

# Remedial Investigation and Final Report for the 136 Naphtha Release Area (Girard Point)

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Former Philadelphia Energy Solutions Refinery Facility ID No. 51-33624  
3114 West Passyunk Avenue, Philadelphia, Pennsylvania

*Prepared for*

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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 of Interest
ASTM	American Society for Testing and Material
BDH	Bellwether District Holdings, LLC
bgs	below ground surface
COPC	constituent of potential concern
DC	direct contact
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"
the Facility	former Philadelphia Energy Solutions refinery facility
ft	foot or feet
Langan	Langan Engineering and Environmental Services, Inc.
LNAPL	light non-aqueous phase liquid
mg/kg	milligrams per kilogram
MSC	Media Specific Concentration
NIR	Notification of Intent to Remediate
Non-Res	non-residential
PADEP	Pennsylvania Department of Environmental Protection
PESRM	Philadelphia Energy Solutions Refining & Marketing LLC
PID	photoionization detector
PAH	polycyclic aromatic hydrocarbon
RI	remedial investigation
RIR	Remedial Investigation Report
RI/Final Report	<i>Remedial Investigation and Final Report – 136 Naphtha Release Area</i>
RL	reporting limit
SHS	Statewide Health Standard
the Site	136 Naphtha Release Area located within the former Philadelphia Energy Solutions Refinery facility
SGW	soil-to-groundwater
SVOC	semivolatile organic compounds
Terraphase	Terraphase Engineering Inc.
TDS	total dissolved solids
VISL	vapor intrusion screening level
VOC	volatile organic compounds



USEPA            United States Environmental Protection Agency

## 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.*

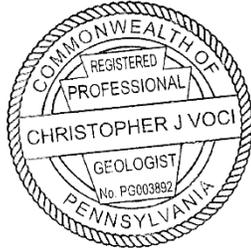
I hereby attest that, as a Professional Geologist licensed in the Commonwealth of Pennsylvania, I am familiar with, and have reviewed and/or prepared the interpretation of the geology and hydrogeology presented in the attached report entitled, *Remedial Investigation and Final Report for the 136 Naphtha Release Area (Girard Point), Former Philadelphia Energy Solutions Refinery, 3144 West Passyunk Avenue, Philadelphia, Pennsylvania*, dated April 17, 2025.

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



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Christopher Voci, PG  
Senior Principal Geologist



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April 17, 2025

Date

## Executive Summary

Terraphase Engineering Inc. (Terraphase) has prepared this *Remedial Investigation and Final Report for the 136 Naphtha Release Area (Girard Point)* (RI/Final Report), on behalf of Bellwether District Holdings, LLC (BDH) (formerly Philadelphia Energy Solutions Refining & Marketing LLC [PESRM]), to detail the results of investigation and remediation activities completed in an area where a release of light naphtha product, from aboveground piping, occurred on February 22, 2019 (the Site). 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 remediation and redevelopment. The release that is the subject of this report occurred prior to Hilco Redevelopment Partners' acquisition of PESRM in June 2020; Hilco Redevelopment Partners is now known as HRP Group. Since acquiring the Facility in June 2020, HRP Group has worked to collect documentation for activities completed prior to its acquisition and to obtain additional data to support demonstration of attainment of the Statewide Health Standard (SHS) under Pennsylvania's *Land Recycling and Environmental Remediation Standard Act (Act 2)*.

The aboveground pipeline which caused the release was associated with Refinery Unit 137, which has since been demolished as part of BDH's redevelopment of the Facility. This Unit separated raw crude oil into its desired components, including light naphtha. A Notification of Intent to Remediate (NIR) for this specific release was submitted to the Pennsylvania Department of Environmental Protection (PADEP) after HRP Group's acquisition of PESRM on June 2, 2021 (eFacts PF No. 850105) by Langan Engineering and Environmental Services, Inc. (Langan). When the release occurred in February 2019, PESRM conducted immediate interim response actions, which included the removal of liquids from the storm sewer and culvert via vacuum truck, investigation and sampling activities, excavation of soil visually impacted by the release, and post-excavation soil sampling. What complicated efforts to investigate and remediate impacts associated with this release were the identification of additional pre-existing sources of contamination in the general area. These discovered additional pre-existing sources included buried, deteriorated drums, viscous product in these drums and surrounding soil, and dark light nonaqueous phase liquid (LNAPL) seeping from beneath portions of a north-south trending concrete footer located along the eastern boundary of the area impacted by the February 2019 release.

On June 14, 2021, following the completion of response actions performed to remediate impacts associated with the February 2019 release, Langan submitted a *Combined Remedial Investigation Report/Final Report*. On August 26, 2021, in response to this submittal, PADEP issued a Letter of Technical Deficiency which requested that additional information be provided to address the identified deficiencies. The deficiencies included the discrepancy in information available on the release locations, incomplete soil and groundwater characterization, and missing documentation related to remedial activities and systematic random sampling. PADEP also requested that some items be re-evaluated for more clarity including the ecological assessment, post-excavation sample depths, and the depth of excavation.

This RI/Final Report provides a comprehensive discussion of the details surrounding the February 2019 release while also documenting the key aspects related to the remediation efforts undertaken. It

outlines the actions implemented by PESRM to remediate the release, describes the additional efforts performed by BDH to address the deficiencies identified by the PADEP, and demonstrates how the remediation efforts effectively mitigated the impacts of the February 2019 release in order to attain the SHS under Act 2. The RI/Final Report also identifies the pre-existing sources of contamination which are unrelated to the incident which were discovered during the investigation and provides details on how these separate issues are being managed and by whom.

Overall, all the requirements for attaining the SHS have been met, and as such, BDH qualifies for cleanup liability protection for conditions associated with the February 2019 136 Naphtha Area Release.



# 1 Introduction

Terraphase Engineering Inc. (Terraphase) has prepared this *Remedial Investigation and Final Report for the 136 Naphtha Release Area (Girard Point)* (RI/Final Report), on behalf of Bellwether District Holdings, LLC (BDH) (formerly Philadelphia Energy Solutions Refining & Marketing LLC [PESRM]), to detail the results of investigation and remediation in an area where a release of light naphtha product from aboveground piping associated with former Refinery Unit 137 occurred on February 22, 2022. While the aboveground piping was associated with Refinery Unit 137, the release impacted an area near former Refinery Unit 136 (the Site). The Site is located within the Former Philadelphia Energy Solutions refinery facility (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 remediation and redevelopment. The Site location is depicted on **Figure 1**. The release that is the subject of this report occurred prior to Hilco Redevelopment Partners' acquisition of PESRM in June 2020; Hilco Redevelopment Partners is now known as HRP Group. Since acquiring the Facility in June 2020, HRP Group has worked to collect documentation for activities completed prior to its acquisition and to obtain additional data to support demonstration of attainment of the Statewide Health Standard (SHS) under Pennsylvania's *Land Recycling and Environmental Remediation Standard Act (Act 2)*.

Remediation activities are being conducted at the Facility under Act 2 by both BDH and Evergreen Resources Group, LLC (Evergreen)<sup>1</sup> in accordance with the Consent Order and Agreement (CO&A) among Pennsylvania Department of Environmental Protection (PADEP), Sunoco, Inc. (R&M) n/k/a Sunoco (R&M), LLC, and PESRM dated August 14, 2012 and the 2020 First Amendment to that Agreement (2020 Amendment). In accordance with the CO&A, Sunoco/Evergreen is responsible for addressing contamination at the Facility resulting from release(s) which occurred before September 8, 2012, i.e., "Pre-Existing Contamination", and PESRM, now known as BDH, is responsible for addressing contamination at the Facility resulting from release(s) which occurred after September 8, 2012, i.e., "Post-September 2012 Contamination."

Investigation and remediation activities were performed by PESRM/BDH<sup>2</sup> to obtain a release of environmental cleanup liability in accordance with the applicable provisions of Act 2 and Title 25 Pennsylvania Code (25 Pa. Code) Chapter 250 Section 204, as administered by PADEP.

In February 2019, when Refinery Unit 137 was restarted following maintenance, approximately 53,000 gallons of light naphtha were released out of two defects in the aboveground product line. Prior to its shutdown in 2019, Refinery Unit 137 was used to separate raw crude oil into its desired components, including light naphtha. The product was released to the ground surface in the area close to former

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<sup>1</sup> 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.

<sup>2</sup> As discussed above, BDH was formerly known as PESRM. In this report, activities conducted before June 2020 will be attributed to PESRM, while those completed after this date will be attributed to BDH.



Refinery Unit 136 (**Figure 2**). The product was observed to flow to the south, parallel to the aboveground piping, and then east toward a sewer catch basin (Stantec 2020). The release was contained by topography and existing drainage features.

PESRM implemented immediate response actions including the immediate removal of liquids from the storm sewer and culvert via vacuum truck, installation of test pits which were advanced along the compromised product line, removal of water/product from the test pits, and the replacement of the damaged section of piping (Stantec 2020). A remedial investigation was subsequently performed to define the extent of the release and to determine the area over which impacted soil should be remediated. During the course of these efforts, pre-existing sources of contamination in the area were discovered including in the footprint of the February 2019 release. This included buried deteriorated drums, viscous product in these drums and surrounding soil, and dark LNAPL seeping from beneath portions of a north-south trending concrete footer located along the eastern boundary of the area impacted by the February 2019 release. Because these conditions represent separate Pre-Existing Contamination, these sources and the related contamination were managed by Evergreen (eFacts PF No. 750870 and 780190). Soil impacted by the February 2019 release was subsequently excavated, containerized, and transported off-site for disposal by PESRM between November 25 and December 12, 2019 (Stantec 2020).

PESRM/BDH submitted a Notification of Intent to Remediate (NIR) to PADEP on June 2, 2021 (eFacts PF No. 850105). 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, BDH intended to remediate soil at the Site to attain SHS under Act 2. In addition, notification of this RI/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 June 2021 NIR and April 2025 RI/Final Report notification documents, including proof of publication/delivery, are provided in **Appendix A**.

This Report is organized as follows:

- Section 2 describes the February 2019 release as well as the efforts taken by BDH to remediate impacts to attain SHS. As additional background, this section also discusses the discovery and extent of pre-existing sources of contamination and discussion on the initial *Combined Remedial Investigation Report/Final Report* submitted by Langan.
- Section 3 describes the soil sampling completed by BDH in order to demonstrate attainment of the SHS.
- Section 4 presents the conceptual site model for the Site.
- Section 5 discusses the standards selected.
- Section 6 details the demonstration of attainment to the SHS. Additionally, this section provides the Ecological Soil Screening Evaluation and analytical limits evaluation.
- Section 7 summarizes the post-remediation care plan.
- Section 8 provides the conclusions of the Report.
- Section 9 provides the references used in preparation of this Report.

## 2 Background

This section describes the February 2019 release and subsequent remedial response and investigations completed by PESRM/BDH and subsequent *Combined Remedial Investigation Report/Final Report* submitted by Langan on June 14, 2021. On August 26, 2021, PADEP issued a *Letter of Technical Deficiency* requesting that additional information be provided to address the identified deficiencies. This report has been prepared to address the comments and requests in PADEP's August 2021 letter.

### 2.1 February 2019 Release and Immediate Response Actions

The 136 Naphtha Release area is located within the Facility, a former 1,300-acre refinery which is currently undergoing remediation and redevelopment. The Site is approximately 0.04 acres in size and is located in an area that Evergreen has also referred to as Area of Interest (AOI) 7 in their One Cleanup Program documentation. The Site is located north of the Platt Bridge and approximately 300 feet (ft) west of the Schuylkill River (39.90771, -75.21364).

The release occurred on February 22, 2019, after the former Refinery Unit 137 was restarted following maintenance activities. A reported 53,000 gallons of light naphtha product were released to the ground surface from two undiscovered defects in an aboveground product line associated with Refinery Unit 137. The release occurred near the location of former Refinery Unit 136 (see **Figure 2**). Prior to its shutdown in 2019, Refinery Unit 137 separated raw crude oil into its desired components, including light naphtha.

The product was observed to flow to the south, parallel to the aboveground piping, and then east toward the sewer catch basin (Stantec 2020). The release was contained by topography and existing drainage features. PESRM implemented immediate response actions including the removal of liquids from the storm sewer and culvert via vacuum truck. Additionally, test pits<sup>3</sup> were installed along the compromised product line and the observed water/product mixture was removed (Stantec 2020). The recovered liquids were moved to and stored within aboveground storage tank GP 272, a three-million-gallon waste oil tank previously located within the former Refinery (Langan 2021). The waste was eventually treated via the former on-facility wastewater treatment system. The damaged section of the product line was replaced with new piping (Stantec 2020).

### 2.2 Remedial Investigation

To confirm the extent of the February 2019 release, Stantec, on behalf of PESRM, installed and sampled 20 borings (i.e., AOI7-BH-01-2019 through AOI7-BH-20-2019) in March 2019 (Langan 2021). As presented on **Figure 3**, the borings were placed in the vicinity of but outside the observed release area; we note that borings AOI7-BH-10-2019 through AOI7-BH-18-2019 were collected at greater distances from the observed release area (to the east/southeast) than the other borings. Samples were collected

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<sup>3</sup> These test pits are separate from those shown in the figures as part of this RI/Final Report.



from 0.5 to 3 ft bgs, above the water table.<sup>4</sup> The samples were analyzed for the PADEP Petroleum Short List for unleaded gasoline (Table III-5 of the *Land Recycling Program Technical Guidance Manual* [PADEP 2021a]). Results of the March 2019 soil sampling are provided in **Appendix B**.

Only benzene and toluene were detected at concentrations above the applicable Medium Specific Concentrations (MSC). Specifically, benzene was detected above MSCs in samples from 4 of 20 borings (i.e., AOI7-BH-08-2019, AOI7-BH-13-2019, AOI7-BH-15-2019, and AOI7-BH-16-2019), and toluene was detected above MSCs in a sample from 1 of 20 borings (i.e., AOI7-BH-08-2019). Boring AOI7-BH-08-2019 is located just south of where the release was observed to flow east toward the sewer catch basin. The other three locations where benzene was detected above the MSCs (i.e., AOI7-BH-13-2019, AOI7-BH-15-2019, and AOI7-BH-16-2019) were at greater distances from the observed release area (to the east/southeast) compared to the other borings. Field observations made during the soil investigation activities indicated evidence Pre-Existing Contamination, including dark staining and degraded hydrocarbon odors in several borings (Stantec 2020). The area where these three samples were collected is separated from the observed release area by several locations with low concentrations of benzene (i.e., AOI7-BH-09-2019, AOI7-BH-10-2019, AOI7-BH-11-2019, AOI7-BH-12-2019, 14-2019, AOI7-BH-17-2019, and AOI7-BH-18-2019), indicating these concentrations are likely related to Pre-Existing Contamination.<sup>5</sup>

Soil sampling has been ongoing by Evergreen in the vicinity of the Site as early as 1992. As presented in **Figures 4a** and **4b**, pre-existing impacts and elevated benzene and toluene concentrations identified during the March 2019 investigation conducted in response to the February 2019 release are consistent with pre-release conditions in AOI 7 as documented by Evergreen in the *Remedial Investigation Report, Area of Interest 7* (AOI 7 RIR; GHD 2017).

## 2.3 Excavation and Discovery of Pre-Existing Sources

Based upon the aerial extent of the release and the results of the March 2019 soil sampling, PESRM initially estimated the extent of the remedial excavation needed to address the February 2019 release. Between November 25 and December 12, 2019, as presented on **Figure 5**, Stantec, on PESRM's behalf, conducted an effort to remediate impacted soil via excavation. The horizontal extent of the excavation was based on visual observations and photoionization detector (PID) readings. Vertically, the excavation extended to the water table and ranged in depth from 2 to 6 ft below ground surface (bgs). Overall, approximately 400 tons of soil were excavated and transported off-facility for disposal at Clean Earth of New Castle, Delaware (Stantec 2020).

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<sup>4</sup> The water table ranged from 4 to 6 ft bgs (Langan 2021).

<sup>5</sup> In accordance with the Consent Order and Agreement (CO&A) among Pennsylvania Department of Environmental Protection (PADEP), Sunoco, Inc. (R&M) n/k/a Sunoco (R&M), LLC, and PESRM (now known as BDH) dated August 14, 2012 and the 2020 First Amendment to that Agreement (2020 Amendment), Sunoco/Evergreen is responsible for addressing contamination at the Facility resulting from release(s) which occurred before September 8, 2012, i.e., "Pre-Existing Contamination", and BDH is responsible for addressing contamination at the Facility resulting from release(s) which occurred after September 8, 2012, i.e., "Post-September 2012 Contamination."

During the 2019 excavation activities, Stantec field staff observed additional pre-existing sources of petroleum contamination (Stantec 2020). As shown on **Figure 5**, this included the discovery of four buried drums within the excavation at depths approximately 3 to 4 ft bgs. An unknown viscous product was observed in the drums and the surrounding soil. Additionally, dark light nonaqueous phase liquid (LNAPL) was observed seeping from beneath a concrete footer in the northern portion of the excavation. In both instances, free product was removed via vacuum truck and additional soil was excavated and containerized for transportation off-site by Evergreen. Because these conditions represented Pre-Existing Contamination, Evergreen managed the disposal and drums and surrounding soil (Stantec 2020).

## 2.4 Post-Excavation Soil Sampling

Stantec completed post-excavation sampling on December 12, 2019 on behalf of PESRM. As shown on **Figure 6**, Stantec collected 12 post-excavation samples (i.e., AOI7-PE-01 through AOI7-PE-12) from within the excavation including from the sidewalls and base. According to Stantec, the sampling locations were determined using PADEP's systematic random sampling tool. Stantec's (2020) *Unit 137 Line Release in the Area of Former 136 Unit: Investigation Summary* notes that the post-excavation borings were installed using a systematic random sampling approach consistent with 25 Pennsylvania Code § 205.703(c); however, documentation was never provided. These samples were analyzed for PADEP Petroleum Short List for unleaded gasoline (PADEP 2021a) and none of the samples identified constituent concentrations greater than the applicable MSCs.

## 2.5 Extent of Pre-Existing Sources of Contamination

Following the discovery of the four degraded buried drums in the 2019 excavation footprint, on behalf of Evergreen, Stantec completed an additional subsurface investigation in 2021. The objective of this additional investigation was to evaluate the general area for potential additional buried drums. On November 9 and 10, 2021, Lewis Environmental, on behalf of Stantec, advanced six test pits to a depth of approximately 5 ft bgs to the west of the February 2019 release area where the previously identified buried drums were identified, as shown on **Figure 7**. An additional buried drum was identified in Test Pit #5. Soil in the vicinity of the drum appeared "*visually impacted with a petroleum-like dark, viscous substance*" (Stantec 2023). Approximately 23.5 tons of soil were excavated and transported off-Facility for disposal at Clean Earth of New Castle, Delaware (Stantec 2023). Six biased post-excavation samples and a waste characterization sample were collected. Post-excavation samples were analyzed for Evergreen's Comprehensive List compounds. Concentrations of benzene, 1,1-biphenyl, and lead were identified at concentrations greater than the applicable MSCs in these samples. These three constituents have historically been identified in the general area of AOI 7 at concentrations greater than applicable MSCs.

Stantec subsequently installed two shallow monitoring wells (i.e., C-175 and C-176) where impacts were observed in Test Pits #5 and #6 on November 29, 2021. LNAPL was not observed during the installation of these wells nor in any subsequent gauging events between March 2022 and April 2023 (Stantec 2023). Multiple rounds of groundwater samples were collected from these two new monitoring wells as well as from two downgradient existing monitoring wells (i.e., C-61 and C-105). The samples were



analyzed for Evergreen's Comprehensive List compounds. In the source area monitoring wells (i.e., C-175 and C-176), elevated concentrations were limited to select polycyclic aromatic hydrocarbons (PAH) and lead. Only benzo(a)pyrene and lead were detected at concentrations greater than the applicable MSCs in the downgradient wells. The constituents identified in these four wells are consistent with what Evergreen identified in their AOI 7 RIR (GHD 2017). Additionally, the presence of lead in the soil and groundwater samples indicates that contamination is not associated with release(s) from Refinery Unit 137 or its piping as light naphtha does not contain lead.

On November 30, 2021 and January 19, 2022, on behalf of Evergreen, Stantec completed additional soil characterization and collected surface and subsurface samples (i.e., AOI7-BH-21-01 through AOI7-BH-21-14) downgradient of the February 2019 release and area where the additional buried drum was discovered. Samples were analyzed for Evergreen's Comprehensive List compounds. Only vanadium was detected at concentrations in soil greater than the applicable MSCs (Stantec 2023).<sup>6</sup>

Based on the identification of multiple buried drums, LNAPL seepage from beneath the concrete footer in the northern portion of the excavation, and soil contamination discussed in Sections 2.2, 2.3, and this section, Pre-Existing Contamination is present throughout the area including in proximity to, and around, the area of the February 2019 release.

## 2.6 Langan's (2021) Combined RI/FR Submission

On June 14, 2021, following the completion of response actions performed to remediate impacts associated with the February 2019 release, Langan submitted a *Combined Remedial Investigation Report/Final Report* on behalf of BDH. On August 26, 2021, in response to this submittal, PADEP issued a *Letter of Technical Deficiency* requesting that additional information be provided to address the identified deficiencies. These deficiencies included the discrepancy in information available on the release area, incomplete soil and groundwater characterization, and missing documentation related to remedial activities and placement of sampling locations in a systematic random manner. PADEP also requested that some items be re-evaluated for more clarity including the ecological assessment, post-excavation sample depths, and the overall depth of the excavation.

## 3 Attainment Sampling

Based on PADEP's review of these activities as documented in Langan's *Combined Remedial Investigation Report/Final Report (2021)*, as discussed in Section 2.6, PADEP noted in their August 26, 2021 *Letter of Technical Deficiency* that the documentation for the systematic random soil sampling grid design was not included in the report as required by 25 Pa. Code Section 250.703, as referenced by 25 Pa. Code 250.312(d). In response, Terraphase, on behalf of BDH, implemented a scope of work to re-

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<sup>6</sup> The applicable MSCs for vanadium have increased since Stantec submitted the *Former Unit 136 Investigation Activities (2021-2022), Supplement to 2020 Letter Report* on June 19, 2023. As a result, the November 2021 and January 2022 soil characterization samples collected do not identify any concentrations greater than the applicable MSCs for any constituents analyzed.

collect “post-excavation” attainment samples within the footprint of the prior excavation area at locations determined using PADEP’s Systematic Random Sampling tool. This Section describes the procedure for the establishing the scope of the additional “post-excavation” attainment sampling.

Pursuant to 25 Pa. Code Sections 250.703(d) and 250.707(b)(1)(i), Terraphase performed attainment sampling within the excavation footprint in May 2024. 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 to be sampled in order to demonstrate attainment under Act 2. Outputs of PADEP’s Systematic Random Sampling Workbook are included in **Appendix C**. Soil samples were proposed to be collected from the top half foot of soil from the base of the excavation or from the sidewall of the excavation at each designated location. During sampling, the water table was encountered; however, samples were not collected from the saturated zone. In instances where the water table was encountered shallower than the proposed sampled depth, the sample was collected at the 0.5 ft interval above the water table.

The samples were submitted for analysis for PADEP’s Short List of Unleaded Gasoline Parameters (PADEP 2021a) which includes the following constituents: benzene, cumene, ethyl benzene, methyl tert-butyl ether, toluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, xylenes (total), and naphthalene. This list is consistent with the analyses performed initially in December 2019 following the excavation of soil in the release area.

Additional soil characterization samples were collected in October 2024 to help support a determination of the vertical and horizontal extent of impacts associated with the February 2019 release. This effort included the collection of additional surface and subsurface soil samples, each analyzed for benzene and toluene.

Soil samples were placed directly into laboratory provided glassware, stored on ice in a cooler under appropriate chain of custody protocol, and submitted for analysis by Pace Analytical of Westborough, Massachusetts – a PADEP-certified laboratory. The soil samples were analyzed for volatile organic compounds (VOC) and semi-volatile organic compounds (SVOC) by United States Environmental Protection Agency (USEPA) methods 8260D and 8270E, respectively. Copies of the laboratory data deliverables are included as **Appendix D**. Results of the quality assurance and quality control sample analyses and a log of general checks including the methodology used to select between multiple results when provided by the analytical laboratory are provided in **Appendix E**.



*Systematic Random Sampling Locations  
Northern Excavation Area (Terraphase 2024)*

### 3.1 May 2024 Sampling

Due to the shape of Stantec’s 2019 excavation, the area was initially split into two sections (i.e., Northern and Central) for the purposes of determining new attainment sampling points based on a systematic random procedure. In determining attainment of the SHS, the samples collected from each section were subsequently combined as one overall excavation area. Since Stantec’s 2019 excavation “extended to the depth of the observed water table which is tidally influenced and ranged from approximately 2.0 to 6.0 ft bgs,” (Stantec 2020) in determining the number of attainment samples needed, Terraphase conservatively assumed that the two excavation areas were uniformly advanced to a depth of 6 ft bgs. As discussed in Section 3, in instances where the water table was encountered shallow than 6 ft bgs (or the proposed sample interval), samples were not collected in saturated soil, but rather from the 0.5 ft interval above the water table.

Using PADEP’s Systematic Random Sampling tool, 20 attainment (“post-excavation”) sampling locations were identified<sup>7</sup> and sampled on May 23 and 24, 2024. The attainment soil samples were collected either from the base or sidewall of the excavation area.

As shown on **Figure 8**, the results of the sampling indicated two locations (i.e., 136N-SB07 and 136N-SB15) with concentrations of benzene greater than the Non-Residential (Non-Res) Soil-to-Groundwater (SGW) MSCs (i.e., 0.75 milligrams per kilogram [mg/kg] and 84 mg/kg, respectively).



Systematic Random Sampling Locations  
Central Excavation Area (Terraphase 2024)

### 3.2 October 2024 Sampling

Based on the May 2024 attainment re-sampling results, BDH completed additional soil characterization sampling on October 28, 2024. The intent of this additional sampling was to determine whether the concentrations of benzene at location 136N-SB15 represented conditions associated with the February 2019 release or contamination associated with pre-existing sources of contamination in the area (**Figure 9**) especially with consideration for the benzene and toluene concentrations observed in a sample collected prior to the 2019 excavation at a location just south of the February 2019 release area (i.e., AOI7-BH-08-2019), which as discussed in Section 2.2, suggested evidence of Pre-Existing Contamination in the area unrelated to the release. All of the proposed borings were located outside of the excavation, excluding the deeper vertical sample collected at 136N-SB15. The water table was also encountered during the installation of most borings; however, samples were not collected from the saturated zone.

<sup>7</sup> Twelve sampling locations were identified in the Northern Excavation area and eight attainment sampling locations were identified in the Central Excavation area.

As shown on **Figure 10**, the results of the October 2024 soil sampling identified benzene or toluene in 10 of the 14 locations at concentrations greater than the applicable MSCs. Toluene was identified at a concentration greater than the Non-Res SGW MSC at one location (i.e., 136N-SB22) at the southwestern corner outside of the boundary of February 2019 release area. This area is separated from AOI7-BH-08-2019 which also exhibited a toluene concentration greater than MSCs by several sampling locations with concentrations that were below the applicable MSCs.

Benzene was identified at concentrations greater than the Non-Res Direct Contact (DC) and SGW MSCs in 10 of the 14 locations. As shown on **Figure 10**, samples collected to define the extent of benzene concentration in the area showed that benzene concentrations increase in soil south from the February 2019 release area (i.e., maximum benzene concentration at 136N-SB15 is 84 mg/kg while the maximum benzene concentration at 136N-SB28 is 790 mg/kg). Sampling locations south of AOI7-BH-08-019, again located outside of the February 2019 release area, exhibited lower concentrations of benzene (i.e., maximum concentration at AOI7-BH-08-019 is 40 mg/kg, while concentrations range from 1.6 mg/kg to 12 mg/kg and 1.3 to 0.71 mg/kg further southwest and south, respectively).

Overall, the following lines of evidence demonstrate that benzene and toluene are present in soil in the general area as a result of Pre-Existing Contamination not associated with the February 2019 release:

- The range and spatial distribution of benzene and toluene concentrations in soil in the areas of 136N-SB15, AOI7-BH-08-019, and the October 2024 soil sampling locations indicate separate unrelated contamination from the February 2019 release. Toluene exceedances were limited to two locations (i.e., 136N-SB22 and AOI7-BH-08-019), both of which are located outside of the excavation and unlikely to be associated with the February 2019 release. Benzene concentrations increase significantly in borings south of 136N-SB15, suggesting that the concentration detected at this boring is due to a separate release(s) south of the February 2019 release. Benzene concentrations at and around AOI7-BH-08-019, outside of the excavation area, exhibit concentrations of benzene consistent with the range of concentrations found generally by Evergreen in AOI 7 (see **Figure 4a**).
- **Figures 4a** and **4b** demonstrate that concentrations of benzene and toluene, respectively, in soil observed in the October 2024 sampling are consistent with the range of concentrations found generally by Evergreen in AOI 7.
- During the May and October 2024 sampling completed by BDH, petroleum-like odor and/or sheen were identified in the majority of the borings installed by BDH (see **Appendix F**). This is consistent with findings by Stantec (2020, 2023) during their 2019 investigations which suggested pre-existing sources of contamination unrelated to the February 2019 release. Specifically, 15 of the 20 borings installed by BDH in May 2024 and 11 of the 14 borings installed in October 2024 indicated the presence of petroleum-like odor and/or sheen. Additionally, these observations were only identified in the subsurface (i.e., deeper than 2 ft bgs) suggesting conditions more consistent with historic pre-existing impacts in the area rather than conditions associated with the February 2019 release to the ground surface.
- Benzene and toluene have been identified in soil in AOI 7, including in samples collected in proximity to the Site, at concentrations greater than the applicable MSCs since 1992.

Based on these lines of evidence, 136N-SB15 which was collected in May 2024 from the presumed sidewall of the 2019 excavation, exhibits conditions that are not related to February 2019 release but rather Pre-Existing Contamination. Therefore, the sampling results from 136N-SB15 have been excluded from the attainment evaluation.

### 3.3 Review of Attainment Sampling Results

In accordance with 25 Pa. Code Section 250.707(b)(1)(i), Terraphase evaluated whether the benzene soil sampling results<sup>8</sup> from the “post-excavation” samples attain SHS using the 75 percent (%)/10x rule. The approach requires that (1) 75% of the samples collected for attainment purposes exhibit concentrations equal to or less than the applicable standard and (2) no individual sample exhibits a concentration more than ten times the applicable standard. With consideration for the attainment samples collected from the 2019 excavation area, none exhibited benzene concentrations greater than ten times the Non-Res SGW MSC of 0.5 mg/kg and 19 out of the 20 samples<sup>9</sup> (95%) were equal to or less than this MSC. These results demonstrate that SHS has been attained in this area for the February 2019 release.

Analytical results from the 2024 attainment and additional soil characterization sampling are provided in **Tables 1** and **2**, respectively. Calculations demonstrating attainment of the 75%/10x rule requirements are provided in **Appendix G**.

## 4 Conceptual Site Model

The Facility, a former 1,300-acre refinery, is currently being remediated and redeveloped. Remediation activities are being conducted at the Facility under Act 2 by both BDH and Evergreen in accordance with the 2012 Buyer-Seller Agreement and the 2020 First Amendment to that Agreement. The Facility operated as a petroleum refinery between 1860 and 2019. The refinery ceased operations in 2019 and since July 2020 has been undergoing demolition and closure activities. Prior to its shutdown in 2019, Refinery Unit 137 separated raw crude oil into its desired components, including light naphtha. At the time of the release, no active operations or ongoing storage of petroleum products, other than aboveground transmission lines, were occurring in the former Unit 136 area.

In February 2019, approximately 53,000 gallons of light naphtha were released out of two undiscovered defects in an aboveground product line. PESRM implemented immediate response actions including the removal of liquids from the storm sewer and culvert, installation of test pits, removal of water/product from the test pits, and the replacement of damaged section of piping (Stantec 2020). In March 2019, a remedial investigation was subsequently performed to define the extent of the February 2019 release and to determine the area over which impacted soil should be remediated. Based upon the aerial extent

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<sup>8</sup> As discussed in Section 3.2, this evaluation excludes sample 136N-SB15-1.0-1.5.

<sup>9</sup> The count includes the original 12 samples from the Northern Excavation area, the seven samples from the Central Excavation Area (excluding 136N-SB15-1.0-1.5), and a field duplicate, which were collected as part of the May 2024 attainment sampling. Pursuant to 25 Pa. Code Section 250.703(d), 20 sampling points meet the requirement necessary for the combined soil volume of the Northern and Central Excavation areas (i.e., approximately 343 cubic yards).

of the release and results of the March 2019 soil sampling, soil impacted by this release was excavated, containerized, and transported off-Facility for disposal in November and December 2019 (Stantec 2020). Post-excavation samples were collected in December 2019.

During these excavation activities, pre-existing sources of contamination were discovered within and adjacent to the footprint of the excavation (i.e., buried drums and free product). As a result, on behalf of Evergreen, test pits were installed west of the February 2019 release area in November 2021. Soil was transported off-Facility for disposal by Evergreen. During the test pit installation, an additional drum was identified, and post-excavation samples were collected within that test pit. Additionally, Evergreen installed two shallow monitoring wells and conducted multiple rounds of groundwater sampling and gauging. In November 2021 and January 2022, additional soil characterization samples were collected, on behalf of Evergreen, downgradient of the recently discovered buried drum.

On June 14, 2021, following the completion of response actions performed to remediate impacts associated with the February 2019 release, Langan, on behalf of BDH, submitted a *Combined Remedial Investigation Report/Final Report*. On August 26, 2021, in response to this submittal, PADEP issued a *Letter of Technical Deficiency* which requested that additional information be provided to address the identified deficiencies. In order to address one of the noted deficiencies, Terraphase on behalf of BDH implemented a scope of work to complete additional attainment soil sampling and soil characterization sampling in May 2024 and October 2024, respectively. Terraphase also prepared a response to PADEP comments on behalf of BDH, which is provided in **Appendix H**.

