cause of the separator overflow and release to the environment (the failure is still being investigated at the time of this initial incident report) The primary pump check valve may be stuck open allowing the T-400 tank to backflow into the separator (yet to be confirmed), the high level alarm communication wire was found to be severed, preventing the alarm from alerting the operators in the control room at the WWTP; and potential pump and/or radar level sensor failure preventing the system from activating and maintaining an operationally safe level within the separator. this resulted in the oil and water level to rise over a portion of the separator wall and then follow the grade of the adjacent roadway, eventually finding it's way to the bulkhead along the river. once the oil/water encountered the bulkhead the only available pathway to the river was through the space where the sections of steel sheet piling interlock. this along with the tidal changes provided the pathway for the oil to enter the Schuylkill River. Upon discovery personnel and resources were immediately allocated and deployed to respond to the incident. The cleanup and mitigation effort has continued since the initial discovery of oil entering the river and is ongoing at the time this initial report on Tuesday 10/11/22. Key response activities are outlined in the event timeline tab of this report. actions taken to date include the prevention of further migration of oil into the river, deployment of containment boom and sweep, isolating any oil contaminated debris from movement up and down river with tidal flows, the removal of contaminated debris between the inner and outer bulkheads, the recovery of all free liquid contamination along the roadway and bulkhead, vacuuming of oil and water from around the exterior of the sewer boxes that overflowed. Activities that will continue or begin during the current operational period include ongoing removal of oil and water from the affected sewer boxes, the excavation of oil contaminated soils, removal of contaminated debris from the river inside the containment boom and any directives that are issued in the coming days.

Causes & Corrective Actions: (If Applicable - Provide Recognition for Notable and/or Positive Actions that Occurred During the Incident)

Finding:	<p>At the time of this report creation potential causes that are being investigated include : possible faulty check valve failing to close and allowing 1136 to drain back to the separator, a power failure at the separator due to circuit overload; and the failure of system safeguards such as high level alarms and radar level control. The investigation is ongoing, but as of 1600 hrs. on 10/11/2022 after several interviews and confirmation from mechanical and electrical personnel at the facility, The root cause of the release stems from mechanical failure of the high level alarm and failure of the pumps to cycle on and off unrelated to the high level alarm failure. It was discovered and confirmed that the conduit that connects the block house control room and the alarm at the separator was severed and currently remains severed. At this time it is unknown as to when the conduit containing the wire to the high level alarm was severed, but it was severed in several locations, and likely occurred at different times at different locations, but likely a direct result of demolition activities. due to the small size of the conduit it likely wasn't noticed by the demolition crew. The pumps failing to cycle independently of the high level alarm is still under investigation, but it ascertain that an intermittent outage had occurred Saturday when the oil was discovered entering the river adjacent to the #4 Separator. <u>Update 10/21/2022 -</u></p> <p>1.) Decontamination of the river side of the seawall has been completed by the boat crew using a 5,000 psi hot water power washer and while a high power vacuum truck collected the oil residue from the land. 2.) oily debris removal from inside the hard boom was completed. The hard boom was then pulled in tight to the sea wall and the and the inner sorbent boom was replaced. 3.) Oil contaminated debris between the two sea walls (bulkheads) continues as the tide allows and is expected to completed over the weekend and will be inspected on 10/24/2022. 4.) The high level alarm repair is expected to be completed the week of 10/24/2022. With work on the river 95% complete negating the need for access from land along the seawall, excavation of the contaminated soils are planned for the week of 10/24/2022 (weather dependent). 5.) see release calculation tab for recovered volumes of oil after the water from each load was decanted to the facility WWTP. 6.) 12" check valve on the primary pump failed. Upon removal and inspection the plate was found to be heavily corroded and separated from the arm and found lying in the bottom of the valve. This condition allowed the stormwater surge tank (1136) to backflow into the separator. This confirms that the failed check valve is the root cause of the incident/release.</p>
Potential Corrective Actions:	<p>a. Restore the communication of the high level alarm between the separator and control room in the block house</p> <p>i. <u>Update 10/21/2022 - Electricians working to restore and expected to be complete the week of 10/31/2022</u></p> <p>b. Perform a mechanical and electrical inspection of the pumps</p> <p>i. <u>Update 10/21/2022 - 12" check valve on the primary pump was purchased and replaced on 10/19/2022</u></p> <p>c. For Redundancy and prevention of a reoccurrence, the backup Godwin pump will be automated to turn on and off utilizing level floats and a 6" check valve has been ordered. The floats have been installed and the check valve will be installed upon arrival next week.</p> <p>i. <u>Update:10/21/2022 - The float switch and check 6" valve on the backup diesel pump have been installed and redundancy restored. Until the high level alarm has been restored and the system tested to ensure proper operation and alarms are working, a crew of one Vacuum Truck operator and one laborer will observe the system during non-working hours and weekends.</u></p>
Positive Feedback:	<p>When the release was discovered, quick and efficient communication of the event details to the facility emergency response coordinators, allowed for the proper notifications to be made and additional resources to be requested and deployed, lessening the overall impact to the environment.</p>

Release / Incident Information (check one):

Waste: _____ Petroleum: X Other: _____

Chemical: _____ Gas/Vapor: _____

Nuisance Complaints: **N/A**

Odor: _____ Fugitive Dust: _____ Noise: _____

Environmental Impact- sensitive receptors - (check all that apply):

Land: **X** Air: _____ Water: **X** Community: _____

Potential Impact to Ground Water: YES: **X** NO: _____

Impact to Community: YES: _____ NO: **X**

Agency Notification Required: YES: **X** NO: _____

Notification Made: YES: **X** NO: _____

Time of Notification: **2344/2348 hrs** Agencies Notified: The NRC / The PADEP

Additional Comments:

Release quantity has not yet been calculated. The amount of oil that was released is still being calculated. Currently the only confirmed volume is the oil recovered through the use of vacuum trucks and after the water was decanted, the volume of oil recovered through 10/11/22 is **1,940 gallons**. This recovered from the land side of the release along the interior of the bulkhead and areas of pooled oil and water on the roadway adjacent to the #4 separator as well as around the sewer boxes that overflowed. Calculations to obtain the volume of oil released to the environment (soil and water) are more difficult to quantify due to the additional information needed to calculate said volumes. Parameters that are still being quantified are: Oil level in the separator just prior to the release; Oil /water ratio and levels within the sewer system connected to #4 Separator; the elapsed time and estimated flow rate over the separator wall and sewer boxes; and the flow rate through the channels of the bulkhead sheet piling where it entered the river. All the assumptions required to calculate the aforementioned volumes will be provided with the calculations once they are completed. At this time we believe the volume that entered the river to be truly minimal given the size of the entryway available for the oil to gain access to the river, which was limited to the interlocking space of the sheet piling adjacent to the separator. No other avenues have been identified that show evidence of providing a pathway to the river.

Follow-up Remedial Actions:

following the recovery phase, excavation of affected soil and gravel surfaces will be completed and analytical samples sent to the lab for waste characterization. On 10/12/22 a temporary barrier consisting of fiber reinforced poly sheeting will be installed over the affected surface area adjacent to and between the #4 Separator and the bulkhead in advance of the rain event forecasted to occur on 10/13/22. This is to prevent migration of oil from impacted surface soils to the river through the spaces in the interlocks of bulkhead by isolating any precipitation from penetrating the surface soils and carrying any oil contained in those soils into the river. additional layers of sorbent Boom will also, be installed on both sides of the containment boom.

Equipment Utilized (initial Response Actions):

Quantity	Description
3	High Power Vac Truck
2	Boat
1	Roll-Off Box
1	Roll-off Truck

Quantity	Description
700 ft.	Hard Boom
10	Sweep (100' Bale)
5	6" Sorbent Boom (Bale)
1	Roll-off liner
25	Oil Dry (50# bag)

Personnel	Position
5	Operators
6	Laborer
2	Supervisor

Note: materials, personnel and equipment to be updated 10/12/2022 following review of current work orders with subcontractor.

Estimated Release Calculations and Assumptions

*The levels in the tank and separator are not a constant and both have fluctuating levels at all times. These calculations are made with known data combined with the current operating norms and using reasonable assumptions based on prior experience and conservative estimates when the value is not known.

Knowns / Unknowns & Assumptions:

* Note: All numbers are rounded but biased high.

Knowns:

- 12" Check Valve failed allowing stormwater to backflow to separator causing the release (**confirmed Root Cause**)
- Volumes of oil recovered from land and river operations as of 10/21/2022 after water was decanted from each vacuum truck load
- Time of incident discovery 10/08/2022 - 2330 hrs.
- At time of discovery water and oil had already overflowed and any remaining volume receded beneath the covers on the separator
- oil entered the river by way of the space in the sheet pile interlocks

Tank 1136

Design Capacity	Operating Levels (gal.)		
	high	Average	Low
3,360,000 gal.	2,295,000	1,475,200	820,000

The following is the normal operational routine since approximately May of 2022 when significant precipitation is not in the forecast, as was the case leading up to the date of the incident:

1. operators will accumulate storm water and service water from leaking firewater lines to the operational high level.
2. operators will bring the accumulated water into the plant by gravity to to the operational average level.
3. in the event heavy precipitation is forecast, then the operators will make room for the impending surge by taking the water level in the tank down to the operational low level.

#4 Separator

Levels of Water/Oil (gal.)

volume before covers are breached	Volume above covers to Road surface	Average Volume	Average vol. oil inches / gal.	Oil vol. Post incident inches / gal.	Potential oil vol. released to land inches / gal.	Actual Vol. Oil Recovered from Land Ops	Actual Vol. Oil Recovered from River Ops
725,000	260,000	600,000	8" / 43,750	6" / 32,800	2" / 10,900	7500 gal.	150 gal.

Unknowns:

- Precise time of the incident occurrence
- Water/Oil level in Separator immediately preceding the incident
- Level in of stormwater in tank 1136 immediately preceding the incident
- Volume of oil remaining in the impacted soils/aggregate (estimated to be 3,250 gal. using the assumptions and recovered vol. to date)

Assumptions:

1. level in separator at time of the incident was at the average level of water and oil (556,250 gal. water / 43,750 gal. oil) requiring approximately 430,000 gal. to overflow to the road surface.
2. level in tank 1136 was near average level (1,475,000 gal.) making the required volume of water available to backflow into the separator, causing the overflow and release.

Conclusion based on current information: Using the aforementioned current operational averages, known data, observations upon discovery, reasonable estimates can be made to support the recovered volume of oil from land and river ops as well as the potential volume remaining in impacted soil/aggregate.

INCIDENT TIMELINE

DATE	TIME	ACTIVITY
10/8/2022	2330 hrs.	Bob Armstrong received notification from the facility that oil was discovered entering the river. Bob Armstrong not being on site, contacted Mike kenny and asked him to make the required notifications that a release of oil at #4 separator had entered the river.
10/8/2022	2330 - 2345 hrs.	Mike Kenny Making notifications to the NRC (notified at 2344 hrs.)and The PADEP (notified at 2348 hrs.). Bob Armstrong contacted and formally Requested ACV to provide deployment of 700' of conatinment boom staged at the facility dock. The request also included additional personnel and Vaccum trucks to recover oil & water that was released to surface areas at low points in the system where oil and water overflowed from connected sewer boxes. At this time the only oil that appears to have entered the river is immediately adjacent to the #4 Separator.
		Note: It was later determined that: -The oil entered the river through the small spaces where the Z shaped sheet piles interlock with one another. The section of sheet pile Wall adjacent to #4 Separator was the only location that the oil had made contact with the sheet piling, and the interlock was the avenue that allowed the release of oil to migrate to the river. (see depiction in the Figures & Drawing Tab of this report)
10/8/2022 - 10/9/2022	2330 hrs. - Ongoing	ACV personnel using on site resources to recover and mitigate any further release of oil to the river.
10/9/2022	~0230 hrs.	USCG Arrived on site to conduct an initial assessment and will return after first light (time is approximate)
10/9/2022	~0400 hrs.	USCG departed the facility (time is approximate)
10/9/2022	0430 hrs.	ACV Deployed existing 700' of Containment Boom that was staged at the facility boat dock.
10/9/2022	0815 hrs.	USCG Arrived on site to continue assessment of the release
10/9/2022	1030	Mike Keeny took boat down river to assess the extent if any of oil migration in the river
10/9/2022	1230	USCG deprated the facility and will return on Monday 10/10/2022
10/9/2022	1500 hrs.	Additional ACV boat crew arrived in the river
10/9/1022	1330 hrs.	Release has been contained, several personnel will remain overnight to monitor the area and vacuum any recoverable oil in and around the bulkhead that may surface in conjunction with tidal conditions. All non-essential response personnel have departed.
10/10/2022	0700 hrs.	Boat crews and land side personnel resumed the process of removing oil contaminated debris from inside the containment boom and land side cleanup as directed by Mike Kenny / Bill Ankrum.
10/10/2022	1600 hrs.	Planning meeting for the remaining operational period of 10/10/2022 thru 10/14/2022 / Boat crews to continue to work during the hours of daylight removing contaminated debris from the water within the containment boom. / Continue to remove oil contaminated debris from between the 2 bulkheads from the land / continue to vacuum oil and water inside the affected sewer boxes along the bulkhead between former 137 unit and the #4 separator.
10/11/2022	0700 - 1600 hrs.	Continue fact finding mission and determine the root cause of the release and potential corrective actions.
10/11/2022	1030 - 1200 hrs.	Bob Armstrong, Scott Brady, Mike Lamp and Doug Light met with the USCG at the #4 separator to provide the current status of the investigation to determine the causal facotrs of the release. also discussed the volumes released and methods of calculating those volumes.
		update pending

INCIDENT LOCATION





	Primary impact to soil
	Unconfined Soils / Aggregate
	8" Firewater Line (active) elev. 7'.31"
	14" Gas Line (confirm abandoned) Elev. 5'.67"



Appendix D

Disposal Documentation



ShipCSX Shipping Instructions

Submitted for processing 8/16/23 12:49 PM EDT

Printed 8/16/23 12:49 PM EDT

Shipment ReferencesTemplate Selected: PES To Trans-Flo New Orleans - 4860102

Shipment Details

Bill of Lading Number: 081623-03

Shipment Type: Load

Weigh Method: Shipper's Weight

Payment Method: Prepaid

Billing Instructions: Multiple waybills

Equipment, Weights & Seals

Weight Units: Pounds

Weight Type: Estimated Net

Total Equipment: 6

Details:	<u>Flatcar</u>	<u>Container</u>	<u>Net Weight</u>
1.	EPIX 91484	EPIU 224643	38,480
		EPIU 224697	42,940
		EPIU 224709	10,520
		EPIU 224850	38,580
		EPIU 224518	40,420
		EPIU 224717	39,760
Totals:			210,700

Commodity

Commodity Code (STCC): 4860102

Commodity Description: HAZARDOUS WASTE, SOLID, N.O.S.

***** HAZARDOUS MATERIAL *****

6 Container // 210700 // LB

NA3077

HAZARDOUS WASTE, SOLID, N.O.S.

(F037)

9 // PG III

RQ (F037)

Container: EPIU224643

Manifest Number 1: 025390720JJK

Container: EPIU224697

Manifest Number 1: 025390721JJK

Container: EPIU224709

Manifest Number 1: 025390722JJK

Container: EPIU224850

Manifest Number 1: 025390723JJK

Container: EPIU224518

Manifest Number 1: 025390725JJK

Container: EPIU224717

Manifest Number 1: 025390724JJK

EPA Waste Stream 1: (F037)

Generator:
PHILADELPHIA ENERGY SOLUTIONS
3144 W PASSYUNK AVE

PHILADELPHIA, PA 19145
United States
4402281524

Designated Facility:
CHEMICAL WASTE MANAGEMENT INC
7170 JOHN BRANNON ROAD
SULPHUR, LA 70665
United States
3375832169

Transporter 1: CSX
U.S. EMERGENCY CONTACT: CHEMTREC (CONTRACT CCN24117) -- 8004249300
HAZMAT STCC=4860102

THIS IS TO CERTIFY THAT THE ABOVE-NAMED MATERIALS ARE PROPERLY
CLASSIFIED, DESCRIBED, PACKAGED, MARKED AND LABELED AND ARE IN
PROPER CONDITION FOR TRANSPORTATION ACCORDING TO THE APPLICABLE
REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION
SIGNED: LUIS CASTRO

Route

Rail Origin City, State: PHILADELPHIA, PA
Rail Destination City, State: NEW ORLEANS, LA
Origin Railroad: CSXT

Participants

Shipper: ENVIRONMENTAL PROTECTION & IMP
319 AVENUE P
BRILLS, NJ 07105, UNITED STATES
CIF 0608818649000

Consignee: WASTE MANAGEMENT INC
7170 JOHN BRANNON RD
SULPHUR, LA 70665, UNITED STATES
CIF A000843830000

Care of Party 1: TRANSFLO TERMINAL SERVICES INC
7801 ALMONASTER AVE
NEW ORLEANS EX IM, LA 70126, UNITED STATES
CIF A001498190000

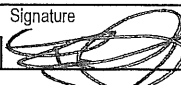
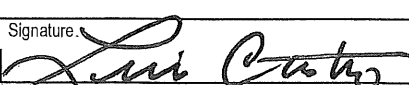
Freight Payer: ENVIRONMENTAL PROTECTION & IMP
ATTN ACCOUNTS PAYABLE
319 AVENUE P
NEWARK, NJ 07105, UNITED STATES
CIF 0608818649000

Pickup Party: PHILADELPHIA ENERGY SOLUTIONS
3144 W PASSYUNK AVE
PHILADELPHIA, PA 19145, UNITED STATES
CIF 0786253280000

This document is for the notification of freight movement only and is not a contract
between the shipper and carrier. All contractual terms and conditions of this
shipper's bill of lading are in full force during the acceptance and execution of this
freight movement.

Please print or type.

Form Approved. OMB No. 2050-0039

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 025390720 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)					
GENERATOR		6. Transporter 1 Company Name CSX TRANSPORTATION INC						U.S. EPA ID Number FLD006921340							
		7. Transporter 2 Company Name CHEMICAL WASTE MANAGEMENT, INC.						U.S. EPA ID Number LA0000147272							
DESIGNATED FACILITY		8. Designated Facility Name and Site Address CHEMICAL WASTE MANAGEMENT INC 7170 JOHN BRANNON RD SULPHUR LA 70665 Facility's Phone: (337)583-2169						U.S. EPA ID Number LAD000777201							
		9a. HM X						9b. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) 1. RQ, NA3077, HAZARDOUS WASTE, SOLID, N.O.S., (F037), 9, III LA957259		10. Containers No. 1 Type CM		11. Total Quantity 19.24		12. Unit Wt./Vol. T	
TRANSPORTER		14. Special Handling Instructions and Additional Information 1. APPROVAL # LA957259 RAIL CAR# 21484 CONTAINER# 4643 ERG# 171 ERI PROVIDER: CHEMTREC (CONTRACT #CCN24117) CWM TICKET#						15. GENERATOR'S/OFFEROR'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/Offor's Printed/Typed Name Robert Annunzio						Signature 		Month Day Year 08 11 23					
DESIGNATED FACILITY		16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Transporter signature (for exports only): _____ Date leaving U.S.: _____						17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name Luis Castro For CSX Signature  Month Day Year 8 16 23 Transporter 2 Printed/Typed Name _____ Signature _____ Month Day Year _____							
		18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number: _____ 18b. Alternate Facility (or Generator) _____ U.S. EPA ID Number _____ Facility's Phone: _____ 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. _____							
DESIGNATED FACILITY		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 _____ Signature _____ Month Day Year _____						21. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a Printed/Typed Name _____ Signature _____ Month Day Year _____							
		22. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a Printed/Typed Name _____ Signature _____ Month Day Year _____						23. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a Printed/Typed Name _____ Signature _____ Month Day Year _____							

LAKE CHARLES TREATMENT CENTER
LAND DISPOSAL NOTIFICATION AND CERTIFICATION FORM (PHASE IV)

LCH-LA957259

Generator Name: PHILADELPHIA ENERGY SOLUTIONS

Manifest Doc. No.: 026390720

CWM Profile Number: LA957259 DEBRIS

State Manifest No: _____

1. Is this waste a non-wastewater or wastewater? (See 40 CFR 268.2 and LAC33:V.2203) Check ONE: Nonwastewater ☒ Wastewater ☐
2. Identify ALL USEPA hazardous waste codes that apply to this waste shipment, as defined by 40 CFR 261 and LAC33:V.Chapter 49. For each waste code, identify the corresponding subcategory, or check NONE if the waste code has no subcategory. Spent solvent treatment standards are listed on the following page. If F039, multi-source leachate applies, those constituents must be listed and attached by the generator. If D001-D043 requires treatment of the characteristic and meet 268.48 standards, then the underlying hazardous constituent(s) present in the waste must be listed and attached.

REF #	3. US EPA HAZARDOUS WASTE CODE(S)	4. SUBCATEGORY ENTER THE SUBCATEGORY DESCRIPTION. IF NOT APPLICABLE, SIMPLY CHECK NONE		5. HOW MUST THE WASTE BE MANAGED? ENTER LETTER FROM BELOW
		DESCRIPTION	NONE	
1	F037		X	D
2				
3				
4				

To identify F039 or D001-D043, underlying hazardous constituent(s), use the "F039/Underlying Hazardous Constituent Form" provided (CWM-2004) and check here: _____
 If no UHCs are present in the waste upon its initial generation check here: ☒
 To list additional USEPA waste code(s) and subcategory(ies), use the supplemental sheet provided (CWM-LC-2005-D) and check here: _____
 Disposal facility monitors for all UHCs check here: _____
 If waste will be managed in a system regulated under the CWA, or a Class 1 injection well under the SDWA check here: _____

HOW MUST THE WASTE BE MANAGED? In column 5 above, enter the letter (A, B1, B3, B4, C, D or E) below that describes how the waste must be managed to comply with the land disposal regulations (40 CFR 268.7 and LAC 33:Chapter 22 Subchapter A). Please understand that if you enter the letter B1, B3, B4 or D, you are making the appropriate certification as provided below. (States authorized by EPA to manage the LDR program may have regulatory citations different from the 40 CFR citations listed below. Where these regulatory citations differ, your certification will be deemed to refer to those state citations instead of the 40 CFR citations.)

A. RESTRICTED WASTE REQUIRES TREATMENT

This waste must be treated to the applicable treatment standards set forth in 40 CFR 268.40 and LAC 33:V.2223 and 2246.

For Hazardous Debris: "This hazardous debris is subject to the alternative treatment standards of 40 CFR 268.45 and LAC Chapter 22 Table 8.C."

B.1 RESTRICTED WASTE TREATED TO PERFORMANCE STANDARDS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification. Based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the treatment standards specified in 40 CFR 268.40 and LAC 33:V.2223 without impermissible dilution of the prohibited waste. I am aware there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.3 GOOD FAITH ANALYTICAL CERTIFICATION FOR INCINERATED ORGANICS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification. Based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the nonwastewater organic constituents have been treated by combustion in units as specified in 268.42 Table 1 and LAC 33:V Chapter 31 or Chapter 43 Subchapter N, or by combustion in fuel substitution units operating in accordance with applicable technical requirements, and combustion units as specified in Table 3 of this Chapter. I have been unable to detect the nonwastewater organic constituents despite having used best good faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.4 DECHARACTERIZED WASTE REQUIRES TREATMENT FOR UNDERLYING HAZARDOUS CONSTITUENTS

"I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.40 or 268.49 and LAC 33:V.2233 to remove the hazardous characteristic. This decharacterized waste contains underlying hazardous constituents that require further treatment to meet treatment standards. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.6 RESTRICTED DEBRIS TREATED TO ALTERNATE PERFORMANCE STANDARDS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and believe that it has been maintained and operated properly so as to comply with treatment standards specified in 40 CFR 268.45 without impermissible dilution of the prohibited wastes. I am aware there are significant penalties for submitting false certification, including the possibility of fine and imprisonment."

C. RESTRICTED WASTE SUBJECT TO A VARIANCE

This waste is subject to a national capacity variance, a treatability variance, or a case-by-case extension. Enter the effective date of prohibition in column 5 above.

For Hazardous Debris: "This hazardous debris is subject to the alternative treatment standards of 40 CFR Part 268.45 and LAC Chapter 22 Table 8.C."

D. RESTRICTED WASTE CAN BE LAND DISPOSED WITHOUT FURTHER TREATMENT


"I certify under penalty of law I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and LAC 33:V 2223 - 2233. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

E. WASTE IS NOT CURRENTLY SUBJECT TO PART 268 RESTRICTIONS

This waste is a newly identified waste that is not currently subject to any 40 CFR Part 268 restrictions.

I hereby certify that all information submitted in this and all associated documents is complete and accurate, to the

best of my knowledge and information.

Signature  Title SR, PM Date 8/11/23
1990 Chemical Waste Management, Inc. - 09/99- Form CWM-LC-2005-C
Agent for PESRM LLC

SOLVENT

If the waste identified on the first page of this form is described by any of the following USEPA hazardous waste codes: F001, F002, F003, F004, F005, and all solvent constituents will not be monitored by the treater, then each constituent MUST be identified below by checking the appropriate box, and this page must accompany the shipment, along with the previous page of this form. If the waste code F039 describes this waste, then the corresponding list of constituents must be attached. If D001-D043 require treatment to 268.48 standards, then the underlying hazardous constituent(s) must also be attached.

2 SOLVENT WASTE TREATMENT STANDARDS					
F001 through F005 spent solvent constituents and their associated USEPA hazardous waste code(s).	1 Treatment Standard		F001 through F005 spent solvent constituents and their associated USEPA hazardous waste code(s).	1 Treatment Standard	
	Wastewaters	Nonwastewaters		Wastewaters	Nonwastewaters

1 All spent solvent treatment standards are measured through a total waste analysis (TCA), unless otherwise noted. Wastewater units are mg/l, nonwastewater are mg/kg.

2 For contaminated soils using the alternative soil treatment standards, the treatment standards for F001-F005 spent solvents must be a 90% reduction of constituents or less than 10 x the standards listed.


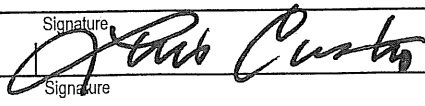
SUBCATEGORY REFERENCE

D001:

A. Ignitable characteristic wastes, except for the 40 CFR 261.21(a) (1) High TOC subcategory.

B. High TOC Ignitable characteristic liquids subcategory based on 40 CFR 261.21(a) (1) - Greater than or equal to 10% total organic carbon.

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 025390721 JJK					
		5. Generator's Name and Mailing Address PHILADELPHIA ENERGY SOLUTIONS 3144 PASSYUNK AVE PHILADELPHIA PA 19145 Generator's Site Address (if different than mailing address)											
6. Transporter 1 Company Name CSX TRANSPORTATION INC		U.S. EPA ID Number FLD006921340		7. Transporter 2 Company Name CHEMICAL WASTE MANAGEMENT, INC.		U.S. EPA ID Number LAD0000147272		8. Designated Facility Name and Site Address CHEMICAL WASTE MANAGEMENT INC 7170 JOHN BRANNON RD SULPHUR LA 70665 Facility's Phone: (837) 583-2169					
9a. HM		9b. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))		10. Containers No. Type		11. Total Quantity		12. Unit Wt./Vol.		13. Waste Codes			
X		1. RQ, NA3077, HAZARDOUS WASTE, SOLID, N.O.S., (F037), 9, III LA957259		1		CM		21.47		T F037			
		2.											
		3.											
		4.											
14. Special Handling Instructions and Additional Information 1. APPROVAL # LA957259 RAIL CAR# 91484 CONTAINER# 4697 ERG# 171 ERI PROVIDER: CHEMTREC (CONTRACT #CCN24117) CWM TICKET#													
15. GENERATOR'S/OFFEROR'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 Robert J. Amato										Signature 		Month Day Year 08 11 23	
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____													
17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name Denis Castro for CSX Signature  Month Day Year 8 16 23 Transporter 2 Printed/Typed Name _____ Signature _____ Month Day Year _____													
18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number: _____ U.S. EPA ID Number _____ 18b. Alternate Facility (or Generator) _____ U.S. EPA ID Number _____ Facility's Phone: _____ 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. _____ 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 _____ Signature _____ Month Day Year _____													

8/09/23

CHEMICAL WASTE MANAGEMENT, INC.

LAKE CHARLES TREATMENT CENTER
LAND DISPOSAL NOTIFICATION AND CERTIFICATION FORM (PHASE IV)

LCH-LA957259

Generator Name: PHILADELPHIA ENERGY SOLUTIONS

Manifest Doc. No.:

02390721 WZ

CWM Profile Number: LA957259 DEBRIS

State Manifest No:

1. Is this waste a non-wastewater or wastewater? (See 40 CFR 268.2 and LAC33:V.2203) Check ONE: Nonwastewater ☐ Wastewater ☒
2. Identify ALL USEPA hazardous waste codes that apply to this waste shipment, as defined by 40 CFR 261 and LAC33:V.Chapter 49. For each waste code, identify the corresponding subcategory, or check NONE if the waste code has no subcategory. Spent solvent treatment standards are listed on the following page. If F039, multi-source leachate applies, those constituents must be listed and attached by the generator. If D001-D043 requires treatment of the characteristic and meet 268.48 standards, then the underlying hazardous constituent(s) present in the waste must be listed and attached.

REF #	3. US EPA HAZARDOUS WASTE CODE(S)	4. SUBCATEGORY ENTER THE SUBCATEGORY DESCRIPTION. IF NOT APPLICABLE, SIMPLY CHECK NONE		5. HOW MUST THE WASTE BE MANAGED? ENTER LETTER FROM BELOW
		DESCRIPTION	NONE	
1	F037		X	D
2				
3				
4				

To identify F039 or D001-D043, underlying hazardous constituent(s), use the "F039/Underlying Hazardous Constituent Form" provided (CWM-2004) and check here: ☐

If no UHCs are present in the waste upon its initial generation check here: ☒

To list additional USEPA waste code(s) and subcategory(ies), use the supplemental sheet provided (CWM-LC-2005-D) and check here: ☐

Disposal facility monitors for all UHCs check here ☐

If waste will be managed in a system regulated under the CWA, or a Class 1 injection well under the SDWA check here ☐

HOW MUST THE WASTE BE MANAGED? In column 5 above, enter the letter (A, B1, B3, B4, C, D or E) below that describes how the waste must be managed to comply with the land disposal regulations (40 CFR 268.7 and LAC 33:Chapter 22 Subchapter A). Please understand that if you enter the letter B1, B3, B4 or D, you are making the appropriate certification as provided below. (States authorized by EPA to manage the IDR program may have regulatory citations different from the 40 CFR citations listed below. Where these regulatory citations differ, your certification will be deemed to refer to those state citations instead of the 40 CFR citations.)

A. RESTRICTED WASTE REQUIRES TREATMENT

This waste must be treated to the applicable treatment standards set forth in 40 CFR 268.40 and LAC 33:V.2223 and 2246.
For Hazardous Debris: "This hazardous debris is subject to the alternative treatment standards of 40 CFR 268.45 and LAC Chapter 22 Table 8.C."

B.1 RESTRICTED WASTE TREATED TO PERFORMANCE STANDARDS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification. Based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the treatment standards specified in 40 CFR 268.40 and LAC 33:V.2223 without impermissible dilution of the prohibited waste. I am aware there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.3 GOOD FAITH ANALYTICAL CERTIFICATION FOR INCINERATED ORGANICS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification. Based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the nonwastewater organic constituents have been treated by combustion in units as specified in 268.42 Table 1 and LAC 33:V Chapter 31 or Chapter 43 Subchapter N, or by combustion in fuel substitution units operating in accordance with applicable technical requirements, and combustion units as specified in Table 3 of this Chapter. I have been unable to detect the nonwastewater organic constituents despite having used best good faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.4 DECHARACTERIZED WASTE REQUIRES TREATMENT FOR UNDERLYING HAZARDOUS CONSTITUENTS

"I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.40 or 268.49 and LAC 33:V.2233 to remove the hazardous characteristic. This decharacterized waste contains underlying hazardous constituents that require further treatment to meet treatment standards. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.6 RESTRICTED DEBRIS TREATED TO ALTERNATE PERFORMANCE STANDARDS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to this certification and believe that it has been maintained and operated properly so as to comply with treatment standards specified in 40 CFR 268.45 without impermissible dilution of the prohibited wastes. I am aware there are significant penalties for submitting false certification, including the possibility of fine and imprisonment."

C. RESTRICTED WASTE SUBJECT TO A VARIANCE

This waste is subject to a national capacity variance, a treatability variance, or a case-by-case extension. Enter the effective date of prohibition in column 5 above.

For Hazardous Debris: "This hazardous debris is subject to the alternative treatment standards of 40 CFR Part 268.45 and LAC Chapter 22 Table 8.C."

D. RESTRICTED WASTE CAN BE LAND DISPOSED WITHOUT FURTHER TREATMENT

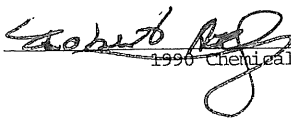
"I certify under penalty of law I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and LAC 33:V 2223 - 2233. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

E. WASTE IS NOT CURRENTLY SUBJECT TO PART 268 RESTRICTIONS

This waste is a newly identified waste that is not currently subject to any 40 CFR Part 268 restrictions.

I hereby certify that all information submitted in this and all associated documents is complete and accurate, to the

best of my knowledge and information.

Signature  Title SR PM Date 8/14/23
1996 Chemical Waste Management, Inc. - 09/99- Form CWM-LC-2005-C

SOLVENT

If the waste identified on the first page of this form is described by any of the following USEPA hazardous waste codes: F001, F002, F003, F004, F005, and all solvent constituents will not be monitored by the treater, then each constituent MUST be identified below by checking the appropriate box, and this page must accompany the shipment, along with the previous page of this form. If the waste code F039 describes this waste, then the corresponding list of constituents must be attached. If D001-D043 require treatment to 268.48 standards, then the underlying hazardous constituent(s) must also be attached.

2 SOLVENT WASTE TREATMENT STANDARDS			
F001 through F005 spent solvent constituents and their associated USEPA hazardous waste code(s).	1 Treatment Standard		F001 through F005 spent solvent constituents and their associated USEPA hazardous waste code(s).
	Wastewaters	Nonwastewaters	
F001 through F005 spent solvent constituents and their associated USEPA hazardous waste code(s).	1 Treatment Standard		F001 through F005 spent solvent constituents and their associated USEPA hazardous waste code(s).
	Wastewaters	Nonwastewaters	

1 All spent solvent treatment standards are measured through a total waste analysis (TCA), unless otherwise noted. Wastewater units are mg/l, nonwastewater are mg/kg.

2 For contaminated soils using the alternative soil treatment standards, the treatment standards for F001-F005 spent solvents must be a 90% reduction of constituents or less than 10 x the standards listed.

SUBCATEGORY REFERENCE

D001:

- A. Ignitable characteristic wastes, except for the 40 CFR 261.21(a)(1) High TOC subcategory.
- B. High TOC Ignitable characteristic liquids subcategory based on 40 CFR 261.21(a)(1) - Greater than or equal to 10% total organic carbon.

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 025390722 JJK		
5. Generator's Name and Mailing Address PHILADELPHIA ENERGY SOLUTIONS 3144 PASSYUNK AVE PHILADELPHIA PA 19145					Generator's Site Address (if different than mailing address)		
Generator's Phone: (440)228-1524					U.S. EPA ID Number FLD006921340		
6. Transporter 1 Company Name CSX TRANSPORTATION INC					U.S. EPA ID Number LA0000147272		
7. Transporter 2 Company Name CHEMICAL WASTE MANAGEMENT, INC.					U.S. EPA ID Number LA0000777201		
8. Designated Facility Name and Site Address CHEMICAL WASTE MANAGEMENT INC 7170 JOHN BRANNON RD SULPHUR LA 70665					Facility's Phone: (337)583-2169		

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
		No.	Type					
X	1. RG, NA3077, HAZARDOUS WASTE, SOLID, N.O.S., (F037), 9, III LA957259	1	CM	5.26	T	F037		

14. Special Handling Instructions and Additional Information
 1. APPROVAL # **LA957259** RAIL CAR# **91484** CONTAINER# **4709**
 ERG# 171 ERI PROVIDER: CHEMTREC (CONTRACT #CCN24117) CWM TICKET#

15. GENERATOR'S/OFFEROR'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/Offoror's Printed/Typed Name Agent for P&S RM LLC	Signature 	Month 08	Day 11	Year 23
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16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: Date leaving U.S.:

Transporter signature (for exports only):	Signature 	Month 8	Day 16	Year 23
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17. Transporter Acknowledgment of Receipt of Materials
 Transporter 1 Printed/Typed Name
Rui's Castro for CSX Signature

 Transporter 2 Printed/Typed Name

18. Discrepancy	Manifest Reference Number:	Month	Day	Year
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection				

18b. Alternate Facility (or Generator) U.S. EPA ID Number

 Facility's Phone:

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.
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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	Signature	Month	Day	Year

LAKE CHARLES TREATMENT CENTER
LAND DISPOSAL NOTIFICATION AND CERTIFICATION FORM (PHASE IV)

LCH-LA957259

Generator Name: PHILADELPHIA ENERGY SOLUTIONSManifest Doc. No.: 025390725CWM Profile Number: LA957259 DEBRIS

State Manifest No: _____

1. Is this waste a non-wastewater or wastewater? (See 40 CFR 268.2 and LAC33:V.2203) Check ONE: Nonwastewater ☐ Wastewater ☒
2. Identify ALL USEPA hazardous waste codes that apply to this waste shipment, as defined by 40 CFR 261 and LAC33:V.Chapter 49. For each waste code, identify the corresponding subcategory, or check NONE if the waste code has no subcategory. Spent solvent treatment standards are listed on the following page. If F039, multi-source leachate applies, those constituents must be listed and attached by the generator. If D001-D043 requires treatment of the characteristic and meet 268.48 standards, then the underlying hazardous constituent(s) present in the waste must be listed and attached.

REF #	3. US EPA HAZARDOUS WASTE CODE(S)	4. SUBCATEGORY ENTER THE SUBCATEGORY DESCRIPTION. IF NOT APPLICABLE, SIMPLY CHECK NONE		5. HOW MUST THE WASTE BE MANAGED? ENTER LETTER FROM BELOW
		DESCRIPTION	NONE	
1	F037		X	D
2				
3				
4				

To identify F039 or D001-D043, underlying hazardous constituent(s), use the "F039/Underlying Hazardous Constituent Form" provided (CWM-2004) and check here: _____
 If no UHCs are present in the waste upon its initial generation check here: ☒
 To list additional USEPA waste code(s) and subcategory(ies), use the supplemental sheet provided (CWM-LC-2005-D) and check here: _____
 Disposal facility monitors for all UHCs check here: _____
 If waste will be managed in a system regulated under the CWA, or a Class 1 injection well under the SDWA check here: _____

HOW MUST THE WASTE BE MANAGED? In column 5 above, enter the letter (A, B1, B3, B4, C, D or E) below that describes how the waste must be managed to comply with the land disposal regulations (40 CFR 268.7 and LAC 33:Chapter 22 Subchapter A). Please understand that if you enter the letter B1, B3, B4 or D, you are making the appropriate certification as provided below. (States authorized by EPA to manage the LDR program may have regulatory citations different from the 40 CFR citations listed below. Where these regulatory citations differ, your certification will be deemed to refer to those state citations instead of the 40 CFR citations.)

A. RESTRICTED WASTE REQUIRES TREATMENT

This waste must be treated to the applicable treatment standards set forth in 40 CFR 268.40 and LAC 33:V.2223 and 2246.

For Hazardous Debris: "This hazardous debris is subject to the alternative treatment standards of 40 CFR 268.45 and LAC Chapter 22 Table 8.C."

B.1 RESTRICTED WASTE TREATED TO PERFORMANCE STANDARDS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification. Based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the treatment standards specified in 40 CFR 268.40 and LAC 33:V.2223 without impermissible dilution of the prohibited waste. I am aware there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.3 GOOD FAITH ANALYTICAL CERTIFICATION FOR INCINERATED ORGANICS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification. Based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the nonwastewater organic constituents have been treated by combustion in units as specified in 268.42 Table 1 and LAC 33:V Chapter 31 or Chapter 43 Subchapter N, or by combustion in fuel substitution units operating in accordance with applicable technical requirements, and combustion units as specified in Table 3 of this Chapter. I have been unable to detect the nonwastewater organic constituents despite having used best good faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.4 DECHARACTERIZED WASTE REQUIRES TREATMENT FOR UNDERLYING HAZARDOUS CONSTITUENTS

"I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.40 or 268.49 and LAC 33:V.2233 to remove the hazardous characteristic. This decharacterized waste contains underlying hazardous constituents that require further treatment to meet treatment standards. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.6 RESTRICTED DEBRIS TREATED TO ALTERNATE PERFORMANCE STANDARDS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to this certification and believe that it has been maintained and operated properly so as to comply with treatment standards specified in 40 CFR 268.45 without impermissible dilution of the prohibited wastes. I am aware there are significant penalties for submitting false certification, including the possibility of fine and imprisonment."

C. RESTRICTED WASTE SUBJECT TO A VARIANCE

This waste is subject to a national capacity variance, a treatability variance, or a case-by-case extension. Enter the effective date of prohibition in column 5 above.

For Hazardous Debris: "This hazardous debris is subject to the alternative treatment standards of 40 CFR Part 268.45 and LAC Chapter 22 Table 8.C."

D. RESTRICTED WASTE CAN BE LAND DISPOSED WITHOUT FURTHER TREATMENT


"I certify under penalty of law I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and LAC 33:V 2223 - 2233. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

E. WASTE IS NOT CURRENTLY SUBJECT TO PART 268 RESTRICTIONS

This waste is a newly identified waste that is not currently subject to any 40 CFR Part 268 restrictions.

I hereby certify that all information submitted in this and all associated documents is complete and accurate, to the

best of my knowledge and information.

Signature  Title SR PM Date 8/11/33
1990 Chemical Waste Management, Inc. - 09/99- Form CWM-LC-2005-C

SOLVENT

If the waste identified on the first page of this form is described by any of the following USEPA hazardous waste codes: F001, F002, F003, F004, F005, and all solvent constituents will not be monitored by the treater, then each constituent MUST be identified below by checking the appropriate box, and this page must accompany the shipment, along with the previous page of this form. If the waste code F039 describes this waste, then the corresponding list of constituents must be attached. If D001-D043 require treatment to 268.48 standards, then the underlying hazardous constituent(s) must also be attached.

2 SOLVENT WASTE TREATMENT STANDARDS			
F001 through F005 spent solvent constituents and their associated USEPA hazardous waste code(s).	1 Treatment Standard		F001 through F005 spent solvent constituents and their associated USEPA hazardous waste code(s).
	Wastewaters	Nonwastewaters	
F001 through F005 spent solvent constituents and their associated USEPA hazardous waste code(s).	1 Treatment Standard		F001 through F005 spent solvent constituents and their associated USEPA hazardous waste code(s).
	Wastewaters	Nonwastewaters	

¹ All spent solvent treatment standards are measured through a total waste analysis (TCA), unless otherwise noted. Wastewater units are mg/l, nonwastewater are mg/kg.

² For contaminated soils using the alternative soil treatment standards, the treatment standards for F001-F005 spent solvents must be a 90% reduction of constituents or less than 10 x the standards listed.

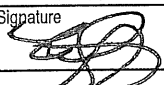
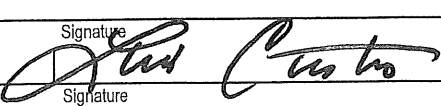
SUBCATEGORY REFERENCE

D001:

A. Ignitable characteristic wastes, except for the 40 CFR 261.21(a)(1) High TOC subcategory.

B. High TOC Ignitable characteristic liquids subcategory based on 40 CFR 261.21(a)(1) - Greater than or equal to 10% total organic carbon.

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 025390723 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 CSX TRANSPORTATION INC		U.S. EPA ID Number FLD006921340									
		7. Transporter 2 Company Name CHEMICAL WASTE MANAGEMENT INC		U.S. EPA ID Number LA0000147272							
8. Designated Facility Name and Site Address CHEMICAL WASTE MANAGEMENT INC 7170 JOHN BRANNON RD SULPHUR LA 70665 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)) 1. RQ, NA3077, HAZARDOUS WASTE, SOLID, N.O.S., (F037), 9, III LA957259		10. Containers No. Type 1 CM		11. Total Quantity 19.29		12. Unit Wt./Vol. T	
14. Special Handling Instructions and Additional Information 1. APPROVAL # LA957259 RAIL CAR# 91484 CONTAINER# 4850 ERG# 171 ERI PROVIDER: CHEMTREC (CONTRACT #CCN24117) CWM TICKET#		15. GENERATOR'S/OFFEROR'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 Auth Republic RESON LLC		Signature 		Month Day Year 08 11 23			
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____		17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name Denis Castro for CSX Transporter 2 Printed/Typed Name		Signature 		Month Day Year 8 16 23					
18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number: _____		18b. Alternate Facility (or Generator) U.S. EPA ID Number: _____ Facility's Phone: _____		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. _____ 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: _____ Signature: _____ Month Day Year: _____									

LAKE CHARLES TREATMENT CENTER
LAND DISPOSAL NOTIFICATION AND CERTIFICATION FORM (PHASE IV)

LCH-LA957259

Generator Name: PHILADELPHIA ENERGY SOLUTIONS

Manifest Doc. No.: 025390723

CWM Profile Number: LA957259 DEBRIS

State Manifest No: _____

1. Is this waste a non-wastewater or wastewater? (See 40 CFR 268.2 and LAC33:V.2203) Check ONE: Nonwastewater ☐ Wastewater ☒
2. Identify ALL USEPA hazardous waste codes that apply to this waste shipment, as defined by 40 CFR 261 and LAC33:V.Chapter 49. For each waste code, identify the corresponding subcategory, or check NONE if the waste code has no subcategory. Spent solvent treatment standards are listed on the following page. If F039, multi-source leachate applies, those constituents must be listed and attached by the generator. If D001-D043 requires treatment of the characteristic and meet 268.48 standards, then the underlying hazardous constituent(s) present in the waste must be listed and attached.

REF #	3. US EPA HAZARDOUS WASTE CODE(S)	4. SUBCATEGORY ENTER THE SUBCATEGORY DESCRIPTION. IF NOT APPLICABLE, SIMPLY CHECK NONE		5. HOW MUST THE WASTE BE MANAGED? ENTER LETTER FROM BELOW
		DESCRIPTION	NONE	
1	F037		X	D
2				
3				
4				

To identify F039 or D001-D043, underlying hazardous constituent(s), use the "F039/Underlying Hazardous Constituent Form" provided (CWM-2004) and check here: _____
 If no UHCs are present in the waste upon its initial generation check here: ☒
 To list additional USEPA waste code(s) and subcategory(ies), use the supplemental sheet provided (CWM-LC-2005-D) and check here: _____
 Disposal facility monitors for all UHCs check here _____
 If waste will be managed in a system regulated under the CWA, or a Class 1 injection well under the SDWA check here _____

HOW MUST THE WASTE BE MANAGED? In column 5 above, enter the letter (A, B1, B3, B4, C, D or E) below that describes how the waste must be managed to comply with the land disposal regulations (40 CFR 268.7 and LAC 33:Chapter 22 Subchapter A). Please understand that if you enter the letter B1, B3, B4 or D, you are making the appropriate certification as provided below. (States authorized by EPA to manage the LDR program may have regulatory citations different from the 40 CFR citations listed below. Where these regulatory citations differ, your certification will be deemed to refer to those state citations instead of the 40 CFR citations.)

A. RESTRICTED WASTE REQUIRES TREATMENT

This waste must be treated to the applicable treatment standards set forth in 40 CFR 268.40 and LAC 33:V.2223 and 2246.
 For Hazardous Debris: "This hazardous debris is subject to the alternative treatment standards of 40 CFR 268.45 and LAC Chapter 22 Table 8.C."

B.1 RESTRICTED WASTE TREATED TO PERFORMANCE STANDARDS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification. Based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the treatment standards specified in 40 CFR 268.40 and LAC 33:V.2223 without impermissible dilution of the prohibited waste. I am aware there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.3 GOOD FAITH ANALYTICAL CERTIFICATION FOR INCINERATED ORGANICS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification. Based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the nonwastewater organic constituents have been treated by combustion in units as specified in 268.42 Table 1 and LAC 33:V Chapter 31 or Chapter 43 Subchapter N, or by combustion in fuel substitution units operating in accordance with applicable technical requirements, and combustion units as specified in Table 3 of this Chapter. I have been unable to detect the nonwastewater organic constituents despite having used best good faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.4 DECHARACTERIZED WASTE REQUIRES TREATMENT FOR UNDERLYING HAZARDOUS CONSTITUENTS

"I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.40 or 268.49 and LAC 33:V.2233 to remove the hazardous characteristic. This decharacterized waste contains underlying hazardous constituents that require further treatment to meet treatment standards. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.6 RESTRICTED DEBRIS TREATED TO ALTERNATE PERFORMANCE STANDARDS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to this certification and believe that it has been maintained and operated properly so as to comply with treatment standards specified in 40 CFR 268.45 without impermissible dilution of the prohibited wastes. I am aware there are significant penalties for submitting false certification, including the possibility of fine and imprisonment."

C. RESTRICTED WASTE SUBJECT TO A VARIANCE

This waste is subject to a national capacity variance, a treatability variance, or a case-by-case extension. Enter the effective date of prohibition in column 5 above.

For Hazardous Debris: "This hazardous debris is subject to the alternative treatment standards of 40 CFR Part 268.45 and LAC Chapter 22 Table 8.C."

D. RESTRICTED WASTE CAN BE LAND DISPOSED WITHOUT FURTHER TREATMENT

"I certify under penalty of law I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and LAC 33:V 2223 - 2233. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

E. WASTE IS NOT CURRENTLY SUBJECT TO PART 268 RESTRICTIONS

This waste is a newly identified waste that is not currently subject to any 40 CFR Part 268 restrictions.

I hereby certify that all information submitted in this and all associated documents is complete and accurate, to the

best of my knowledge and information.

Signature



Title

Sr. PM

Date

8/11/23

1990 Chemical Waste Management, Inc. - 09/99- Form CWM-IC-2005-C

SOLVENT

If the waste identified on the first page of this form is described by any of the following USEPA hazardous waste codes: F001, F002, F003, F004, F005, and all solvent constituents will not be monitored by the treater, then each constituent MUST be identified below by checking the appropriate box, and this page must accompany the shipment, along with the previous page of this form. If the waste code F039 describes this waste, then the corresponding list of constituents must be attached. If D001-D043 require treatment to 268.48 standards, then the underlying hazardous constituent(s) must also be attached.

SOLVENT WASTE TREATMENT STANDARDS ²			
F001 through F005 spent solvent constituents and their associated USEPA hazardous waste code(s).	1 Treatment Standard		F001 through F005 spent solvent constituents and their associated USEPA hazardous waste code(s).
	Wastewaters	Nonwastewaters	
F001 through F005 spent solvent constituents and their associated USEPA hazardous waste code(s).	1 Treatment Standard		F001 through F005 spent solvent constituents and their associated USEPA hazardous waste code(s).
	Wastewaters	Nonwastewaters	

¹ All spent solvent treatment standards are measured through a total waste analysis (TCA), unless otherwise noted. Wastewater units are mg/l, nonwastewater are mg/kg.

² For contaminated soils using the alternative soil treatment standards, the treatment standards for F001-F005 spent solvents must be a 90% reduction of constituents or less than 10 x the standards listed.

SUBCATEGORY REFERENCE

D001:

- A. Ignitable characteristic wastes, except for the 40 CFR 261.21(a)(1) High TOC subcategory.
- B. High TOC Ignitable characteristic liquids subcategory based on 40 CFR 261.21(a)(1) - Greater than or equal to 10% total organic carbon.

Please print or type.

Form Approved. OMB No. 2050-0039

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 025390725 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)									
GENERATOR		6. Transporter 1 Company Name CSX TRANSPORTATION INC						U.S. EPA ID Number FLD006921340											
		7. Transporter 2 Company Name CHEMICAL WASTE MANAGEMENT INC						U.S. EPA ID Number LA0000147272											
DESIGNATED FACILITY		8. Designated Facility Name and Site Address CHEMICAL WASTE MANAGEMENT INC 7170 JOHN BRANNON RD SULPHUR LA 70665 Facility's Phone: (337)583-2169						U.S. EPA ID Number LAD000777201											
		9a. HM X						9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) 1. RQ, NA3077, HAZARDOUS WASTE, SOLID, N.O.S., (F037), 9, III LA957259		10. Containers No. 1 Type CM		11. Total Quantity 20.21		12. Unit Wt./Vol. T		13. Waste Codes F037			
INT'L		14. Special Handling Instructions and Additional Information 1. APPROVAL # LA957259 RAIL CAR# 91484 CONTAINER# 4518 ERG# 171 ERI PROVIDER: CHEMTREC (CONTRACT #CCN24117) CWM TICKET#																	
		15. GENERATOR'S/OFFEROR'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.																	
TRANSPORTER		Generator's/Officer's Printed/Typed Name Robert Ambrose						Signature <i>[Signature]</i>		Month 08		Day 11		Year 23					
		16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.						Port of entry/exit: Date leaving U.S.:											
DESIGNATED FACILITY		17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name Luis Castro for CSX						Signature <i>[Signature]</i>		Month 8		Day 16		Year 23					
		Transporter 2 Printed/Typed Name						Signature		Month		Day		Year					
DESIGNATED FACILITY		18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number:																	
		18b. Alternate Facility (or Generator) Facility's Phone:										U.S. EPA ID Number							
DESIGNATED FACILITY		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.		2.		3.		4.	
DESIGNATED FACILITY		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										Signature		Month		Day		Year	

LAKE CHARLES TREATMENT CENTER
LAND DISPOSAL NOTIFICATION AND CERTIFICATION FORM (PHASE IV)

LCH-LA957259

Generator Name: PHILADELPHIA ENERGY SOLUTIONS

Manifest Doc. No.:

025390726 JKCWM Profile Number: LA957259 DEBRIS

State Manifest No: _____

1. Is this waste a non-wastewater or wastewater? (See 40 CFR 268.2 and LAC33:V.2203) Check ONE: Nonwastewater ☐ Wastewater ☒
2. Identify ALL USEPA hazardous waste codes that apply to this waste shipment, as defined by 40 CFR 261 and LAC33:V.Chapter 49. For each waste code, identify the corresponding subcategory, or check NONE if the waste code has no subcategory. Spent solvent treatment standards are listed on the following page. If F039, multi-source leachate applies, those constituents must be listed and attached by the generator. If D001-D043 requires treatment of the characteristic and meet 268.48 standards, then the underlying hazardous constituent(s) present in the waste must be listed and attached.

REF #	3. US EPA HAZARDOUS WASTE CODE(S)	4. SUBCATEGORY ENTER THE SUBCATEGORY DESCRIPTION. IF NOT APPLICABLE, SIMPLY CHECK NONE		5. HOW MUST THE WASTE BE MANAGED? ENTER LETTER FROM BELOW
		DESCRIPTION	NONE	
1	F037		X	D
2				
3				
4				

To identify F039 or D001-D043, underlying hazardous constituent(s), use the "F039/Underlying Hazardous Constituent Form" provided (CWM-2004) and check here: _____
 If no UHCs are present in the waste upon its initial generation check here: X
 To list additional USEPA waste code(s) and subcategory(ies), use the supplemental sheet provided (CWM-LC-2005-D) and check here: _____
 Disposal facility monitors for all UHCs check here _____
 If waste will be managed in a system regulated under the CWA, or a Class 1 injection well under the SDWA check here _____

HOW MUST THE WASTE BE MANAGED? In column 5 above, enter the letter (A, B1, B3, B4, C, D or E) below that describes how the waste must be managed to comply with the land disposal regulations (40 CFR 268.7 and LAC 33:Chapter 22 Subchapter A). Please understand that if you enter the letter B1, B3, B4 or D, you are making the appropriate certification as provided below. (States authorized by EPA to manage the LDR program may have regulatory citations different from the 40 CFR citations listed below. Where these regulatory citations differ, your certification will be deemed to refer to those state citations instead of the 40 CFR citations.)