Based on the identification of multiple buried drums, LNAPL seepage from beneath the concrete footer in the northern portion of the excavation, and soil contamination consistent with the surrounding area (**Figures 4a** and **4b**), as discussed in Section 2, Pre-Existing Contamination exists throughout the area and in proximity to the Site. As discussed in Section 3, BDH's May 2024 attainment soil sampling demonstrates attainment of the SHS for the Site. Therefore, contamination associated with the February 2019 release has been removed and remaining Pre-Existing Contamination in the area is associated with unrelated release(s) which Evergreen has and will be managing as part of the 2012 Buyer-Seller Agreement and the 2020 First Amendment to that Agreement (eFACTS PF No. 780190).

## 4.1 Site Setting

The Site is located within Girard Point and within Evergreen's AOI 7. The Site is currently uncovered and without structures. Access to the Facility is controlled at the Facility perimeter and the Site can be accessed by authorized individuals via an unpaved road connecting to Lanier Avenue, approximately 0.5 miles to the east of the Site. There are no on-site surface water bodies, and the Schuylkill River is located approximately 300 ft to the west. The nearest residential area is located approximately 1.2 miles east of the Site.

## 4.2 Topography

The ground surface at the Site is approximately 7.4 ft above mean sea level. The topography at the Site is generally flat, but with a gentle slope to the south, parallel to the aboveground pipe run, and a gentle



slope to the east at the pipe turn (Stantec 2020). Regional topography slopes gently to the west towards the Schuylkill River, the nearest surface water body.

### 4.3 Regional Geology and Hydrogeology

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

### 4.4 Local Geology and Hydrogeology

Local geology is generally consistent with the regional geology described above. Investigations conducted on behalf of BDH in the vicinity of the Site (in Tank Group 06) indicated the presence of anthropogenic fill at least 5 ft thick. Soil beneath the fill layer generally consisted of brown, black, and gray sands and silt. During investigation and excavation activities for this Site, soil observed from the surface to a depth of 5 ft bgs were reported to consist of fill materials overlaying tan to dark brown silty sand and silt. Boring logs for the soil borings installed by Terraphase on behalf of BDH during attainment and additional soil characterization sampling are provided in **Appendix F**.

During previous investigations in the area of the Site, unconfined aquifer groundwater has been encountered at a depth of approximately 2 to 6 ft bgs (Stantec 2020). Groundwater at the Facility has historically been interpreted to flow to the south toward the convergence of the Delaware and Schuylkill Rivers.

Based on the Site Characterization conducted by BDH in Tank Group 06 and the *Remedial Investigation Report, Area of Interest 7* (AOI 7 RIR; GHD 2017) conducted by Evergreen, groundwater at the Site likely flows west toward the Schuylkill River. In the vicinity of the Site, groundwater elevations are higher adjacent to the bulkhead along the western portion of Tank Group 06 and beneath the former aboveground storage tank pads, likely resulting from slower recharge associated with lower permeability soil in these areas. The mounded groundwater areas form a trough interior to the northwestern portion of Tank Group 06 into which groundwater flows radially. These localized features are common across the Facility as documented in the AOI 7 RIR (GHD 2017), which concluded that there are lower hydraulic conductivity soil present along the bulkhead compared to the soil in other areas of the Site, which cause the mounding along the bulkhead and adjacent depression. This observation is also consistent with Stantec's (2025) *Volume 2: Sitewide Fate and Transport Remedial Investigation Report*. The AOI 7 RIR states that the hydraulic gradient toward the west is 0.001 (ft/ft), consistent with historical groundwater elevation contours and confirms flow towards the Schuylkill River. As discussed in Sections 3 and 3.1, the water table was encountered during the May and October 2024 sampling events; however, samples were collected from at least the 0.5 ft interval above the water table or shallower. While the water table was encountered during soil sampling activities, groundwater elevation data was not collected, and groundwater flow interpretation is not a subject of this investigation.

## 4.5 Land and Groundwater Use

Currently, the Facility (which includes the Site) is undergoing redevelopment activities. The land is zoned for Industrial Use.<sup>10</sup> The Site is currently uncovered and lightly vegetated.

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 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

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<sup>10</sup> <https://openmaps.phila.gov/>.



Department of Environmental Protection, and providing additional documentation concerning the institutional controls at the Facility 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.

## 5 Selection of Standards

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

- Non-Res DC Numeric Values for Surface Soil (0-2 ft bgs)
- Non-Res DC Numeric Values for Subsurface Soil (2-15 ft bgs)
- Non-Res SGW Numeric Values for Used Aquifers (Total Dissolved Solids [TDS]  $\leq$  2,500)

Soil analytical results were compared to PADEP's Non-Res Vapor Intrusion Screening Levels (VISL) as part of this evaluation; however, there is currently no vapor intrusion exposure in the area (i.e., vapor intrusion pathway is incomplete). Future buildings at the Facility will be subject to vapor intrusion investigation and evaluation to determine if conditions could pose a potential unacceptable risk to future occupants. The comparison to non-residential numeric values is appropriate since the future land use in the area of the Site is commercial/industrial.

## 6 Demonstration of Attainment

This section provides a summary of the constituents 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.

### 6.1 Attainment of SHS

As discussed in Section 3, attainment sampling subsequent to soil removal activities has resulted in the attainment of the SHS for each of the constituents for which soil was analyzed. BDH has demonstrated attainment of the SHS for the following constituents:

### Volatile Organic Compounds

- Benzene
- Cumene
- Ethyl Benzene
- Methyl tert-butyl ether
- Toluene
- 1,2,4-Trimethylbenzene
- 1,3,5-Trimethylbenzene
- Xylenes (total)

### Semi-Volatile Organic Compounds

- Naphthalene

The May 2024 (“post-excavation”) attainment soil samples were collected at the base and sidewalls of the 2019 excavation. The results of the soil sampling identified benzene in soil at concentrations greater than the applicable MSCs. No other constituents were identified at concentrations greater than the applicable MSCs in any of the samples collected to characterize conditions associated with the February 2019 release.<sup>11</sup>

As specified in 25 Pa. Code Section 250.707(b)(1)(i), 20 (i.e., 19 samples and a field duplicate) attainment samples were collected during a single event subsequent to the excavation. This sampling event was successful in demonstrating attainment of the SHS for benzene via the 75%/10x rule. Overall, these data demonstrate attainment of the SHS for benzene as well as the other detected constituents at the Site which could be associated with the February 2019 release.

## 6.2 Ecological Screening Evaluation

The following describes the ecological screening evaluation that was performed for the Site. This evaluation was conducted in accordance with Section II.B.5 of the *Land Recycling Program Technical Guidance Manual* (PADEP 2021a). 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 2021a). The key elements of the screening procedure are comprised of nine steps.

The initial screening phase of the process consists of Step 1, as follows:

- Step 1: Presence of Light Petroleum Product Constituents

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

<sup>11</sup> Although toluene was identified at concentrations above the applicable MSCs in the October 2024 additional soil characterization sampling, as discussed in Section 3.2, these concentrations of toluene were identified outside of the boundary of February 2019 release area and are Pre-Existing Contamination.



## Step 1: Presence of Light Petroleum Product Constituents

The first step in the ecological screening process is to determine whether the constituents 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 E1739-95). If light petroleum product constituents (including benzene, toluene, ethyl benzene, and xylenes [total]) are the only constituents detected on-site, then the screening process moves to Step 9 (Final Report: No Further Ecological Evaluation Required). At the Site, only light petroleum products have been detected above the laboratory RLs and therefore, no further ecological evaluation is required.

## 6.3 Analytical Limits Evaluation

For non-detect constituents, reporting limits (RL) were evaluated against the applicable MSCs. None of the constituents analyzed by BDH exhibited RLs above the applicable MSCs.

# 7 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 2021a), 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 constituents of potential concern [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.

# 8 Summary and Conclusions

Terraphase has prepared this RI/Final Report, on behalf of BDH, to detail the results of investigation and remediation activities completed in an area where a release of light naphtha product, from aboveground piping, occurred on February 22, 2019. The activities described in this RI/Final Report were performed in accordance with the applicable provisions of Act 2 and 25 Pa. Code Section 250 Section 204.

The aboveground pipeline which caused the release was associated with Refinery Unit 137. This Unit separated raw crude oil into its desired components, including light naphtha. BDH conducted immediate interim response actions, which included the removal of liquids from the storm sewer and culvert via vacuum truck, investigation and sampling activities, excavation of soil visually impacted by the release, and post-excavation soil sampling. During investigation and remedial activities, additional pre-existing sources of contamination in the general area were identified within the aerial footprint of the February 2019 release, included the discovery of buried deteriorated drums, viscous product in these drums and surrounding soil, and dark LNAPL seeping from beneath portions of a north-south trending concrete footer located along the eastern boundary of the area impacted by the February 2019 release.

Following the completion of the response actions performed to remediate impacts associated with the February 2019 release, Langan submitted a *Combined Remedial Investigation Report/Final Report* on June 14, 2021. On August 26, 2021, in response to this submittal, PADEP issued a *Letter of Technical Deficiency*, which requested additional information be provided to address the identified deficiencies. These deficiencies included the discrepancy in information available on the release locations, incomplete soil and groundwater characterization, and missing documentation related to remedial activities and systematic random sampling. PADEP also requested that some items be re-evaluated for more clarity including the ecological assessment, post-excavation sample depths, and the depth of excavation.

This RI/Final Report provides a comprehensive discussion of the details surrounding the February 2019 release while also documenting several key aspects related to the remediation efforts undertaken. It outlines the actions implemented by BDH to remediate the release, describes the additional efforts performed to address the deficiencies identified by the PADEP, and demonstrates how the remediation efforts effectively mitigated the impacts of the February 2019 release, attaining the SHS under Act 2. In doing so, the RI/Final Report identifies pre-existing sources of contamination unrelated to the incident which were discovered during the investigation and explains that these separate issues are being managed by Evergreen under eFACTS PF No. 780190.

Terraphase concludes that all the requirements of the SHS have been met, and as such, BDH qualifies for cleanup liability protection for conditions associated with the February 2019 136 Naphtha Area Release.

## 9 References

- Evergreen. 2021. Letter to Ms. Lisa Strobridge. *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.
- Langan Engineering and Environmental Services, Inc. (Langan). 2021. *Combined Remedial Investigation/Final Act 2 Report*. June 14.
- Pennsylvania Department of Environmental Protection (PADEP). 2021a. *Land Recycling Program Technical Guidance Manual*. March 27.



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Stantec. 2020. *Unit 137 Line Release in the Area of Former 136 Unit: Investigation Summary*. November 13.

\_\_\_. 2023. *Former Unit 136 Investigation Activities (2021-2022), Supplement to 2020 Letter Report*. June 19.

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# Tables

- 1 Summary of Soil Attainment Analytical Results
- 2 Summary of Additional Soil Characterization Analytical Results



**Table 1**

**Summary of Soil Attainment Analytical Results**

**136 Naphtha Release Area**

Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	Non-Residential		136N-SB01	136N-SB01	136N-SB02	136N-SB03	136N-SB04	136N-SB05	136N-SB06
Field Sample ID	Direct Contact	Direct Contact	Non-Residential	Non-Residential	136N-SB01-1.0-1.5	136N-SB01-1.0-1.5D	136N-SB02-3.0-3.5	136N-SB03-3.0-3.5	136N-SB04-3.5-4.0	136N-SB05-2.0-2.5	136N-SB06-2.0-2.5
Collection Depth (ft bgs)	MSCs for	MSCs for	Used Aquifer	Vapor Intrusion	1.0 - 1.5	1.0 - 1.5	3.0 - 3.5	3.0 - 3.5	3.5 - 4.0	2.0 - 2.5	2.0 - 2.5
Sample Date	Surface Soil	Subsurface Soil	(TDS ≤ 2500)	Screening Values	5/23/2024	5/23/2024	5/23/2024	5/23/2024	5/23/2024	5/23/2024	5/23/2024
Comments	(0-2 ft)	(2-15 ft)	Soil-to-GW MSC		Northern Excavation	Northern Excavation; FD	Northern Excavation				
<b>Volatile Organic Compounds</b>											
Benzene	280	330	0.5	0.13	ND (0.00066)	ND (0.00069)	ND (0.028)	0.0032 (0.00042)	ND (0.00041)	ND (0.0005)	0.008 (0.00047)
Cumene	10000	10000	2500	2500	ND (0.0013)	ND (0.0014)	0.078 (0.056)	0.016 (0.00083)	0.00016 J (0.00082)	ND (0.00099)	0.0082 (0.00094)
Ethyl Benzene	880	1000	70	46	ND (0.0013)	ND (0.0014)	0.024 J (0.056)	0.0015 (0.00083)	ND (0.00082)	ND (0.00099)	0.002 (0.00094)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.0026)	ND (0.0028)	ND (0.11)	ND (0.0017)	ND (0.0016)	ND (0.002)	ND (0.0019)
Toluene	10000	10000	100	44	ND (0.0013)	ND (0.0014)	0.03 J (0.056)	0.0031 (0.00083)	ND (0.00082)	ND (0.00099)	0.00074 J (0.00094)
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.0026)	ND (0.0028)	0.034 J (0.11)	0.049 (0.0017)	ND (0.0016)	ND (0.002)	0.0064 (0.0019)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.0026)	ND (0.0028)	0.013 J (0.11)	0.014 (0.0017)	ND (0.0016)	ND (0.002)	0.0031 (0.0019)
Xylenes (total)	7900	9100	1000	990	ND (0.0026)	ND (0.0028)	0.112 J (0.11)	0.0222 J (0.0017)	ND (0.0016)	ND (0.002)	0.02132 J (0.0019)
<b>Semivolatile Organic Compounds</b>											
Naphthalene	66	77	25	25	ND (2.5)	0.96 J (1.3)	0.4 (0.038)	0.067 (0.037)	0.051 (0.039)	0.086 (0.038)	0.14 (0.037)

**Notes:**

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- No concentrations exceed the NonRes DC Surface MSC (0-2 ft) or NonRes DC Subsurface MSC (2-15 ft).
- Underlined concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC.
- Italicized concentrations exceed the Non-Residential Vapor Intrusion Screening Values.

**Abbreviations:**

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration
- FD - Field Duplicate

Table 1

Summary of Soil Attainment Analytical Results

136 Naphtha Release Area

Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	Non-Residential		136N-SB07	136N-SB08	136N-SB09	136N-SB10	136N-SB11	136N-SB12	136N-SB13
Field Sample ID	Direct Contact	Direct Contact	Non-Residential	Non-Residential	136N-SB07-2.5-3.0	136N-SB08-2.0-2.5	136N-SB09-3.0-3.5	136N-SB10-2.0-2.5	136N-SB11-2.0-2.5	136N-SB12-3.0-3.5	136N-SB13-1.0-1.5
Collection Depth (ft bgs)	MSCs for	MSCs for	Used Aquifer	Vapor Intrusion	2.5 - 3.0	2.0 - 2.5	3.0 - 3.5	2.0 - 2.5	2.0 - 2.5	3.0 - 3.5	1.0 - 1.5
Sample Date	Surface Soil	Subsurface Soil	(TDS ≤ 2500)	Screening Values	5/23/2024	5/23/2024	5/23/2024	5/23/2024	5/24/2024	5/24/2024	5/24/2024
Comments	(0-2 ft)	(2-15 ft)	Soil-to-GW MSC		Northern Excavation	Central Excavation					
<b>Volatile Organic Compounds</b>											
Benzene	280	330	0.5	0.13	<u>0.75 (0.03)</u>	ND (0.00051)	0.0029 (0.0005)	ND (0.00049)	0.00045 J (0.0005)	0.00093 (0.0006)	0.00034 J (0.00052)
Cumene	10000	10000	2500	2500	7 (0.061)	ND (0.001)	0.012 (0.001)	ND (0.00098)	ND (0.001)	ND (0.0012)	0.0012 (0.001)
Ethyl Benzene	880	1000	70	46	2.7 (0.061)	ND (0.001)	0.0025 (0.001)	ND (0.00098)	ND (0.001)	ND (0.0012)	ND (0.001)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.12)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.0024)	ND (0.0021)
Toluene	10000	10000	100	44	0.31 (0.061)	ND (0.001)	0.0011 (0.001)	ND (0.00098)	ND (0.001)	ND (0.0012)	ND (0.001)
1,2,4-Trimethylbenzene	4700	5400	300	300	19 (1.2)	ND (0.002)	0.032 (0.002)	ND (0.002)	ND (0.002)	ND (0.0024)	0.00038 J (0.0021)
1,3,5-Trimethylbenzene	4700	5400	93	93	8 (0.12)	ND (0.002)	0.017 (0.002)	ND (0.002)	ND (0.002)	ND (0.0024)	ND (0.0021)
Xylenes (total)	7900	9100	1000	990	55.4 J (1.2)	ND (0.002)	0.0057 J (0.002)	ND (0.002)	ND (0.002)	ND (0.0024)	ND (0.0021)
<b>Semivolatile Organic Compounds</b>											
Naphthalene	66	77	25	25	0.29 (0.039)	0.32 (0.036)	0.27 (0.039)	0.12 J (0.19)	0.16 (0.039)	0.16 (0.038)	1.5 (1.2)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- No concentrations exceed the NonRes DC Surface MSC (0-2 ft) or NonRes DC Subsurface MSC (2-15 ft).
- Underlined concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC.
- Italicized concentrations exceed the Non-Residential Vapor Intrusion Screening Values.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration
- FD - Field Duplicate

Table 1

Summary of Soil Attainment Analytical Results

136 Naphtha Release Area

Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	Non-Residential		136N-SB14	136N-SB15	136N-SB16	136N-SB17	136N-SB18	136N-SB19	136N-SB20
Field Sample ID	Direct Contact	Direct Contact	Non-Residential	Non-Residential	136N-SB14-2.5-3.0	136N-SB15-1.0-1.5	136N-SB16-2.0-2.5	136N-SB17-1.5-2.0	136N-SB18-1.0-1.5	136N-SB19-2.5-3.0	136N-SB20-2.5-3.0
Collection Depth (ft bgs)	MSCs for	MSCs for	Used Aquifer	Vapor Intrusion	2.5 - 3.0	1.0 - 1.5	2.0 - 2.5	1.5 - 2.0	1.0 - 1.5	2.5 - 3.0	2.5 - 3.0
Sample Date	Surface Soil	Subsurface Soil	(TDS ≤ 2500)	Screening Values	5/23/2024	5/24/2024	5/24/2024	5/24/2024	5/24/2024	5/23/2024	5/23/2024
Comments	(0-2 ft)	(2-15 ft)	Soil-to-GW MSC		Central Excavation	Central Excavation	Central Excavation	Central Excavation	Central Excavation	Central Excavation	Central Excavation
<b>Volatile Organic Compounds</b>											
Benzene	280	330	0.5	0.13	0.018 (0.00046)	<i>84 (0.14)</i>	0.0028 (0.00056)	0.00042 J (0.00049)	0.00024 J (0.0005)	ND (0.00048)	0.00046 (0.00046)
Cumene	10000	10000	2500	2500	0.0018 (0.00092)	93 (0.56)	0.0023 (0.0011)	ND (0.00098)	ND (0.001)	ND (0.00095)	ND (0.00093)
Ethyl Benzene	880	1000	70	46	0.00058 J (0.00092)	13 (0.28)	0.00032 J (0.0011)	ND (0.00098)	ND (0.001)	ND (0.00095)	ND (0.00093)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.0018)	ND (0.56)	ND (0.0022)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0018)
Toluene	10000	10000	100	44	ND (0.00092)	38 (0.28)	0.0017 (0.0011)	ND (0.00098)	ND (0.001)	ND (0.00095)	ND (0.00093)
1,2,4-Trimethylbenzene	4700	5400	300	300	0.00045 J (0.0018)	100 (1.1)	0.0026 (0.0022)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0018)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.0018)	33 (0.56)	0.00092 J (0.0022)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0018)
Xylenes (total)	7900	9100	1000	990	0.00233 J (0.0018)	174 J (0.56)	0.0038 J (0.0022)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0018)
<b>Semivolatile Organic Compounds</b>											
Naphthalene	66	77	25	25	0.23 (0.038)	7.4 (0.038)	0.66 J (0.77)	0.16 (0.038)	0.18 (0.038)	ND (0.19)	0.12 (0.038)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- No concentrations exceed the NonRes DC Surface MSC (0-2 ft) or NonRes DC Subsurface MSC (2-15 ft).
- Underlined concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC.
- Italicized concentrations exceed the Non-Residential Vapor Intrusion Screening Values.

Abbreviations:

- ND - Not Detected
- NA - Not Analyzed
- J - Estimated Concentration
- FD - Field Duplicate

**Table 2**  
**Summary of Additional Soil Characterization Analytical Results**  
**136 Naphtha Release Area**  
 Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	Non-Residential	Non-Residential	136N-SB15	136N-SB21	136N-SB21	136N-SB22	136N-SB22	136N-SB23
Field Sample ID	Direct Contact	Direct Contact	Used Aquifer	Vapor Intrusion	136N-SB15R-4.0-4.5	136N-SB21-1.5-2.0	136N-SB21-3.0-3.5	136N-SB22-1.5-2.0	136N-SB22-4.0-4.5	136N-SB23-1.5-2.0
Collection Depth (ft bgs)	MSCs for	MSCs for	(TDS ≤ 2500)	Screening Values	4.0 - 4.5	1.5 - 2.0	3.0 - 3.5	1.5 - 2.0	4.0 - 4.5	1.5 - 2.0
Sample Date	Surface Soil	Subsurface Soil	Soil-to-GW MSC		10/28/2024	10/28/2024	10/28/2024	10/28/2024	10/28/2024	10/28/2024
Comments	(0-2 ft)	(2-15 ft)								
<b>Volatile Organic Compounds</b>										
Benzene	280	330	0.5	0.13	0.0013 (0.00079)	0.0007 J (0.0008)	0.059 (0.031)	<u>320 (2.6)</u>	<u>140 (1.3)</u>	<u>1.6 (0.053)</u>
Toluene	10000	10000	100	44	ND (0.0016)	0.00088 J (0.0016)	0.078 (0.063)	<u>140 (5.3)</u>	22 (2.7)	0.93 (0.11)

- Notes:**
- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
  - 2 Grey-shaded concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
  - 3 Underlined concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC.
  - 4 Italicized concentrations exceed the Non-Residential Vapor Intrusion Screening Values.

**Abbreviations:**  
 ND - Not Detected  
 J - Estimated Concentration

**Table 2**

**Summary of Additional Soil Characterization Analytical Results**

**136 Naphtha Release Area**

Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	Non-Residential	Non-Residential	136N-SB23	136N-SB24	136N-SB24	136N-SB24	136N-SB25	136N-SB25
Field Sample ID	Direct Contact	Direct Contact	Used Aquifer	Vapor Intrusion	136N-SB23-3.0-3.5	136N-SB24-1.0-1.5	136N-SB24-4.0-4.5	136N-SB24-4.0-4.5D	136N-SB25-1.0-1.5	136N-SB25-4.0-4.5
Collection Depth (ft bgs)	MSCs for	MSCs for	(TDS ≤ 2500)	Screening Values	3.0 - 3.5	1.0 - 1.5	4.0 - 4.5	4.0 - 4.5	1.0 - 1.5	4.0 - 4.5
Sample Date	Surface Soil	Subsurface Soil	Soil-to-GW MSC		10/28/2024	10/28/2024	10/28/2024	10/28/2024	10/28/2024	10/28/2024
Comments	(0-2 ft)	(2-15 ft)						Field Duplicate		
<b>Volatile Organic Compounds</b>										
Benzene	280	330	0.5	0.13	<u>0.88 (0.042)</u>	<i>1.3 (0.058)</i>	0.0036 (0.00057)	0.00066 J (0.00099)	0.064 (0.036)	0.12 (0.033)
Toluene	10000	10000	100	44	1.1 (0.083)	0.69 (0.12)	ND (0.0011)	ND (0.002)	0.2 (0.073)	0.09 (0.067)

**Notes:**

- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- 2 Grey-shaded concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
- 3 Underlined concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC.
- 4 Italicized concentrations exceed the Non-Residential Vapor Intrusion Screening Values.

**Abbreviations:**

ND - Not Detected  
 J - Estimated Concentration

**Table 2**  
**Summary of Additional Soil Characterization Analytical Results**

**136 Naphtha Release Area**

Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	Non-Residential	Non-Residential	136N-SB25	136N-SB26	136N-SB26	136N-SB26	136N-SB28	136N-SB28
Field Sample ID	Direct Contact	Direct Contact	Used Aquifer	Vapor Intrusion	136N-SB25-4.0-4.5D	136N-SB26-0.5-1.0	136N-SB26-0.5-1.0D	136N-SB26-4.0-4.5	136N-SB28-1.5-2.0	136N-SB28-2.5-3.0
Collection Depth (ft bgs)	MSCs for	MSCs for	(TDS ≤ 2500)	Screening Values	4.0 - 4.5	0.5 - 1.0	0.5 - 1.0	4.0 - 4.5	1.5 - 2.0	2.5 - 3.0
Sample Date	Surface Soil	Subsurface Soil	Soil-to-GW MSC		10/28/2024	10/28/2024	10/28/2024	10/28/2024	10/28/2024	10/28/2024
Comments	(0-2 ft)	(2-15 ft)			Field Duplicate		Field Duplicate			
<b>Volatile Organic Compounds</b>										
Benzene	280	330	0.5	0.13	0.096 (0.035)	0.0016 (0.00066)	0.0014 (0.00078)	0.0026 (0.00051)	<u>16 (0.12)</u>	<u>790 (2.9)</u>
Toluene	10000	10000	100	44	0.042 J (0.071)	ND (0.0013)	ND (0.0016)	0.0053 (0.001)	0.14 (0.049)	7.9 (5.8)

**Notes:**

- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- 2 Grey-shaded concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
- 3 Underlined concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC.
- 4 Italicized concentrations exceed the Non-Residential Vapor Intrusion Screening Values.

**Abbreviations:**

ND - Not Detected  
 J - Estimated Concentration

**Table 2**  
**Summary of Additional Soil Characterization Analytical Results**

**136 Naphtha Release Area**

Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	Non-Residential	Non-Residential	136N-SB29	136N-SB29	136N-SB30	136N-SB30	136N-SB31	136N-SB31
Field Sample ID	Direct Contact	Direct Contact	Used Aquifer	Vapor Intrusion	136N-SB29-1.0-1.5	136N-SB29-3.0-3.5	136N-SB30-1.0-1.5	136N-SB30-2.0-2.5	136N-SB31-1.0-1.5	136N-SB31-2.5-3.0
Collection Depth (ft bgs)	MSCs for	MSCs for	(TDS ≤ 2500)	Screening Values	1.0 - 1.5	3.0 - 3.5	1.0 - 1.5	2.0 - 2.5	1.0 - 1.5	2.5 - 3.0
Sample Date	Surface Soil	Subsurface Soil	Soil-to-GW MSC		10/28/2024	10/28/2024	10/28/2024	10/28/2024	10/28/2024	10/28/2024
Comments	(0-2 ft)	(2-15 ft)								
<b>Volatile Organic Compounds</b>										
Benzene	280	330	0.5	0.13	<u>7.4 (0.077)</u>	<u>2.9 (0.047)</u>	<u>2 (0.058)</u>	<u>1 (0.058)</u>	<u>12 (0.48)</u>	<u>0.62 (0.04)</u>
Toluene	10000	10000	100	44	0.88 (0.15)	3.8 (0.095)	1.6 (0.12)	1 (0.12)	5.4 (0.97)	1 (0.08)

**Notes:**

- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- 2 Grey-shaded concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
- 3 Underlined concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC.
- 4 Italicized concentrations exceed the Non-Residential Vapor Intrusion Screening Values.

**Abbreviations:**

- ND - Not Detected
- J - Estimated Concentration

**Table 2**

**Summary of Additional Soil Characterization Analytical Results**

**136 Naphtha Release Area**

Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	Non-Residential	Non-Residential	136N-SB32	136N-SB32	136N-SB35	136N-SB35	AOI7-BH-08-2019
Field Sample ID	Direct Contact	Direct Contact	Used Aquifer	Vapor Intrusion	136N-SB32-0.5-1.0	136N-SB32-2.5-3.0	136N-SB35-1.5-2.0	136N-SB35-3.0-3.5	AOI7-BH-08-2019R-2.0-2.5
Collection Depth (ft bgs)	MSCs for	MSCs for	(TDS ≤ 2500)	Screening Values	0.5 - 1.0	2.5 - 3.0	1.5 - 2.0	3.0 - 3.5	2.0 - 2.5
Sample Date	Surface Soil	Subsurface Soil	Soil-to-GW MSC		10/28/2024	10/28/2024	10/28/2024	10/28/2024	10/28/2024
Comments	(0-2 ft)	(2-15 ft)							
<b>Volatile Organic Compounds</b>									
Benzene	280	330	0.5	0.13	ND (0.055)	<u>0.71 (0.041)</u>	<u>1.5 (0.055)</u>	<u>1.5 (0.036)</u>	<u>26 (0.098)</u>
Toluene	10000	10000	100	44	ND (0.11)	0.16 (0.081)	0.36 (0.11)	0.44 (0.071)	0.56 (0.2)

**Notes:**

- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- 2 Grey-shaded concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
- 3 Underlined concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC.
- 4 Italicized concentrations exceed the Non-Residential Vapor Intrusion Screening Values.