A. RESTRICTED WASTE REQUIRES TREATMENT

This waste must be treated to the applicable treatment standards set forth in 40 CFR 268.40 and LAC 33:V.2223 and 2246.

For Hazardous Debris: "This hazardous debris is subject to the alternative treatment standards of 40 CFR 268.45 and LAC Chapter 22 Table 8.C."

B.1 RESTRICTED WASTE TREATED TO PERFORMANCE STANDARDS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification. Based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the treatment standards specified in 40 CFR 268.40 and LAC 33:V.2223 without impermissible dilution of the prohibited waste. I am aware there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.3 GOOD FAITH ANALYTICAL CERTIFICATION FOR INCINERATED ORGANICS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification. Based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the nonwastewater organic constituents have been treated by combustion in units as specified in 268.42 Table 1 and LAC 33:V Chapter 31 or Chapter 43 Subchapter N, or by combustion in fuel substitution units operating in accordance with applicable technical requirements, and combustion units as specified in Table 3 of this Chapter. I have been unable to detect the nonwastewater organic constituents despite having used best good faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.4 DECHARACTERIZED WASTE REQUIRES TREATMENT FOR UNDERLYING HAZARDOUS CONSTITUENTS

"I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.40 or 268.49 and LAC 33:V.2233 to remove the hazardous characteristic. This decharacterized waste contains underlying hazardous constituents that require further treatment to meet treatment standards. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.6 RESTRICTED DEBRIS TREATED TO ALTERNATE PERFORMANCE STANDARDS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and believe that it has been maintained and operated properly so as to comply with treatment standards specified in 40 CFR 268.45 without impermissible dilution of the prohibited wastes. I am aware there are significant penalties for submitting false certification, including the possibility of fine and imprisonment."

C. RESTRICTED WASTE SUBJECT TO A VARIANCE

This waste is subject to a national capacity variance, a treatability variance, or a case-by-case extension. Enter the effective date of prohibition in column 5 above.

For Hazardous Debris: "This hazardous debris is subject to the alternative treatment standards of 40 CFR Part 268.45 and LAC Chapter 22 Table 8.C."

D. RESTRICTED WASTE CAN BE LAND DISPOSED WITHOUT FURTHER TREATMENT

"I certify under penalty of law I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and LAC 33:V 2223 - 2233. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

E. WASTE IS NOT CURRENTLY SUBJECT TO PART 268 RESTRICTIONS

This waste is a newly identified waste that is not currently subject to any 40 CFR Part 268 restrictions.

I hereby certify that all information submitted in this and all associated documents is complete and accurate, to the

best of my knowledge and information.

Auth for PBRMILL

Signature



Title

SR. PM

Date

8/11/23

1990 Chemical Waste Management, Inc. - 09/99- Form CWM-LC-2005-C

SOLVENT

If the waste identified on the first page of this form is described by any of the following USEPA hazardous waste codes: F001, F002, F003, F004, F005, and all solvent constituents will not be monitored by the treater, then each constituent MUST be identified below by checking the appropriate box, and this page must accompany the shipment, along with the previous page of this form. If the waste code F039 describes this waste, then the corresponding list of constituents must be attached. If D001-D043 require treatment to 268.48 standards, then the underlying hazardous constituent(s) must also be attached.

2 SOLVENT WASTE TREATMENT STANDARDS			
F001 through F005 spent solvent constituents and their associated USEPA hazardous waste code(s).	1 Treatment Standard		F001 through F005 spent solvent constituents and their associated USEPA hazardous waste code(s).
	Wastewaters	Nonwastewaters	
F001 through F005 spent solvent constituents and their associated USEPA hazardous waste code(s).	1 Treatment Standard		F001 through F005 spent solvent constituents and their associated USEPA hazardous waste code(s).
	Wastewaters	Nonwastewaters	

¹ All spent solvent treatment standards are measured through a total waste analysis (TCA), unless otherwise noted. Wastewater units are mg/l, nonwastewater are mg/kg.

² For contaminated soils using the alternative soil treatment standards, the treatment standards for F001-F005 spent solvents must be a 90% reduction of constituents or less than 10 x the standards listed.

SUBCATEGORY REFERENCE

D001:

- A. Ignitable characteristic wastes, except for the 40 CFR 261.21(a) (1) High TOC subcategory.
B. High TOC Ignitable characteristic liquids subcategory based on 40 CFR 261.21(a) (1) - Greater than or equal to 10% total organic carbon.

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number PA049791098		2. Page 1 of 1		3. Emergency Response Phone (800) 424-9300		4. Manifest Tracking Number 025390724 JJK			
		5. Generator's Name and Mailing Address PHILADELPHIA ENERGY SOLUTIONS 3144 PASSYUNK AVE PHILADELPHIA PA 19145 Generator's Phone: (410) 228-1524						Generator's Site Address (if different than mailing address)			
GENERATOR		6. Transporter 1 Company Name CSX TRANSPORTATION INC						U.S. EPA ID Number FLD006921340			
		7. Transporter 2 Company Name CHEMICAL WASTE MANAGEMENT, INC.						U.S. EPA ID Number LA0000147272			
DESIGNATED FACILITY		8. Designated Facility Name and Site Address CHEMICAL WASTE MANAGEMENT INC 7170 JOHN BRANNON RD SULPHUR LA 70665 Facility's Phone: (337) 583-2169						U.S. EPA ID Number LAD000777201			
		9a. HM X						9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any)) 1. RQ, NA3077, HAZARDOUS WASTE, SOLID, N.O.S., (F037), 9, III LA957259		10. Containers No. 1 Type CM	
TRANSPORTER		11. Total / Quantity 17.88						12. Unit Wt./Vol. T		13. Waste Codes F037	
		14. Special Handling Instructions and Additional Information 1. APPROVAL # LA957259 RAIL CAR# 91484 CONTAINER# 4717 ERG# 171 ERI PROVIDER: CHEMTREC (CONTRACT #CCN24117) CWM TICKET#						15. GENERATOR'S/OFFEROR'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.			
INT'L		Generator's/Offor's Printed/Typed Name Auth. Agent for P&S LLC						Signature 		Month Day Year 08 11 23	
		16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.						Port of entry/exit: Date leaving U.S.:			
DESIGNATED FACILITY		17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name Chris Cusato for CSX						Signature 		Month Day Year 8 16 23	
		Transporter 2 Printed/Typed Name						Signature		Month Day Year	
DESIGNATED FACILITY		18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						Manifest Reference Number:			
		18b. Alternate Facility (or Generator)						U.S. EPA ID Number			
DESIGNATED FACILITY		Facility's Phone:						18c. Signature of Alternate Facility (or Generator)			
		19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						Month Day Year			
DESIGNATED FACILITY		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 _____ Signature _____ Month Day Year _____									

8/09/23

CHEMICAL WASTE MANAGEMENT, INC.

LAKE CHARLES TREATMENT CENTER
LAND DISPOSAL NOTIFICATION AND CERTIFICATION FORM (PHASE IV)

LCH-LA957259

Generator Name: PHILADELPHIA ENERGY SOLUTIONS

Manifest Doc. No.: 02589024 JK

CWM Profile Number: LA957259 DEBRIS

State Manifest No: _____

1. Is this waste a non-wastewater or wastewater? (See 40 CFR 268.2 and LAC33:V.2203) Check ONE: Nonwastewater ☒ Wastewater ☐
2. Identify ALL USEPA hazardous waste codes that apply to this waste shipment, as defined by 40 CFR 261 and LAC33:V.Chapter 49. For each waste code, identify the corresponding subcategory, or check NONE if the waste code has no subcategory. Spent solvent treatment standards are listed on the following page. If F039, multi-source leachate applies, those constituents must be listed and attached by the generator. If D001-D043 requires treatment of the characteristic and meet 268.48 standards, then the underlying hazardous constituent(s) present in the waste must be listed and attached.

REF #	3. US EPA HAZARDOUS WASTE CODE (S)	4. SUBCATEGORY ENTER THE SUBCATEGORY DESCRIPTION. IF NOT APPLICABLE, SIMPLY CHECK NONE		5. HOW MUST THE WASTE BE MANAGED? ENTER LETTER FROM BELOW
		DESCRIPTION	NONE	
1	F037		X	D
2				
3				
4				

To identify F039 or D001-D043, underlying hazardous constituent(s), use the "F039/Underlying Hazardous Constituent Form" provided (CWM-2004) and check here: _____
 If no UHCs are present in the waste upon its initial generation check here: ☒
 To list additional USEPA waste code(s) and subcategory(ies), use the supplemental sheet provided (CWM-LC-2005-D) and check here: _____
 Disposal facility monitors for all UHCs check here: _____
 If waste will be managed in a system regulated under the CWA, or a Class 1 injection well under the SDWA check here: _____

HOW MUST THE WASTE BE MANAGED? In column 5 above, enter the letter (A, B1, B3, B4, C, D or E) below that describes how the waste must be managed to comply with the land disposal regulations (40 CFR 268.7 and LAC 33:Chapter 22 Subchapter A). Please understand that if you enter the letter B1, B3, B4 or D, you are making the appropriate certification as provided below. (States authorized by EPA to manage the LDR program may have regulatory citations different from the 40 CFR citations listed below. Where these regulatory citations differ, your certification will be deemed to refer to those state citations instead of the 40 CFR citations.)

A. RESTRICTED WASTE REQUIRES TREATMENT

This waste must be treated to the applicable treatment standards set forth in 40 CFR 268.40 and LAC 33:V.2223 and 2246.

For Hazardous Debris: "This hazardous debris is subject to the alternative treatment standards of 40 CFR 268.45 and LAC Chapter 22 Table 8.C."

B.1 RESTRICTED WASTE TREATED TO PERFORMANCE STANDARDS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification. Based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the treatment standards specified in 40 CFR 268.40 and LAC 33:V.2223 without impermissible dilution of the prohibited waste. I am aware there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.3 GOOD FAITH ANALYTICAL CERTIFICATION FOR INCINERATED ORGANICS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification. Based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the nonwastewater organic constituents have been treated by combustion in units as specified in 268.42 Table 1 and LAC 33:V Chapter 31 or Chapter 43 Subchapter N, or by combustion in fuel substitution units operating in accordance with applicable technical requirements, and combustion units as specified in Table 3 of this Chapter. I have been unable to detect the nonwastewater organic constituents despite having used best good faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.4 DECHARACTERIZED WASTE REQUIRES TREATMENT FOR UNDERLYING HAZARDOUS CONSTITUENTS

"I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.40 or 268.49 and LAC 33:V.2233 to remove the hazardous characteristic. This decharacterized waste contains underlying hazardous constituents that require further treatment to meet treatment standards. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.6 RESTRICTED DEBRIS TREATED TO ALTERNATE PERFORMANCE STANDARDS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to this certification and believe that it has been maintained and operated properly so as to comply with treatment standards specified in 40 CFR 268.45 without impermissible dilution of the prohibited wastes. I am aware there are significant penalties for submitting false certification, including the possibility of fine and imprisonment."

C. RESTRICTED WASTE SUBJECT TO A VARIANCE

This waste is subject to a national capacity variance, a treatability variance, or a case-by-case extension. Enter the effective date of prohibition in column 5 above.

For Hazardous Debris: "This hazardous debris is subject to the alternative treatment standards of 40 CFR Part 268.45 and LAC Chapter 22 Table 8.C."

D. RESTRICTED WASTE CAN BE LAND DISPOSED WITHOUT FURTHER TREATMENT


"I certify under penalty of law I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and LAC 33:V 2223 - 2233. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

E. WASTE IS NOT CURRENTLY SUBJECT TO PART 268 RESTRICTIONS

This waste is a newly identified waste that is not currently subject to any 40 CFR Part 268 restrictions.

I hereby certify that all information submitted in this and all associated documents is complete and accurate, to the

best of my knowledge and information.

Signature  Title SR. PM Date 8/11/23
1990 Chemical Waste Management, Inc. - 09/99- Form CWM-LC-2005-C

SOLVENT

If the waste identified on the first page of this form is described by any of the following USEPA hazardous waste codes: F001, F002, F003, F004, F005, and all solvent constituents will not be monitored by the treater, then each constituent MUST be identified below by checking the appropriate box, and this page must accompany the shipment, along with the previous page of this form. If the waste code F039 describes this waste, then the corresponding list of constituents must be attached. If D001-D043 require treatment to 268.48 standards, then the underlying hazardous constituent(s) must also be attached.

Hazardous constituent(s) must also be attached.					
2					
SOLVENT WASTE TREATMENT STANDARDS					
F001 through F005 spent solvent constituents and their associated USEPA hazardous waste code(s).	1 Treatment Standard		F001 through F005 spent solvent constituents and their associated USEPA hazardous waste code(s).	1 Treatment Standard	
	Wastewaters	Nonwastewaters		Wastewaters	Nonwastewaters

1 All spent solvent treatment standards are measured through a total waste analysis (TCA), unless otherwise noted. Wastewater units are mg/l, nonwastewater are mg/kg.

2 For contaminated soils using the alternative soil treatment standards, the treatment standards for F001-F005 spent solvents must be a 90% reduction of constituents or less than 10 x the standards listed.



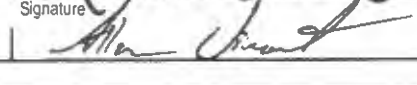
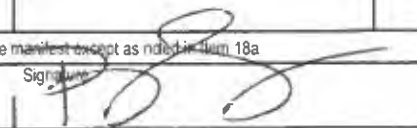
SUBCATEGORY REFERENCE

D001:

- A. Ignitable characteristic wastes, except for the 40 CFR 261.21(a)(1) High TOC subcategory.
- B. High TOC Ignitable characteristic liquids subcategory based on 40 CFR 261.21(a)(1) - Greater than or equal to 10% total organic carbon.

Please print or type.

Form Approved. OMB No. 2050-003

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number PAD049791098	2. Page 1 of	3. Emergency Response Phone (800)424-9300	4. Manifest Tracking Number 025390720 JJK	
5. Generator's Name and Mailing Address PHILADELPHIA ENERGY SOLUTIONS 3144 PASSYUNK AVE PHILADELPHIA PA 19145				Generator's Site Address (if different than mailing address)		
Generator's Phone: (440)228-1524						
6. Transporter 1 Company Name CSX TRANSPORTATION INC				U.S. EPA ID Number FLD006921340		
7. Transporter 2 Company Name CHEMICAL WASTE MANAGEMENT, INC.				U.S. EPA ID Number LA0000147272		
8. Designated Facility Name and Site Address CHEMICAL WASTE MANAGEMENT INC 7170 JOHN BRANNON RD SULPHUR LA 70665				U.S. EPA ID Number LAD00077720		
Facility's Phone: (237)583-2169						
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.
			No.	Type		
	X	1. ERG, NA30, HAZARDOUS WASTE, SOLID, N.O.S., (F037), 9, III	1	CM	19,24	F037
14. Special Handling Instructions and Additional Information 1. APPROVAL # LA957259 RAIL CAR# 91484 CONTAINER# 4643 ERG# 171 ERI PROVIDER CHEMTREC (CONTRACT #CCN24117) CWM TICKET# 84411						
15. GENERATOR'S/OFFEROR'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/Offoror's Printed/Typed Name Robert Anthony		Signature 		Month Day Year 08/11/23		
INT'L	16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit: Date leaving U.S.:			
	Transporter signature (for exports only):					
TRANSPORTER	17. Transporter Acknowledgment of Receipt of Materials		Signature		Month Day Year	
	Transporter 1 Printed/Typed Name Luis Castro For CSX				8/16/23	
	Transporter 2 Printed/Typed Name Allen Vincent				10/6/23	
DESIGNATED FACILITY	18. Discrepancy					
	18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
	RA/SP 8/23/23					
	Manifest Reference Number					
	18b. Alternate Facility (or Generator)		U.S. EPA ID Number			
	Facility's Phone					
	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	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 Belinda Spencer		Signature 		Month Day Year 10/6/23	

0000 11

TP14204040

TICKET 24
TICKET 24
ID 853571
GROSS 73560 lb INBOUND
11:35AM 10/06/2023

GROSS 73560 lb RECALLED
TARE 35700 lb
NET 37860 lb

NET 18.93 TON

01:00PM 10/06/2023

173,560
35,700

137,860

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number PA0049791098	2. Page 1 of 1	3. Emergency Response Phone (800) 424-9300	4. Manifest Tracking Number 025390721 JJK	
5. Generator's Name and Mailing Address PHILADELPHIA ENERGY SOLUTIONS 3144 PASSYUNK AVE PHILADELPHIA PA 19145 Generator's Phone: (480) 223-1524			Generator's Site Address (if different than mailing address)			
6. Transporter 1 Company Name CSX TRANSPORTATION INC.			U.S. EPA ID Number FLD006921340			
7. Transporter 2 Company Name CHEMICAL WASTE MANAGEMENT INC.			U.S. EPA ID Number LAD000147272			
8. Designated Facility Name and Site Address CHEMICAL WASTE MANAGEMENT INC 7170 JOHN BRANNON RD SULPHUR LA 70665 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. Total Quantity	12. Unit WL/Vol.	13. Waste Codes		
		No.	Type					
X	1. ERG NA3077, HAZARDOUS WASTE, SOLID, N.O.S., (F037), 9, III LA957259	1	CM	21.47	T	F037		
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information

1. APPROVAL # LA957259 RAIL CAR# 91484 TAINER# 4697
 ERG# 171 ERI PROVIDER: CHEMTREC (CONTRACT #CCN24117) CWM TICKET# 84412

15. GENERATOR'S/OFFEROR'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/Offeror's Printed/Typed Name Agenda for PSEEM LLC Signature [Signature] Month 08 Day 11 Year 23

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 Denis Castro for CSX Signature [Signature] Month 8 Day 16 Year 23

Transporter 2 Printed/Typed Name Joseph Conville Signature [Signature] Month 10 Day 16 Year 23

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

FRAISO 8/23/23 Manifest Reference Number _____

18b. Alternate Facility (or Generator) U.S. EPA ID Number _____

Facility's Phone: _____

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. _____ 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 Blanca Spicer Signature [Signature] Month 10 Day 16 Year 23

653573

EPI 422 4697

TICKET 25
TICKET 25

ID 653573
GROSS 72640 lb INBOUND
11:43AM 10/06/2023

GROSS 72640 lb RECALLED
TARE 35580 lb
NET 37060 lb

NET 18.53 TON

01:20PM 10/06/2023

72,640
35,580

37,060

Please print or type.

Form Approved. OMB No. 2050-00

103314 7741273

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: 025390722 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: CSX TRANSPORTATION INC

U.S. EPA ID Number: FLD006921340

7. Transporter 2 Company Name: CHEMICAL WASTE MANAGEMENT, INC

U.S. EPA ID Number: LA0000147272

8. Designated Facility Name and Site Address: CHEMICAL WASTE MANAGEMENT, INC
770 JOHN ANNON RD
SULPHUR LA 70665
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. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
		No.	Type					
X	1. HAZ NA3077, HAZARDOUS WASTE, SOLID, N.O.S., (F037), 9, III LA957259	1	CM	5.26	T			
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information:
1 APPROVAL # LA957259 RAIL CAR# 91481
ERG# 171 I ER: CHEMTREC (CONTRACT #CCN24117)
4709
84413

15. GENERATOR'S/OFFEROR'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/Offeror's Printed/Typed Name: Agent For PSEER LLC
Signature: [Signature]
Month Day Year: 10/11/23

16. International Shipments: ☒ Import to U.S. ☐ Export from U.S.
Transporter signature (for exports only):
Port of entry/exit:
Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Luis Castro for CSX
Signature: [Signature]
Month Day Year: 8/16/23

Transporter 2 Printed/Typed Name: Jose Negron
Signature: [Signature]
Month Day Year: 10/5/23

18. Discrepancy

18a. Discrepancy Indication Space: ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
* RA/50 8/23/23

Manifest Reference Number:

18b. Alternate Facility (or Generator):
U.S. EPA ID Number:

Facility's Phone:

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. 41132 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: Anne Ambodeaux
Signature: [Signature]
Month Day Year: 10/05/23

653370

EP14 2241709

TICKET 35
TICKET 35
ID 653370
GROSS 47080 lb INBOUND
12:23PM 10/05/2023

GROSS 47080 lb RECALLED
TARE 35620 lb
NET 11460 lb

NET 5.73 TON

03:02PM 10/05/2023

774223

47,080
35,620

11,460

Please print or type.

Form Approved. OMB No. 2050-00

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number PA0049791058	2. Page 1 of 1	3. Emergency Response Phone (800) 424-8300	4. Manifest Tracking Number 025390723 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 CSX TRANSPORTATION INC			U.S. EPA ID Number FLD006921340			
7. Transporter 2 Company Name CHEMICAL WASTE MANAGEMENT INC			U.S. EPA ID Number LAD0000147272			
8. Designated Facility Name and Site Address CHEMICAL WASTE MANAGEMENT INC 7170 JOHN BRANNON RD SULPHUR LA 70665 Facility's Phone: (237) 583-2169			U.S. EPA ID Number LAD000777201			
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.
			No.	Type		
	X	1. HAZ NA3077, HAZARDOUS WASTE, SOLID, N.O.S., (F037), 9, III LAD0007759		CM	19.29	T
		2.				
		3.				
		4.				
14. Special Handling Instructions and Additional Information 1 APPROVAL # LA957259 RAIL CAR# 91484 CONTAINER# 4850 ERG# 171 ERI PROVIDER: CHEMTREC (CONTRACT #CCN24117) CWM TICKET# 54414						
15. GENERATOR'S/OFFEROR'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/Offeror's Printed/Typed Name: <u>Robert Amos LLC</u> Signature: <u>[Signature]</u> Month: <u>08</u> Day: <u>11</u> Year: <u>2023</u>						
TRANSPORTER	16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____					
	17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name: <u>Denis Castro for CSX</u> Signature: <u>[Signature]</u> Month: <u>08</u> Day: <u>16</u> Year: <u>2023</u> Transporter 2 Printed/Typed Name: <u>James Phillips</u> Signature: <u>[Signature]</u> Month: <u>10</u> Day: <u>4</u> Year: <u>2023</u>					
DESIGNATED FACILITY	18. Discrepancy					
	18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
	*RA/SD 8123123 Manifest Reference Number					
	18b. Alternate Facility (or Generator) U.S. EPA ID Number					
Facility's Phone: _____						
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. _____		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: <u>Carrie Ambodeaux</u> Signature: <u>[Signature]</u> Month: <u>10</u> Day: <u>05</u> Year: <u>2023</u>						

653204

EP14224d

TICKET 29
TICKET 29
ID 653204
GROSS 67980 lb INBOUND
10:31AM 10/05/2023

GROSS 67980 lb RECALLED
TARE 35520 lb
NET 32460 lb

NET 16.23 TON

12:14PM 10/05/2023

774267

67980
35520

32460

Please print or type.

Form Approved. OMB No. 2050-00

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 025390724 JJK			
		5. Generator's Name and Mailing Address PHILADELPHIA ENERGY SOLUTIONS 3144 PASSYUNK AVE PHILADELPHIA PA 19145		Generator's Site Address (if different than mailing address)							
Generator's Phone: (440)228-1524		6. Transporter 1 Company Name CSX TRANSPORTATION INC						U.S. EPA ID Number FLD006921340			
7. Transporter 2 Company Name CHEMICAL WASTE MANAGEMENT, INC.		U.S. EPA ID Number LA0000147272						8. Designated Facility Name and Site Address CHEMICAL WASTE MANAGEMENT INC 7170 JOHN BRANNON RD SULPHUR LA 70665			
Facility's Phone: (337)583-2189		U.S. EPA ID Number LAD000777201									
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))				10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes	
						No.	Type				
	X	1. HAZARDOUS WASTE, SOLID, N.O.S. (F037), 9, III				1	CM	11.88	T	F037	
		LA957259									
14. Special Handling Instructions and Additional Information 1. APPROVAL # LA957259 RAIL CAR# <u>91484</u> CONTAINER# <u>4717</u> ERG# 171 ERI PROVIDER: CHEMTREC (CONTRACT #CCN24117) CWM TICKET# <u>84416</u>											
15. GENERATOR'S/OFFEROR'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/Offor's Printed/Typed Name <u>Auth. Rep. for P&S M LLC</u> Signature <u>[Signature]</u> Month <u>08</u> Day <u>11</u> Year <u>03</u>											
TRANSPORTER	16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____										
	17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name <u>Kevin's Carter for CSX</u> Signature <u>[Signature]</u> Month <u>8</u> Day <u>16</u> Year <u>03</u> Transporter 2 Printed/Typed Name <u>James Phillips</u> Signature <u>[Signature]</u> Month <u>10</u> Day <u>15</u> Year <u>03</u>										
DESIGNATED FACILITY	18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection <u>* RAISO 9/23/03</u> Manifest Reference Number: _____										
	18b. Alternate Facility (or Generator) _____ U.S. EPA ID Number _____										
	Facility's Phone: _____										
	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. <u>H132</u> 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 <u>Carole Embodaux</u> Signature <u>[Signature]</u> Month <u>10</u> Day <u>15</u> Year <u>03</u>											

653373

ERU22471

TICKET 30
TICKET 30
ID 653373
GROSS 68720 lb INBOUND
11:09AM 10/05/2023

GROSS 68720 lb RECALLED
TARE 35760 lb
NET 32960 lb

NET 16.48 TON

12:34PM 10/05/2023

68,720
25,760

32,960

Please print or type.

Form Approved. OMB No. 2050-00

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number PAD049791098	2. Page 1 of 1	3. Emergency Response Phone (800) 474-9300	4. Manifest Tracking Number 025390725 JJK	
5. Generator's Name and Mailing Address PHILADELPHIA ENERGY SOLUTIONS 3144 PASSYUNK AVE PHILADELPHIA PA 19145 Generator's Phone: (440) 223-1524				Generator's Site Address (if different than mailing address)		
6. Transporter 1 Company Name CSX TRANSPORTATION INC				U.S. EPA ID Number FLD006921340		
7. Transporter 2 Company Name CHEMICAL WASTE MANAGEMENT INC				U.S. EPA ID Number LA0000147272		
8. Designated Facility Name and Site Address CHEMICAL WASTE MANAGEMENT INC 7170 JOHN BRANNON RD SULPHUR LA 70665 Facility's Phone: (237) 583-2169				U.S. EPA ID Number LAD000777201		
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.
			No.	Type		
	X	1. PC NA3077, HAZARDOUS WASTE, SOLID, N O S, (F037), 9, III LA957259	1	CM	20.21	T
		2.				
		3.				
		4.				
14. Special Handling Instructions and Additional Information 1 APPROVAL # LA957259 RAIL CAR# 91484 CONTAINER# 4518 ERG# 171 ERI PROVIDER: CHEMTREC (CONTRACT #CCN24117) CWM TICKET# 84415						
15. GENERATOR'S/OFFEROR'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/Offoror's Printed/Typed Name: <u>Robert Anthony</u> Signature: <u>[Signature]</u> Month: <u>08</u> Day: <u>11</u> Year: <u>23</u>						
INT'L	16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____					
	17. Transporter Acknowledgment of Receipt of Materials					
TRANSPORTER	Transporter 1 Printed/Typed Name: <u>Luis Castro for CSX</u> Signature: <u>[Signature]</u> Month: <u>8</u> Day: <u>16</u> Year: <u>23</u>					
	Transporter 2 Printed/Typed Name: <u>Allen Vincent</u> Signature: <u>[Signature]</u> Month: <u>10</u> Day: <u>5</u> Year: <u>23</u>					
DESIGNATED FACILITY	18. Discrepancy					
	18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
	18b. Alternate Facility (or Generator) <u>JOIRA 8123123</u> 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. _____ 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: <u>Carrie Umbodaux</u> Signature: <u>[Signature]</u> Month: <u>10</u> Day: <u>5</u> Year: <u>23</u>						

653571

TICKET 31
TICKET 31
ID 653571
GROSS 77980 lb INBOUND
11:22AM 10/05/2023

EP142245

GROSS 77980 lb RECALLED
TARE 35280 lb
NET 42700 lb

NET 21.35 TON

01:00PM 10/05/2023

774269

77980
35280

42700

Appendix E

Field Notes and Soil Boring Logs



By: Ellie Johnston





Date	02/27/2023
Staff On-Site	ellie johnston, karsen orourke, Shane Metzger
Staff From Time	06:50
Staff To Time	14:50
Weather	Clear
Equipment	GPR, air knife rig

Contractor	MB drilling
Crew	Steve Letts, Peter Hanley
From Time	06:50
To Time	09:54
Tailgate Meeting?	YES
Remarks	

Work Summary

Met with MB drilling on site at 650. Conducted safety meeting with Mike Lamp at 730 then commenced work in the SEP4 area. Scope of work consisted of scanning each boring location via GPR. All borings were cleared as placed in the SEP4 and the Hartranft areas. Advanced two borings SB05 and SB10 via air knife to approx 6 ft bgs, collected surficial samples in each. Petroleum impacts identified in each boring. Off site by 1450.

Time	Notes
06:00	S. Metzger and E. Johnston depart for Site.
06:52	S. Metzger (TEI), K. O'Rourke (TEI) and E. Johnston (TEI) arrive on-site. Peter Hanley and Steve Letts (MB Drilling) already on site. S. Metzger departs for other on-Site sampling activities with K. O'Rourke.
07:10	Arrive at Girard Point office to obtain clearances/badges for Drillers and fix E. Johnston's badge.
07:23	K. O'Rourke calibrates PID.
07:35	Meet with Mike Lamp (North Star) to conduct Health and Safety Meeting.
07:55	Site-specific soil safety tailgate conducted.
08:35	Mobilized to the Sep 4 area, met with Michael McDonald (TEI) to discuss logistics and site plan.
09:00	Begin scanning Sep 4 area via GPR.
10:00	M. McDonald off-site.
10:30	Mobilize to Hartranft area and commence scanning borings via GPR. Borings in standing water inaccessible, P. Hanley cleared the area surrounding the standing water. All other borings cleared as placed.
10:45	Finish scanning Sep 4 area, all borings cleared as placed.
12:00	Finish scanning Hartranft area then lunch break.
12:30	Mobilize to Sep 4 area, begin preclearing SEP4-SB05 via air knife. Boring advanced to 5 ft bgs.
12:45	Sandy gravel, dark gray, damp, loose, well graded, Sample SEP4-SB05-0.0-0.5 collected at 1245

Time	Notes
	 <p>Picture taken at: 10:11 Caption: Latitude: 39.90977387336788 Longitude: -75.21268016285812</p>
	 <p>Picture taken at: 10:36 Caption: Latitude: 39.90973844955529 Longitude: -75.21313866488902</p>
	 <p>Picture taken at: 10:37 Caption: Latitude: 39.90972463379952 Longitude: -75.21332374619755</p>
	 <p>Picture taken at: 10:37 Caption: Latitude: 39.90958133661265 Longitude: -75.21337793647344</p>

Time	Notes
	 <p>Picture taken at: 10:38 Caption: Latitude: 39.90956539000884 Longitude: -75.21306186617208</p>
	 <p>Picture taken at: 10:38 Caption: Latitude: 39.90975056234478 Longitude: -75.21269237558897</p>
	 <p>Picture taken at: 10:40 Caption: Latitude: 39.90989558880819 Longitude: -75.21146702588216</p>
	 <p>Picture taken at: 10:45 Caption: Latitude: 39.90975162438082 Longitude: -75.20853596603757</p>

Time Notes



Picture taken at: 10:45

Caption:

Latitude: 39.9097547357301

Longitude: -75.20861282555377



Picture taken at: 10:45

Caption:

Latitude: 39.90978558185211

Longitude: -75.2086343080488



Picture taken at: 10:45

Caption:

Latitude: 39.9097518006457

Longitude: -75.20885602632177








Picture taken at: 10:46

Caption:

Latitude: 39.90980298549244

Longitude: -75.20884741839316

Time	Notes
	 <p>Picture taken at: 11:39 Caption: Latitude: 39.91285390100867 Longitude: -75.20056497537817</p>
	 <p>Picture taken at: 11:39 Caption: Latitude: 39.91285163054374 Longitude: -75.20057062653419</p>
	 <p>Picture taken at: 11:39 Caption: Latitude: 39.91288822135057 Longitude: -75.20053873896003</p>
	 <p>Picture taken at: 11:39 Caption: Latitude: 39.91289301123386 Longitude: -75.20054233489027</p>



Time	Notes
	<div>  <p>Picture taken at: 13:53</p> <p>Caption:</p> <p>Latitude: 39.90985816638937</p> <p>Longitude: -75.20809235043615</p> </div>
13:00	Return to Girard Point office to have badges made for S. Letts and P. Hanley.
13:15	Return to Sep 4 area to continue preclearing. Commence SEP4-SB10 via air knife to 6 ft. bgs.
13:55	Sandy gravel, dark gray, damp, loose, well graded, petroleum like odor, PID 10.8 at 0.5. Sample SEP4-SB10-0-0.5 collected at 1355. Strong petroleum smell at 6fbg.
14:00	Finish for day, P. Hanley goes over standard daily field log, clean up, go over plan for tomorrow.
14:45	MB Drilling off-site.
14:50	S. Metzger and E. Johnston off-site.



By: Ellie Johnston

Date	02/28/2023	Contractor	MB Drilling
Staff On-Site	Ellie Johnston	Crew	Steve Letts, Peter Hanley
Staff From Time	06:55	From Time	06:50
Staff To Time	14:40	To Time	14:20
Weather	Cloudy Rain Cold	Tailgate Meeting?	NA
Equipment	Air knife rig	Remarks	




Work Summary

Preclear soil borings in the Sep4 area via air knife.

Time	Notes
06:00	Depart for site.
06:55	Ellie Johnston (TEI) on site. Met Peter Hanley (MB) at staging area.
07:00	Calibrate PID
07:20	Steve Letts (MB) on site.
07:50	Commence preclearing in the Sep 4 area, began at SEP4-SB09.
08:02	Sandy gravel, dark gray, damp, loose, well graded, petroleum like odor, PID 10.8 at 0.5. Sample SEP4-SB09-0-0.5 collected at 802.
	<div>  <p>Picture taken at: 07:41 Caption: Latitude: 39.90974862237346 Longitude: -75.20832848298498</p> </div> <div>  <p>Picture taken at: 07:42 Caption: Latitude: 39.90979198419861 Longitude: -75.20861359415304</p> </div>

Time	Notes
	 <p>Picture taken at: 07:42 Caption: Latitude: 39.90980067433692 Longitude: -75.20867028940165</p>
	 <p>Picture taken at: 08:05 Caption: Latitude: 39.90975880637505 Longitude: -75.20815304474623</p>
08:05	Begin preclearing SEP4-SB04.
08:14	<p>Clayey gravel, dark gray, damp, medium dense, well graded, petroleum like odor, PID 12.8 at 0.5, slight oily residue in surface soil. Sample SEP4-SB04-0-0.5 collected at 814.</p>  <p>Picture taken at: 08:16 Caption: Latitude: 39.90979010283578 Longitude: -75.20820610487971</p>
08:30	Begin preclearing SEP4-SB08.
08:42	<p>Sandy gravel, dark gray, damp, medium dense, well graded, petroleum like odor, PID 10.8 at 0.5. Sample SEP4-SB08-0-0.5 collected at 845. Strong petroleum smell at 6fbg.</p>

Time	Notes
	<div>  <p>Picture taken at: 08:30 Caption: Latitude: 39.90972586199271 Longitude: -75.20864861404685</p> </div>
	<div>  <p>Picture taken at: 08:47 Caption: Latitude: 39.90979556176012 Longitude: -75.20822843734454</p> </div>
08:45	Begin preclearing SEP4-SB03.
08:55	Clayey gravel, dark gray, damp, medium dense, well graded, petroleum like odor, PID 12.8 at 0.5, slight oily residue in surface soil. Sample SEP4-SB03-0-0.5 collected at 855.
09:15	Begin preclearing SEP4-SB02.
09:50	Begin preclearing SEP4-SB07.
09:54	Sandy gravel, dark gray, damp, medium dense, well graded, petroleum like odor, Sample SEP4-SB02-0-0.5 collected at 954
	<div>  <p>Picture taken at: 09:59 Caption: Latitude: 39.9098105894447 Longitude: -75.2081824222497</p> </div>

Time	Notes
	 <p>Picture taken at: 10:06 Caption: Latitude: 39.90974913937435 Longitude: -75.20823228978502</p>
10:15	Clayey gravel, dark gray, damp, medium dense, well graded, petroleum like odor, PID 83.8 at 0.5, slight oily residue in surface soil. Strong odor in top 5 ft bgs. Sample SEP4-SB07-0-0.5 collected at 1015.
10:30	Short break, reposition rig at other side of release area. Begin preclearing SEP4-SB01.
11:20	Begin preclearing SEP4-SB06.
11:24	Sandy gravel, dark gray, damp, loose, well graded, no PIDs. Sample SEP4-SB01-0.0-0.5 collected at 1124.
	 <p>Picture taken at: 11:13 Caption: Latitude: 39.9097782941375 Longitude: -75.20881421881963</p>
	 <p>Picture taken at: 11:26 Caption: Latitude: 39.90968751768179 Longitude: -75.2091858578029</p>

Time Notes



Picture taken at: 11:43

Caption:

Latitude: 39.9097423593989

Longitude: -75.20918048677318

11:36 Sandy gravel, dark gray, damp, loose, well graded, no PIDs. Sample SEP4-SB06-0.0-0.5 collected at 1136.

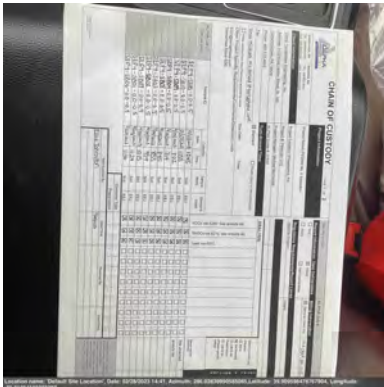


Picture taken at: 12:33

Caption:

Latitude: 39.90966035965437

Longitude: -75.21023819322767



Picture taken at: 14:41

Caption:

Latitude: 39.9095984787679

Longitude: -75.21254165023397



Picture taken at: 14:41

Caption:

Latitude: 39.90956001803827

Longitude: -75.21257712261577

11:45 Begin lunch break


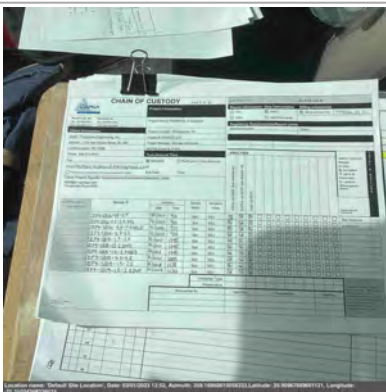
Time	Notes
12:15	Begin preclearing SEP4-SB11.
12:30	Sandy gravel, dark gray, damp, loose, well graded, no PIDs. Sample SEP4-SB11-0.0-0.5 collected at 1230
	<div>  <p>Picture taken at: 12:46 Caption: Latitude: 39.90995014090969 Longitude: -75.21140364459494</p> </div>
12:35	Begin preclearing SEP4-SB12.
12:50	Clayey gravel, dark gray, damp, loose, well graded, no PIDs. Sample SEP4-SB12-0.0-0.5 collected at 1250
13:00	Begin preclearing SEP4-SB13.
13:25	Sandy gravel, dark gray, damp, loose, well graded, no PIDs. Sample SEP4-SB13-0.0-0.5 collected at 1325.
	<div>  <p>Picture taken at: 13:31 Caption: Latitude: 39.90973707326478 Longitude: -75.21264708321232</p> </div>
	<div>  <p>Picture taken at: 13:41 Caption: Latitude: 39.90976866317832 Longitude: -75.21262498896054</p> </div>

Time	Notes
	<div>  <p>Picture taken at: 13:41 Caption: Latitude: 39.90975270134108 Longitude: -75.21263612394411</p> </div>
13:30	Begin preclearing SEP4-SB17.
13:40	Begin preclearing SEP4-SB15.
13:45	Sandy gravel, tannish brown, dry, loose, well graded, no PIDs. Sample SEP4-SB15-0.0-0.5 collected at 1350.
13:45	Sandy gravel, tannish brown, damp, loose, well graded, PID 4ppm at 0.5 ft bgs, slight petroleum odor. Sample SEP4-SB17-0.0-0.5 collected at 1345.
14:16	Sample TB-230228-1 collected.
14:20	MB Drillers off-site.
14:40	E. Johnston off-site.
15:00	Drop Samples off at Alpha Analytical Holmes location.

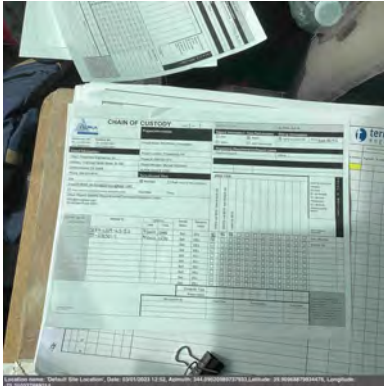
By: Ellie Johnston

Date	03/01/2023	Contractor	MB Drilling
Staff On-Site	Ellie Johnston	Crew	Steve Comis, Peter Hanley
Staff From Time	07:00	From Time	07:00
Staff To Time	13:00	To Time	12:40
Weather	Clear Cold	Tailgate Meeting?	YES
Equipment		Remarks	

Work Summary

Time	Notes
06:55	E. Johnston arrives on site and Meets P. Hanley (already on site) at staging area. P. Hanley informs E. Johnston that S. Letts called out and MB would be sending a replacement for him on an unknown timeline. E. Johnston begins preparing bottleware, field notes, calibrates PID, etc. in interim.
08:20	Steve Comis (MB) arrives on site, E. Johnston mobilizes to North gate to badge him in.
08:40	Arrive at Sep4 area to continue preclearing borings. Safety tailgate conducted for S. Comis.
09:00	Begin preclearing SEP4-SB16 via air knife.
09:10	Gravelly clay, dark gray/black, moist, medium dense, slight plasticity, PID 28.9 at 0.5, strong petroleum odor, sample SEP4-SB16-0.0-0.5, SEP4-SB16-0.0-0.5MS, and SEP4-SB16-0.0-0.5MSD collected at 910.
	<div>  <p>Picture taken at: 09:06</p> <p>Caption:</p> <p>Latitude: 39.90970883934524</p> <p>Longitude: -75.21323992370938</p> </div>
	<div>  <p>Picture taken at: 12:52</p> <p>Caption:</p> <p>Latitude: 39.90967889601121</p> <p>Longitude: -75.21034398239121</p> </div>

Time Notes



Picture taken at: 12:52
Caption:
Latitude: 39.90968879934476
Longitude: -75.210337889214






Picture taken at: 13:02
Caption:
Latitude: 39.91285106521919
Longitude: -75.20032857067461



Picture taken at: 13:03
Caption:
Latitude: 39.91274675815009
Longitude: -75.20044658688164



Picture taken at: 13:03
Caption:
Latitude: 39.9127372178951
Longitude: -75.20044767915418

Time	Notes
	 <p>Picture taken at: 13:03 Caption: Latitude: 39.91283155703574 Longitude: -75.20032479405268</p>
	 <p>Picture taken at: 13:03 Caption: Latitude: 39.91291783324685 Longitude: -75.2002868701727</p>
09:15	Begin preclearing SEP4-SB14 via air knife.
09:30	Sandy gravel, Light brown, wet, loose, petroleum odor, 66.9 PID at 0.5. Sample SEP4-SB14-0.0-0.5 collected at 930.
	 <p>Picture taken at: 09:29 Caption: Latitude: 39.9097281838271 Longitude: -75.21327025058447</p>
09:45	Mobilize back to boring locations SEP4-SB18 & SEP4-SB19.
10:04	Commence hand augering SEP-4-SB18 to 4.5 ft bgs.
10:13	
10:45	SEP4-SB18-1.5-2.0, SEP4-SB18-1.5-2.0MS, and SEP4-SB18-1.5-2.0MSD collected at 1045.

Time	Notes
	<div>  <p>Picture taken at: 10:21 Caption: Latitude: 39.90981134949369 Longitude: -75.20877781265827</p> </div>
	<div>  <p>Picture taken at: 10:45 Caption: Latitude: 39.90974110945758 Longitude: -75.20881387028399</p> </div>
	<div>  <p>Picture taken at: 11:44 Caption: Latitude: 39.90975043847718 Longitude: -75.20880014192366</p> </div>
10:55	SEP4-SB18-4.0-4.5 collected at 1055
10:58	Commence hand augering SEP4-SB19 to 5 ft bgs.
11:30	SEP4-SB19-1.5-2.0 and SEP4-SB19-1.5-2.0DUP collected at 1130.
11:40	SEP4-SB19-4.5-5.0 collected at 1140.
11:50	MB cleans up equipment to demobilize.
12:30	TB-230301-1 collected.
12:40	MB drilling off-site.
13:15	E. Johnston finishes paperwork, mobilized to hartranft are to assess standing water, then leaves site.



Site: PESRM- No. 4 Separator Release Area
3144 Passyunk Avenue, Philadelphia, Pennsylvania, 19145

Time	Notes
13:45	E. Johnston drops samples off at Alpha Analytical Holmes location and returns to office.

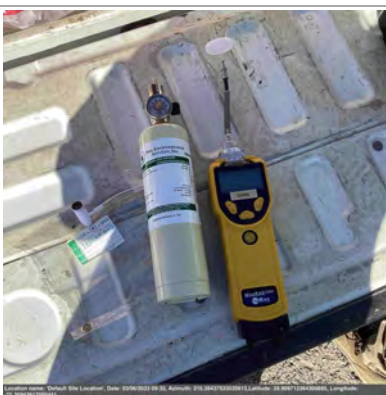
By: Ellie Johnston

Date	03/06/2023	Contractor	MB Drilling
Staff On-Site	Ellie Johnston, nicholas kilgore	Crew	Peter Hanley, Steve Letts
Staff From Time	08:35	From Time	09:05
Staff To Time	16:32	To Time	14:46
Weather	Cold Clear	Tailgate Meeting?	
Equipment	Direct push 7822DT geoprobe	Remarks	

Work Summary

Advance soil borings in the No. 4 separator release area.

Time	Notes
07:45	EJ departs for office
08:35	E. Johnston on site, met with pine to pickup PID
08:50	N. Gilgore on site
09:01	MB Drilling on site
09:06	Mobilize to SEP4 Area
09:25	Calibrate PID, see picture for lot and serial number



Picture taken at: 09:32

Caption:

Latitude: 39.90971336430088

Longitude: -75.20943917050441

09:44 Begin drilling SB05



Picture taken at: 09:45

Caption:

Latitude: 39.90974651259739

Longitude: -75.20846880110079

10:25 Collect sample SEP4-SB05-4.5-5.0

Time	Notes
10:33	Begin drilling SB10
	<div>  <p>Picture taken at: 10:56</p> <p>Caption:</p> <p>Latitude: 39.9097884483456</p> <p>Longitude: -75.20837480702113</p> </div>
11:00	Sample SEP4-SB10-4.5-5.0
11:04	Start drilling SB04
11:35	Sample SEP4-SB04-9.5-10.0 collected
11:37	Star drilling SB09
	<div>  <p>Picture taken at: 11:37</p> <p>Caption:</p> <p>Latitude: 39.90983934642631</p> <p>Longitude: -75.20835844565393</p> </div>
12:05	Sample SEP4-SB09-4.5-5.0 collected
	<div>  <p>Picture taken at: 12:13</p> <p>Caption:</p> <p>Latitude: 39.90981623286514</p> <p>Longitude: -75.20832858379651</p> </div>
12:20	Start drilling SB08

Time Notes



Picture taken at: 12:20

Caption:

Latitude: 39.90982596139148

Longitude: -75.20835875309034



Picture taken at: 12:59

Caption:

Latitude: 39.90982041305341

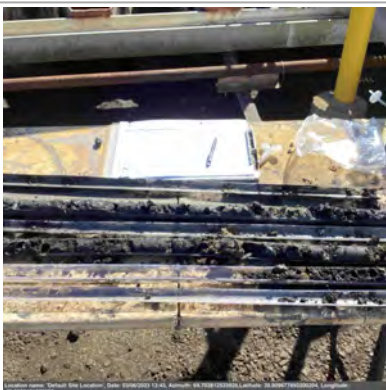
Longitude: -75.20834083604424

12:50 Start drilling SB03

12:55 Sample SEP4-SB08-4.5-5.0 collected

13:30 Begin drilling SB02

13:32 Sample SEP4-SB03-3.5-4.0 Collected



Picture taken at: 13:43

Caption:

Latitude: 39.9096778502002

Longitude: -75.2086101078257

Time	Notes
	<div>  <p>Picture taken at: 16:27</p> <p>Caption:</p> <p>Latitude: 39.90364769953577</p> <p>Longitude: -75.19735149928006</p> </div>
13:35	Sample SEP4-SB03-9.5-10 collected
14:20	Start drilling SB07
	<div>  <p>Picture taken at: 14:51</p> <p>Caption:</p> <p>Latitude: 39.90958166428684</p> <p>Longitude: -75.20834677216234</p> </div>
	<div>  <p>Picture taken at: 15:35</p> <p>Caption:</p> <p>Latitude: 39.90975268529146</p> <p>Longitude: -75.20854004639085</p> </div>
14:25	Sample SEP4-SB02-9.5-10 Collected

Time	Notes
	 <p>Picture taken at: 14:25</p> <p>Caption:</p> <p>Latitude: 39.90972997281442</p> <p>Longitude: -75.20860410321833</p>
14:30	Start drilling SB01
14:52	Sample SEP4-SB01-9.5-10.0 collected
15:15	Sample SEP4-SB07-4.5-5.0 collected
15:30	Drillers off site
15:30	Finish and cleanup, start paperwork
16:00	N Kilgore off site
16:32	EJ off-site to drop samples off at lab
16:56	Drop samples off at Alpha Analytical Holmes location
17:34	E. Johnston returned to office

By: Ellie Johnston

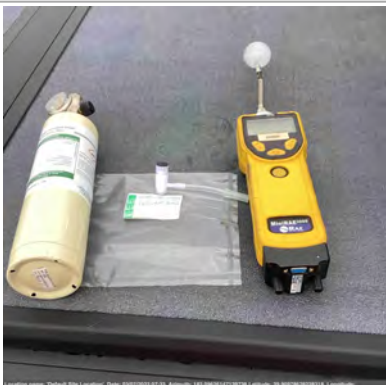
Date	03/07/2023
Staff On-Site	nicholas kilgore, ellie johnston
Staff From Time	07:00
Staff To Time	15:55
Weather	Cold Cloudy
Equipment	Direct push 7822DT geoprobe

Contractor	MB Drilling
Crew	P. Hanley, s.Letts
From Time	07:00
To Time	15:00
Tailgate Meeting?	
Remarks	

Work Summary

Complete remaining soil borings in the SEP4 release area.

Time	Notes
06:15	Ej departs for site
06:50	N. Kilgore on site
06:50	MB on site
07:03	E. Johnston on site
07:28	Calibrate PID, see picture for serial and lot number



Picture taken at: 07:33

Caption:

Latitude: 39.90978628228318

Longitude: -75.2094843082493



Picture taken at: 07:34

Caption:

Latitude: 39.90978280007081

Longitude: -75.20949952810737

07:35 Begin set up and drilling of SB06

Site: PESRM- No. 4 Separator & Hartranft Release
Areas

3144 Passyunk Avenue, Philadelphia, Pennsylvania, 19145

Time Notes

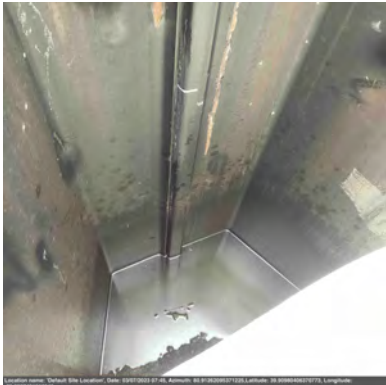


Picture taken at: 07:45

Caption:

Latitude: 39.90979061461417

Longitude: -75.20887615682612



Picture taken at: 07:45

Caption:

Latitude: 39.90980406370773

Longitude: -75.2087431513649



Picture taken at: 07:46

Caption:

Latitude: 39.90979977510753

Longitude: -75.2087556640009



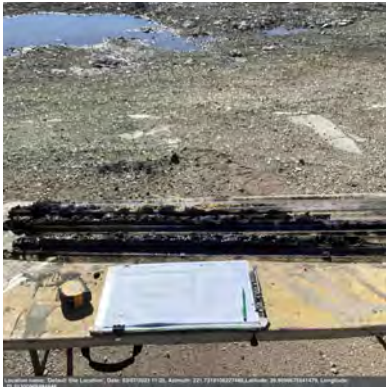
Picture taken at: 07:47

Caption:

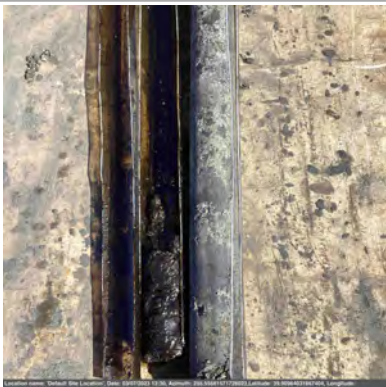

Latitude: 39.90981602850997

Longitude: -75.20877449813608

Time	Notes
	<div>  <p>Picture taken at: 07:49</p> <p>Caption:</p> <p>Latitude: 39.90983312863035</p> <p>Longitude: -75.2085608253713</p> </div>
08:30	<p>Samples SEP4-SB06-4.0-4.5 and SEP4-SB06-4.0-4.5DUP collected</p> <div>  <p>Picture taken at: 08:35</p> <p>Caption:</p> <p>Latitude: 39.9097245281557</p> <p>Longitude: -75.20860873584823</p> </div>
08:48	Begin Drilling SB11
09:14	Begin drilling SB12
	<div>  <p>Picture taken at: 09:30</p> <p>Caption:</p> <p>Latitude: 39.90985113814582</p> <p>Longitude: -75.21112005299042</p> </div>
09:28	Sample SEP4-SB11-4.5-5.0 collected
09:52	Sample SEP4-SB12-2.5-3.0 collected
10:10	Mob to southern portion of site, short break
10:29	Start drilling SB13

Time	Notes
	 <p>Picture taken at: 09:54 Caption: Latitude: 39.90983316229045 Longitude: -75.21106857214043</p>
10:40	Begin drilling SB 15
10:51	Begin drilling SB17
	 <p>Picture taken at: 11:25 Caption: Latitude: 39.9096675541479 Longitude: -75.21320908984646</p>
10:55	Sample SEP4-SB13-4.0-4.5 collected
	 <p>Picture taken at: 10:51 Caption: Latitude: 39.90966308902512 Longitude: -75.21321849463192</p>
11:25	Samples SEP4-SB15-4.0-4.5 & SEP4-SB15-4.0-4.5DUP collected
12:00	Start drilling SB16, refusal at 6 ft bgs

Time	Notes
	<div>  <p>Picture taken at: 14:59 Caption: Latitude: 39.9185006666667 Longitude: -75.1924938333334</p> </div>
12:10	Second attempt at SB16, Refusal at 6 ft bgs
12:15	Sample SEP4-SB17- 4.5-5.0, SEP4-SB17- 4.5-5.0MS, and SEP4-SB17-4.5-5.0MSD collected
12:20	Lunch
	<div>  <p>Picture taken at: 12:14 Caption: Latitude: 39.9096913948831 Longitude: -75.21317219608399</p> </div>
13:08	Start drilling SB14
	<div>  <p>Picture taken at: 13:30 Caption: Latitude: 39.90963407252746 Longitude: -75.21323486204923</p> </div>

Time	Notes
	 <p>Picture taken at: 13:30</p> <p>Caption:</p> <p>Latitude: 39.90964031867404</p> <p>Longitude: -75.21322098381933</p>
13:40	<p>Sample SEP4-SB16-4.0-4.5 collected</p>  <p>Picture taken at: 13:55</p> <p>Caption:</p> <p>Latitude: 39.90965330168695</p> <p>Longitude: -75.21319799100678</p>
13:43	Third Attempt at SB16, refusal at 6 ft bgs
14:10	Sample SEP4-SB14-9.5-10.0 collected
14:38	Mobilize to air monitoring station for n. Kilgore to collect measurement. E. Johnston discusses game plan with drillers for mw abandonments.
14:50	Scope TG02 MWs 7 and 15
15:08	N. Kilgore off-site to drop off samples. E. Johnston mobilizes back to sep4 area to collect gps points
15:55	E. Johnston off site

By: Ellie Johnston

Date 09/22/2023
Staff On-Site Ellie Johnston
Staff From Time 07:01
Staff To Time 00:20
Weather Cloudy|Sunny
Equipment 7822DT Geoprobe

Contractor
Crew Dave Macaluso
From Time 07:30
To Time 11:45
Tailgate Meeting? YES
Remarks

Work Summary

Advance soil borings for attainment sampling

Time	Notes
07:00	E. Johnston on site. Drillers not at meeting point
07:30	Call with Nick Falluca (MB), drillers were located at the wrong entrance and did not have updated contact information to let anyone know
07:40	Meet drillers and mob to sep 4 area. Work being done on the OWS, ask Northstar to move equipment away from investigation area.
07:41	Conduct H&S tailgate

Ellie Johnston 9/22/23
J. Macaluso 9/22/23
DM 9/22/23

Picture taken at: 11:16

Caption:

Latitude: 39.90982568007414

Longitude: -75.20822436727777

08:04

Calibrate PID, see picture for lot and serial number.
Zero cal- 0.0ppm
Span cal- 99.9ppm

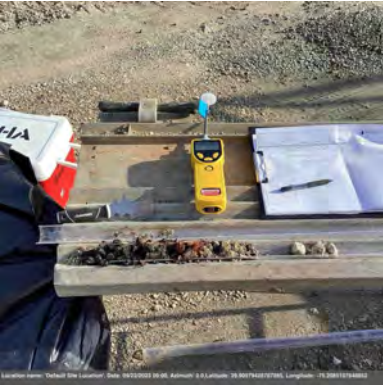









Picture taken at: 08:49

Caption:

Latitude: 39.90975952148438

Longitude: -75.20769743468324

Time	Notes
	 <p>Picture taken at: 09:00 Caption: Latitude: 39.9097587170052 Longitude: -75.2085850818304</p>
	 <p>Picture taken at: 09:21 Caption: Latitude: 39.90979428707265 Longitude: -75.2085107840852</p>
	 <p>Picture taken at: 09:45 Caption: Latitude: 39.90971936741406 Longitude: -75.20852871826885</p>
	 <p>Picture taken at: 10:03 Caption: Latitude: 39.90972908707579 Longitude: -75.20851042602251</p>

Time	Notes
	 <p>Picture taken at: 10:30 Caption: Latitude: 39.90974140039851 Longitude: -75.2085235883869</p>
	 <p>Picture taken at: 10:51 Caption: Latitude: 39.90975326029686 Longitude: -75.20855580986397</p>
	 <p>Picture taken at: 10:59 Caption: Latitude: 39.90976044627815 Longitude: -75.20850692911331</p>
	 <p>Picture taken at: 10:59 Caption: Latitude: 39.90985751103772 Longitude: -75.20821017489357</p>

08:20 Begin drilling SEP4-SB21

08:30 Drill borings SEP4-SB20 and SEP4-SB22































Time	Notes
08:40	Discuss sample interval with A. Strohl due to presence of concrete and brick in proposed interval. Collect sample SEP4-SB21-1.5-2.0. All samples to be analyzed for PADEP petroleum shortlists 1-6.
09:05	Collect sample SEP4-SB20-0.0-0.5
09:30	Drill borings SEP4-SB23 and SEP4-SB24
09:45	Collect sample SEP4-SB23-0.67-1.17
10:00	Collect sample SEP4-SB24-1.0-1.5
10:00	Drill borings SEP4-SB25 and SEP4-SB26
10:15	Collect sample SEP4-SB25-1.0-1.5
10:25	Drill boring SEP4-SB27
10:30	Collect sample SEP4-SB26-0.5-1.0
10:50	Collect sample SEP4-SB27-1.0-1.5
11:15	Begin packing up equipment and cleaning up site
11:30	Drillers off site, E. Johnston completes COC
12:00	Finish COC and mob to Hartranft area to inspect conditions following hydrant repair
12:15	Communicate observations to A. Strohl and mob off site to drop samples off at Alpha Analytical Holmes facility
12:47	Relinquish samples to Alpha Analytical and return to office

Project: **PESRM No. 4 Separator**
 Project Location: **3144 West Passyunk Avenue**
 Project Number: **P044.001.012**

Log of Boring SEP4-SB01
 Sheet 1 of 1

Date(s) Drilled 3/6/2023	Logged By E. Johnston	Checked By M. McDonald
Drilling Method Direct Push	Drill Bit Size/Type 2"x5' macrocore	Total Depth of Borehole 15.0' bgs
Drill Rig Type 7822 DT	Drilling Contractor MB Drilling (Driller: Peter Hanley, Steve Letts)	Borehole Backfill Soil Cuttings
Interpreted Water Table Depth 10.0' bgs	Sampling Method(s) Grab	Date Backfilled 3/6/2023
Location No. 4 Separator Release Area		








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Depth (feet)	Recovery (feet)	Sample Type	Sample Number	USCS Symbol	Graphic Log	PID Reading, ppm	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
0			SEP4-SB01-0.0-0.5	Fill		0.6	Mixed sands, silts, clays, gravel, brick, and wood, moist, loose	Sample SEP4-SB01-0.0-0.5 collected at 0.0' to 0.5' bgs.
2.92						0.6		
						0.8		
						1.2		
						4.2		
						1.0		
						0.8		
						3.2		
						3.3		
5				CL		3.6		
						3.6	Sandy CLAY (fill), black, moist, medium dense, low plasticity, poorly-graded sand, petroleum-like odor; with wood and brick fragments	
						3.3		
						8.8		
						2.0		
						1.3		
						1.1		
						0.7		
						0.7		
						0.5		
10			SEP4-SB01-9.5-10.0	CL		10.1		Sample SEP4-SB01-9.5-10.0 collected at 9.5' to 10.0' above interpreted soil/groundwater interface
						1.4	Gravelly CLAY (fill), black, saturated, medium dense, slight plasticity, well-graded gravel, petroleum-like odor	
						1.7		
						1.2		
						2.7		
						4.0		
				CL		2.8	Gravelly CLAY (fill), black, very moist, medium dense, slight plasticity, well-graded gravel, petroleum-like odor	
						13.8		
				CL		16.9	Sandy CLAY (fill), black, very moist, medium dense, slight plasticity, poorly-graded sand, petroleum-like odor; fill with wood fragments	
						9.9		
						5.1		
15							Bottom of boring at 15.0' bgs	
20								

Project: **PESRM No. 4 Separator**
 Project Location: **3144 West Passyunk Avenue**
 Project Number: **P044.001.012**

Log of Boring SEP4-SB04
Sheet 1 of 1

Date(s) Drilled 3/6/2023	Logged By E. Johnston	Checked By M. McDonald
Drilling Method Direct Push	Drill Bit Size/Type 2"x5' macrocore	Total Depth of Borehole 15.0' bgs
Drill Rig Type 7822 DT	Drilling Contractor MB Drilling (Driller: Peter Hanley, Steve Letts)	Borehole Backfill Soil Cuttings
Interpreted Water Table Depth 10.0' bgs	Sampling Method(s) Grab	Date Backfilled 3/6/2023
Location No. 4 Separator Release Area		



Depth (feet)	Recovery (feet)	Sample Type	Sample Number	USCS Symbol	Graphic Log	PID Reading, ppm	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
0			SEP4-SB04-0.0-0.5	Fill		0	Mixed silts, sands, gravel, brick, and clay, moist, medium dense	Sample SEP4-SB04-0.0-0.5 collected at 0.0' to 0.5' bgs.
2.42				Fill		0.2	Mixed silts, sands, gravel, brick, and clay, very moist, medium dense	
5				Fill		10.3	Mixed silts, sands, gravel, brick, and clay, saturated, medium dense	
3.33				CL		5.6	Gravelly CLAY (fill), black, very moist, medium dense, no plasticity, well-graded gravel	
10				CL		2.7	Gravelly CLAY (fill), black, very moist, medium dense, no plasticity, with wood and riverstone	Sample SEP4-SB04-9.5-10.0 collected at 9.5' to 10.0' bgs above interpreted soil/groundwater interface
4.50				CL		1.1	Gravelly CLAY (fill), black, saturated, medium dense, slight plasticity, well-graded gravel, petroleum-like odor, sheen and petroleum-like residue	
15				GC		1.3	Clayey GRAVEL (fill), black, saturated, loose, well-graded, slightly plastic clay, petroleum-like odor, with brick	
						2.4	Bottom of boring at 15.0' bgs	
20								

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Project: **PESRM No. 4 Separator**
 Project Location: **3144 West Passyunk Avenue**
 Project Number: **P044.001.012**

Log of Boring SEP4-SB06
 Sheet 1 of 1

Date(s) Drilled 3/6/2023	Logged By E. Johnston	Checked By M. McDonald
Drilling Method Direct Push	Drill Bit Size/Type 2"x5' macrocore	Total Depth of Borehole 15.0' bgs
Drill Rig Type 7822 DT	Drilling Contractor MB Drilling (Driller: Peter Hanley, Steve Letts)	Borehole Backfill Soil Cuttings
Interpreted Water Table Depth 4.5' bgs	Sampling Method(s) Grab	Date Backfilled 3/6/2023
Location No. 4 Separator Release Area		

Depth (feet)	Recovery (feet)	Sample Type	Sample Number	USCS Symbol	Graphic Log	PID Reading, ppm	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
0			SEP4-SB06-0.0-0.5	Fill		0.1 0.1 0.3 0.3 0.3 0.3 0.2 13.6	Mixed silts, gravel, sand and clay with wood and brick, moist, medium dense, petroleum-like odor	Sample SEP4-SB06-0.0-0.5 collected at 0.0' to 0.5' bgs.
2.42						3.5		
			SEP4-SB06-4.0-4.5	GW		21.0 17.9 26.6 14.3 46.4 49.1 64.1 40.2 33.6 18.0 12.6 27.9 21.6 19.8 12.5 5.1 7.0 5.4 5.5 6.4 5.5	Sandy GRAVEL (fill), black, saturated, medium dense, with brick, petroleum-like odor and sheen	Sample SEP4-SB06-4.0-4.5 collected at 4.0' to 4.5' bgs above interpreted soil/groundwater interface
5								
3.33								
4.50								
10								
15							Bottom of boring at 15.0' bgs	
20								































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Project: **PESRM No. 4 Separator**
 Project Location: **3144 West Passyunk Avenue**
 Project Number: **P044.001.012**

Log of Boring SEP4-SB08
Sheet 1 of 1

Date(s) Drilled 3/6/2023	Logged By E. Johnston	Checked By M. McDonald
Drilling Method Direct Push	Drill Bit Size/Type 2"x5' macrocore	Total Depth of Borehole 15.0' bgs
Drill Rig Type 7822 DT	Drilling Contractor MB Drilling (Driller: Peter Hanley, Steve Letts)	Borehole Backfill Soil Cuttings
Interpreted Water Table Depth 5.0' bgs	Sampling Method(s) Grab	Date Backfilled 3/6/2023
Location No. 4 Separator Release Area		

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Depth (feet)	Recovery (feet)	Sample Type	Sample Number	USCS Symbol	Graphic Log	PID Reading, ppm	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
0			SEP4-SB08-0.0-0.5	Fill		5.4	Mixed gravel, silts, sand and brick, moist, dense	Sample SEP4-SB08-0.0-0.5 collected at 0.0' to 0.5' bgs.
1.83						17.7		
						9.3		
						1.8		
						20.2		
						19.1		
						4.8		
						3.5		
						8.5		
5			SEP4-SB08-4.5-5.0	SW		159.2		Sample SEP4-SB08-4.5-5.0 collected at 4.5' to 5.0' bgs above interpreted soil/groundwater interface
				SW		239.6	Gravelly SAND with brick (fill), dark gray, saturated, medium dense, well-graded angular gravel, petroleum-like odor and sheen	
				SW		218.5		
				SW		219.2		
				SW		153.3		
				SW		41.6		
				SW		35.6		
				SW		21.0	Gravelly SAND (fill), dark gray, saturated, medium dense, well-graded angular gravel, petroleum-like odor and sheen throughout	
				SW		15.3		
				SW		18.1		
				SW		9.9		
10				SW		46.8		
				SW		33.0		
				SW		13.7		
				SW		9.0		
				SW		10.1		
				SW		7.3		
				SW		5.4		
				SW		8.5		
				CL		9.8	Gravelly CLAY (fill), dark gray, very moist, medium dense, low plasticity, angular gravel	
15				CL		11.6		
							Bottom of boring at 15.0' bgs	
20								

Project: **PESRM No. 4 Separator**
 Project Location: **3144 West Passyunk Avenue**
 Project Number: **P044.001.012**

Log of Boring SEP4-SB09
Sheet 1 of 1

Date(s) Drilled 3/6/2023	Logged By E. Johnston	Checked By M. McDonald
Drilling Method Direct Push	Drill Bit Size/Type 2"x5' macrocore	Total Depth of Borehole 15.0' bgs
Drill Rig Type 7822 DT	Drilling Contractor MB Drilling (Driller: Peter Hanley, Steve Letts)	Borehole Backfill Soil Cuttings
Interpreted Water Table Depth 5.0' bgs	Sampling Method(s) Grab	Date Backfilled 3/6/2023
Location No. 4 Separator Release Area		







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Depth (feet)	Recovery (feet)	Sample Type	Sample Number	USCS Symbol	Graphic Log	PID Reading, ppm	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
0			SEP4-SB09-0.0-0.5	Fill		10.4 11.8 7.0 5.5 6.3 7.1 4.7 5.1 7.6 153.8	Mixed silts, gravel, and sand, moist, medium dense, petroleum-like odor	Sample SEP4-SB09-0.0-0.5 collected at 0.0' to 0.5' bgs.
2.0								
5			SEP4-SB08-4.5-5.0	SP		8.9 100.6 98.5 61.3 37.5 111.4 43.6 31.0 19.2	SAND (fill), dark gray, saturated, medium dense, poorly-sorted, petroleum-like odor and sheen	Sample SEP4-SB08-4.5-5.0 collected at 4.5' to 5.0' bgs above interpreted soil/groundwater interface
3.67								
10				GW		24.0 9.4 30.2 53.5 43.1 46.1 34.8 30.8 29.7 23.6 28.6	Sandy GRAVEL (fill), dark gray, saturated, medium dense, well-graded, petroleum-like odor and sheen	
2.33								
15				CL			Sandy CLAY (fill), dark gray, saturated, medium dense, well-graded, slightly plastic clay, petroleum-like odor and sheen	
							Bottom of boring at 15.0' bgs	
20								

Project: **PESRM No. 4 Separator**
 Project Location: **3144 West Passyunk Avenue**
 Project Number: **P044.001.012**

Log of Boring SEP4-SB11
Sheet 1 of 1

Date(s) Drilled 3/7/2023	Logged By E. Johnston	Checked By M. McDonald
Drilling Method Direct Push	Drill Bit Size/Type 2"x5' macrocore	Total Depth of Borehole 15.0' bgs
Drill Rig Type 7822 DT	Drilling Contractor MB Drilling (Driller: Peter Hanley, Steve Letts)	Borehole Backfill Soil Cuttings
Interpreted Water Table Depth 5.0' bgs	Sampling Method(s) Grab	Date Backfilled 3/7/2023
Location No. 4 Separator Release Area		





Depth (feet)	Recovery (feet)	Sample Type	Sample Number	USCS Symbol	Graphic Log	PID Reading, ppm	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
0			SEP4-SB11-0.0-0.5	Fill		1.7 1.0 0.8 0.7 1.6 1.9	Mixed silts, sands, clay, brick, and wood, moist, medium dense	Sample SEP4-SB11-0.0-0.5 collected at 0.0' to 0.5' bgs.
3.58				MH		0.8 0.6 0.7	Sandy SILT (fill), dark gray, very moist, medium dense, no plasticity	
5			SEP4-SB11-4.5-5.0	CL		0.4 0.8	Sandy CLAY (fill), dark gray, saturated, medium dense, slight plasticity, petroleum-like odor	Sample SEP4-SB11-4.5-5.0 collected at 4.5' to 5.0' bgs above interpreted soil/groundwater interface
3.75				CL		0.9 1.0 1.1 0.7 1.3 2.7 0.6	CLAY (fill), dark gray, very moist, medium dense, medium plasticity, petroleum-like odor	
10				CL		0.6 1.4 1.6 1.6 2.6 8.5 6.0	CLAY (fill), dark gray, saturated, medium dense, medium plasticity, petroleum-like odor	
3.17				CL		2.3 1.6 1.5	CLAY (fill), dark gray, very moist, medium dense, medium plasticity, petroleum-like odor	
15							Bottom of boring at 15.0' bgs	
20								

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Project: **PESRM No. 4 Separator**
 Project Location: **3144 West Passyunk Avenue**
 Project Number: **P044.001.012**

Log of Boring SEP4-SB13
Sheet 1 of 1

Date(s) Drilled 3/7/2023	Logged By E. Johnston	Checked By M. McDonald
Drilling Method Direct Push	Drill Bit Size/Type 2"x5' macrocore	Total Depth of Borehole 15.0' bgs
Drill Rig Type 7822 DT	Drilling Contractor MB Drilling (Driller: Peter Hanley, Steve Letts)	Borehole Backfill Soil Cuttings
Interpreted Water Table Depth 5.0' bgs	Sampling Method(s) Grab	Date Backfilled 3/7/2023
Location No. 4 Separator Release Area		




Depth (feet)	Recovery (feet)	Sample Type	Sample Number	USCS Symbol	Graphic Log	PID Reading, ppm	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
0			SEP4-SB13-0.0-0.5	Fill		2.4 2.0 2.6 52.5 8.8 5.1 6.1 22.0	Mixed silt, sand, gravel, and brick, moist, medium dense	Sample SEP4-SB13-0.0-0.5 collected at 0.0' to 0.5' bgs.
3.75						15.4		
5			SEP4-SB13-4.5-5.0	CL		17.5	Gravelly CLAY (fill), black, moist, medium dense, slight plasticity, petroleum-like odor	Sample SEP4-SB13-4.5-5.0 collected at 4.5' to 5.0' bgs above interpreted soil/groundwater interface
				CL		8.9	Gravelly CLAY (fill), black, vey moist, medium dense, slight plasticity, petroleum-like odor	
				GC		10.8	Gravelly GRAVEL (fill), black, saturated, medium dense, no plasticity, well-graded gravel, petroleum-like odor and sheen	
						21.7		
						75.0		
						190.4		
						160.4		
						55.5		
						84.8		
						59.8		
						105.7		
						11.4		
						41.9		
						55.8		
						81.6		
						196.9		
						137.4		
						154.7		
						125.2		
						107.3		
						149.5		
15							Bottom of boring at 15' bgs	
20								

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Project: **PESRM No. 4 Separator**
 Project Location: **3144 West Passyunk Avenue**
 Project Number: **P044.001.012**

Log of Boring SEP4-SB14
Sheet 1 of 1

Date(s) Drilled 3/7/2023	Logged By E. Johnston	Checked By M. McDonald
Drilling Method Direct Push	Drill Bit Size/Type 2"x5' macrocore	Total Depth of Borehole 15.0' bgs
Drill Rig Type 7822 DT	Drilling Contractor MB Drilling (Driller: Peter Hanley, Steve Letts)	Borehole Backfill Soil Cuttings
Interpreted Water Table Depth 10.0' bgs	Sampling Method(s) Grab	Date Backfilled 3/7/2023
Location No. 4 Separator Release Area		

Depth (feet)	Recovery (feet)	Sample Type	Sample Number	USCS Symbol	Graphic Log	PID Reading, ppm	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
0			SEP4-SB14-0.0-0.5	Fill		1.6 8.4 47.0 222.9 131.0 68.1 129.6 77.0 60.2	Mixed gravel, silt, and sand, moist, medium dense	Sample SEP4-SB14-0.0-0.5 collected at 0.0' to 0.5' bgs.
2.25								
5				CL		110.4 29.7	Gravelly CLAY (fill), dark gray, moist, medium dense, slight plasticity, well-graded gravel	
				CL		8.4 8.7 4.8 3.7 3.3 3.5 4.7 2.7 6.6	CLAY (fill), dark gray, moist, dense, high plasticity, petroleum-like odor	
4.0								
10			SEP4-SB14-9.5-10.0				No soil recovery	Sample SEP4-SB14-9.5-10.0 collected at 9.5' to 10.0' bgs above interpreted soil/groundwater interface
0								
15							Bottom of boring at 15' bgs	
20								

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Project: **PESRM No. 4 Separator**
 Project Location: **3144 West Passyunk Avenue**
 Project Number: **P044.001.012**

Log of Boring SEP4-SB16
Sheet 1 of 1

Date(s) Drilled 3/7/2023	Logged By E. Johnston	Checked By M. McDonald
Drilling Method Direct Push	Drill Bit Size/Type 2"x5' macrocore	Total Depth of Borehole 6.0' bgs
Drill Rig Type 7822 DT	Drilling Contractor MB Drilling (Driller: Peter Hanley, Steve Letts)	Borehole Backfill Soil Cuttings
Interpreted Water Table Depth 4.5' bgs	Sampling Method(s) Grab	Date Backfilled 3/7/2023
Location No. 4 Separator Release Area		

Depth (feet)	Recovery (feet)	Sample Type	Sample Number	USCS Symbol	Graphic Log	PID Reading, ppm	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
0			SEP4-SB16-0.0-0.5	Fill		15.1	Mixed clay, gravel, concrete, sand, silt, moist, dense	Sample SEP4-SB16-0.0-0.5 collected at 0.0' to 0.5' bgs.
						46.1		
						272.7		
						26.0		
						11.1		
						57.5		
						48.7		
						198.1		
			SEP4-SB16			205.7		Sample SEP4-SB16-4.0-4.5 collected at 4.0' to 4.5' bgs above saturated materials
				CL		255.0	Gravelly CLAY (fill), dark brown, saturated, medium dense, slight plasticity, well-graded gravel, strong petroleum odor	
5	0.58					38.9		
						79.0		
						6.7	Refusal in hard material at 6.0' bgs	
10								
15								
20								

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Project: **PESRM No. 4 Separator**
 Project Location: **3144 West Passyunk Avenue**
 Project Number: **P044.001.012**

Log of Boring SEP4-SB18
Sheet 1 of 1

Date(s) Drilled 3/1/2023	Logged By E. Johnston	Checked By M. McDonald
Drilling Method Hand Auger	Drill Bit Size/Type 2"x5' macrocore	Total Depth of Borehole 4.5' bgs
Drill Rig Type Hand Auger	Drilling Contractor MB Drilling (Driller: Steve Comis)	Borehole Backfill Soil Cuttings
Interpreted Water Table Depth N/A	Sampling Method(s) Grab	Date Backfilled 3/1/2023
Location No. 4 Separator Release Area		

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Depth (feet)	Recovery (feet)	Sample Type	Sample Number	USCS Symbol	Graphic Log	PID Reading, ppm	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
0				GC		12.8	Clayey GRAVEL (fill), dark gray, moist, loose, well-graded, no plasticity, petroleum-like odor	
				GC		14.9		
			SEP4-SB18-1.5-2.0	GC		226.7	Clayey GRAVEL (fill), dark gray, moist, loose, well-graded, no plasticity, petroleum-like odor	Sample SEP4-SB18-1.5-2.0 collected at 1.5' to 2.0' bgs.
4.5				SW		204.0		
				SW		113.1	Sandy GRAVEL (fill), light brown, moist, loose, well-graded, petroleum-like odor	
				SW		162.3		
				GC		192.4	Clayey GRAVEL (fill), dark gray, moist, loose, well-graded, no plasticity, petroleum-like odor	
			SEP4-SB18-4.0-4.5	GC		136.1		Sample SEP4-SB18-4.0-4.5 collected at 4.0' to 4.5' bgs at the bottom of the boring
				GC		100.4		
5							Refusal at 4.5' bgs	
10								
15								
20								

Project: **PESRM No. 4 Separator**
Project Location: **3144 West Passyunk Avenue**
Project Number: **P044.001.012**

Key to Log of Boring Sheet 1 of 1

Depth (feet)	Recovery (feet)	Sample Type	Sample Number	USCS Symbol	Graphic Log	PID Reading, ppm	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
1	2	3	4	5	6	7	8	9

COLUMN DESCRIPTIONS

- | | |
|--|---|
| 1 Depth (feet): Depth in feet below the ground surface. | 6 Graphic Log: Graphic depiction of the subsurface material encountered. |
| 2 Recovery (feet): Percent Recovery | 7 PID Reading, ppm: The reading from a photo-ionization detector, in parts per million. |
| 3 Sample Type: Type of soil sample collected at the depth interval shown. | 8 MATERIAL DESCRIPTION: Description of material encountered. May include consistency, moisture, color, and other descriptive text. |
| 4 Sample Number: Sample identification number. | 9 REMARKS AND OTHER TESTS: Comments and observations regarding drilling or sampling made by driller or field personnel. |
| 5 USCS Symbol: USCS symbol of the subsurface material. | |

FIELD AND LABORATORY TEST ABBREVIATIONS

CHEM: Chemical tests to assess corrosivity
COMP: Compaction test
CONS: One-dimensional consolidation test
LL: Liquid Limit, percent

PI: Plasticity Index, percent
SA: Sieve analysis (percent passing No. 200 Sieve)
UC: Unconfined compressive strength test, Qu, in ksf
WA: Wash sieve (percent passing No. 200 Sieve)

MATERIAL GRAPHIC SYMBOLS



TYPICAL SAMPLER GRAPHIC SYMBOLS



OTHER GRAPHIC SYMBOLS

- ▽ Water level (at time of drilling, ATD)
—▽ Water level (after waiting, AW)
⌋ Minor change in material properties within a stratum
— — Inferred/gradational contact between strata
— ? — Queried contact between strata

GENERAL NOTES

- 1: Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2: Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

Appendix F

Laboratory Reports





Note: Results for 1,2-dibromoethane, 1,2-dichloroethane, methyl tert-butyl ether, and lead are provided in the lab report. However, because methyl tert-butyl ether and lead would not be present in a release involving mixture of water and unleaded petroleum products and 1,2-dibromoethane was historically used as a scavenger for lead in anti-knock gasoline mixtures and would not be present in a 2022 release, they were excluded from analysis in the remedial investigation and final report.

ANALYTICAL REPORT

Lab Number: L2310519

Client: Terraphase Engineering Inc.
1100 East Hector Street
Suite 400
Conshohocken, PA 19428

ATTN: Michael McDonald

Phone: (484) 513-4910

Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Report Date: 03/06/23

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-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: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2310519

Report Date: 03/06/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2310519-01	SEP4-SB05-0.0-0.5	SOIL	PHILADELPHIA, PA	02/27/23 12:45	02/28/23
L2310519-02	SEP4-SB10-0.0-0.5	SOIL	PHILADELPHIA, PA	02/27/23 13:55	02/28/23
L2310519-03	SEP4-SB09-0.0-0.5	SOIL	PHILADELPHIA, PA	02/28/23 08:02	02/28/23
L2310519-04	SEP4-SB04-0.0-0.5	SOIL	PHILADELPHIA, PA	02/28/23 08:14	02/28/23
L2310519-05	SEP4-SB08-0.0-0.5	SOIL	PHILADELPHIA, PA	02/28/23 08:45	02/28/23
L2310519-06	SEP4-SB03-0.0-0.5	SOIL	PHILADELPHIA, PA	02/28/23 08:55	02/28/23
L2310519-07	SEP4-SB02-0.0-0.5	SOIL	PHILADELPHIA, PA	02/28/23 09:54	02/28/23
L2310519-08	SEP4-SB07-0.0-0.5	SOIL	PHILADELPHIA, PA	02/28/23 10:15	02/28/23
L2310519-09	SEP4-SB01-0.0-0.5	SOIL	PHILADELPHIA, PA	02/28/23 11:24	02/28/23
L2310519-10	SEP4-SB06-0.0-0.5	SOIL	PHILADELPHIA, PA	02/28/23 11:36	02/28/23
L2310519-11	SEP4-SB11-0.0-0.5	SOIL	PHILADELPHIA, PA	02/28/23 12:30	02/28/23
L2310519-12	SEP4-SB12-0.0-0.5	SOIL	PHILADELPHIA, PA	02/28/23 12:50	02/28/23
L2310519-13	SEP4-SB13-0.0-0.5	SOIL	PHILADELPHIA, PA	02/28/23 13:25	02/28/23
L2310519-14	SEP4-SB15-0.0-0.5	SOIL	PHILADELPHIA, PA	02/28/23 13:50	02/28/23
L2310519-15	SEP4-SB17-0.0-0.5	SOIL	PHILADELPHIA, PA	02/28/23 13:45	02/28/23
L2310519-16	TB-230228-1	WATER	PHILADELPHIA, PA	02/28/23 14:16	02/28/23

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310519
Report Date: 03/06/23

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 NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310519
Report Date: 03/06/23

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

L2310519-14: The collection date and time on the chain of custody was 28-FEB-23 13:45; however, the collection date/time on the container label was 28-FEB-23 13:50. At the client's request, the collection date/time is reported as 28-FEB-23 13:50.

L2310519-15: The collection date and time on the chain of custody was 28-FEB-23 13:50; however, the collection date/time on the container label was 28-FEB-23 13:45. At the client's request, the collection date/time is reported as 28-FEB-23 13:45.

Volatile Organics

L2310519-06: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (133%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

PAHs

L2310519-05 and -08: The sample has elevated detection limits due to the limited sample volume utilized during extraction, as required by the sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

Tiffani Morrissey - Tiffani Morrissey

Title: Technical Director/Representative

Date: 03/06/23

ORGANICS

VOLATILES

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310519
Report Date: 03/06/23

SAMPLE RESULTS

Lab ID: L2310519-01
Client ID: SEP4-SB05-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/27/23 12:45
Date Received: 02/28/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 03/01/23 13:32
Analyst: MKS
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.078	0.0078	1
Benzene	0.0078	J	mg/kg	0.019	0.0064	1
1,2-Dichloroethane	ND		mg/kg	0.039	0.010	1
Toluene	0.088		mg/kg	0.039	0.021	1
1,2-Dibromoethane	ND		mg/kg	0.019	0.011	1
Ethylbenzene	0.21		mg/kg	0.039	0.0055	1
p/m-Xylene	1.8		mg/kg	0.078	0.022	1
o-Xylene	0.93		mg/kg	0.039	0.011	1
Xylenes, Total	2.7		mg/kg	0.039	0.011	1
Isopropylbenzene	7.2		mg/kg	0.039	0.0042	1
1,3,5-Trimethylbenzene	1.1		mg/kg	0.078	0.0075	1
1,2,4-Trimethylbenzene	2.9		mg/kg	0.078	0.013	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	116		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-02
 Client ID: SEP4-SB10-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/27/23 13:55
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/01/23 13:58
 Analyst: MKS
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.10	0.010	1
Benzene	0.020	J	mg/kg	0.026	0.0087	1
1,2-Dichloroethane	ND		mg/kg	0.052	0.013	1
Toluene	0.18		mg/kg	0.052	0.028	1
1,2-Dibromoethane	ND		mg/kg	0.026	0.015	1
Ethylbenzene	0.25		mg/kg	0.052	0.0074	1
p/m-Xylene	1.8		mg/kg	0.10	0.029	1
o-Xylene	1.4		mg/kg	0.052	0.015	1
Xylenes, Total	3.2		mg/kg	0.052	0.015	1
Isopropylbenzene	8.9		mg/kg	0.052	0.0057	1
1,3,5-Trimethylbenzene	1.3		mg/kg	0.10	0.010	1
1,2,4-Trimethylbenzene	3.4		mg/kg	0.10	0.017	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	111		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-03
 Client ID: SEP4-SB09-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 08:02
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/01/23 14:25
 Analyst: MKS
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00053	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00027	1
Toluene	ND		mg/kg	0.0011	0.00058	1
1,2-Dibromoethane	ND		mg/kg	0.00053	0.00031	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00060	1
o-Xylene	ND		mg/kg	0.0011	0.00031	1
Xylenes, Total	ND		mg/kg	0.0011	0.00031	1
Isopropylbenzene	0.00014	J	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	120		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-04
 Client ID: SEP4-SB04-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 08:14
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/01/23 14:51
 Analyst: MKS
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.091	0.0091	1
Benzene	0.015	J	mg/kg	0.023	0.0075	1
1,2-Dichloroethane	ND		mg/kg	0.045	0.012	1
Toluene	0.052		mg/kg	0.045	0.025	1
1,2-Dibromoethane	ND		mg/kg	0.023	0.013	1
Ethylbenzene	0.14		mg/kg	0.045	0.0064	1
p/m-Xylene	0.35		mg/kg	0.091	0.025	1
o-Xylene	0.35		mg/kg	0.045	0.013	1
Xylenes, Total	0.70		mg/kg	0.045	0.013	1
Isopropylbenzene	4.8		mg/kg	0.045	0.0049	1
1,3,5-Trimethylbenzene	2.0		mg/kg	0.091	0.0087	1
1,2,4-Trimethylbenzene	2.0		mg/kg	0.091	0.015	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	109		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-05
 Client ID: SEP4-SB08-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 08:45
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/01/23 15:18
 Analyst: MKS
 Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0015	0.00015	1
Benzene	0.0014		mg/kg	0.00038	0.00013	1
1,2-Dichloroethane	ND		mg/kg	0.00077	0.00020	1
Toluene	0.00057	J	mg/kg	0.00077	0.00042	1
1,2-Dibromoethane	ND		mg/kg	0.00038	0.00022	1
Ethylbenzene	0.00047	J	mg/kg	0.00077	0.00011	1
p/m-Xylene	0.0014	J	mg/kg	0.0015	0.00043	1
o-Xylene	0.0010		mg/kg	0.00077	0.00022	1
Xylenes, Total	0.0024	J	mg/kg	0.00077	0.00022	1
Isopropylbenzene	0.012		mg/kg	0.00077	0.00008	1
1,3,5-Trimethylbenzene	0.0034		mg/kg	0.0015	0.00015	1
1,2,4-Trimethylbenzene	0.0041		mg/kg	0.0015	0.00026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	117		70-130
Dibromofluoromethane	108		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-06
 Client ID: SEP4-SB03-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 08:55
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/03/23 12:18
 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	0.0020	0.00020	1
Benzene	0.00034	J	mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00030	1
Ethylbenzene	0.00083	J	mg/kg	0.0010	0.00014	1
p/m-Xylene	0.0018	J	mg/kg	0.0020	0.00056	1
o-Xylene	0.00080	J	mg/kg	0.0010	0.00029	1
Xylenes, Total	0.0026	J	mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.0015		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0012	J	mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.0020		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	133	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-07
 Client ID: SEP4-SB02-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 09:54
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/01/23 15:44
 Analyst: MKS
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00044	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00089	0.00023	1
Toluene	ND		mg/kg	0.00089	0.00048	1
1,2-Dibromoethane	ND		mg/kg	0.00044	0.00026	1
Ethylbenzene	ND		mg/kg	0.00089	0.00012	1
p/m-Xylene	ND		mg/kg	0.0018	0.00050	1
o-Xylene	ND		mg/kg	0.00089	0.00026	1
Xylenes, Total	ND		mg/kg	0.00089	0.00026	1
Isopropylbenzene	ND		mg/kg	0.00089	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	117		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-08
 Client ID: SEP4-SB07-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 10:15
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/01/23 16:11
 Analyst: MKS
 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	0.12	0.012	1
Benzene	0.031		mg/kg	0.029	0.0096	1
1,2-Dichloroethane	ND		mg/kg	0.058	0.015	1
Toluene	0.080		mg/kg	0.058	0.031	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	0.12		mg/kg	0.058	0.0082	1
p/m-Xylene	0.72		mg/kg	0.12	0.032	1
o-Xylene	2.7		mg/kg	0.058	0.017	1
Xylenes, Total	3.4		mg/kg	0.058	0.017	1
Isopropylbenzene	15.		mg/kg	0.058	0.0063	1
1,3,5-Trimethylbenzene	4.5		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	3.8		mg/kg	0.12	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	111		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-09
 Client ID: SEP4-SB01-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 11:24
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/01/23 16:37
 Analyst: MKS
 Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00019	1
Benzene	ND		mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00093	0.00024	1
Toluene	ND		mg/kg	0.00093	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	ND		mg/kg	0.00093	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00052	1
o-Xylene	ND		mg/kg	0.00093	0.00027	1
Xylenes, Total	ND		mg/kg	0.00093	0.00027	1
Isopropylbenzene	0.00015	J	mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	116		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-10
 Client ID: SEP4-SB06-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 11:36
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/01/23 17:04
 Analyst: MKS
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0016	0.00016	1
Benzene	ND		mg/kg	0.00040	0.00013	1
1,2-Dichloroethane	ND		mg/kg	0.00079	0.00020	1
Toluene	ND		mg/kg	0.00079	0.00043	1
1,2-Dibromoethane	ND		mg/kg	0.00040	0.00023	1
Ethylbenzene	ND		mg/kg	0.00079	0.00011	1
p/m-Xylene	ND		mg/kg	0.0016	0.00044	1
o-Xylene	ND		mg/kg	0.00079	0.00023	1
Xylenes, Total	ND		mg/kg	0.00079	0.00023	1
Isopropylbenzene	ND		mg/kg	0.00079	0.00008	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0016	0.00015	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0016	0.00026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	114		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-11
 Client ID: SEP4-SB11-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 12:30
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/01/23 17:30
 Analyst: MKS
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00027	1
Toluene	ND		mg/kg	0.0010	0.00057	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00058	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	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	101		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	115		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-12
 Client ID: SEP4-SB12-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 12:50
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/01/23 17:57
 Analyst: MKS
 Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0016	0.00016	1
Benzene	ND		mg/kg	0.00040	0.00013	1
1,2-Dichloroethane	ND		mg/kg	0.00080	0.00020	1
Toluene	ND		mg/kg	0.00080	0.00043	1
1,2-Dibromoethane	ND		mg/kg	0.00040	0.00023	1
Ethylbenzene	ND		mg/kg	0.00080	0.00011	1
p/m-Xylene	ND		mg/kg	0.0016	0.00045	1
o-Xylene	ND		mg/kg	0.00080	0.00023	1
Xylenes, Total	ND		mg/kg	0.00080	0.00023	1
Isopropylbenzene	ND		mg/kg	0.00080	0.00008	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0016	0.00015	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0016	0.00027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	117		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-13
 Client ID: SEP4-SB13-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 13:25
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/01/23 18:23
 Analyst: MKS
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0014	0.00014	1
Benzene	ND		mg/kg	0.00035	0.00012	1
1,2-Dichloroethane	ND		mg/kg	0.00071	0.00018	1
Toluene	ND		mg/kg	0.00071	0.00038	1
1,2-Dibromoethane	ND		mg/kg	0.00035	0.00021	1
Ethylbenzene	ND		mg/kg	0.00071	0.00010	1
p/m-Xylene	ND		mg/kg	0.0014	0.00040	1
o-Xylene	ND		mg/kg	0.00071	0.00021	1
Xylenes, Total	ND		mg/kg	0.00071	0.00021	1
Isopropylbenzene	ND		mg/kg	0.00071	0.00007	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0014	0.00014	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0014	0.00024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	117		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-14
 Client ID: SEP4-SB15-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 13:50
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/01/23 18:49
 Analyst: MKS
 Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0013	0.00013	1
Benzene	ND		mg/kg	0.00032	0.00011	1
1,2-Dichloroethane	ND		mg/kg	0.00064	0.00016	1
Toluene	ND		mg/kg	0.00064	0.00035	1
1,2-Dibromoethane	ND		mg/kg	0.00032	0.00019	1
Ethylbenzene	ND		mg/kg	0.00064	0.00009	1
p/m-Xylene	ND		mg/kg	0.0013	0.00036	1
o-Xylene	ND		mg/kg	0.00064	0.00019	1
Xylenes, Total	ND		mg/kg	0.00064	0.00019	1
Isopropylbenzene	ND		mg/kg	0.00064	0.00007	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0013	0.00012	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0013	0.00022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	116		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-15
 Client ID: SEP4-SB17-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 13:45
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/01/23 19:16
 Analyst: MKS
 Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0015	0.00015	1
Benzene	ND		mg/kg	0.00038	0.00012	1
1,2-Dichloroethane	ND		mg/kg	0.00076	0.00019	1
Toluene	ND		mg/kg	0.00076	0.00041	1
1,2-Dibromoethane	ND		mg/kg	0.00038	0.00022	1
Ethylbenzene	ND		mg/kg	0.00076	0.00011	1
p/m-Xylene	ND		mg/kg	0.0015	0.00042	1
o-Xylene	ND		mg/kg	0.00076	0.00022	1
Xylenes, Total	ND		mg/kg	0.00076	0.00022	1
Isopropylbenzene	0.00052	J	mg/kg	0.00076	0.00008	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0015	0.00014	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0015	0.00025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	111		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-16
 Client ID: TB-230228-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 14:16
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 03/03/23 11:07
 Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	112		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260D
 Analytical Date: 03/01/23 12:59
 Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 03,05,07,09-15 Batch: WG1750708-5					
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	104		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	124		70-130

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310519
Report Date: 03/06/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260D
 Analytical Date: 03/01/23 12:59
 Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-02,04,08 Batch: WG1750713-5					
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	104		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	124		70-130

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310519
Report Date: 03/06/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260D
 Analytical Date: 03/03/23 08:51
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 06 Batch: WG1750829-5					
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	111		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	98		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260D
 Analytical Date: 03/03/23 09:48
 Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 16 Batch: WG1751542-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	108		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Lab Number: L2310519

Project Number: P044.001.012

Report Date: 03/06/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 03,05,07,09-15 Batch: WG1750708-3 WG1750708-4								
Methyl tert butyl ether	104		108		66-130	4		30
Benzene	110		111		70-130	1		30
1,2-Dichloroethane	110		113		70-130	3		30
Toluene	103		102		70-130	1		30
1,2-Dibromoethane	105		107		70-130	2		30
Ethylbenzene	105		103		70-130	2		30
p/m-Xylene	112		111		70-130	1		30
o-Xylene	113		110		70-130	3		30
Isopropylbenzene	102		100		70-130	2		30
1,3,5-Trimethylbenzene	104		103		70-130	1		30
1,2,4-Trimethylbenzene	105		103		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		96		70-130
Toluene-d8	93		93		70-130
4-Bromofluorobenzene	85		84		70-130
Dibromofluoromethane	116		119		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Lab Number: L2310519

Project Number: P044.001.012

Report Date: 03/06/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-02,04,08 Batch: WG1750713-3 WG1750713-4								
Methyl tert butyl ether	104		108		66-130	4		30
Benzene	110		111		70-130	1		30
1,2-Dichloroethane	110		113		70-130	3		30
Toluene	103		102		70-130	1		30
1,2-Dibromoethane	105		107		70-130	2		30
Ethylbenzene	105		103		70-130	2		30
p/m-Xylene	112		111		70-130	1		30
o-Xylene	113		110		70-130	3		30
Isopropylbenzene	102		100		70-130	2		30
1,3,5-Trimethylbenzene	104		103		70-130	1		30
1,2,4-Trimethylbenzene	105		103		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		96		70-130
Toluene-d8	94		93		70-130
4-Bromofluorobenzene	85		84		70-130
Dibromofluoromethane	116		119		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2310519

Report Date: 03/06/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 06 Batch: WG1750829-3 WG1750829-4								
Methyl tert butyl ether	93		94		66-130	1		30
Benzene	82		81		70-130	1		30
1,2-Dichloroethane	103		104		70-130	1		30
Toluene	85		84		70-130	1		30
1,2-Dibromoethane	86		87		70-130	1		30
Ethylbenzene	88		86		70-130	2		30
p/m-Xylene	90		88		70-130	2		30
o-Xylene	92		90		70-130	2		30
Isopropylbenzene	84		85		70-130	1		30
1,3,5-Trimethylbenzene	86		87		70-130	1		30
1,2,4-Trimethylbenzene	85		86		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	112		112		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	92		94		70-130
Dibromofluoromethane	100		100		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Lab Number: L2310519

Project Number: P044.001.012

Report Date: 03/06/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 16 Batch: WG1751542-3 WG1751542-4								
Methyl tert butyl ether	100		110		63-130	10		20
Benzene	110		110		70-130	0		20
1,2-Dichloroethane	110		120		70-130	9		20
Toluene	100		110		70-130	10		20
1,2-Dibromoethane	100		100		70-130	0		20
Ethylbenzene	110		110		70-130	0		20
p/m-Xylene	110		115		70-130	4		20
o-Xylene	105		110		70-130	5		20
Isopropylbenzene	110		110		70-130	0		20
1,3,5-Trimethylbenzene	100		110		64-130	10		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		105		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	101		102		70-130
Dibromofluoromethane	98		101		70-130

SEMIVOLATILES

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310519
Report Date: 03/06/23

SAMPLE RESULTS

Lab ID: L2310519-01
Client ID: SEP4-SB05-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/27/23 12:45
Date Received: 02/28/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 03/04/23 13:51
Analyst: ALS
Percent Solids: 92%

Extraction Method: EPA 3546
Extraction Date: 03/01/23 18:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.58		mg/kg	0.036	0.022	1
Fluorene	0.14	J	mg/kg	0.18	0.018	1
Phenanthrene	0.60		mg/kg	0.11	0.022	1
Anthracene	0.13		mg/kg	0.11	0.035	1
Pyrene	0.90		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.49		mg/kg	0.11	0.020	1
Chrysene	0.61		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.62		mg/kg	0.11	0.030	1
Benzo(a)pyrene	0.51		mg/kg	0.14	0.044	1
Indeno(1,2,3-cd)pyrene	0.30		mg/kg	0.14	0.025	1
Benzo(ghi)perylene	0.36		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	92		23-120
2-Fluorobiphenyl	80		30-120
4-Terphenyl-d14	83		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-02
 Client ID: SEP4-SB10-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/27/23 13:55
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 03/04/23 14:08
 Analyst: ALS
 Percent Solids: 90%

Extraction Method: EPA 3546
 Extraction Date: 03/01/23 18:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.80		mg/kg	0.037	0.022	1
Fluorene	0.23		mg/kg	0.18	0.018	1
Phenanthrene	0.69		mg/kg	0.11	0.022	1
Anthracene	0.26		mg/kg	0.11	0.036	1
Pyrene	1.2		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.51		mg/kg	0.11	0.021	1
Chrysene	0.66		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.61		mg/kg	0.11	0.031	1
Benzo(a)pyrene	0.49		mg/kg	0.15	0.045	1
Indeno(1,2,3-cd)pyrene	0.27		mg/kg	0.15	0.026	1
Benzo(ghi)perylene	0.34		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	80		30-120
4-Terphenyl-d14	87		18-120

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310519
Report Date: 03/06/23

SAMPLE RESULTS

Lab ID: L2310519-03
Client ID: SEP4-SB09-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 08:02
Date Received: 02/28/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 03/04/23 14:25
Analyst: ALS
Percent Solids: 85%

Extraction Method: EPA 3546
Extraction Date: 03/01/23 18:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.5		mg/kg	0.038	0.023	1
Fluorene	0.074	J	mg/kg	0.19	0.019	1
Phenanthrene	0.82		mg/kg	0.12	0.023	1
Anthracene	0.29		mg/kg	0.12	0.038	1
Pyrene	0.99		mg/kg	0.12	0.019	1
Benzo(a)anthracene	0.53		mg/kg	0.12	0.022	1
Chrysene	0.56		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	0.62		mg/kg	0.12	0.032	1
Benzo(a)pyrene	0.57		mg/kg	0.15	0.047	1
Indeno(1,2,3-cd)pyrene	0.36		mg/kg	0.15	0.027	1
Benzo(ghi)perylene	0.49		mg/kg	0.15	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	101		23-120
2-Fluorobiphenyl	89		30-120
4-Terphenyl-d14	92		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-04
 Client ID: SEP4-SB04-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 08:14
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 03/04/23 14:43
 Analyst: ALS
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 03/01/23 18:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.82		mg/kg	0.040	0.024	1
Fluorene	0.90		mg/kg	0.20	0.020	1
Phenanthrene	1.7		mg/kg	0.12	0.024	1
Anthracene	0.56		mg/kg	0.12	0.039	1
Pyrene	1.6		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.55		mg/kg	0.12	0.023	1
Chrysene	1.1		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	0.51		mg/kg	0.12	0.034	1
Benzo(a)pyrene	0.57		mg/kg	0.16	0.049	1
Indeno(1,2,3-cd)pyrene	0.31		mg/kg	0.16	0.028	1
Benzo(ghi)perylene	0.46		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	98		23-120
2-Fluorobiphenyl	80		30-120
4-Terphenyl-d14	82		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-05
 Client ID: SEP4-SB08-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 08:45
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 03/04/23 15:00
 Analyst: ALS
 Percent Solids: 95%

Extraction Method: EPA 3546
 Extraction Date: 03/01/23 18:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.40		mg/kg	0.096	0.059	1
Fluorene	0.066	J	mg/kg	0.48	0.047	1
Phenanthrene	0.32		mg/kg	0.29	0.059	1
Anthracene	0.14	J	mg/kg	0.29	0.094	1
Pyrene	0.43		mg/kg	0.29	0.048	1
Benzo(a)anthracene	0.19	J	mg/kg	0.29	0.054	1
Chrysene	0.24	J	mg/kg	0.29	0.050	1
Benzo(b)fluoranthene	0.19	J	mg/kg	0.29	0.081	1
Benzo(a)pyrene	0.19	J	mg/kg	0.39	0.12	1
Indeno(1,2,3-cd)pyrene	0.14	J	mg/kg	0.39	0.067	1
Benzo(ghi)perylene	0.21	J	mg/kg	0.39	0.057	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	91		23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	86		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-06
 Client ID: SEP4-SB03-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 08:55
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 03/04/23 15:17
 Analyst: ALS
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 03/01/23 18:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	3.7		mg/kg	0.041	0.025	1
Fluorene	0.59		mg/kg	0.20	0.020	1
Phenanthrene	1.9		mg/kg	0.12	0.025	1
Anthracene	0.77		mg/kg	0.12	0.040	1
Pyrene	1.8		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.84		mg/kg	0.12	0.023	1
Chrysene	1.3		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	1.2		mg/kg	0.12	0.034	1
Benzo(a)pyrene	1.4		mg/kg	0.16	0.050	1
Indeno(1,2,3-cd)pyrene	0.82		mg/kg	0.16	0.028	1
Benzo(ghi)perylene	1.1		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	76		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-07
 Client ID: SEP4-SB02-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 09:54
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 03/04/23 15:34
 Analyst: ALS
 Percent Solids: 90%

Extraction Method: EPA 3546
 Extraction Date: 03/01/23 18:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.34		mg/kg	0.037	0.022	1
Fluorene	0.030	J	mg/kg	0.18	0.018	1
Phenanthrene	0.14		mg/kg	0.11	0.022	1
Anthracene	0.065	J	mg/kg	0.11	0.036	1
Pyrene	0.24		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.12		mg/kg	0.11	0.021	1
Chrysene	0.17		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.16		mg/kg	0.11	0.031	1
Benzo(a)pyrene	0.15		mg/kg	0.15	0.045	1
Indeno(1,2,3-cd)pyrene	0.11	J	mg/kg	0.15	0.026	1
Benzo(ghi)perylene	0.12	J	mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	69		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-08
 Client ID: SEP4-SB07-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 10:15
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 03/04/23 15:51
 Analyst: ALS
 Percent Solids: 89%

Extraction Method: EPA 3546
 Extraction Date: 03/01/23 18:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.5		mg/kg	0.11	0.067	1
Fluorene	0.78		mg/kg	0.55	0.054	1
Phenanthrene	1.9		mg/kg	0.33	0.067	1
Anthracene	0.55		mg/kg	0.33	0.11	1
Pyrene	1.2		mg/kg	0.33	0.055	1
Benzo(a)anthracene	0.52		mg/kg	0.33	0.062	1
Chrysene	0.87		mg/kg	0.33	0.057	1
Benzo(b)fluoranthene	0.43		mg/kg	0.33	0.093	1
Benzo(a)pyrene	0.47		mg/kg	0.44	0.13	1
Indeno(1,2,3-cd)pyrene	0.28	J	mg/kg	0.44	0.077	1
Benzo(ghi)perylene	0.47		mg/kg	0.44	0.065	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	100		23-120
2-Fluorobiphenyl	88		30-120
4-Terphenyl-d14	91		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-09
 Client ID: SEP4-SB01-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 11:24
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 03/04/23 16:09
 Analyst: ALS
 Percent Solids: 95%

Extraction Method: EPA 3546
 Extraction Date: 03/01/23 18:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.032	J	mg/kg	0.034	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	0.033	J	mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	0.084	J	mg/kg	0.10	0.017	1
Benzo(a)anthracene	0.055	J	mg/kg	0.10	0.019	1
Chrysene	0.054	J	mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	0.066	J	mg/kg	0.10	0.029	1
Benzo(a)pyrene	0.060	J	mg/kg	0.14	0.042	1
Indeno(1,2,3-cd)pyrene	0.040	J	mg/kg	0.14	0.024	1
Benzo(ghi)perylene	0.053	J	mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	59		23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	66		18-120

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310519
Report Date: 03/06/23

SAMPLE RESULTS

Lab ID: L2310519-10
Client ID: SEP4-SB06-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 11:36
Date Received: 02/28/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 03/04/23 16:26
Analyst: ALS
Percent Solids: 87%

Extraction Method: EPA 3546
Extraction Date: 03/01/23 18:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.91		mg/kg	0.037	0.022	1
Fluorene	0.057	J	mg/kg	0.18	0.018	1
Phenanthrene	0.50		mg/kg	0.11	0.022	1
Anthracene	0.21		mg/kg	0.11	0.036	1
Pyrene	0.62		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.39		mg/kg	0.11	0.021	1
Chrysene	0.39		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.48		mg/kg	0.11	0.031	1
Benzo(a)pyrene	0.50		mg/kg	0.15	0.045	1
Indeno(1,2,3-cd)pyrene	0.34		mg/kg	0.15	0.026	1
Benzo(ghi)perylene	0.43		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	75		30-120
4-Terphenyl-d14	73		18-120

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310519
Report Date: 03/06/23

SAMPLE RESULTS

Lab ID: L2310519-11
Client ID: SEP4-SB11-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 12:30
Date Received: 02/28/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 03/04/23 16:43
Analyst: ALS
Percent Solids: 91%

Extraction Method: EPA 3546
Extraction Date: 03/01/23 18:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.064		mg/kg	0.036	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	0.055	J	mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.035	1
Pyrene	0.099	J	mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.056	J	mg/kg	0.11	0.020	1
Chrysene	0.060	J	mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.074	J	mg/kg	0.11	0.030	1
Benzo(a)pyrene	0.076	J	mg/kg	0.14	0.044	1
Indeno(1,2,3-cd)pyrene	0.055	J	mg/kg	0.14	0.025	1
Benzo(ghi)perylene	0.085	J	mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	81		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-12
 Client ID: SEP4-SB12-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 12:50
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 03/04/23 17:00
 Analyst: ALS
 Percent Solids: 92%

Extraction Method: EPA 3546
 Extraction Date: 03/01/23 18:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.038		mg/kg	0.036	0.022	1
Fluorene	ND		mg/kg	0.18	0.017	1
Phenanthrene	0.024	J	mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.035	1
Pyrene	0.030	J	mg/kg	0.11	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.11	0.020	1
Chrysene	ND		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	ND		mg/kg	0.11	0.030	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.044	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.14	0.025	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	82		30-120
4-Terphenyl-d14	84		18-120