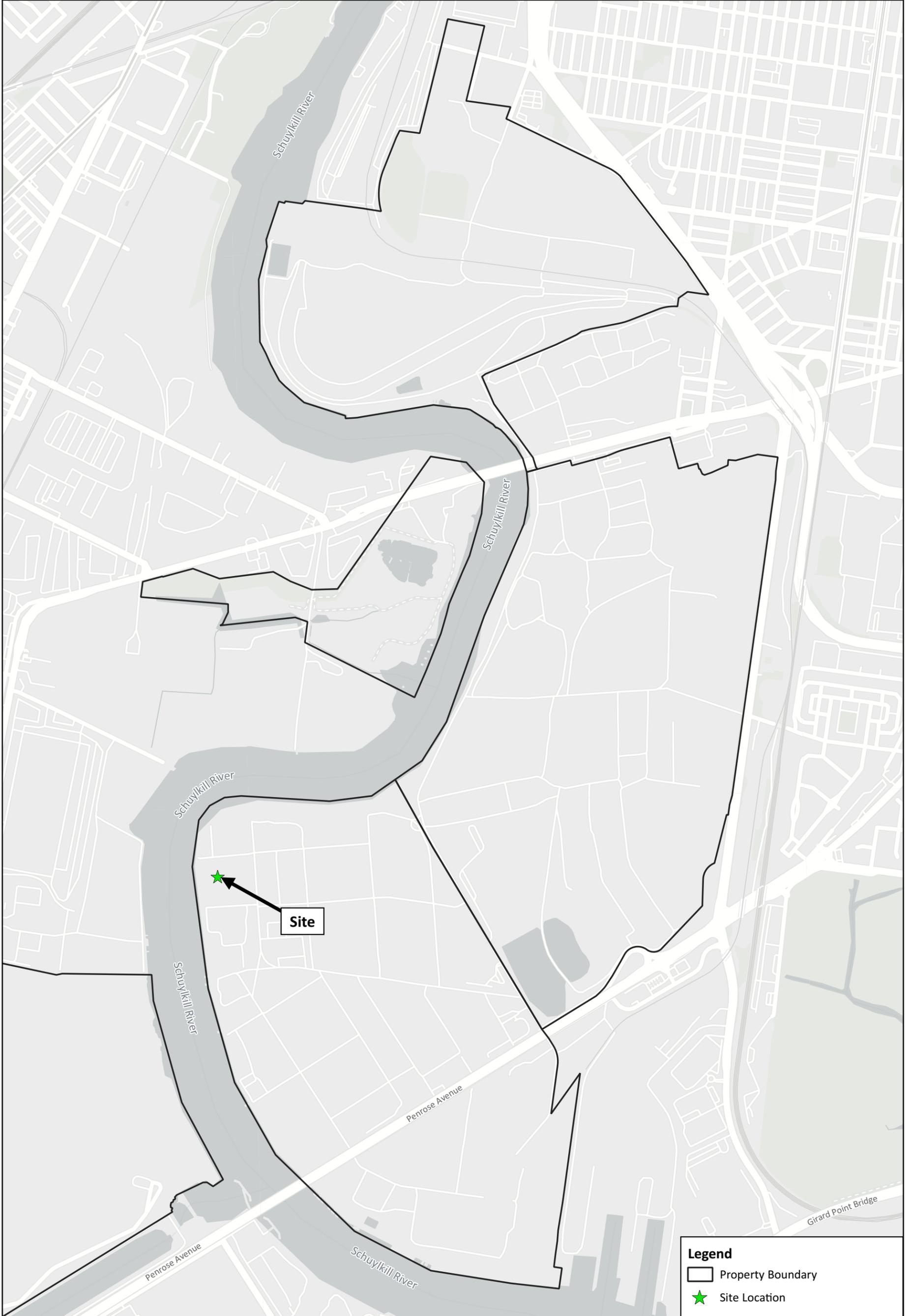
**Abbreviations:**

ND - Not Detected  
 J - Estimated Concentration

# Figures

- 1 Site Location Map
- 2 Location of Line Breaks in the Area of Former Unit 136
- 3 Soil Sampling Locations – March 2019 Remedial Investigation
- 4a General Distribution of Benzene in Soil (AOI 7)
- 4b General Distribution of Toluene in Soil (AOI 7)
- 5 2019 Excavation and Discovery of Pre-Existing Sources of Contamination
- 6 Soil Sampling Locations – December 2019 Post-Excavation
- 7 Extent of Pre-Existing Sources of Contamination
- 8 Soil Attainment Sampling Analytical Results
- 9 Additional Soil Characterization Soil Sampling Locations
- 10 Soil Analytical Results

N:\GIS\Proj\044.001\_PESRM-PES\OGIS\OGZ and GPK\Branch\_Act 2 Area\136 Naphtha Release\20241120\OGZ328\_P044.002\_BDH\_136Naphtha.agz Figure 1 - Site Location 2023-10-17 10:19:57,000 Created by: M.Ingling Checked by: MLC



**Legend**

-  Property Boundary
-  Site Location



0 250 500 750 1,000 ft



1 Inch = 1000 Feet

**SAFETY FIRST**



CLIENT: Bellwether District Holdings, LLC  
 PROJECT: 136 Naphtha Release  
 PROJECT NUMBER: P044.002.006

**Site Location**

**Figure 1**

N:\GIS\PI\P044.001\_PESRM-PES\GIS\OGZ and GPK\Branch\_Act 2 Areas\136 Naphtha Release\20250204\OGZ238\_P044.002\_BDH\_136Naphtha.ogz Rpt Figure 2 - Location of Line Breaks in the Area of Former Unit 136 2023-10-17T10:57:00 Created by: M.Chittillo Checked by: K. Long



**Legend**

- Property Boundary
- Sewer Catch Basin
- Approx. Location of Aboveground Pipe
- Approx. Location of Line Break

**Soil Sample Location**

- Evergreen - Pre-2019 Soil Investigations

Aerial imagery source: Nearmap (March 2019)

0 10 20 30 40 ft

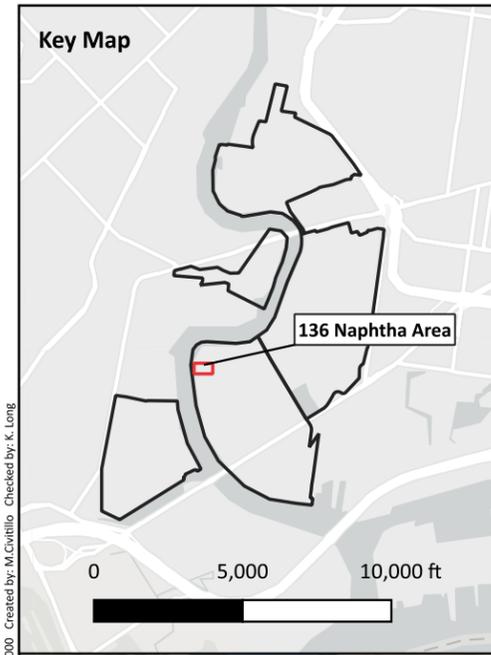
1 Inch = 40 Feet

**SAFETY FIRST**

CLIENT:	Bellwether District Holdings, LLC
PROJECT:	136 Naphtha Release
PROJECT NUMBER:	P044.002.006

**Location of Line Breaks in the Area of Former Unit 136**

**Figure 2**



**Legend**

- Property Boundary
- Sewer Catch Basin
- Approx. Location of Aboveground Pipe
- Approx. Location of Line Break

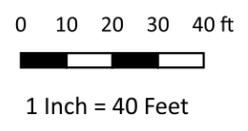
**Soil Sample Location**

- Evergreen - Pre-2019 Soil Investigations

**BDH - March 2019 Soil Investigation**

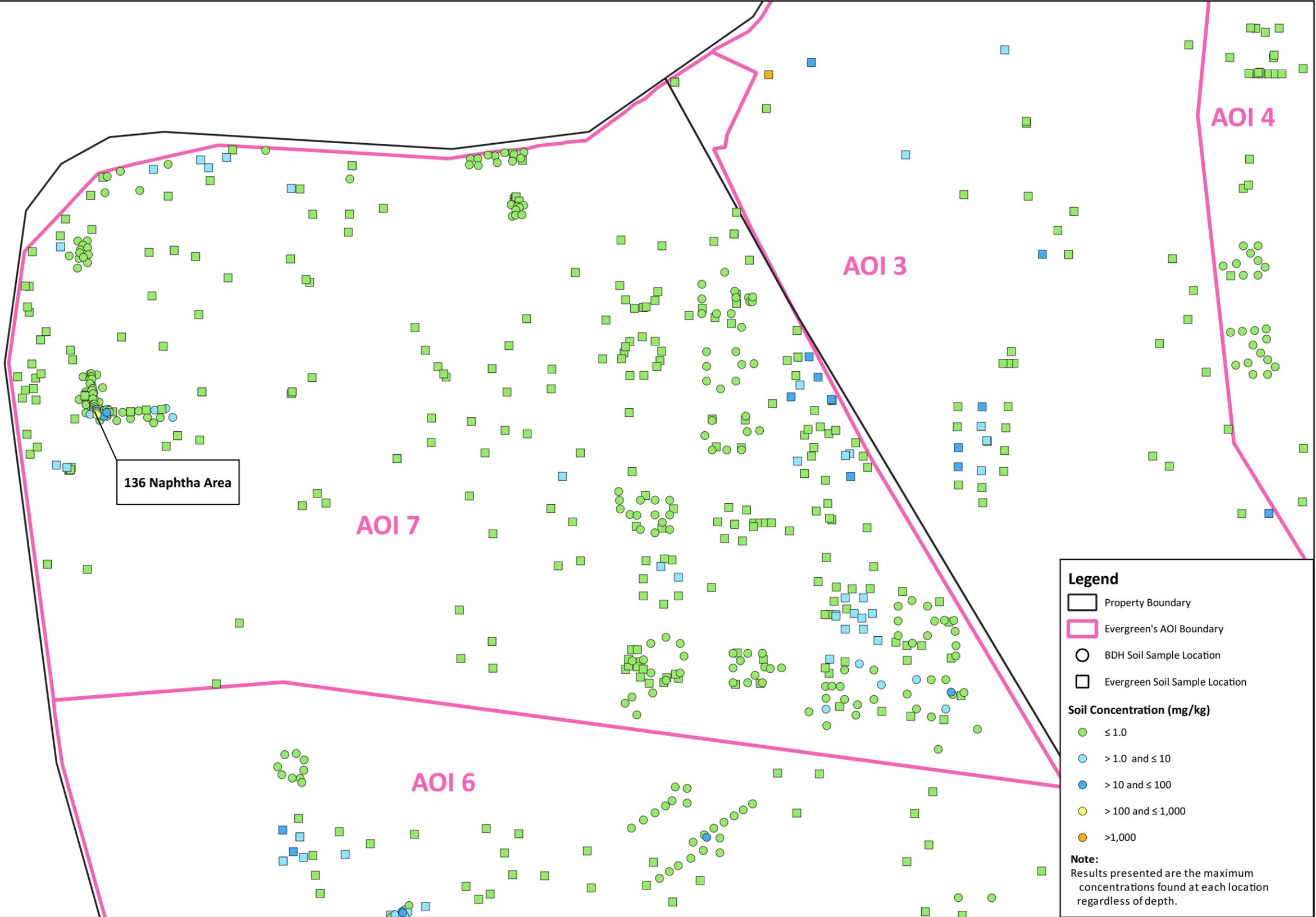
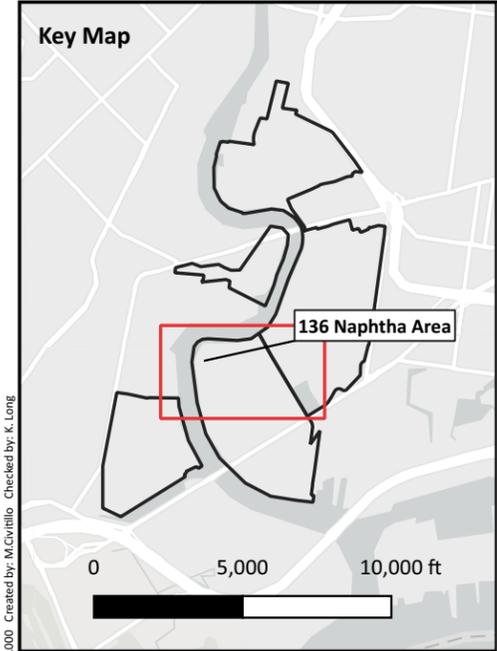
- Exceeds VISL
- Exceeds DC MSC
- Exceeds SGW MSC
- No Exceedances

Aerial imagery source: Nearmap (March 2019)



 	CLIENT: Bellwether District Holdings, LLC	<b>Soil Sampling Locations March 2019 Remedial Investigation</b>  <b>Figure 3</b>
	PROJECT: 136 Naphtha Release	
	PROJECT NUMBER: P044.002.006	

N:\GIS\PI\P044.001\_PESRM-PES\OGIS\OGZ and GPKG\Branch\_Act 2 Areas\136 Naphtha Release\20250204\OGZ238\_P044.002\_BDH\_136Naphtha.ogz Rpt Figure 3 - March 2019 Remedial Investigation 2023-10-17T10:19:57.000 Created by: M.Civillito Checked by: K. Long



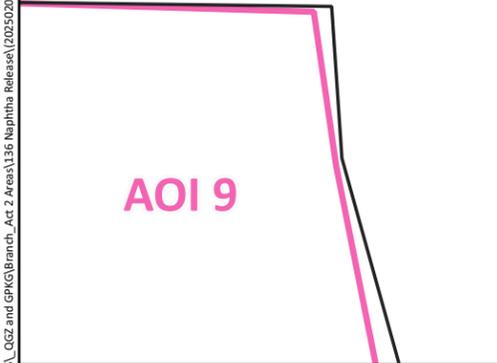
**Legend**

- Property Boundary
- Evergreen's AOI Boundary
- BDH Soil Sample Location
- Evergreen Soil Sample Location

**Soil Concentration (mg/kg)**

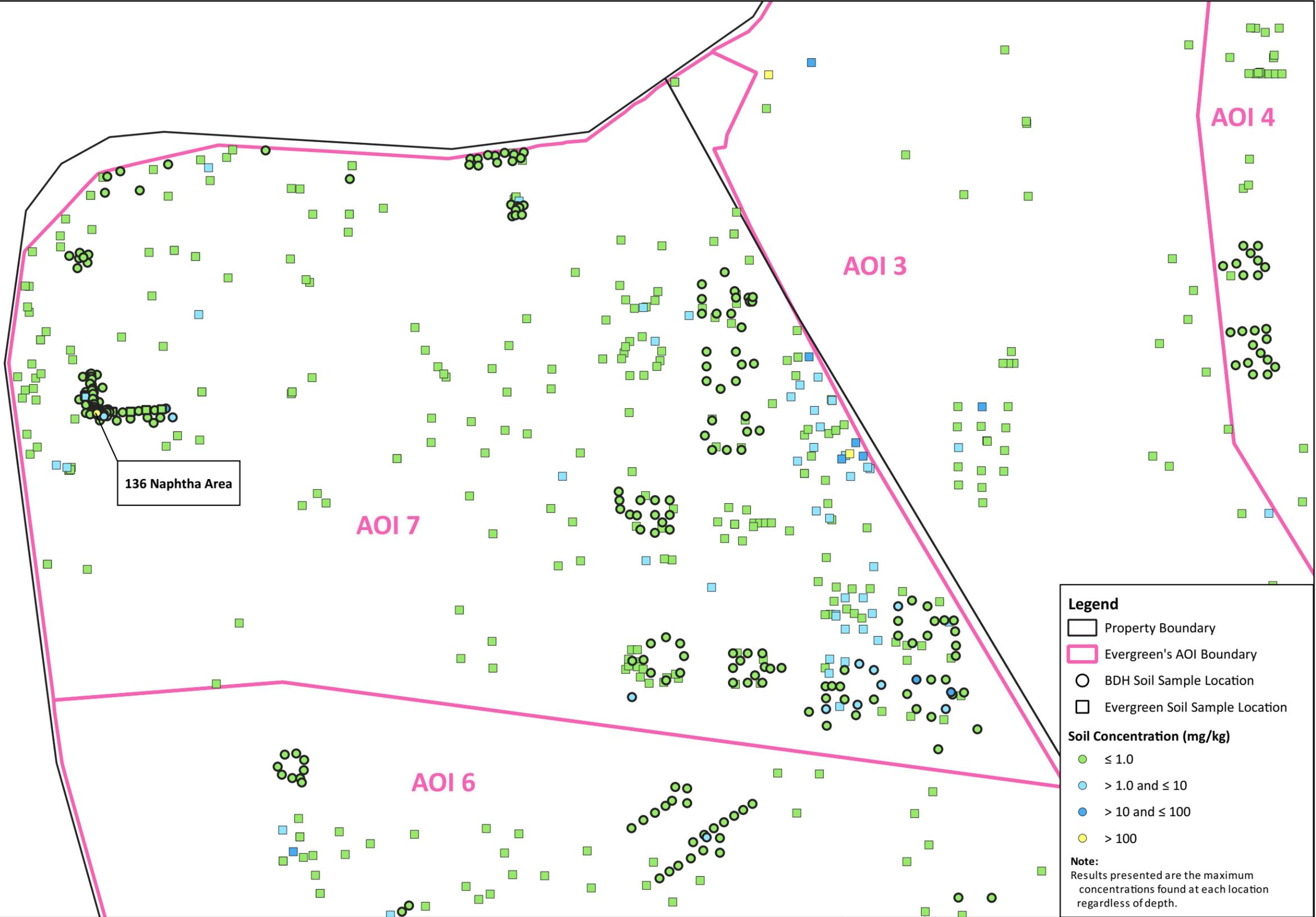
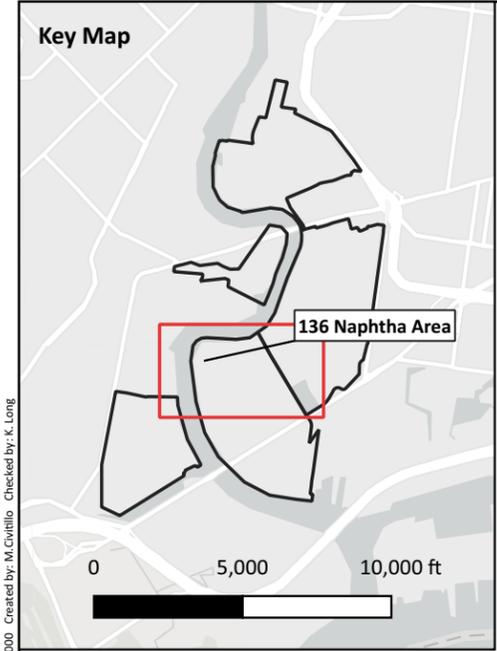
- ≤ 1.0
- > 1.0 and ≤ 10
- > 10 and ≤ 100
- > 100 and ≤ 1,000
- > 1,000

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



 	CLIENT: Bellwether District Holdings, LLC	<b>General Distribution of Benzene in Soil (AOI 7)</b>  <b>Figure 4a</b>
	PROJECT: 136 Naphtha Release	
	PROJECT NUMBER: P044.002.006	

N:\GIS\Proj\044.001\_PESRM+PES\GIS\OGZ and GPK\Branch\_Act 2 Areas\136 Naphtha Release\20250204\OGZ238\_P044.002\_BDH\_136Naphtha.apx Rpt Figure 4a - Soil General Distribution - Benzene\_2023-10-17T10:19:57.000\_Created by: M.Civilillo Checked by: K. Long



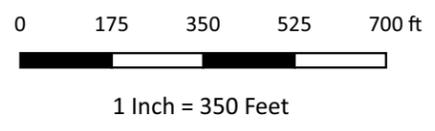
**Legend**

- Property Boundary
- Evergreen's AOI Boundary
- BDH Soil Sample Location
- Evergreen Soil Sample Location

**Soil Concentration (mg/kg)**

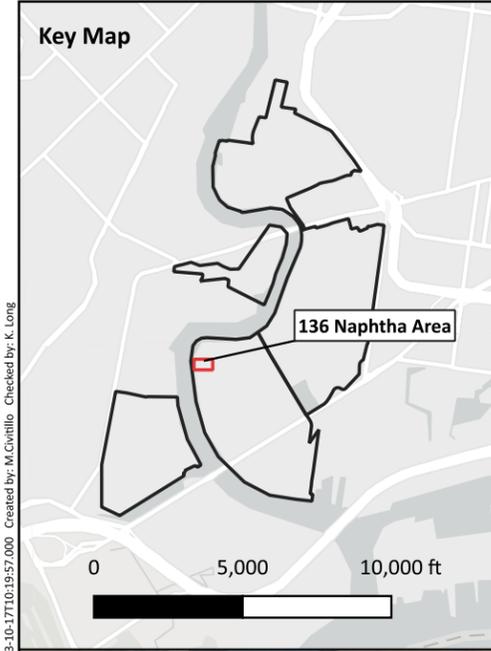
- ≤ 1.0
- > 1.0 and ≤ 10
- > 10 and ≤ 100
- > 100

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



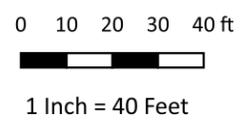
 	CLIENT: Bellwether District Holdings, LLC	<b>General Distribution of Toluene in Soil (AOI 7)</b>  <b>Figure 4b</b>
	PROJECT: 136 Naphtha Release	
	PROJECT NUMBER: P044.002.006	

N:\GIS\Projects\136 Naphtha Release\20250204\OGZ238\_P044.002\_BDH\_136Naphtha.apx - Rpt Figure 4b - Soil General Distribution - Toluene - 2023-10-17 10:57:00 - Created by: M.Cutillo - Checked by: K. Long



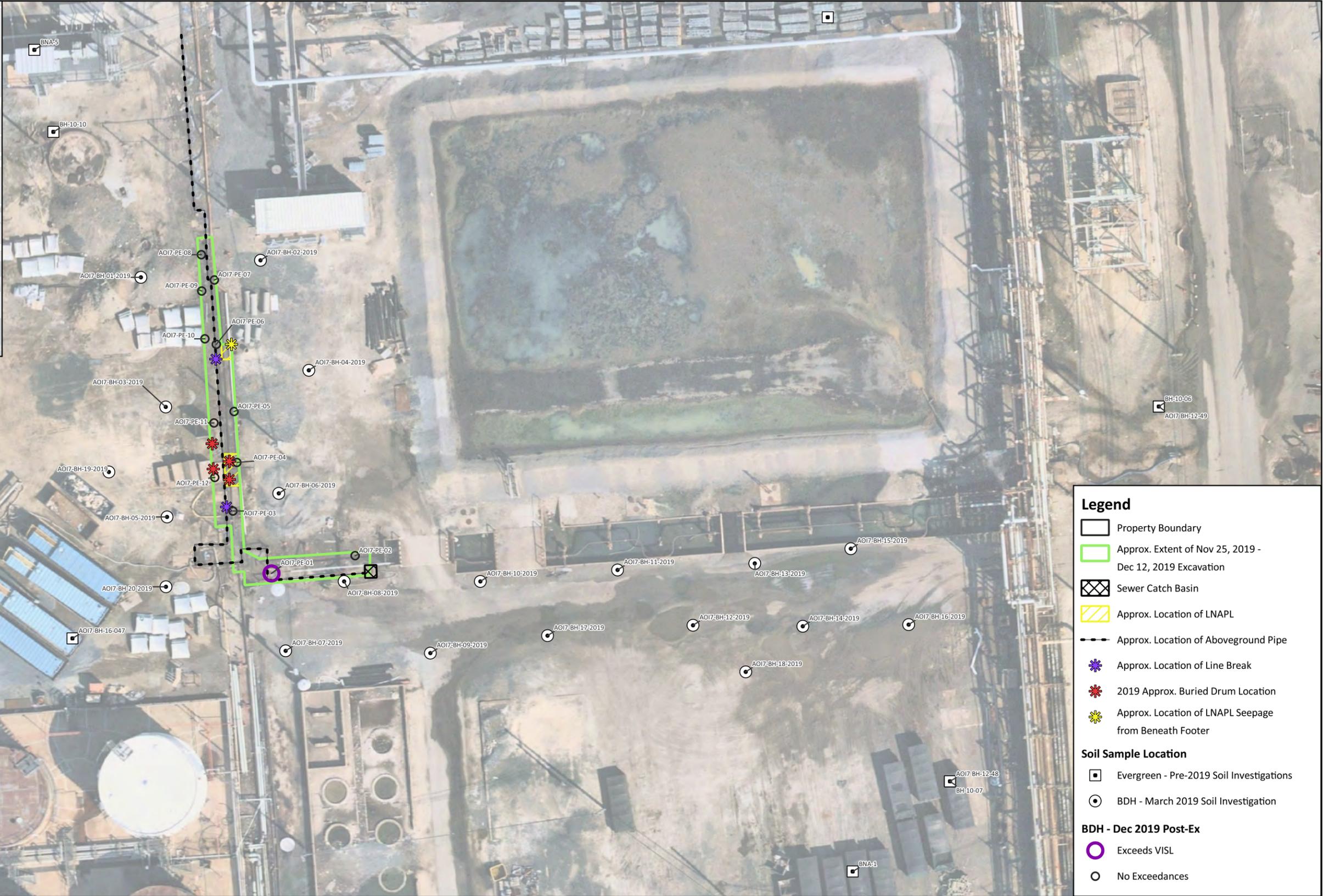
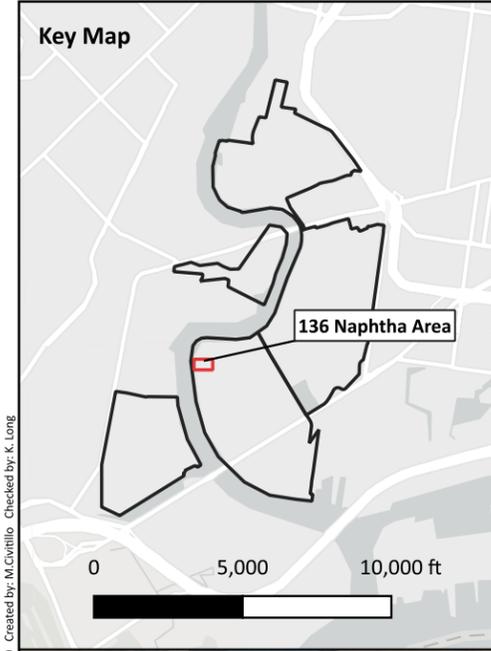
- Legend**
- Property Boundary
  - Approx. Extent of Nov 25, 2019 - Dec 12, 2019 Excavation
  - Sewer Catch Basin
  - Approx. Location of LNAPL
  - Approx. Location of Aboveground Pipe
  - Approx. Location of Line Break
  - 2019 Approx. Buried Drum Location
  - Approx. Location of LNAPL Seepage from Beneath Footer
- Soil Sample Location**
- Evergreen - Pre-2019 Soil Investigations
  - BDH - March 2019 Soil Investigation

Aerial imagery source: Nearmap (March 2019)



 	CLIENT: Bellwether District Holdings, LLC	<b>2019 Excavation and Discovery of Pre-Existing Sources of Contamination</b>  <b>Figure 5</b>
	PROJECT: 136 Naphtha Release	
	PROJECT NUMBER: P044.002.006	

N:\GIS\PI\P044.001\_PESRM-PES\GIS\OGZ and GPK\Branch\_Act 2 Areas\136 Naphtha Release\20250204\OGZ228\_P044.002\_BDH\_136Naphtha\_02\_Rpt\_Figures 5 - 2019 Excavation and Discovery of Pre-Existing Sources\_2023-10-17T10:19:57.000\_Created by: M.Chittillo\_Checked by: K. Long



**Legend**

- Property Boundary
- Approx. Extent of Nov 25, 2019 - Dec 12, 2019 Excavation
- Sewer Catch Basin
- Approx. Location of LNAPL
- Approx. Location of Aboveground Pipe
- Approx. Location of Line Break
- 2019 Approx. Buried Drum Location
- Approx. Location of LNAPL Seepage from Beneath Footer

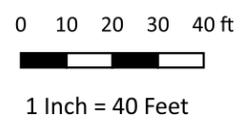
**Soil Sample Location**

- Evergreen - Pre-2019 Soil Investigations
- BDH - March 2019 Soil Investigation

**BDH - Dec 2019 Post-Ex**

- Exceeds VISL
- No Exceedances

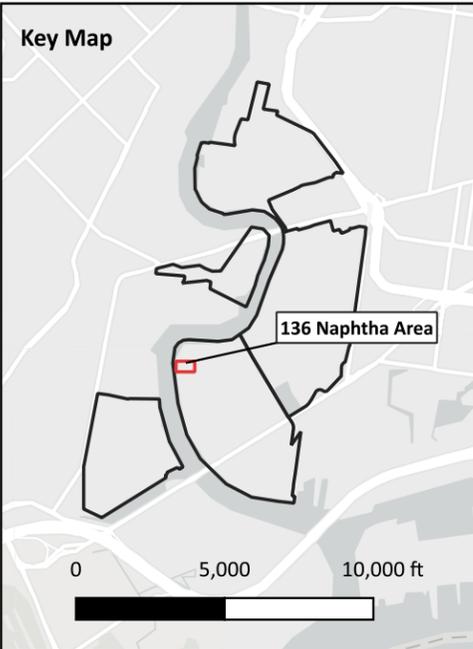
Aerial imagery source: Nearmap (March 2019)



 	CLIENT: Bellwether District Holdings, LLC	<b>Soil Sampling Locations December 2019 Post-Excavation</b>  <b>Figure 6</b>
	PROJECT: 136 Naphtha Release	
	PROJECT NUMBER: P044.002.006	

N:\GIS\Proj\044\_001\_PESRM-PES\GIS\OGZ and GPK\Branch\_Act 2 Areas\136 Naphtha Release\20250204\OGZ238\_P044.002\_BDH\_136Naphtha.apx Rpt Figure 6 - December 2019 Post-Excavation 2023-10-17T10:19:57.000 Created by: M.Civillito Checked by: K. Long

N:\GIS\PI\P044.001\_PESRM+PES\OGIS\OGZ and GPK\G1\Branch\_Act 2 Areas\136 Naphtha Release\20250204\OGZ238\_P044.002\_BDH\_136Naphtha\_02z.Rpt.Figure 7 - Extent of Pre-Existing Sources of Contamination\_2023-10-17T10:19:57.000\_Created by: M.Civittello\_Checked by: K. Long



- Legend**
- Property Boundary
  - Approx. Extent of Nov 25, 2019 - Dec 12, 2019 Excavation
  - Sewer Catch Basin
  - Approx. Location of LNAPL
  - Extent of Stantec Nov 2021 Test Pit
  - Extent of Stantec Nov 2021 Excavation
  - Approx. Location of Aboveground Pipe
  - Approx. Location of Line Break
  - 2019 Approx. Buried Drum Location
  - 2021 Approx. Buried Drum Location
  - Approx. Location of LNAPL Seepage from Beneath Footer
  - Monitoring Well Location

- Soil Sample Location**
- Evergreen - Pre-2019 Soil Investigations
  - BDH - March 2019 Soil Investigation
  - BDH - Dec 2019 Post-Ex
- Evergreen - Nov 2021 Post-Ex, Nov 2021 Add'l Char, and Jan 2022 Add'l Char**
- Exceeds VISL
  - Exceeds DC MSC
  - Exceeds SGW MSC
  - No Exceedances

Aerial imagery source: Nearmap (March 2019)

0 10 20 30 40 ft

1 Inch = 40 Feet

 	CLIENT: Bellwether District Holdings, LLC
	PROJECT: 136 Naphtha Release
	PROJECT NUMBER: P044.002.006

**Extent of Pre-Existing Sources of Contamination**

**Figure 7**

N:\GIS\Proj\044\_001\_PESRM-PES\GIS\OGZ and GPK\Branch\_Act 2 Areas\136 Naphtha Release\20250204\OGZ238\_P044.002\_BDH\_136Naphtha\_08Z\_Rpt\_Figure 8 - Attainment Sampling Analytical Results\_2023-10-17T10:19:57.000\_Created by: M.Civillillo\_Checked by: K. Long



**Legend**

- Property Boundary
- Approx. Extent of Nov 25, 2019 - Dec 12, 2019 Excavation
- Sewer Catch Basin
- Approx. Location of Aboveground Pipe

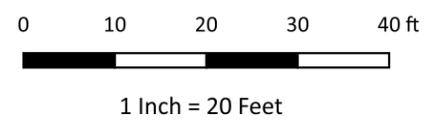
**BDH Soil Sampling Location**

- Exceeds VISL
- Exceeds DC MSC
- Exceeds SGW MSC
- No Exceedances

**Abbreviations**

DC -- Direct Contact  
 MSC -- Medium Specific Concentration  
 SGW -- Soil-to-Groundwater  
 VISL -- Vapor Intrusion Screening Level

**Notes:**  
 Sample locations symbolizing NonRes DC exceedances indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).  
 Aerial imagery source: Nearmap (March 2019)



 	CLIENT: Bellwether District Holdings, LLC	<b>Soil Attainment Sampling Analytical Results</b>  <b>Figure 8</b>
	PROJECT: 136 Naphtha Release	
	PROJECT NUMBER: P044.002.006	

N:\GIS\Proj\044\_001\_PESRM-PES\GIS\OGZ and GPK\Branch\_Act 2 Areas\136 Naphtha Release\20250204\OGZ228\_P044.002\_BDH\_136Naphtha\_02\_Rpt\_Figure 9 - Add'l Soil Char Sampling Locations 2023-10-17T10:19:57.000 Created by: M.Civilillo Checked by: K. Long



**Legend**

- Property Boundary
- Approx. Extent of Nov 25, 2019 - Dec 12, 2019 Excavation
- Sewer Catch Basin
- Approx. Location of Aboveground Pipe

**BDH Soil Sampling Location**

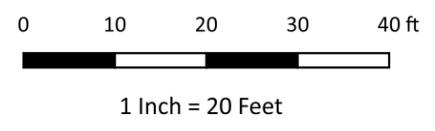
- Exceeds VISL
- Exceeds DC MSC
- Exceeds SGW MSC
- No Exceedances
- Oct 2024 Add'l Char

**Abbreviations**

- DC -- Direct Contact
- MSC -- Medium Specific Concentration
- SGW -- Soil-to-Groundwater
- VISL -- Vapor Intrusion Screening Level

**Notes:**

Sample locations symbolizing NonRes DC exceedances indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).  
Aerial imagery source: Nearmap (March 2019)



 	CLIENT: Bellwether District Holdings, LLC	<b>Additional Soil Characterization Soil Sampling Locations</b>  <b>Figure 9</b>
	PROJECT: 136 Naphtha Release	
	PROJECT NUMBER: P044.002.006	



# Appendix A

## Notification Documentation



<b>For DEP Use Only</b>
PF # _____
Rem ID # _____

## NOTICE OF INTENT TO REMEDIATE

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 (if known) and attach a scaled site map (if available).

Property Name Former Philadelphia Energy Solutions Refinery

Former Name(s) / AKA \_\_\_\_\_

Address / Location 3144 West Passyunk Avenue

City Philadelphia Zip Code 19153

Municipality(s) Clty of Philadelphia County(ies) Philadelphia

Latitude 39 ° (deg). 54 ' (min) 28 " (sec) Longitude 75 ° (deg). 12 ' (min) 49 " (sec)

Horizontal Collection Method Geographic Information Systems

Horizontal Reference Datum NAD83 Reference Point Point Where Substance is Released

Wish to participate in the DEP/EPA MOA. Contact the Land Recycling Program Manager at [landrecycling@pa.gov](mailto:landrecycling@pa.gov) for details.

EPA ID#, if known \_\_\_\_\_

DEP ID#(s), if known \_\_\_\_\_  
(i.e., eFACTS site ID#, storage tank facility ID#, water quality permit #, watershed permit, air quality permit #, etc.)

Date Release Occurred (if known) 2/22/2019

Provide a brief description of the site contamination in plain language (e.g. fuel oil spill, historical chemical industrial area contamination), the names of any know primary contaminants to be addressed, and the intended future use of the property.

A release of light naphtha from overhead piping lines associated with Unit 137 occurred on 2/22/2019 near the Unit 136 area. Interim remediation measures are described in the section below. The compounds of concern in soil area are gasoline constituents. The future use of the site is a non-residential development for commercial and industrial use.

Provide a general description of proposed remediation measures.

Philadelphia Energy Solutions Refining and Marketing, LLC is submitting this NIR to address remediation of a discharge of light naphtha which occurred at a portion of the site formerly designated as AOI 7 in prior Land Recycling Program submissions by Evergreen Resources Management. The remediation measures consisted of recovery of release product via vacuum truck and excavation and disposal of impacted soil.

Remediation Standard(s) planned (if known at this time):

- |  |  |                                      |
|--|--|--------------------------------------|
| <input type="checkbox"/> Unknown at this time  | <input type="checkbox"/> Soil            | <input type="checkbox"/> Groundwater |
| <input type="checkbox"/> Background Contaminants:  | <input type="checkbox"/> Soil            | <input type="checkbox"/> Groundwater |
| <input type="checkbox"/> Statewide Health - Residential Contaminants:                                  | <input type="checkbox"/> Soil            | <input type="checkbox"/> Groundwater |
| <input checked="" type="checkbox"/> Statewide Health – Non-Residential Contaminants: unleaded gasoline | <input checked="" type="checkbox"/> Soil | <input type="checkbox"/> Groundwater |
| <input type="checkbox"/> Site Specific Contaminants:   | <input type="checkbox"/> Soil            | <input type="checkbox"/> Groundwater |
| <input type="checkbox"/> Special Industrial Area* Contaminants:  | <input type="checkbox"/> Soil            | <input type="checkbox"/> Groundwater |

\*NOTE: Specific standard or Special Industrial Area require a 30-day municipal comment period

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.