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310519
Report Date: 03/06/23

SAMPLE RESULTS

Lab ID: L2310519-13
Client ID: SEP4-SB13-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 13:25
Date Received: 02/28/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 03/04/23 17:17
Analyst: ALS
Percent Solids: 91%

Extraction Method: EPA 3546
Extraction Date: 03/01/23 18:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.036	0.022	1
Fluorene	ND		mg/kg	0.18	0.017	1
Phenanthrene	0.036	J	mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.035	1
Pyrene	0.066	J	mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.033	J	mg/kg	0.11	0.020	1
Chrysene	0.039	J	mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.048	J	mg/kg	0.11	0.030	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.044	1
Indeno(1,2,3-cd)pyrene	0.026	J	mg/kg	0.14	0.025	1
Benzo(ghi)perylene	0.043	J	mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	66		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	75		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-14
 Client ID: SEP4-SB15-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 13:50
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 03/04/23 17:34
 Analyst: ALS
 Percent Solids: 94%

Extraction Method: EPA 3546
 Extraction Date: 03/01/23 18:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.027	J	mg/kg	0.035	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	0.029	J	mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	0.039	J	mg/kg	0.10	0.017	1
Benzo(a)anthracene	0.026	J	mg/kg	0.10	0.020	1
Chrysene	0.028	J	mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	0.030	J	mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Indeno(1,2,3-cd)pyrene	0.024	J	mg/kg	0.14	0.024	1
Benzo(ghi)perylene	0.050	J	mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	80		23-120
2-Fluorobiphenyl	90		30-120
4-Terphenyl-d14	87		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-15
 Client ID: SEP4-SB17-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 13:45
 Date Received: 02/28/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 03/04/23 17:52
 Analyst: ALS
 Percent Solids: 93%

Extraction Method: EPA 3546
 Extraction Date: 03/01/23 18:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.029	J	mg/kg	0.035	0.022	1
Fluorene	ND		mg/kg	0.18	0.017	1
Phenanthrene	0.049	J	mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.034	1
Pyrene	0.085	J	mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.051	J	mg/kg	0.11	0.020	1
Chrysene	0.057	J	mg/kg	0.11	0.018	1
Benzo(b)fluoranthene	0.071	J	mg/kg	0.11	0.030	1
Benzo(a)pyrene	0.071	J	mg/kg	0.14	0.043	1
Indeno(1,2,3-cd)pyrene	0.052	J	mg/kg	0.14	0.025	1
Benzo(ghi)perylene	0.079	J	mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	68		18-120

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310519
Report Date: 03/06/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 03/04/23 13:00
Analyst: ALS

Extraction Method: EPA 3546
Extraction Date: 03/01/23 18:11

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-15 Batch: WG1750062-1					
Naphthalene	ND		mg/kg	0.033	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
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	92		23-120
2-Fluorobiphenyl	82		30-120
4-Terphenyl-d14	70		18-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2310519

Report Date: 03/06/23

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: WG1750062-2 WG1750062-3								
Naphthalene	95		82		40-140	15		50
Fluorene	88		74		40-140	17		50
Phenanthrene	97		78		40-140	22		50
Anthracene	100		84		40-140	17		50
Pyrene	93		78		35-142	18		50
Benzo(a)anthracene	94		79		40-140	17		50
Chrysene	95		79		40-140	18		50
Benzo(b)fluoranthene	95		72		40-140	28		50
Benzo(a)pyrene	96		80		40-140	18		50
Indeno(1,2,3-cd)pyrene	101		86		40-140	16		50
Benzo(ghi)perylene	94		81		40-140	15		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	99		88		23-120
2-Fluorobiphenyl	84		75		30-120
4-Terphenyl-d14	75		63		18-120

METALS

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-01

Date Collected: 02/27/23 12:45

Client ID: SEP4-SB05-0.0-0.5

Date Received: 02/28/23

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	112		mg/kg	2.05	0.110	1	03/03/23 23:25	03/06/23 15:42	EPA 3050B	1,6010D	EGW



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-02

Date Collected: 02/27/23 13:55

Client ID: SEP4-SB10-0.0-0.5

Date Received: 02/28/23

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	144		mg/kg	2.20	0.118	1	03/03/23 23:25	03/06/23 14:24	EPA 3050B	1,6010D	EGW



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-03

Date Collected: 02/28/23 08:02

Client ID: SEP4-SB09-0.0-0.5

Date Received: 02/28/23

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	145		mg/kg	2.29	0.123	1	03/03/23 23:25	03/06/23 15:18	EPA 3050B	1,6010D	EGW



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-04

Date Collected: 02/28/23 08:14

Client ID: SEP4-SB04-0.0-0.5

Date Received: 02/28/23

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	147		mg/kg	2.37	0.127	1	03/03/23 23:25	03/06/23 15:22	EPA 3050B	1,6010D	EGW



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-05

Date Collected: 02/28/23 08:45

Client ID: SEP4-SB08-0.0-0.5

Date Received: 02/28/23

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	109		mg/kg	2.07	0.111	1	03/03/23 23:25	03/06/23 15:27	EPA 3050B	1,6010D	EGW



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-06

Date Collected: 02/28/23 08:55

Client ID: SEP4-SB03-0.0-0.5

Date Received: 02/28/23

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	499		mg/kg	2.44	0.131	1	03/03/23 23:25	03/06/23 15:32	EPA 3050B	1,6010D	EGW



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-07

Date Collected: 02/28/23 09:54

Client ID: SEP4-SB02-0.0-0.5

Date Received: 02/28/23

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	54.3		mg/kg	2.18	0.117	1	03/03/23 23:25	03/06/23 15:37	EPA 3050B	1,6010D	EGW



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-08

Date Collected: 02/28/23 10:15

Client ID: SEP4-SB07-0.0-0.5

Date Received: 02/28/23

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	211		mg/kg	2.20	0.118	1	03/03/23 23:25	03/06/23 16:21	EPA 3050B	1,6010D	EGW



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-09

Date Collected: 02/28/23 11:24

Client ID: SEP4-SB01-0.0-0.5

Date Received: 02/28/23

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	54.5		mg/kg	1.99	0.107	1	03/03/23 23:25	03/06/23 16:26	EPA 3050B	1,6010D	EGW



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-10

Date Collected: 02/28/23 11:36

Client ID: SEP4-SB06-0.0-0.5

Date Received: 02/28/23

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	213		mg/kg	2.24	0.120	1	03/03/23 23:25	03/06/23 16:31	EPA 3050B	1,6010D	EGW



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-11

Date Collected: 02/28/23 12:30

Client ID: SEP4-SB11-0.0-0.5

Date Received: 02/28/23

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	80.4		mg/kg	2.16	0.116	1	03/03/23 23:25	03/06/23 16:36	EPA 3050B	1,6010D	EGW



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-12

Date Collected: 02/28/23 12:50

Client ID: SEP4-SB12-0.0-0.5

Date Received: 02/28/23

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.36		mg/kg	2.08	0.111	1	03/03/23 23:25	03/06/23 16:40	EPA 3050B	1,6010D	EGW



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-13

Date Collected: 02/28/23 13:25

Client ID: SEP4-SB13-0.0-0.5

Date Received: 02/28/23

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	18.4		mg/kg	2.04	0.109	1	03/03/23 23:25	03/06/23 16:45	EPA 3050B	1,6010D	EGW



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-14

Date Collected: 02/28/23 13:50

Client ID: SEP4-SB15-0.0-0.5

Date Received: 02/28/23

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	167		mg/kg	2.02	0.108	1	03/03/23 23:25	03/06/23 16:50	EPA 3050B	1,6010D	EGW



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS**

Lab ID: L2310519-15

Date Collected: 02/28/23 13:45

Client ID: SEP4-SB17-0.0-0.5

Date Received: 02/28/23

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	77.0		mg/kg	2.07	0.111	1	03/03/23 23:25	03/06/23 16:55	EPA 3050B	1,6010D	EGW



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23

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: WG1750028-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	03/03/23 23:25	03/06/23 13:44	1,6010D	EGW

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis**Batch Quality Control****Project Name:** PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-15 Batch: WG1750028-2 SRM Lot Number: D116-540								
Lead, Total	99		-		83-117	-		

Matrix Spike Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Lab Number: L2310519

Project Number: P044.001.012

Report Date: 03/06/23

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: WG1750028-3 QC Sample: L2310519-01 Client ID: SEP4-SB05-0.0-0.5												
Lead, Total	112	44.3	147	79		-	-		75-125	-		20

Lab Duplicate Analysis
*Batch Quality Control***Project Name:** PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2310519**Report Date:** 03/06/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-15 QC Batch ID: WG1750028-4 QC Sample: L2310519-01 Client ID: SEP4-SB05-0.0-0.5						
Lead, Total	112	132	mg/kg	16		20

INORGANICS & MISCELLANEOUS

Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2310519**Report Date:** 03/06/23**SAMPLE RESULTS****Lab ID:** L2310519-01**Client ID:** SEP4-SB05-0.0-0.5**Sample Location:** PHILADELPHIA, PA**Date Collected:** 02/27/23 12:45**Date Received:** 02/28/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.3		%	0.100	NA	1	-	03/01/23 10:09	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS****Lab ID:** L2310519-02**Date Collected:** 02/27/23 13:55**Client ID:** SEP4-SB10-0.0-0.5**Date Received:** 02/28/23**Sample Location:** PHILADELPHIA, PA**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.0		%	0.100	NA	1	-	03/01/23 10:09	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2310519**Report Date:** 03/06/23**SAMPLE RESULTS****Lab ID:** L2310519-03**Client ID:** SEP4-SB09-0.0-0.5**Sample Location:** PHILADELPHIA, PA**Date Collected:** 02/28/23 08:02**Date Received:** 02/28/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.3		%	0.100	NA	1	-	03/01/23 10:09	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2310519**Report Date:** 03/06/23**SAMPLE RESULTS****Lab ID:** L2310519-04**Client ID:** SEP4-SB04-0.0-0.5**Sample Location:** PHILADELPHIA, PA**Date Collected:** 02/28/23 08:14**Date Received:** 02/28/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.6		%	0.100	NA	1	-	03/01/23 10:09	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2310519**Report Date:** 03/06/23**SAMPLE RESULTS****Lab ID:** L2310519-05**Client ID:** SEP4-SB08-0.0-0.5**Sample Location:** PHILADELPHIA, PA**Date Collected:** 02/28/23 08:45**Date Received:** 02/28/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.6		%	0.100	NA	1	-	03/01/23 10:09	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2310519**Report Date:** 03/06/23**SAMPLE RESULTS****Lab ID:** L2310519-06**Client ID:** SEP4-SB03-0.0-0.5**Sample Location:** PHILADELPHIA, PA**Date Collected:** 02/28/23 08:55**Date Received:** 02/28/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.9		%	0.100	NA	1	-	03/01/23 10:09	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2310519**Report Date:** 03/06/23**SAMPLE RESULTS****Lab ID:** L2310519-07**Client ID:** SEP4-SB02-0.0-0.5**Sample Location:** PHILADELPHIA, PA**Date Collected:** 02/28/23 09:54**Date Received:** 02/28/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.9		%	0.100	NA	1	-	03/01/23 10:09	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2310519**Report Date:** 03/06/23**SAMPLE RESULTS****Lab ID:** L2310519-08**Client ID:** SEP4-SB07-0.0-0.5**Sample Location:** PHILADELPHIA, PA**Date Collected:** 02/28/23 10:15**Date Received:** 02/28/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.6		%	0.100	NA	1	-	03/01/23 10:09	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2310519**Report Date:** 03/06/23**SAMPLE RESULTS****Lab ID:** L2310519-09**Client ID:** SEP4-SB01-0.0-0.5**Sample Location:** PHILADELPHIA, PA**Date Collected:** 02/28/23 11:24**Date Received:** 02/28/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.0		%	0.100	NA	1	-	03/01/23 10:09	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**SAMPLE RESULTS****Lab ID:** L2310519-10**Date Collected:** 02/28/23 11:36**Client ID:** SEP4-SB06-0.0-0.5**Date Received:** 02/28/23**Sample Location:** PHILADELPHIA, PA**Field Prep:** Not Specified**Sample 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	-	03/01/23 10:09	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2310519**Report Date:** 03/06/23**SAMPLE RESULTS****Lab ID:** L2310519-11**Client ID:** SEP4-SB11-0.0-0.5**Sample Location:** PHILADELPHIA, PA**Date Collected:** 02/28/23 12:30**Date Received:** 02/28/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.6		%	0.100	NA	1	-	03/01/23 10:09	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2310519

Report Date: 03/06/23

SAMPLE RESULTS

Lab ID: L2310519-12

Client ID: SEP4-SB12-0.0-0.5

Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 12:50

Date Received: 02/28/23

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.1		%	0.100	NA	1	-	03/01/23 10:09	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2310519

Report Date: 03/06/23

SAMPLE RESULTS

Lab ID: L2310519-13

Client ID: SEP4-SB13-0.0-0.5

Sample Location: PHILADELPHIA, PA

Date Collected: 02/28/23 13:25

Date Received: 02/28/23

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.4		%	0.100	NA	1	-	03/01/23 10:09	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2310519**Report Date:** 03/06/23**SAMPLE RESULTS****Lab ID:** L2310519-14**Client ID:** SEP4-SB15-0.0-0.5**Sample Location:** PHILADELPHIA, PA**Date Collected:** 02/28/23 13:50**Date Received:** 02/28/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.1		%	0.100	NA	1	-	03/01/23 10:09	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2310519**Report Date:** 03/06/23**SAMPLE RESULTS****Lab ID:** L2310519-15**Client ID:** SEP4-SB17-0.0-0.5**Sample Location:** PHILADELPHIA, PA**Date Collected:** 02/28/23 13:45**Date Received:** 02/28/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.3		%	0.100	NA	1	-	03/01/23 10:09	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Duplicate Analysis***Batch Quality Control***Lab Number:** L2310519**Report Date:** 03/06/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-15 QC Batch ID: WG1749773-1 QC Sample: L2310519-01 Client ID: SEP4-SB05-0.0-0.5						
Solids, Total	92.3	93.3	%	1		20

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**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(*)
L2310519-01A	Vial MeOH preserved	C	NA		2.4	Y	Absent		PA-8260HLW(14)
L2310519-01B	Vial water preserved	C	NA		2.4	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-01C	Vial water preserved	C	NA		2.4	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-01D	Plastic 120ml unpreserved	C	NA		2.4	Y	Absent		TS(7)
L2310519-01E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.4	Y	Absent		PB-TI(180)
L2310519-01F	Glass 120ml/4oz unpreserved	C	NA		2.4	Y	Absent		PA-PAH(14)
L2310519-02A	Vial MeOH preserved	C	NA		2.4	Y	Absent		PA-8260HLW(14)
L2310519-02B	Vial water preserved	C	NA		2.4	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-02C	Vial water preserved	C	NA		2.4	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-02D	Plastic 120ml unpreserved	C	NA		2.4	Y	Absent		TS(7)
L2310519-02E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.4	Y	Absent		PB-TI(180)
L2310519-02F	Glass 120ml/4oz unpreserved	C	NA		2.4	Y	Absent		PA-PAH(14)
L2310519-03A	Vial MeOH preserved	B	NA		3.8	Y	Absent		PA-8260HLW(14)
L2310519-03B	Vial water preserved	B	NA		3.8	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-03C	Vial water preserved	B	NA		3.8	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-03D	Plastic 120ml unpreserved	B	NA		3.8	Y	Absent		TS(7)
L2310519-03E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.8	Y	Absent		PB-TI(180)
L2310519-03F	Glass 120ml/4oz unpreserved	B	NA		3.8	Y	Absent		PA-PAH(14)
L2310519-04A	Vial MeOH preserved	B	NA		3.8	Y	Absent		PA-8260HLW(14)
L2310519-04B	Vial water preserved	B	NA		3.8	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-04C	Vial water preserved	B	NA		3.8	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2310519-04D	Plastic 120ml unpreserved	B	NA		3.8	Y	Absent		TS(7)
L2310519-04E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.8	Y	Absent		PB-TI(180)
L2310519-04F	Glass 120ml/4oz unpreserved	B	NA		3.8	Y	Absent		PA-PAH(14)
L2310519-05A	Vial MeOH preserved	C	NA		2.4	Y	Absent		PA-8260HLW(14)
L2310519-05B	Vial water preserved	C	NA		2.4	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-05C	Vial water preserved	C	NA		2.4	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-05D	Plastic 120ml unpreserved	C	NA		2.4	Y	Absent		TS(7)
L2310519-05E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.4	Y	Absent		PB-TI(180)
L2310519-05F	Glass 120ml/4oz unpreserved	C	NA		2.4	Y	Absent		PA-PAH(14)
L2310519-06A	Vial MeOH preserved	C	NA		2.4	Y	Absent		PA-8260HLW(14)
L2310519-06B	Vial water preserved	C	NA		2.4	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-06C	Vial water preserved	C	NA		2.4	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-06D	Plastic 120ml unpreserved	C	NA		2.4	Y	Absent		TS(7)
L2310519-06E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.4	Y	Absent		PB-TI(180)
L2310519-06F	Glass 120ml/4oz unpreserved	C	NA		2.4	Y	Absent		PA-PAH(14)
L2310519-07A	Vial MeOH preserved	B	NA		3.8	Y	Absent		PA-8260HLW(14)
L2310519-07B	Vial water preserved	B	NA		3.8	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-07C	Vial water preserved	B	NA		3.8	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-07D	Plastic 120ml unpreserved	B	NA		3.8	Y	Absent		TS(7)
L2310519-07E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.8	Y	Absent		PB-TI(180)
L2310519-07F	Glass 120ml/4oz unpreserved	B	NA		3.8	Y	Absent		PA-PAH(14)
L2310519-08A	Vial MeOH preserved	C	NA		2.4	Y	Absent		PA-8260HLW(14)
L2310519-08B	Vial water preserved	C	NA		2.4	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-08C	Vial water preserved	C	NA		2.4	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-08D	Plastic 120ml unpreserved	C	NA		2.4	Y	Absent		TS(7)
L2310519-08E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.4	Y	Absent		PB-TI(180)
L2310519-08F	Glass 120ml/4oz unpreserved	C	NA		2.4	Y	Absent		PA-PAH(14)
L2310519-09A	Vial MeOH preserved	B	NA		3.8	Y	Absent		PA-8260HLW(14)

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2310519-09B	Vial water preserved	B	NA		3.8	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-09C	Vial water preserved	B	NA		3.8	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-09D	Plastic 120ml unpreserved	B	NA		3.8	Y	Absent		TS(7)
L2310519-09E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.8	Y	Absent		PB-TI(180)
L2310519-09F	Glass 120ml/4oz unpreserved	B	NA		3.8	Y	Absent		PA-PAH(14)
L2310519-10A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2310519-10B	Vial water preserved	A	NA		2.3	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-10C	Vial water preserved	A	NA		2.3	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-10D	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2310519-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2310519-10F	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-PAH(14)
L2310519-11A	Vial MeOH preserved	B	NA		3.8	Y	Absent		PA-8260HLW(14)
L2310519-11B	Vial water preserved	B	NA		3.8	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-11C	Vial water preserved	B	NA		3.8	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-11D	Plastic 120ml unpreserved	B	NA		3.8	Y	Absent		TS(7)
L2310519-11E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.8	Y	Absent		PB-TI(180)
L2310519-11F	Glass 120ml/4oz unpreserved	B	NA		3.8	Y	Absent		PA-PAH(14)
L2310519-12A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2310519-12B	Vial water preserved	A	NA		2.3	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-12C	Vial water preserved	A	NA		2.3	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-12D	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2310519-12E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2310519-12F	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-PAH(14)
L2310519-13A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2310519-13B	Vial water preserved	A	NA		2.3	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-13C	Vial water preserved	A	NA		2.3	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-13D	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2310519-13E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2310519-13F	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-PAH(14)
L2310519-14A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2310519-14B	Vial water preserved	A	NA		2.3	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-14C	Vial water preserved	A	NA		2.3	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-14D	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2310519-14E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2310519-14F	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-PAH(14)
L2310519-15A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2310519-15B	Vial water preserved	A	NA		2.3	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-15C	Vial water preserved	A	NA		2.3	Y	Absent	01-MAR-23 04:25	PA-8260HLW(14)
L2310519-15D	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2310519-15E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2310519-15F	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-PAH(14)
L2310519-16A	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2310519-16B	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310519**Project Number:** P044.001.012**Report Date:** 03/06/23

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

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Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310519
Report Date: 03/06/23

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 NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310519
Report Date: 03/06/23

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.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 19

Published Date: 4/2/2021 1:14:23 PM

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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, **LACHAT 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.

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CHAIN OF CUSTODY

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Project Information

Project Name: PESRM No. 4 Separator

Project Location: Philadelphia, PA

Project #: P044.001.012

Project Manager: Michael McDonald

ALPHA Quote #: 21552

Turn-Around Time

☒ Standard☐ Rush (ONLY IF PRE-APPROVED)

Fax:

Email: michael.mcdonald@terraphase.com☐ These samples have been previously analyzed by Alpha

Due Date:

Time:

Other Project Specific Requirements/Comments/Detection Limits:

EDD@terraphase.com

Terraphase Equis EDD

Date Rec'd in Lab:

03/1/23

ALPHA Job #:

L2310579

Report Information Data Deliverables

☐ FAX☒ EMAIL☐ ADEx☐ Add'l Deliverables

Billing Information

☒ Same as Client info

PO #: P044.001.012

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

ANALYSIS

VOCs via 8260: See analyte list	SVOCs via 8270: see analyte list	Lead via 6010																		

SAMPLE HANDLING

Filtration

☐ Done☒ Not Needed☐ Lab to do

Preservation

☐ Lab to do

(Please specify below)

Sample Specific Comments

TOTAL # BOTTLES

See attached

analyte list

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials															
		Date	Time																	
2579-11	SEP4-SB11-0.0-0.5	2/28/2023	1230	Soil	EEJ	<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"/>
12	SEP4-SB12-0.0-0.5	2/28/2023	1250	Soil	EEJ	<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"/>
13	SEP4-SB13-0.0-0.5	2/28/2023	1325	Soil	EEJ	<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"/>
14	SEP4-SB15-0.0-0.5	2/28/2023	1345	Soil	EEJ	<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"/>
15	SEP4-SB17-0.0-0.5	2/28/2023	1350	Soil	EEJ	<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"/>
16	TB-230228-1	2/28/2023	1416	Soil	EEJ	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				Soil	EEJ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				Soil	EEJ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				Soil	EEJ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				Soil	EEJ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<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

Relinquished By:

Date/Time

Received By:

Date/Time

Elise Johnston

2/28/2023 15:10pm

Guacalan AAL

2/28/23 15:10pm

Guacalan AAL

2/28/23 18:00

Guacalan AAL

2/28/23 18:00

Guacalan AAL

2/28/23 21:55

Guacalan AAL

2/28/23 21:55

Guacalan AAL

3/1/23 01:30

Guacalan AAL

2/28/23 23:40

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.

L2310519

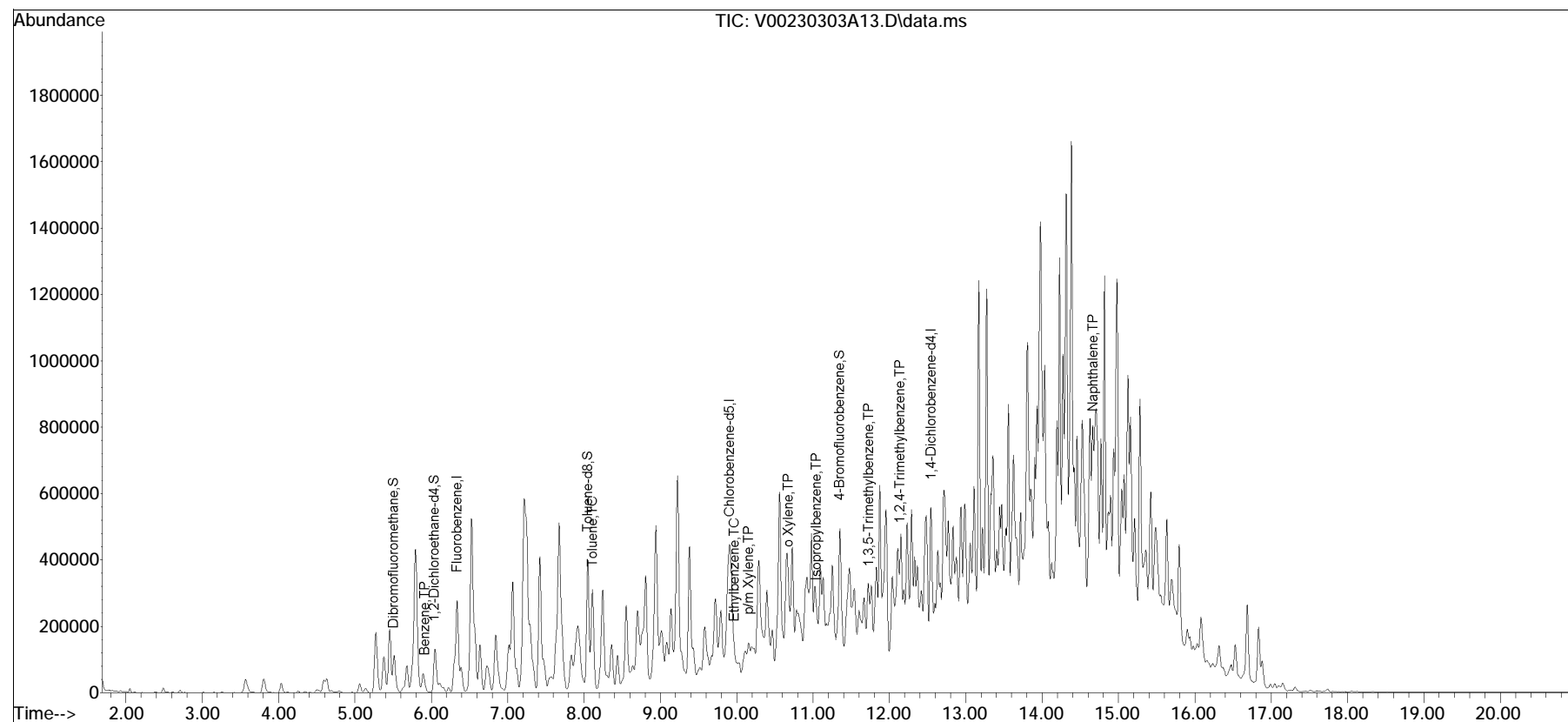
- VOCs via 8260: Benzene, Cumene, 1,2-Dibromoethane, 1,2-Dichloroethane, Ethyl Benzene, Methyl tert-butyl ether, Toluene, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, and Xylenes (total)
- SVOCs via 8270: Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Chrysene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Pyrene
- Lead via 6010

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA100\2023\230303A\
Data File : V00230303A13.D
Acq On : 3 Mar 2023 12:18 pm
Operator : VOA100:JIC
Sample : L2310519-06,31,6.13,5,,B
Misc : WG1750829,ICAL19501
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 03 14:09:01 2023
Quant Method : I:\VOLATILES\VOA100\2023\230303A\V100_221117A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Nov 18 08:27:02 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list03A\V00230303A01.D•





ANALYTICAL REPORT

Lab Number:	L2310690
Client:	Terraphase Engineering Inc. 1100 East Hector Street Suite 400 Conshohocken, PA 19428
ATTN:	Michael McDonald
Phone:	(484) 513-4910
Project Name:	PESRM NO. 4 SEPARATOR
Project Number:	P044.001.012
Report Date:	03/09/23

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310690
Report Date: 03/09/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2310690-01	SEP4-SB16-0.0-0.5	SOIL	PHILADELPHIA, PA	03/01/23 09:10	03/01/23
L2310690-02	SEP4-SB14-0.0-0.5	SOIL	PHILADELPHIA, PA	03/01/23 09:30	03/01/23
L2310690-03	SEP4-SB18-1.5-2.0	SOIL	PHILADELPHIA, PA	03/01/23 10:45	03/01/23
L2310690-04	SEP4-SB18-4.0-4.5	SOIL	PHILADELPHIA, PA	03/01/23 10:55	03/01/23
L2310690-05	SEP4-SB19-1.5-2.0	SOIL	PHILADELPHIA, PA	03/01/23 11:30	03/01/23
L2310690-06	SEP4-SB19-1.5-2.0DUP	SOIL	PHILADELPHIA, PA	03/01/23 11:30	03/01/23
L2310690-07	SEP4-SB19-4.5-5.0	SOIL	PHILADELPHIA, PA	03/01/23 11:40	03/01/23
L2310690-08	TB-230301-1	WATER	PHILADELPHIA, PA	03/01/23 12:30	03/01/23

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310690
Report Date: 03/09/23

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 NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310690
Report Date: 03/09/23

Case Narrative (continued)

Report Revision

March 09, 2023: The Client ID for L2310690-06 has been corrected.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2310690-01: 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.

L2310690-06: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (133%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

The WG1751885-6 MS recovery, performed on L2310690-03, is outside the acceptance criteria for isopropylbenzene (0%). The unacceptable percent recovery is attributed to the elevated concentrations of target compounds present in the native sample.

Semivolatile Organics

L2310690-01D, -05D, -06D, and -07D: The sample has elevated detection limits due to the dilution required by the sample matrix.

WG1750989: An MS/MSD was not analyzed because the dilution required by the elevated concentrations of non-target compounds present in the native sample would have caused the spike compounds to be diluted below the range of calibration.

Total Metals

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012


Lab Number: L2310690
Report Date: 03/09/23

Case Narrative (continued)

The WG1750808-3/-4 MS/MSD recoveries for lead (159%/154%), performed on L2310690-01, do 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:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 03/09/23

ORGANICS

VOLATILES

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310690
Report Date: 03/09/23

SAMPLE RESULTS

Lab ID: L2310690-01
Client ID: SEP4-SB16-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 03/01/23 09:10
Date Received: 03/01/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 03/06/23 15:32
Analyst: JIC
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.15	0.015	1
Benzene	0.044		mg/kg	0.037	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.073	0.019	1
Toluene	0.22		mg/kg	0.073	0.040	1
1,2-Dibromoethane	ND		mg/kg	0.037	0.022	1
Ethylbenzene	0.10		mg/kg	0.073	0.010	1
p/m-Xylene	0.40		mg/kg	0.15	0.041	1
o-Xylene	0.28		mg/kg	0.073	0.021	1
Xylenes, Total	0.68		mg/kg	0.073	0.021	1
Isopropylbenzene	2.6		mg/kg	0.073	0.0080	1
1,3,5-Trimethylbenzene	0.23		mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	0.54		mg/kg	0.15	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	103		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310690**Project Number:** P044.001.012**Report Date:** 03/09/23**SAMPLE RESULTS**

Lab ID: L2310690-01
 Client ID: SEP4-SB16-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/01/23 09:10
 Date Received: 03/01/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/07/23 13:19
 Analyst: LAC
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0040	0.00040	1
Benzene	0.0010		mg/kg	0.00099	0.00033	1
1,2-Dichloroethane	ND		mg/kg	0.0020	0.00051	1
Toluene	0.0044		mg/kg	0.0020	0.0011	1
1,2-Dibromoethane	ND		mg/kg	0.00099	0.00058	1
Ethylbenzene	0.0048		mg/kg	0.0020	0.00028	1
p/m-Xylene	0.030		mg/kg	0.0040	0.0011	1
o-Xylene	0.035		mg/kg	0.0020	0.00058	1
Xylenes, Total	0.065		mg/kg	0.0020	0.00058	1
Isopropylbenzene	0.22		mg/kg	0.0020	0.00022	1
1,3,5-Trimethylbenzene	0.021		mg/kg	0.0040	0.00038	1
1,2,4-Trimethylbenzene	0.045		mg/kg	0.0040	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	128		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	79		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310690**Project Number:** P044.001.012**Report Date:** 03/09/23**SAMPLE RESULTS**

Lab ID: L2310690-02
 Client ID: SEP4-SB14-0.0-0.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/01/23 09:30
 Date Received: 03/01/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/07/23 13:45
 Analyst: LAC
 Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00027	1
Toluene	ND		mg/kg	0.0010	0.00057	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00058	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.0024		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0030		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	0.011		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	97		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310690**Project Number:** P044.001.012**Report Date:** 03/09/23**SAMPLE RESULTS**

Lab ID: L2310690-03
 Client ID: SEP4-SB18-1.5-2.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/01/23 10:45
 Date Received: 03/01/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/07/23 14:11
 Analyst: LAC
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.033		mg/kg	0.030	0.0098	1
1,2-Dichloroethane	ND		mg/kg	0.059	0.015	1
Toluene	0.39		mg/kg	0.059	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.017	1
Ethylbenzene	0.91		mg/kg	0.059	0.0083	1
p/m-Xylene	4.8		mg/kg	0.12	0.033	1
o-Xylene	2.9		mg/kg	0.059	0.017	1
Xylenes, Total	7.7		mg/kg	0.059	0.017	1
Isopropylbenzene	33.	E	mg/kg	0.059	0.0064	1
1,3,5-Trimethylbenzene	6.2		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	16.		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	92		70-130

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310690
Report Date: 03/09/23

SAMPLE RESULTS

Lab ID: L2310690-03 D
Client ID: SEP4-SB18-1.5-2.0
Sample Location: PHILADELPHIA, PA

Date Collected: 03/01/23 10:45
Date Received: 03/01/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 03/06/23 16:28
Analyst: JIC
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
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Isopropylbenzene	30.		mg/kg	0.30	0.032	5
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	105		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310690**Project Number:** P044.001.012**Report Date:** 03/09/23**SAMPLE RESULTS**

Lab ID: L2310690-04
 Client ID: SEP4-SB18-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/01/23 10:55
 Date Received: 03/01/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/06/23 16:56
 Analyst: JIC
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.034		mg/kg	0.030	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.061	0.016	1
Toluene	0.17		mg/kg	0.061	0.033	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	0.26		mg/kg	0.061	0.0086	1
p/m-Xylene	1.1		mg/kg	0.12	0.034	1
o-Xylene	0.63		mg/kg	0.061	0.018	1
Xylenes, Total	1.7		mg/kg	0.061	0.018	1
Isopropylbenzene	5.9		mg/kg	0.061	0.0066	1
1,3,5-Trimethylbenzene	0.94		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	2.8		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	99		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310690**Project Number:** P044.001.012**Report Date:** 03/09/23**SAMPLE RESULTS**

Lab ID: L2310690-05
 Client ID: SEP4-SB19-1.5-2.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/01/23 11:30
 Date Received: 03/01/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/06/23 17:24
 Analyst: JIC
 Percent Solids: 67%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.18	0.018	1
Benzene	0.53		mg/kg	0.045	0.015	1
1,2-Dichloroethane	ND		mg/kg	0.090	0.023	1
Toluene	0.15		mg/kg	0.090	0.049	1
1,2-Dibromoethane	ND		mg/kg	0.045	0.026	1
Ethylbenzene	0.31		mg/kg	0.090	0.013	1
p/m-Xylene	0.62		mg/kg	0.18	0.050	1
o-Xylene	0.91		mg/kg	0.090	0.026	1
Xylenes, Total	1.5		mg/kg	0.090	0.026	1
Isopropylbenzene	4.8		mg/kg	0.090	0.0098	1
1,3,5-Trimethylbenzene	0.94		mg/kg	0.18	0.017	1
1,2,4-Trimethylbenzene	2.4		mg/kg	0.18	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	87		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310690**Project Number:** P044.001.012**Report Date:** 03/09/23**SAMPLE RESULTS**

Lab ID: L2310690-06
 Client ID: SEP4-SB19-1.5-2.0DUP
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/01/23 11:30
 Date Received: 03/01/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/06/23 17:52
 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	0.18	0.018	1
Benzene	0.52		mg/kg	0.045	0.015	1
1,2-Dichloroethane	ND		mg/kg	0.090	0.023	1
Toluene	0.22		mg/kg	0.090	0.049	1
1,2-Dibromoethane	ND		mg/kg	0.045	0.026	1
Ethylbenzene	0.45		mg/kg	0.090	0.013	1
p/m-Xylene	1.0		mg/kg	0.18	0.050	1
o-Xylene	1.4		mg/kg	0.090	0.026	1
Xylenes, Total	2.4		mg/kg	0.090	0.026	1
Isopropylbenzene	6.5		mg/kg	0.090	0.0098	1
1,3,5-Trimethylbenzene	2.0		mg/kg	0.18	0.017	1
1,2,4-Trimethylbenzene	5.1		mg/kg	0.18	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	133	Q	70-130
Dibromofluoromethane	78		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310690**Project Number:** P044.001.012**Report Date:** 03/09/23**SAMPLE RESULTS**

Lab ID: L2310690-07
 Client ID: SEP4-SB19-4.5-5.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/01/23 11:40
 Date Received: 03/01/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/06/23 18:20
 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	0.19	0.019	1
Benzene	0.41		mg/kg	0.047	0.015	1
1,2-Dichloroethane	ND		mg/kg	0.093	0.024	1
Toluene	0.18		mg/kg	0.093	0.051	1
1,2-Dibromoethane	ND		mg/kg	0.047	0.027	1
Ethylbenzene	0.30		mg/kg	0.093	0.013	1
p/m-Xylene	0.78		mg/kg	0.19	0.052	1
o-Xylene	0.69		mg/kg	0.093	0.027	1
Xylenes, Total	1.5		mg/kg	0.093	0.027	1
Isopropylbenzene	5.6		mg/kg	0.093	0.010	1
1,3,5-Trimethylbenzene	0.12	J	mg/kg	0.19	0.018	1
1,2,4-Trimethylbenzene	0.34		mg/kg	0.19	0.031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	79		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310690**Project Number:** P044.001.012**Report Date:** 03/09/23**SAMPLE RESULTS**

Lab ID: L2310690-08
 Client ID: TB-230301-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/01/23 12:30
 Date Received: 03/01/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 03/03/23 10:42
 Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	111		70-130

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310690
Report Date: 03/09/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260D
 Analytical Date: 03/03/23 09:48
 Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 08 Batch: WG1751542-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	108		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310690**Project Number:** P044.001.012**Report Date:** 03/09/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260D
 Analytical Date: 03/07/23 08:58
 Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03 Batch: WG1751885-12					
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	110		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	108		70-130

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310690
Report Date: 03/09/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260D
 Analytical Date: 03/06/23 11:19
 Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,03-07 Batch: WG1751885-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	103		70-130

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310690
Report Date: 03/09/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260D
 Analytical Date: 03/07/23 08:58
 Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-02 Batch: WG1752194-5					
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	110		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	108		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2310690

Report Date: 03/09/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 08 Batch: WG1751542-3 WG1751542-4								
Methyl tert butyl ether	100		110		63-130	10		20
Benzene	110		110		70-130	0		20
1,2-Dichloroethane	110		120		70-130	9		20
Toluene	100		110		70-130	10		20
1,2-Dibromoethane	100		100		70-130	0		20
Ethylbenzene	110		110		70-130	0		20
p/m-Xylene	110		115		70-130	4		20
o-Xylene	105		110		70-130	5		20
Isopropylbenzene	110		110		70-130	0		20
1,3,5-Trimethylbenzene	100		110		64-130	10		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		105		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	101		102		70-130
Dibromofluoromethane	98		101		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Lab Number: L2310690

Project Number: P044.001.012

Report Date: 03/09/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03 Batch: WG1751885-10 WG1751885-11								
Methyl tert butyl ether	87		91		66-130	4		30
Benzene	91		95		70-130	4		30
1,2-Dichloroethane	81		83		70-130	2		30
Toluene	100		98		70-130	2		30
1,2-Dibromoethane	98		94		70-130	4		30
Ethylbenzene	104		112		70-130	7		30
p/m-Xylene	107		109		70-130	2		30
o-Xylene	119		103		70-130	14		30
Isopropylbenzene	129		116		70-130	11		30
1,3,5-Trimethylbenzene	116		114		70-130	2		30
1,2,4-Trimethylbenzene	114		115		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		88		70-130
Toluene-d8	102		98		70-130
4-Bromofluorobenzene	118		105		70-130
Dibromofluoromethane	84		85		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Lab Number: L2310690

Project Number: P044.001.012

Report Date: 03/09/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,03-07 Batch: WG1751885-3 WG1751885-4								
Methyl tert butyl ether	111		97		66-130	13		30
Benzene	106		97		70-130	9		30
1,2-Dichloroethane	100		94		70-130	6		30
Toluene	95		103		70-130	8		30
1,2-Dibromoethane	100		110		70-130	10		30
Ethylbenzene	106		104		70-130	2		30
p/m-Xylene	111		110		70-130	1		30
o-Xylene	110		112		70-130	2		30
Isopropylbenzene	107		96		70-130	11		30
1,3,5-Trimethylbenzene	108		108		70-130	0		30
1,2,4-Trimethylbenzene	108		105		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		90		70-130
Toluene-d8	86		95		70-130
4-Bromofluorobenzene	96		87		70-130
Dibromofluoromethane	105		98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Lab Number: L2310690

Project Number: P044.001.012

Report Date: 03/09/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-02 Batch: WG1752194-3 WG1752194-4								
Methyl tert butyl ether	87		91		66-130	4		30
Benzene	91		95		70-130	4		30
1,2-Dichloroethane	81		83		70-130	2		30
Toluene	100		98		70-130	2		30
1,2-Dibromoethane	98		94		70-130	4		30
Ethylbenzene	104		112		70-130	7		30
p/m-Xylene	107		109		70-130	2		30
o-Xylene	119		103		70-130	14		30
Isopropylbenzene	129		116		70-130	11		30
1,3,5-Trimethylbenzene	116		114		70-130	2		30
1,2,4-Trimethylbenzene	114		115		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		88		70-130
Toluene-d8	103		98		70-130
4-Bromofluorobenzene	118		105		70-130
Dibromofluoromethane	84		85		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2310690

Report Date: 03/09/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Client ID: SEP4-SB18-1.5-2.0												
Associated sample(s): 01,03-07 QC Batch ID: WG1751885-6 WG1751885-7 QC Sample: L2310690-03												
Methyl tert butyl ether	ND	5.26	5.9	112		4.9	93		66-130	18		30
Benzene	0.033	5.26	5.4	103		4.9	93		70-130	10		30
1,2-Dichloroethane	ND	5.26	5.7	108		5.0	95		70-130	13		30
Toluene	0.39	5.26	6.2	110		5.8	103		70-130	6		30
1,2-Dibromoethane	ND	5.26	5.6	107		5.0	94		70-130	13		30
Ethylbenzene	0.91	5.26	6.1	98		6.3	102		70-130	3		30
p/m-Xylene	4.8	10.5	14	90		16	103		70-130	9		30
o-Xylene	2.9	10.5	13	99		14	105		70-130	4		30
Isopropylbenzene	30	5.26	29.E	0	Q	34.E	21	Q	70-130	17		30
1,3,5-Trimethylbenzene	6.2	5.26	9.0	54	Q	11	84		70-130	16		30
1,2,4-Trimethylbenzene	16	5.26	16	8	Q	20.E	80		70-130	21		30

Surrogate	MS		MSD		Acceptance Criteria
	% Recovery	Qualifier	% Recovery	Qualifier	
1,2-Dichloroethane-d4	109		108		70-130
4-Bromofluorobenzene	109		106		70-130
Dibromofluoromethane	85		86		70-130
Toluene-d8	110		112		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2310690

Report Date: 03/09/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1752194-6 WG1752194-7 QC Sample: L2310690-01 Client ID: SEP4-SB16-0.0-0.5												
Methyl tert butyl ether	ND	0.118	0.063	53	Q	0.12	92		66-130	62	Q	30
Benzene	0.0010	0.118	0.035	29	Q	0.092	70		70-130	90	Q	30
1,2-Dichloroethane	ND	0.118	0.038	32	Q	0.085	65	Q	70-130	76	Q	30
Toluene	0.0044	0.118	0.031	23	Q	0.088	64	Q	70-130	96	Q	30
1,2-Dibromoethane	ND	0.118	0.034	29	Q	0.089	68	Q	70-130	89	Q	30
Ethylbenzene	0.0048	0.118	0.025	17	Q	0.062	44	Q	70-130	85	Q	30
p/m-Xylene	0.030	0.236	0.074	19	Q	0.16	50	Q	70-130	74	Q	30
o-Xylene	0.035	0.236	0.069	14	Q	0.15	44	Q	70-130	74	Q	30
Isopropylbenzene	0.22	0.118	0.54E	272	Q	0.39	130		70-130	32	Q	30
1,3,5-Trimethylbenzene	0.021	0.118	0.061	34	Q	0.078	44	Q	70-130	24		30
1,2,4-Trimethylbenzene	0.045	0.118	0.11	55	Q	0.095	38	Q	70-130	15		30

Surrogate	MS % Recovery	Qualifier	MSD % Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		93		70-130
4-Bromofluorobenzene	101		108		70-130
Dibromofluoromethane	77		82		70-130
Toluene-d8	162	Q	141	Q	70-130

SEMIVOLATILES

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310690**Project Number:** P044.001.012**Report Date:** 03/09/23**SAMPLE RESULTS**

Lab ID: L2310690-01 D

Date Collected: 03/01/23 09:10

Client ID: SEP4-SB16-0.0-0.5

Date Received: 03/01/23

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Extraction Method: EPA 3546

Analytical Method: 1,8270E

Extraction Date: 03/03/23 20:55

Analytical Date: 03/08/23 05:07

Analyst: IM

Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.5		mg/kg	0.42	0.25	10
Fluorene	2.3		mg/kg	2.1	0.20	10
Phenanthrene	7.5		mg/kg	1.2	0.25	10
Anthracene	1.7		mg/kg	1.2	0.40	10
Pyrene	6.7		mg/kg	1.2	0.21	10
Benzo(a)anthracene	3.0		mg/kg	1.2	0.23	10
Chrysene	4.1		mg/kg	1.2	0.22	10
Benzo(b)fluoranthene	3.0		mg/kg	1.2	0.35	10
Benzo(a)pyrene	2.7		mg/kg	1.7	0.51	10
Indeno(1,2,3-cd)pyrene	1.5	J	mg/kg	1.7	0.29	10
Benzo(ghi)perylene	1.6	J	mg/kg	1.7	0.24	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	23		23-120
2-Fluorobiphenyl	31		30-120
4-Terphenyl-d14	33		18-120

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310690
Report Date: 03/09/23

SAMPLE RESULTS

Lab ID: L2310690-02
Client ID: SEP4-SB14-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 03/01/23 09:30
Date Received: 03/01/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 03/05/23 23:49
Analyst: MG
Percent Solids: 94%

Extraction Method: EPA 3546
Extraction Date: 03/03/23 20:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.043		mg/kg	0.035	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	0.026	J	mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	0.037	J	mg/kg	0.10	0.017	1
Benzo(a)anthracene	0.024	J	mg/kg	0.10	0.020	1
Chrysene	0.021	J	mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.14	0.024	1
Benzo(ghi)perylene	0.030	J	mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	49		30-120
4-Terphenyl-d14	41		18-120

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310690
Report Date: 03/09/23

SAMPLE RESULTS

Lab ID: L2310690-03
Client ID: SEP4-SB18-1.5-2.0
Sample Location: PHILADELPHIA, PA

Date Collected: 03/01/23 10:45
Date Received: 03/01/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 03/05/23 22:58
Analyst: MG
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 03/03/23 20:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.5		mg/kg	0.036	0.022	1
Fluorene	0.35		mg/kg	0.18	0.018	1
Phenanthrene	0.99		mg/kg	0.11	0.022	1
Anthracene	0.25		mg/kg	0.11	0.036	1
Pyrene	0.77		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.38		mg/kg	0.11	0.020	1
Chrysene	0.57		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.34		mg/kg	0.11	0.031	1
Benzo(a)pyrene	0.40		mg/kg	0.15	0.044	1
Indeno(1,2,3-cd)pyrene	0.21		mg/kg	0.15	0.025	1
Benzo(ghi)perylene	0.26		mg/kg	0.15	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	81		23-120
2-Fluorobiphenyl	64		30-120
4-Terphenyl-d14	56		18-120

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310690
Report Date: 03/09/23

SAMPLE RESULTS

Lab ID: L2310690-04
Client ID: SEP4-SB18-4.0-4.5
Sample Location: PHILADELPHIA, PA

Date Collected: 03/01/23 10:55
Date Received: 03/01/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 03/06/23 00:06
Analyst: MG
Percent Solids: 84%

Extraction Method: EPA 3546
Extraction Date: 03/03/23 20:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.3		mg/kg	0.039	0.024	1
Fluorene	0.20		mg/kg	0.19	0.019	1
Phenanthrene	0.95		mg/kg	0.12	0.024	1
Anthracene	0.69		mg/kg	0.12	0.038	1
Pyrene	3.3		mg/kg	0.12	0.019	1
Benzo(a)anthracene	1.3		mg/kg	0.12	0.022	1
Chrysene	2.4		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	1.8		mg/kg	0.12	0.033	1
Benzo(a)pyrene	1.4		mg/kg	0.16	0.047	1
Indeno(1,2,3-cd)pyrene	0.63		mg/kg	0.16	0.027	1
Benzo(ghi)perylene	0.81		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	56		18-120

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310690
Report Date: 03/09/23

SAMPLE RESULTS

Lab ID: L2310690-05 D
Client ID: SEP4-SB19-1.5-2.0
Sample Location: PHILADELPHIA, PA

Date Collected: 03/01/23 11:30
Date Received: 03/01/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 03/08/23 05:31
Analyst: IM
Percent Solids: 67%

Extraction Method: EPA 3546
Extraction Date: 03/03/23 20:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	3.0		mg/kg	0.49	0.30	10
Fluorene	4.5		mg/kg	2.4	0.24	10
Phenanthrene	13.		mg/kg	1.5	0.30	10
Anthracene	2.1		mg/kg	1.5	0.48	10
Pyrene	2.2		mg/kg	1.5	0.24	10
Benzo(a)anthracene	0.85	J	mg/kg	1.5	0.27	10
Chrysene	1.2	J	mg/kg	1.5	0.25	10
Benzo(b)fluoranthene	0.70	J	mg/kg	1.5	0.41	10
Benzo(a)pyrene	ND		mg/kg	2.0	0.60	10
Indeno(1,2,3-cd)pyrene	ND		mg/kg	2.0	0.34	10
Benzo(ghi)perylene	0.33	J	mg/kg	2.0	0.29	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	44		23-120
2-Fluorobiphenyl	46		30-120
4-Terphenyl-d14	43		18-120

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310690
Report Date: 03/09/23

SAMPLE RESULTS

Lab ID: L2310690-06 D
Client ID: SEP4-SB19-1.5-2.0DUP
Sample Location: PHILADELPHIA, PA

Date Collected: 03/01/23 11:30
Date Received: 03/01/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 03/08/23 05:55
Analyst: IM
Percent Solids: 70%

Extraction Method: EPA 3546
Extraction Date: 03/03/23 20:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	8.1		mg/kg	0.24	0.14	5
Fluorene	9.3		mg/kg	1.2	0.11	5
Phenanthrene	22.		mg/kg	0.71	0.14	5
Anthracene	4.0		mg/kg	0.71	0.23	5
Pyrene	5.2		mg/kg	0.71	0.12	5
Benzo(a)anthracene	2.2		mg/kg	0.71	0.13	5
Chrysene	3.1		mg/kg	0.71	0.12	5
Benzo(b)fluoranthene	2.3		mg/kg	0.71	0.20	5
Benzo(a)pyrene	1.7		mg/kg	0.94	0.29	5
Indeno(1,2,3-cd)pyrene	0.88	J	mg/kg	0.94	0.16	5
Benzo(ghi)perylene	0.94		mg/kg	0.94	0.14	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	113		23-120
2-Fluorobiphenyl	59		30-120
4-Terphenyl-d14	54		18-120

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310690
Report Date: 03/09/23

SAMPLE RESULTS

Lab ID: L2310690-07 D
Client ID: SEP4-SB19-4.5-5.0
Sample Location: PHILADELPHIA, PA

Date Collected: 03/01/23 11:40
Date Received: 03/01/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 03/08/23 06:43
Analyst: IM
Percent Solids: 63%

Extraction Method: EPA 3546
Extraction Date: 03/03/23 20:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	3.4		mg/kg	0.26	0.16	5
Fluorene	5.4		mg/kg	1.3	0.13	5
Phenanthrene	14.		mg/kg	0.79	0.16	5
Anthracene	2.0		mg/kg	0.79	0.26	5
Pyrene	1.6		mg/kg	0.79	0.13	5
Benzo(a)anthracene	0.59	J	mg/kg	0.79	0.15	5
Chrysene	0.83		mg/kg	0.79	0.14	5
Benzo(b)fluoranthene	0.38	J	mg/kg	0.79	0.22	5
Benzo(a)pyrene	0.37	J	mg/kg	1.0	0.32	5
Indeno(1,2,3-cd)pyrene	ND		mg/kg	1.0	0.18	5
Benzo(ghi)perylene	0.21	J	mg/kg	1.0	0.15	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	65		30-120
4-Terphenyl-d14	64		18-120

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2310690
Report Date: 03/09/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
 Analytical Date: 03/05/23 16:23
 Analyst: MG

Extraction Method: EPA 3546
 Extraction Date: 03/03/23 20:55

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-07 Batch: WG1750989-1					
Naphthalene	ND		mg/kg	0.033	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.099	0.020
Anthracene	ND		mg/kg	0.099	0.032
Pyrene	ND		mg/kg	0.099	0.016
Benzo(a)anthracene	ND		mg/kg	0.099	0.019
Chrysene	ND		mg/kg	0.099	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.099	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
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	89		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	78		18-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2310690

Report Date: 03/09/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-07 Batch: WG1750989-2 WG1750989-3								
Naphthalene	61		77		40-140	23		50
Fluorene	58		76		40-140	27		50
Phenanthrene	62		78		40-140	23		50
Anthracene	64		81		40-140	23		50
Pyrene	60		78		35-142	26		50
Benzo(a)anthracene	60		77		40-140	25		50
Chrysene	61		76		40-140	22		50
Benzo(b)fluoranthene	54		70		40-140	26		50
Benzo(a)pyrene	56		76		40-140	30		50
Indeno(1,2,3-cd)pyrene	62		81		40-140	27		50
Benzo(ghi)perylene	56		74		40-140	28		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	72		90		23-120
2-Fluorobiphenyl	63		77		30-120
4-Terphenyl-d14	53		67		18-120

Matrix Spike Analysis**Batch Quality Control****Project Name:** PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2310690**Report Date:** 03/09/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-07 QC Batch ID: WG1750989-6 WG1750989-7 QC Sample: L2310690-03 Client ID: SEP4-SB18-1.5-2.0												
Naphthalene	1.5	1.49	2.5	67		4.0	170	Q	40-140	46		50
Fluorene	0.35	1.49	1.2	57		1.3	65		40-140	8		50
Phenanthrene	0.99	1.49	1.9	61		2.6	110		40-140	31		50
Anthracene	0.25	1.49	1.2	64		1.3	72		40-140	8		50
Pyrene	0.77	1.49	1.8	69		2.2	98		35-142	20		50
Benzo(a)anthracene	0.38	1.49	1.2	55		1.4	70		40-140	15		50
Chrysene	0.57	1.49	1.5	62		1.8	84		40-140	18		50
Benzo(b)fluoranthene	0.34	1.49	1.3	64		1.6	86		40-140	21		50
Benzo(a)pyrene	0.40	1.49	1.4	67		1.6	82		40-140	13		50
Indeno(1,2,3-cd)pyrene	0.21	1.49	1.2	66		1.2	68		40-140	0		50
Benzo(ghi)perylene	0.26	1.49	1.2	63		1.2	64		40-140	0		50

Surrogate	MS % Recovery	Qualifier	MSD % Recovery	Qualifier	Acceptance Criteria
2-Fluorobiphenyl	60		62		30-120
4-Terphenyl-d14	52		59		18-120
Nitrobenzene-d5	85		66		23-120

METALS

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310690**Project Number:** P044.001.012**Report Date:** 03/09/23**SAMPLE RESULTS**

Lab ID: L2310690-01

Date Collected: 03/01/23 09:10

Client ID: SEP4-SB16-0.0-0.5

Date Received: 03/01/23

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	733		mg/kg	2.47	0.132	1	03/04/23 07:15	03/06/23 23:02	EPA 3050B	1,6010D	AMW



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310690**Project Number:** P044.001.012**Report Date:** 03/09/23**SAMPLE RESULTS**

Lab ID: L2310690-02

Date Collected: 03/01/23 09:30

Client ID: SEP4-SB14-0.0-0.5

Date Received: 03/01/23

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	49.3		mg/kg	2.07	0.111	1	03/04/23 07:15	03/06/23 22:46	EPA 3050B	1,6010D	AMW



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310690**Project Number:** P044.001.012**Report Date:** 03/09/23**SAMPLE RESULTS**

Lab ID: L2310690-03

Date Collected: 03/01/23 10:45

Client ID: SEP4-SB18-1.5-2.0

Date Received: 03/01/23

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	120		mg/kg	2.21	0.118	1	03/04/23 07:15	03/07/23 00:00	EPA 3050B	1,6010D	AMW



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310690**Project Number:** P044.001.012**Report Date:** 03/09/23**SAMPLE RESULTS**

Lab ID: L2310690-04

Date Collected: 03/01/23 10:55

Client ID: SEP4-SB18-4.0-4.5

Date Received: 03/01/23

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	346		mg/kg	2.28	0.122	1	03/04/23 07:15	03/06/23 22:51	EPA 3050B	1,6010D	AMW



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310690**Project Number:** P044.001.012**Report Date:** 03/09/23**SAMPLE RESULTS**

Lab ID: L2310690-05

Date Collected: 03/01/23 11:30

Client ID: SEP4-SB19-1.5-2.0

Date Received: 03/01/23

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	345		mg/kg	2.93	0.157	1	03/04/23 07:15	03/06/23 22:56	EPA 3050B	1,6010D	AMW



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310690**Project Number:** P044.001.012**Report Date:** 03/09/23**SAMPLE RESULTS**

Lab ID: L2310690-06

Date Collected: 03/01/23 11:30

Client ID: SEP4-SB19-1.5-2.0DUP

Date Received: 03/01/23

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	258		mg/kg	2.70	0.145	1	03/04/23 07:15	03/06/23 23:36	EPA 3050B	1,6010D	AMW



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310690**Project Number:** P044.001.012**Report Date:** 03/09/23**SAMPLE RESULTS**

Lab ID: L2310690-07

Date Collected: 03/01/23 11:40

Client ID: SEP4-SB19-4.5-5.0

Date Received: 03/01/23

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	277		mg/kg	3.06	0.164	1	03/04/23 07:15	03/06/23 23:41	EPA 3050B	1,6010D	AMW



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310690**Project Number:** P044.001.012**Report Date:** 03/09/23

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-07 Batch: WG1750808-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	03/04/23 07:15	03/06/23 22:37	1,6010D	AMW

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis**Batch Quality Control****Project Name:** PESRM NO. 4 SEPARATOR**Lab Number:** L2310690**Project Number:** P044.001.012**Report Date:** 03/09/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-07 Batch: WG1750808-2 SRM Lot Number: D116-540								
Lead, Total	92		-		83-117	-		

Matrix Spike Analysis Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Lab Number: L2310690

Project Number: P044.001.012

Report Date: 03/09/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-07 0.0-0.5 QC Batch ID: WG1750808-3 WG1750808-4 QC Sample: L2310690-01 Client ID: SEP4-SB16-												
Lead, Total	733	52.7	817	159	Q	812	154	Q	75-125	1		20
Total Metals - Mansfield Lab Associated sample(s): 01-07 1.5-2.0 QC Batch ID: WG1750808-7 WG1750808-8 QC Sample: L2310690-03 Client ID: SEP4-SB18-												
Lead, Total	120	45.9	160	87		159	84		75-125	1		20

INORGANICS & MISCELLANEOUS

Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2310690**Report Date:** 03/09/23**SAMPLE RESULTS****Lab ID:** L2310690-01**Client ID:** SEP4-SB16-0.0-0.5**Sample Location:** PHILADELPHIA, PA**Date Collected:** 03/01/23 09:10**Date Received:** 03/01/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.0		%	0.100	NA	1	-	03/02/23 11:03	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2310690**Report Date:** 03/09/23**SAMPLE RESULTS****Lab ID:** L2310690-02**Client ID:** SEP4-SB14-0.0-0.5**Sample Location:** PHILADELPHIA, PA**Date Collected:** 03/01/23 09:30**Date Received:** 03/01/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.8		%	0.100	NA	1	-	03/02/23 11:03	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2310690

Report Date: 03/09/23

SAMPLE RESULTS

Lab ID: L2310690-03

Client ID: SEP4-SB18-1.5-2.0

Sample Location: PHILADELPHIA, PA

Date Collected: 03/01/23 10:45

Date Received: 03/01/23

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.4		%	0.100	NA	1	-	03/02/23 11:03	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2310690**Report Date:** 03/09/23**SAMPLE RESULTS****Lab ID:** L2310690-04**Client ID:** SEP4-SB18-4.0-4.5**Sample Location:** PHILADELPHIA, PA**Date Collected:** 03/01/23 10:55**Date Received:** 03/01/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.4		%	0.100	NA	1	-	03/02/23 11:03	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2310690**Report Date:** 03/09/23**SAMPLE RESULTS****Lab ID:** L2310690-05**Client ID:** SEP4-SB19-1.5-2.0**Sample Location:** PHILADELPHIA, PA**Date Collected:** 03/01/23 11:30**Date Received:** 03/01/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	66.8		%	0.100	NA	1	-	03/02/23 11:03	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2310690**Report Date:** 03/09/23**SAMPLE RESULTS****Lab ID:** L2310690-06**Client ID:** SEP4-SB19-1.5-2.0DUP**Sample Location:** PHILADELPHIA, PA**Date Collected:** 03/01/23 11:30**Date Received:** 03/01/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	70.4		%	0.100	NA	1	-	03/02/23 11:03	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2310690**Report Date:** 03/09/23**SAMPLE RESULTS****Lab ID:** L2310690-07**Client ID:** SEP4-SB19-4.5-5.0**Sample Location:** PHILADELPHIA, PA**Date Collected:** 03/01/23 11:40**Date Received:** 03/01/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	63.1		%	0.100	NA	1	-	03/02/23 11:03	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L2310690
Report Date: 03/09/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-07 QC Batch ID: WG1750204-1 QC Sample: L2310690-01 Client ID: SEP4-SB16-0.0-0.5						
Solids, Total	79.0	77.8	%	2		20

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310690**Project Number:** P044.001.012**Report Date:** 03/09/23**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(*)
L2310690-01A	Vial MeOH preserved	A	NA		2.0	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2310690-01A1	Vial MeOH preserved	A	NA		2.0	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2310690-01A2	Vial MeOH preserved	A	NA		2.0	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2310690-01B	Vial water preserved	A	NA		2.0	Y	Absent	02-MAR-23 06:36	PA-8260H(14),PA-8260HLW(14)
L2310690-01B1	Vial water preserved	A	NA		2.0	Y	Absent	02-MAR-23 06:36	PA-8260H(14),PA-8260HLW(14)
L2310690-01B2	Vial water preserved	A	NA		2.0	Y	Absent	02-MAR-23 06:36	PA-8260H(14),PA-8260HLW(14)
L2310690-01C	Vial water preserved	A	NA		2.0	Y	Absent	02-MAR-23 06:36	PA-8260H(14),PA-8260HLW(14)
L2310690-01C1	Vial water preserved	A	NA		2.0	Y	Absent	02-MAR-23 06:36	PA-8260H(14),PA-8260HLW(14)
L2310690-01C2	Vial water preserved	A	NA		2.0	Y	Absent	02-MAR-23 06:36	PA-8260H(14),PA-8260HLW(14)
L2310690-01D	Plastic 120ml unpreserved	A	NA		2.0	Y	Absent		TS(7)
L2310690-01D1	Plastic 120ml unpreserved	A	NA		2.0	Y	Absent		TS(7)
L2310690-01D2	Plastic 120ml unpreserved	A	NA		2.0	Y	Absent		TS(7)
L2310690-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.0	Y	Absent		PB-TI(180)
L2310690-01E1	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.0	Y	Absent		PB-TI(180)
L2310690-01E2	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.0	Y	Absent		PB-TI(180)
L2310690-01F	Glass 120ml/4oz unpreserved	A	NA		2.0	Y	Absent		PA-PAH(14)
L2310690-01F1	Glass 120ml/4oz unpreserved	A	NA		2.0	Y	Absent		PA-PAH(14)
L2310690-01F2	Glass 120ml/4oz unpreserved	A	NA		2.0	Y	Absent		PA-PAH(14)
L2310690-02A	Vial MeOH preserved	A	NA		2.0	Y	Absent		PA-8260HLW(14)
L2310690-02B	Vial water preserved	A	NA		2.0	Y	Absent	02-MAR-23 06:36	PA-8260HLW(14)
L2310690-02C	Vial water preserved	A	NA		2.0	Y	Absent	02-MAR-23 06:36	PA-8260HLW(14)
L2310690-02D	Plastic 120ml unpreserved	A	NA		2.0	Y	Absent		TS(7)

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Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2310690-02E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.0	Y	Absent		PB-TI(180)
L2310690-02F	Glass 120ml/4oz unpreserved	A	NA		2.0	Y	Absent		PA-PAH(14)
L2310690-03A	Vial MeOH preserved	A	NA		2.0	Y	Absent		PA-8260HLW(14)
L2310690-03A1	Vial MeOH preserved	A	NA		2.0	Y	Absent		PA-8260HLW(14)
L2310690-03A2	Vial MeOH preserved	A	NA		2.0	Y	Absent		PA-8260HLW(14)
L2310690-03B	Vial water preserved	A	NA		2.0	Y	Absent	02-MAR-23 06:36	PA-8260HLW(14)
L2310690-03B1	Vial water preserved	A	NA		2.0	Y	Absent	02-MAR-23 06:36	PA-8260HLW(14)
L2310690-03B2	Vial water preserved	A	NA		2.0	Y	Absent	02-MAR-23 06:36	PA-8260HLW(14)
L2310690-03C	Vial water preserved	A	NA		2.0	Y	Absent	02-MAR-23 06:36	PA-8260HLW(14)
L2310690-03C1	Vial water preserved	A	NA		2.0	Y	Absent	02-MAR-23 06:36	PA-8260HLW(14)
L2310690-03C2	Vial water preserved	A	NA		2.0	Y	Absent	02-MAR-23 06:36	PA-8260HLW(14)
L2310690-03D	Plastic 120ml unpreserved	A	NA		2.0	Y	Absent		TS(7)
L2310690-03D1	Plastic 120ml unpreserved	A	NA		2.0	Y	Absent		TS(7)
L2310690-03D2	Plastic 120ml unpreserved	A	NA		2.0	Y	Absent		TS(7)
L2310690-03E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.0	Y	Absent		PB-TI(180)
L2310690-03E1	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.0	Y	Absent		PB-TI(180)
L2310690-03E2	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.0	Y	Absent		PB-TI(180)
L2310690-03F	Glass 120ml/4oz unpreserved	A	NA		2.0	Y	Absent		PA-PAH(14)
L2310690-03F1	Glass 120ml/4oz unpreserved	A	NA		2.0	Y	Absent		PA-PAH(14)
L2310690-03F2	Glass 120ml/4oz unpreserved	A	NA		2.0	Y	Absent		PA-PAH(14)
L2310690-04A	Vial MeOH preserved	A	NA		2.0	Y	Absent		PA-8260HLW(14)
L2310690-04B	Vial water preserved	A	NA		2.0	Y	Absent	02-MAR-23 06:36	PA-8260HLW(14)
L2310690-04C	Vial water preserved	A	NA		2.0	Y	Absent	02-MAR-23 06:36	PA-8260HLW(14)
L2310690-04D	Plastic 120ml unpreserved	A	NA		2.0	Y	Absent		TS(7)
L2310690-04E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.0	Y	Absent		PB-TI(180)
L2310690-04F	Glass 120ml/4oz unpreserved	A	NA		2.0	Y	Absent		PA-PAH(14)
L2310690-05A	Vial MeOH preserved	A	NA		2.0	Y	Absent		PA-8260HLW(14)
L2310690-05B	Vial water preserved	A	NA		2.0	Y	Absent	02-MAR-23 06:36	PA-8260HLW(14)

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2310690**Project Number:** P044.001.012**Report Date:** 03/09/23**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2310690-05C	Vial water preserved	A	NA		2.0	Y	Absent	02-MAR-23 06:36	PA-8260HLW(14)
L2310690-05D	Plastic 120ml unpreserved	A	NA		2.0	Y	Absent		TS(7)
L2310690-05E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.0	Y	Absent		PB-TI(180)
L2310690-05F	Glass 120ml/4oz unpreserved	A	NA		2.0	Y	Absent		PA-PAH(14)
L2310690-06A	Vial MeOH preserved	A	NA		2.0	Y	Absent	02-MAR-23 06:36	PA-8260HLW(14)
L2310690-06B	Vial water preserved	A	NA		2.0	Y	Absent		PA-8260HLW(14)
L2310690-06C	Vial water preserved	A	NA		2.0	Y	Absent		PA-8260HLW(14)
L2310690-06D	Plastic 120ml unpreserved	A	NA		2.0	Y	Absent		TS(7)
L2310690-06E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.0	Y	Absent	02-MAR-23 06:36	PB-TI(180)
L2310690-06F	Glass 120ml/4oz unpreserved	A	NA		2.0	Y	Absent		PA-PAH(14)
L2310690-07A	Vial MeOH preserved	A	NA		2.0	Y	Absent		PA-8260HLW(14)
L2310690-07B	Vial water preserved	A	NA		2.0	Y	Absent		PA-8260HLW(14)
L2310690-07C	Vial water preserved	A	NA		2.0	Y	Absent	02-MAR-23 06:36	PA-8260HLW(14)
L2310690-07D	Plastic 120ml unpreserved	A	NA		2.0	Y	Absent		TS(7)
L2310690-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.0	Y	Absent		PB-TI(180)
L2310690-07F	Glass 120ml/4oz unpreserved	A	NA		2.0	Y	Absent		PA-PAH(14)
L2310690-08A	Vial HCl preserved	A	NA		2.0	Y	Absent	02-MAR-23 06:36	PA-8260(14)
L2310690-08B	Vial HCl preserved	A	NA		2.0	Y	Absent		PA-8260(14)

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GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

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Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

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Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

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REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

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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, **LACHAT 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.

PESRM No. 4 Separator Analyte List

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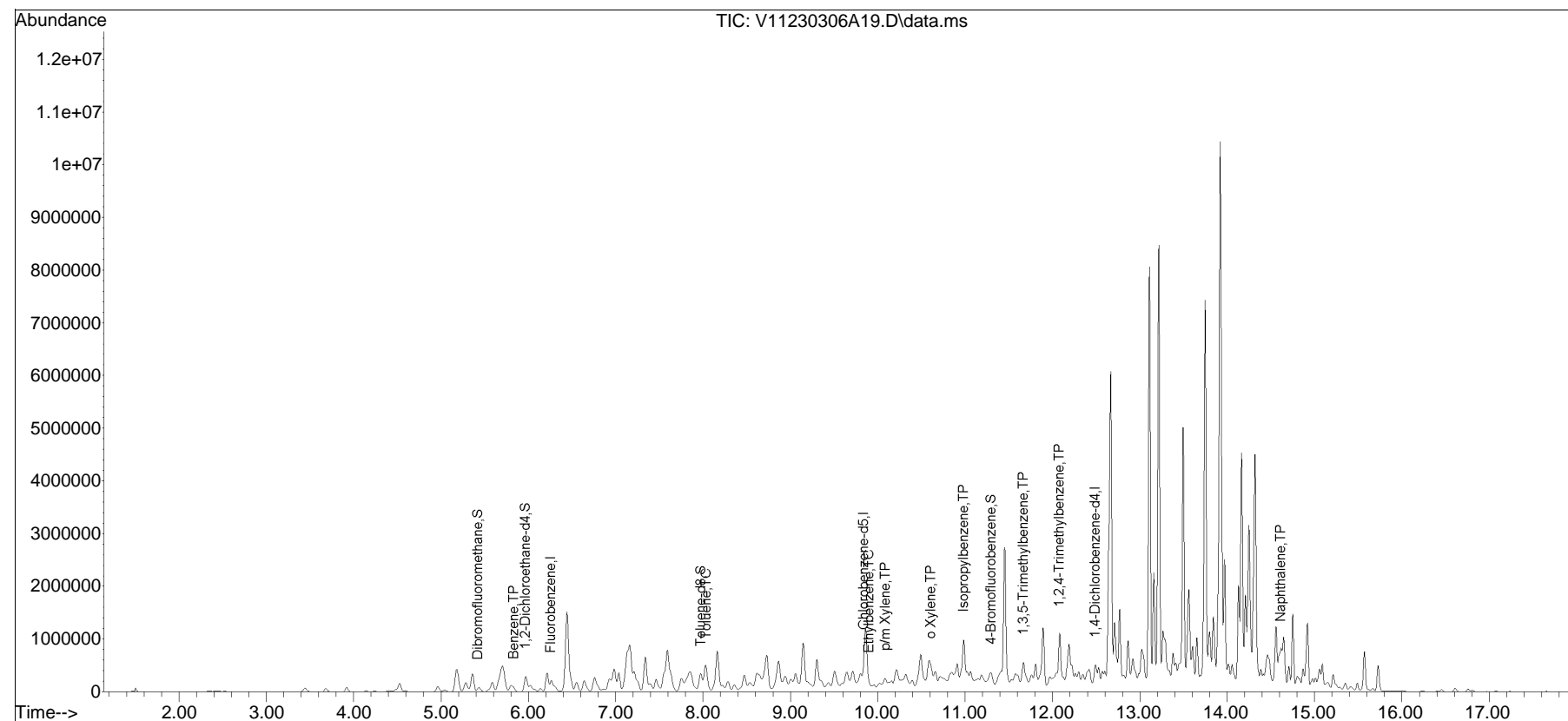
- VOCs via 8260: Benzene, Cumene, 1,2-Dibromoethane, 1,2-Dichloroethane, Ethyl Benzene, Methyl tert-butyl ether, Toluene, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, and Xylenes (total)
- SVOCs via 8270: Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Chrysene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Pyrene
- Lead via 6010

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2023\230306A\
Data File : V11230306A19.D
Acq On : 06 Mar 2023 05:52 pm
Operator : VOA111:JIC
Sample : L2310690-06,31H,5.13,5,0.100,,A
Misc : WG1751885,ICAL19665
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Mar 07 09:03:25 2023
Quant Method : I:\VOLATILES\VOA111\2023\230306A\V111_230118_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Jan 19 11:49:17 2023
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list06A\V11230306A01.D•





ANALYTICAL REPORT

Lab Number:	L2311619
Client:	Terraphase Engineering Inc. 1100 East Hector Street Suite 400 Conshohocken, PA 19428
ATTN:	Michael McDonald
Phone:	(484) 513-4910
Project Name:	PESRM NO. 4 SEPARATOR
Project Number:	P044.001.012
Report Date:	03/13/23

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311619
Report Date: 03/13/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2311619-01	SEP4-SB05-4.5-5.0	SOIL	PHILADELPHIA, PA	03/06/23 10:25	03/06/23
L2311619-02	SEP4-SB10-4.5-5.0	SOIL	PHILADELPHIA, PA	03/06/23 11:00	03/06/23
L2311619-03	SEP4-SB04-9.5-10.0	SOIL	PHILADELPHIA, PA	03/06/23 11:35	03/06/23
L2311619-04	SEP4-SB09-4.5-5.0	SOIL	PHILADELPHIA, PA	03/06/23 12:05	03/06/23
L2311619-05	SEP4-SB08-4.5-5.0	SOIL	PHILADELPHIA, PA	03/06/23 12:55	03/06/23
L2311619-06	SEP4-SB03-3.5-4.0	SOIL	PHILADELPHIA, PA	03/06/23 13:32	03/06/23
L2311619-07	SEP4-SB03-9.5-10.0	SOIL	PHILADELPHIA, PA	03/06/23 13:35	03/06/23
L2311619-08	SEP4-SB02-9.5-10.0	SOIL	PHILADELPHIA, PA	03/06/23 14:25	03/06/23
L2311619-09	SEP4-SB07-4.5-5.0	SOIL	PHILADELPHIA, PA	03/06/23 15:15	03/06/23
L2311619-10	TB-230306-1	WATER	PHILADELPHIA, PA	03/06/23 15:30	03/06/23

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311619
Report Date: 03/13/23

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 NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311619
Report Date: 03/13/23

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

The surrogate recoveries for the following samples are outside the acceptance criteria for 4-bromofluorobenzene; however, the samples were not re-analyzed due to coelution with an obvious interference. Copies of the chromatograms are included as an attachment to this report:

L2311619-01: 153%

L2311619-04: 190%

L2311619-05: 151%

L2311619-06: 231%

L2311619-08: 157%

L2311619-09: 164%

L2311619-04, -05, -06, and -09: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

Semivolatile Organics

L2311619-09: The sample has elevated detection limits due to the limited sample volume utilized during extraction, as required by the sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Cristin Walker

Title: Technical Director/Representative

Date: 03/13/23

ORGANICS

VOLATILES

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**SAMPLE RESULTS**

Lab ID: L2311619-01
 Client ID: SEP4-SB05-4.5-5.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/06/23 10:25
 Date Received: 03/06/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/08/23 16:46
 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	0.0022	0.00023	1
Benzene	ND		mg/kg	0.00056	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	ND		mg/kg	0.0011	0.00061	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	0.00026	J	mg/kg	0.0011	0.00016	1
p/m-Xylene	0.0010	J	mg/kg	0.0022	0.00063	1
o-Xylene	ND		mg/kg	0.0011	0.00033	1
Xylenes, Total	0.0010	J	mg/kg	0.0011	0.00033	1
Isopropylbenzene	0.0048		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.00061	J	mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	0.0021	J	mg/kg	0.0022	0.00038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	153	Q	70-130
Dibromofluoromethane	85		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**SAMPLE RESULTS**

Lab ID: L2311619-02
 Client ID: SEP4-SB10-4.5-5.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/06/23 11:00
 Date Received: 03/06/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/07/23 19:39
 Analyst: JIC
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.034	J	mg/kg	0.11	0.011	1
Benzene	0.028		mg/kg	0.027	0.0091	1
1,2-Dichloroethane	ND		mg/kg	0.055	0.014	1
Toluene	ND		mg/kg	0.055	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.027	0.016	1
Ethylbenzene	0.20		mg/kg	0.055	0.0077	1
p/m-Xylene	0.21		mg/kg	0.11	0.031	1
o-Xylene	0.018	J	mg/kg	0.055	0.016	1
Xylenes, Total	0.23	J	mg/kg	0.055	0.016	1
Isopropylbenzene	2.8		mg/kg	0.055	0.0060	1
1,3,5-Trimethylbenzene	0.036	J	mg/kg	0.11	0.010	1
1,2,4-Trimethylbenzene	0.64		mg/kg	0.11	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	104		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**SAMPLE RESULTS**

Lab ID: L2311619-03
 Client ID: SEP4-SB04-9.5-10.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/06/23 11:35
 Date Received: 03/06/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/07/23 18:30
 Analyst: JIC
 Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0017	0.00017	1
Benzene	ND		mg/kg	0.00043	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00087	0.00022	1
Toluene	ND		mg/kg	0.00087	0.00047	1
1,2-Dibromoethane	ND		mg/kg	0.00043	0.00025	1
Ethylbenzene	ND		mg/kg	0.00087	0.00012	1
p/m-Xylene	ND		mg/kg	0.0017	0.00049	1
o-Xylene	ND		mg/kg	0.00087	0.00025	1
Xylenes, Total	ND		mg/kg	0.00087	0.00025	1
Isopropylbenzene	ND		mg/kg	0.00087	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0017	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0017	0.00029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	105		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**SAMPLE RESULTS**

Lab ID: L2311619-04
 Client ID: SEP4-SB09-4.5-5.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/06/23 12:05
 Date Received: 03/06/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/07/23 20:02
 Analyst: JIC
 Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.078	0.0079	1
Benzene	0.021		mg/kg	0.020	0.0065	1
1,2-Dichloroethane	ND		mg/kg	0.039	0.010	1
Toluene	0.039		mg/kg	0.039	0.021	1
1,2-Dibromoethane	ND		mg/kg	0.020	0.011	1
Ethylbenzene	0.054		mg/kg	0.039	0.0055	1
p/m-Xylene	0.26		mg/kg	0.078	0.022	1
o-Xylene	0.14		mg/kg	0.039	0.011	1
Xylenes, Total	0.40		mg/kg	0.039	0.011	1
Isopropylbenzene	0.39		mg/kg	0.039	0.0043	1
1,3,5-Trimethylbenzene	0.064	J	mg/kg	0.078	0.0076	1
1,2,4-Trimethylbenzene	0.21		mg/kg	0.078	0.013	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	190	Q	70-130
Dibromofluoromethane	100		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**SAMPLE RESULTS**

Lab ID: L2311619-05
 Client ID: SEP4-SB08-4.5-5.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/06/23 12:55
 Date Received: 03/06/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/07/23 20:25
 Analyst: JIC
 Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.083	0.0083	1
Benzene	0.11		mg/kg	0.021	0.0069	1
1,2-Dichloroethane	ND		mg/kg	0.041	0.011	1
Toluene	0.045		mg/kg	0.041	0.022	1
1,2-Dibromoethane	ND		mg/kg	0.021	0.012	1
Ethylbenzene	0.052		mg/kg	0.041	0.0058	1
p/m-Xylene	0.21		mg/kg	0.083	0.023	1
o-Xylene	0.023	J	mg/kg	0.041	0.012	1
Xylenes, Total	0.23	J	mg/kg	0.041	0.012	1
Isopropylbenzene	0.15		mg/kg	0.041	0.0045	1
1,3,5-Trimethylbenzene	0.033	J	mg/kg	0.083	0.0080	1
1,2,4-Trimethylbenzene	0.078	J	mg/kg	0.083	0.014	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	151	Q	70-130
Dibromofluoromethane	100		70-130

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311619
Report Date: 03/13/23

SAMPLE RESULTS

Lab ID: L2311619-06
Client ID: SEP4-SB03-3.5-4.0
Sample Location: PHILADELPHIA, PA

Date Collected: 03/06/23 13:32
Date Received: 03/06/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 03/07/23 20:48
Analyst: JIC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.16	0.016	1
Benzene	0.056		mg/kg	0.040	0.013	1
1,2-Dichloroethane	ND		mg/kg	0.081	0.021	1
Toluene	0.14		mg/kg	0.081	0.044	1
1,2-Dibromoethane	ND		mg/kg	0.040	0.024	1
Ethylbenzene	0.11		mg/kg	0.081	0.011	1
p/m-Xylene	0.32		mg/kg	0.16	0.045	1
o-Xylene	0.24		mg/kg	0.081	0.024	1
Xylenes, Total	0.56		mg/kg	0.081	0.024	1
Isopropylbenzene	2.0		mg/kg	0.081	0.0088	1
1,3,5-Trimethylbenzene	0.42		mg/kg	0.16	0.016	1
1,2,4-Trimethylbenzene	0.48		mg/kg	0.16	0.027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	231	Q	70-130
Dibromofluoromethane	85		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**SAMPLE RESULTS**

Lab ID: L2311619-07
 Client ID: SEP4-SB03-9.5-10.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/06/23 13:35
 Date Received: 03/06/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/07/23 18:53
 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	ND		mg/kg	0.0024	0.00067	1
o-Xylene	ND		mg/kg	0.0012	0.00035	1
Xylenes, Total	ND		mg/kg	0.0012	0.00035	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	109		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**SAMPLE RESULTS**

Lab ID: L2311619-08
 Client ID: SEP4-SB02-9.5-10.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/06/23 14:25
 Date Received: 03/06/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Analytical Method: 1,8260D

Analytical Date: 03/08/23 17:12

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	0.0036	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	0.00098	1
1,2-Dibromoethane	ND		mg/kg	0.00090	0.00053	1
Ethylbenzene	ND		mg/kg	0.0018	0.00025	1
p/m-Xylene	ND		mg/kg	0.0036	0.0010	1
o-Xylene	0.00052	J	mg/kg	0.0018	0.00052	1
Xylenes, Total	0.00052	J	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	0.00035	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0036	0.00060	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	157	Q	70-130
Dibromofluoromethane	87		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**SAMPLE RESULTS**

Lab ID: L2311619-09
 Client ID: SEP4-SB07-4.5-5.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/06/23 15:15
 Date Received: 03/06/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/07/23 21:34
 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	0.10	0.010	1
Benzene	ND		mg/kg	0.025	0.0083	1
1,2-Dichloroethane	ND		mg/kg	0.050	0.013	1
Toluene	ND		mg/kg	0.050	0.027	1
1,2-Dibromoethane	ND		mg/kg	0.025	0.015	1
Ethylbenzene	ND		mg/kg	0.050	0.0070	1
p/m-Xylene	ND		mg/kg	0.10	0.028	1
o-Xylene	0.043	J	mg/kg	0.050	0.014	1
Xylenes, Total	0.043	J	mg/kg	0.050	0.014	1
Isopropylbenzene	0.42		mg/kg	0.050	0.0054	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	164	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**SAMPLE RESULTS**

Lab ID: L2311619-10
 Client ID: TB-230306-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/06/23 15:30
 Date Received: 03/06/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 03/09/23 11:18
 Analyst: TMS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	110		70-130

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311619
Report Date: 03/13/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260D
 Analytical Date: 03/07/23 18:07
 Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 03,07 Batch: WG1752394-5					
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	112		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	105		70-130

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311619
Report Date: 03/13/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260D
 Analytical Date: 03/07/23 18:07
 Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,04-06,09 Batch: WG1752395-5					
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	112		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	104		70-130

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311619
Report Date: 03/13/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260D
 Analytical Date: 03/08/23 16:20
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,08 Batch: WG1752863-5					
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	110		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	85		70-130

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311619
Report Date: 03/13/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260D
 Analytical Date: 03/09/23 08:19
 Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 10 Batch: WG1753142-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	110		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2311619

Report Date: 03/13/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 03,07 Batch: WG1752394-3 WG1752394-4								
Methyl tert butyl ether	84		87		66-130	4		30
Benzene	79		83		70-130	5		30
1,2-Dichloroethane	82		86		70-130	5		30
Toluene	81		83		70-130	2		30
1,2-Dibromoethane	77		78		70-130	1		30
Ethylbenzene	82		84		70-130	2		30
p/m-Xylene	83		87		70-130	5		30
o-Xylene	84		87		70-130	4		30
Isopropylbenzene	82		84		70-130	2		30
1,3,5-Trimethylbenzene	83		85		70-130	2		30
1,2,4-Trimethylbenzene	80		82		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	102		104		70-130
Toluene-d8	105		103		70-130
4-Bromofluorobenzene	104		106		70-130
Dibromofluoromethane	98		98		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: PESRM NO. 4 SEPARATOR

Lab Number: L2311619

Project Number: P044.001.012

Report Date: 03/13/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,04-06,09 Batch: WG1752395-3 WG1752395-4								
Methyl tert butyl ether	84		87		66-130	4		30
Benzene	79		83		70-130	5		30
1,2-Dichloroethane	82		86		70-130	5		30
Toluene	81		83		70-130	2		30
1,2-Dibromoethane	77		78		70-130	1		30
Ethylbenzene	82		84		70-130	2		30
p/m-Xylene	83		87		70-130	5		30
o-Xylene	84		87		70-130	4		30
Isopropylbenzene	82		84		70-130	2		30
1,3,5-Trimethylbenzene	83		85		70-130	2		30
1,2,4-Trimethylbenzene	80		82		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	102		104		70-130
Toluene-d8	105		103		70-130
4-Bromofluorobenzene	104		106		70-130
Dibromofluoromethane	98		98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Lab Number: L2311619

Project Number: P044.001.012

Report Date: 03/13/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,08 Batch: WG1752863-3 WG1752863-4								
Methyl tert butyl ether	108		110		66-130	2		30
Benzene	109		109		70-130	0		30
1,2-Dichloroethane	106		107		70-130	1		30
Toluene	110		108		70-130	2		30
1,2-Dibromoethane	101		101		70-130	0		30
Ethylbenzene	113		112		70-130	1		30
p/m-Xylene	109		107		70-130	2		30
o-Xylene	111		110		70-130	1		30
Isopropylbenzene	120		118		70-130	2		30
1,3,5-Trimethylbenzene	117		115		70-130	2		30
1,2,4-Trimethylbenzene	115		114		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	109		109		70-130
Toluene-d8	111		110		70-130
4-Bromofluorobenzene	116		117		70-130
Dibromofluoromethane	86		86		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Lab Number: L2311619

Project Number: P044.001.012

Report Date: 03/13/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 10 Batch: WG1753142-3 WG1753142-4								
Methyl tert butyl ether	88		98		63-130	11		20
Benzene	120		130		70-130	8		20
1,2-Dichloroethane	110		120		70-130	9		20
Toluene	120		120		70-130	0		20
1,2-Dibromoethane	98		100		70-130	2		20
Ethylbenzene	110		120		70-130	9		20
p/m-Xylene	115		120		70-130	4		20
o-Xylene	110		120		70-130	9		20
Isopropylbenzene	110		120		70-130	9		20
1,3,5-Trimethylbenzene	110		120		64-130	9		20
1,2,4-Trimethylbenzene	110		120		70-130	9		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		104		70-130
Toluene-d8	106		103		70-130
4-Bromofluorobenzene	97		97		70-130
Dibromofluoromethane	99		104		70-130

SEMIVOLATILES

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311619
Report Date: 03/13/23

SAMPLE RESULTS

Lab ID: L2311619-01
Client ID: SEP4-SB05-4.5-5.0
Sample Location: PHILADELPHIA, PA

Date Collected: 03/06/23 10:25
Date Received: 03/06/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 03/08/23 19:14
Analyst: JG
Percent Solids: 71%

Extraction Method: EPA 3546
Extraction Date: 03/07/23 20:18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	10.	E	mg/kg	0.046	0.028	1
Fluorene	5.8		mg/kg	0.23	0.022	1
Phenanthrene	2.6		mg/kg	0.14	0.028	1
Anthracene	3.2		mg/kg	0.14	0.045	1
Pyrene	2.4		mg/kg	0.14	0.023	1
Benzo(a)anthracene	1.2		mg/kg	0.14	0.026	1
Chrysene	1.4		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	1.3		mg/kg	0.14	0.039	1
Benzo(a)pyrene	1.1		mg/kg	0.18	0.056	1
Indeno(1,2,3-cd)pyrene	0.72		mg/kg	0.18	0.032	1
Benzo(ghi)perylene	0.91		mg/kg	0.18	0.027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	75		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**SAMPLE RESULTS**

Lab ID: L2311619-01 D

Date Collected: 03/06/23 10:25

Client ID: SEP4-SB05-4.5-5.0

Date Received: 03/06/23

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Extraction Method: EPA 3546

Analytical Method: 1,8270E

Extraction Date: 03/07/23 20:18

Analytical Date: 03/11/23 04:32

Analyst: CMM

Percent Solids: 71%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	12.		mg/kg	0.23	0.14	5
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Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**SAMPLE RESULTS**

Lab ID: L2311619-02
 Client ID: SEP4-SB10-4.5-5.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/06/23 11:00
 Date Received: 03/06/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 03/08/23 19:38
 Analyst: JG
 Percent Solids: 80%

Extraction Method: EPA 3546
 Extraction Date: 03/07/23 20:18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.0		mg/kg	0.041	0.025	1
Fluorene	0.19	J	mg/kg	0.20	0.020	1
Phenanthrene	0.83		mg/kg	0.12	0.025	1
Anthracene	0.21		mg/kg	0.12	0.040	1
Pyrene	0.85		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.45		mg/kg	0.12	0.023	1
Chrysene	0.52		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	0.67		mg/kg	0.12	0.034	1
Benzo(a)pyrene	0.54		mg/kg	0.16	0.050	1
Indeno(1,2,3-cd)pyrene	0.39		mg/kg	0.16	0.028	1
Benzo(ghi)perylene	0.44		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	63		30-120
4-Terphenyl-d14	57		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**SAMPLE RESULTS**

Lab ID: L2311619-03
 Client ID: SEP4-SB04-9.5-10.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/06/23 11:35
 Date Received: 03/06/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 03/08/23 20:02
 Analyst: JG
 Percent Solids: 77%

Extraction Method: EPA 3546
 Extraction Date: 03/07/23 20:18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	2.4		mg/kg	0.042	0.026	1
Fluorene	0.22		mg/kg	0.21	0.020	1
Phenanthrene	0.79		mg/kg	0.13	0.026	1
Anthracene	0.31		mg/kg	0.13	0.041	1
Pyrene	1.0		mg/kg	0.13	0.021	1
Benzo(a)anthracene	0.66		mg/kg	0.13	0.024	1
Chrysene	0.69		mg/kg	0.13	0.022	1
Benzo(b)fluoranthene	0.91		mg/kg	0.13	0.036	1
Benzo(a)pyrene	0.88		mg/kg	0.17	0.052	1
Indeno(1,2,3-cd)pyrene	0.62		mg/kg	0.17	0.029	1
Benzo(ghi)perylene	0.60		mg/kg	0.17	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	66		23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	61		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**SAMPLE RESULTS**

Lab ID: L2311619-04
 Client ID: SEP4-SB09-4.5-5.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/06/23 12:05
 Date Received: 03/06/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 03/08/23 20:26
 Analyst: JG
 Percent Solids: 93%

Extraction Method: EPA 3546
 Extraction Date: 03/07/23 20:18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.035		mg/kg	0.035	0.021	1
Fluorene	0.15	J	mg/kg	0.18	0.017	1
Phenanthrene	0.14		mg/kg	0.10	0.021	1
Anthracene	0.18		mg/kg	0.10	0.034	1
Pyrene	0.63		mg/kg	0.10	0.017	1
Benzo(a)anthracene	0.15		mg/kg	0.10	0.020	1
Chrysene	0.29		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	0.069	J	mg/kg	0.10	0.030	1
Benzo(a)pyrene	0.10	J	mg/kg	0.14	0.043	1
Indeno(1,2,3-cd)pyrene	0.026	J	mg/kg	0.14	0.024	1
Benzo(ghi)perylene	0.044	J	mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	75		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	65		18-120

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311619
Report Date: 03/13/23

SAMPLE RESULTS

Lab ID: L2311619-05
Client ID: SEP4-SB08-4.5-5.0
Sample Location: PHILADELPHIA, PA

Date Collected: 03/06/23 12:55
Date Received: 03/06/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 03/08/23 20:51
Analyst: JG
Percent Solids: 94%

Extraction Method: EPA 3546
Extraction Date: 03/07/23 20:18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.038		mg/kg	0.035	0.021	1
Fluorene	0.017	J	mg/kg	0.17	0.017	1
Phenanthrene	0.035	J	mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	0.024	J	mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.020	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.14	0.024	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	55		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	59		18-120

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311619
Report Date: 03/13/23

SAMPLE RESULTS

Lab ID: L2311619-06 D
Client ID: SEP4-SB03-3.5-4.0
Sample Location: PHILADELPHIA, PA

Date Collected: 03/06/23 13:32
Date Received: 03/06/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 03/11/23 04:56
Analyst: CMM
Percent Solids: 80%

Extraction Method: EPA 3546
Extraction Date: 03/07/23 20:18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	9.7		mg/kg	0.21	0.13	5
Fluorene	10.		mg/kg	1.0	0.10	5
Phenanthrene	31.		mg/kg	0.62	0.13	5
Anthracene	3.8		mg/kg	0.62	0.20	5
Pyrene	13.		mg/kg	0.62	0.10	5
Benzo(a)anthracene	5.0		mg/kg	0.62	0.12	5
Chrysene	6.2		mg/kg	0.62	0.11	5
Benzo(b)fluoranthene	5.5		mg/kg	0.62	0.18	5
Benzo(a)pyrene	4.2		mg/kg	0.83	0.25	5
Indeno(1,2,3-cd)pyrene	2.0		mg/kg	0.83	0.14	5
Benzo(ghi)perylene	2.1		mg/kg	0.83	0.12	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	66		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	71		18-120

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311619
Report Date: 03/13/23

SAMPLE RESULTS

Lab ID: L2311619-07
Client ID: SEP4-SB03-9.5-10.0
Sample Location: PHILADELPHIA, PA

Date Collected: 03/06/23 13:35
Date Received: 03/06/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 03/08/23 21:39
Analyst: JG
Percent Solids: 82%

Extraction Method: EPA 3546
Extraction Date: 03/07/23 20:18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.64		mg/kg	0.040	0.024	1
Fluorene	0.071	J	mg/kg	0.20	0.019	1
Phenanthrene	0.28		mg/kg	0.12	0.024	1
Anthracene	0.12		mg/kg	0.12	0.039	1
Pyrene	0.57		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.38		mg/kg	0.12	0.022	1
Chrysene	0.40		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	0.56		mg/kg	0.12	0.034	1
Benzo(a)pyrene	0.53		mg/kg	0.16	0.049	1
Indeno(1,2,3-cd)pyrene	0.31		mg/kg	0.16	0.028	1
Benzo(ghi)perylene	0.28		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	63		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	58		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**SAMPLE RESULTS**

Lab ID: L2311619-08
 Client ID: SEP4-SB02-9.5-10.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/06/23 14:25
 Date Received: 03/06/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 03/08/23 22:03
 Analyst: JG
 Percent Solids: 68%

Extraction Method: EPA 3546
 Extraction Date: 03/07/23 20:18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	2.7		mg/kg	0.048	0.029	1
Fluorene	0.40		mg/kg	0.24	0.023	1
Phenanthrene	0.95		mg/kg	0.14	0.029	1
Anthracene	0.59		mg/kg	0.14	0.047	1
Pyrene	1.8		mg/kg	0.14	0.024	1
Benzo(a)anthracene	0.81		mg/kg	0.14	0.027	1
Chrysene	1.3		mg/kg	0.14	0.025	1
Benzo(b)fluoranthene	1.4		mg/kg	0.14	0.041	1
Benzo(a)pyrene	1.6		mg/kg	0.19	0.059	1
Indeno(1,2,3-cd)pyrene	1.1		mg/kg	0.19	0.034	1
Benzo(ghi)perylene	1.4		mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	64		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**SAMPLE RESULTS**

Lab ID: L2311619-09
 Client ID: SEP4-SB07-4.5-5.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/06/23 15:15
 Date Received: 03/06/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 03/08/23 22:27
 Analyst: JG
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 03/07/23 20:18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	2.5		mg/kg	0.11	0.066	1
Fluorene	0.62		mg/kg	0.54	0.053	1
Phenanthrene	2.0		mg/kg	0.33	0.066	1
Anthracene	0.60		mg/kg	0.33	0.11	1
Pyrene	2.3		mg/kg	0.33	0.054	1
Benzo(a)anthracene	1.0		mg/kg	0.33	0.061	1
Chrysene	1.2		mg/kg	0.33	0.056	1
Benzo(b)fluoranthene	1.2		mg/kg	0.33	0.092	1
Benzo(a)pyrene	1.1		mg/kg	0.44	0.13	1
Indeno(1,2,3-cd)pyrene	0.61		mg/kg	0.44	0.076	1
Benzo(ghi)perylene	0.79		mg/kg	0.44	0.064	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	52		23-120
2-Fluorobiphenyl	59		30-120
4-Terphenyl-d14	49		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270E
 Analytical Date: 03/08/23 13:37
 Analyst: JG

Extraction Method: EPA 3546
 Extraction Date: 03/07/23 20:18

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-09 Batch: WG1752088-1					
Naphthalene	ND		mg/kg	0.033	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
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	64		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	78		18-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2311619

Report Date: 03/13/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-09 Batch: WG1752088-2 WG1752088-3								
Naphthalene	68		78		40-140	14		50
Fluorene	78		88		40-140	12		50
Phenanthrene	70		81		40-140	15		50
Anthracene	74		86		40-140	15		50
Pyrene	78		86		35-142	10		50
Benzo(a)anthracene	73		85		40-140	15		50
Chrysene	73		85		40-140	15		50
Benzo(b)fluoranthene	81		99		40-140	20		50
Benzo(a)pyrene	89		99		40-140	11		50
Indeno(1,2,3-cd)pyrene	84		100		40-140	17		50
Benzo(ghi)perylene	80		92		40-140	14		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	65		72		23-120
2-Fluorobiphenyl	71		80		30-120
4-Terphenyl-d14	75		81		18-120

METALS

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**SAMPLE RESULTS**

Lab ID: L2311619-01

Date Collected: 03/06/23 10:25

Client ID: SEP4-SB05-4.5-5.0

Date Received: 03/06/23

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	85.9		mg/kg	2.78	0.149	1	03/09/23 05:55	03/09/23 20:18	EPA 3050B	1,6010D	MRC



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**SAMPLE RESULTS**

Lab ID: L2311619-02

Date Collected: 03/06/23 11:00

Client ID: SEP4-SB10-4.5-5.0

Date Received: 03/06/23

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	501		mg/kg	2.42	0.130	1	03/09/23 05:55	03/09/23 20:23	EPA 3050B	1,6010D	MRC



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**SAMPLE RESULTS**

Lab ID: L2311619-03

Date Collected: 03/06/23 11:35

Client ID: SEP4-SB04-9.5-10.0

Date Received: 03/06/23

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	142		mg/kg	2.47	0.132	1	03/09/23 05:55	03/09/23 22:17	EPA 3050B	1,6010D	MRC



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**SAMPLE RESULTS**

Lab ID: L2311619-04

Date Collected: 03/06/23 12:05

Client ID: SEP4-SB09-4.5-5.0

Date Received: 03/06/23

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.82		mg/kg	2.03	0.109	1	03/09/23 05:55	03/09/23 21:55	EPA 3050B	1,6010D	MRC



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**SAMPLE RESULTS**

Lab ID: L2311619-05

Date Collected: 03/06/23 12:55

Client ID: SEP4-SB08-4.5-5.0

Date Received: 03/06/23

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.80		mg/kg	2.08	0.112	1	03/09/23 05:55	03/09/23 22:01	EPA 3050B	1,6010D	MRC



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**SAMPLE RESULTS**

Lab ID: L2311619-06

Date Collected: 03/06/23 13:32

Client ID: SEP4-SB03-3.5-4.0

Date Received: 03/06/23

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	200		mg/kg	2.45	0.132	1	03/09/23 05:55	03/09/23 22:06	EPA 3050B	1,6010D	MRC



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**SAMPLE RESULTS**

Lab ID: L2311619-07

Date Collected: 03/06/23 13:35

Client ID: SEP4-SB03-9.5-10.0

Date Received: 03/06/23

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	161		mg/kg	2.34	0.126	1	03/09/23 05:55	03/09/23 22:12	EPA 3050B	1,6010D	MRC



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**SAMPLE RESULTS**

Lab ID: L2311619-08

Date Collected: 03/06/23 14:25

Client ID: SEP4-SB02-9.5-10.0

Date Received: 03/06/23

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	600		mg/kg	2.86	0.153	1	03/09/23 05:55	03/09/23 22:58	EPA 3050B	1,6010D	MRC



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**SAMPLE RESULTS**

Lab ID: L2311619-09

Date Collected: 03/06/23 15:15

Client ID: SEP4-SB07-4.5-5.0

Date Received: 03/06/23

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	64.9		mg/kg	2.20	0.118	1	03/09/23 05:55	03/09/23 23:03	EPA 3050B	1,6010D	MRC



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23

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): 01-09 Batch: WG1752624-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	03/09/23 05:55	03/09/23 20:07	1,6010D	MRC

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis**Batch Quality Control****Project Name:** PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09 Batch: WG1752624-2 SRM Lot Number: D116-540								
Lead, Total	95		-		83-117	-		

Matrix Spike Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Lab Number: L2311619

Project Number: P044.001.012

Report Date: 03/13/23

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): 01-09 QC Batch ID: WG1752624-3 WG1752624-4 QC Sample: L2311870-09 Client ID: MS Sample												
Lead, Total	487	47.1	515	59	Q	345	0	Q	75-125	40	Q	20

INORGANICS & MISCELLANEOUS

Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2311619**Report Date:** 03/13/23**SAMPLE RESULTS****Lab ID:** L2311619-01**Client ID:** SEP4-SB05-4.5-5.0**Sample Location:** PHILADELPHIA, PA**Date Collected:** 03/06/23 10:25**Date Received:** 03/06/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	70.6		%	0.100	NA	1	-	03/07/23 12:52	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2311619**Report Date:** 03/13/23**SAMPLE RESULTS****Lab ID:** L2311619-02**Client ID:** SEP4-SB10-4.5-5.0**Sample Location:** PHILADELPHIA, PA**Date Collected:** 03/06/23 11:00**Date Received:** 03/06/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.9		%	0.100	NA	1	-	03/07/23 12:52	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2311619**Report Date:** 03/13/23**SAMPLE RESULTS****Lab ID:** L2311619-03**Client ID:** SEP4-SB04-9.5-10.0**Sample Location:** PHILADELPHIA, PA**Date Collected:** 03/06/23 11:35**Date Received:** 03/06/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.7		%	0.100	NA	1	-	03/07/23 12:52	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2311619**Report Date:** 03/13/23**SAMPLE RESULTS****Lab ID:** L2311619-04**Client ID:** SEP4-SB09-4.5-5.0**Sample Location:** PHILADELPHIA, PA**Date Collected:** 03/06/23 12:05**Date Received:** 03/06/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.8		%	0.100	NA	1	-	03/07/23 12:52	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR

Lab Number: L2311619

Project Number: P044.001.012

Report Date: 03/13/23

SAMPLE RESULTS

Lab ID: L2311619-05

Date Collected: 03/06/23 12:55

Client ID: SEP4-SB08-4.5-5.0

Date Received: 03/06/23

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.0		%	0.100	NA	1	-	03/07/23 12:52	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2311619**Report Date:** 03/13/23**SAMPLE RESULTS****Lab ID:** L2311619-06**Client ID:** SEP4-SB03-3.5-4.0**Sample Location:** PHILADELPHIA, PA**Date Collected:** 03/06/23 13:32**Date Received:** 03/06/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.0		%	0.100	NA	1	-	03/07/23 12:52	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2311619**Report Date:** 03/13/23**SAMPLE RESULTS****Lab ID:** L2311619-07**Client ID:** SEP4-SB03-9.5-10.0**Sample Location:** PHILADELPHIA, PA**Date Collected:** 03/06/23 13:35**Date Received:** 03/06/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.5		%	0.100	NA	1	-	03/07/23 12:52	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2311619**Report Date:** 03/13/23**SAMPLE RESULTS****Lab ID:** L2311619-08**Client ID:** SEP4-SB02-9.5-10.0**Sample Location:** PHILADELPHIA, PA**Date Collected:** 03/06/23 14:25**Date Received:** 03/06/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	67.7		%	0.100	NA	1	-	03/07/23 12:52	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2311619**Report Date:** 03/13/23**SAMPLE RESULTS****Lab ID:** L2311619-09**Client ID:** SEP4-SB07-4.5-5.0**Sample Location:** PHILADELPHIA, PA**Date Collected:** 03/06/23 15:15**Date Received:** 03/06/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.4		%	0.100	NA	1	-	03/07/23 12:52	121,2540G	ROI



Lab Duplicate Analysis *Batch Quality Control*

Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2311619

Report Date: 03/13/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-09 QC Batch ID: WG1751823-1 QC Sample: L2311481-01 Client ID: DUP Sample						
Solids, Total	77.7	76.7	%	1		20

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**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(*)
L2311619-01A	Vial MeOH preserved	B	NA		1.5	Y	Absent		PA-8260HLW(14)
L2311619-01B	Vial water preserved	B	NA		1.5	Y	Absent	07-MAR-23 05:35	PA-8260HLW(14)
L2311619-01C	Vial water preserved	B	NA		1.5	Y	Absent	07-MAR-23 05:35	PA-8260HLW(14)
L2311619-01D	Plastic 120ml unpreserved	B	NA		1.5	Y	Absent		TS(7)
L2311619-01E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		1.5	Y	Absent		PB-TI(180)
L2311619-01F	Glass 120ml/4oz unpreserved	B	NA		1.5	Y	Absent		PA-PAH(14)
L2311619-02A	Vial MeOH preserved	B	NA		1.5	Y	Absent		PA-8260HLW(14)
L2311619-02B	Vial water preserved	B	NA		1.5	Y	Absent	07-MAR-23 05:35	PA-8260HLW(14)
L2311619-02C	Vial water preserved	B	NA		1.5	Y	Absent	07-MAR-23 05:35	PA-8260HLW(14)
L2311619-02D	Plastic 120ml unpreserved	B	NA		1.5	Y	Absent		TS(7)
L2311619-02E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		1.5	Y	Absent		PB-TI(180)
L2311619-02F	Glass 120ml/4oz unpreserved	B	NA		1.5	Y	Absent		PA-PAH(14)
L2311619-03A	Vial MeOH preserved	B	NA		1.5	Y	Absent		PA-8260HLW(14)
L2311619-03B	Vial water preserved	B	NA		1.5	Y	Absent	07-MAR-23 05:35	PA-8260HLW(14)
L2311619-03C	Vial water preserved	B	NA		1.5	Y	Absent	07-MAR-23 05:35	PA-8260HLW(14)
L2311619-03D	Plastic 120ml unpreserved	B	NA		1.5	Y	Absent		TS(7)
L2311619-03E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		1.5	Y	Absent		PB-TI(180)
L2311619-03F	Glass 120ml/4oz unpreserved	B	NA		1.5	Y	Absent		PA-PAH(14)
L2311619-04A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2311619-04B	Vial water preserved	A	NA		2.1	Y	Absent	07-MAR-23 05:35	PA-8260HLW(14)
L2311619-04C	Vial water preserved	A	NA		2.1	Y	Absent	07-MAR-23 05:35	PA-8260HLW(14)
L2311619-04D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311619**Project Number:** P044.001.012**Report Date:** 03/13/23**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2311619-04E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2311619-04F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2311619-05A	Vial MeOH preserved	B	NA		1.5	Y	Absent		PA-8260HLW(14)
L2311619-05B	Vial water preserved	B	NA		1.5	Y	Absent	07-MAR-23 05:35	PA-8260HLW(14)
L2311619-05C	Vial water preserved	B	NA		1.5	Y	Absent	07-MAR-23 05:35	PA-8260HLW(14)
L2311619-05D	Plastic 120ml unpreserved	B	NA		1.5	Y	Absent		TS(7)
L2311619-05E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		1.5	Y	Absent		PB-TI(180)
L2311619-05F	Glass 120ml/4oz unpreserved	B	NA		1.5	Y	Absent		PA-PAH(14)
L2311619-06A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2311619-06B	Vial water preserved	A	NA		2.1	Y	Absent	07-MAR-23 05:35	PA-8260HLW(14)
L2311619-06C	Vial water preserved	A	NA		2.1	Y	Absent	07-MAR-23 05:35	PA-8260HLW(14)
L2311619-06D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2311619-06E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2311619-06F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2311619-07A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2311619-07B	Vial water preserved	A	NA		2.1	Y	Absent	07-MAR-23 05:35	PA-8260HLW(14)
L2311619-07C	Vial water preserved	A	NA		2.1	Y	Absent	07-MAR-23 05:35	PA-8260HLW(14)
L2311619-07D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2311619-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2311619-07F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2311619-08A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2311619-08B	Vial water preserved	A	NA		2.1	Y	Absent	07-MAR-23 05:35	PA-8260HLW(14)
L2311619-08C	Vial water preserved	A	NA		2.1	Y	Absent	07-MAR-23 05:35	PA-8260HLW(14)
L2311619-08D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2311619-08E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2311619-08F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2311619-09A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2311619-09B	Vial water preserved	A	NA		2.1	Y	Absent	07-MAR-23 05:35	PA-8260HLW(14)

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Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2311619-09C	Vial water preserved	A	NA		2.1	Y	Absent	07-MAR-23 05:35	PA-8260HLW(14)
L2311619-09D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2311619-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2311619-09F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2311619-10A	Vial HCl preserved	B	NA		1.5	Y	Absent		PA-8260(14)
L2311619-10B	Vial HCl preserved	B	NA		1.5	Y	Absent		PA-8260(14)

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GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

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Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

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Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

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REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

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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, **LACHAT 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.