<b>Remediator</b>		
Contact Person/Title <u>Anne Garr/Assistant Secretary</u>	eFACTS Client ID* _____	
Relationship to Site <u>Remediator</u> (e.g. owner, remediator, participant in cleanup, consultant, etc.)	Client Type* _____	
Phone Number <u>312-283-4469</u>	Email Address <u>agarr@hilcoglobal.com</u>	
Company Name <u>Philadelphia Energy Solutions Refining &amp; Marketing LLC</u>	EIN or Federal ID # <u>611689574</u>	
Address (street, city, state, zip) <u>111 South Wacker Drive, Suite 3000, Chicago, IL 60606</u>		

<b>Property Owner</b>		
Contact Person/Title <u>Anne Garr/Assistant Secretary</u>	eFACTS Client ID* _____	
Relationship to Site <u>Owner</u> (e.g. owner, remediator, participant in cleanup, consultant, etc.)	Client Type* _____	
Phone Number <u>312-283-4469</u>	Email Address <u>agarr@hilcoglobal.com</u>	
Company Name <u>Philadelphia Energy Solutions Refining &amp; Marketing LLC</u>	EIN or Federal ID # <u>611689574</u>	
Address (street, city, state, zip) <u>111 South Wacker Drive, Suite 3000, Chicago, IL 60606</u>		

<b>Consultant</b>		
Contact Person/Title <u>Jeffrey Smith, PG/Associate</u>	eFACTS Client ID* <u>303097</u>	
Relationship to Site <u>Consultant</u> (e.g. owner, remediator, participant in cleanup, consultant, etc.)	Client Type* <u>Other (Non-Government)</u>	
Phone Number <u>215-845-8915</u>	Email Address <u>JSmith@langan.com</u>	
Company Name <u>Langan Engineering and Environmental Svc.</u>	EIN or Federal ID # <u>46-1134493</u>	
Address (street, city, state, zip) <u>1818 Market Street, Philadelphia, PA 19108</u>		

*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	

<b>Preparer of Notice of Intent to Remediate</b>		
Name <u>Charlene Drake</u>	Title <u>Associate</u>	
Phone Number <u>2158523060</u>	Email Address <u>cdrake@langan.com</u>	
Company Name <u>Langan Engineering and Environmental</u>	eFACTS Client ID <u>303097</u>	

Services, Inc

Address (street, city, state, zip) 1818 Market Street, Philadelphia, PA 19108

**Notice of an Intent  
to Remediate to an Environmental Standard and  
Notification of Submittal  
of a Final Remediation Report  
(Section 304(n)(2)(i))  
(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 has submitted to the Pennsylvania Department of Environmental Protection a Notice of Intent to Remediate a site located at 3144 West Passyunk Avenue, Philadelphia, PA. This Notice of Intent to Remediate states the site is the Former Philadelphia Energy Solutions Refinery. The portion of the site has been found to be contaminated with petroleum products which has contaminated soil on the site. Philadelphia Energy Solutions Refining and Marketing LLC has indicated that the remediation measures consisted of soil excavation. The site will be used for non-residential commercial/industrial use.

Notice is hereby given that Philadelphia Energy Solutions Refining and Marketing LLC will submit a Final Report to the Pennsylvania Department of Environmental Protection, Southeast Regional Office, to demonstrate attainment of the Statewide Health Standards for soil at a portion of the Site located at 3144 Passyunk Avenue, Philadelphia, Pennsylvania. The remediation measures taken include soil excavation and removal and demonstrate attainment of the Statewide Health Standards 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

801 MARKET STREET, SUITE 300, PHILADELPHIA, PA 19107

## Affidavit of Publication

On Behalf of:  
LANGAN  
1818 Market St  
Suite 3300  
PHILADELPHIA, PA 19103

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 801 Market Street, Suite 300, Philadelphia, Pennsylvania 19107.
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

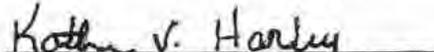
### Legal Notices

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

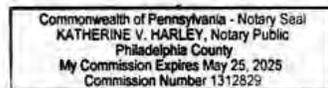
**6/3/2021**

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.



  
Notary Public

My Commission Expires:



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Customer No: 110234

## COPY OF ADVERTISEMENT

### Notice of an Intent to Remediate to an Environmental Standard and Notification of Submittal of a Final Remediation Report (Section 304(n)(2)(I)) (Sections 302(e)(1)(ii), 303(h)(1)(ii), 304(n)(1)(i), and 305(c)(1))

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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.

June 02, 2021

**CERTIFIED MAIL**  
**RETURN RECEIPT REQUESTED**

Thomas Farley, MD, MPH  
Health Commissioner  
1101 Market Street, 13<sup>th</sup> Floor  
Philadelphia, PA 19107

RE: Notice of Intent to Remediate  
Former Philadelphia Energy Solutions (PES) Refinery  
3144 West Passyunk Avenue  
Philadelphia, Pennsylvania

Dear Mr. Farley:

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, we are formally notifying you of our intent to remediate a portion of the Former Philadelphia Energy Solutions Refinery Property (site). A copy of the NIR form, which has been sent to the Department of Environmental Protection (DEP), is enclosed. The following notice will also be published in the Pennsylvania Bulletin, and a summary of the notice has been published in a local newspaper.

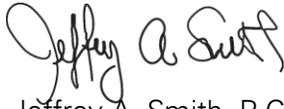
Notice is hereby given that Philadelphia Energy Solutions Refining & Marketing LLC will be submitting an Act 2 Final Report for petroleum-impacted soils related to a limited-area release to the PADEP for a portion of the site known as the Former Philadelphia Energy Solutions Refinery located at 3144 West Passyunk Avenue, Philadelphia, Pennsylvania. The Final Report indicates that the remediation performed has demonstrated attainment of the statewide health cleanup standard for soil related to a discharge of light naphtha which occurred near Unit 136 at the site.

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

Please call me at (215) 845-8915 if you have any questions concerning the proposed remediation.

Sincerely,

**Langan Engineering & Environmental Services, Inc.**

A handwritten signature in black ink, appearing to read "Jeffrey A. Smith". The signature is written in a cursive, flowing style.

Jeffrey A. Smith, P.G.  
Associate

Enclosure: Notice of Intent to Remediate Form

cc. Joseph Jeray  
Anne Garr  
Julianna Connolly  
Charlene Drake

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<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$0.75
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Thomas Farley, MD, MPH  
Health Commissioner  
1101 Market Street, 13th Floor  
Philadelphia, PA 19107

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## **Can't find what you're looking for?**

Go to our FAQs section to find answers to your tracking questions.

### **FAQs**

June 10, 2021

**CERTIFIED MAIL**  
**RETURN RECEIPT REQUESTED**

Ms. Leigh Anne Rainford  
Philadelphia Department of Public Health  
Environmental Health Services  
321 University Avenue – 2nd Floor  
Philadelphia, PA 19104  
LeighAnne.Rainford@Phila.gov

RE: Notice of Intent to Remediate  
Former Philadelphia Energy Solutions (PES) Refinery  
3144 West Passyunk Avenue  
Philadelphia, Pennsylvania

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, we are formally notifying you of our intent to remediate a portion of the Former Philadelphia Energy Solutions Refinery Property (site). A copy of the NIR form, which has been sent to the Department of Environmental Protection (DEP), is enclosed. The following notice will also be published in the Pennsylvania Bulletin, and a summary of the notice has been published in a local newspaper.

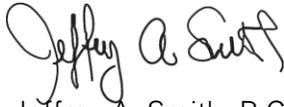
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Sincerely,

**Langan Engineering & Environmental Services, Inc.**

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Jeffrey A. Smith, P.G.  
Associate

Enclosure: Notice of Intent to Remediate Form

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Philadelphia, PA 19104

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Mon 06/07/2021			
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Return Receipt			\$2.85
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9590 9402 4543 8278 1839 95			
<b>Total</b>			<b>\$7.20</b>
<b>Grand Total:</b>			<b>\$7.20</b>
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 Clerk: 90

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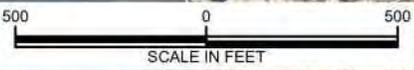
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Go to our FAQs section to find answers to your tracking questions.

### **FAQs**



Notes:  
 1. Aerial imagery provided by Langan's subscription to Nearmap.com, flown on 08/30/20..



**Legend**  
 AOI-7

# LANGAN

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 Philadelphia, PA 19103-3638  
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Langan Engineering & Environmental Services, Inc.  
 Langan Engineering, Environmental, Surveying,  
 Landscape Architecture and Geology, D.P.C.  
 Langan International LLC  
 Collectively known as Langan

Project

## FORMER PES REFINERY

PHILADELPHIA

PHILADELPHIA  
 COUNTY PENNSYLVANIA

Drawing Title

## 2019 LIGHT NAPHTHA RELEASE AREA SITE PLAN

Project No.

220146201

Date

4/6/2021

Scale

1" = 500'

Drawn By

KMB

Submission Date

Figure

2



April 16, 2025

Ms. Leigh Anne Rainford  
Program Manager  
Philadelphia Department of Public Health  
Environmental Health Services  
7801 Essington Avenue  
Philadelphia, PA 19153

*sent via email to [LeighAnne.Rainford@Phila.gov](mailto:LeighAnne.Rainford@Phila.gov) and UPS, Proof of Delivery Requested*

**Subject: Notice of Remedial Investigation and Final Report Submission (eFACTS 850105)  
136 Naphtha 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 Bellwether District Holdings, LLC (BDH) (formerly Philadelphia Energy Solutions Refining & Marketing LLC [PESRM]), will submit a combined Remedial Investigation and Final Report to the Department of Environmental Protection for the 136 Naphtha Release area (eFACTS 850105) within the Former Philadelphia Refinery located at 3144 West Passyunk Avenue, Philadelphia, Pennsylvania. The Remedial Investigation and 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.

A handwritten signature in black ink that reads "Kevin L. Long".

Kevin L. Long  
Senior Principal Consultant

KL:cs

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

## 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](http://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 136 Naphtha Release

Property Descriptor Former Philadelphia Refinery

### Address / Location

Address 3144 West Passyunk Ave

City Philadelphia Zip Code 19153

Municipality(s) Philadelphia County(ies) Philadelphia

Latitude 39 ° (deg). 52 ' (min) 46.92 " (sec) Longitude 75 ° (deg). 15 ' (min) 55.8 " (sec)

Horizontal Collection Method GIS

Horizontal Reference Datum NAD 83 (2011) Reference Point See Figure 1 attached

### Property Specifics

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

Combined acreage of sites .0034

### 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	0.037	
Cumene	98-82-8	46.8	
Ethyl Benzene	100-41-4	0.030	
Methyl tert-butyl ether	1634-04-4	0.001	
Toluene	108-88-3	0.05	
1,2,4-Trimethylbenzene	95-63-6	50.32	
1,3,5-Trimethylbenzene	108-67-8	16.61	
Xylenes (total)	1330-20-7	0.21	
Naphthalene	91-20-3	3.12	



**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 (\$):** 225,000

**Jobs created/saved:** 2

**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 February 22, 2019, 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), On February 22, 2019, approximately 53,000 gallons of light naphtha product were released from an aboveground pipeline associated with Refinery Unit 137. In February 2019, the Refinery Unit 137 was restarted following maintenance and the light naphtha was released out of two defects in the product line. The product was released to the ground surface in the area close to former Refinery Unit 136. The product was observed to flow to the south, parallel to the aboveground piping, and then east toward a sewer catch basin. Immediate response actions were implemented, which included immediate removal of liquids from the storm sewer and culvert via vacuum truck, installation of test pits which were advanced along the compromised product line, removal of water/product from the test pits, and the replacement of the damaged section of piping were implemented.

A remedial investigation was subsequently performed to define the extent of the release and to determine the area over which impacted soil should be remediated. During the course of these efforts, pre-existing sources of contamination in the area were discovered including in the footprint of the February 2019 release. This included buried deteriorated drums, viscous product in these drums and surrounding soil, and dark LNAPL seeping from beneath portions of a north-south trending concrete footer located along the eastern boundary of the area impacted by the February 2019 release. These sources and the related contamination were managed by Evergreen. Soil impacted by the February 2019 release was subsequently excavated, containerized, and transported off-site for disposal between November 25 and December 12, 2019. Post-excavation and additional soil characterization 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. 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. 51-33624  
 Relationship to Site Owner Client Type\* Limited Liability Company  
 (e.g. owner, remediator, participant in cleanup, consultant, etc.)  
 Phone Number (312) 283-4469 Email Address agarr@hilcoglobal.com  
 Company Name Bellwether District Holdings, 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. 51-33624  
 Relationship to Site Owner Client Type\* Limited Liability Company  
 (e.g. owner, remediator, participant in cleanup, consultant, etc.)  
 Phone Number (312) 283-4469 Email Address agarr@hilcoglobal.com  
 Company Name Bellwether District Holdings, LLC EIN or Federal ID # \_\_\_\_\_  
 Street Address 3144 W. Passyunk Avenue  
 City Philadelphia State PA Zip Code 19153

**Consultant**

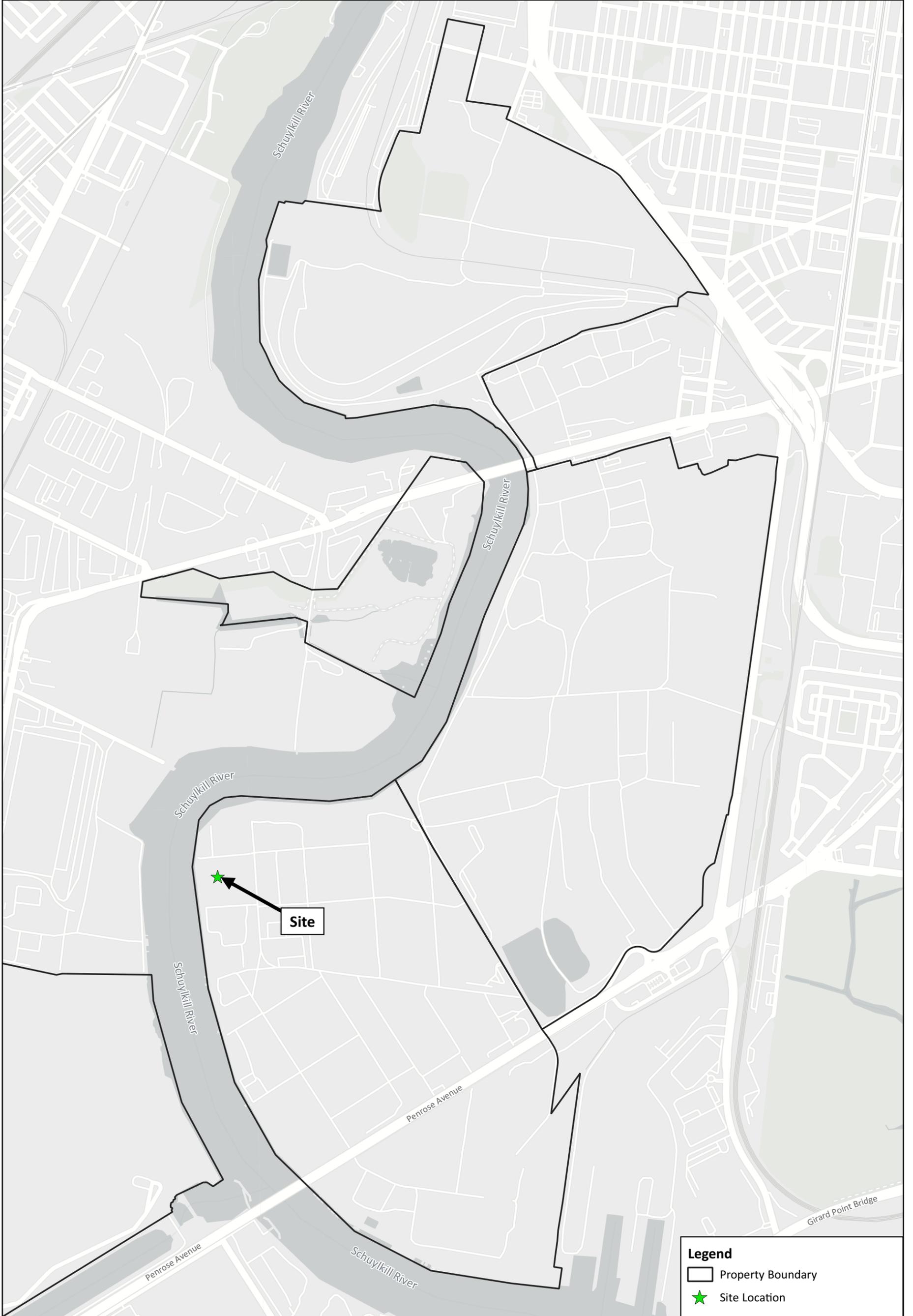
Contact Person/Title Kevin Long / Senior Principal Consultant eFACTS Client ID\* \_\_\_\_\_  
 Relationship to Site Consultant Client Type\* Corporation  
 (e.g. owner, remediator, participant in cleanup, consultant, etc.)  
 Phone Number 609-236-8171, ext 93 Email Address kevin.long@terraphase.com  
 Company Name Terraphase Engineering Inc. EIN or Federal ID # \_\_\_\_\_  
 Street Address 100 Canal Pointe Boulevard, 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).

N:\GIS\Proj\044.001\_PESRM-PES\OGIS\OGZ and GPK\Branch\_Act 2 Area\136 Naphtha Release\20241120\OGZ328\_P044.002\_BDH\_136Naphtha.agz Figure 1 - Site Location 2023-10-17 10:19:57,000 Created by: M.Ingling Checked by: MLC



**Legend**

-  Property Boundary
-  Site Location



0 250 500 750 1,000 ft



1 Inch = 1000 Feet

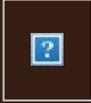
 	CLIENT: Bellwether District Holdings, LLC
	PROJECT: 136 Naphtha Release
	PROJECT NUMBER: P044.002.006

**Site Location**

**Figure 1**

**From:** [UPS](#)  
**To:** [Alexander Strohl](#)  
**Subject:** UPS Delivery Notification, Tracking Number 1Z75YA670191998676  
**Date:** Thursday, April 17, 2025 10:14:25 AM

---



**Hello, your package has been delivered.**

**Delivery Date:** Thursday, 04/17/2025

**Delivery Time:** 10:08 AM

**Left At:** FRONT DESK

**Signed by:** hupp

## TERRAPHASE ENGINEERING

<b>Tracking Number:</b>	<a href="#">1Z75YA670191998676</a>
<b>Ship To:</b>	PHILADELPHIA DEPT OF PUBLIC HEALTH 7801 ESSINGTON AVENUE ENVIRONMENTAL HEALTH SERVICES PHILADELPHIA, PA 19153 US
<b>Number of Packages:</b>	1
<b>UPS Service:</b>	UPS Next Day Air®
<b>Package Weight:</b>	0.5 LBS
<b>Reference Number:</b>	P044.001.006_STROHL

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

Notice is hereby given that Bellwether District Holdings, LLC (BDH) (formerly Philadelphia Energy Solutions Refining & Marketing LLC [PESRM]) has submitted a combined Remedial Investigation and Final Report to the Department of Environmental Protection, Southeast Regional Office, to demonstrate attainment of the Statewide health standard for the 136 Naphtha Release area (eFACTS 850105) within the Former Philadelphia Refinery located at 3144 West Passyunk Avenue, Philadelphia, Pennsylvania. BDH 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

## Payment Receipt

### Payee Information

Account No. 104799  
Customer Name TERRAPHASE ENGINEERING  
Advertiser #ADVERTISER\_ID#  
Advertiser Name #ADVERTISER\_NAME#

### Payment Detail

Payment/Receipt No. 19450.CC  
Payment Date 4/14/2025  
Payment Method Credit Card (Auth: 9cdx41vj)  
Payment Entered By Helene Sweeney  
Payment Comment PRE-PAYMENT FOR 78193  
  
Payment Amount 1,146.32

### Orders Pre-paid

Order No.	Order Type	Paid Amount
78193	Digital Advertising Order	1,146.32

# 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:

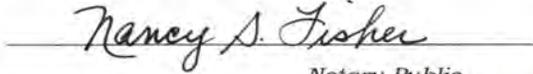
1. The Philadelphia Inquirer, LLC is the publisher of the Philadelphia Inquirer, with its headquarters at 100 S. Independence Mall West, Suite 600, Philadelphia, PA 19106.
2. The Philadelphia Inquirer is a newspaper that which was established in in the year 1829, since which date said daily newspaper 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:

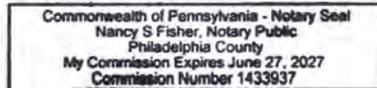
**4/16/2025**

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.



Notary Public

My Commission Expires:



## COPY OF ADVERTISEMENT

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

Notice is hereby given that Bellwether District Holdings, LLC (BDH) (formerly Philadelphia Energy Solutions Refining & Marketing LLC [PESRM]) has submitted a combined Remedial Investigation and Final Report to the Department of Environmental Protection, Southeast Regional Office, to demonstrate attainment of the Statewide health standard for the 136 Naphtha Release area (eFACTS 850105) within the Former Philadelphia Refinery located at 3144 West Passyunk Avenue, Philadelphia, Pennsylvania. BDH 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: 185275

Customer No: 104799



## 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 850105

Site Name 136 Naphtha Release

Site Address 3144 West Passyunk Ave

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.

- |  |  |
|--|--|
| <input type="checkbox"/> Background Standard<br>Final Report (\$250 fee) | <input checked="" type="checkbox"/> Statewide Health Standard*<br>Final Report (\$250 fee) |
| <input type="checkbox"/> Site-Specific Standard                          | <input type="checkbox"/> Special Industrial Area   |
| <input type="checkbox"/> Remedial Investigation Report<br>(\$250 fee)    | <input type="checkbox"/> Work Plan<br>(no fee)   |
| <input type="checkbox"/> Risk Assessment Report<br>(\$250 fee)           | <input type="checkbox"/> Baseline Environmental Report<br>(no fee)                         |
| <input type="checkbox"/> Cleanup Plan (\$250 fee)                        |  |
| <input type="checkbox"/> Final Report (\$500 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.

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 February 22, 2019

**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**

4/16/2025 Place date here that each municipality was notified of any plan or report submitted under any of the three remediation standards.

Philadelphia Inquirer 4/16/2025 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:

<p><b>Consultant</b></p> <p>Contact Person/Title: <u>Kevin Long / Consultant</u></p> <hr/> <p>Phone Number <u>(609) 236-8171 x93</u></p> <hr/> <p>Email Address <u>kevin.long@terrphase.com</u></p> <hr/> <p>Company Name: <u>Terraphase Engineering Inc.</u></p> <hr/> <p>Mailing Address (street, city, state, zip)</p> <p><u>100 Canal Pointe Boulevard, Suite 110, Princeton, NJ</u></p>
<p><b>Remediator</b></p> <p>Contact Person/Title: <u>Anne R. Garr / Assistant Secretary</u></p> <hr/> <p>Phone Number <u>(312) 283-446</u></p> <hr/> <p>Email Address <u>agarr@hilcoglobal.com</u></p> <hr/> <p>Company Name: <u>Bellwether District Holdings, LLC</u></p> <hr/> <p>Mailing Address (street, city, state, zip)</p> <p><u>3144 West Passyunk Ave, Philadelphia, PA 19153</u></p>
<p><b>Other</b></p> <p>Contact Person/Title: _____</p> <p>Relationship to Site _____</p> <p>(e.g. owner, participant in cleanup, responsible party, etc.)</p> <p>Phone Number _____</p> <p>Email Address _____</p> <p>Company Name: _____</p> <p>Mailing Address (street, city, state, zip)</p> <p>_____</p>

# Appendix B

## Historical Soil Analytical Results

Table B-1

Summary of Historical Soil Analytical Results

136 Naphtha Release Area

Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Direct Contact MSCs	Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC	Non-Residential Vapor Intrusion Screening Values	AOI7-BH-01-2019 AOI7-BH-01-2019(1.0-1.5) 3/26/2019	AOI7-BH-02-2019 AOI7-BH-02-2019(2.0-2.5) 3/26/2019	AOI7-BH-03-2019 AOI7-BH-03-2019(2.5-3.0) 3/22/2019	AOI7-BH-04-2019 AOI7-BH-04-2019(2.5-3.0) 3/22/2019	AOI7-BH-05-2019 AOI7-BH-05-2019(1.5-2.0) 3/22/2019	AOI7-BH-06-2019 AOI7-BH-06-2019(0.5-1.0) 3/26/2019	AOI7-BH-07-2019 AOI7-BH-07-2019(1.5-2.0) 3/26/2019
<b>Volatile Organic Compounds</b>										
Benzene	280	0.5	0.13	0.003 J (0.008)	0.05 J (0.29)	ND (0.006)	0.44 (0.27)	0.46 (0.28)	0.001 J (0.007)	ND (0.004)
sec-Butylbenzene	10000	2300	--	NA						
tert-Butylbenzene	10000	1800	--	NA						
Cumene	10000	2500	2500	ND (0.008)	0.62 (0.29)	ND (0.006)	0.062 J (0.27)	1.2 (0.28)	ND (0.007)	ND (0.004)
Cyclohexane	10000	6900	6900	NA						
1,2-Dibromoethane	3.7	0.005	0.0013	NA						
Ethyl Benzene	880	70	46	ND (0.008)	0.055 J (0.29)	ND (0.006)	0.058 J (0.27)	0.12 J (0.28)	ND (0.007)	ND (0.004)
Hexane	10000	5300	5300	NA						
Methyl tert-butyl ether	8500	2	1.4	ND (0.008)	ND (0.29)	0.001 J (0.006)	ND (0.27)	ND (0.28)	ND (0.007)	ND (0.004)
Toluene	10000	100	44	0.002 J (0.008)	0.054 J (0.29)	ND (0.006)	0.3 (0.27)	0.25 J (0.28)	0.001 J (0.007)	0.0003 J (0.004)
1,2,4-Trimethylbenzene	4700	300	300	0.001 J (0.008)	0.11 J (0.29)	ND (0.006)	0.042 J (0.27)	0.17 J (0.28)	ND (0.007)	ND (0.004)
1,3,5-Trimethylbenzene	4700	93	93	ND (0.008)	0.046 J (0.29)	ND (0.006)	ND (0.27)	0.048 J (0.28)	ND (0.007)	ND (0.004)
Xylenes (total)	7900	1000	990	ND (0.008)	0.23 J (0.29)	ND (0.006)	0.17 J (0.27)	0.76 (0.28)	ND (0.007)	ND (0.004)
<b>Semi-Volatile Organic Compounds</b>										
Acenaphthene	190000	4700	--	NA						
Anthracene	190000	350	--	NA						
Benzo(a)anthracene	130	340	--	NA						
Benzo(a)pyrene	91	46	--	NA						
Benzo(b)fluoranthene	76	170	--	NA						
Benzo(g,h,i)perylene	190000	180	--	NA						
Benzo(k)fluoranthene	76	610	--	NA						
1,1-Biphenyl	34	1.5	1.5	NA						
Chrysene	760	230	--	NA						
Dibenz(a,h)anthracene	22	270	--	NA						
Fluoranthene	130000	3200	--	NA						
Fluorene	130000	3800	--	NA						
Indeno(1,2,3-cd)pyrene	76	18000	--	NA						
2-Methylnaphthalene	240	100	100	NA						
4-Methylphenol	16000	49	--	NA						
Naphthalene	66	25	25	0.001 J (0.008)	1.9 (0.29)	0.0009 J (0.006)	0.16 J (0.27)	ND (0.28)	ND (0.007)	ND (0.004)
Phenanthrene	190000	10000	--	NA						
bis(2-Ethylhexyl)phthalate	6500	130	--	NA						
Pyrene	96000	2200	--	NA						
<b>Metals</b>										
Cobalt	960	130	--	NA						
Lead	1000	450	--	NA						
Nickel	64000	650	--	NA						
Vanadium	16000	49000	--	NA						
Zinc	190000	12000	--	NA						

Notes:

- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 No concentrations exceed the Non-Residential Direct Contact MSCs.
- 4 Underlined concentrations exceed the Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW
- 5 Italicized concentrations exceed the Non-Residential Vapor Intrusion Screening Values.

Abbreviations:

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

**Table B-1**  
**Summary of Historical Soil Analytical Results**  
**136 Naphtha Release Area**  
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Direct Contact MSCs	Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC	Non-Residential Vapor Intrusion Screening Values	AOI7-BH-08-2019 AOI7-BH-08-2019(0.25-0.5) 3/26/2019	AOI7-BH-09-2019 AOI7-BH-09-2019(0.25-0.5) 3/26/2019	AOI7-BH-10-2019 AOI7-BH-10-2019(2.0-2.5) 3/26/2019	AOI7-BH-11-2019 AOI7-BH-11-2019(1.5-2.0) 3/26/2019	AOI7-BH-12-2019 AOI7-BH-12-2019(1.0-1.5) 3/26/2019	AOI7-BH-13-2019 AOI7-BH-13-2019(1.5-2.0) 3/26/2019	AOI7-BH-14-2019 AOI7-BH-14-2019(1.0-1.5) 3/26/2019
<b>Volatile Organic Compounds</b>										
Benzene	280	0.5	0.13	<u>40 (4.4)</u>	0.002 J (0.005)	ND (0.26)	ND (0.25)	0.068 J (0.22)	<u>1.2 (0.42)</u>	<i>0.19 J (0.27)</i>
sec-Butylbenzene	10000	2300	--	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	10000	1800	--	NA	NA	NA	NA	NA	NA	NA
Cumene	10000	2500	2500	41 (4.4)	ND (0.005)	ND (0.26)	ND (0.25)	ND (0.22)	0.043 J (0.42)	0.068 (0.007)
Cyclohexane	10000	6900	6900	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	3.7	0.005	0.0013	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	70	46	20 (0.44)	ND (0.005)	0.029 J (0.26)	ND (0.25)	ND (0.22)	0.13 J (0.42)	0.26 (0.007)
Hexane	10000	5300	5300	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	8500	2	1.4	ND (0.44)	ND (0.005)	ND (0.26)	ND (0.25)	ND (0.22)	ND (0.42)	ND (0.007)
Toluene	10000	100	44	<u>130 (4.4)</u>	0.001 J (0.005)	0.2 J (0.26)	0.031 J (0.25)	0.024 J (0.22)	1 (0.42)	0.2 J (0.27)
1,2,4-Trimethylbenzene	4700	300	300	26 (0.44)	ND (0.005)	ND (0.26)	ND (0.25)	0.035 J (0.22)	0.18 J (0.42)	0.31 (0.007)
1,3,5-Trimethylbenzene	4700	93	93	9.8 (0.44)	ND (0.005)	0.033 J (0.26)	ND (0.25)	ND (0.22)	0.091 J (0.42)	0.13 (0.007)
Xylenes (total)	7900	1000	990	140 (4.4)	ND (0.005)	0.048 J (0.26)	ND (0.25)	ND (0.22)	0.78 (0.42)	0.15 J (0.27)
<b>Semi-Volatile Organic Compounds</b>										
Acenaphthene	190000	4700	--	NA	NA	NA	NA	NA	NA	NA
Anthracene	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	76	610	--	NA	NA	NA	NA	NA	NA	NA
1,1-Biphenyl	34	1.5	1.5	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	230	--	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	22	270	--	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	130000	3200	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	240	100	100	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	16000	49	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	25	25	2 (0.44)	ND (0.005)	0.23 J (0.26)	0.078 J (0.25)	0.16 J (0.22)	0.1 J (0.42)	0.007 J (0.007)
Phenanthrene	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	6500	130	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	2200	--	NA	NA	NA	NA	NA	NA	NA
<b>Metals</b>										
Cobalt	960	130	--	NA	NA	NA	NA	NA	NA	NA
Lead	1000	450	--	NA	NA	NA	NA	NA	NA	NA
Nickel	64000	650	--	NA	NA	NA	NA	NA	NA	NA
Vanadium	16000	49000	--	NA	NA	NA	NA	NA	NA	NA
Zinc	190000	12000	--	NA	NA	NA	NA	NA	NA	NA

**Notes:**

- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 No concentrations exceed the Non-Residential Direct Contact MSCs.
- 4 Underlined concentrations exceed the Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW
- 5 Italicized concentrations exceed the Non-Residential Vapor Intrusion Screening Values.

**Abbreviations:**

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

Table B-1

Summary of Historical Soil Analytical Results

136 Naphtha Release Area

Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Direct Contact MSCs	Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC	Non-Residential Vapor Intrusion Screening Values	AOI7-BH-15-2019 AOI7-BH-15-2019(1.0-1.5) 3/26/2019	AOI7-BH-16-2019 AOI7-BH-16-2019(1.0-1.5) 3/26/2019	AOI7-BH-17-2019 AOI7-BH-17-2019(1.0-1.5) 3/26/2019	AOI7-BH-18-2019 AOI7-BH-18-2019(2.5-3.0) 3/26/2019	AOI7-BH-19-2019 AOI7-BH-19-2019(1.5-2.0) 3/26/2019	AOI7-BH-20-2019 AOI7-BH-20-2019(0.5-1.0) 3/26/2019	AOI7-PE-01 AOI7-PE-01-2019(3.0) 12/12/2019
<b>Volatile Organic Compounds</b>										
Benzene	280	0.5	0.13	<u>8.3 (0.23)</u>	<u>1.7 (0.28)</u>	0.011 (0.006)	0.002 J (0.006)	0.003 J (0.007)	0.15 J (0.23)	0.2 J (0.34)
sec-Butylbenzene	10000	2300	--	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	10000	1800	--	NA	NA	NA	NA	NA	NA	NA
Cumene	10000	2500	2500	0.47 (0.23)	0.76 (0.28)	ND (0.006)	ND (0.006)	0.036 (0.007)	ND (0.23)	0.06 J (0.34)
Cyclohexane	10000	6900	6900	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	3.7	0.005	0.0013	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	70	46	2.1 (0.23)	0.93 (0.28)	0.0005 J (0.006)	0.0008 J (0.006)	0.007 (0.007)	0.061 J (0.23)	0.04 J (0.34)
Hexane	10000	5300	5300	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	8500	2	1.4	ND (0.23)	ND (0.28)	ND (0.006)	ND (0.006)	ND (0.007)	ND (0.23)	ND (0.34)
Toluene	10000	100	44	12 (0.23)	4.3 (0.28)	0.004 J (0.006)	0.002 J (0.006)	0.009 (0.007)	0.84 (0.23)	0.19 J (0.34)
1,2,4-Trimethylbenzene	4700	300	300	3.3 (0.23)	2.7 (0.28)	ND (0.006)	0.002 J (0.006)	0.025 (0.007)	0.079 J (0.23)	0.066 J (0.34)
1,3,5-Trimethylbenzene	4700	93	93	1.2 (0.23)	1.1 (0.28)	ND (0.006)	0.0006 J (0.006)	0.014 (0.007)	0.045 J (0.23)	0.043 J (0.34)
Xylenes (total)	7900	1000	990	13 (0.23)	9.1 (0.28)	0.003 J (0.006)	0.004 J (0.006)	0.057 (0.007)	0.68 (0.23)	0.28 J (0.68)
<b>Semi-Volatile Organic Compounds</b>										
Acenaphthene	190000	4700	--	NA	NA	NA	NA	NA	NA	NA
Anthracene	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	76	610	--	NA	NA	NA	NA	NA	NA	NA
1,1-Biphenyl	34	1.5	1.5	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	230	--	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	22	270	--	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	130000	3200	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	240	100	100	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	16000	49	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	25	25	0.16 J (0.23)	0.25 J (0.28)	0.02 (0.006)	0.002 J (0.006)	ND (0.007)	ND (0.23)	0.073 J (0.34)
Phenanthrene	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	6500	130	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	2200	--	NA	NA	NA	NA	NA	NA	NA
<b>Metals</b>										
Cobalt	960	130	--	NA	NA	NA	NA	NA	NA	NA
Lead	1000	450	--	NA	NA	NA	NA	NA	NA	NA
Nickel	64000	650	--	NA	NA	NA	NA	NA	NA	NA
Vanadium	16000	49000	--	NA	NA	NA	NA	NA	NA	NA
Zinc	190000	12000	--	NA	NA	NA	NA	NA	NA	NA

Notes:

- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 No concentrations exceed the Non-Residential Direct Contact MSCs.
- 4 Underlined concentrations exceed the Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW
- 5 Italicized concentrations exceed the Non-Residential Vapor Intrusion Screening Values.

Abbreviations:

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

**Table B-1**  
**Summary of Historical Soil Analytical Results**  
**136 Naphtha Release Area**  
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Direct Contact MSCs	Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC	Non-Residential Vapor Intrusion Screening Values	AOI7-PE-02 AOI7-PE-02-2019(4.5) 12/12/2019	AOI7-PE-03 AOI7-PE-03-2019(3.0) 12/12/2019	AOI7-PE-04 AOI7-PE-04-2019(2.5) 12/12/2019	AOI7-PE-05 AOI7-PE-05-2019(2.0) 12/12/2019	AOI7-PE-06 AOI7-PE-06-2019(4.0) 12/12/2019	AOI7-PE-07 AOI7-PE-07-2019(2.5) 12/12/2019	AOI7-PE-08 AOI7-PE-08-2019(4.0) 12/12/2019
<b>Volatile Organic Compounds</b>										
Benzene	280	0.5	0.13	ND (0.007)	0.025 (0.007)	0.032 J (0.26)	0.085 J (0.24)	ND (0.38)	0.024 (0.006)	0.001 J (0.006)
sec-Butylbenzene	10000	2300	--	NA						
tert-Butylbenzene	10000	1800	--	NA						
Cumene	10000	2500	2500	0.0009 J (0.007)	0.003 J (0.007)	0.63 (0.26)	0.034 J (0.24)	0.055 J (0.38)	0.002 J (0.006)	0.001 J (0.006)
Cyclohexane	10000	6900	6900	NA						
1,2-Dibromoethane	3.7	0.005	0.0013	NA						
Ethyl Benzene	880	70	46	ND (0.007)	0.004 J (0.007)	0.028 J (0.26)	ND (0.24)	0.064 J (0.38)	0.005 J (0.006)	0.0008 J (0.006)
Hexane	10000	5300	5300	NA						
Methyl tert-butyl ether	8500	2	1.4	0.001 J (0.007)	ND (0.007)	ND (0.26)	ND (0.24)	ND (0.38)	ND (0.006)	ND (0.006)
Toluene	10000	100	44	ND (0.007)	0.027 (0.007)	0.033 J (0.26)	0.088 J (0.24)	0.077 J (0.38)	0.035 (0.006)	0.001 J (0.006)
1,2,4-Trimethylbenzene	4700	300	300	ND (0.007)	0.024 (0.007)	ND (0.26)	ND (0.24)	0.19 J (0.38)	0.013 (0.006)	0.002 J (0.006)
1,3,5-Trimethylbenzene	4700	93	93	ND (0.007)	0.052 (0.007)	ND (0.26)	0.036 J (0.24)	0.055 J (0.38)	0.006 J (0.006)	ND (0.006)
Xylenes (total)	7900	1000	990	ND (0.015)	0.076 (0.014)	0.097 J (0.53)	0.14 J (0.48)	0.27 J (0.75)	0.036 (0.012)	0.003 J (0.012)
<b>Semi-Volatile Organic Compounds</b>										
Acenaphthene	190000	4700	--	NA						
Anthracene	190000	350	--	NA						
Benzo(a)anthracene	130	340	--	NA						
Benzo(a)pyrene	91	46	--	NA						
Benzo(b)fluoranthene	76	170	--	NA						
Benzo(g,h,i)perylene	190000	180	--	NA						
Benzo(k)fluoranthene	76	610	--	NA						
1,1-Biphenyl	34	1.5	1.5	NA						
Chrysene	760	230	--	NA						
Dibenz(a,h)anthracene	22	270	--	NA						
Fluoranthene	130000	3200	--	NA						
Fluorene	130000	3800	--	NA						
Indeno(1,2,3-cd)pyrene	76	18000	--	NA						
2-Methylnaphthalene	240	100	100	NA						
4-Methylphenol	16000	49	--	NA						
Naphthalene	66	25	25	ND (0.007)	0.007 J (0.007)	ND (0.26)	ND (0.24)	0.57 (0.38)	0.007 (0.006)	0.002 J (0.006)
Phenanthrene	190000	10000	--	NA						
bis(2-Ethylhexyl)phthalate	6500	130	--	NA						
Pyrene	96000	2200	--	NA						
<b>Metals</b>										
Cobalt	960	130	--	NA						
Lead	1000	450	--	NA						
Nickel	64000	650	--	NA						
Vanadium	16000	49000	--	NA						
Zinc	190000	12000	--	NA						

**Notes:**

- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 No concentrations exceed the Non-Residential Direct Contact MSCs.
- 4 Underlined concentrations exceed the Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW
- 5 Italicized concentrations exceed the Non-Residential Vapor Intrusion Screening Values.

**Abbreviations:**

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

**Table B-1**  
**Summary of Historical Soil Analytical Results**  
**136 Naphtha Release Area**  
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Direct Contact MSCs	Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC	Non-Residential Vapor Intrusion Screening Values	AOI7-PE-09 AOI7-PE-09-2019(2.5) 12/12/2019	AOI7-PE-10 AOI7-PE-10-2019(2.5) 12/12/2019	AOI7-PE-11 AOI7-PE-11-2019(4.0) 12/12/2019	AOI7-PE-12 AOI7-PE-12-2019(3.5) 12/12/2019	AOI7-PE-21-01 AOI7-PE-21-01-3.5-20211110 11/10/2021	AOI7-PE-21-02 AOI7-PE-21-02-3.2-20211110 11/10/2021	AOI7-PE-21-03 AOI7-PE-21-03-2.7-20211110 11/10/2021
<b>Volatile Organic Compounds</b>										
Benzene	280	0.5	0.13	0.006 (0.005)	ND (0.006)	0.017 (0.007)	ND (0.26)	<i>0.14 J (0.31)</i>	0.077 J (0.4)	<i>0.93 (0.28)</i>
sec-Butylbenzene	10000	2300	--	NA	NA	NA	NA	3.7 (0.31)	0.51 (0.4)	0.56 (0.28)
tert-Butylbenzene	10000	1800	--	NA	NA	NA	NA	0.33 (0.31)	ND (0.4)	ND (0.28)
Cumene	10000	2500	2500	ND (0.005)	ND (0.006)	0.19 (0.007)	0.36 (0.26)	6.7 (0.31)	0.79 (0.4)	1.4 (0.28)
Cyclohexane	10000	6900	6900	NA	NA	NA	NA	0.7 (0.31)	7 (0.4)	13 (0.28)
1,2-Dibromoethane	3.7	0.005	0.0013	NA	NA	NA	NA	ND (0.0006)	ND,F2 (0.00064)	<i>0.0022 (0.00055)</i>
Ethyl Benzene	880	70	46	0.0007 J (0.005)	ND (0.006)	0.004 J (0.007)	ND (0.26)	0.044 J (0.31)	0.092 J (0.4)	0.28 (0.28)
Hexane	10000	5300	5300	NA	NA	NA	NA	0.051 J (0.31)	0.097 J (0.4)	11 (0.28)
Methyl tert-butyl ether	8500	2	1.4	ND (0.005)	0.0008 J (0.006)	ND (0.007)	ND (0.26)	ND (0.31)	ND (0.4)	ND (0.28)
Toluene	10000	100	44	0.008 (0.005)	ND (0.006)	0.032 (0.007)	0.022 J (0.26)	0.079 J (0.31)	0.23 J (0.4)	1.5 (0.28)
1,2,4-Trimethylbenzene	4700	300	300	0.002 J (0.005)	ND (0.006)	0.17 (0.007)	ND (0.26)	0.09 J (0.31)	1.8 (0.4)	9.4 (0.28)
1,3,5-Trimethylbenzene	4700	93	93	0.0008 J (0.005)	ND (0.006)	0.14 (0.007)	ND (0.26)	0.034 J (0.31)	0.57 (0.4)	2.3 (0.28)
Xylenes (total)	7900	1000	990	0.004 J (0.011)	ND (0.012)	0.042 (0.013)	ND (0.51)	0.41 J (0.62)	0.81 (0.8)	4.3 (0.57)
<b>Semi-Volatile Organic Compounds</b>										
Acenaphthene	190000	4700	--	NA	NA	NA	NA	4.5 F2 (1)	4.1 (1.1)	6.4 (0.95)
Anthracene	190000	350	--	NA	NA	NA	NA	11 (1.1)	11 (1.1)	11 (0.95)
Benzo(a)anthracene	130	340	--	NA	NA	NA	NA	9.4 (1)	21 (1.1)	6.2 (0.95)
Benzo(a)pyrene	91	46	--	NA	NA	NA	NA	10 (1)	28 (1.1)	5.4 (0.95)
Benzo(b)fluoranthene	76	170	--	NA	NA	NA	NA	8.6 B (1)	27 B (1.1)	3.5 B (0.95)
Benzo(g,h,i)perylene	190000	180	--	NA	NA	NA	NA	5.7 B (1)	16 B (1.1)	2.6 B (0.95)
Benzo(k)fluoranthene	76	610	--	NA	NA	NA	NA	2.9 F2 (1)	9.1 (1.1)	ND (0.95)
1,1-Biphenyl	34	1.5	1.5	NA	NA	NA	NA	ND (2.3)	<i>1.7 J (2.4)</i>	ND (2.1)
Chrysene	760	230	--	NA	NA	NA	NA	13 (1)	24 (1.1)	12 (0.95)
Dibenz(a,h)anthracene	22	270	--	NA	NA	NA	NA	2.3 (1)	5.9 (1.1)	ND (0.95)
Fluoranthene	130000	3200	--	NA	NA	NA	NA	13 (1)	27 (1.1)	6.9 (0.95)
Fluorene	130000	3800	--	NA	NA	NA	NA	9.7 (1)	7 (1.1)	11 (0.95)
Indeno(1,2,3-cd)pyrene	76	18000	--	NA	NA	NA	NA	4.7 (1)	15 (1.1)	1.9 (0.95)
2-Methylnaphthalene	240	100	100	NA	NA	NA	NA	2.5 (1)	7.3 (1.1)	59 (0.95)
4-Methylphenol	16000	49	--	NA	NA	NA	NA	ND (3.1)	ND (3.2)	ND (2.9)
Naphthalene	66	25	25	0.003 J (0.005)	0.0008 J (0.006)	0.004 J (0.007)	ND (0.26)	6.3 F2 (1)	23 (1.1)	4.3 (0.95)
Phenanthrene	190000	10000	--	NA	NA	NA	NA	18 (1)	19 (1.1)	41 (0.95)
bis(2-Ethylhexyl)phthalate	6500	130	--	NA	NA	NA	NA	ND (10)	ND (11)	ND (9.5)
Pyrene	96000	2200	--	NA	NA	NA	NA	25 (1)	29 (1.1)	23 (0.95)
<b>Metals</b>										
Cobalt	960	130	--	NA	NA	NA	NA	6.8 (0.46)	13 (0.64)	11 (0.41)
Lead	1000	450	--	NA	NA	NA	NA	54 (1.4)	410 (1.9)	<i>590 (1.2)</i>
Nickel	64000	650	--	NA	NA	NA	NA	54 (0.93)	120 (1.3)	63 (0.81)
Vanadium	16000	49000	--	NA	NA	NA	NA	35 (0.93)	100 (1.3)	140 (0.81)
Zinc	190000	12000	--	NA	NA	NA	NA	190 (1.9)	260 (2.5)	180 (1.6)

**Notes:**

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- 4 Underlined concentrations exceed the Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW
- 5 Italicized concentrations exceed the Non-Residential Vapor Intrusion Screening Values.

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Table B-1

Summary of Historical Soil Analytical Results

136 Naphtha Release Area

Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Direct Contact MSCs	Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC	Non-Residential Vapor Intrusion Screening Values	AOI7-PE-21-04	AOI7-PE-21-05	AOI7-BH-21-01	AOI7-BH-21-02	AOI7-BH-21-03	AOI7-BH-21-04	AOI7-BH-21-05
				AOI7-PE-21-04-3.5-20211110 11/10/2021	AOI7-PE-21-05-2.8-20211110 11/10/2021	AOI7-BH-21-01(0-2) 11/30/2021	AOI7-BH-21-02(3.0-3.5) 11/30/2021	AOI7-BH-21-03(0-2) 11/30/2021	AOI7-BH-21-04(2-3) 11/30/2021	AOI7-BH-21-05(0-2) 11/30/2021
<b>Volatile Organic Compounds</b>										
Benzene	280	0.5	0.13	<i>0.28 (0.28)</i>	0.053 J (0.28)	ND (0.0056)	<i>0.33 (0.32)</i>	0.13 J,IQ (0.22)	0.053 J,IQ (0.28)	ND,IQ (0.32)
sec-Butylbenzene	10000	2300	--	0.49 (0.28)	0.12 J (0.28)	ND (0.0056)	0.96 (0.32)	0.23 IQ (0.22)	0.78 IQ (0.28)	ND,IQ (0.32)
tert-Butylbenzene	10000	1800	--	ND (0.28)	ND (0.28)	ND (0.0056)	0.31 J (0.32)	0.099 J,IQ (0.22)	0.24 J,IQ (0.28)	ND,IQ (0.32)
Cumene	10000	2500	2500	2.2 (0.28)	0.13 J (0.28)	ND (0.0056)	1.1 (0.32)	0.29 IQ (0.22)	0.91 IQ (0.28)	ND,IQ (0.32)
Cyclohexane	10000	6900	6900	15 (0.28)	0.29 (0.28)	0.059 (0.0056)	ND (0.32)	0.027 J,IQ (0.22)	0.079 J,IQ (0.28)	ND,IQ (0.32)
1,2-Dibromoethane	3.7	0.005	0.0013	<i>0.0022 (0.00058)</i>	ND (0.00058)	ND,IQ (0.00052)	ND,IQ (0.00059)	ND,IQ (0.00052)	ND,IQ (0.00057)	ND,IQ (0.0006)
Ethyl Benzene	880	70	46	0.16 J (0.28)	ND (0.28)	ND (0.0056)	0.35 (0.32)	0.03 J,IQ (0.22)	0.043 J,IQ (0.28)	ND,IQ (0.32)
Hexane	10000	5300	5300	2.1 (0.28)	0.1 J (0.28)	0.012 (0.0056)	0.13 J (0.32)	0.027 J,IQ (0.22)	ND,IQ (0.28)	ND,IQ (0.32)
Methyl tert-butyl ether	8500	2	1.4	ND (0.28)	ND (0.28)	ND (0.0056)	ND (0.32)	ND,IQ (0.22)	ND,IQ (0.28)	ND,IQ (0.32)
Toluene	10000	100	44	0.24 J (0.28)	ND (0.28)	ND (0.0056)	0.32 (0.32)	0.068 J,IQ (0.22)	0.11 J,IQ (0.28)	ND,IQ (0.32)
1,2,4-Trimethylbenzene	4700	300	300	4.4 (0.28)	0.099 J (0.28)	ND (0.0056)	0.15 J (0.32)	0.05 J,IQ (0.22)	0.073 J,IQ (0.28)	ND,IQ (0.32)
1,3,5-Trimethylbenzene	4700	93	93	1.2 (0.28)	0.035 J (0.28)	ND (0.0056)	0.056 J (0.32)	ND,IQ (0.22)	ND,IQ (0.28)	ND,IQ (0.32)
Xylenes (total)	7900	1000	990	2.2 (0.56)	0.098 J (0.56)	ND (0.011)	1.4 (0.65)	0.18 J,IQ (0.44)	0.29 J,IQ (0.55)	ND,IQ (0.65)
<b>Semi-Volatile Organic Compounds</b>										
Acenaphthene	190000	4700	--	6 (0.99)	0.51 (0.39)	0.087 B,IQ (0.018)	1 B,IQ (0.02)	0.33 B,IQ (0.018)	1.2 B,IQ (0.02)	ND,IQ (0.021)
Anthracene	190000	350	--	9.7 (0.99)	1.7 (0.39)	0.19 B,IQ (0.018)	1.8 B,IQ (0.02)	0.47 B,IQ (0.018)	1.9 B,IQ (0.02)	0.16 B,IQ (0.021)
Benzo(a)anthracene	130	340	--	6.7 (0.99)	0.92 (0.39)	0.29 B,IQ (0.018)	1.2 B,IQ (0.02)	0.26 B,IQ (0.018)	2.3 B,IQ (0.02)	ND,IQ (0.021)
Benzo(a)pyrene	91	46	--	5.1 (0.99)	0.6 (0.39)	0.38 B,IQ (0.018)	1.3 B,IQ (0.02)	0.33 B,IQ (0.018)	2.5 B,IQ (0.02)	0.37 B,IQ (0.021)
Benzo(b)fluoranthene	76	170	--	4.8 B (0.99)	0.53 B (0.39)	0.3 B,IQ (0.018)	1.3 B,IQ (0.02)	0.3 B,IQ (0.018)	2.2 B,IQ (0.02)	0.18 B,IQ (0.021)
Benzo(g,h,i)perylene	190000	180	--	3.6 B (0.99)	0.44 B (0.39)	0.39 B,IQ (0.018)	0.71 B,IQ (0.02)	0.26 B,IQ (0.018)	1.2 B,IQ (0.02)	0.62 B,IQ (0.021)
Benzo(k)fluoranthene	76	610	--	1.5 (0.99)	ND (0.39)	0.081 B,IQ (0.018)	0.38 B,IQ (0.02)	0.13 B,IQ (0.018)	0.96 B,IQ (0.02)	0.077 B,IQ (0.021)
1,1-Biphenyl	34	1.5	1.5	ND (2.2)	ND (0.86)	0.044 IQ (0.039)	ND,IQ (0.044)	ND,IQ (0.04)	0.18 IQ (0.043)	ND,IQ (0.046)
Chrysene	760	230	--	11 (0.99)	1.5 (0.39)	1 B,IQ (0.018)	1.3 B,IQ (0.02)	0.49 B,IQ (0.018)	2.3 B,IQ (0.02)	0.36 B,IQ (0.021)
Dibenz(a,h)anthracene	22	270	--	ND (0.99)	ND (0.39)	0.12 B,IQ (0.018)	0.25 B,IQ (0.02)	0.1 B,IQ (0.018)	0.45 B,IQ (0.02)	0.12 B,IQ (0.021)
Fluoranthene	130000	3200	--	8.3 (0.99)	1 (0.39)	0.19 B,IQ (0.018)	2.6 B,IQ (0.02)	0.38 B,IQ (0.018)	4.7 B,IQ (0.02)	0.14 B,IQ (0.021)
Fluorene	130000	3800	--	11 (0.99)	1.4 (0.39)	0.2 B,IQ (0.018)	1.6 B,IQ (0.02)	0.51 B,IQ (0.018)	1.3 B,IQ (0.02)	ND,IQ (0.021)
Indeno(1,2,3-cd)pyrene	76	18000	--	2.7 (0.99)	0.35 J (0.39)	0.18 B,IQ (0.018)	0.61 B,IQ (0.02)	0.24 B,IQ (0.018)	1.1 B,IQ (0.02)	0.28 B,IQ (0.021)
2-Methylnaphthalene	240	100	100	24 (0.99)	2.8 (0.39)	0.2 IQ (0.018)	0.53 IQ (0.02)	0.33 IQ (0.018)	2.1 IQ (0.02)	0.12 IQ (0.021)
4-Methylphenol	16000	49	--	ND (3)	ND (1.2)	ND,IQ (0.053)	ND,IQ (0.061)	ND,IQ (0.054)	ND,IQ (0.059)	0.057 J,IQ (0.062)
Naphthalene	66	25	25	4.8 (0.99)	0.22 J (0.39)	0.055 IQ (0.018)	0.43 IQ (0.02)	0.19 IQ (0.018)	2 IQ (0.02)	0.084 IQ (0.021)
Phenanthrene	190000	10000	--	34 (0.99)	5.7 (0.39)	0.25 B,IQ (0.018)	5.3 B,IQ (0.1)	0.49 B,IQ (0.018)	5.2 B,IQ (0.098)	0.13 B,IQ (0.021)
bis(2-Ethylhexyl)phthalate	6500	130	--	ND (9.9)	ND (3.9)	ND,IQ (0.18)	0.091 J,IQ (0.2)	0.11 J,IQ (0.18)	ND,IQ (0.2)	ND,IQ (0.21)
Pyrene	96000	2200	--	20 (0.99)	3.7 (0.39)	0.91 B,IQ (0.018)	2.8 B,IQ (0.02)	0.64 B,IQ (0.018)	4.4 B,IQ (0.02)	0.19 B,IQ (0.021)
<b>Metals</b>										
Cobalt	960	130	--	7.1 (0.58)	7.4 (0.51)	4.5 F2 (0.47)	6.3 (0.44)	13 (0.46)	7.2 (0.42)	15 (0.47)
Lead	1000	450	--	190 (1.7)	25 (1.5)	130 (1.4)	140 (1.3)	180 (1.4)	110 (1.3)	200 (1.4)
Nickel	64000	650	--	29 (1.2)	14 (1)	21 F2 (0.93)	44 (0.87)	56 (0.93)	19 (0.85)	44 (0.93)
Vanadium	16000	49000	--	59 (1.2)	52 (1)	37 F2 (0.93)	190 (0.87)	410 (0.93)	48 (0.85)	79 (0.93)
Zinc	190000	12000	--	56 (2.3)	48 (2)	230 (1.9)	95 (1.7)	300 (1.9)	120 (1.7)	350 (1.9)

Notes:

- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 No concentrations exceed the Non-Residential Direct Contact MSCs.
- 4 Underlined concentrations exceed the Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW
- 5 Italicized concentrations exceed the Non-Residential Vapor Intrusion Screening Values.

Abbreviations:

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

**Table B-1**  
**Summary of Historical Soil Analytical Results**  
**136 Naphtha Release Area**  
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Direct Contact MSCs	Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC	Non-Residential Vapor Intrusion Screening Values	AOI7-BH-21-07 AOI7-BH-21-07(0-2) 11/30/2021	AOI7-BH-21-09 AOI7-BH-21-09 1/18/2022	AOI7-BH-21-10 AOI7-BH-21-10 1/18/2022	AOI7-BH-21-11 AOI7-BH-21-11 1/18/2022	AOI7-BH-21-12 AOI7-BH-21-12 1/18/2022	AOI7-BH-21-14 AOI7-BH-21-14 1/18/2022
<b>Volatile Organic Compounds</b>									
Benzene	280	0.5	0.13	<i>0.14 J,IQ (0.29)</i>	NA	NA	NA	NA	NA
sec-Butylbenzene	10000	2300	--	ND,IQ (0.29)	NA	NA	NA	NA	NA
tert-Butylbenzene	10000	1800	--	ND,IQ (0.29)	NA	NA	NA	NA	NA
Cumene	10000	2500	2500	0.053 J,IQ (0.29)	NA	NA	NA	NA	NA
Cyclohexane	10000	6900	6900	0.08 J,IQ (0.29)	NA	NA	NA	NA	NA
1,2-Dibromoethane	3.7	0.005	0.0013	ND,IQ (0.00058)	NA	NA	NA	NA	NA
Ethyl Benzene	880	70	46	0.097 J,IQ (0.29)	NA	NA	NA	NA	NA
Hexane	10000	5300	5300	ND,IQ (0.29)	NA	NA	NA	NA	NA
Methyl tert-butyl ether	8500	2	1.4	ND,IQ (0.29)	NA	NA	NA	NA	NA
Toluene	10000	100	44	0.04 J,IQ (0.29)	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	300	300	0.12 J,IQ (0.29)	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	93	93	0.044 J,IQ (0.29)	NA	NA	NA	NA	NA
Xylenes (total)	7900	1000	990	0.56 J,IQ (0.58)	NA	NA	NA	NA	NA
<b>Semi-Volatile Organic Compounds</b>									
Acenaphthene	190000	4700	--	ND (0.19)	NA	NA	NA	NA	NA
Anthracene	190000	350	--	0.083 J (0.19)	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	340	--	0.28 (0.19)	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	46	--	0.31 (0.19)	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	170	--	0.35 (0.19)	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	180	--	0.23 (0.19)	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	76	610	--	0.13 J (0.19)	NA	NA	NA	NA	NA
1,1-Biphenyl	34	1.5	1.5	ND (0.42)	NA	NA	NA	NA	NA
Chrysene	760	230	--	0.35 (0.19)	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	22	270	--	ND (0.19)	NA	NA	NA	NA	NA
Fluoranthene	130000	3200	--	0.59 (0.19)	NA	NA	NA	NA	NA
Fluorene	130000	3800	--	0.041 J (0.19)	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	18000	--	0.21 (0.19)	NA	NA	NA	NA	NA
2-Methylnaphthalene	240	100	100	0.079 J (0.19)	NA	NA	NA	NA	NA
4-Methylphenol	16000	49	--	ND (0.58)	NA	NA	NA	NA	NA
Naphthalene	66	25	25	ND (0.19)	NA	NA	NA	NA	NA
Phenanthrene	190000	10000	--	0.41 (0.19)	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	6500	130	--	ND (1.9)	NA	NA	NA	NA	NA
Pyrene	96000	2200	--	0.52 (0.19)	NA	NA	NA	NA	NA
<b>Metals</b>									
Cobalt	960	130	--	8.6 (0.41)	NA	NA	NA	NA	NA
Lead	1000	450	--	300 (1.2)	NA	NA	NA	NA	NA
Nickel	64000	650	--	84 (0.82)	NA	NA	NA	NA	NA
Vanadium	16000	49000	--	590 (0.82)	173 (53.9)	33.8 (5.4)	2190 (54.8)	145 (7.1)	144 (6.3)
Zinc	190000	12000	--	940 (8.2)	NA	NA	NA	NA	NA

**Notes:**

- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.
- 3 No concentrations exceed the Non-Residential Direct Contact MSCs.
- 4 Underlined concentrations exceed the Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW
- 5 Italicized concentrations exceed the Non-Residential Vapor Intrusion Screening Values.

**Abbreviations:**

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

# Appendix C

## Systematic Random Sampling Grid





# Coordinates of 3-D Systematic Random Sampling Points

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 data sets in a group is less than the minimum.

0th Row		
$X_i$	$Y_i$	$Z_i$
16.1	12.3	2.6
24.3	12.0	2.2
44.4	12.7	1.8
74.4	13.5	4.5
97.0	17.6	0.8
111.3	20.6	5.3
120.3	10.4	3.8

1st Row		
$X_i$	$Y_i$	$Z_i$

2nd Row		
$X_i$	$Y_i$	$Z_i$

3rd Row		
$X_i$	$Y_i$	$Z_i$

4th Row		
$X_i$	$Y_i$	$Z_i$

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[Go to the Summary Page of the Triangular Grid Node Coordinates](#)

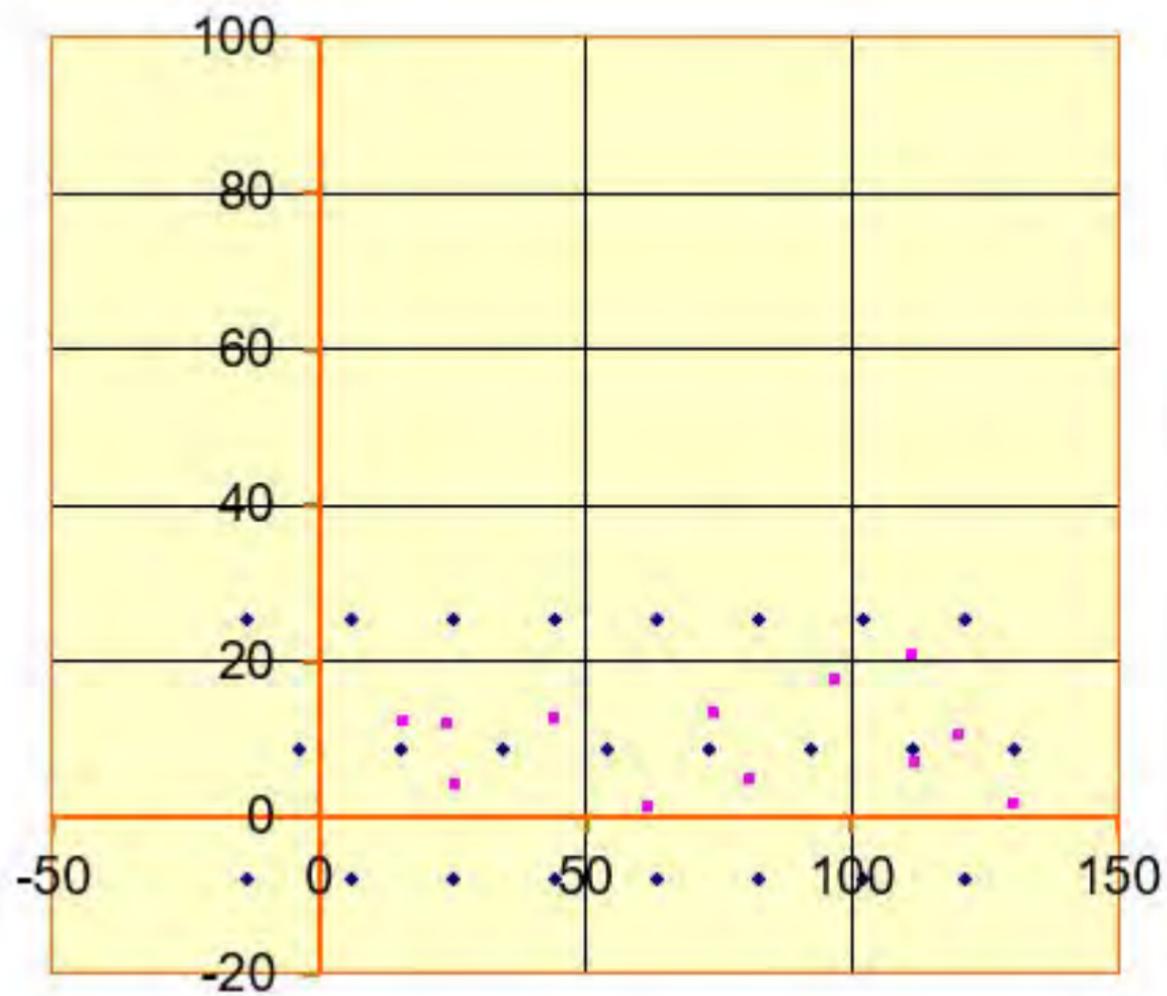
[Go to the Graphic Page](#)

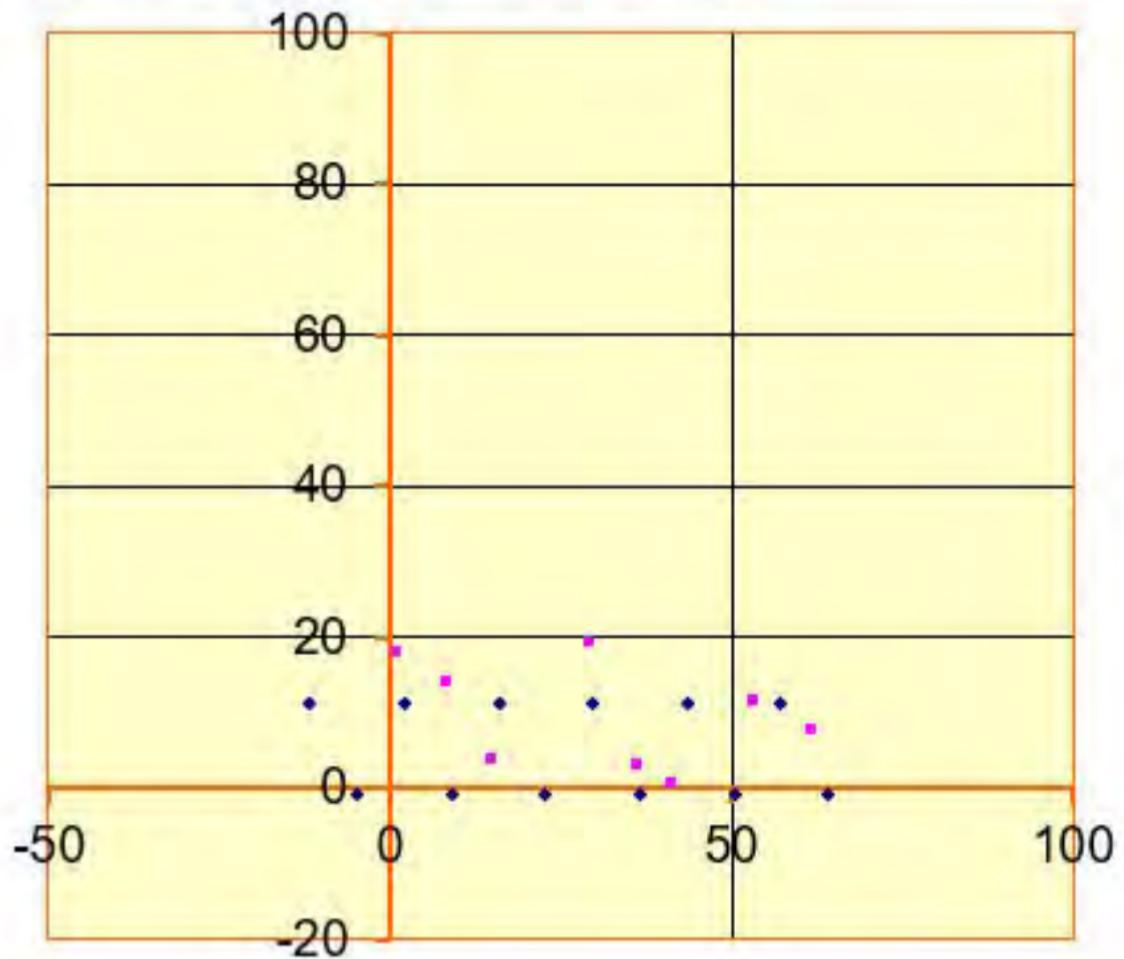
-1st Row		
$X_i$	$Y_i$	$Z_i$
26.0	4.0	5.4
61.8	1.3	2.5
81.2	5.0	4.3
112.0	7.0	3.6
130.6	1.6	3.7

-2nd Row		
$X_i$	$Y_i$	$Z_i$

-3rd Row		
$X_i$	$Y_i$	$Z_i$

-4th Row		
$X_i$	$Y_i$	$Z_i$





**Triangular Grid Node Coordinate Pairs****0th Row  
(Xi, Yi)**

-11.7	11.3
2.1	11.3
15.9	11.3
29.7	11.3
43.5	11.3
57.3	11.3

Starting Point ----&gt;

**1st Row  
(Xi, Yi)****2nd Row  
(Xi, Yi)****3rd Row  
(Xi, Yi)****4th Row  
(Xi, Yi)**[Back to DataInput  
Page](#)[Go to the Summary  
Page of the  
3-D Sampling Point  
Coordinates](#)[Go to the Graphic Page](#)**-1st Row  
(Xi, Yi)**

-4.8	-0.7
9	-0.7
22.8	-0.7
36.6	-0.7
50.4	-0.7
64.2	-0.7

**-2nd Row  
(Xi, Yi)****-3rd Row  
(Xi, Yi)****-4th Row  
(Xi, Yi)**

## Coordinates of 3-D Systematic Random Sampling Points

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 data sets in a group is less than the

0th Row		
$X_i$	$Y_i$	$Z_i$
0.9	17.8	1.9
8.4	14.1	4.3
29.2	19.3	5.2
53.1	11.6	5.9

1st Row		
$X_i$	$Y_i$	$Z_i$

2nd Row		
$X_i$	$Y_i$	$Z_i$

3rd Row		
$X_i$	$Y_i$	$Z_i$

4th Row		
$X_i$	$Y_i$	$Z_i$

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-1st Row		
$X_i$	$Y_i$	$Z_i$
14.9	3.6	4.4
36.3	3.0	4.0
41.1	0.5	5.9
61.9	7.7	5.7

-2nd Row		
$X_i$	$Y_i$	$Z_i$

-3rd Row		
$X_i$	$Y_i$	$Z_i$

-4th Row		
$X_i$	$Y_i$	$Z_i$

# Appendix D

## Laboratory Reports



## ANALYTICAL REPORT

Lab Number:	L2428914
Client:	Terraphase Engineering Inc. 1100 East Hector Street Suite 400 Conshohocken, PA 19428
ATTN:	Alexander Strohl
Phone:	(215) 297-3502
Project Name:	PESRM
Project Number:	P044.001.006
Report Date:	06/03/24

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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), OR (MA-1316), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #525-23-122-91930A1).