PESRM-No. 4 Separator Analyte list

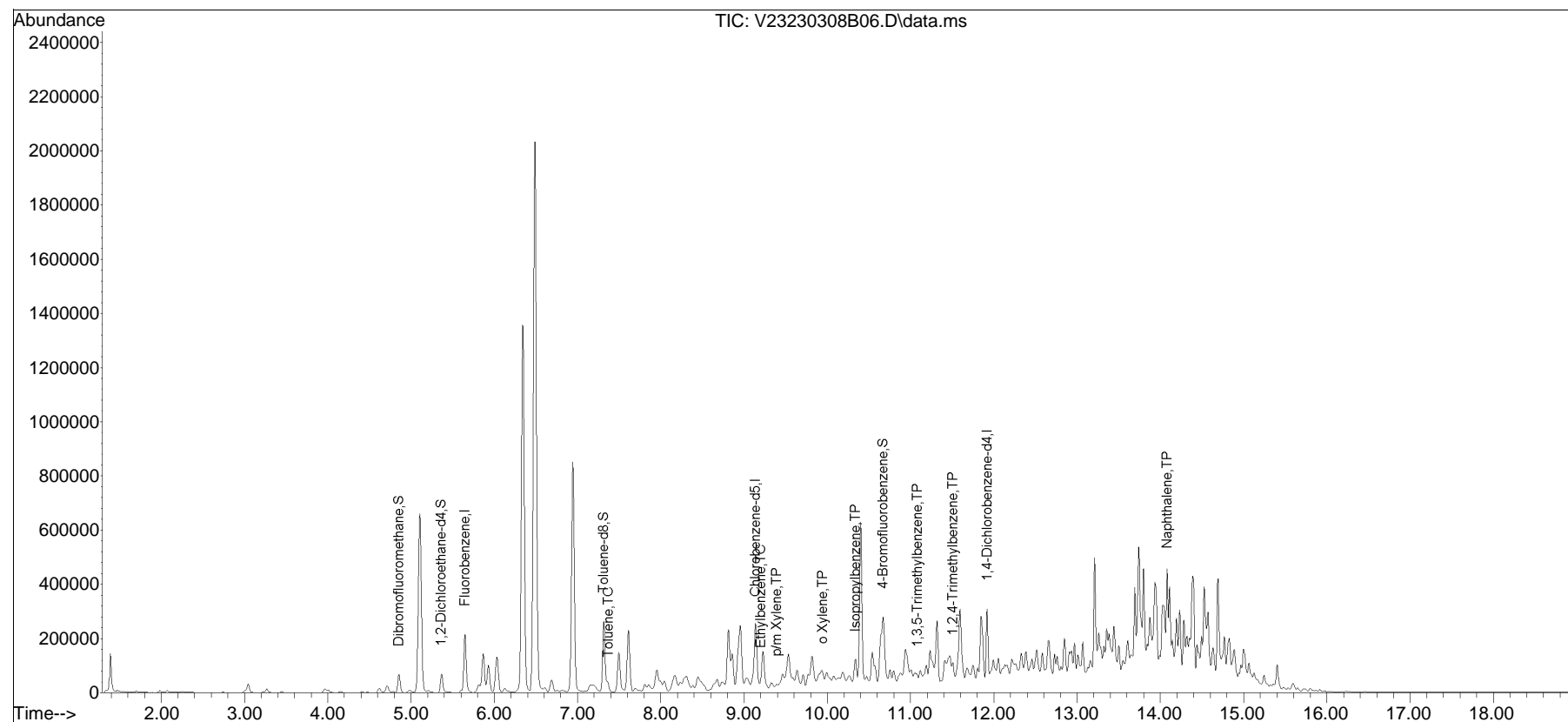
- VOCs via 8260: Benzene, Cumene, 1,2-Dibromoethane, 1,2-Dichloroethane, Ethyl Benzene, Methyl tert-butyl ether, Toluene, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, and Xylenes (total)
- SVOCs via 8270: Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Chrysene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Pyrene
- Lead via 6010

Quantitation Report (QT Reviewed)

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Operator : VOA123:JIC
Sample : L2311619-01,31,6.29,5,,B
Misc : WG1752863,ICAL19503
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 09 06:31:43 2023
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Quant Title : VOLATILES BY GC/MS
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Response via : Initial Calibration

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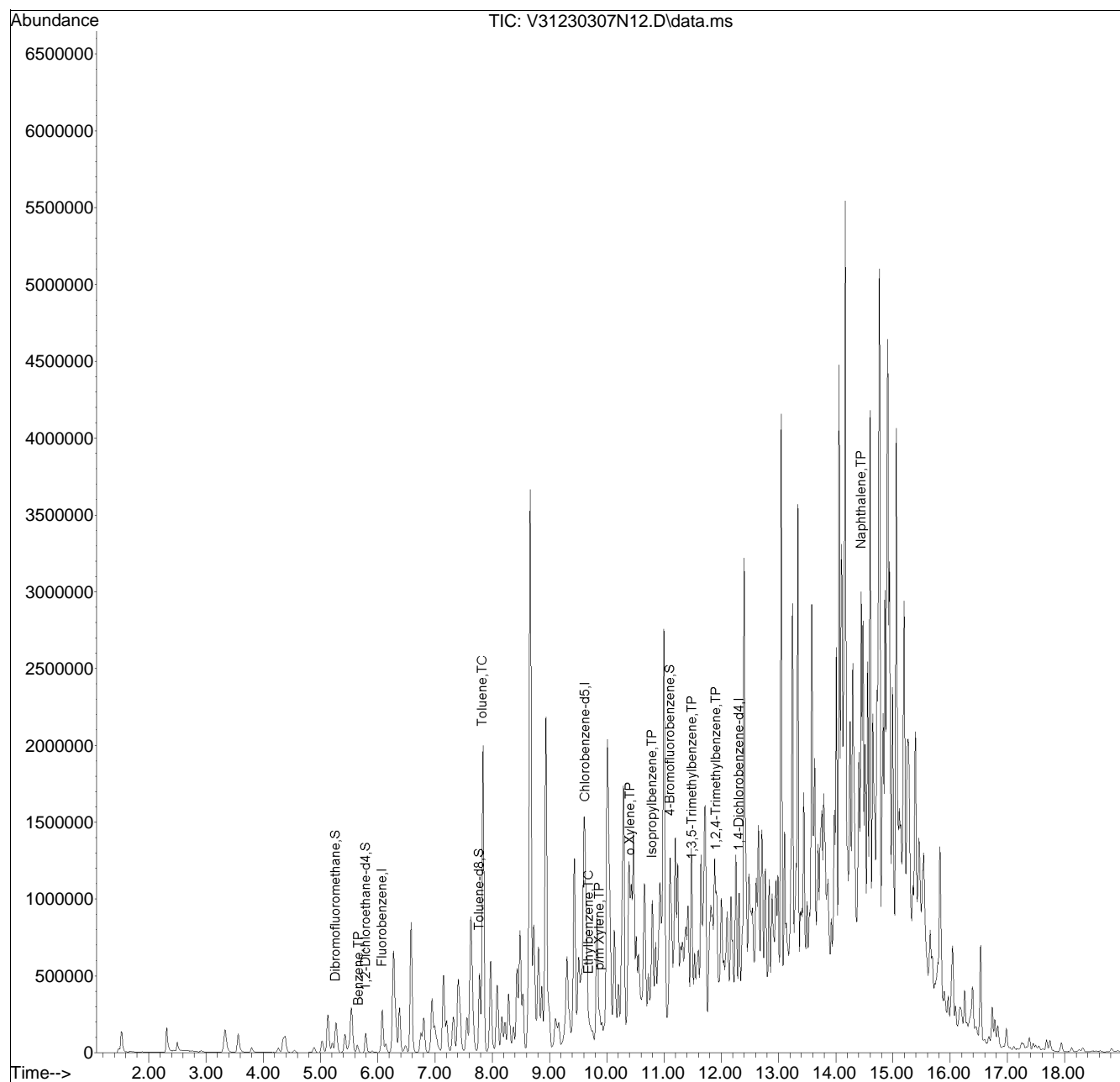


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ALS Vial : 12 Sample Multiplier: 1

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Quant Title : VOLATILES BY GC/MS
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Response via : Initial Calibration

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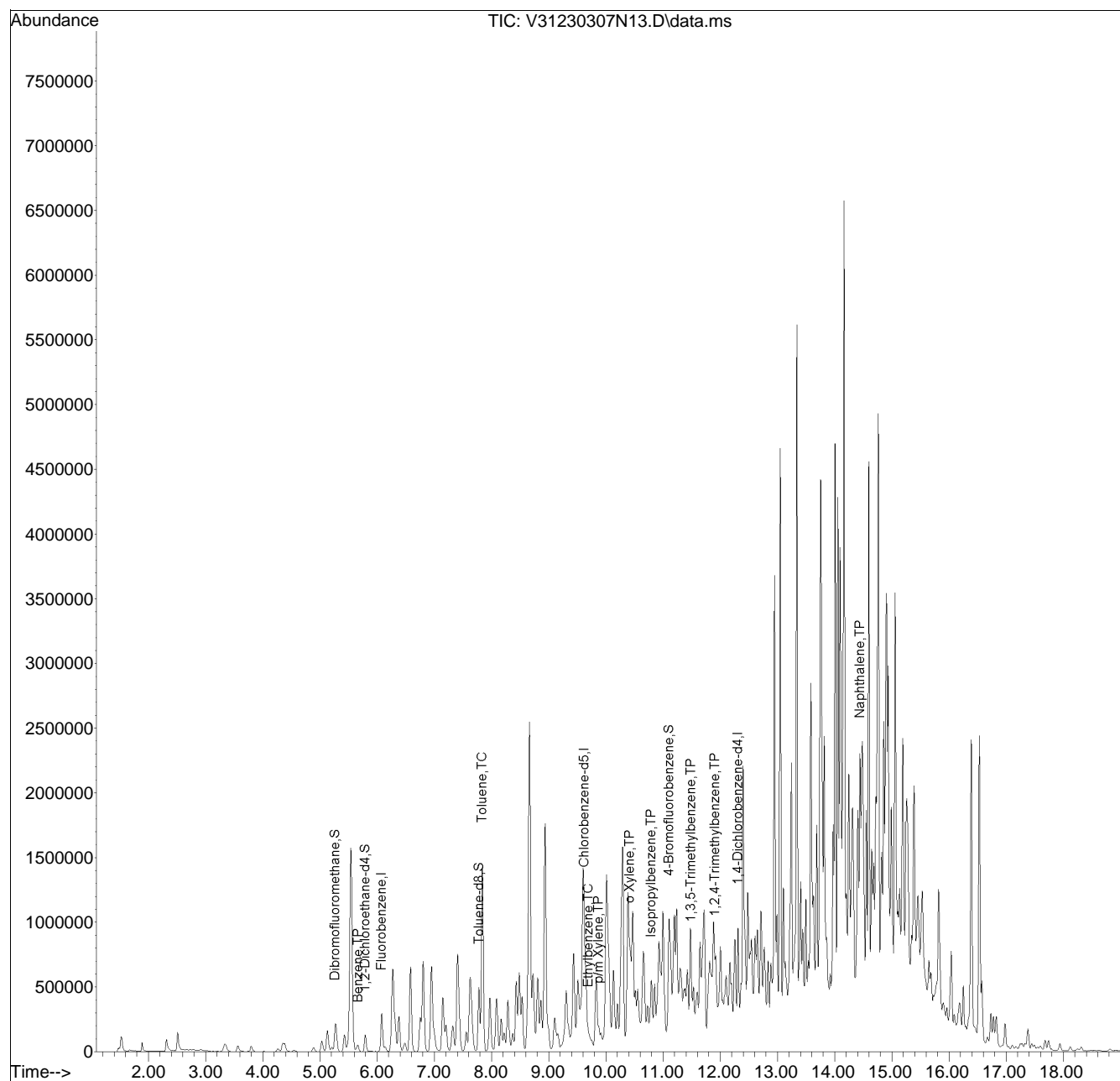


Quantitation Report (QT Reviewed)

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Sample : 12311619-05,31h,6.96,5,0.100,,a
Misc : WG1752395,ICAL19531
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 08 10:00:57 2023
Quant Method : I:\VOLATILES\VOA131\2023\230307N\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 list07N\V31230307N01.D•

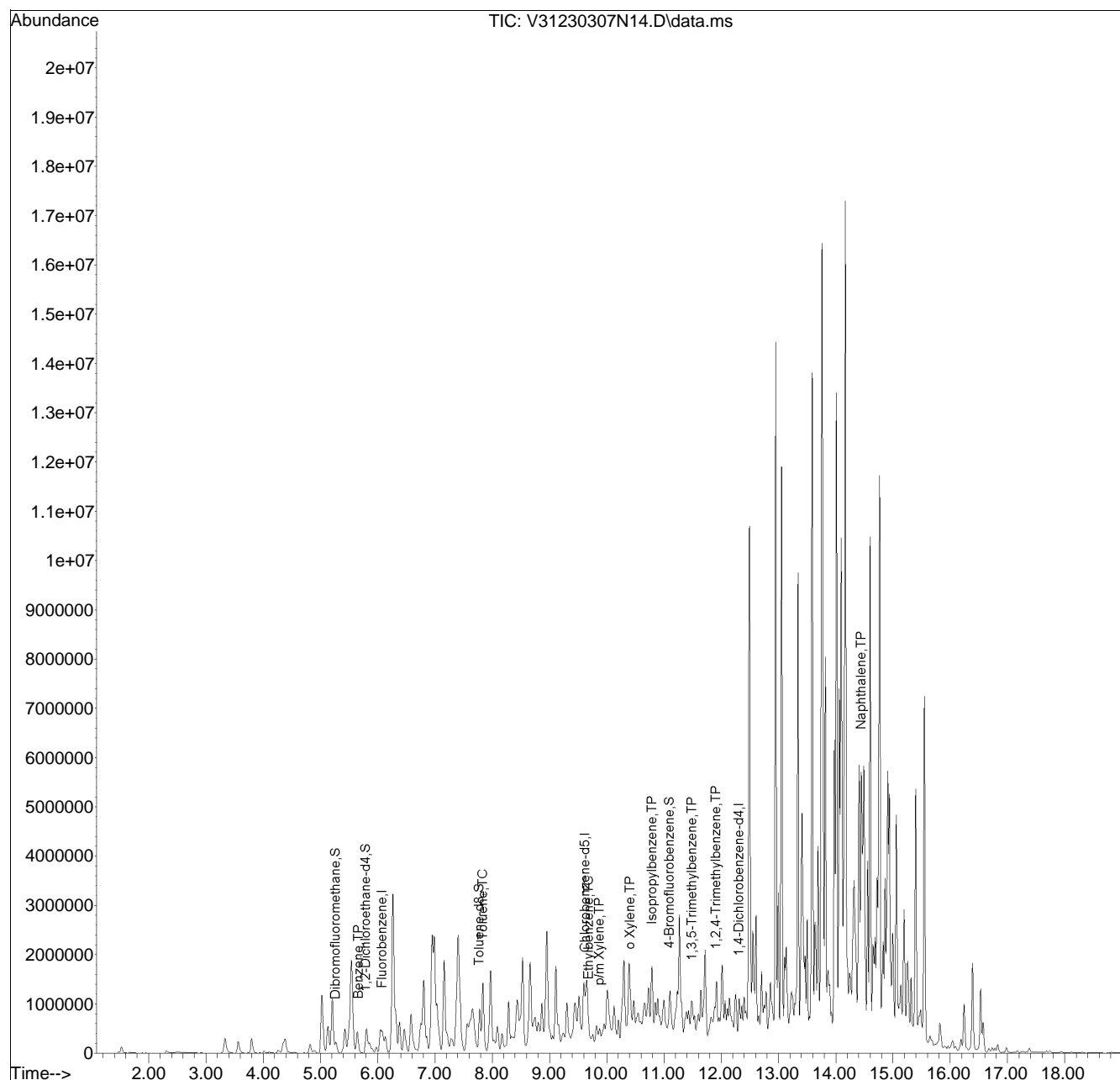


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2023\230307N\
Data File : V31230307N14.D
Acq On : 07 Mar 2023 08:48 pm
Operator : VOA131:JIC
Sample : 12311619-06,31h,4.55,5,0.100,,a
Misc : WG1752395,ICAL19531
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Mar 08 10:01:10 2023
Quant Method : I:\VOLATILES\VOA131\2023\230307N\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 list07N\V31230307N01.D•

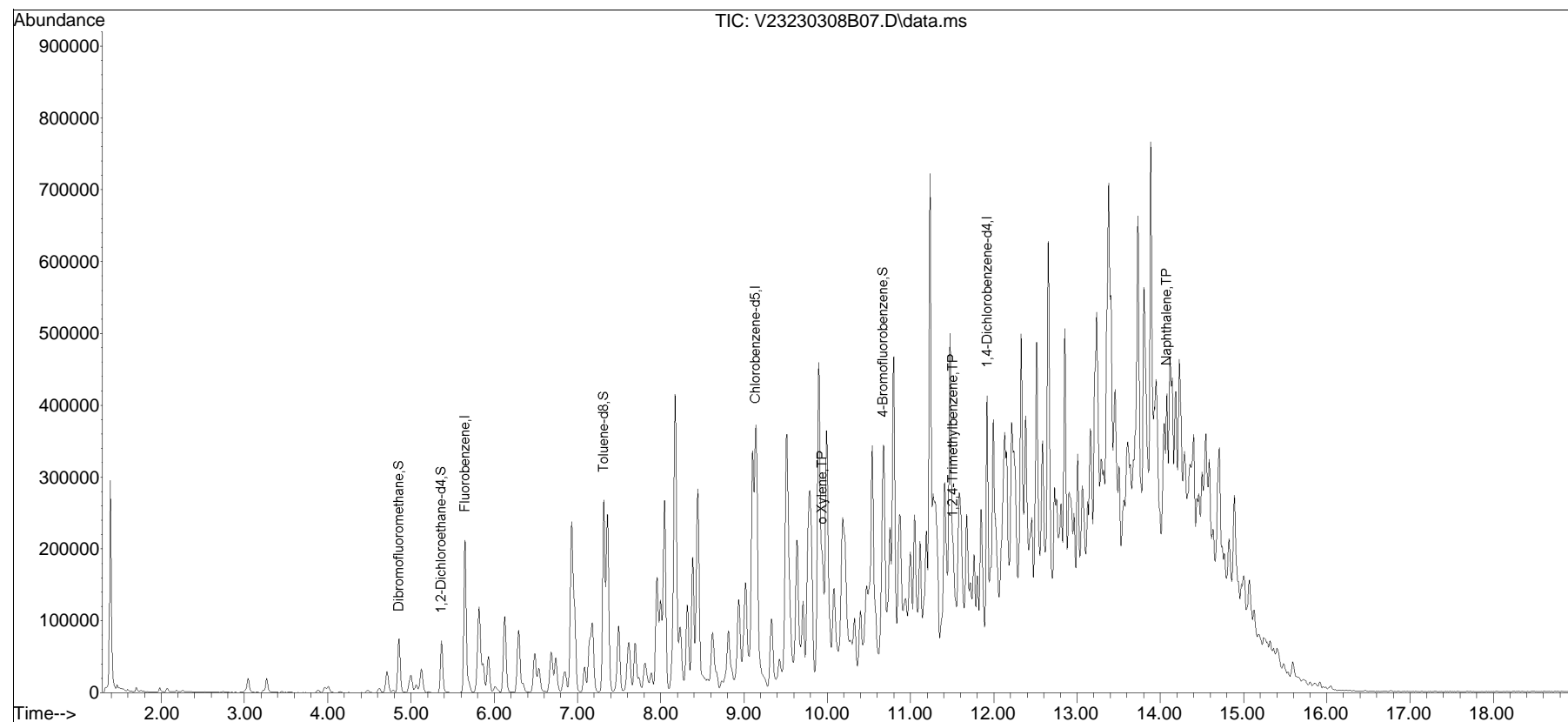


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2023\230308B\
Data File : V23230308B07.D
Acq On : 08 Mar 2023 05:12 pm
Operator : VOA123:JIC
Sample : L2311619-08,31,4.10,5,,C
Misc : WG1752863,ICAL19503
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 09 06:33:34 2023
Quant Method : I:\VOLATILES\VOA123\2023\230308B\V123_221117A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Nov 18 09:41:43 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list08B\V23230308B01.D•

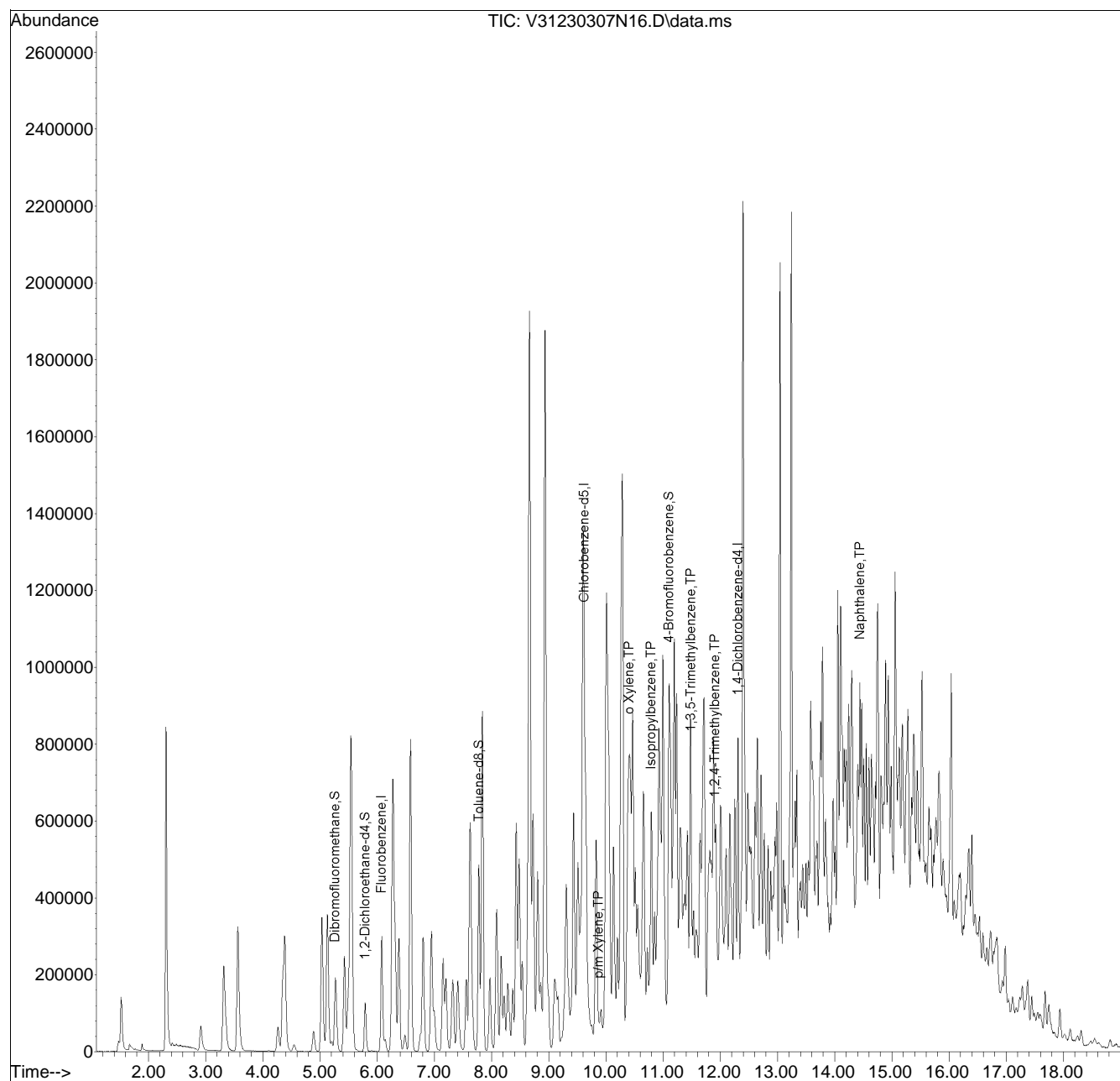


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2023\230307N\
Data File : V31230307N16.D
Acq On : 07 Mar 2023 09:34 pm
Operator : VOA131:JIC
Sample : 12311619-09,31h,6.68,5,0.100,,a
Misc : WG1752395,ICAL19531
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Mar 08 10:02:04 2023
Quant Method : I:\VOLATILES\VOA131\2023\230307N\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 list07N\V31230307N01.D•





ANALYTICAL REPORT

Lab Number:	L2311870
Client:	Terraphase Engineering Inc. 1100 East Hector Street Suite 400 Conshohocken, PA 19428
ATTN:	Michael McDonald
Phone:	(484) 513-4910
Project Name:	PESRM NO. 4 SEPARATOR
Project Number:	P044.001.012
Report Date:	03/14/23

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2311870

Report Date: 03/14/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2311870-01	SEP4-SB01-9.5-10.0	SOIL	PHILADELPHIA, PA	03/06/23 14:52	03/07/23
L2311870-02	SEP4-SB06-4.0-4.5	SOIL	PHILADELPHIA, PA	03/07/23 08:30	03/07/23
L2311870-03	SEP4-SB06-4.0-4.5-DUP	SOIL	PHILADELPHIA, PA	03/07/23 08:30	03/07/23
L2311870-04	SEP4-SB11-4.5-5.0	SOIL	PHILADELPHIA, PA	03/07/23 09:28	03/07/23
L2311870-05	SEP4-SB12-2.5-3.0	SOIL	PHILADELPHIA, PA	03/07/23 09:52	03/07/23
L2311870-06	SEP4-SB13-4.0-4.5	SOIL	PHILADELPHIA, PA	03/07/23 10:55	03/07/23
L2311870-07	SEP4-SB15-4.0-4.5	SOIL	PHILADELPHIA, PA	03/07/23 11:25	03/07/23
L2311870-08	SEP4-SB15-4.0-4.5-DUP	SOIL	PHILADELPHIA, PA	03/07/23 11:25	03/07/23
L2311870-09	SEP4-SB17-4.5-5.0	SOIL	PHILADELPHIA, PA	03/07/23 12:15	03/07/23
L2311870-10	SEP4-SB16-4.0-4.5	SOIL	PHILADELPHIA, PA	03/07/23 13:45	03/07/23
L2311870-11	SEP4-SB14-9.5-10.0	SOIL	PHILADELPHIA, PA	03/07/23 14:10	03/07/23
L2311870-12	TB-230307-1	WATER	PHILADELPHIA, PA	03/07/23 14:28	03/07/23

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311870
Report Date: 03/14/23

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 NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311870
Report Date: 03/14/23

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

L2311870-02: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (262%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2311870-03: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (158%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2311870-06: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2311870-06: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (155%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2311870-07: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (137%) and 4-bromofluorobenzene (606%); 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.

L2311870-08: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (154%) and 4-bromofluorobenzene (514%); 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.

L2311870-09: 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.

L2311870-09: The surrogate recovery is outside the acceptance criteria for toluene-d8 (133%); however, the

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

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Case Narrative (continued)

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.

L2311870-09: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (296%) and 4-bromofluorobenzene (241%); 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.

L2311870-09: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (56%) due to interference with the Internal Standard.

L2311870-10: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (162%) and 4-bromofluorobenzene (399%); 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.

L2311870-10D: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (152%) and 4-bromofluorobenzene (183%); 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.

L2311870-11: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (167%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

The WG1753932-7 MSD recovery, performed on L2311870-09, is outside the acceptance criteria for isopropylbenzene (0%). The unacceptable percent recoveries are attributed to the elevated concentrations of target compounds present in the native sample.

WG1753932-6: The surrogate recoveries are outside the acceptance criteria for 1,2-dichloroethane-d4 (131%), toluene-d8 (293%) and 4-bromofluorobenzene (259%); 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.

WG1753932-6: The surrogate recoveries are outside the method acceptance criteria for dibromofluoromethane (50%) due to interference with the Internal Standard.

WG1753932-7: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (251%) and 4-bromofluorobenzene (224%); however, the sample was not re-analyzed due to coelution with an obvious

Project Name: PESRM NO. 4 SEPARATOR
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Case Narrative (continued)

interference. A copy of the chromatogram is included as an attachment to this report.

WG1753932-7: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (54%) due to interference with the Internal Standard.

Total Metals

The WG1752624-3/-4 MS/MSD recoveries for lead (59%/0%), performed on L2311870-09, do not apply because the sample concentration is greater than four times the spike amount added.

The WG1752624-3/-4 MS/MSD RPD for lead (40%), performed on L2311870-09, is above the acceptance criteria.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:



Caitlin Walukevich

Title: Technical Director/Representative

Date: 03/14/23

ORGANICS

VOLATILES

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-01
 Client ID: SEP4-SB01-9.5-10.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/06/23 14:52
 Date Received: 03/07/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Analytical Method: 1,8260D

Analytical Date: 03/08/23 21:58

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	0.0023	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	ND		mg/kg	0.0011	0.00033	1
Xylenes, Total	ND		mg/kg	0.0011	0.00033	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	125		70-130
Dibromofluoromethane	87		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-02
 Client ID: SEP4-SB06-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/07/23 08:30
 Date Received: 03/07/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/09/23 00:09
 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	0.0027	0.00027	1
Benzene	ND		mg/kg	0.00067	0.00022	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00035	1
Toluene	ND		mg/kg	0.0013	0.00073	1
1,2-Dibromoethane	ND		mg/kg	0.00067	0.00040	1
Ethylbenzene	ND		mg/kg	0.0013	0.00019	1
p/m-Xylene	0.0016	J	mg/kg	0.0027	0.00076	1
o-Xylene	0.0022		mg/kg	0.0013	0.00039	1
Xylenes, Total	0.0038	J	mg/kg	0.0013	0.00039	1
Isopropylbenzene	0.017		mg/kg	0.0013	0.00015	1
1,3,5-Trimethylbenzene	0.00086	J	mg/kg	0.0027	0.00026	1
1,2,4-Trimethylbenzene	0.0021	J	mg/kg	0.0027	0.00045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	122		70-130
4-Bromofluorobenzene	262	Q	70-130
Dibromofluoromethane	87		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-03
 Client ID: SEP4-SB06-4.0-4.5-DUP
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/07/23 08:30
 Date Received: 03/07/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Analytical Method: 1,8260D

Analytical Date: 03/08/23 22:24

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	0.0030	0.00030	1
Benzene	ND		mg/kg	0.00074	0.00025	1
1,2-Dichloroethane	ND		mg/kg	0.0015	0.00038	1
Toluene	ND		mg/kg	0.0015	0.00081	1
1,2-Dibromoethane	ND		mg/kg	0.00074	0.00043	1
Ethylbenzene	ND		mg/kg	0.0015	0.00021	1
p/m-Xylene	ND		mg/kg	0.0030	0.00083	1
o-Xylene	0.0011	J	mg/kg	0.0015	0.00043	1
Xylenes, Total	0.0011	J	mg/kg	0.0015	0.00043	1
Isopropylbenzene	0.0052		mg/kg	0.0015	0.00016	1
1,3,5-Trimethylbenzene	0.00030	J	mg/kg	0.0030	0.00029	1
1,2,4-Trimethylbenzene	0.00075	J	mg/kg	0.0030	0.00050	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	119		70-130
4-Bromofluorobenzene	158	Q	70-130
Dibromofluoromethane	87		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-04
 Client ID: SEP4-SB11-4.5-5.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/07/23 09:28
 Date Received: 03/07/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/09/23 17:15
 Analyst: JIC
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0027	0.00027	1
Benzene	ND		mg/kg	0.00067	0.00022	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00034	1
Toluene	ND		mg/kg	0.0013	0.00073	1
1,2-Dibromoethane	ND		mg/kg	0.00067	0.00039	1
Ethylbenzene	ND		mg/kg	0.0013	0.00019	1
p/m-Xylene	ND		mg/kg	0.0027	0.00075	1
o-Xylene	ND		mg/kg	0.0013	0.00039	1
Xylenes, Total	ND		mg/kg	0.0013	0.00039	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00015	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	117		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	108		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-05
 Client ID: SEP4-SB12-2.5-3.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/07/23 09:52
 Date Received: 03/07/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/08/23 23:16
 Analyst: JIC
 Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0016	0.00016	1
Benzene	0.00058		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	0.0026		mg/kg	0.00081	0.00011	1
p/m-Xylene	0.0044		mg/kg	0.0016	0.00045	1
o-Xylene	0.00035	J	mg/kg	0.00081	0.00024	1
Xylenes, Total	0.0048	J	mg/kg	0.00081	0.00024	1
Isopropylbenzene	0.0078		mg/kg	0.00081	0.00008	1
1,3,5-Trimethylbenzene	0.00098	J	mg/kg	0.0016	0.00016	1
1,2,4-Trimethylbenzene	0.0054		mg/kg	0.0016	0.00027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	130		70-130
4-Bromofluorobenzene	126		70-130
Dibromofluoromethane	87		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-06
 Client ID: SEP4-SB13-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/07/23 10:55
 Date Received: 03/07/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/09/23 00:35
 Analyst: JIC
 Percent Solids: 75%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.15	0.015	1
Benzene	0.055		mg/kg	0.038	0.013	1
1,2-Dichloroethane	ND		mg/kg	0.077	0.020	1
Toluene	0.073	J	mg/kg	0.077	0.042	1
1,2-Dibromoethane	ND		mg/kg	0.038	0.022	1
Ethylbenzene	0.029	J	mg/kg	0.077	0.011	1
p/m-Xylene	0.16		mg/kg	0.15	0.043	1
o-Xylene	0.073	J	mg/kg	0.077	0.022	1
Xylenes, Total	0.23	J	mg/kg	0.077	0.022	1
Isopropylbenzene	0.057	J	mg/kg	0.077	0.0084	1
1,3,5-Trimethylbenzene	0.019	J	mg/kg	0.15	0.015	1
1,2,4-Trimethylbenzene	0.066	J	mg/kg	0.15	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	155	Q	70-130
Dibromofluoromethane	82		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-07
 Client ID: SEP4-SB15-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/07/23 11:25
 Date Received: 03/07/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/09/23 01:01
 Analyst: JIC
 Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.15	0.015	1
Benzene	0.018	J	mg/kg	0.037	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.075	0.019	1
Toluene	0.065	J	mg/kg	0.075	0.040	1
1,2-Dibromoethane	ND		mg/kg	0.037	0.022	1
Ethylbenzene	0.022	J	mg/kg	0.075	0.010	1
p/m-Xylene	0.35		mg/kg	0.15	0.042	1
o-Xylene	0.20		mg/kg	0.075	0.022	1
Xylenes, Total	0.55		mg/kg	0.075	0.022	1
Isopropylbenzene	3.5		mg/kg	0.075	0.0081	1
1,3,5-Trimethylbenzene	0.060	J	mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	0.20		mg/kg	0.15	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	137	Q	70-130
4-Bromofluorobenzene	606	Q	70-130
Dibromofluoromethane	72		70-130

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311870
Report Date: 03/14/23

SAMPLE RESULTS

Lab ID: L2311870-08
Client ID: SEP4-SB15-4.0-4.5-DUP
Sample Location: PHILADELPHIA, PA

Date Collected: 03/07/23 11:25
Date Received: 03/07/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 03/09/23 01:27
Analyst: JIC
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	0.017	J	mg/kg	0.033	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.065	0.017	1
Toluene	0.048	J	mg/kg	0.065	0.035	1
1,2-Dibromoethane	ND		mg/kg	0.033	0.019	1
Ethylbenzene	0.021	J	mg/kg	0.065	0.0092	1
p/m-Xylene	0.28		mg/kg	0.13	0.036	1
o-Xylene	0.15		mg/kg	0.065	0.019	1
Xylenes, Total	0.43		mg/kg	0.065	0.019	1
Isopropylbenzene	2.6		mg/kg	0.065	0.0071	1
1,3,5-Trimethylbenzene	0.046	J	mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	0.16		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	154	Q	70-130
4-Bromofluorobenzene	514	Q	70-130
Dibromofluoromethane	73		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-09
 Client ID: SEP4-SB17-4.5-5.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/07/23 12:15
 Date Received: 03/07/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/12/23 17:48
 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	0.15	0.015	1
Benzene	0.048		mg/kg	0.036	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.073	0.019	1
Toluene	0.092		mg/kg	0.073	0.040	1
1,2-Dibromoethane	ND		mg/kg	0.036	0.021	1
Ethylbenzene	0.052	J	mg/kg	0.073	0.010	1
p/m-Xylene	0.56		mg/kg	0.15	0.041	1
o-Xylene	0.18		mg/kg	0.073	0.021	1
Xylenes, Total	0.74		mg/kg	0.073	0.021	1
Isopropylbenzene	2.6		mg/kg	0.073	0.0080	1
1,3,5-Trimethylbenzene	0.045	J	mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	0.12	J	mg/kg	0.15	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	133	Q	70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	70		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-09
 Client ID: SEP4-SB17-4.5-5.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/07/23 12:15
 Date Received: 03/07/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/12/23 18:14
 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	0.00056	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	0.0016		mg/kg	0.0011	0.00060	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00032	1
Ethylbenzene	0.00057	J	mg/kg	0.0011	0.00016	1
p/m-Xylene	0.013		mg/kg	0.0022	0.00062	1
o-Xylene	0.0050		mg/kg	0.0011	0.00032	1
Xylenes, Total	0.018		mg/kg	0.0011	0.00032	1
Isopropylbenzene	0.24		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.00088	J	mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.0023		mg/kg	0.0022	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	119		70-130
Toluene-d8	296	Q	70-130
4-Bromofluorobenzene	241	Q	70-130
Dibromofluoromethane	56	Q	70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-10
 Client ID: SEP4-SB16-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/07/23 13:45
 Date Received: 03/07/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/09/23 01:53
 Analyst: JIC
 Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.16		mg/kg	0.030	0.0099	1
1,2-Dichloroethane	ND		mg/kg	0.060	0.015	1
Toluene	0.058	J	mg/kg	0.060	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.017	1
Ethylbenzene	0.18		mg/kg	0.060	0.0084	1
p/m-Xylene	12.		mg/kg	0.12	0.033	1
o-Xylene	0.037	J	mg/kg	0.060	0.017	1
Xylenes, Total	12.	J	mg/kg	0.060	0.017	1
Isopropylbenzene	7.1		mg/kg	0.060	0.0065	1
1,3,5-Trimethylbenzene	14.		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	35.	E	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	162	Q	70-130
4-Bromofluorobenzene	399	Q	70-130
Dibromofluoromethane	76		70-130

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311870
Report Date: 03/14/23

SAMPLE RESULTS

Lab ID: L2311870-10 D
Client ID: SEP4-SB16-4.0-4.5
Sample Location: PHILADELPHIA, PA

Date Collected: 03/07/23 13:45
Date Received: 03/07/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 03/11/23 00:36
Analyst: AJK
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 High - Westborough Lab						
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1,2,4-Trimethylbenzene	41.		mg/kg	0.60	0.10	5
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	152	Q	70-130
4-Bromofluorobenzene	183	Q	70-130
Dibromofluoromethane	82		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-11
 Client ID: SEP4-SB14-9.5-10.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/07/23 14:10
 Date Received: 03/07/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 03/08/23 23:43
 Analyst: JIC
 Percent Solids: 62%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00029	J	mg/kg	0.0027	0.00027	1
Benzene	0.00040	J	mg/kg	0.00068	0.00022	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00035	1
Toluene	ND		mg/kg	0.0014	0.00073	1
1,2-Dibromoethane	ND		mg/kg	0.00068	0.00040	1
Ethylbenzene	0.0011	J	mg/kg	0.0014	0.00019	1
p/m-Xylene	0.0059		mg/kg	0.0027	0.00076	1
o-Xylene	0.00062	J	mg/kg	0.0014	0.00039	1
Xylenes, Total	0.0065	J	mg/kg	0.0014	0.00039	1
Isopropylbenzene	0.018		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	0.0077		mg/kg	0.0027	0.00026	1
1,2,4-Trimethylbenzene	0.023		mg/kg	0.0027	0.00045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	122		70-130
4-Bromofluorobenzene	167	Q	70-130
Dibromofluoromethane	85		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-12
 Client ID: TB-230307-1
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/07/23 14:28
 Date Received: 03/07/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 03/09/23 15:15
 Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	117		70-130

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311870
Report Date: 03/14/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260D
 Analytical Date: 03/08/23 16:20
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-03,05,11 Batch: WG1752863-5					
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	110		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	85		70-130

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311870
Report Date: 03/14/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260D
 Analytical Date: 03/08/23 16:20
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 06-08,10 Batch: WG1752868-5					
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	110		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	85		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260D
 Analytical Date: 03/09/23 10:35
 Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 12 Batch: WG1753131-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	114		70-130

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311870
Report Date: 03/14/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260D
 Analytical Date: 03/09/23 12:56
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04 Batch: WG1753389-5					
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	127		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	118		70-130

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311870
Report Date: 03/14/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260D
 Analytical Date: 03/12/23 12:10
 Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 09 Batch: WG1753932-5					
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	129		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	118		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260D
 Analytical Date: 03/12/23 12:10
 Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 09 Batch: WG1754109-5					
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	129		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	118		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260D
 Analytical Date: 03/10/23 18:05
 Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 10 Batch: WG1754382-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	85		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2311870

Report Date: 03/14/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-03,05,11 Batch: WG1752863-3 WG1752863-4								
Methyl tert butyl ether	108		110		66-130	2		30
Benzene	109		109		70-130	0		30
1,2-Dichloroethane	106		107		70-130	1		30
Toluene	110		108		70-130	2		30
1,2-Dibromoethane	101		101		70-130	0		30
Ethylbenzene	113		112		70-130	1		30
p/m-Xylene	109		107		70-130	2		30
o-Xylene	111		110		70-130	1		30
Isopropylbenzene	120		118		70-130	2		30
1,3,5-Trimethylbenzene	117		115		70-130	2		30
1,2,4-Trimethylbenzene	115		114		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	109		109		70-130
Toluene-d8	111		110		70-130
4-Bromofluorobenzene	116		117		70-130
Dibromofluoromethane	86		86		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2311870

Report Date: 03/14/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 06-08,10 Batch: WG1752868-3 WG1752868-4								
Methyl tert butyl ether	108		110		66-130	2		30
Benzene	109		109		70-130	0		30
1,2-Dichloroethane	106		107		70-130	1		30
Toluene	110		108		70-130	2		30
1,2-Dibromoethane	101		101		70-130	0		30
Ethylbenzene	113		112		70-130	1		30
p/m-Xylene	109		107		70-130	2		30
o-Xylene	111		110		70-130	1		30
Isopropylbenzene	120		118		70-130	2		30
1,3,5-Trimethylbenzene	117		115		70-130	2		30
1,2,4-Trimethylbenzene	115		114		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	109		109		70-130
Toluene-d8	111		110		70-130
4-Bromofluorobenzene	116		117		70-130
Dibromofluoromethane	86		86		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2311870

Report Date: 03/14/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 12 Batch: WG1753131-3 WG1753131-4								
Methyl tert butyl ether	97		100		63-130	3		20
Benzene	110		110		70-130	0		20
1,2-Dichloroethane	100		100		70-130	0		20
Toluene	110		100		70-130	10		20
1,2-Dibromoethane	99		100		70-130	1		20
Ethylbenzene	110		110		70-130	0		20
p/m-Xylene	110		110		70-130	0		20
o-Xylene	110		110		70-130	0		20
Isopropylbenzene	110		100		70-130	10		20
1,3,5-Trimethylbenzene	110		99		64-130	11		20
1,2,4-Trimethylbenzene	100		98		70-130	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	101		102		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	98		96		70-130
Dibromofluoromethane	103		101		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2311870

Report Date: 03/14/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04 Batch: WG1753389-3 WG1753389-4								
Methyl tert butyl ether	87		87		66-130	0		30
Benzene	85		73		70-130	15		30
1,2-Dichloroethane	83		82		70-130	1		30
Toluene	94		79		70-130	17		30
1,2-Dibromoethane	90		89		70-130	1		30
Ethylbenzene	96		82		70-130	16		30
p/m-Xylene	99		85		70-130	15		30
o-Xylene	100		89		70-130	12		30
Isopropylbenzene	99		82		70-130	19		30
1,3,5-Trimethylbenzene	99		84		70-130	16		30
1,2,4-Trimethylbenzene	100		86		70-130	15		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	91		97		70-130
Toluene-d8	103		102		70-130
4-Bromofluorobenzene	98		99		70-130
Dibromofluoromethane	87		88		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2311870

Report Date: 03/14/23

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: WG1753932-3 WG1753932-4								
Methyl tert butyl ether	90		89		66-130	1		30
Benzene	92		91		70-130	1		30
1,2-Dichloroethane	93		93		70-130	0		30
Toluene	99		97		70-130	2		30
1,2-Dibromoethane	94		91		70-130	3		30
Ethylbenzene	104		102		70-130	2		30
p/m-Xylene	108		106		70-130	2		30
o-Xylene	108		106		70-130	2		30
Isopropylbenzene	102		101		70-130	1		30
1,3,5-Trimethylbenzene	102		101		70-130	1		30
1,2,4-Trimethylbenzene	102		101		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	100		99		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	90		90		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2311870

Report Date: 03/14/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 09 Batch: WG1754109-3 WG1754109-4								
Methyl tert butyl ether	90		89		66-130	1		30
Benzene	92		91		70-130	1		30
1,2-Dichloroethane	93		93		70-130	0		30
Toluene	99		97		70-130	2		30
1,2-Dibromoethane	94		91		70-130	3		30
Ethylbenzene	104		102		70-130	2		30
p/m-Xylene	108		106		70-130	2		30
o-Xylene	108		106		70-130	2		30
Isopropylbenzene	102		101		70-130	1		30
1,3,5-Trimethylbenzene	102		101		70-130	1		30
1,2,4-Trimethylbenzene	102		101		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	100		99		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	90		90		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2311870

Report Date: 03/14/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 10 Batch: WG1754382-3 WG1754382-4								
Methyl tert butyl ether	96		94		66-130	2		30
Benzene	92		91		70-130	1		30
1,2-Dichloroethane	92		92		70-130	0		30
Toluene	91		92		70-130	1		30
1,2-Dibromoethane	88		87		70-130	1		30
Ethylbenzene	94		95		70-130	1		30
p/m-Xylene	91		91		70-130	0		30
o-Xylene	93		94		70-130	1		30
Isopropylbenzene	100		99		70-130	1		30
1,3,5-Trimethylbenzene	97		95		70-130	2		30
1,2,4-Trimethylbenzene	96		94		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	109		109		70-130
Toluene-d8	109		110		70-130
4-Bromofluorobenzene	116		115		70-130
Dibromofluoromethane	88		88		70-130

Matrix Spike Analysis**Batch Quality Control****Project Name:** PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2311870**Report Date:** 03/14/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 09 QC Batch ID: WG1753932-6 WG1753932-7 QC Sample: L2311870-09 Client ID: SEP4-SB17-4.5-5.0												
Methyl tert butyl ether	ND	0.118	0.058	49	Q	0.058	50	Q	66-130	0		30
Benzene	0.00036J	0.118	0.033	28	Q	0.035	30	Q	70-130	6		30
1,2-Dichloroethane	ND	0.118	0.036	31	Q	0.037	32	Q	70-130	3		30
Toluene	0.0016	0.118	0.050	41	Q	0.047	39	Q	70-130	6		30
1,2-Dibromoethane	ND	0.118	0.062	53	Q	0.055	48	Q	70-130	12		30
Ethylbenzene	0.00057J	0.118	0.032	27	Q	0.033	29	Q	70-130	3		30
p/m-Xylene	0.013	0.236	0.080	28	Q	0.080	29	Q	70-130	0		30
o-Xylene	0.0050	0.236	0.062	24	Q	0.062	25	Q	70-130	0		30
Isopropylbenzene	0.24	0.118	0.31	59	Q	0.21	0	Q	70-130	38	Q	30
1,3,5-Trimethylbenzene	0.00088J	0.118	0.026	22	Q	0.030	26	Q	70-130	14		30
1,2,4-Trimethylbenzene	0.0023	0.118	0.025	19	Q	0.029	23	Q	70-130	15		30

Surrogate	MS % Recovery	Qualifier	MSD % Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	131	Q	130		70-130
4-Bromofluorobenzene	259	Q	224	Q	70-130
Dibromofluoromethane	50	Q	54	Q	70-130
Toluene-d8	293	Q	251	Q	70-130

SEMIVOLATILES

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-01
 Client ID: SEP4-SB01-9.5-10.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/06/23 14:52
 Date Received: 03/07/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 03/09/23 14:59
 Analyst: CMM
 Percent Solids: 85%

Extraction Method: EPA 3546
 Extraction Date: 03/08/23 23:53

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.5		mg/kg	0.038	0.023	1
Fluorene	0.23		mg/kg	0.19	0.018	1
Phenanthrene	0.41		mg/kg	0.11	0.023	1
Anthracene	0.21		mg/kg	0.11	0.037	1
Pyrene	1.1		mg/kg	0.11	0.019	1
Benzo(a)anthracene	0.60		mg/kg	0.11	0.021	1
Chrysene	0.68		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	0.84		mg/kg	0.11	0.032	1
Benzo(a)pyrene	0.81		mg/kg	0.15	0.046	1
Indeno(1,2,3-cd)pyrene	0.43		mg/kg	0.15	0.026	1
Benzo(ghi)perylene	0.38		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	51		23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	52		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-02
 Client ID: SEP4-SB06-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/07/23 08:30
 Date Received: 03/07/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 03/09/23 15:22
 Analyst: CMM
 Percent Solids: 74%

Extraction Method: EPA 3546
 Extraction Date: 03/08/23 23:53

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	9.7	E	mg/kg	0.044	0.027	1
Fluorene	4.5		mg/kg	0.22	0.021	1
Phenanthrene	9.2	E	mg/kg	0.13	0.027	1
Anthracene	4.4		mg/kg	0.13	0.043	1
Pyrene	12.	E	mg/kg	0.13	0.022	1
Benzo(a)anthracene	4.9		mg/kg	0.13	0.025	1
Chrysene	5.2		mg/kg	0.13	0.023	1
Benzo(b)fluoranthene	4.8		mg/kg	0.13	0.037	1
Benzo(a)pyrene	4.3		mg/kg	0.18	0.053	1
Indeno(1,2,3-cd)pyrene	1.6		mg/kg	0.18	0.030	1
Benzo(ghi)perylene	1.5		mg/kg	0.18	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	52		30-120
4-Terphenyl-d14	56		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-02 D

Date Collected: 03/07/23 08:30

Client ID: SEP4-SB06-4.0-4.5

Date Received: 03/07/23

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Extraction Method: EPA 3546

Analytical Method: 1,8270E

Extraction Date: 03/08/23 23:53

Analytical Date: 03/12/23 19:41

Analyst: CMM

Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab

Naphthalene	10.		mg/kg	0.22	0.13	5
Phenanthrene	9.8		mg/kg	0.66	0.13	5
Pyrene	13.		mg/kg	0.66	0.11	5

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311870
Report Date: 03/14/23

SAMPLE RESULTS

Lab ID: L2311870-03
Client ID: SEP4-SB06-4.0-4.5-DUP
Sample Location: PHILADELPHIA, PA

Date Collected: 03/07/23 08:30
Date Received: 03/07/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 03/09/23 15:45
Analyst: CMM
Percent Solids: 78%

Extraction Method: EPA 3546
Extraction Date: 03/08/23 23:53

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	4.0		mg/kg	0.042	0.026	1
Fluorene	1.4		mg/kg	0.21	0.020	1
Phenanthrene	2.9		mg/kg	0.13	0.026	1
Anthracene	1.5		mg/kg	0.13	0.041	1
Pyrene	4.8		mg/kg	0.13	0.021	1
Benzo(a)anthracene	1.9		mg/kg	0.13	0.024	1
Chrysene	2.1		mg/kg	0.13	0.022	1
Benzo(b)fluoranthene	2.2		mg/kg	0.13	0.035	1
Benzo(a)pyrene	2.0		mg/kg	0.17	0.051	1
Indeno(1,2,3-cd)pyrene	1.1		mg/kg	0.17	0.029	1
Benzo(ghi)perylene	0.96		mg/kg	0.17	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	57		18-120

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311870
Report Date: 03/14/23

SAMPLE RESULTS

Lab ID: L2311870-04
Client ID: SEP4-SB11-4.5-5.0
Sample Location: PHILADELPHIA, PA

Date Collected: 03/07/23 09:28
Date Received: 03/07/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 03/09/23 16:09
Analyst: CMM
Percent Solids: 83%

Extraction Method: EPA 3546
Extraction Date: 03/08/23 23:53

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	2.8		mg/kg	0.040	0.024	1
Fluorene	0.18	J	mg/kg	0.20	0.019	1
Phenanthrene	0.77		mg/kg	0.12	0.024	1
Anthracene	0.27		mg/kg	0.12	0.039	1
Pyrene	0.70		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.55		mg/kg	0.12	0.022	1
Chrysene	0.71		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	0.95		mg/kg	0.12	0.034	1
Benzo(a)pyrene	0.96		mg/kg	0.16	0.048	1
Indeno(1,2,3-cd)pyrene	0.63		mg/kg	0.16	0.028	1
Benzo(ghi)perylene	0.65		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	47		23-120
2-Fluorobiphenyl	58		30-120
4-Terphenyl-d14	52		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-05
 Client ID: SEP4-SB12-2.5-3.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/07/23 09:52
 Date Received: 03/07/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 03/11/23 19:03
 Analyst: CMM
 Percent Solids: 93%

Extraction Method: EPA 3546
 Extraction Date: 03/08/23 23:53

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.24		mg/kg	0.036	0.022	1
Fluorene	0.060	J	mg/kg	0.18	0.017	1
Phenanthrene	0.28		mg/kg	0.11	0.022	1
Anthracene	0.11		mg/kg	0.11	0.035	1
Pyrene	0.63		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.26		mg/kg	0.11	0.020	1
Chrysene	0.48		mg/kg	0.11	0.018	1
Benzo(b)fluoranthene	0.41		mg/kg	0.11	0.030	1
Benzo(a)pyrene	0.36		mg/kg	0.14	0.043	1
Indeno(1,2,3-cd)pyrene	0.20		mg/kg	0.14	0.025	1
Benzo(ghi)perylene	0.27		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	49		30-120
4-Terphenyl-d14	40		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-06
 Client ID: SEP4-SB13-4.0-4.5
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/07/23 10:55
 Date Received: 03/07/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 03/12/23 20:05
 Analyst: CMM
 Percent Solids: 75%

Extraction Method: EPA 3546
 Extraction Date: 03/08/23 23:53

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.91		mg/kg	0.044	0.026	1
Fluorene	0.88		mg/kg	0.22	0.021	1
Phenanthrene	2.4		mg/kg	0.13	0.026	1
Anthracene	0.28		mg/kg	0.13	0.042	1
Pyrene	0.80		mg/kg	0.13	0.022	1
Benzo(a)anthracene	0.33		mg/kg	0.13	0.024	1
Chrysene	0.60		mg/kg	0.13	0.023	1
Benzo(b)fluoranthene	0.34		mg/kg	0.13	0.037	1
Benzo(a)pyrene	0.27		mg/kg	0.17	0.053	1
Indeno(1,2,3-cd)pyrene	0.20		mg/kg	0.17	0.030	1
Benzo(ghi)perylene	0.22		mg/kg	0.17	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	27		23-120
2-Fluorobiphenyl	28	Q	30-120
4-Terphenyl-d14	27		18-120

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311870
Report Date: 03/14/23