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508-898-9220 (Fax) 508-898-9193 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)



**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Matrix</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>	<b>Receive Date</b>
L2428914-01	136N-SB06-2.0-2.5	SOIL	3144 W.PASSYUNK AVE.	05/23/24 16:15	05/23/24
L2428914-02	136N-SB08-2.0-2.5	SOIL	3144 W.PASSYUNK AVE.	05/23/24 16:00	05/23/24
L2428914-03	136N-SB05-2.0-2.5	SOIL	3144 W.PASSYUNK AVE.	05/23/24 15:45	05/23/24
L2428914-04	136N-SB03-3.0-3.5	SOIL	3144 W.PASSYUNK AVE.	05/23/24 15:20	05/23/24
L2428914-05	136N-SB04-3.5-4.0	SOIL	3144 W.PASSYUNK AVE.	05/23/24 14:40	05/23/24
L2428914-06	136N-SB01-1.0-1.5	SOIL	3144 W.PASSYUNK AVE.	05/23/24 14:10	05/23/24
L2428914-07	136N-SB01-1.0-1.5D	SOIL	3144 W.PASSYUNK AVE.	05/23/24 14:10	05/23/24
L2428914-08	136N-SB20-2.5-3.0	SOIL	3144 W.PASSYUNK AVE.	05/23/24 13:30	05/23/24
L2428914-09	136N-SB19-2.5-3.0	SOIL	3144 W.PASSYUNK AVE.	05/23/24 13:20	05/23/24
L2428914-10	136N-SB14-2.5-3.0	SOIL	3144 W.PASSYUNK AVE.	05/23/24 12:35	05/23/24
L2428914-11	136N-SB10-2.0-2.5	SOIL	3144 W.PASSYUNK AVE.	05/23/24 12:13	05/23/24
L2428914-12	136N-SB02-3.0-3.5	SOIL	3144 W.PASSYUNK AVE.	05/23/24 10:05	05/23/24
L2428914-13	136N-SB09-3.0-3.5	SOIL	3144 W.PASSYUNK AVE.	05/23/24 11:30	05/23/24
L2428914-14	136N-SB07-2.5-3.0	SOIL	3144 W.PASSYUNK AVE.	05/23/24 11:36	05/23/24
L2428914-15	TB-240523	WATER	3144 W.PASSYUNK AVE.	05/23/24 00:00	05/23/24
L2428914-16	FB-240523	WATER	3144 W.PASSYUNK AVE.	05/23/24 16:30	05/23/24

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

### 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.

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**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

### 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

L2428914-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (339%); 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.

L2428914-12: The internal standard (IS) response(s) for 1,4-dichlorobenzene-d4 (24%) and the surrogate recovery for toluene-d8 (131%) and 4-bromofluorobenzene (624%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. Since the IS response was below method criteria, all associated compounds are considered to have a potentially high bias. A high-level analysis was performed, and those results are also reported.

L2428914-13: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (282%); 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.

L2428914-14: The surrogate recovery is outside the acceptance criteria for toluene-d8 (190%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

#### Semivolatile Organics

L2428914-06D and -07D: The sample has elevated detection limits due to the dilution required by the matrix interferences encountered during the concentration of the sample and the analytical dilution required by the sample matrix.

L2428914-06D and -07D: The sample has elevated detection limits due to the limited sample volume utilized during extraction, as required by the sample matrix.

L2428914-06D: The surrogate recoveries are below the acceptance criteria for nitrobenzene-d5 (0%), 2-

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### Case Narrative (continued)

fluorobiphenyl (0%) and 4-terphenyl-d14 (0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.

L2428914-09D and -11D: The sample has elevated detection limits due to the dilution required by the sample matrix.

#### Semivolatile Organics by SIM

The WG1927316-2/-3 LCS/LCSD recoveries, associated with L2428914-16, were outside the acceptance criteria for individual target compounds; however, the criteria were achieved upon re-extraction outside of holding time. The results of both extractions are reported; however, all results are considered to have a potentially low bias for naphthalene (31%/31%).

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: 06/03/24

# ORGANICS

# VOLATILES

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-01  
 Client ID: 136N-SB06-2.0-2.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 16:15  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 05/28/24 21:55  
 Analyst: AJK  
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	0.0080		mg/kg	0.00047	0.00016	1
Toluene	0.00074	J	mg/kg	0.00094	0.00051	1
Ethylbenzene	0.0020		mg/kg	0.00094	0.00013	1
p/m-Xylene	0.021		mg/kg	0.0019	0.00052	1
o-Xylene	0.00032	J	mg/kg	0.00094	0.00027	1
Xylenes, Total	0.021	J	mg/kg	0.00094	0.00027	1
Isopropylbenzene	0.0082		mg/kg	0.00094	0.00010	1
1,3,5-Trimethylbenzene	0.0031		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	0.0064		mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	92		70-130

**Project Name:** PESRM  
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**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-02  
 Client ID: 136N-SB08-2.0-2.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 16:00  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 05/25/24 14:49  
 Analyst: TMH  
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00051	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00055	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00057	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	108		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-03  
 Client ID: 136N-SB05-2.0-2.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 15:45  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 05/25/24 15:15  
 Analyst: TMH  
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00016	1
Toluene	ND		mg/kg	0.00099	0.00054	1
Ethylbenzene	ND		mg/kg	0.00099	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00055	1
o-Xylene	ND		mg/kg	0.00099	0.00029	1
Xylenes, Total	ND		mg/kg	0.00099	0.00029	1
Isopropylbenzene	ND		mg/kg	0.00099	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	101		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-04  
 Client ID: 136N-SB03-3.0-3.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 15:20  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 05/25/24 15:40  
 Analyst: TMH  
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatiles Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0017	0.00017	1
Benzene	0.0032		mg/kg	0.00042	0.00014	1
Toluene	0.0031		mg/kg	0.00083	0.00045	1
Ethylbenzene	0.0015		mg/kg	0.00083	0.00012	1
p/m-Xylene	0.0062		mg/kg	0.0017	0.00047	1
o-Xylene	0.016		mg/kg	0.00083	0.00024	1
Xylenes, Total	0.022		mg/kg	0.00083	0.00024	1
Isopropylbenzene	0.016		mg/kg	0.00083	0.00009	1
1,3,5-Trimethylbenzene	0.014		mg/kg	0.0017	0.00016	1
1,2,4-Trimethylbenzene	0.049		mg/kg	0.0017	0.00028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	118		70-130
Toluene-d8	121		70-130
4-Bromofluorobenzene	339	Q	70-130
Dibromofluoromethane	92		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-05  
 Client ID: 136N-SB04-3.5-4.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 14:40  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 05/25/24 16:05  
 Analyst: TMH  
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0016	0.00016	1
Benzene	ND		mg/kg	0.00041	0.00014	1
Toluene	ND		mg/kg	0.00082	0.00045	1
Ethylbenzene	ND		mg/kg	0.00082	0.00012	1
p/m-Xylene	ND		mg/kg	0.0016	0.00046	1
o-Xylene	ND		mg/kg	0.00082	0.00024	1
Xylenes, Total	ND		mg/kg	0.00082	0.00024	1
Isopropylbenzene	0.00016	J	mg/kg	0.00082	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0016	0.00016	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0016	0.00028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	103		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-06  
 Client ID: 136N-SB01-1.0-1.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 14:10  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 05/25/24 16:30  
 Analyst: TMH  
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00066	0.00022	1
Toluene	ND		mg/kg	0.0013	0.00072	1
Ethylbenzene	ND		mg/kg	0.0013	0.00019	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	0.00026	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0026	0.00044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	104		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-07  
 Client ID: 136N-SB01-1.0-1.5D  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 14:10  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 05/25/24 16:56  
 Analyst: TMH  
 Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0028	0.00028	1
Benzene	ND		mg/kg	0.00069	0.00023	1
Toluene	ND		mg/kg	0.0014	0.00075	1
Ethylbenzene	ND		mg/kg	0.0014	0.00019	1
p/m-Xylene	ND		mg/kg	0.0028	0.00077	1
o-Xylene	ND		mg/kg	0.0014	0.00040	1
Xylenes, Total	ND		mg/kg	0.0014	0.00040	1
Isopropylbenzene	ND		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0028	0.00027	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0028	0.00046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	104		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-08  
 Client ID: 136N-SB20-2.5-3.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 13:30  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 05/25/24 17:21  
 Analyst: TMH  
 Percent Solids: 87%

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	98		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-09  
 Client ID: 136N-SB19-2.5-3.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 13:20  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 05/25/24 17:46  
 Analyst: TMH  
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatiles Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
Toluene	ND		mg/kg	0.00095	0.00052	1
Ethylbenzene	ND		mg/kg	0.00095	0.00013	1
p/m-Xylene	ND		mg/kg	0.0019	0.00053	1
o-Xylene	ND		mg/kg	0.00095	0.00028	1
Xylenes, Total	ND		mg/kg	0.00095	0.00028	1
Isopropylbenzene	ND		mg/kg	0.00095	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

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

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-10  
 Client ID: 136N-SB14-2.5-3.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 12:35  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 05/25/24 18:12  
 Analyst: TMH  
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	0.018		mg/kg	0.00046	0.00015	1
Toluene	ND		mg/kg	0.00092	0.00050	1
Ethylbenzene	0.00058	J	mg/kg	0.00092	0.00013	1
p/m-Xylene	0.0017	J	mg/kg	0.0018	0.00052	1
o-Xylene	0.00063	J	mg/kg	0.00092	0.00027	1
Xylenes, Total	0.0023	J	mg/kg	0.00092	0.00027	1
Isopropylbenzene	0.0018		mg/kg	0.00092	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	0.00045	J	mg/kg	0.0018	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	101		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-11  
 Client ID: 136N-SB10-2.0-2.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 12:13  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 05/25/24 18:37  
 Analyst: TMH  
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00049	0.00016	1
Toluene	ND		mg/kg	0.00098	0.00054	1
Ethylbenzene	ND		mg/kg	0.00098	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00055	1
o-Xylene	ND		mg/kg	0.00098	0.00029	1
Xylenes, Total	ND		mg/kg	0.00098	0.00029	1
Isopropylbenzene	ND		mg/kg	0.00098	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	133	Q	70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	109		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-12  
 Client ID: 136N-SB02-3.0-3.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 10:05  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 05/25/24 21:34  
 Analyst: TMH  
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 High - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	ND		mg/kg	0.028	0.0093	1
Toluene	0.030	J	mg/kg	0.056	0.030	1
Ethylbenzene	0.024	J	mg/kg	0.056	0.0079	1
p/m-Xylene	0.041	J	mg/kg	0.11	0.031	1
o-Xylene	0.071		mg/kg	0.056	0.016	1
Xylenes, Total	0.11	J	mg/kg	0.056	0.016	1
Isopropylbenzene	0.078		mg/kg	0.056	0.0061	1
1,3,5-Trimethylbenzene	0.013	J	mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	0.034	J	mg/kg	0.11	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	98		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-12  
 Client ID: 136N-SB02-3.0-3.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 10:05  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 05/28/24 22:46  
 Analyst: AJK  
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0017	0.00017	1
Benzene	0.00043		mg/kg	0.00042	0.00014	1
Toluene	0.0013		mg/kg	0.00084	0.00045	1
Ethylbenzene	0.0013		mg/kg	0.00084	0.00012	1
p/m-Xylene	0.0046		mg/kg	0.0017	0.00047	1
o-Xylene	0.015		mg/kg	0.00084	0.00024	1
Xylenes, Total	0.020		mg/kg	0.00084	0.00024	1
Isopropylbenzene	0.031		mg/kg	0.00084	0.00009	1
1,3,5-Trimethylbenzene	0.0021		mg/kg	0.0017	0.00016	1
1,2,4-Trimethylbenzene	0.0036		mg/kg	0.0017	0.00028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	131	Q	70-130
4-Bromofluorobenzene	624	Q	70-130
Dibromofluoromethane	99		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-13  
 Client ID: 136N-SB09-3.0-3.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 11:30  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 05/30/24 10:36  
 Analyst: JIC  
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.0029		mg/kg	0.00050	0.00017	1
Toluene	0.0011		mg/kg	0.0010	0.00054	1
Ethylbenzene	0.0025		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.0032		mg/kg	0.0020	0.00056	1
o-Xylene	0.0025		mg/kg	0.0010	0.00029	1
Xylenes, Total	0.0057		mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.012		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.017		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.032		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	<b>282</b>	Q	70-130
Dibromofluoromethane	89		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-14  
 Client ID: 136N-SB07-2.5-3.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 11:36  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 05/30/24 18:14  
 Analyst: JIC  
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 High - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.75		mg/kg	0.030	0.010	1
Toluene	0.31		mg/kg	0.061	0.033	1
Ethylbenzene	2.7		mg/kg	0.061	0.0086	1
p/m-Xylene	49.	E	mg/kg	0.12	0.034	1
o-Xylene	9.4		mg/kg	0.061	0.018	1
Isopropylbenzene	7.0		mg/kg	0.061	0.0066	1
1,3,5-Trimethylbenzene	8.0		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	18.	E	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	<b>190</b>	Q	70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	76		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-14 D  
 Client ID: 136N-SB07-2.5-3.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 11:36  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 05/29/24 11:59  
 Analyst: AJK  
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 High - Westborough Lab</b>						
p/m-Xylene	46.		mg/kg	1.2	0.34	10
Xylenes, Total	55.		mg/kg	0.061	0.018	10
1,2,4-Trimethylbenzene	19.		mg/kg	1.2	0.20	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	95		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

**Lab ID:** L2428914-15  
**Client ID:** TB-240523  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 05/23/24 00:00  
**Date Received:** 05/23/24  
**Field Prep:** Not Specified

**Sample Depth:**

**Matrix:** Water  
**Analytical Method:** 1,8260D  
**Analytical Date:** 05/29/24 12:42  
**Analyst:** PID

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	115		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-16  
 Client ID: FB-240523  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 16:30  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Water  
 Analytical Method: 1,8260D  
 Analytical Date: 05/29/24 13:04  
 Analyst: PID

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	115		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 05/25/24 14:24  
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02-11 Batch: WG1927019-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
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	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	104		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 05/25/24 14:24  
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 12 Batch: WG1927020-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
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	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	104		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 05/28/24 20:53  
Analyst: RAW

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,12 Batch: WG1927197-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
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	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	100		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 05/29/24 08:17  
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 15-16 Batch: WG1927204-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
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	99		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	112		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 05/29/24 08:53  
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 14 Batch: WG1927709-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	105		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 05/30/24 09:15  
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 13 Batch: WG1928073-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
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	87		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	100		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 05/30/24 09:02  
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 14 Batch: WG1928079-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
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	94		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	100		70-130

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02-11 Batch: WG1927019-3 WG1927019-4								
Methyl tert butyl ether	117		124		66-130	6		30
Benzene	120		126		70-130	5		30
Toluene	118		123		70-130	4		30
Ethylbenzene	121		126		70-130	4		30
p/m-Xylene	122		128		70-130	5		30
o-Xylene	117		124		70-130	6		30
Isopropylbenzene	114		119		70-130	4		30
1,3,5-Trimethylbenzene	113		118		70-130	4		30
1,2,4-Trimethylbenzene	112		117		70-130	4		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	110		109		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	95		94		70-130
Dibromofluoromethane	102		101		70-130

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 12 Batch: WG1927020-3 WG1927020-4								
Methyl tert butyl ether	117		124		66-130	6		30
Benzene	120		126		70-130	5		30
Toluene	118		123		70-130	4		30
Ethylbenzene	121		126		70-130	4		30
p/m-Xylene	122		128		70-130	5		30
o-Xylene	117		124		70-130	6		30
Isopropylbenzene	114		119		70-130	4		30
1,3,5-Trimethylbenzene	113		118		70-130	4		30
1,2,4-Trimethylbenzene	112		117		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	110		109		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	95		95		70-130
Dibromofluoromethane	102		101		70-130

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,12 Batch: WG1927197-3 WG1927197-4								
Methyl tert butyl ether	104		104		66-130	0		30
Benzene	104		101		70-130	3		30
Toluene	98		95		70-130	3		30
Ethylbenzene	100		97		70-130	3		30
p/m-Xylene	101		98		70-130	3		30
o-Xylene	98		96		70-130	2		30
Isopropylbenzene	96		92		70-130	4		30
1,3,5-Trimethylbenzene	96		91		70-130	5		30
1,2,4-Trimethylbenzene	94		90		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		101		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	98		97		70-130
Dibromofluoromethane	101		101		70-130

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 15-16 Batch: WG1927204-3 WG1927204-4								
Methyl tert butyl ether	84		83		63-130	1		20
Benzene	110		100		70-130	10		20
Toluene	110		100		70-130	10		20
Ethylbenzene	110		100		70-130	10		20
p/m-Xylene	110		100		70-130	10		20
o-Xylene	110		100		70-130	10		20
Isopropylbenzene	100		96		70-130	4		20
1,3,5-Trimethylbenzene	99		92		64-130	7		20
1,2,4-Trimethylbenzene	100		94		70-130	6		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		97		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	92		94		70-130
Dibromofluoromethane	102		101		70-130

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 14 Batch: WG1927709-3 WG1927709-4								
Methyl tert butyl ether	80		79		66-130	1		30
Benzene	87		88		70-130	1		30
Toluene	89		90		70-130	1		30
Ethylbenzene	90		92		70-130	2		30
p/m-Xylene	97		98		70-130	1		30
o-Xylene	93		96		70-130	3		30
Isopropylbenzene	93		94		70-130	1		30
1,3,5-Trimethylbenzene	92		93		70-130	1		30
1,2,4-Trimethylbenzene	91		93		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	84		84		70-130
Toluene-d8	97		99		70-130
4-Bromofluorobenzene	91		91		70-130
Dibromofluoromethane	102		101		70-130

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 13 Batch: WG1928073-3 WG1928073-4								
Methyl tert butyl ether	78		76		66-130	3		30
Benzene	85		80		70-130	6		30
Toluene	90		83		70-130	8		30
Ethylbenzene	91		85		70-130	7		30
p/m-Xylene	97		90		70-130	7		30
o-Xylene	94		88		70-130	7		30
Isopropylbenzene	95		89		70-130	7		30
1,3,5-Trimethylbenzene	93		87		70-130	7		30
1,2,4-Trimethylbenzene	93		87		70-130	7		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	79		81		70-130
Toluene-d8	96		95		70-130
4-Bromofluorobenzene	91		91		70-130
Dibromofluoromethane	95		95		70-130

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

<b>Parameter</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>%Recovery Limits</b>	<b>RPD</b>	<b>Qual</b>	<b>RPD Limits</b>
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 14 Batch: WG1928079-3 WG1928079-4								
Methyl tert butyl ether	93		88		66-130	6		30
Benzene	102		96		70-130	6		30
Toluene	103		98		70-130	5		30
Ethylbenzene	102		96		70-130	6		30
p/m-Xylene	106		100		70-130	6		30
o-Xylene	102		99		70-130	3		30
Isopropylbenzene	103		97		70-130	6		30
1,3,5-Trimethylbenzene	102		99		70-130	3		30
1,2,4-Trimethylbenzene	105		98		70-130	7		30

<b>Surrogate</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>Acceptance Criteria</b>
1,2-Dichloroethane-d4	85		88		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	93		93		70-130
Dibromofluoromethane	94		95		70-130

# SEMIVOLATILES

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-01  
 Client ID: 136N-SB06-2.0-2.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 16:15  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 05/30/24 14:03  
 Analyst: LJG  
 Percent Solids: 87%

Extraction Method: EPA 3546  
 Extraction Date: 05/29/24 00:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.14		mg/kg	0.037	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	57		18-120

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-02  
 Client ID: 136N-SB08-2.0-2.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 16:00  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 05/30/24 14:27  
 Analyst: LJG  
 Percent Solids: 91%

Extraction Method: EPA 3546  
 Extraction Date: 05/29/24 00:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.32		mg/kg	0.036	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	74		18-120

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-03  
 Client ID: 136N-SB05-2.0-2.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 15:45  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 05/30/24 14:50  
 Analyst: LJG  
 Percent Solids: 87%

Extraction Method: EPA 3546  
 Extraction Date: 05/29/24 00:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.086		mg/kg	0.038	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	33		23-120
2-Fluorobiphenyl	31		30-120
4-Terphenyl-d14	34		18-120

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-04  
 Client ID: 136N-SB03-3.0-3.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 15:20  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 05/30/24 15:13  
 Analyst: LJJ  
 Percent Solids: 88%

Extraction Method: EPA 3546  
 Extraction Date: 05/29/24 00:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.067		mg/kg	0.037	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	64		30-120
4-Terphenyl-d14	69		18-120

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-05  
 Client ID: 136N-SB04-3.5-4.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 14:40  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:  
 Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 05/30/24 15:37  
 Analyst: LJJ  
 Percent Solids: 85%

Extraction Method: EPA 3546  
 Extraction Date: 05/29/24 00:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.051		mg/kg	0.039	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	72		18-120

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-06 D  
 Client ID: 136N-SB01-1.0-1.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 14:10  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/01/24 07:40  
 Analyst: JG  
 Percent Solids: 79%

Extraction Method: EPA 3546  
 Extraction Date: 05/31/24 11:22

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	2.5	1.5	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	0	Q	23-120
2-Fluorobiphenyl	0	Q	30-120
4-Terphenyl-d14	0	Q	18-120

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-07 D  
 Client ID: 136N-SB01-1.0-1.5D  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 14:10  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/01/24 08:04  
 Analyst: JG  
 Percent Solids: 78%

Extraction Method: EPA 3546  
 Extraction Date: 05/31/24 11:22

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.96	J	mg/kg	1.3	0.77	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	72		18-120

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-08  
 Client ID: 136N-SB20-2.5-3.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 13:30  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 05/30/24 16:47  
 Analyst: LJG  
 Percent Solids: 87%

Extraction Method: EPA 3546  
 Extraction Date: 05/29/24 01:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.12		mg/kg	0.038	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	42		23-120
2-Fluorobiphenyl	51		30-120
4-Terphenyl-d14	52		18-120

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-09 D  
 Client ID: 136N-SB19-2.5-3.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 13:20  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 05/31/24 14:52  
 Analyst: MRG  
 Percent Solids: 87%

Extraction Method: EPA 3546  
 Extraction Date: 05/29/24 01:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.12	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	60		18-120

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-10  
 Client ID: 136N-SB14-2.5-3.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 12:35  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 05/30/24 17:33  
 Analyst: LJJ  
 Percent Solids: 86%

Extraction Method: EPA 3546  
 Extraction Date: 05/29/24 01:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.23		mg/kg	0.038	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	84		23-120
2-Fluorobiphenyl	80		30-120
4-Terphenyl-d14	83		18-120

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-11 D  
 Client ID: 136N-SB10-2.0-2.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 12:13  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 05/31/24 15:15  
 Analyst: MRG  
 Percent Solids: 84%

Extraction Method: EPA 3546  
 Extraction Date: 05/29/24 01:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.12	J	mg/kg	0.19	0.12	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	64		30-120
4-Terphenyl-d14	59		18-120

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-12  
 Client ID: 136N-SB02-3.0-3.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 10:05  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 05/30/24 18:20  
 Analyst: LJJ  
 Percent Solids: 86%

Extraction Method: EPA 3546  
 Extraction Date: 05/29/24 01:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.40		mg/kg	0.038	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	80		23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	72		18-120

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-13  
 Client ID: 136N-SB09-3.0-3.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 11:30  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 05/30/24 17:22  
 Analyst: IM  
 Percent Solids: 84%

Extraction Method: EPA 3546  
 Extraction Date: 05/29/24 01:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.27		mg/kg	0.039	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	83		23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	67		18-120

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-14  
 Client ID: 136N-SB07-2.5-3.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 11:36  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:  
 Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 05/30/24 17:46  
 Analyst: IM  
 Percent Solids: 83%

Extraction Method: EPA 3546  
 Extraction Date: 05/29/24 01:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.29		mg/kg	0.039	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	25		23-120
2-Fluorobiphenyl	24	Q	30-120
4-Terphenyl-d14	22		18-120

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-16  
 Client ID: FB-240523  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 16:30  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:  
 Matrix: Water  
 Analytical Method: 1,8270E-SIM  
 Analytical Date: 05/31/24 18:18  
 Analyst: JJW

Extraction Method: EPA 3510C  
 Extraction Date: 05/30/24 01:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.02	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	36		23-120
2-Fluorobiphenyl	32		15-120
4-Terphenyl-d14	35	Q	41-149

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-16 RE  
 Client ID: FB-240523  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 16:30  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Water  
 Analytical Method: 1,8270E-SIM  
 Analytical Date: 06/02/24 11:51  
 Analyst: AH

Extraction Method: EPA 3510C  
 Extraction Date: 06/01/24 23:04

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.02	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	61		15-120
4-Terphenyl-d14	74		41-149

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8270E  
Analytical Date: 05/30/24 08:37  
Analyst: IM

Extraction Method: EPA 3546  
Extraction Date: 05/29/24 00:28

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-05,08-14 Batch: WG1926753-1					
Naphthalene	ND		mg/kg	0.032	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	93		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	88		18-120

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8270E-SIM  
Analytical Date: 05/31/24 18:02  
Analyst: JJW

Extraction Method: EPA 3510C  
Extraction Date: 05/30/24 01:21

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 16 Batch: WG1927316-1					
Naphthalene	ND		ug/l	0.10	0.02

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	35		23-120
2-Fluorobiphenyl	29		15-120
4-Terphenyl-d14	33	Q	41-149

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 1,8270E  
Analytical Date: 05/31/24 14:15  
Analyst: MRG

Extraction Method: EPA 3546  
Extraction Date: 05/31/24 07:52

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 06-07 Batch: WG1928018-1					
Naphthalene	ND		mg/kg	0.032	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	77		25-120
Phenol-d6	74		10-120
Nitrobenzene-d5	73		23-120
2-Fluorobiphenyl	62		30-120
2,4,6-Tribromophenol	67		10-136
4-Terphenyl-d14	70		18-120

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 1,8270E-SIM  
Analytical Date: 06/02/24 11:01  
Analyst: AH

Extraction Method: EPA 3510C  
Extraction Date: 06/01/24 23:04

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 16 Batch: WG1928562-1					
Naphthalene	ND		ug/l	0.10	0.02

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	68		15-120
4-Terphenyl-d14	71		41-149

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

<b>Parameter</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>LCSD %Recovery</b>	<b>Qual</b>	<b>%Recovery Limits</b>	<b>RPD</b>	<b>Qual</b>	<b>RPD Limits</b>
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-05,08-14 Batch: WG1926753-2 WG1926753-3								
Naphthalene	85		103		40-140	19		50

<b>Surrogate</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>LCSD %Recovery</b>	<b>Qual</b>	<b>Acceptance Criteria</b>
Nitrobenzene-d5	98		120		23-120
2-Fluorobiphenyl	74		88		30-120
4-Terphenyl-d14	87		105		18-120

### Lab Control Sample Analysis Batch Quality Control

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 16 Batch: WG1927316-2 WG1927316-3								
Naphthalene	31	Q	31	Q	40-140	0		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	37		38		23-120
2-Fluorobiphenyl	31		34		15-120
4-Terphenyl-d14	35	Q	37	Q	41-149



## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

<b>Parameter</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>LCSD %Recovery</b>	<b>Qual</b>	<b>%Recovery Limits</b>	<b>RPD</b>	<b>Qual</b>	<b>RPD Limits</b>
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 06-07 Batch: WG1928018-2 WG1928018-3								
Naphthalene	66		66		40-140	0		50

<b>Surrogate</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>LCSD %Recovery</b>	<b>Qual</b>	<b>Acceptance Criteria</b>
2-Fluorophenol	75		75		25-120
Phenol-d6	71		72		10-120
Nitrobenzene-d5	70		71		23-120
2-Fluorobiphenyl	61		62		30-120
2,4,6-Tribromophenol	67		66		10-136
4-Terphenyl-d14	67		65		18-120

### Lab Control Sample Analysis Batch Quality Control

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 16 Batch: WG1928562-2 WG1928562-3								
Naphthalene	54		60		40-140	11		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	62		67		23-120
2-Fluorobiphenyl	63		62		15-120
4-Terphenyl-d14	80		72		41-149



# **INORGANICS & MISCELLANEOUS**

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

**Lab ID:** L2428914-01  
**Client ID:** 136N-SB06-2.0-2.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 05/23/24 16:15  
**Date Received:** 05/23/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	86.5		%	0.100	NA	1	-	05/24/24 11:39	121,2540G	ROI



**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

**Lab ID:** L2428914-02  
**Client ID:** 136N-SB08-2.0-2.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 05/23/24 16:00  
**Date Received:** 05/23/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	90.8		%	0.100	NA	1	-	05/24/24 11:39	121,2540G	ROI



**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

**Lab ID:** L2428914-03  
**Client ID:** 136N-SB05-2.0-2.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 05/23/24 15:45  
**Date Received:** 05/23/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	87.0		%	0.100	NA	1	-	05/24/24 11:39	121,2540G	ROI



**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

**Lab ID:** L2428914-04  
**Client ID:** 136N-SB03-3.0-3.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 05/23/24 15:20  
**Date Received:** 05/23/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	87.6		%	0.100	NA	1	-	05/24/24 11:39	121,2540G	ROI



**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

**Lab ID:** L2428914-05  
**Client ID:** 136N-SB04-3.5-4.0  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 05/23/24 14:40  
**Date Received:** 05/23/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	85.0		%	0.100	NA	1	-	05/24/24 11:39	121,2540G	ROI



**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

**Lab ID:** L2428914-06  
**Client ID:** 136N-SB01-1.0-1.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 05/23/24 14:10  
**Date Received:** 05/23/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	78.5		%	0.100	NA	1	-	05/24/24 11:39	121,2540G	ROI



**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

**Lab ID:** L2428914-07  
**Client ID:** 136N-SB01-1.0-1.5D  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 05/23/24 14:10  
**Date Received:** 05/23/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	78.3		%	0.100	NA	1	-	05/24/24 11:39	121,2540G	ROI



**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

**Lab ID:** L2428914-08  
**Client ID:** 136N-SB20-2.5-3.0  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 05/23/24 13:30  
**Date Received:** 05/23/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	87.0		%	0.100	NA	1	-	05/24/24 11:39	121,2540G	ROI



**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

**Lab ID:** L2428914-09  
**Client ID:** 136N-SB19-2.5-3.0  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 05/23/24 13:20  
**Date Received:** 05/23/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	86.5		%	0.100	NA	1	-	05/24/24 11:39	121,2540G	ROI



**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

**Lab ID:** L2428914-10  
**Client ID:** 136N-SB14-2.5-3.0  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 05/23/24 12:35  
**Date Received:** 05/23/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	86.2		%	0.100	NA	1	-	05/24/24 11:39	121,2540G	ROI



**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

Lab ID: L2428914-11  
 Client ID: 136N-SB10-2.0-2.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/23/24 12:13  
 Date Received: 05/23/24  
 Field Prep: Not Specified

Sample Depth:  
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	84.4		%	0.100	NA	1	-	05/24/24 11:39	121,2540G	ROI



**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

**Lab ID:** L2428914-12  
**Client ID:** 136N-SB02-3.0-3.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 05/23/24 10:05  
**Date Received:** 05/23/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	86.1		%	0.100	NA	1	-	05/24/24 11:39	121,2540G	ROI



**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

**Lab ID:** L2428914-13  
**Client ID:** 136N-SB09-3.0-3.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 05/23/24 11:30  
**Date Received:** 05/23/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	84.0		%	0.100	NA	1	-	05/24/24 11:39	121,2540G	ROI