SAMPLE RESULTS

Lab ID: L2311870-07
Client ID: SEP4-SB15-4.0-4.5
Sample Location: PHILADELPHIA, PA

Date Collected: 03/07/23 11:25
Date Received: 03/07/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 03/09/23 17:19
Analyst: CMM
Percent Solids: 94%

Extraction Method: EPA 3546
Extraction Date: 03/08/23 23:53

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.31		mg/kg	0.035	0.021	1
Fluorene	0.83		mg/kg	0.18	0.017	1
Phenanthrene	1.6		mg/kg	0.10	0.021	1
Anthracene	0.37		mg/kg	0.10	0.034	1
Pyrene	1.2		mg/kg	0.10	0.018	1
Benzo(a)anthracene	0.88		mg/kg	0.10	0.020	1
Chrysene	1.0		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	1.2		mg/kg	0.10	0.030	1
Benzo(a)pyrene	1.0		mg/kg	0.14	0.043	1
Indeno(1,2,3-cd)pyrene	0.58		mg/kg	0.14	0.024	1
Benzo(ghi)perylene	0.48		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	59		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-08
 Client ID: SEP4-SB15-4.0-4.5-DUP
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/07/23 11:25
 Date Received: 03/07/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 03/09/23 17:42
 Analyst: CMM
 Percent Solids: 94%

Extraction Method: EPA 3546
 Extraction Date: 03/08/23 23:53

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.034	0.021	1
Fluorene	0.68		mg/kg	0.17	0.017	1
Phenanthrene	0.93		mg/kg	0.10	0.021	1
Anthracene	0.20		mg/kg	0.10	0.034	1
Pyrene	0.30		mg/kg	0.10	0.017	1
Benzo(a)anthracene	0.10		mg/kg	0.10	0.019	1
Chrysene	0.17		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	0.082	J	mg/kg	0.10	0.029	1
Benzo(a)pyrene	0.093	J	mg/kg	0.14	0.042	1
Indeno(1,2,3-cd)pyrene	0.039	J	mg/kg	0.14	0.024	1
Benzo(ghi)perylene	0.050	J	mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	94		23-120
2-Fluorobiphenyl	55		30-120
4-Terphenyl-d14	52		18-120

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311870
Report Date: 03/14/23

SAMPLE RESULTS

Lab ID: L2311870-09
Client ID: SEP4-SB17-4.5-5.0
Sample Location: PHILADELPHIA, PA

Date Collected: 03/07/23 12:15
Date Received: 03/07/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 03/11/23 19:51
Analyst: CMM
Percent Solids: 87%

Extraction Method: EPA 3546
Extraction Date: 03/08/23 23:53

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.037	0.023	1
Fluorene	2.0		mg/kg	0.19	0.018	1
Phenanthrene	3.3		mg/kg	0.11	0.023	1
Anthracene	1.2		mg/kg	0.11	0.036	1
Pyrene	3.5		mg/kg	0.11	0.018	1
Benzo(a)anthracene	1.3		mg/kg	0.11	0.021	1
Chrysene	1.4		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	1.0		mg/kg	0.11	0.032	1
Benzo(a)pyrene	0.89		mg/kg	0.15	0.046	1
Indeno(1,2,3-cd)pyrene	0.34		mg/kg	0.15	0.026	1
Benzo(ghi)perylene	0.40		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	30		30-120
4-Terphenyl-d14	28		18-120

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311870
Report Date: 03/14/23

SAMPLE RESULTS

Lab ID: L2311870-10
Client ID: SEP4-SB16-4.0-4.5
Sample Location: PHILADELPHIA, PA

Date Collected: 03/07/23 13:45
Date Received: 03/07/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 03/11/23 21:05
Analyst: CMM
Percent Solids: 94%

Extraction Method: EPA 3546
Extraction Date: 03/08/23 23:53

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	6.2		mg/kg	0.035	0.021	1
Fluorene	2.2		mg/kg	0.17	0.017	1
Phenanthrene	6.0		mg/kg	0.10	0.021	1
Anthracene	1.1		mg/kg	0.10	0.034	1
Pyrene	3.2		mg/kg	0.10	0.017	1
Benzo(a)anthracene	1.5		mg/kg	0.10	0.020	1
Chrysene	1.4		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	1.8		mg/kg	0.10	0.029	1
Benzo(a)pyrene	1.4		mg/kg	0.14	0.043	1
Indeno(1,2,3-cd)pyrene	0.78		mg/kg	0.14	0.024	1
Benzo(ghi)perylene	0.68		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	114		23-120
2-Fluorobiphenyl	63		30-120
4-Terphenyl-d14	58		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-11
 Client ID: SEP4-SB14-9.5-10.0
 Sample Location: PHILADELPHIA, PA

Date Collected: 03/07/23 14:10
 Date Received: 03/07/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 03/09/23 19:40
 Analyst: CMM
 Percent Solids: 62%

Extraction Method: EPA 3546
 Extraction Date: 03/09/23 00:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.036	J	mg/kg	0.052	0.032	1
Fluorene	ND		mg/kg	0.26	0.025	1
Phenanthrene	ND		mg/kg	0.16	0.032	1
Anthracene	ND		mg/kg	0.16	0.051	1
Pyrene	ND		mg/kg	0.16	0.026	1
Benzo(a)anthracene	ND		mg/kg	0.16	0.029	1
Chrysene	ND		mg/kg	0.16	0.027	1
Benzo(b)fluoranthene	ND		mg/kg	0.16	0.044	1
Benzo(a)pyrene	ND		mg/kg	0.21	0.064	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.21	0.036	1
Benzo(ghi)perylene	ND		mg/kg	0.21	0.031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	33		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	55		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270E
 Analytical Date: 03/09/23 14:35
 Analyst: CMM

Extraction Method: EPA 3546
 Extraction Date: 03/08/23 23:53

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-11 Batch: WG1752583-1					
Naphthalene	ND		mg/kg	0.033	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.099	0.020
Anthracene	ND		mg/kg	0.099	0.032
Pyrene	ND		mg/kg	0.099	0.016
Benzo(a)anthracene	ND		mg/kg	0.099	0.018
Chrysene	ND		mg/kg	0.099	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.099	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
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	57		23-120
2-Fluorobiphenyl	63		30-120
4-Terphenyl-d14	72		18-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2311870

Report Date: 03/14/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-11 Batch: WG1752583-2 WG1752583-3								
Naphthalene	69		70		40-140	1		50
Fluorene	66		70		40-140	6		50
Phenanthrene	65		67		40-140	3		50
Anthracene	66		68		40-140	3		50
Pyrene	64		68		35-142	6		50
Benzo(a)anthracene	68		69		40-140	1		50
Chrysene	65		67		40-140	3		50
Benzo(b)fluoranthene	70		75		40-140	7		50
Benzo(a)pyrene	77		78		40-140	1		50
Indeno(1,2,3-cd)pyrene	74		76		40-140	3		50
Benzo(ghi)perylene	63		66		40-140	5		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	65		66		23-120
2-Fluorobiphenyl	68		73		30-120
4-Terphenyl-d14	62		67		18-120

METALS

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-01

Date Collected: 03/06/23 14:52

Client ID: SEP4-SB01-9.5-10.0

Date Received: 03/07/23

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	90.8		mg/kg	2.26	0.121	1	03/09/23 05:55	03/09/23 23:08	EPA 3050B	1,6010D	MRC



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-02

Date Collected: 03/07/23 08:30

Client ID: SEP4-SB06-4.0-4.5

Date Received: 03/07/23

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	289		mg/kg	2.53	0.135	1	03/09/23 05:55	03/09/23 23:13	EPA 3050B	1,6010D	MRC



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-03

Date Collected: 03/07/23 08:30

Client ID: SEP4-SB06-4.0-4.5-DUP

Date Received: 03/07/23

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	251		mg/kg	2.53	0.136	1	03/09/23 05:55	03/09/23 23:18	EPA 3050B	1,6010D	MRC



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-04

Date Collected: 03/07/23 09:28

Client ID: SEP4-SB11-4.5-5.0

Date Received: 03/07/23

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	264		mg/kg	2.32	0.124	1	03/09/23 05:55	03/09/23 23:23	EPA 3050B	1,6010D	MRC



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-05

Date Collected: 03/07/23 09:52

Client ID: SEP4-SB12-2.5-3.0

Date Received: 03/07/23

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	196		mg/kg	2.03	0.109	1	03/09/23 05:55	03/09/23 23:28	EPA 3050B	1,6010D	MRC



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-06

Date Collected: 03/07/23 10:55

Client ID: SEP4-SB13-4.0-4.5

Date Received: 03/07/23

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	595		mg/kg	2.54	0.136	1	03/09/23 05:55	03/09/23 23:34	EPA 3050B	1,6010D	MRC



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-07

Date Collected: 03/07/23 11:25

Client ID: SEP4-SB15-4.0-4.5

Date Received: 03/07/23

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	83.7		mg/kg	2.06	0.110	1	03/09/23 05:55	03/09/23 23:38	EPA 3050B	1,6010D	MRC



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-08

Date Collected: 03/07/23 11:25

Client ID: SEP4-SB15-4.0-4.5-DUP

Date Received: 03/07/23

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	94.9		mg/kg	2.06	0.110	1	03/09/23 05:55	03/09/23 23:44	EPA 3050B	1,6010D	MRC



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-09

Date Collected: 03/07/23 12:15

Client ID: SEP4-SB17-4.5-5.0

Date Received: 03/07/23

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	487		mg/kg	2.24	0.120	1	03/09/23 05:55	03/09/23 22:22	EPA 3050B	1,6010D	MRC



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-10

Date Collected: 03/07/23 13:45

Client ID: SEP4-SB16-4.0-4.5

Date Received: 03/07/23

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	184		mg/kg	2.00	0.107	1	03/09/23 05:55	03/09/23 23:58	EPA 3050B	1,6010D	MRC



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**SAMPLE RESULTS**

Lab ID: L2311870-11

Date Collected: 03/07/23 14:10

Client ID: SEP4-SB14-9.5-10.0

Date Received: 03/07/23

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	13.0		mg/kg	3.18	0.170	1	03/09/23 05:55	03/10/23 00:03	EPA 3050B	1,6010D	MRC



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23

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): 01-11 Batch: WG1752624-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	03/09/23 05:55	03/09/23 20:07	1,6010D	MRC

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis**Batch Quality Control****Project Name:** PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2311870**Report Date:** 03/14/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-11 Batch: WG1752624-2 SRM Lot Number: D116-540								
Lead, Total	95		-		83-117	-		

Matrix Spike Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Lab Number: L2311870

Project Number: P044.001.012

Report Date: 03/14/23

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): 01-11 4.5-5.0 QC Batch ID: WG1752624-3 WG1752624-4 QC Sample: L2311870-09 Client ID: SEP4-SB17-												
Lead, Total	487	47.1	515	59	Q	345	0	Q	75-125	40	Q	20

INORGANICS & MISCELLANEOUS

Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2311870**Report Date:** 03/14/23**SAMPLE RESULTS****Lab ID:** L2311870-01**Client ID:** SEP4-SB01-9.5-10.0**Sample Location:** PHILADELPHIA, PA**Date Collected:** 03/06/23 14:52**Date Received:** 03/07/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.9		%	0.100	NA	1	-	03/08/23 12:21	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2311870

Report Date: 03/14/23

SAMPLE RESULTS

Lab ID: L2311870-02

Client ID: SEP4-SB06-4.0-4.5

Sample Location: PHILADELPHIA, PA

Date Collected: 03/07/23 08:30

Date Received: 03/07/23

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	74.3		%	0.100	NA	1	-	03/08/23 12:21	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2311870**Report Date:** 03/14/23**SAMPLE RESULTS****Lab ID:** L2311870-03**Client ID:** SEP4-SB06-4.0-4.5-DUP**Sample Location:** PHILADELPHIA, PA**Date Collected:** 03/07/23 08:30**Date Received:** 03/07/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.6		%	0.100	NA	1	-	03/08/23 12:21	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2311870**Report Date:** 03/14/23**SAMPLE RESULTS****Lab ID:** L2311870-04**Client ID:** SEP4-SB11-4.5-5.0**Sample Location:** PHILADELPHIA, PA**Date Collected:** 03/07/23 09:28**Date Received:** 03/07/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	03/08/23 12:21	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2311870**Report Date:** 03/14/23**SAMPLE RESULTS****Lab ID:** L2311870-05**Client ID:** SEP4-SB12-2.5-3.0**Sample Location:** PHILADELPHIA, PA**Date Collected:** 03/07/23 09:52**Date Received:** 03/07/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.6		%	0.100	NA	1	-	03/08/23 12:21	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2311870**Report Date:** 03/14/23**SAMPLE RESULTS****Lab ID:** L2311870-06**Client ID:** SEP4-SB13-4.0-4.5**Sample Location:** PHILADELPHIA, PA**Date Collected:** 03/07/23 10:55**Date Received:** 03/07/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.4		%	0.100	NA	1	-	03/08/23 12:21	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2311870**Report Date:** 03/14/23**SAMPLE RESULTS****Lab ID:** L2311870-07**Client ID:** SEP4-SB15-4.0-4.5**Sample Location:** PHILADELPHIA, PA**Date Collected:** 03/07/23 11:25**Date Received:** 03/07/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.0		%	0.100	NA	1	-	03/08/23 12:21	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2311870**Report Date:** 03/14/23**SAMPLE RESULTS****Lab ID:** L2311870-08**Client ID:** SEP4-SB15-4.0-4.5-DUP**Sample Location:** PHILADELPHIA, PA**Date Collected:** 03/07/23 11:25**Date Received:** 03/07/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.8		%	0.100	NA	1	-	03/08/23 12:21	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2311870**Report Date:** 03/14/23**SAMPLE RESULTS****Lab ID:** L2311870-09**Client ID:** SEP4-SB17-4.5-5.0**Sample Location:** PHILADELPHIA, PA**Date Collected:** 03/07/23 12:15**Date Received:** 03/07/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.6		%	0.100	NA	1	-	03/08/23 12:21	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2311870**Report Date:** 03/14/23**SAMPLE RESULTS****Lab ID:** L2311870-10**Client ID:** SEP4-SB16-4.0-4.5**Sample Location:** PHILADELPHIA, PA**Date Collected:** 03/07/23 13:45**Date Received:** 03/07/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.7		%	0.100	NA	1	-	03/08/23 12:21	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2311870**Report Date:** 03/14/23**SAMPLE RESULTS****Lab ID:** L2311870-11**Client ID:** SEP4-SB14-9.5-10.0**Sample Location:** PHILADELPHIA, PA**Date Collected:** 03/07/23 14:10**Date Received:** 03/07/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	62.2		%	0.100	NA	1	-	03/08/23 12:21	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Duplicate Analysis***Batch Quality Control***Lab Number:** L2311870**Report Date:** 03/14/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-11 QC Batch ID: WG1752259-1 QC Sample: L2311870-09 Client ID: SEP4-SB17-4.5-5.0						
Solids, Total	86.6	81.5	%	6		20

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**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(*)
L2311870-01A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2311870-01B	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260HLW(14)
L2311870-01C	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260HLW(14)
L2311870-01D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2311870-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2311870-01F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2311870-02A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2311870-02B	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260HLW(14)
L2311870-02C	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260HLW(14)
L2311870-02D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2311870-02E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2311870-02F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2311870-03A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2311870-03B	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260HLW(14)
L2311870-03C	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260HLW(14)
L2311870-03D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2311870-03E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2311870-03F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2311870-04A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2311870-04B	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260HLW(14)
L2311870-04C	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260HLW(14)

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2311870-04D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2311870-04E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2311870-04F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2311870-05A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2311870-05B	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260HLW(14)
L2311870-05C	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260HLW(14)
L2311870-05D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2311870-05E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2311870-05F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2311870-06A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2311870-06B	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260HLW(14)
L2311870-06C	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260HLW(14)
L2311870-06D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2311870-06E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2311870-06F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2311870-07A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2311870-07B	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260HLW(14)
L2311870-07C	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260HLW(14)
L2311870-07D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2311870-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2311870-07F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2311870-08A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2311870-08B	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260HLW(14)
L2311870-08C	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260HLW(14)
L2311870-08D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2311870-08E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2311870-08F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2311870-09A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260H(14),PA-8260HLW(14)

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2311870-09A1	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2311870-09A2	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2311870-09B	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260H(14),PA-8260HLW(14)
L2311870-09B1	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260H(14),PA-8260HLW(14)
L2311870-09B2	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260H(14),PA-8260HLW(14)
L2311870-09C	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260H(14),PA-8260HLW(14)
L2311870-09C1	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260H(14),PA-8260HLW(14)
L2311870-09C2	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260H(14),PA-8260HLW(14)
L2311870-09D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2311870-09D1	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2311870-09D2	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2311870-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2311870-09E1	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2311870-09E2	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2311870-09F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2311870-09F1	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2311870-09F2	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2311870-10A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2311870-10B	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260HLW(14)
L2311870-10C	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260HLW(14)
L2311870-10D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2311870-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2311870-10F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2311870-11A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2311870-11B	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260HLW(14)
L2311870-11C	Vial water preserved	A	NA		2.1	Y	Absent	08-MAR-23 06:34	PA-8260HLW(14)
L2311870-11D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2311870-11E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)

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Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2311870-11F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2311870-12A	Vial HCl preserved	A	NA		2.1	Y	Absent		PA-8260(14)
L2311870-12B	Vial HCl preserved	A	NA		2.1	Y	Absent		PA-8260(14)

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2311870**Project Number:** P044.001.012**Report Date:** 03/14/23

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

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Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



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Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers



Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2311870
Report Date: 03/14/23

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.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 19

Published Date: 4/2/2021 1:14:23 PM

Page 1 of 1

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, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.****EPA 522, EPA 537.1.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1 Hg.****SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



CHAIN OF CUSTODY

PAGE 1 OF 2

Westborough, MA Mansfield, MA
TEL: 508-898-9220 TEL: 508-822-9300
FAX: 508-898-9193 FAX: 508-822-3288

Client Information

Client: Terraphase Engineering, Inc.
Address: 1100 East Hector Street, St. 400
Conshohocken, PA 19428
Phone: 484-513-4910

Fax: ☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Email: michael.mcdonald@terrphase.com

☐ These samples have been Previously analyzed by Alpha.

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

EDD@terrphase.com
Terraphase Equis EDD

Project Information

Project Name: PESRM No. 4 Separator

Project Location: Philadelphia, PA

Project #: P044.001.012

Project Manager: Michael McDonald

ALPHA Quote #: 21552

Turn-Around Time

Date Rec'd in Lab: 3/8/23

ALPHA Job #: L2311870

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client Info PO #: P044.001.012

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

ANALYSIS

VOCs via 8260: See analyte list			SVOCs via 8270: see analyte list			Lead via 6010																											SAMPLE HANDLING			TOTAL # BOTTLES
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PAGE 2 OF 2

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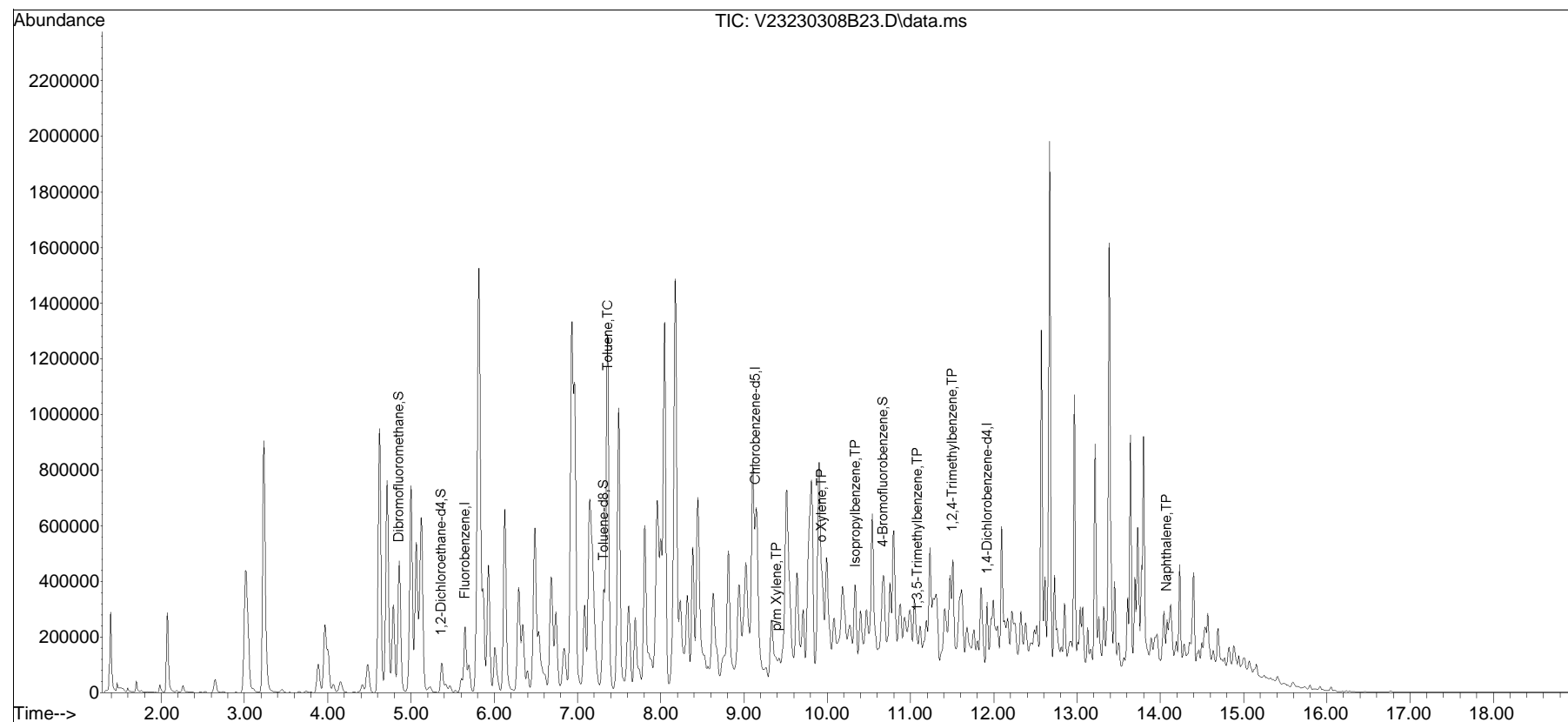
- VOCs via 8260: Benzene, Cumene, 1,2-Dibromoethane, 1,2-Dichloroethane, Ethyl Benzene, Methyl tert-butyl ether, Toluene, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, and Xylenes (total)
- SVOCs via 8270: Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Chrysene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Pyrene
- Lead via 6010

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2023\230308B\
Data File : V23230308B23.D
Acq On : 09 Mar 2023 12:09 am
Operator : VOA123:JIC
Sample : L2311870-02,31,4.99,5,,B
Misc : WG1752863,ICAL19503
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Mar 09 10:13:57 2023
Quant Method : I:\VOLATILES\VOA123\2023\230308B\V123_221117A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Nov 18 09:41:43 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list08B\V23230308B01.D•

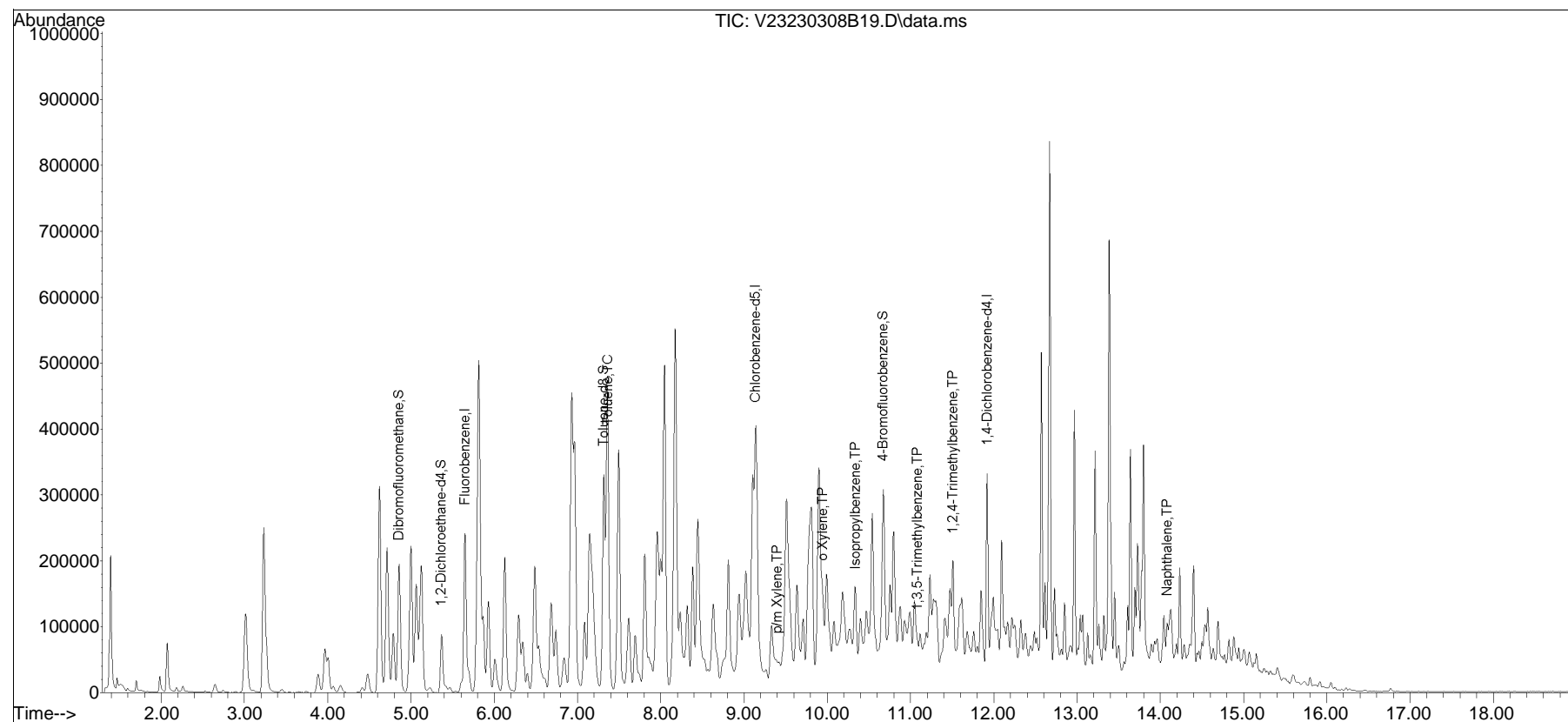


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2023\230308B\
Data File : V23230308B19.D
Acq On : 08 Mar 2023 10:24 pm
Operator : VOA123:JIC
Sample : L2311870-03,31,4.34,5,,B
Misc : WG1752863,ICAL19503
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Mar 09 09:09:53 2023
Quant Method : I:\VOLATILES\VOA123\2023\230308B\V123_221117A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Nov 18 09:41:43 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list08B\V23230308B01.D•

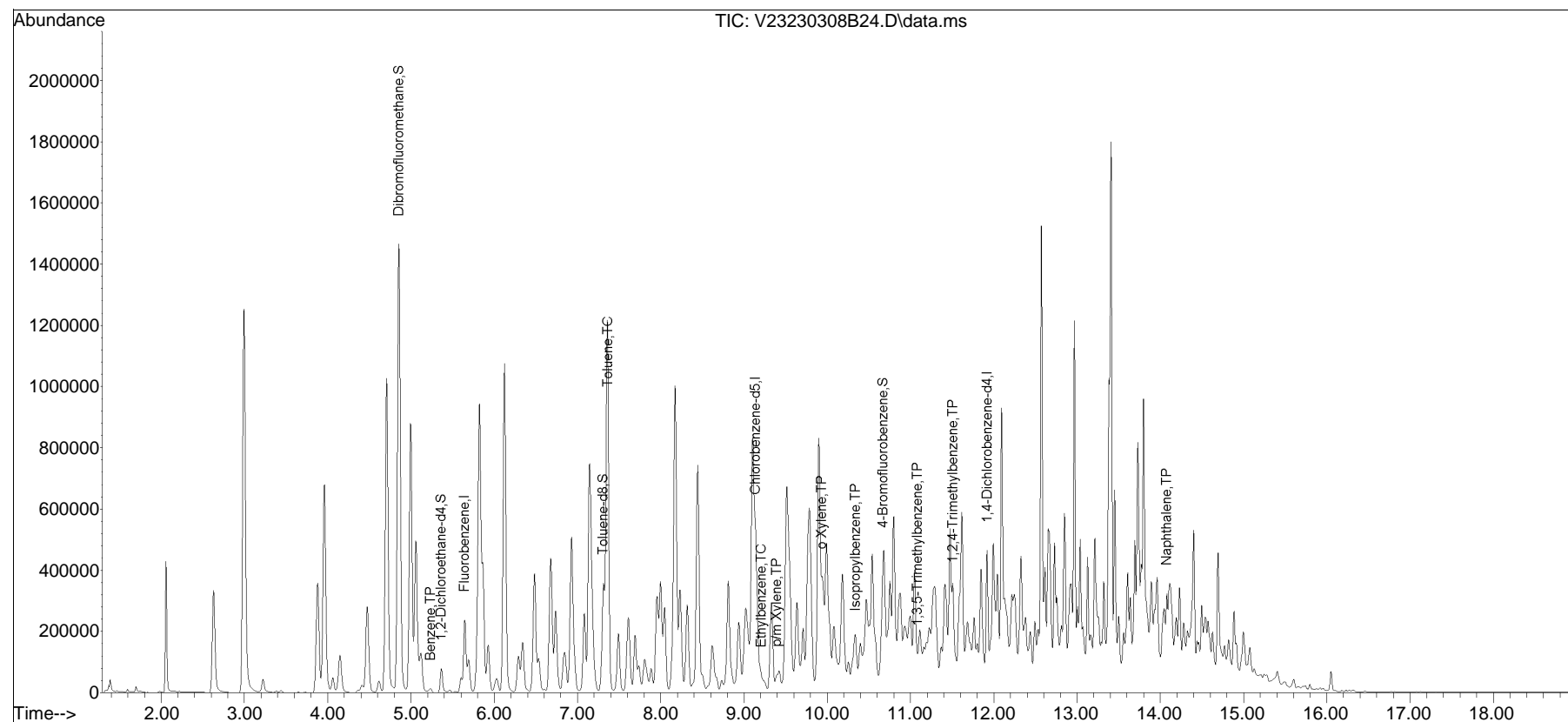


Quantitation Report (QT Reviewed)

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Data File : V23230308B24.D
Acq On : 09 Mar 2023 12:35 am
Operator : VOA123:JIC
Sample : L2311870-06,31H,5.48,5,0.100,,A
Misc : WG1752868,ICAL19503
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Mar 09 09:14:48 2023
Quant Method : I:\VOLATILES\VOA123\2023\230308B\V123_221117A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Nov 18 09:41:43 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list08B\V23230308B01.D•

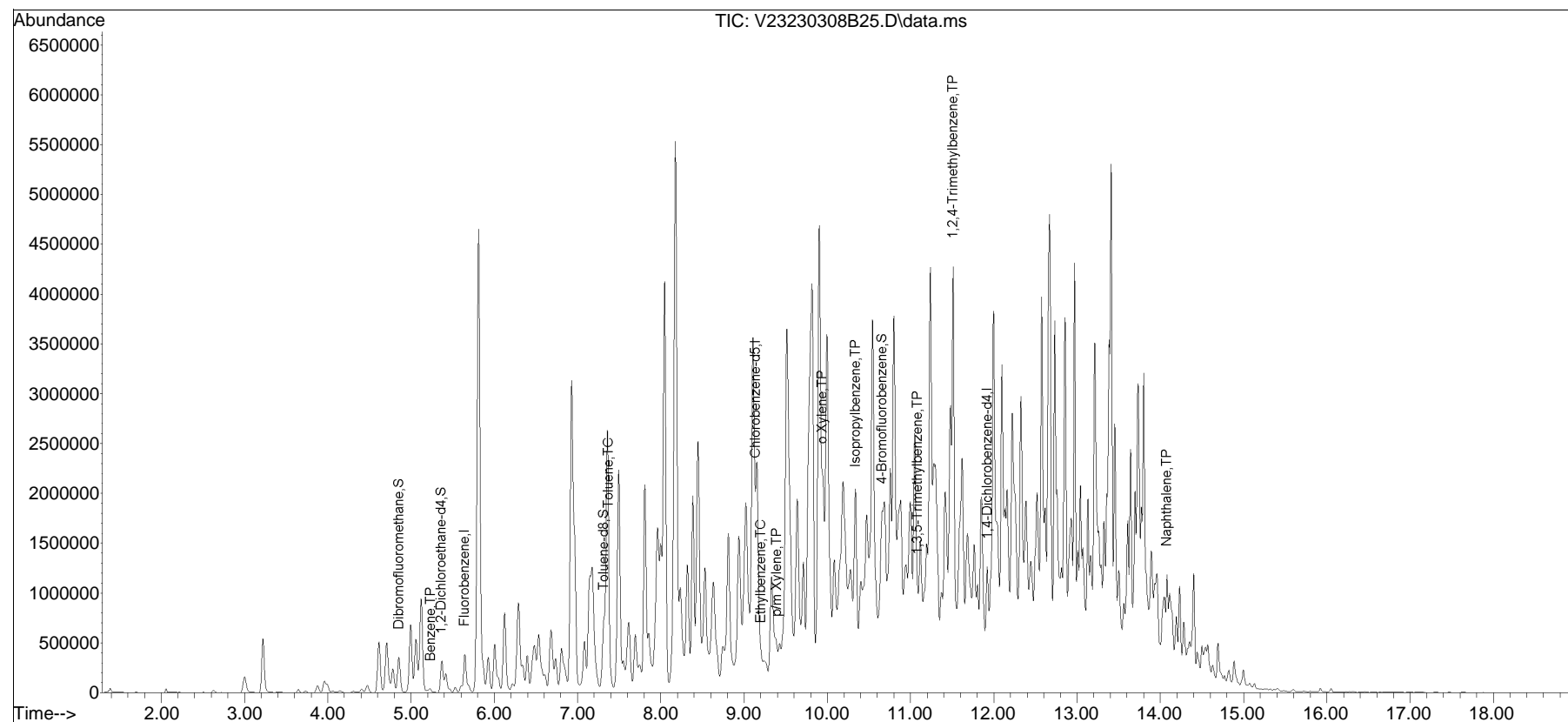


Quantitation Report (QT Reviewed)

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Data File : V23230308B25.D
Acq On : 09 Mar 2023 01:01 am
Operator : VOA123:JIC
Sample : L2311870-07,31H,3.72,5,0.100,,A
Misc : WG1752868,ICAL19503
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Mar 09 09:15:11 2023
Quant Method : I:\VOLATILES\VOA123\2023\230308B\V123_221117A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Nov 18 09:41:43 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list08B\V23230308B01.D•

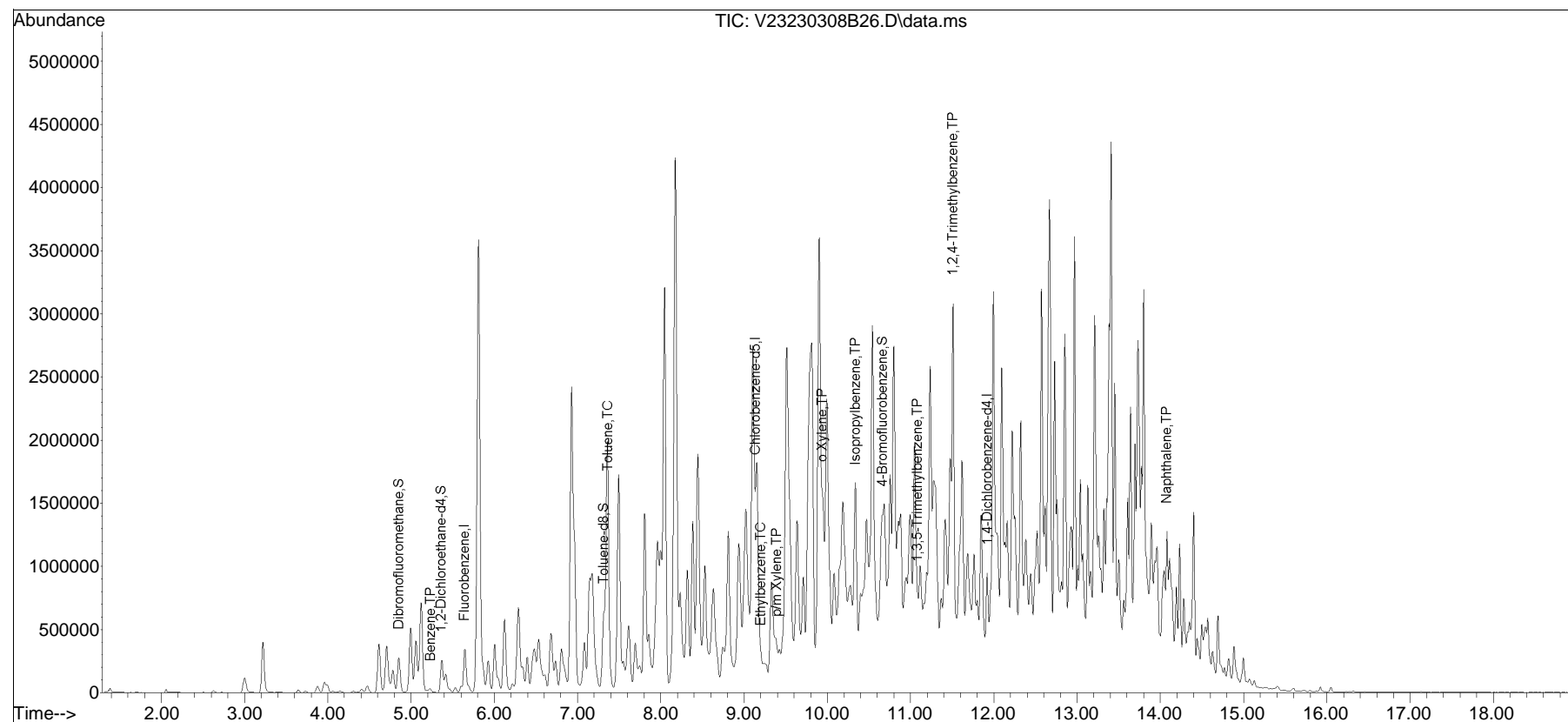


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2023\230308B\
Data File : V23230308B26.D
Acq On : 09 Mar 2023 01:27 am
Operator : VOA123:JIC
Sample : L2311870-08,31H,4.30,5,0.100,,A
Misc : WG1752868,ICAL19503
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Mar 09 09:15:35 2023
Quant Method : I:\VOLATILES\VOA123\2023\230308B\V123_221117A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Nov 18 09:41:43 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list08B\V23230308B01.D•

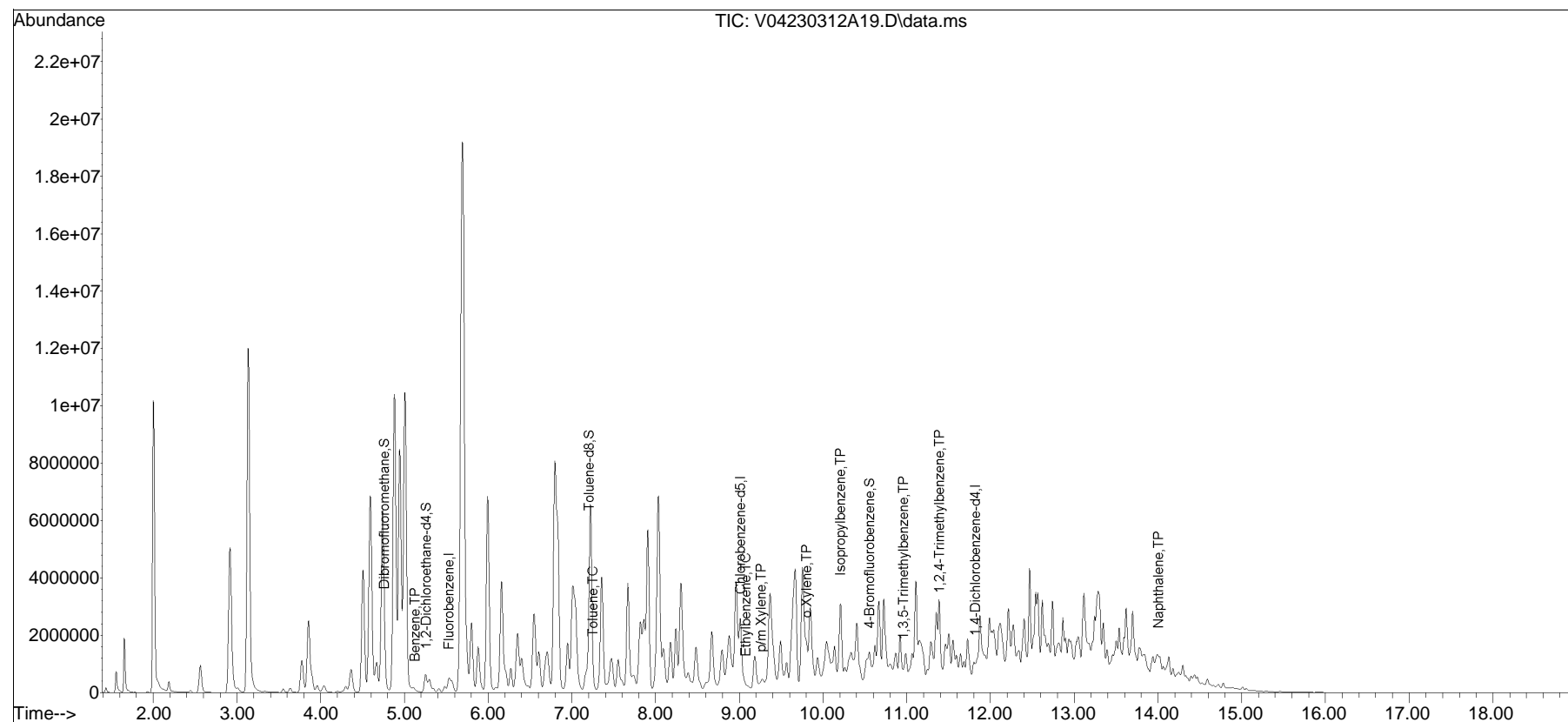


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2023\230312A\
Data File : V04230312A19.D
Acq On : 12 Mar 2023 6:14 pm
Operator : VOA104:JIC
Sample : L2311870-09,31,5.19,5,,B
Misc : WG1753932,ICAL19666
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Mar 13 10:44:18 2023
Quant Method : I:\VOLATILES\VOA104\2023\230312A\V104_230118A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Jan 19 14:20:58 2023
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12A\V04230312A01.D•

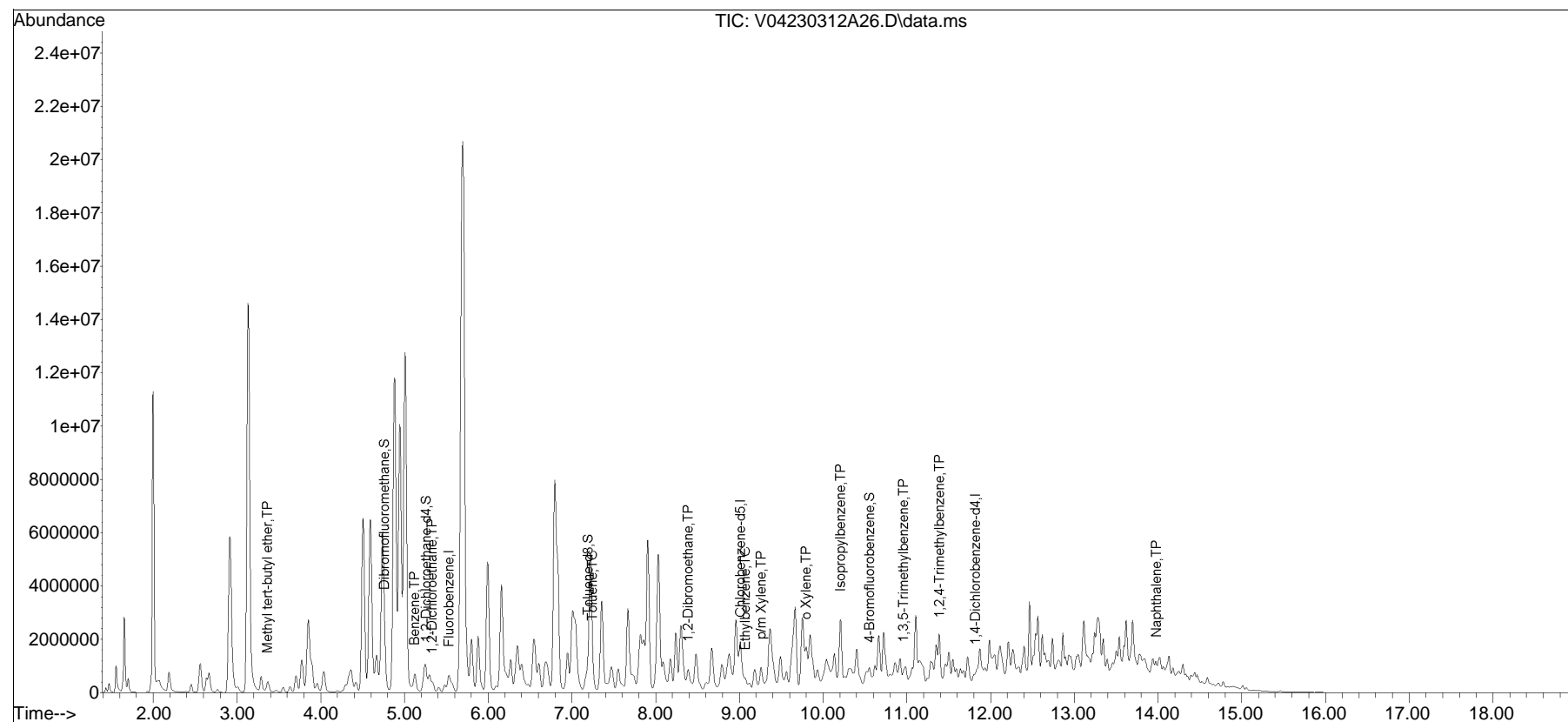


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2023\230312A\
 Data File : V04230312A26.D
 Acq On : 12 Mar 2023 9:16 pm
 Operator : VOA104:JIC
 Sample : WG1753932-6,31,4.90,5,,B2
 Misc : WG1753932,ICAL19666
 ALS Vial : 26 Sample Multiplier: 1

Quant Time: Mar 13 06:22:31 2023
 Quant Method : I:\VOLATILES\VOA104\2023\230312A\V104_230118A_8260.m
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Sub List : 8260-PA_ShortList - PA Short list12A\V04230312A01.D•

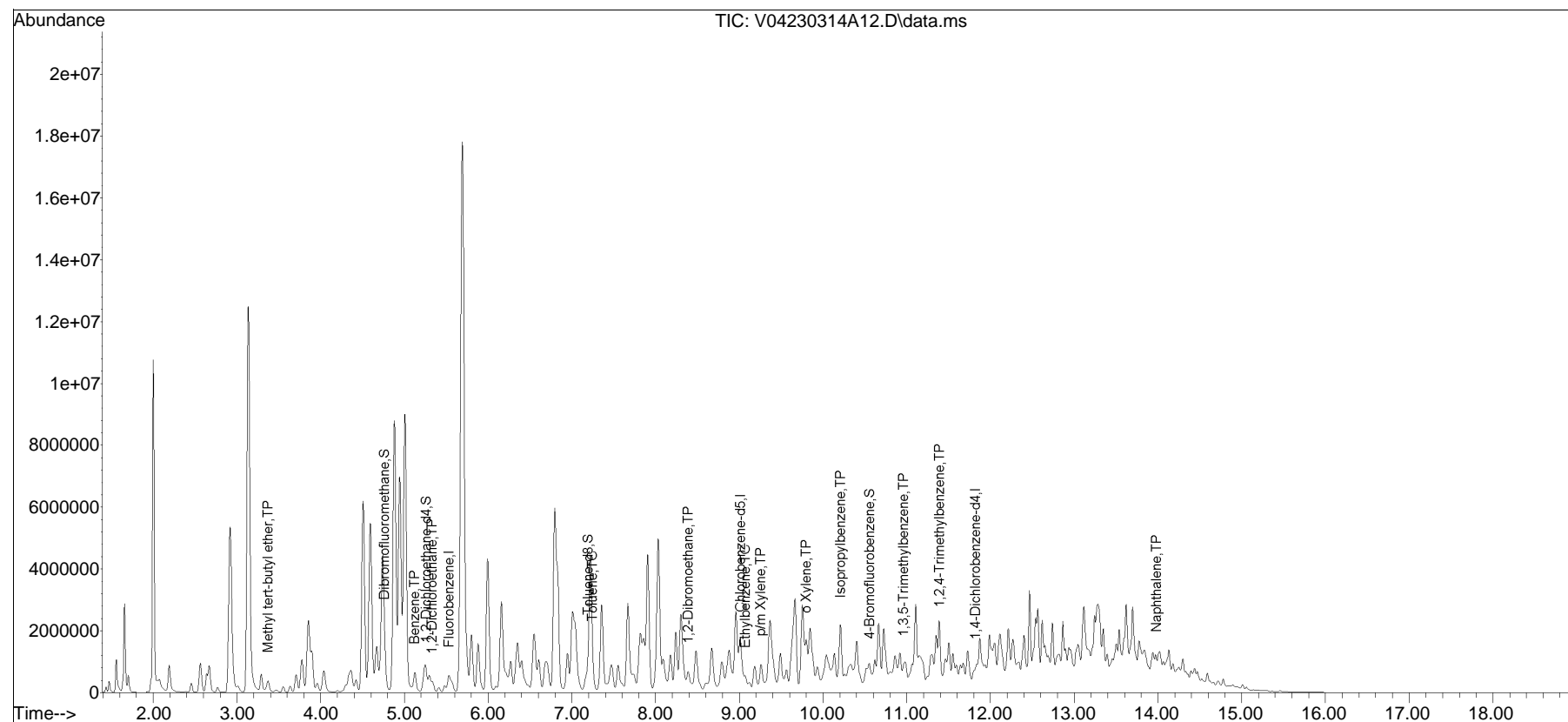


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2023\230314A\
Data File : V04230314A12.D
Acq On : 14 Mar 2023 11:59 am
Operator : VOA104:JIC
Sample : WG1753932-7,31,5.01,5,,C2
Misc : WG1753932,ICAL19666
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 14 12:22:03 2023
Quant Method : I:\VOLATILES\VOA104\2023\230314A\V104_230118A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Jan 19 14:20:58 2023
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V04230314A01.D•

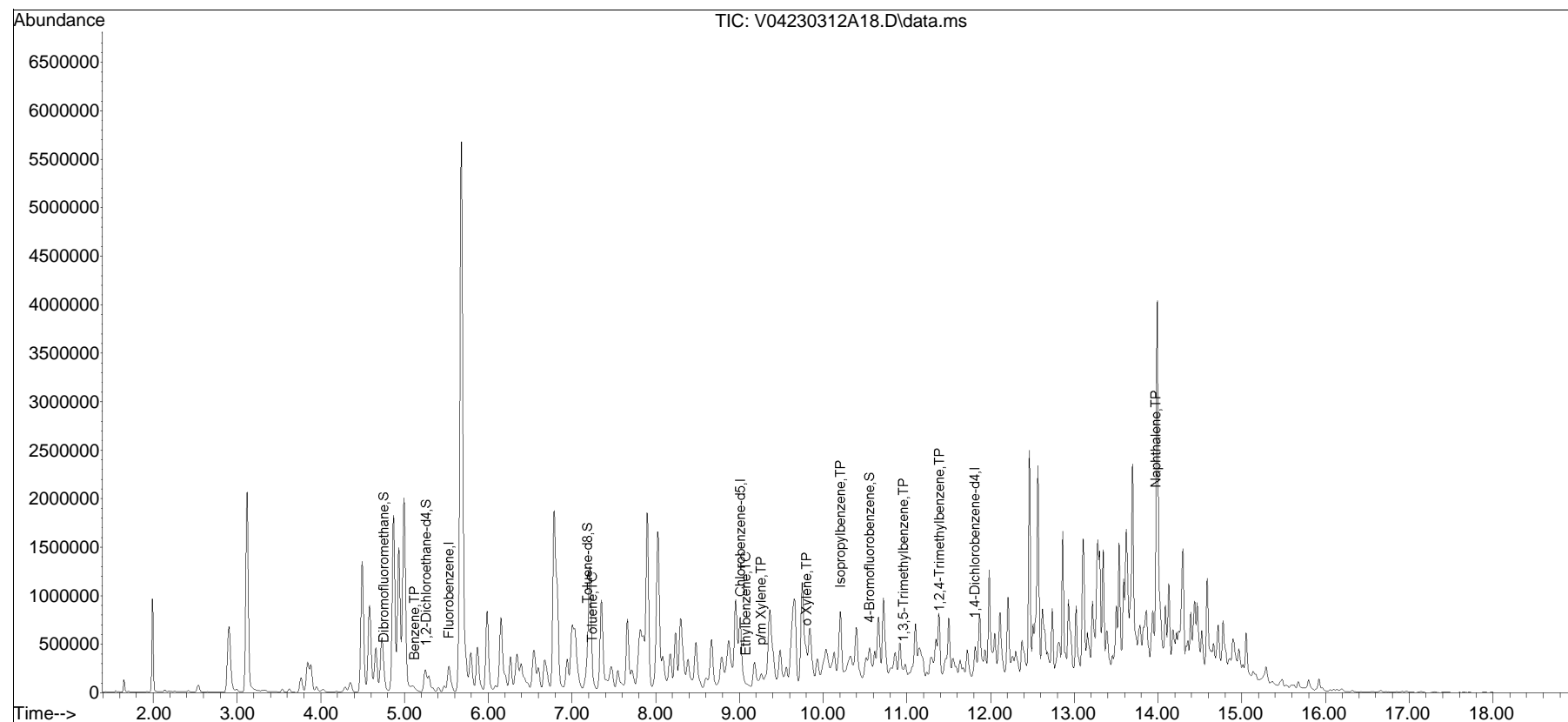


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2023\230312A\
Data File : V04230312A18.D
Acq On : 12 Mar 2023 5:48 pm
Operator : VOA104:JIC
Sample : L2311870-09,31H,4.42,5,0.100,,A
Misc : WG1754109,ICAL19666
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Mar 13 10:43:37 2023
Quant Method : I:\VOLATILES\VOA104\2023\230312A\V104_230118A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Jan 19 14:20:58 2023
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12A\V04230312A01.D•