**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**SAMPLE RESULTS**

**Lab ID:** L2428914-14  
**Client ID:** 136N-SB07-2.5-3.0  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 05/23/24 11:36  
**Date Received:** 05/23/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	82.6		%	0.100	NA	1	-	05/24/24 11:39	121,2540G	ROI



## Lab Duplicate Analysis

*Batch Quality Control*

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-14 QC Batch ID: WG1925408-1 QC Sample: L2428914-01 Client ID: 136N-SB06-2.0-2.5						
Solids, Total	86.5	84.8	%	2		20

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

### 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(*)
L2428914-01A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2428914-01B	Vial water preserved	B	NA		2.6	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-01C	Vial water preserved	B	NA		2.6	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-01D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2428914-01E	Glass 120ml/4oz unpreserved	B	NA		2.6	Y	Absent		PA-PAH(14)
L2428914-02A	Vial MeOH preserved	C	NA		3.5	Y	Absent		PA-8260HLW(14)
L2428914-02B	Vial water preserved	C	NA		3.5	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-02C	Vial water preserved	C	NA		3.5	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-02D	Plastic 120ml unpreserved	C	NA		3.5	Y	Absent		TS(7)
L2428914-02E	Glass 120ml/4oz unpreserved	C	NA		3.5	Y	Absent		PA-PAH(14)
L2428914-03A	Vial MeOH preserved	A	NA		5.7	Y	Absent		PA-8260HLW(14)
L2428914-03B	Vial water preserved	A	NA		5.7	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-03C	Vial water preserved	A	NA		5.7	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-03D	Plastic 120ml unpreserved	A	NA		5.7	Y	Absent		TS(7)
L2428914-03E	Glass 120ml/4oz unpreserved	A	NA		5.7	Y	Absent		PA-PAH(14)
L2428914-04A	Vial MeOH preserved	A	NA		5.7	Y	Absent		PA-8260HLW(14)
L2428914-04B	Vial water preserved	A	NA		5.7	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-04C	Vial water preserved	A	NA		5.7	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-04D	Plastic 120ml unpreserved	A	NA		5.7	Y	Absent		TS(7)
L2428914-04E	Glass 120ml/4oz unpreserved	A	NA		5.7	Y	Absent		PA-PAH(14)
L2428914-05A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)

**Project Name:** PESRM**Lab Number:** L2428914**Project Number:** P044.001.006**Report Date:** 06/03/24**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2428914-05B	Vial water preserved	B	NA		2.6	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-05C	Vial water preserved	B	NA		2.6	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-05D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2428914-05E	Glass 120ml/4oz unpreserved	B	NA		2.6	Y	Absent		PA-PAH(14)
L2428914-06A	Vial MeOH preserved	C	NA		3.5	Y	Absent		PA-8260HLW(14)
L2428914-06B	Vial water preserved	C	NA		3.5	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-06C	Vial water preserved	C	NA		3.5	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-06D	Plastic 120ml unpreserved	C	NA		3.5	Y	Absent		TS(7)
L2428914-06E	Glass 120ml/4oz unpreserved	C	NA		3.5	Y	Absent		PA-PAH(14)
L2428914-07A	Vial MeOH preserved	C	NA		3.5	Y	Absent		PA-8260HLW(14)
L2428914-07B	Vial water preserved	C	NA		3.5	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-07C	Vial water preserved	C	NA		3.5	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-07D	Plastic 120ml unpreserved	C	NA		3.5	Y	Absent		TS(7)
L2428914-07E	Glass 120ml/4oz unpreserved	C	NA		3.5	Y	Absent		PA-PAH(14)
L2428914-08A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2428914-08B	Vial water preserved	B	NA		2.6	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-08C	Vial water preserved	B	NA		2.6	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-08D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2428914-08E	Glass 120ml/4oz unpreserved	B	NA		2.6	Y	Absent		PA-PAH(14)
L2428914-09A	Vial MeOH preserved	A	NA		5.7	Y	Absent		PA-8260HLW(14)
L2428914-09B	Vial water preserved	A	NA		5.7	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-09C	Vial water preserved	A	NA		5.7	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-09D	Plastic 120ml unpreserved	A	NA		5.7	Y	Absent		TS(7)
L2428914-09E	Glass 120ml/4oz unpreserved	A	NA		5.7	Y	Absent		PA-PAH(14)
L2428914-10A	Vial MeOH preserved	A	NA		5.7	Y	Absent		PA-8260HLW(14)
L2428914-10B	Vial water preserved	A	NA		5.7	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-10C	Vial water preserved	A	NA		5.7	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-10D	Plastic 120ml unpreserved	A	NA		5.7	Y	Absent		TS(7)

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2428914-10E	Glass 120ml/4oz unpreserved	A	NA		5.7	Y	Absent		PA-PAH(14)
L2428914-11A	Vial MeOH preserved	A	NA		5.7	Y	Absent		PA-8260HLW(14)
L2428914-11B	Vial water preserved	A	NA		5.7	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-11C	Vial water preserved	A	NA		5.7	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-11D	Plastic 120ml unpreserved	A	NA		5.7	Y	Absent		TS(7)
L2428914-11E	Glass 120ml/4oz unpreserved	A	NA		5.7	Y	Absent		PA-PAH(14)
L2428914-12A	Vial MeOH preserved	A	NA		5.7	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2428914-12B	Vial water preserved	A	NA		5.7	Y	Absent	24-MAY-24 09:43	PA-8260H(14),PA-8260HLW(14)
L2428914-12C	Vial water preserved	A	NA		5.7	Y	Absent	24-MAY-24 09:43	PA-8260H(14),PA-8260HLW(14)
L2428914-12D	Plastic 120ml unpreserved	A	NA		5.7	Y	Absent		TS(7)
L2428914-12E	Glass 120ml/4oz unpreserved	A	NA		5.7	Y	Absent		PA-PAH(14)
L2428914-13A	Vial MeOH preserved	A	NA		5.7	Y	Absent		PA-8260HLW(14)
L2428914-13B	Vial water preserved	A	NA		5.7	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-13C	Vial water preserved	A	NA		5.7	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-13D	Plastic 120ml unpreserved	A	NA		5.7	Y	Absent		TS(7)
L2428914-13E	Glass 120ml/4oz unpreserved	A	NA		5.7	Y	Absent		PA-PAH(14)
L2428914-14A	Vial MeOH preserved	C	NA		3.5	Y	Absent		PA-8260HLW(14)
L2428914-14B	Vial water preserved	C	NA		3.5	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-14C	Vial water preserved	C	NA		3.5	Y	Absent	24-MAY-24 09:43	PA-8260HLW(14)
L2428914-14D	Plastic 120ml unpreserved	C	NA		3.5	Y	Absent		TS(7)
L2428914-14E	Glass 120ml/4oz unpreserved	C	NA		3.5	Y	Absent		PA-PAH(14)
L2428914-15A	Vial HCl preserved	C	NA		3.5	Y	Absent		PA-8260(14)
L2428914-15B	Vial HCl preserved	C	NA		3.5	Y	Absent		PA-8260(14)
L2428914-16A	Vial HCl preserved	C	NA		3.5	Y	Absent		PA-8260(14)
L2428914-16B	Vial HCl preserved	C	NA		3.5	Y	Absent		PA-8260(14)
L2428914-16C	Vial HCl preserved	C	NA		3.5	Y	Absent		PA-8260(14)
L2428914-16D	Amber 100ml unpreserved	C	6	6	3.5	Y	Absent		PA-PAHSIM-RVT(7)
L2428914-16E	Amber 100ml unpreserved	C	6	6	3.5	Y	Absent		PA-PAHSIM-RVT(7)

**Project Name:** PESRM  
**Project Number:** P044.001.006

Serial\_No:06032415:47  
**Lab Number:** L2428914  
**Report Date:** 06/03/24

**Container Information**

**Container ID**   **Container Type**

<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
---------------	-----------------------	---------------------	-----------------------	-------------	-------------	-----------------------------	--------------------

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

## GLOSSARY

### Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)  Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

### Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### Terms

**Analytical Method:** Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

**Chlordane:** The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

**Difference:** With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

**Final pH:** As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

**Frozen Date/Time:** With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

**Gasoline Range Organics (GRO):** Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

**Initial pH:** As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

**PAH Total:** With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

**PFAS Total:** With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

**Total:** With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

### Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

#### Data Qualifiers

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.)

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2428914  
**Report Date:** 06/03/24

## REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



## Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

### Westborough Facility

**EPA 624.1:** m/p-xylene, o-xylene, Naphthalene

**EPA 625.1:** alpha-Terpineol

**EPA 8260D:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

**EPA 8270E:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol, Azobenzene; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

### 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.

**Nonpotable Water:** **EPA RSK-175 Dissolved Gases**

**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, 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**  
 WESTBORO, MA TEL: 508-898-9220  
 MANSFIELD, MA TEL: 508-822-9300  
 FAX: 508-898-9193 FAX: 508-822-3288

PAGE 1 OF 2

Date Rec'd in Lab: **5/24/24** ALPHA Job #: **L2428914**

**Client Information**  
 Client: **Terraplex Engineering**  
 Address: **100 Canal Pointe Blvd. Princeton, NJ, 08540**  
 Phone: **609.236.5171 ext 92**  
 Fax:  
 Email: **nick\_scala@terraplex.com**  
 These samples have been previously analyzed by Alpha

**Project Information**  
 Project Name: **PESRM**  
 Project Location: **3144 W. Passaic Av.**  
 Project #: **P044-001-006**  
 Project Manager: **N. Scala**  
 ALPHA Quote #:

**Report Information - Data Deliverables**  
 FAX  EMAIL  
 ADEx  Add'l Deliverables

**Billing Information**  
 Same as Client info PO #:

**Turn-Around Time**  
 Standard  RUSH (only confirmed if pre-approved)  
 Date Due: Time:

**Regulatory Requirements/Report Limits**  
 State/Fed Program Criteria

Other Project Specific Requirements/Comments/Detection Limits:  
 please email EDD to **EDD@terraplex.com**

**ANALYSIS**  
 5/24/24 (5035/52608) 3220

**SAMPLE HANDLING**  
 Filtration \_\_\_\_\_  
 Done  
 Not needed  
 Lab to do Preservation  
 Lab to do  
 (Please specify below)

**TOTAL # BOTTLES**

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
28914-01	136N-5B06-2.0-2.5	5/23/24	16:15	50	KJO
-02	136N-5B05-2.0-2.5		16:00		
-03	136N-5B05-2.0-2.5		15:45		
-04	136N-5B03-3.0-3.5		15:20		
-05	136N-5B04-3.5-4.0		14:40		
-06	136N-5B01-1.0-1.5		14:10		
-07	136N-5B01-1.0-1.5D		14:10		
-08	136N-5B20-2.5-3.0		13:30		
-09	136N-5B19-2.5-3.0		13:20		
-10	136N-5B14-2.5-3.0		12:35		

Rel SD 5/24/24 0420  
 by 5/24/24 420

Container Type  
 Preservative

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Relinquished By: **Anthony Green** Date/Time: **5/23/24 11:30**  
 Received By: **Anthony Green** Date/Time: **5/24/24 0205**

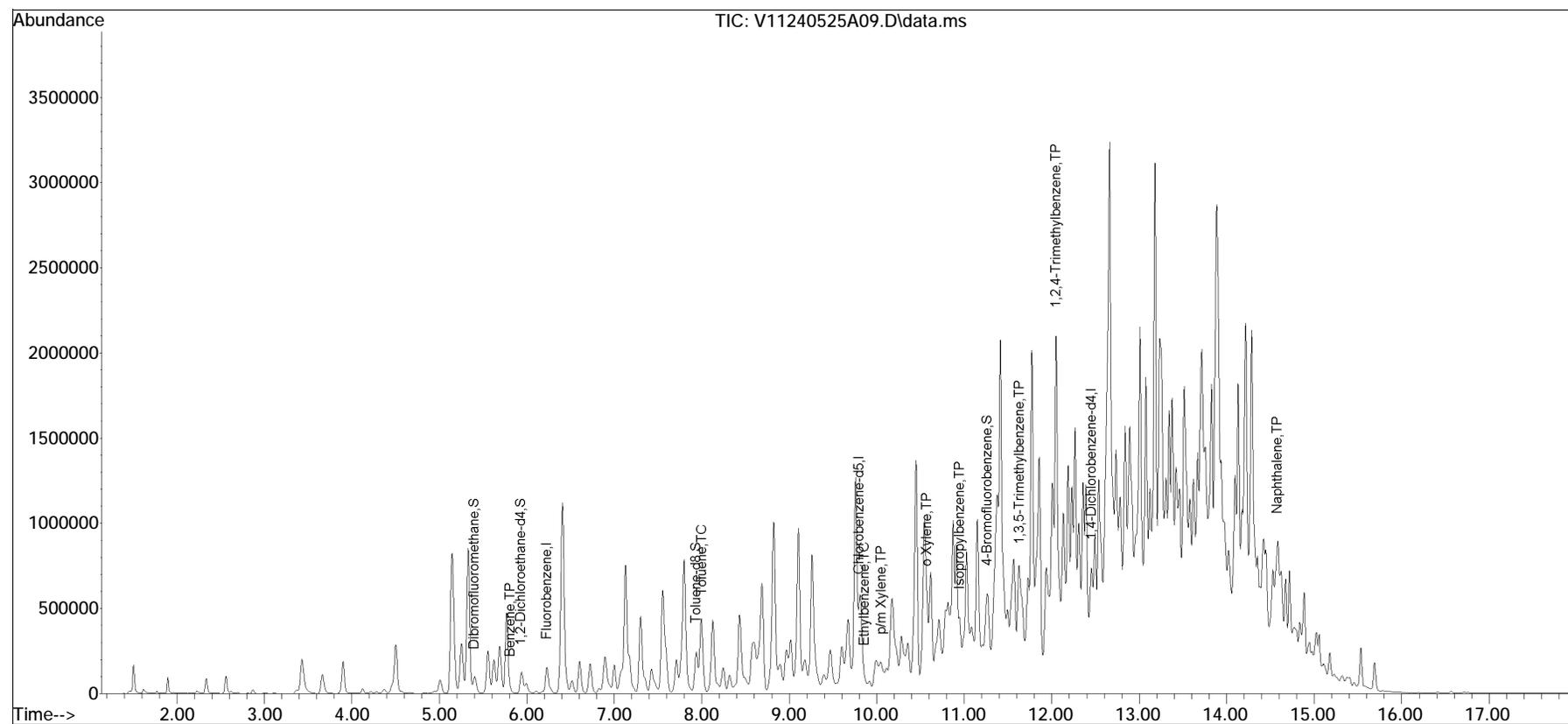


## Quantitation Report (QT Reviewed)

Data Path : K:\VOA111\2024\240525A\  
Data File : V11240525A09.D  
Acq On : 25 May 2024 03:40 pm  
Operator : VOA111:TMH  
Sample : L2428914-04,31,6.85,5,,B  
Misc : WG1927019,ICAL20962  
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 28 12:43:04 2024  
Quant Method : K:\VOA111\2024\240525A\V111\_240321N\_8260.m  
Quant Title : VOLATILES BY GC/MS  
QLast Update : Fri Mar 22 12:08:01 2024  
Response via : Initial Calibration

Sub List : 8260-PA\_ShortList - PA Short list525A03.D•

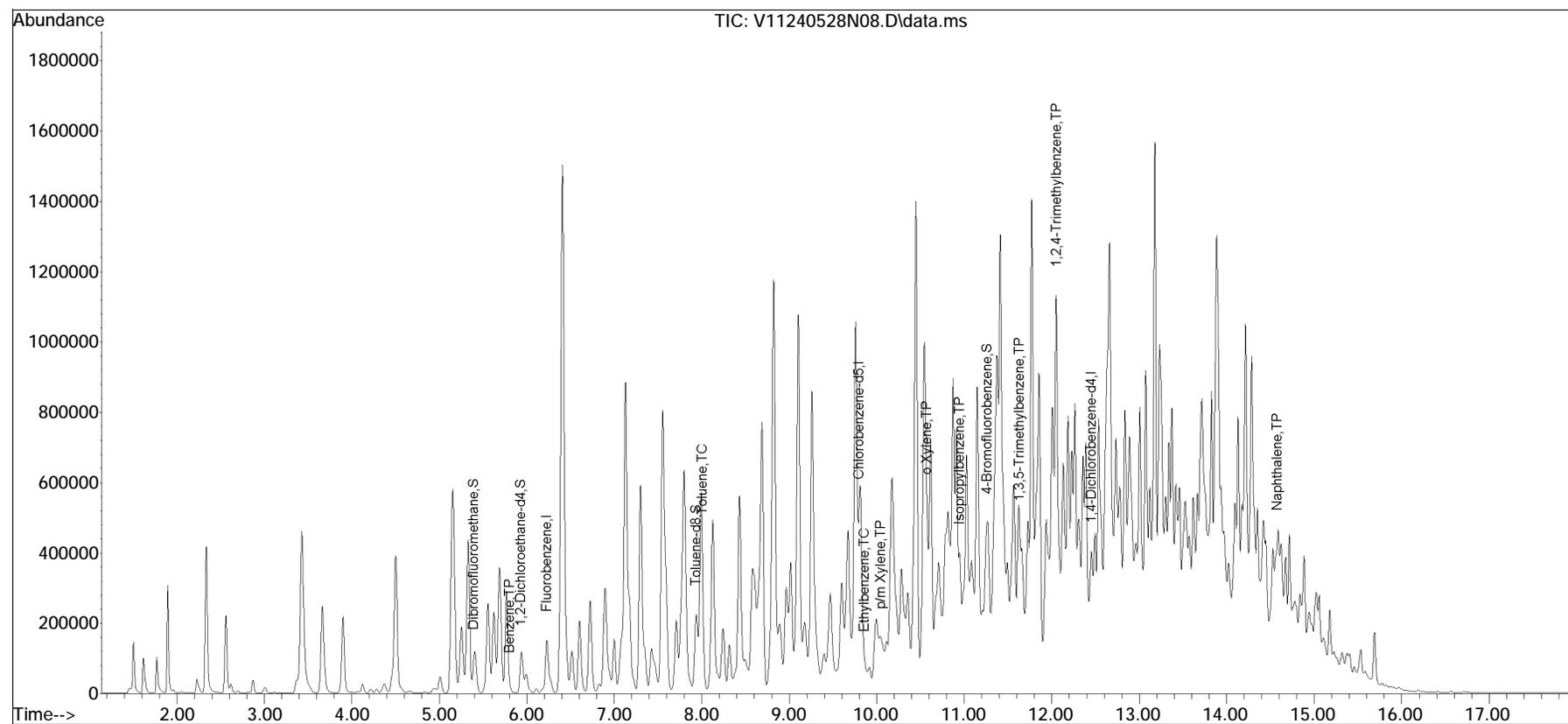


## Quantitation Report (QT Reviewed)

Data Path : K:\VOA111\2024\240528N\  
Data File : V11240528N08.D  
Acq On : 28 May 2024 10:46 pm  
Operator : VOA111:AJK  
Sample : L2428914-12,31,6.95,5,,C  
Misc : WG1927197,ICAL20962  
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 29 09:56:04 2024  
Quant Method : K:\VOA111\2024\240528N\V111\_240321N\_8260.m  
Quant Title : VOLATILES BY GC/MS  
QLast Update : Fri Mar 22 12:08:01 2024  
Response via : Initial Calibration

Sub List : 8260-PA\_ShortList - PA Short list528N02.D•

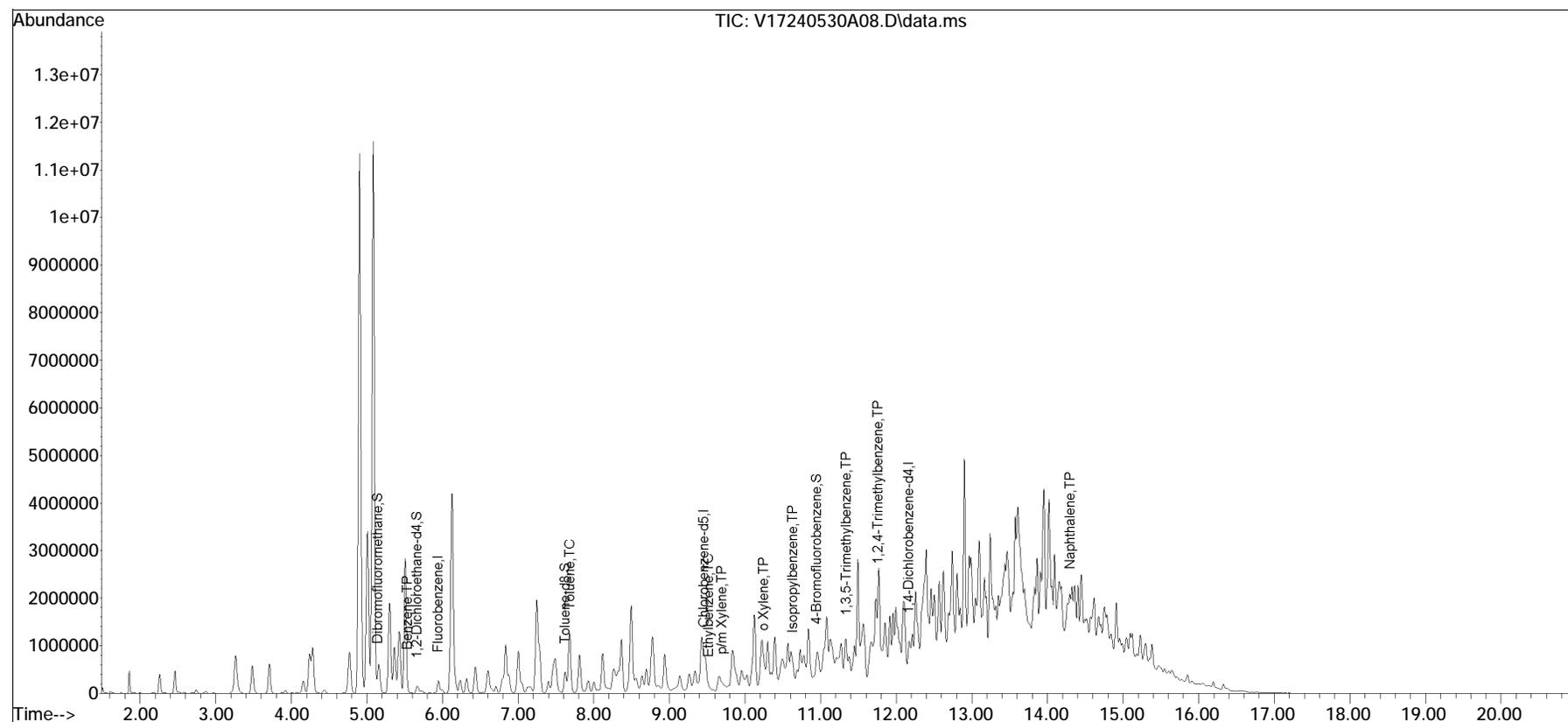


## Quantitation Report (QT Reviewed)

Data Path : K:\VOA117\2024\240530\  
 Data File : V17240530A08.D  
 Acq On : 30 May 2024 10:36 am  
 Operator : VOA117:JIC  
 Sample : L2428914-13,31,5.95,5,,C  
 Misc : WG1928073,ICAL20984  
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 30 12:39:39 2024  
 Quant Method : K:\VOA117\2024\240530A\V117\_240326N\_8260.m  
 Quant Title : VOLATILES BY GC/MS  
 QLast Update : Wed Mar 27 10:55:42 2024  
 Response via : Initial Calibration

Sub List : 8260-PA\_ShortList - PA Short list530A01.D•

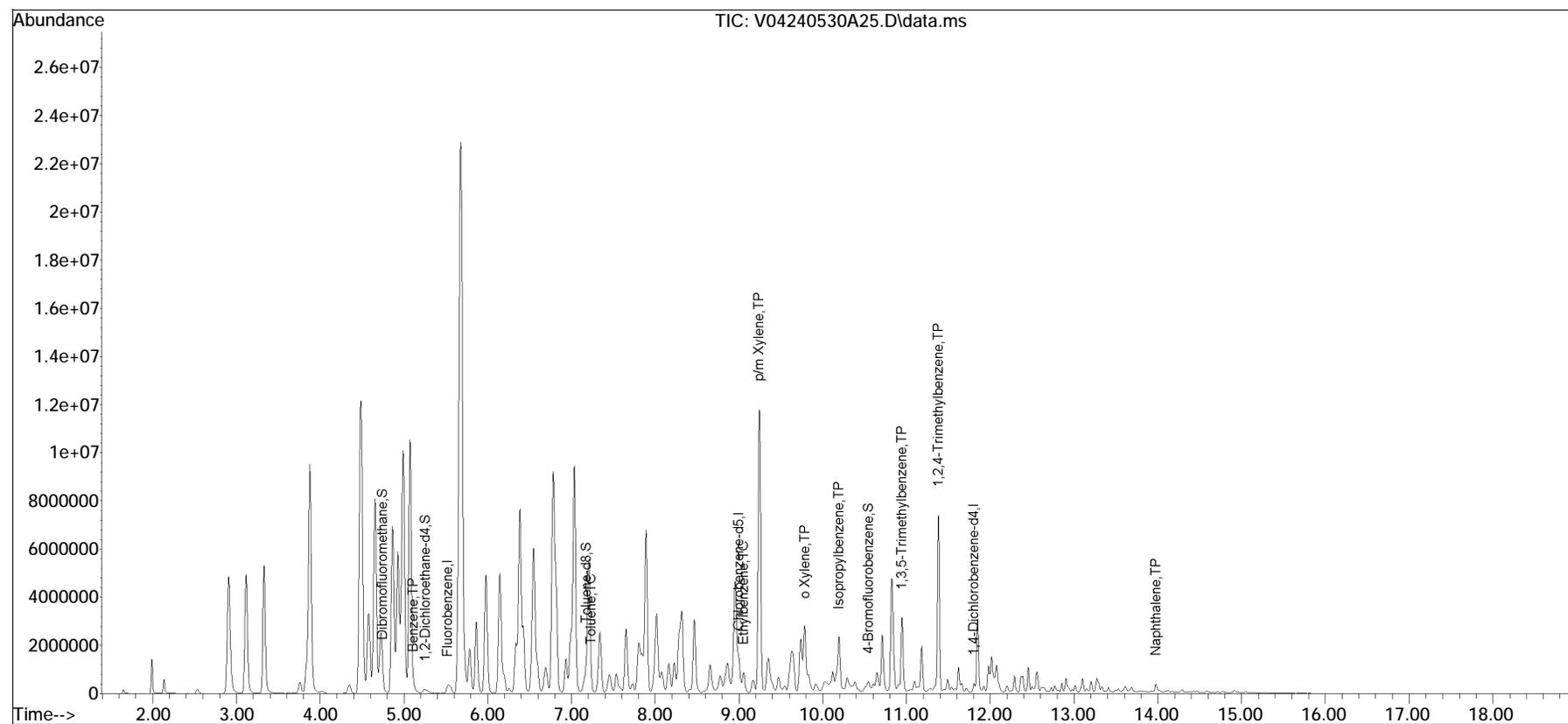


## Quantitation Report (QT Reviewed)

Data Path : K:\VOA104\2024\240530\  
Data File : V04240530A25.D  
Acq On : 30 May 2024 6:14 pm  
Operator : VOA104:JIC  
Sample : L2428914-14,31H,6.01,5,0.100,,A  
Misc : WG1928079,ICAL21038  
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 31 09:29:08 2024  
Quant Method : K:\VOA104\2024\240530A\V104\_240410N\_8260.m  
Quant Title : VOLATILES BY GC/MS  
QLast Update : Thu Apr 11 11:43:39 2024  
Response via : Initial Calibration

Sub List : 8260-PA\_ShortList - PA Short list530A01.D•





## ANALYTICAL REPORT

Lab Number:	L2429024
Client:	Terraphase Engineering Inc. 1100 East Hector Street Suite 400 Conshohocken, PA 19428
ATTN:	Alexander Strohl
Phone:	(215) 297-3502
Project Name:	PESRM
Project Number:	P044.001.006
Report Date:	06/04/24

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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), OR (MA-1316), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #525-23-122-91930A1).

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Eight Walkup Drive, Westborough, MA 01581-1019  
508-898-9220 (Fax) 508-898-9193 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)



**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Matrix</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>	<b>Receive Date</b>
L2429024-01	136N-SB18-1.0-1.5	SOIL	3144 W.PASSYUNK AVE.	05/24/24 10:22	05/24/24
L2429024-02	136N-SB17-1.5-2.0	SOIL	3144 W.PASSYUNK AVE.	05/24/24 10:10	05/24/24
L2429024-03	136N-SB16-2.0-2.5	SOIL	3144 W.PASSYUNK AVE.	05/24/24 09:54	05/24/24
L2429024-04	136N-SB15-1.0-1.5	SOIL	3144 W.PASSYUNK AVE.	05/24/24 09:32	05/24/24
L2429024-05	136N-SB13-1.0-1.5	SOIL	3144 W.PASSYUNK AVE.	05/24/24 09:13	05/24/24
L2429024-06	136N-SB12-3.0-3.5	SOIL	3144 W.PASSYUNK AVE.	05/24/24 08:51	05/24/24
L2429024-07	136N-SB11-2.0-2.5	SOIL	3144 W.PASSYUNK AVE.	05/24/24 08:30	05/24/24
L2429024-08	FB-240524	WATER	3144 W.PASSYUNK AVE.	05/24/24 10:50	05/24/24
L2429024-09	TB-240524	WATER	3144 W.PASSYUNK AVE.	05/24/24 00:00	05/24/24

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

### 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.

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**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

### Case Narrative (continued)

#### Report Revision

June 04, 2024: The Volatile Organics analyte list has been amended on L2429024-09.

#### Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

#### Volatile Organics

L2429024-05: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (154%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

#### Semivolatile Organics by SIM

L2429024-03D and -05D: The sample has elevated detection limits due to the dilution required by the matrix interferences encountered during the concentration of the sample and the analytical dilution required by the sample matrix.

L2429024-03D and -05D: The surrogate recoveries are below the acceptance criteria for nitrobenzene-d5 (0%), 2-fluorobiphenyl (0%) and 4-terphenyl-d14 (0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.

The WG1927316-2/-3 LCS/LCSD recoveries, associated with L2429024-08, were outside the acceptance criteria for naphthalene (31%/31%); however, the criteria was achieved upon re-extraction outside of holding time. The results of both extractions are reported.