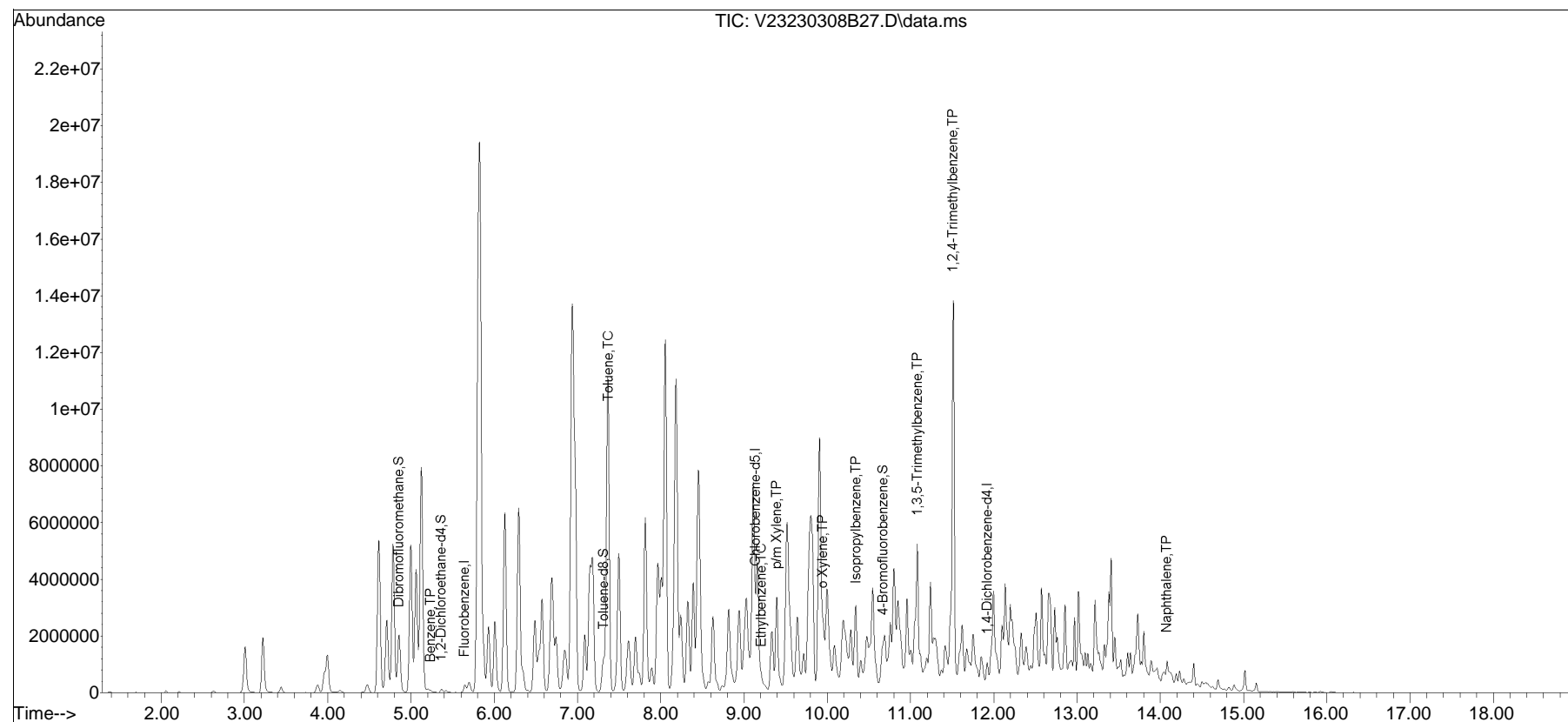


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2023\230308B\
Data File : V23230308B27.D
Acq On : 09 Mar 2023 01:53 am
Operator : VOA123:JIC
Sample : L2311870-10,31H,4.74,5,0.100,,A
Misc : WG1752868,ICAL19503
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Mar 09 09:17:12 2023
Quant Method : I:\VOLATILES\VOA123\2023\230308B\V123_221117A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Nov 18 09:41:43 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list08B\V23230308B01.D•

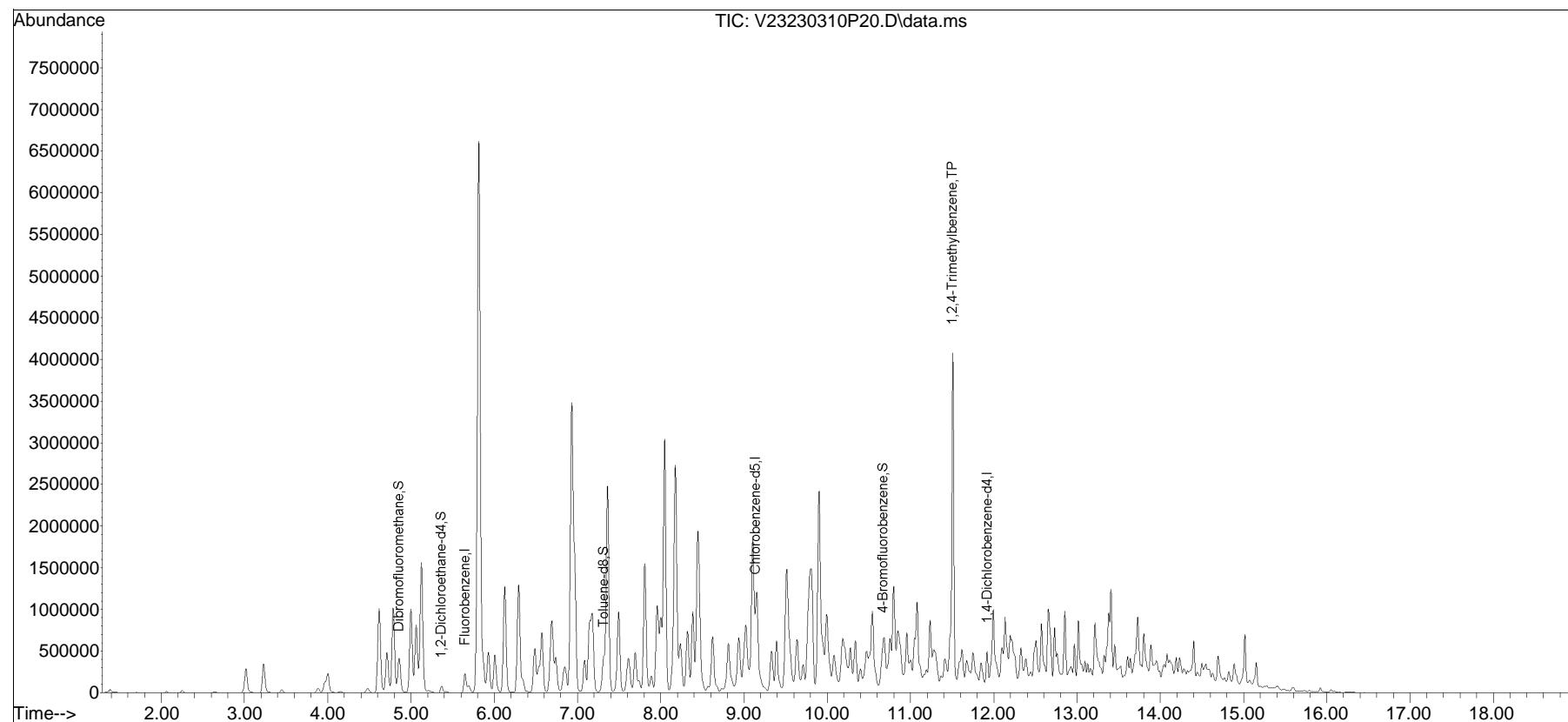


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2023\230310P\
Data File : V23230310P20.D
Acq On : 11 Mar 2023 12:36 am
Operator : VOA123:AJK
Sample : L2311870-10D,31H,4.74,5,0.02,,A
Misc : WG1754382,ICAL19503
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Mar 13 12:00:18 2023
Quant Method : I:\VOLATILES\VOA123\2023\230310P\V123_221117A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Nov 18 09:41:43 2022
Response via : Initial Calibration

Sub List : 8260-1,2,4-TMB - 1,2,4-Trimethylbenzene only10P01.D•

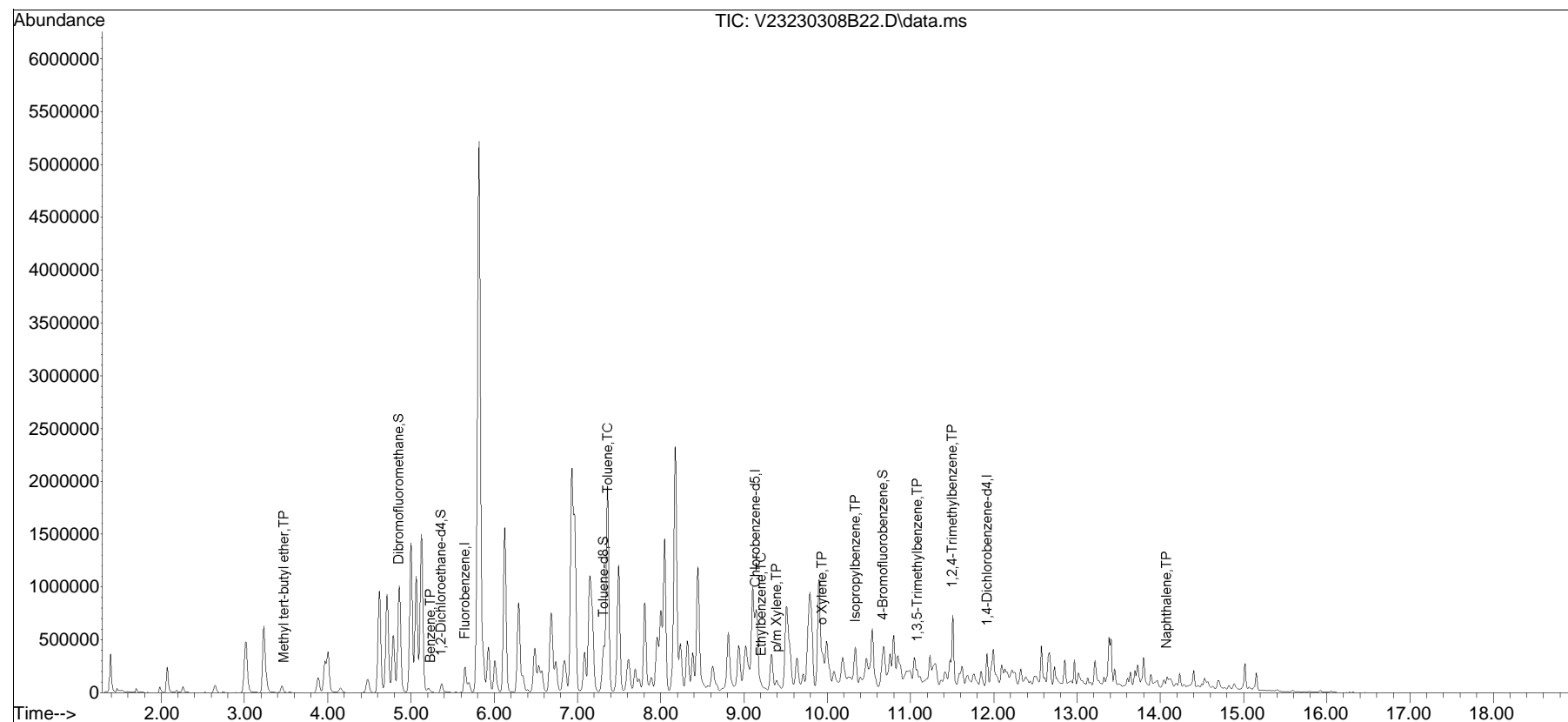


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2023\230308B\
Data File : V23230308B22.D
Acq On : 08 Mar 2023 11:43 pm
Operator : VOA123:JIC
Sample : L2311870-11,31,5.95,5,,C
Misc : WG1752863,ICAL19503
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Mar 09 09:14:26 2023
Quant Method : I:\VOLATILES\VOA123\2023\230308B\V123_221117A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Nov 18 09:41:43 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list08B\V23230308B01.D•



V123_221117A_8260.m Thu Mar 09 12:12:48 2023

Page: 2



ANALYTICAL REPORT

Lab Number:	L2355885
Client:	Terraphase Engineering Inc. 1100 East Hector Street Suite 400 Conshohocken, PA 19428
ATTN:	Alexander Strohl
Phone:	(215) 297-3502
Project Name:	PESRM NO. 4 SEPARATOR
Project Number:	P044.001.012
Report Date:	10/03/23

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0826), IL (200077), IN (C-MA-03), KY (KY98045), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), OH (CL108), OR (MA-1316), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #525-23-122-91930).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2355885
Report Date: 10/03/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2355885-01	SEP4-SB21-1.5-2.0	SOIL	3144 W. PASSYUNK AVE.	09/22/23 08:40	09/22/23
L2355885-02	SEP4-SB20-0.0-0.5	SOIL	3144 W. PASSYUNK AVE.	09/22/23 09:05	09/22/23
L2355885-03	SEP4-SB22-0.5-1.0	SOIL	3144 W. PASSYUNK AVE.	09/22/23 09:20	09/22/23
L2355885-04	SEP4-SB22-0.5-1.0D	SOIL	3144 W. PASSYUNK AVE.	09/22/23 09:20	09/22/23
L2355885-05	SEP4-SB23-0.67-1.17	SOIL	3144 W. PASSYUNK AVE.	09/22/23 09:45	09/22/23
L2355885-06	SEP4-SB24-1.0-1.5	SOIL	3144 W. PASSYUNK AVE.	09/22/23 10:00	09/22/23
L2355885-07	SEP4-SB25-1.0-1.5	SOIL	3144 W. PASSYUNK AVE.	09/22/23 10:15	09/22/23
L2355885-08	SEP4-SB26-0.5-1.0	SOIL	3144 W. PASSYUNK AVE.	09/22/23 10:30	09/22/23
L2355885-09	SEP4-SB27-1.0-1.5	SOIL	3144 W. PASSYUNK AVE.	09/22/23 10:50	09/22/23
L2355885-10	FB-230922	WATER	3144 W. PASSYUNK AVE.	09/22/23 11:05	09/22/23
L2355885-11	TB-230922	WATER	3144 W. PASSYUNK AVE.	09/22/23 11:20	09/22/23

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2355885
Report Date: 10/03/23

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 NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2355885
Report Date: 10/03/23

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

L2355885-10: Sample containers for the Microextractables analysis were received for the "FB-230922" sample, but were not listed on the chain of custody. At the client's request, the analysis was performed.

L2355885-11: Sample containers for the Microextractables analysis were received for the "TB-230922" sample, but were not listed on the chain of custody. At the client's request, the analysis was performed.

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: 10/03/23

ORGANICS

VOLATILES

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-01
 Client ID: SEP4-SB21-1.5-2.0
 Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/22/23 08:40
 Date Received: 09/22/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 09/28/23 15:07
 Analyst: SLS/A
 Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00056	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.0038		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.00040	J	mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.0010	J	mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	88		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	103		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-02
 Client ID: SEP4-SB20-0.0-0.5
 Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/22/23 09:05
 Date Received: 09/22/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 09/28/23 15:28
 Analyst: SLS/A
 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	0.0024	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	0.00028	J	mg/kg	0.0012	0.00017	1
p/m-Xylene	0.00098	J	mg/kg	0.0024	0.00067	1
o-Xylene	0.00038	J	mg/kg	0.0012	0.00035	1
Xylenes, Total	0.0014	J	mg/kg	0.0012	0.00035	1
Isopropylbenzene	0.0049		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.00042	J	mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	0.0011	J	mg/kg	0.0024	0.00040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	98		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-03
 Client ID: SEP4-SB22-0.5-1.0
 Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/22/23 09:20
 Date Received: 09/22/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 09/28/23 15:49
 Analyst: SLS/A
 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	0.0027	0.00027	1
Benzene	ND		mg/kg	0.00067	0.00022	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00034	1
Toluene	ND		mg/kg	0.0013	0.00072	1
1,2-Dibromoethane	ND		mg/kg	0.00067	0.00039	1
Ethylbenzene	ND		mg/kg	0.0013	0.00019	1
p/m-Xylene	ND		mg/kg	0.0027	0.00075	1
o-Xylene	ND		mg/kg	0.0013	0.00039	1
Xylenes, Total	ND		mg/kg	0.0013	0.00039	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0027	0.00026	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0027	0.00044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-04
 Client ID: SEP4-SB22-0.5-1.0D
 Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/22/23 09:20
 Date Received: 09/22/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 09/28/23 16:10
 Analyst: SLS/A
 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	0.0026	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	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	112		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	105		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-05
 Client ID: SEP4-SB23-0.67-1.17
 Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/22/23 09:45
 Date Received: 09/22/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 09/28/23 16:30
 Analyst: SLS/A
 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	0.0029	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	0.00078	1
1,2-Dibromoethane	ND		mg/kg	0.00072	0.00042	1
Ethylbenzene	0.0035		mg/kg	0.0014	0.00020	1
p/m-Xylene	0.013		mg/kg	0.0029	0.00081	1
o-Xylene	0.0040		mg/kg	0.0014	0.00042	1
Xylenes, Total	0.017		mg/kg	0.0014	0.00042	1
Isopropylbenzene	0.00055	J	mg/kg	0.0014	0.00016	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0029	0.00028	1
1,2,4-Trimethylbenzene	0.00052	J	mg/kg	0.0029	0.00048	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	112		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-06
 Client ID: SEP4-SB24-1.0-1.5
 Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/22/23 10:00
 Date Received: 09/22/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 09/28/23 16:51
 Analyst: SLS/A
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00021	1
Benzene	ND		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	0.0081		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.025		mg/kg	0.0020	0.00057	1
o-Xylene	0.0082		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.033		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.00039	J	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	112		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	100		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-07
 Client ID: SEP4-SB25-1.0-1.5
 Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/22/23 10:15
 Date Received: 09/22/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 09/28/23 17:12
 Analyst: SLS/A
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	ND		mg/kg	0.00058	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00030	1
Toluene	ND		mg/kg	0.0012	0.00062	1
1,2-Dibromoethane	ND		mg/kg	0.00058	0.00034	1
Ethylbenzene	0.00086	J	mg/kg	0.0012	0.00016	1
p/m-Xylene	0.0027		mg/kg	0.0023	0.00064	1
o-Xylene	0.00073	J	mg/kg	0.0012	0.00034	1
Xylenes, Total	0.0034	J	mg/kg	0.0012	0.00034	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	104		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-08
 Client ID: SEP4-SB26-0.5-1.0
 Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/22/23 10:30
 Date Received: 09/22/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 09/28/23 17:32
 Analyst: SLS/A
 Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0017	0.00017	1
Benzene	ND		mg/kg	0.00042	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00083	0.00021	1
Toluene	ND		mg/kg	0.00083	0.00045	1
1,2-Dibromoethane	ND		mg/kg	0.00042	0.00024	1
Ethylbenzene	0.0025		mg/kg	0.00083	0.00012	1
p/m-Xylene	0.0083		mg/kg	0.0017	0.00047	1
o-Xylene	0.0026		mg/kg	0.00083	0.00024	1
Xylenes, Total	0.011		mg/kg	0.00083	0.00024	1
Isopropylbenzene	ND		mg/kg	0.00083	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0017	0.00016	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0017	0.00028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	111		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-09
 Client ID: SEP4-SB27-1.0-1.5
 Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/22/23 10:50
 Date Received: 09/22/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8260D
 Analytical Date: 09/28/23 17:53
 Analyst: SLS/A
 Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00053	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00027	1
Toluene	ND		mg/kg	0.0010	0.00058	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	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	88		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	110		70-130

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2355885
Report Date: 10/03/23

SAMPLE RESULTS

Lab ID: L2355885-10
Client ID: FB-230922
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/22/23 11:05
Date Received: 09/22/23
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 09/28/23 13:18
Analyst: JKH

Extraction Method: EPA 8011
Extraction Date: 09/28/23 11:08

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: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-10
 Client ID: FB-230922
 Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/22/23 11:05
 Date Received: 09/22/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 10/02/23 11:26
 Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	109		70-130

Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2355885**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-11
Client ID: TB-230922
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/22/23 11:20
Date Received: 09/22/23
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8011
Analytical Date: 09/28/23 13:26
Analyst: JKH

Extraction Method: EPA 8011
Extraction Date: 09/28/23 11:08

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: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2355885
Report Date: 10/03/23

SAMPLE RESULTS

Lab ID: L2355885-11
Client ID: TB-230922
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/22/23 11:20
Date Received: 09/22/23
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 10/02/23 11:52
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	108		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**Method Blank Analysis**
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 09/28/23 12:37
Analyst: JKH

Extraction Method: EPA 8011
Extraction Date: 09/28/23 11:08

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 10-11 Batch: WG1833084-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2355885
Report Date: 10/03/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260D
 Analytical Date: 09/28/23 12:01
 Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-09 Batch: WG1834305-5					
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	112		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	109		70-130

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260D
 Analytical Date: 10/02/23 09:19
 Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 10-11 Batch: WG1835073-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	106		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Lab Number: L2355885

Project Number: P044.001.012

Report Date: 10/03/23

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	<i>Column</i>
Microextractables by GC - Westborough Lab Associated sample(s): 10-11 Batch: WG1833084-2									
1,2-Dibromoethane	103		-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2355885

Report Date: 10/03/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-09 Batch: WG1834305-3 WG1834305-4								
Methyl tert butyl ether	97		97		66-130	0		30
Benzene	96		93		70-130	3		30
1,2-Dichloroethane	96		94		70-130	2		30
Toluene	93		91		70-130	2		30
1,2-Dibromoethane	103		103		70-130	0		30
Ethylbenzene	93		93		70-130	0		30
p/m-Xylene	100		98		70-130	2		30
o-Xylene	98		96		70-130	2		30
Isopropylbenzene	86		87		70-130	1		30
1,3,5-Trimethylbenzene	92		92		70-130	0		30
1,2,4-Trimethylbenzene	92		90		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	92		96		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	88		88		70-130
Dibromofluoromethane	104		97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2355885

Report Date: 10/03/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 10-11 Batch: WG1835073-3 WG1835073-4								
Methyl tert butyl ether	100		100		63-130	0		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	100		100		70-130	0		20
Toluene	110		110		70-130	0		20
1,2-Dibromoethane	110		100		70-130	10		20
Ethylbenzene	110		110		70-130	0		20
p/m-Xylene	110		105		70-130	5		20
o-Xylene	105		105		70-130	0		20
Isopropylbenzene	110		110		70-130	0		20
1,3,5-Trimethylbenzene	110		110		64-130	0		20
1,2,4-Trimethylbenzene	110		110		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	106		105		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	105		106		70-130
Dibromofluoromethane	95		95		70-130

SEMIVOLATILES

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2355885
Report Date: 10/03/23

SAMPLE RESULTS

Lab ID: L2355885-01
Client ID: SEP4-SB21-1.5-2.0
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/22/23 08:40
Date Received: 09/22/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 09/27/23 04:09
Analyst: IM
Percent Solids: 92%

Extraction Method: EPA 3546
Extraction Date: 09/25/23 17:33

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.030	J	mg/kg	0.036	0.022	1
Fluorene	ND		mg/kg	0.18	0.017	1
Phenanthrene	0.048	J	mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.035	1
Pyrene	0.10	J	mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.090	J	mg/kg	0.11	0.020	1
Chrysene	0.090	J	mg/kg	0.11	0.018	1
Benzo(b)fluoranthene	0.11		mg/kg	0.11	0.030	1
Benzo(a)pyrene	0.098	J	mg/kg	0.14	0.044	1
Benzo(ghi)perylene	0.058	J	mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	88		23-120
2-Fluorobiphenyl	97		30-120
4-Terphenyl-d14	87		18-120

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2355885
Report Date: 10/03/23

SAMPLE RESULTS

Lab ID: L2355885-02
Client ID: SEP4-SB20-0.0-0.5
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/22/23 09:05
Date Received: 09/22/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 09/27/23 08:36
Analyst: IM
Percent Solids: 81%

Extraction Method: EPA 3546
Extraction Date: 09/25/23 17:33

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.20		mg/kg	0.040	0.024	1
Fluorene	0.032	J	mg/kg	0.20	0.020	1
Phenanthrene	0.27		mg/kg	0.12	0.024	1
Anthracene	0.10	J	mg/kg	0.12	0.039	1
Pyrene	0.68		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.53		mg/kg	0.12	0.023	1
Chrysene	0.52		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	0.63		mg/kg	0.12	0.034	1
Benzo(a)pyrene	0.52		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	0.31		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	100		23-120
2-Fluorobiphenyl	104		30-120
4-Terphenyl-d14	93		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-03
 Client ID: SEP4-SB22-0.5-1.0
 Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/22/23 09:20
 Date Received: 09/22/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 09/27/23 06:34
 Analyst: IM
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 09/25/23 17:33

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.17		mg/kg	0.040	0.025	1
Fluorene	0.047	J	mg/kg	0.20	0.020	1
Phenanthrene	0.48		mg/kg	0.12	0.025	1
Anthracene	0.12		mg/kg	0.12	0.040	1
Pyrene	0.63		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.33		mg/kg	0.12	0.023	1
Chrysene	0.35		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	0.46		mg/kg	0.12	0.034	1
Benzo(a)pyrene	0.36		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	0.25		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	80		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	74		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-04
 Client ID: SEP4-SB22-0.5-1.0D
 Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/22/23 09:20
 Date Received: 09/22/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 09/27/23 06:59
 Analyst: IM
 Percent Solids: 75%

Extraction Method: EPA 3546
 Extraction Date: 09/25/23 17:33

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.17		mg/kg	0.043	0.026	1
Fluorene	ND		mg/kg	0.21	0.021	1
Phenanthrene	0.15		mg/kg	0.13	0.026	1
Anthracene	0.054	J	mg/kg	0.13	0.042	1
Pyrene	0.23		mg/kg	0.13	0.021	1
Benzo(a)anthracene	0.14		mg/kg	0.13	0.024	1
Chrysene	0.16		mg/kg	0.13	0.022	1
Benzo(b)fluoranthene	0.19		mg/kg	0.13	0.036	1
Benzo(a)pyrene	0.14	J	mg/kg	0.17	0.052	1
Benzo(ghi)perylene	0.16	J	mg/kg	0.17	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	89		23-120
2-Fluorobiphenyl	95		30-120
4-Terphenyl-d14	86		18-120

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2355885
Report Date: 10/03/23

SAMPLE RESULTS

Lab ID: L2355885-05
Client ID: SEP4-SB23-0.67-1.17
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/22/23 09:45
Date Received: 09/22/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 09/27/23 08:12
Analyst: IM
Percent Solids: 83%

Extraction Method: EPA 3546
Extraction Date: 09/25/23 17:33

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.3		mg/kg	0.040	0.024	1
Fluorene	0.70		mg/kg	0.20	0.020	1
Phenanthrene	1.3		mg/kg	0.12	0.024	1
Anthracene	0.47		mg/kg	0.12	0.039	1
Pyrene	1.2		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.72		mg/kg	0.12	0.023	1
Chrysene	0.84		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	0.66		mg/kg	0.12	0.034	1
Benzo(a)pyrene	0.64		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	0.42		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	109		23-120
2-Fluorobiphenyl	94		30-120
4-Terphenyl-d14	74		18-120

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2355885
Report Date: 10/03/23

SAMPLE RESULTS

Lab ID: L2355885-06
Client ID: SEP4-SB24-1.0-1.5
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/22/23 10:00
Date Received: 09/22/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 09/27/23 08:59
Analyst: IM
Percent Solids: 84%

Extraction Method: EPA 3546
Extraction Date: 09/25/23 17:33

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.039	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	0.045	J	mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	0.17		mg/kg	0.12	0.019	1
Benzo(a)anthracene	0.086	J	mg/kg	0.12	0.022	1
Chrysene	0.12		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	0.086	J	mg/kg	0.12	0.033	1
Benzo(a)pyrene	0.068	J	mg/kg	0.16	0.048	1
Benzo(ghi)perylene	0.050	J	mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	81		23-120
2-Fluorobiphenyl	91		30-120
4-Terphenyl-d14	82		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-07
 Client ID: SEP4-SB25-1.0-1.5
 Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/22/23 10:15
 Date Received: 09/22/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 09/27/23 05:46
 Analyst: IM
 Percent Solids: 91%

Extraction Method: EPA 3546
 Extraction Date: 09/25/23 17:33

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.038		mg/kg	0.036	0.022	1
Fluorene	ND		mg/kg	0.18	0.017	1
Phenanthrene	0.038	J	mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.035	1
Pyrene	0.081	J	mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.055	J	mg/kg	0.11	0.020	1
Chrysene	0.064	J	mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.081	J	mg/kg	0.11	0.030	1
Benzo(a)pyrene	0.062	J	mg/kg	0.14	0.044	1
Benzo(ghi)perylene	0.053	J	mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	89		23-120
2-Fluorobiphenyl	97		30-120
4-Terphenyl-d14	94		18-120

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2355885
Report Date: 10/03/23

SAMPLE RESULTS

Lab ID: L2355885-08
Client ID: SEP4-SB26-0.5-1.0
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/22/23 10:30
Date Received: 09/22/23
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 09/27/23 04:33
Analyst: IM
Percent Solids: 94%

Extraction Method: EPA 3546
Extraction Date: 09/25/23 17:33

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.034	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.019	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	87		23-120
2-Fluorobiphenyl	94		30-120
4-Terphenyl-d14	90		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-09
 Client ID: SEP4-SB27-1.0-1.5
 Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/22/23 10:50
 Date Received: 09/22/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 1,8270E
 Analytical Date: 09/27/23 06:10
 Analyst: IM
 Percent Solids: 94%

Extraction Method: EPA 3546
 Extraction Date: 09/25/23 17:33

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.12		mg/kg	0.035	0.021	1
Fluorene	0.018	J	mg/kg	0.18	0.017	1
Phenanthrene	0.19		mg/kg	0.10	0.021	1
Anthracene	0.078	J	mg/kg	0.10	0.034	1
Pyrene	0.64		mg/kg	0.10	0.017	1
Benzo(a)anthracene	0.49		mg/kg	0.10	0.020	1
Chrysene	0.43		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	0.53		mg/kg	0.10	0.029	1
Benzo(a)pyrene	0.44		mg/kg	0.14	0.043	1
Benzo(ghi)perylene	0.23		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	102		23-120
2-Fluorobiphenyl	107		30-120
4-Terphenyl-d14	97		18-120

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2355885
Report Date: 10/03/23

SAMPLE RESULTS

Lab ID: L2355885-10
Client ID: FB-230922
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/22/23 11:05
Date Received: 09/22/23
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270E-SIM
Analytical Date: 09/29/23 16:56
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 09/29/23 04:13

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	68		15-120
4-Terphenyl-d14	74		41-149

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270E
 Analytical Date: 09/26/23 23:55
 Analyst: MG

Extraction Method: EPA 3546
 Extraction Date: 09/25/23 17:33

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-09 Batch: WG1831779-1					
Naphthalene	ND		mg/kg	0.033	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.099	0.020
Anthracene	ND		mg/kg	0.099	0.032
Pyrene	ND		mg/kg	0.099	0.016
Benzo(a)anthracene	ND		mg/kg	0.099	0.018
Chrysene	ND		mg/kg	0.099	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.099	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	64		30-120
4-Terphenyl-d14	73		18-120

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270E-SIM
 Analytical Date: 09/29/23 16:23
 Analyst: RP

Extraction Method: EPA 3510C
 Extraction Date: 09/29/23 04:13

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 10 Batch: WG1833501-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	70		15-120
4-Terphenyl-d14	77		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2355885

Report Date: 10/03/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-09 Batch: WG1831779-2 WG1831779-3								
Naphthalene	80		74		40-140	8		50
Fluorene	80		73		40-140	9		50
Phenanthrene	84		79		40-140	6		50
Anthracene	84		79		40-140	6		50
Pyrene	80		75		35-142	6		50
Benzo(a)anthracene	82		77		40-140	6		50
Chrysene	85		80		40-140	6		50
Benzo(b)fluoranthene	83		77		40-140	8		50
Benzo(a)pyrene	87		81		40-140	7		50
Benzo(ghi)perylene	85		81		40-140	5		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	82		74		23-120
2-Fluorobiphenyl	74		70		30-120
4-Terphenyl-d14	82		77		18-120

Lab Control Sample Analysis **Batch Quality Control**

Project Name: PESRM NO. 4 SEPARATOR

Lab Number: L2355885

Project Number: P044.001.012

Report Date: 10/03/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 10 Batch: WG1833501-2 WG1833501-3								
Naphthalene	71		67		40-140	6		40
Fluorene	77		71		40-140	8		40
Phenanthrene	77		74		40-140	4		40
Anthracene	82		77		40-140	6		40
Pyrene	76		71		26-127	7		40
Benzo(a)anthracene	76		71		40-140	7		40
Chrysene	78		74		40-140	5		40
Benzo(b)fluoranthene	80		82		40-140	2		40
Benzo(a)pyrene	85		80		40-140	6		40
Benzo(ghi)perylene	84		80		40-140	5		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	81		75		23-120
2-Fluorobiphenyl	71		66		15-120
4-Terphenyl-d14	74		68		41-149

METALS

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-01

Date Collected: 09/22/23 08:40

Client ID: SEP4-SB21-1.5-2.0

Date Received: 09/22/23

Sample Location: 3144 W. PASSYUNK AVE.

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.86		mg/kg	2.09	0.112	1	09/26/23 21:55	09/27/23 09:52	EPA 3050B	1,6010D	DHL



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-02

Date Collected: 09/22/23 09:05

Client ID: SEP4-SB20-0.0-0.5

Date Received: 09/22/23

Sample Location: 3144 W. PASSYUNK AVE.

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	38.3		mg/kg	2.32	0.124	1	09/26/23 21:55	09/27/23 11:10	EPA 3050B	1,6010D	DHL



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-03

Date Collected: 09/22/23 09:20

Client ID: SEP4-SB22-0.5-1.0

Date Received: 09/22/23

Sample Location: 3144 W. PASSYUNK AVE.

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	69.6		mg/kg	2.41	0.129	1	09/26/23 21:55	09/27/23 11:15	EPA 3050B	1,6010D	DHL



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-04

Date Collected: 09/22/23 09:20

Client ID: SEP4-SB22-0.5-1.0D

Date Received: 09/22/23

Sample Location: 3144 W. PASSYUNK AVE.

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	150		mg/kg	2.56	0.137	1	09/26/23 21:55	09/27/23 09:48	EPA 3050B	1,6010D	DHL



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-05

Date Collected: 09/22/23 09:45

Client ID: SEP4-SB23-0.67-1.17

Date Received: 09/22/23

Sample Location: 3144 W. PASSYUNK AVE.

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	216		mg/kg	2.37	0.127	1	09/26/23 21:55	09/27/23 11:20	EPA 3050B	1,6010D	DHL



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-06

Date Collected: 09/22/23 10:00

Client ID: SEP4-SB24-1.0-1.5

Date Received: 09/22/23

Sample Location: 3144 W. PASSYUNK AVE.

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	64.0		mg/kg	2.30	0.124	1	09/26/23 21:55	09/27/23 11:25	EPA 3050B	1,6010D	DHL



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-07

Date Collected: 09/22/23 10:15

Client ID: SEP4-SB25-1.0-1.5

Date Received: 09/22/23

Sample Location: 3144 W. PASSYUNK AVE.

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	64.2		mg/kg	2.11	0.113	1	09/26/23 21:55	09/27/23 11:29	EPA 3050B	1,6010D	DHL



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-08

Date Collected: 09/22/23 10:30

Client ID: SEP4-SB26-0.5-1.0

Date Received: 09/22/23

Sample Location: 3144 W. PASSYUNK AVE.

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	53.3		mg/kg	2.09	0.112	1	09/26/23 21:55	09/27/23 11:34	EPA 3050B	1,6010D	DHL



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-09

Date Collected: 09/22/23 10:50

Client ID: SEP4-SB27-1.0-1.5

Date Received: 09/22/23

Sample Location: 3144 W. PASSYUNK AVE.

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	236		mg/kg	2.12	0.113	1	09/26/23 21:55	09/27/23 11:39	EPA 3050B	1,6010D	DHL



Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**SAMPLE RESULTS**

Lab ID: L2355885-10

Date Collected: 09/22/23 11:05

Client ID: FB-230922

Date Received: 09/22/23

Sample Location: 3144 W. PASSYUNK AVE.

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	10.0	2.70	1	10/03/23 01:09	10/03/23 10:51	EPA 3005A	1,6010D	DMB



Project Name: PESRM NO. 4 SEPARATOR

Lab Number: L2355885

Project Number: P044.001.012

Report Date: 10/03/23

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): 01-09 Batch: WG1831592-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	09/26/23 21:55	09/27/23 09:39	1,6010D	DHL

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): 10 Batch: WG1833820-1										
Lead, Total	ND		ug/l	10.0	2.70	1	10/03/23 01:09	10/03/23 07:23	1,6010D	DMB

Prep Information

Digestion Method: EPA 3005A



Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2355885

Report Date: 10/03/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09 Batch: WG1831592-2 SRM Lot Number: D119-540								
Lead, Total	101		-		82-118	-		
Total Metals - Mansfield Lab Associated sample(s): 10 Batch: WG1833820-2								
Lead, Total	101		-		80-120	-		

Matrix Spike Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR
Project Number: P044.001.012

Lab Number: L2355885
Report Date: 10/03/23

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): 01-09 QC Batch ID: WG1831592-3 QC Sample: L2355885-01 Client ID: SEP4-SB21-1.5-2.0												
Lead, Total	7.86	44.5	46.7	87		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 10 QC Batch ID: WG1833820-3 QC Sample: L2355735-01 Client ID: MS Sample												
Lead, Total	ND	530	561	106		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PESRM NO. 4 SEPARATOR

Project Number: P044.001.012

Lab Number: L2355885

Report Date: 10/03/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG1831592-4 QC Sample: L2355885-01 Client ID: SEP4-SB21-1.5-2.0						
Lead, Total	7.86	8.06	mg/kg	3		20

INORGANICS & MISCELLANEOUS

Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2355885**Report Date:** 10/03/23**SAMPLE RESULTS****Lab ID:** L2355885-01**Client ID:** SEP4-SB21-1.5-2.0**Sample Location:** 3144 W. PASSYUNK AVE.**Date Collected:** 09/22/23 08:40**Date Received:** 09/22/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.3		%	0.100	NA	1	-	09/23/23 13:01	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2355885**Report Date:** 10/03/23**SAMPLE RESULTS****Lab ID:** L2355885-02**Client ID:** SEP4-SB20-0.0-0.5**Sample Location:** 3144 W. PASSYUNK AVE.**Date Collected:** 09/22/23 09:05**Date Received:** 09/22/23**Field Prep:** Not Specified**Sample 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	-	09/23/23 13:01	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2355885**Report Date:** 10/03/23**SAMPLE RESULTS****Lab ID:** L2355885-03**Client ID:** SEP4-SB22-0.5-1.0**Sample Location:** 3144 W. PASSYUNK AVE.**Date Collected:** 09/22/23 09:20**Date Received:** 09/22/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.7		%	0.100	NA	1	-	09/23/23 13:01	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2355885**Report Date:** 10/03/23**SAMPLE RESULTS****Lab ID:** L2355885-04**Client ID:** SEP4-SB22-0.5-1.0D**Sample Location:** 3144 W. PASSYUNK AVE.**Date Collected:** 09/22/23 09:20**Date Received:** 09/22/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.4		%	0.100	NA	1	-	09/23/23 13:01	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2355885**Report Date:** 10/03/23**SAMPLE RESULTS****Lab ID:** L2355885-05**Client ID:** SEP4-SB23-0.67-1.17**Sample Location:** 3144 W. PASSYUNK AVE.**Date Collected:** 09/22/23 09:45**Date Received:** 09/22/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.5		%	0.100	NA	1	-	09/23/23 13:01	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2355885**Report Date:** 10/03/23**SAMPLE RESULTS****Lab ID:** L2355885-06**Client ID:** SEP4-SB24-1.0-1.5**Sample Location:** 3144 W. PASSYUNK AVE.**Date Collected:** 09/22/23 10:00**Date Received:** 09/22/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.6		%	0.100	NA	1	-	09/23/23 13:01	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2355885**Report Date:** 10/03/23**SAMPLE RESULTS****Lab ID:** L2355885-07**Client ID:** SEP4-SB25-1.0-1.5**Sample Location:** 3144 W. PASSYUNK AVE.**Date Collected:** 09/22/23 10:15**Date Received:** 09/22/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.8		%	0.100	NA	1	-	09/23/23 13:01	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2355885**Report Date:** 10/03/23**SAMPLE RESULTS****Lab ID:** L2355885-08**Client ID:** SEP4-SB26-0.5-1.0**Sample Location:** 3144 W. PASSYUNK AVE.**Date Collected:** 09/22/23 10:30**Date Received:** 09/22/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.7		%	0.100	NA	1	-	09/23/23 13:01	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Number:** L2355885**Report Date:** 10/03/23**SAMPLE RESULTS****Lab ID:** L2355885-09**Client ID:** SEP4-SB27-1.0-1.5**Sample Location:** 3144 W. PASSYUNK AVE.**Date Collected:** 09/22/23 10:50**Date Received:** 09/22/23**Field Prep:** Not Specified**Sample Depth:****Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.6		%	0.100	NA	1	-	09/23/23 13:01	121,2540G	ROI



Project Name: PESRM NO. 4 SEPARATOR**Project Number:** P044.001.012**Lab Duplicate Analysis***Batch Quality Control***Lab Number:** L2355885**Report Date:** 10/03/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-09 QC Batch ID: WG1831074-1 QC Sample: L2355885-01 Client ID: SEP4-SB21-1.5-2.0						
Solids, Total	92.3	91.5	%	1		20

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**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(*)
L2355885-01A	Vial MeOH preserved	B	NA		4.3	Y	Absent		PA-8260HLW(14)
L2355885-01B	Vial water preserved	B	NA		4.3	Y	Absent	23-SEP-23 03:17	PA-8260HLW(14)
L2355885-01C	Vial water preserved	B	NA		4.3	Y	Absent	23-SEP-23 03:17	PA-8260HLW(14)
L2355885-01D	Plastic 120ml unpreserved	B	NA		4.3	Y	Absent		TS(7)
L2355885-01E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.3	Y	Absent		PB-TI(180)
L2355885-01F	Glass 120ml/4oz unpreserved	B	NA		4.3	Y	Absent		PA-PAH(14)
L2355885-02A	Vial MeOH preserved	B	NA		4.3	Y	Absent		PA-8260HLW(14)
L2355885-02B	Vial water preserved	B	NA		4.3	Y	Absent	23-SEP-23 03:17	PA-8260HLW(14)
L2355885-02C	Vial water preserved	B	NA		4.3	Y	Absent	23-SEP-23 03:17	PA-8260HLW(14)
L2355885-02D	Plastic 120ml unpreserved	B	NA		4.3	Y	Absent		TS(7)
L2355885-02E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.3	Y	Absent		PB-TI(180)
L2355885-02F	Glass 120ml/4oz unpreserved	B	NA		4.3	Y	Absent		PA-PAH(14)
L2355885-03A	Vial MeOH preserved	B	NA		4.3	Y	Absent		PA-8260HLW(14)
L2355885-03B	Vial water preserved	B	NA		4.3	Y	Absent	23-SEP-23 03:17	PA-8260HLW(14)
L2355885-03C	Vial water preserved	B	NA		4.3	Y	Absent	23-SEP-23 03:17	PA-8260HLW(14)
L2355885-03D	Plastic 120ml unpreserved	B	NA		4.3	Y	Absent		TS(7)
L2355885-03E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.3	Y	Absent		PB-TI(180)
L2355885-03F	Glass 120ml/4oz unpreserved	B	NA		4.3	Y	Absent		PA-PAH(14)
L2355885-04A	Vial MeOH preserved	B	NA		4.3	Y	Absent		PA-8260HLW(14)
L2355885-04B	Vial water preserved	B	NA		4.3	Y	Absent	23-SEP-23 03:17	PA-8260HLW(14)
L2355885-04C	Vial water preserved	B	NA		4.3	Y	Absent	23-SEP-23 03:17	PA-8260HLW(14)
L2355885-04D	Plastic 120ml unpreserved	B	NA		4.3	Y	Absent		TS(7)

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2355885-04E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.3	Y	Absent		PB-TI(180)
L2355885-04F	Glass 120ml/4oz unpreserved	B	NA		4.3	Y	Absent		PA-PAH(14)
L2355885-05A	Vial MeOH preserved	B	NA		4.3	Y	Absent		PA-8260HLW(14)
L2355885-05B	Vial water preserved	B	NA		4.3	Y	Absent	23-SEP-23 03:17	PA-8260HLW(14)
L2355885-05C	Vial water preserved	B	NA		4.3	Y	Absent	23-SEP-23 03:17	PA-8260HLW(14)
L2355885-05D	Plastic 120ml unpreserved	B	NA		4.3	Y	Absent		TS(7)
L2355885-05E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.3	Y	Absent		PB-TI(180)
L2355885-05F	Glass 120ml/4oz unpreserved	B	NA		4.3	Y	Absent		PA-PAH(14)
L2355885-06A	Vial MeOH preserved	B	NA		4.3	Y	Absent		PA-8260HLW(14)
L2355885-06B	Vial water preserved	B	NA		4.3	Y	Absent	23-SEP-23 03:17	PA-8260HLW(14)
L2355885-06C	Vial water preserved	B	NA		4.3	Y	Absent	23-SEP-23 03:17	PA-8260HLW(14)
L2355885-06D	Plastic 120ml unpreserved	B	NA		4.3	Y	Absent		TS(7)
L2355885-06E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.3	Y	Absent		PB-TI(180)
L2355885-06F	Glass 120ml/4oz unpreserved	B	NA		4.3	Y	Absent		PA-PAH(14)
L2355885-07A	Vial MeOH preserved	A	NA		4.3	Y	Absent		PA-8260HLW(14)
L2355885-07B	Vial water preserved	A	NA		4.3	Y	Absent	23-SEP-23 03:17	PA-8260HLW(14)
L2355885-07C	Vial water preserved	A	NA		4.3	Y	Absent	23-SEP-23 03:17	PA-8260HLW(14)
L2355885-07D	Plastic 120ml unpreserved	A	NA		4.3	Y	Absent		TS(7)
L2355885-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.3	Y	Absent		PB-TI(180)
L2355885-07F	Glass 120ml/4oz unpreserved	A	NA		4.3	Y	Absent		PA-PAH(14)
L2355885-08A	Vial MeOH preserved	A	NA		4.3	Y	Absent		PA-8260HLW(14)
L2355885-08B	Vial water preserved	A	NA		4.3	Y	Absent	23-SEP-23 03:17	PA-8260HLW(14)
L2355885-08C	Vial water preserved	A	NA		4.3	Y	Absent	23-SEP-23 03:17	PA-8260HLW(14)
L2355885-08D	Plastic 120ml unpreserved	A	NA		4.3	Y	Absent		TS(7)
L2355885-08E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.3	Y	Absent		PB-TI(180)
L2355885-08F	Glass 120ml/4oz unpreserved	A	NA		4.3	Y	Absent		PA-PAH(14)
L2355885-09A	Vial MeOH preserved	A	NA		4.3	Y	Absent		PA-8260HLW(14)
L2355885-09B	Vial water preserved	A	NA		4.3	Y	Absent	23-SEP-23 03:17	PA-8260HLW(14)

Project Name: PESRM NO. 4 SEPARATOR**Lab Number:** L2355885**Project Number:** P044.001.012**Report Date:** 10/03/23**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2355885-09C	Vial water preserved	A	NA		4.3	Y	Absent	23-SEP-23 03:17	PA-8260HLW(14)
L2355885-09D	Plastic 120ml unpreserved	A	NA		4.3	Y	Absent		TS(7)
L2355885-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.3	Y	Absent		PB-TI(180)
L2355885-09F	Glass 120ml/4oz unpreserved	A	NA		4.3	Y	Absent		PA-PAH(14)
L2355885-10A	Vial HCl preserved	A	NA		4.3	Y	Absent		PA-8260(14)
L2355885-10B	Vial HCl preserved	A	NA		4.3	Y	Absent		PA-8260(14)
L2355885-10C	Vial HCl preserved	A	NA		4.3	Y	Absent		PA-8260(14)
L2355885-10D	Plastic 250ml HNO3 preserved	A	<2	<2	4.3	Y	Absent		PB-TI-PPB(180)
L2355885-10E	Amber 250ml unpreserved	A	7	7	4.3	Y	Absent		PA-PAHSIM-LVI(7)
L2355885-10F	Amber 250ml unpreserved	A	7	7	4.3	Y	Absent		PA-PAHSIM-LVI(7)
L2355885-10G	Vial Na2S2O3 preserved	A	NA		4.3	Y	Absent		8011(14)
L2355885-10H	Vial Na2S2O3 preserved	A	NA		4.3	Y	Absent		8011(14)
L2355885-11A	Vial HCl preserved	A	NA		4.3	Y	Absent		PA-8260(14)
L2355885-11B	Vial HCl preserved	A	NA		4.3	Y	Absent		PA-8260(14)
L2355885-11C	Vial Na2S2O3 preserved	A	NA		4.3	Y	Absent		8011(14)
L2355885-11D	Vial Na2S2O3 preserved	A	NA		4.3	Y	Absent		8011(14)

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GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

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Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

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Identified Compounds (TICs). For calculated parameters, this represents that one or more values used in the calculation were estimated.

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

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Lab Number: L2355885
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REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

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Certification Information**The following analytes are not included in our Primary NELAP Scope of Accreditation:****Westborough Facility****EPA 624.1:** m/p-xylene, o-xylene, Naphthalene**EPA 625.1:** alpha-Terpineol**EPA 8260D:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 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 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, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****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, **LACHAT 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).**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522, EPA 537.1.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2



WESTBORO, MA
TEL: 508-895-9220
FAX: 508-888-9193

MANSFIELD, MA
TEL: 508-822-9300
FAX: 508-822-3286

Client Information

Client: Terraphase Engineering
Address: 1100 E. Hector St., Ste 400
Conshohocken, PA 19428
Phone: 215-297-3502 ext. 180
Fax:

Email: alexander.strohl@terrphase.com

☐ These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Terraphase Equis EDD

Please Send EDD to EDD@terrphase.com

Project Information

Project Name: PESRM - No. 4 Separator

Project Location: 3144 W. Passyunk Ave.

Project #: P044.001.012

Project Manager: Alexander Strohl

ALPHA Quote #: 23807

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved)
TEI Standard
Date Due: Time:

Date Rec'd in Lab: 9/23/23

ALPHA Job #: L2355885

Report Information - Data Deliverables

☐ FAX

☒ EMAIL

☐ ADEx

☐ Add'l Deliverables

Billing Information

☒ Same as Client info

PO #: P044.001.012

Regulatory Requirements/Report Limits

State /Fed Program

Criteria

ANALYSIS

VOCs via 8260: see list
SVOCs via 8270: see list
Lead via 6010

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 Date	Time	Sample Matrix	Sampler's Initials															
55885-01	SEP4-SB21-1.5-2.0	9/22/23	840	So	EEJ	X	X	X												
-02	SEP4-SB20-0.0-0.5		905			X	X	X												
-03	SEP4-SB22-0.5-1.0		920			X	X	X												
-04	SEP4-SB22-0.5-1.0D		920			X	X	X												
-05	SEP4-SB23-0.67-1.17		945			X	X	X												
-06	SEP4-SB24-1.0-1.5		1000			X	X	X												
-07	SEP4-SB25-1.0-1.5		1015			X	X	X												
-08	SEP4-SB26-0.5-1.0		1030			X	X	X												
-09	SEP4-SB27-1.0-1.5		1050			X	X	X												
-10	FB-230922		1105	QAQC		X	X	X												

9/23/23 0040

Container Type

Preservative

Relinquished By:

Date/Time

Received By:

Date/Time

Eliee Johnston

9/22/23 1247

AAV

9/22/23 1247

9/22/23 1400

9/22/23 1400

9/22/23 1400

9/22/23 1400

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

CHAIN OF CUSTODY

PAGE 2 OF 2



WESTBORO, MA
TEL: 508-896-9220
FAX: 508-888-9193

MANSFIELD, MA
TEL: 508-822-9300
FAX: 508-822-3288

Client Information

Client: Terraphase Engineering
Address: 1100 E. Hector St., Ste 400
Conshohocken, PA 19428
Phone: 215-297-3502 ext. 180

Fax:

Email: alexander.strohl@terrphase.com

☐ These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Terraphase Equis EDD

Please send EDD to EDD@terrphase.com

Project Information

Project Name: PESRM- No. 4 Separator
Project Location: 3144 W. Passyunk Ave.
Project #: P044.D01.012
Project Manager: Alexander Strohl
ALPHA Quote #: 23807

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved)

Date Due: 10/1 standard

Time:

Date Rec'd in Lab: 9/23/23

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

ALPHA Job #: L2355885

Billing Information

Same as Client info PO #: P044.D01.012

Regulatory Requirements/Report Limits

State /Fed Program Criteria

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

Date

Time

Sample
MatrixSampler's
Initials

ANALYSIS

VOCs via 8260-relist

SVOCs via 8270-relist

Lead via 6010

55885-11 TB-230922 9/22/23 1120 QARC EEJ X

Container Type

Preservative

Relinquished By:

Date/Time

Received By:

Date/Time

ZUIK J. Strohl

9/22/23 1247

S. Strohl

9/22/23 1247

ZUIK J. Strohl

9/22/23 1420

S. Strohl

9/22/23 1800

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

<u>VOCs</u>	<u>SVOCs</u>
Benzene	Anthracene
Cumene	Benzo(a)anthracene
1,2-Dibromoethane	Benzo(a)pyrene
1,2-Dichloroethane	Benzo(b)fluoranthene
Ethyl Benzene	Benzo(g,h,i)perylene
Methyl tert-butyl ether	Chrysene
Toluene	Fluorene
124-Trimethylbenzene	Naphthalene
135-Trimethylbenzene	Phenanthrene
Xylenes (total)	Pyrene

Appendix G

Systematic Random Sampling Grid



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Systematic Random Sampling Workbook														
2															
3	Area of Contamination (Sq. feet):	1600													
4	Depth Zone (feet):	0	1												
5	Volume of Contaminated Soil (Cubic Yards):	60													
6	Number of Soil Samples: (If you are applying														
7	75%/10X or 75%/2X rule, the spreadsheet														
8	will determine the minimum number of samples														
9	for you. Otherwise, please specify the number														
10	samples here. Limitations: The maximum														
11	number of samples per row is ten. The														
12	maximum number of rows is ten. =====>														
13	Number of Soil Samples:	8													
15	L= Cell Spacing (feet):	15.2													
16	0.866*L(feet):	13.2													
18	X _{min} (feet):	0													
19	X _{max} (feet):	82													
20	Y _{min} (feet):	0													
21	Y _{max} (feet):	22													
23	X _o (feet):	52.5													
24	Y _o (feet):	14.0													
25															
26															
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28															
29															
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41															

Go to the Summary
Page of the
Triangular Grid Node
Coordinates

Go to the Summary
Page of the
3-D Sampling Point
Coordinates

Click Here
to Generate a
New Triangular Grid

Go to the Graphic Page

Example

The diagram illustrates a triangular grid used for systematic random sampling. The grid is bounded by X_{min}, X_{max}, Y_{min}, and Y_{max}. A starting point (X_o, Y_o) is marked. A cell is highlighted, showing a sampling point within it. The cell spacing L and the vertical distance 0.866L are indicated.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U						
1	Coordinates of 3-D Systematic Random Sampling Points																										
2	Note: Sampling points that are not within the area of contamination should be discarded. You will need to generate another group of data sets if the number of valid																										
3	0th Row			1st Row			2nd Row			3rd Row			4th Row			5th Row			6th Row								
4	X_i			Y_i			Z_i			X_i			Y_i			Z_i			X_i			Y_i			Z_i		
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Back to DataInput
Page

Go to the Summary
Page of the
Triangular Grid Node
Coordinates

Go to the Graphic Page

-1st Row		
X _i	Y _i	Z _i
10.0	2.3	0.0
31.7	6.3	0.4
42.6	6.6	0.6
50.5	7.1	0.0
69.6	4.6	0.5

-2nd Row		
X _i	Y _i	Z _i

-3rd Row		
X _i	Y _i	Z _i

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1	Triangular Grid Node Coordinate Pairs																				
2																					
3			0th Row					1st Row					2nd Row					3rd Row			
4			(Xi, Yi)					(Xi, Yi)					(Xi, Yi)					(Xi, Yi)			
5																					
6																					
7																					
8																					
9																					
10																					
11			-8.3	14																	
12			6.9	14																	
13			22.1	14																	
14			37.3	14																	
15	Starting Point-----		52.5	14																	
16			67.7	14																	
17																					
18																					
19																					
20																					
21																					
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23																					
24																					
25																					
26																					
27			Back to DataInput Page					-1st Row					-2nd Row					-3rd Row			
28								(Xi, Yi)					(Xi, Yi)					(Xi, Yi)			
29																					
30																					
31																					
32																					
33																					
34																					
35								-0.7	0.8				-8.3	-12.4							
36								14.5	0.8				6.9	-12.4							
37								29.7	0.8				22.1	-12.4							
38								44.9	0.8				37.3	-12.4							
39								60.1	0.8				52.5	-12.4							
40								75.3	0.8				67.7	-12.4							
41																					
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