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

Authorized Signature:

 Caitlin Walukevich

Title: Technical Director/Representative

Date: 06/04/24

# ORGANICS

# VOLATILES

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

Lab ID: L2429024-01  
 Client ID: 136N-SB18-1.0-1.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/24/24 10:22  
 Date Received: 05/24/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 05/25/24 19:02  
 Analyst: TMH  
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatiles Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.00024	J	mg/kg	0.00050	0.00016	1
Toluene	ND		mg/kg	0.0010	0.00054	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00056	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	103		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

Lab ID: L2429024-02  
 Client ID: 136N-SB17-1.5-2.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/24/24 10:10  
 Date Received: 05/24/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 05/25/24 19:27  
 Analyst: TMH  
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.00042	J	mg/kg	0.00049	0.00016	1
Toluene	ND		mg/kg	0.00098	0.00053	1
Ethylbenzene	ND		mg/kg	0.00098	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00055	1
o-Xylene	ND		mg/kg	0.00098	0.00029	1
Xylenes, Total	ND		mg/kg	0.00098	0.00029	1
Isopropylbenzene	ND		mg/kg	0.00098	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	102		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

Lab ID: L2429024-03  
 Client ID: 136N-SB16-2.0-2.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/24/24 09:54  
 Date Received: 05/24/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 05/25/24 19:53  
 Analyst: TMH  
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	0.0028		mg/kg	0.00056	0.00019	1
Toluene	0.0017		mg/kg	0.0011	0.00061	1
Ethylbenzene	0.00032	J	mg/kg	0.0011	0.00016	1
p/m-Xylene	0.0025		mg/kg	0.0022	0.00063	1
o-Xylene	0.0013		mg/kg	0.0011	0.00033	1
Xylenes, Total	0.0038		mg/kg	0.0011	0.00033	1
Isopropylbenzene	0.0023		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.00092	J	mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	0.0026		mg/kg	0.0022	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	123		70-130
Dibromofluoromethane	110		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

Lab ID: L2429024-04 D2  
 Client ID: 136N-SB15-1.0-1.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/24/24 09:32  
 Date Received: 05/24/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 05/29/24 03:25  
 Analyst: AJK  
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 High - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.56	0.056	5
Benzene	84.		mg/kg	0.14	0.047	5
Toluene	38.		mg/kg	0.28	0.15	5
Ethylbenzene	13.		mg/kg	0.28	0.040	5
p/m-Xylene	120		mg/kg	0.56	0.16	5
o-Xylene	54.		mg/kg	0.28	0.082	5
Xylenes, Total	170		mg/kg	0.28	0.082	5
Isopropylbenzene	87.	E	mg/kg	0.28	0.031	5
1,3,5-Trimethylbenzene	33.		mg/kg	0.56	0.054	5
1,2,4-Trimethylbenzene	95.	E	mg/kg	0.56	0.094	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	90		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

Lab ID: L2429024-04 D  
 Client ID: 136N-SB15-1.0-1.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/24/24 09:32  
 Date Received: 05/24/24  
 Field Prep: Not Specified

Sample Depth:  
 Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 05/25/24 21:59  
 Analyst: TMH  
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 High - Westborough Lab</b>						
Isopropylbenzene	93.		mg/kg	0.56	0.061	10
1,2,4-Trimethylbenzene	100		mg/kg	1.1	0.19	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	94		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

Lab ID: L2429024-05  
 Client ID: 136N-SB13-1.0-1.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/24/24 09:13  
 Date Received: 05/24/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 05/29/24 04:15  
 Analyst: AJK  
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	0.00034	J	mg/kg	0.00052	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00057	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00059	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.0012		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	0.00038	J	mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	154	Q	70-130
Dibromofluoromethane	100		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

Lab ID: L2429024-06  
 Client ID: 136N-SB12-3.0-3.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/24/24 08:51  
 Date Received: 05/24/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 05/25/24 20:18  
 Analyst: TMH  
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	0.00093		mg/kg	0.00060	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00065	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
p/m-Xylene	ND		mg/kg	0.0024	0.00067	1
o-Xylene	ND		mg/kg	0.0012	0.00035	1
Xylenes, Total	ND		mg/kg	0.0012	0.00035	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	104		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

Lab ID: L2429024-07  
 Client ID: 136N-SB11-2.0-2.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/24/24 08:30  
 Date Received: 05/24/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 05/25/24 20:43  
 Analyst: TMH  
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.00045	J	mg/kg	0.00050	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00055	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00057	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	99		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

Lab ID: L2429024-08  
 Client ID: FB-240524  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/24/24 10:50  
 Date Received: 05/24/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Water  
 Analytical Method: 1,8260D  
 Analytical Date: 05/29/24 11:57  
 Analyst: PID

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	115		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

Lab ID: L2429024-09  
 Client ID: TB-240524  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/24/24 00:00  
 Date Received: 05/24/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Water  
 Analytical Method: 1,8260D  
 Analytical Date: 05/29/24 12:20  
 Analyst: PID

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	115		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 05/25/24 14:24  
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-03,06-07 Batch: WG1927019-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
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	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	104		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 05/25/24 14:24  
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04 Batch: WG1927020-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
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	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	104		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 05/28/24 20:53  
Analyst: RAW

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 05 Batch: WG1927197-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
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	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	100		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 05/29/24 08:17  
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 08-09 Batch: WG1927204-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
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	99		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	112		70-130

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 05/28/24 20:53  
Analyst: RAW

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04 Batch: WG1927205-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
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	99		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	100		70-130

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-03,06-07 Batch: WG1927019-3 WG1927019-4								
Methyl tert butyl ether	117		124		66-130	6		30
Benzene	120		126		70-130	5		30
Toluene	118		123		70-130	4		30
Ethylbenzene	121		126		70-130	4		30
p/m-Xylene	122		128		70-130	5		30
o-Xylene	117		124		70-130	6		30
Isopropylbenzene	114		119		70-130	4		30
1,3,5-Trimethylbenzene	113		118		70-130	4		30
1,2,4-Trimethylbenzene	112		117		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	110		109		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	95		94		70-130
Dibromofluoromethane	102		101		70-130

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04 Batch: WG1927020-3 WG1927020-4								
Methyl tert butyl ether	117		124		66-130	6		30
Benzene	120		126		70-130	5		30
Toluene	118		123		70-130	4		30
Ethylbenzene	121		126		70-130	4		30
p/m-Xylene	122		128		70-130	5		30
o-Xylene	117		124		70-130	6		30
Isopropylbenzene	114		119		70-130	4		30
1,3,5-Trimethylbenzene	113		118		70-130	4		30
1,2,4-Trimethylbenzene	112		117		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	110		109		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	95		95		70-130
Dibromofluoromethane	102		101		70-130

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 05 Batch: WG1927197-3 WG1927197-4								
Methyl tert butyl ether	104		104		66-130	0		30
Benzene	104		101		70-130	3		30
Toluene	98		95		70-130	3		30
Ethylbenzene	100		97		70-130	3		30
p/m-Xylene	101		98		70-130	3		30
o-Xylene	98		96		70-130	2		30
Isopropylbenzene	96		92		70-130	4		30
1,3,5-Trimethylbenzene	96		91		70-130	5		30
1,2,4-Trimethylbenzene	94		90		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		101		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	98		97		70-130
Dibromofluoromethane	101		101		70-130

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 08-09 Batch: WG1927204-3 WG1927204-4								
Methyl tert butyl ether	84		83		63-130	1		20
Benzene	110		100		70-130	10		20
Toluene	110		100		70-130	10		20
Ethylbenzene	110		100		70-130	10		20
p/m-Xylene	110		100		70-130	10		20
o-Xylene	110		100		70-130	10		20
Isopropylbenzene	100		96		70-130	4		20
1,3,5-Trimethylbenzene	99		92		64-130	7		20
1,2,4-Trimethylbenzene	100		94		70-130	6		20

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		97		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	92		94		70-130
Dibromofluoromethane	102		101		70-130

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04 Batch: WG1927205-3 WG1927205-4								
Methyl tert butyl ether	104		104		66-130	0		30
Benzene	104		101		70-130	3		30
Toluene	98		95		70-130	3		30
Ethylbenzene	100		97		70-130	3		30
p/m-Xylene	101		98		70-130	3		30
o-Xylene	98		96		70-130	2		30
Isopropylbenzene	96		92		70-130	4		30
1,3,5-Trimethylbenzene	96		91		70-130	5		30
1,2,4-Trimethylbenzene	94		90		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		101		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	98		97		70-130
Dibromofluoromethane	101		100		70-130

# SEMIVOLATILES

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

Lab ID: L2429024-01  
 Client ID: 136N-SB18-1.0-1.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/24/24 10:22  
 Date Received: 05/24/24  
 Field Prep: Not Specified

Sample Depth:  
 Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/01/24 09:37  
 Analyst: IM  
 Percent Solids: 86%

Extraction Method: EPA 3546  
 Extraction Date: 05/31/24 07:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.18		mg/kg	0.038	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	47		23-120
2-Fluorobiphenyl	48		30-120
4-Terphenyl-d14	53		18-120

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

Lab ID: L2429024-02  
 Client ID: 136N-SB17-1.5-2.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/24/24 10:10  
 Date Received: 05/24/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/01/24 06:30  
 Analyst: IM  
 Percent Solids: 87%

Extraction Method: EPA 3546  
 Extraction Date: 05/31/24 07:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.16		mg/kg	0.038	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	59		23-120
2-Fluorobiphenyl	42		30-120
4-Terphenyl-d14	44		18-120

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

Lab ID: L2429024-03 D  
 Client ID: 136N-SB16-2.0-2.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/24/24 09:54  
 Date Received: 05/24/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/01/24 06:54  
 Analyst: IM  
 Percent Solids: 84%

Extraction Method: EPA 3546  
 Extraction Date: 05/31/24 07:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.66	J	mg/kg	0.77	0.47	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	0	Q	23-120
2-Fluorobiphenyl	0	Q	30-120
4-Terphenyl-d14	0	Q	18-120

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

Lab ID: L2429024-04  
 Client ID: 136N-SB15-1.0-1.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/24/24 09:32  
 Date Received: 05/24/24  
 Field Prep: Not Specified

Sample Depth:  
 Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/01/24 06:07  
 Analyst: IM  
 Percent Solids: 86%

Extraction Method: EPA 3546  
 Extraction Date: 05/31/24 07:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	7.4		mg/kg	0.038	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	46		30-120
4-Terphenyl-d14	52		18-120

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

Lab ID: L2429024-05 D  
 Client ID: 136N-SB13-1.0-1.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/24/24 09:13  
 Date Received: 05/24/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/01/24 10:00  
 Analyst: IM  
 Percent Solids: 86%

Extraction Method: EPA 3546  
 Extraction Date: 05/31/24 07:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.5		mg/kg	1.2	0.70	30

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	0	Q	23-120
2-Fluorobiphenyl	0	Q	30-120
4-Terphenyl-d14	0	Q	18-120

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

Lab ID: L2429024-06  
 Client ID: 136N-SB12-3.0-3.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/24/24 08:51  
 Date Received: 05/24/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/01/24 09:14  
 Analyst: IM  
 Percent Solids: 87%

Extraction Method: EPA 3546  
 Extraction Date: 05/31/24 07:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS - Westborough Lab						
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Naphthalene	0.16		mg/kg	0.038	0.023	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	48		23-120
2-Fluorobiphenyl	43		30-120
4-Terphenyl-d14	42		18-120

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

Lab ID: L2429024-07  
 Client ID: 136N-SB11-2.0-2.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/24/24 08:30  
 Date Received: 05/24/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/01/24 07:17  
 Analyst: IM  
 Percent Solids: 85%

Extraction Method: EPA 3546  
 Extraction Date: 05/31/24 07:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.16		mg/kg	0.039	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	64		23-120
2-Fluorobiphenyl	51		30-120
4-Terphenyl-d14	52		18-120

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

Lab ID: L2429024-08  
 Client ID: FB-240524  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/24/24 10:50  
 Date Received: 05/24/24  
 Field Prep: Not Specified

Sample Depth:  
 Matrix: Water  
 Analytical Method: 1,8270E-SIM  
 Analytical Date: 06/02/24 14:19  
 Analyst: AH

Extraction Method: EPA 3510C  
 Extraction Date: 05/30/24 01:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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## Semivolatile Organics by GC/MS-SIM - Westborough Lab

Naphthalene	ND		ug/l	0.10	0.02	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	43		23-120
2-Fluorobiphenyl	41		15-120
4-Terphenyl-d14	47		41-149

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

Lab ID: L2429024-08 RE  
 Client ID: FB-240524  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 05/24/24 10:50  
 Date Received: 05/24/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Water  
 Analytical Method: 1,8270E-SIM  
 Analytical Date: 06/02/24 12:07  
 Analyst: AH

Extraction Method: EPA 3510C  
 Extraction Date: 06/01/24 23:04

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Semivolatile Organics by GC/MS-SIM - Westborough Lab						
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Naphthalene	ND		ug/l	0.10	0.02	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	64		23-120
2-Fluorobiphenyl	64		15-120
4-Terphenyl-d14	72		41-149

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 1,8270E-SIM  
Analytical Date: 05/31/24 18:02  
Analyst: JJW

Extraction Method: EPA 3510C  
Extraction Date: 05/30/24 01:21

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 08 Batch: WG1927316-1					
Naphthalene	ND		ug/l	0.10	0.02

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	35		23-120
2-Fluorobiphenyl	29		15-120
4-Terphenyl-d14	33	Q	41-149

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 1,8270E  
Analytical Date: 05/31/24 14:15  
Analyst: MRG

Extraction Method: EPA 3546  
Extraction Date: 05/31/24 07:52

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-07 Batch: WG1928018-1					
Naphthalene	ND		mg/kg	0.032	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	77		25-120
Phenol-d6	74		10-120
Nitrobenzene-d5	73		23-120
2-Fluorobiphenyl	62		30-120
2,4,6-Tribromophenol	67		10-136
4-Terphenyl-d14	70		18-120

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8270E-SIM  
Analytical Date: 06/02/24 11:01  
Analyst: AH

Extraction Method: EPA 3510C  
Extraction Date: 06/01/24 23:04

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 08 Batch: WG1928562-1					
Naphthalene	ND		ug/l	0.10	0.02

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	68		15-120
4-Terphenyl-d14	71		41-149

### Lab Control Sample Analysis Batch Quality Control

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 08 Batch: WG1927316-2 WG1927316-3								
Naphthalene	31	Q	31	Q	40-140	0		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	37		38		23-120
2-Fluorobiphenyl	31		34		15-120
4-Terphenyl-d14	35	Q	37	Q	41-149



### Lab Control Sample Analysis Batch Quality Control

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

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: WG1928018-2 WG1928018-3								
Naphthalene	66		66		40-140	0		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	75		75		25-120
Phenol-d6	71		72		10-120
Nitrobenzene-d5	70		71		23-120
2-Fluorobiphenyl	61		62		30-120
2,4,6-Tribromophenol	67		66		10-136
4-Terphenyl-d14	67		65		18-120



### Lab Control Sample Analysis Batch Quality Control

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 08 Batch: WG1928562-2 WG1928562-3								
Naphthalene	54		60		40-140	11		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	62		67		23-120
2-Fluorobiphenyl	63		62		15-120
4-Terphenyl-d14	80		72		41-149



# **INORGANICS & MISCELLANEOUS**

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

**Lab ID:** L2429024-01  
**Client ID:** 136N-SB18-1.0-1.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 05/24/24 10:22  
**Date Received:** 05/24/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	86.4		%	0.100	NA	1	-	05/25/24 04:54	121,2540G	WJM



**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

**Lab ID:** L2429024-02  
**Client ID:** 136N-SB17-1.5-2.0  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 05/24/24 10:10  
**Date Received:** 05/24/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	87.1		%	0.100	NA	1	-	05/25/24 04:54	121,2540G	WJM



**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

**Lab ID:** L2429024-03  
**Client ID:** 136N-SB16-2.0-2.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 05/24/24 09:54  
**Date Received:** 05/24/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	83.9		%	0.100	NA	1	-	05/25/24 04:54	121,2540G	WJM



**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

**Lab ID:** L2429024-04  
**Client ID:** 136N-SB15-1.0-1.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 05/24/24 09:32  
**Date Received:** 05/24/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	86.2		%	0.100	NA	1	-	05/25/24 04:54	121,2540G	WJM



**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

**Lab ID:** L2429024-05  
**Client ID:** 136N-SB13-1.0-1.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 05/24/24 09:13  
**Date Received:** 05/24/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	85.8		%	0.100	NA	1	-	05/25/24 04:54	121,2540G	WJM



**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

**Lab ID:** L2429024-06  
**Client ID:** 136N-SB12-3.0-3.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 05/24/24 08:51  
**Date Received:** 05/24/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	87.1		%	0.100	NA	1	-	05/25/24 04:54	121,2540G	WJM



**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

**SAMPLE RESULTS**

**Lab ID:** L2429024-07  
**Client ID:** 136N-SB11-2.0-2.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 05/24/24 08:30  
**Date Received:** 05/24/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	84.5		%	0.100	NA	1	-	05/25/24 04:54	121,2540G	WJM



## Lab Duplicate Analysis

*Batch Quality Control*

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-07 QC Batch ID: WG1925709-1 QC Sample: L2429225-01 Client ID: DUP Sample						
Solids, Total	73.4	72.9	%	1		20

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

### Sample Receipt and Container Information

Were project specific reporting limits specified?

YES

#### Cooler Information

**Cooler**                      **Custody Seal**  
A                                      Absent

#### Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2429024-01A	Vial MeOH preserved	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2429024-01B	Vial water preserved	A	NA		5.2	Y	Absent	25-MAY-24 01:34	PA-8260HLW(14)
L2429024-01C	Vial water preserved	A	NA		5.2	Y	Absent	25-MAY-24 01:34	PA-8260HLW(14)
L2429024-01D	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2429024-01E	Plastic 120ml unpreserved	A	NA		5.2	Y	Absent		TS(7)
L2429024-02A	Vial MeOH preserved	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2429024-02B	Vial water preserved	A	NA		5.2	Y	Absent	25-MAY-24 01:34	PA-8260HLW(14)
L2429024-02C	Vial water preserved	A	NA		5.2	Y	Absent	25-MAY-24 01:34	PA-8260HLW(14)
L2429024-02D	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2429024-02E	Plastic 120ml unpreserved	A	NA		5.2	Y	Absent		TS(7)
L2429024-03A	Vial MeOH preserved	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2429024-03B	Vial water preserved	A	NA		5.2	Y	Absent	25-MAY-24 01:34	PA-8260HLW(14)
L2429024-03C	Vial water preserved	A	NA		5.2	Y	Absent	25-MAY-24 01:34	PA-8260HLW(14)
L2429024-03D	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2429024-03E	Plastic 120ml unpreserved	A	NA		5.2	Y	Absent		TS(7)
L2429024-04A	Vial MeOH preserved	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2429024-04B	Vial water preserved	A	NA		5.2	Y	Absent	25-MAY-24 01:34	PA-8260HLW(14)
L2429024-04C	Vial water preserved	A	NA		5.2	Y	Absent	25-MAY-24 01:34	PA-8260HLW(14)
L2429024-04D	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2429024-04E	Plastic 120ml unpreserved	A	NA		5.2	Y	Absent		TS(7)
L2429024-05A	Vial MeOH preserved	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2429024-05B	Vial water preserved	A	NA		5.2	Y	Absent	25-MAY-24 01:34	PA-8260HLW(14)
L2429024-05C	Vial water preserved	A	NA		5.2	Y	Absent	25-MAY-24 01:34	PA-8260HLW(14)

**Project Name:** PESRM**Lab Number:** L2429024**Project Number:** P044.001.006**Report Date:** 06/04/24**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2429024-05D	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2429024-05E	Plastic 120ml unpreserved	A	NA		5.2	Y	Absent		TS(7)
L2429024-06A	Vial MeOH preserved	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2429024-06B	Vial water preserved	A	NA		5.2	Y	Absent	25-MAY-24 01:34	PA-8260HLW(14)
L2429024-06C	Vial water preserved	A	NA		5.2	Y	Absent	25-MAY-24 01:34	PA-8260HLW(14)
L2429024-06D	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2429024-06E	Plastic 120ml unpreserved	A	NA		5.2	Y	Absent		TS(7)
L2429024-07A	Vial MeOH preserved	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2429024-07B	Vial water preserved	A	NA		5.2	Y	Absent	25-MAY-24 01:34	PA-8260HLW(14)
L2429024-07C	Vial water preserved	A	NA		5.2	Y	Absent	25-MAY-24 01:34	PA-8260HLW(14)
L2429024-07D	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2429024-07E	Plastic 120ml unpreserved	A	NA		5.2	Y	Absent		TS(7)
L2429024-08A	Vial HCl preserved	A	NA		5.2	Y	Absent		PA-8260(14)
L2429024-08B	Vial HCl preserved	A	NA		5.2	Y	Absent		PA-8260(14)
L2429024-08C	Vial HCl preserved	A	NA		5.2	Y	Absent		PA-8260(14)
L2429024-08D	Amber 100ml unpreserved	A	7	7	5.2	Y	Absent		PA-PAHSIM-RVT(7)
L2429024-08E	Amber 100ml unpreserved	A	7	7	5.2	Y	Absent		PA-PAHSIM-RVT(7)
L2429024-09A	Vial HCl preserved	A	NA		5.2	Y	Absent		PA-8260(14)
L2429024-09B	Vial HCl preserved	A	NA		5.2	Y	Absent		PA-8260(14)

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

## GLOSSARY

### Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)  Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

### 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  
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**Lab Number:** L2429024  
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#### **Data Qualifiers**

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.)

**Project Name:** PESRM  
**Project Number:** P044.001.006

**Lab Number:** L2429024  
**Report Date:** 06/04/24

## REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



## Certification Information

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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; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

**EPA 8270E:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol, Azobenzene; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

### 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.

**Nonpotable Water:** **EPA RSK-175 Dissolved Gases**

**Biological Tissue Matrix:** EPA 3050B

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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, 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**

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For a complete listing of analytes and methods, please contact your Alpha Project Manager.

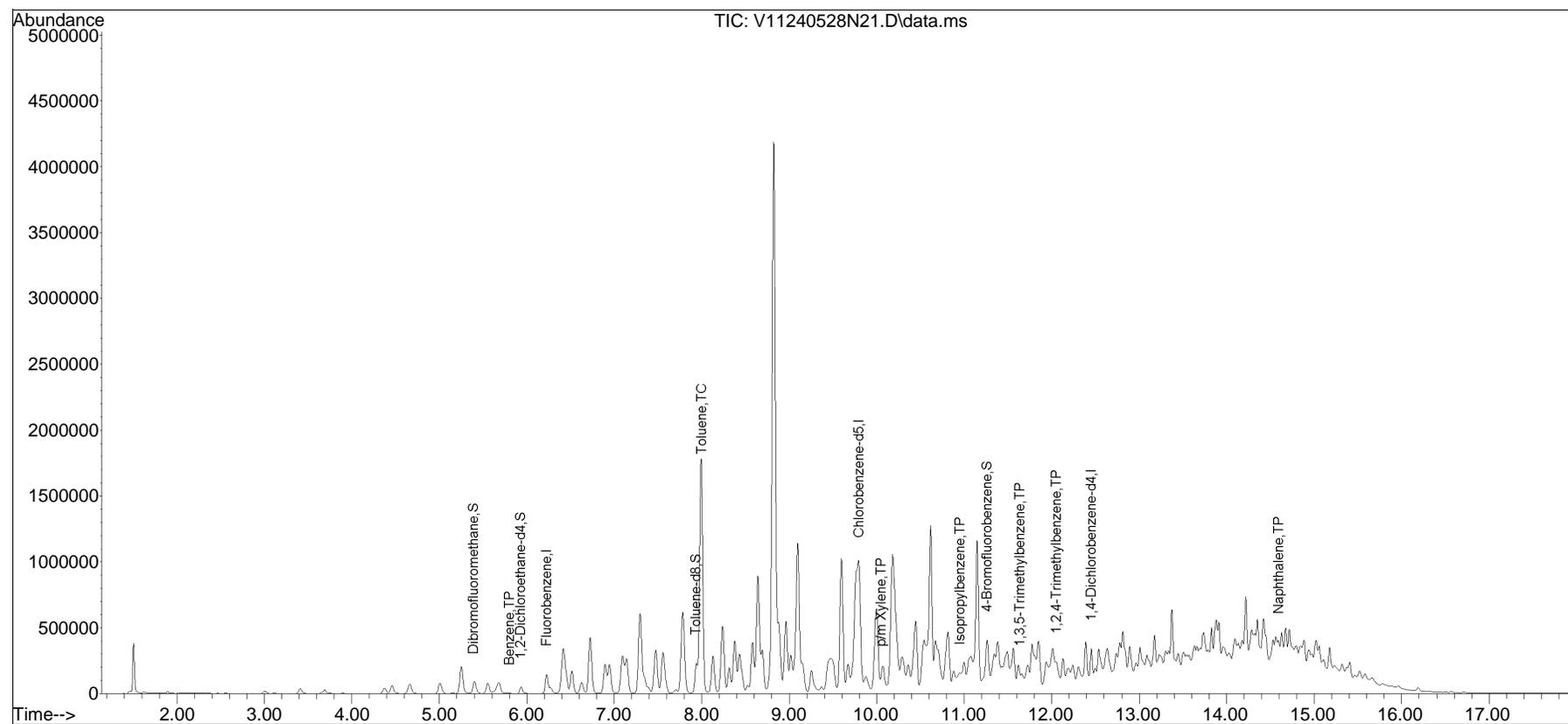


## Quantitation Report (QT Reviewed)

Data Path : K:\VOA111\2024\240528\  
Data File : V11240528N21.D  
Acq On : 29 May 2024 04:15 am  
Operator : VOA111:AJK  
Sample : L2429024-05,31,5.56,5,,B  
Misc : WG1927197,ICAL20962  
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 29 10:09:56 2024  
Quant Method : K:\VOA111\2024\240528N\V111\_240321N\_8260.m  
Quant Title : VOLATILES BY GC/MS  
QLast Update : Fri Mar 22 12:08:01 2024  
Response via : Initial Calibration

Sub List : 8260-PA\_ShortList - PA Short list528N02.D•





## ANALYTICAL REPORT

Lab Number:	L2462828
Client:	Terraphase Engineering Inc. 1100 Canal Pointe Boulevard Suite 100 Princeton, NJ 08540
ATTN:	Nick Scala
Phone:	(609) 236-8171
Project Name:	PESRM-BDH
Project Number:	P044.001.006
Report Date:	11/13/24

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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), OR (MA-1316), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #525-23-122-91930A1).

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Eight Walkup Drive, Westborough, MA 01581-1019  
508-898-9220 (Fax) 508-898-9193 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2462828-01	136N-SB27-1.5-2.0	SOIL	3144 W.PASSYUNK AVE.	10/28/24 10:30	10/28/24
L2462828-02	136N-SB27-4.0-4.5	SOIL	3144 W.PASSYUNK AVE.	10/28/24 10:35	10/28/24
L2462828-03	136N-SB21-1.5-2.0	SOIL	3144 W.PASSYUNK AVE.	10/28/24 10:50	10/28/24
L2462828-04	136N-SB21-3.0-3.5	SOIL	3144 W.PASSYUNK AVE.	10/28/24 10:55	10/28/24
L2462828-05	AOI7-BH-08-2019R-2.0-2.5	SOIL	3144 W.PASSYUNK AVE.	10/28/24 11:10	10/28/24
L2462828-06	136N-SB15R-4.0-4.5	SOIL	3144 W.PASSYUNK AVE.	10/28/24 11:25	10/28/24
L2462828-07	136N-SB26-0.5-1.0	SOIL	3144 W.PASSYUNK AVE.	10/28/24 11:40	10/28/24
L2462828-08	136N-SB26-0.5-1.0D	SOIL	3144 W.PASSYUNK AVE.	10/28/24 11:42	10/28/24
L2462828-09	136N-SB26-4.0-4.5	SOIL	3144 W.PASSYUNK AVE.	10/28/24 11:45	10/28/24
L2462828-10	136N-SB22-1.5-2.0	SOIL	3144 W.PASSYUNK AVE.	10/28/24 12:05	10/28/24
L2462828-11	136N-SB22-4.0-4.5	SOIL	3144 W.PASSYUNK AVE.	10/28/24 12:10	10/28/24
L2462828-12	136N-SB23-1.5-2.0	SOIL	3144 W.PASSYUNK AVE.	10/28/24 12:20	10/28/24
L2462828-13	136N-SB23-3.0-3.5	SOIL	3144 W.PASSYUNK AVE.	10/28/24 12:25	10/28/24
L2462828-14	136N-SB24-1.0-1.5	SOIL	3144 W.PASSYUNK AVE.	10/28/24 12:35	10/28/24
L2462828-15	136N-SB24-4.0-4.5	SOIL	3144 W.PASSYUNK AVE.	10/28/24 12:40	10/28/24
L2462828-16	136N-SB24-4.0-4.5D	SOIL	3144 W.PASSYUNK AVE.	10/28/24 12:42	10/28/24
L2462828-17	136N-SB25-1.0-1.5	SOIL	3144 W.PASSYUNK AVE.	10/28/24 12:55	10/28/24
L2462828-18	136N-SB25-4.0-4.5	SOIL	3144 W.PASSYUNK AVE.	10/28/24 13:00	10/28/24
L2462828-19	136N-SB25-4.0-4.5D	SOIL	3144 W.PASSYUNK AVE.	10/28/24 13:05	10/28/24
L2462828-20	136N-SB33-1.0-1.5	SOIL	3144 W.PASSYUNK AVE.	10/28/24 14:00	10/28/24
L2462828-21	136N-SB33-4.0-4.5	SOIL	3144 W.PASSYUNK AVE.	10/28/24 14:05	10/28/24
L2462828-22	136N-SB29-1.0-1.5	SOIL	3144 W.PASSYUNK AVE.	10/28/24 14:27	10/28/24
L2462828-23	136N-SB29-3.0-3.5	SOIL	3144 W.PASSYUNK AVE.	10/28/24 14:30	10/28/24
L2462828-24	136N-SB31-1.0-1.5	SOIL	3144 W.PASSYUNK AVE.	10/28/24 14:50	10/28/24

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Matrix</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>	<b>Receive Date</b>
L2462828-25	136N-SB31-2.5-3.0	SOIL	3144 W.PASSYUNK AVE.	10/28/24 14:55	10/28/24
L2462828-26	136N-SB32-0.5-1.0	SOIL	3144 W.PASSYUNK AVE.	10/28/24 15:05	10/28/24
L2462828-27	136N-SB32-2.5-3.0	SOIL	3144 W.PASSYUNK AVE.	10/28/24 15:09	10/28/24
L2462828-28	136N-SB30-1.0-1.5	SOIL	3144 W.PASSYUNK AVE.	10/28/24 15:15	10/28/24
L2462828-29	136N-SB30-2.0-2.5	SOIL	3144 W.PASSYUNK AVE.	10/28/24 15:20	10/28/24
L2462828-30	136N-SB28-1.5-2.0	SOIL	3144 W.PASSYUNK AVE.	10/28/24 15:25	10/28/24
L2462828-31	136N-SB28-2.5-3.0	SOIL	3144 W.PASSYUNK AVE.	10/28/24 15:30	10/28/24
L2462828-32	136N-SB34-1.0-1.5	SOIL	3144 W.PASSYUNK AVE.	10/28/24 15:45	10/28/24
L2462828-33	136N-SB34-4.5-5.0	SOIL	3144 W.PASSYUNK AVE.	10/28/24 15:50	10/28/24
L2462828-34	136N-SB36-1.5-2.0	SOIL	3144 W.PASSYUNK AVE.	10/28/24 15:55	10/28/24
L2462828-35	136N-SB36-3.0-3.5	SOIL	3144 W.PASSYUNK AVE.	10/28/24 16:00	10/28/24
L2462828-36	136N-SB35-1.5-2.0	SOIL	3144 W.PASSYUNK AVE.	10/28/24 16:05	10/28/24
L2462828-37	136N-SB35-3.0-3.5	SOIL	3144 W.PASSYUNK AVE.	10/28/24 16:10	10/28/24
L2462828-38	FB-241028	WATER	3144 W.PASSYUNK AVE.	10/28/24 16:20	10/28/24
L2462828-39	TB-241028	SOIL	3144 W.PASSYUNK AVE.	10/28/24 16:25	10/28/24

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

### 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 and solids are reported on a dry weight basis unless otherwise noted. Tissues are reported "as received" or on a wet 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.

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**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

### Case Narrative (continued)

#### Report Submission

November 13, 2024: This final report includes the results of the following analyses:

L2462828-28 and -29: Volatile Organics

Additional requests will be reported separately.

November 12, 2024: This preliminary report includes the results of the following analyses:

L2462828-22, -23, -24, -25, -26, -27, -30, -31, -36 and -37: Volatile Organics

November 04, 2024: This is a preliminary report. Please note that your project has contingency samples on hold. Contact your project manager to request additional analyses within 3 business days of receiving this report. Requests made after this time frame will be reported separately.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

#### Sample Receipt

L2462828-20: The sample identified as "136N-SB33-1.0-1.5" on the chain of custody was identified as "139N-SB33-1.0-1.5" on the container label. At the client's request, the sample is reported as "136N-SB33-1.0-1.5".

L2462828-21: The sample identified as "136N-SB33-4.0-4.5" on the chain of custody was identified as "139N-SB33-4.0-4.5" on the container label. At the client's request, the sample is reported as "136N-SB33-4.0-4.5".

#### Volatile Organics

L2462828-03 and -07: One or more of the internal standard recoveries is outside the acceptance criteria; however, the internal standard is within criteria for the target compounds; therefore, the results are reported.

L2462828-03: The surrogate recoveries are outside the method acceptance criteria for toluene-d8 (152%)

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

### Case Narrative (continued)

and 4-bromofluorobenzene (229%) due to interference with the Internal Standard.

L2462828-06: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (138%) and 4-bromofluorobenzene (379%); 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.

L2462828-09: The surrogate recoveries are outside the method acceptance criteria for 1,2-dichloroethane-d4 (66%) and dibromofluoromethane (59%) due to interference with the Internal Standard.

L2462828-09: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (188%) and 4-bromofluorobenzene (1028%); 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.

L2462828-12: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (139%) and 4-bromofluorobenzene (227%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2462828-13: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (133%) and 4-bromofluorobenzene (279%); 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.

L2462828-14: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (328%); 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.

L2462828-15: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (173%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2462828-16: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (166%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2462828-17: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (154%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

### Case Narrative (continued)

L2462828-18: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (178%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2462828-19: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (142%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2462828-19: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2462828-23: The surrogate recovery is outside the acceptance criteria for toluene-d8 (242%) and 4-bromofluorobenzene (253%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2462828-25: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (276%); 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.

L2462828-26: The internal standard (IS) response(s) for chlorobenzene-d5 (32%), and 1,4-dichlorobenzene-d4 (15%) and the surrogate recoveries for toluene-d8 (371%) and 4-bromofluorobenzene (377%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis; however, since the IS response was below method criteria, all associated compounds are considered to have a potentially high bias. The results of both analyses are reported.

L2462828-26: Differences were noted between the results of the Volatile Organics by EPA Method 5035/8260 High and Low Level analyses which have been attributed to vial discrepancies.

L2462828-29: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (194%) and 4-bromofluorobenzene (165%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**Case Narrative (continued)**

L2462828-37: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (205%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

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

Authorized Signature:

 Caitlin Walukevich

Title: Technical Director/Representative

Date: 11/13/24

# ORGANICS

# VOLATILES

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-03  
 Client ID: 136N-SB21-1.5-2.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 10:50  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 10/30/24 14:04  
 Analyst: JIC  
 Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.00070	J	mg/kg	0.00080	0.00026	1
Toluene	0.00088	J	mg/kg	0.0016	0.00087	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	152	Q	70-130
4-Bromofluorobenzene	229	Q	70-130
Dibromofluoromethane	97		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-04  
 Client ID: 136N-SB21-3.0-3.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 10:55  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 10/30/24 14:24  
 Analyst: JIC  
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	0.059		mg/kg	0.031	0.010	1
Toluene	0.078		mg/kg	0.063	0.034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	129		70-130
Dibromofluoromethane	95		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-05 D  
 Client ID: AOI7-BH-08-2019R-2.0-2.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 11:10  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 10/30/24 14:45  
 Analyst: JIC  
 Percent Solids: 65%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	26.		mg/kg	0.098	0.033	2
Toluene	0.56		mg/kg	0.20	0.11	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	96		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-06  
 Client ID: 136N-SB15R-4.0-4.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 11:25  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 10/30/24 15:05  
 Analyst: JIC  
 Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.0013		mg/kg	0.00079	0.00026	1
Toluene	ND		mg/kg	0.0016	0.00086	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	138	Q	70-130
4-Bromofluorobenzene	379	Q	70-130
Dibromofluoromethane	97		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-07  
 Client ID: 136N-SB26-0.5-1.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 11:40  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 10/30/24 15:26  
 Analyst: JIC  
 Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.0016		mg/kg	0.00066	0.00022	1
Toluene	ND		mg/kg	0.0013	0.00071	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	91		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-08  
 Client ID: 136N-SB26-0.5-1.0D  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 11:42  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:  
 Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 10/30/24 15:46  
 Analyst: JIC  
 Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.0014		mg/kg	0.00078	0.00026	1
Toluene	ND		mg/kg	0.0016	0.00085	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	95		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-09  
 Client ID: 136N-SB26-4.0-4.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 11:45  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 10/30/24 16:07  
 Analyst: JIC  
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Benzene	0.0026		mg/kg	0.00051	0.00017	1
Toluene	0.0053		mg/kg	0.0010	0.00055	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	66	Q	70-130
Toluene-d8	188	Q	70-130
4-Bromofluorobenzene	1030	Q	70-130
Dibromofluoromethane	59	Q	70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-10 D  
 Client ID: 136N-SB22-1.5-2.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 12:05  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 10/30/24 16:27  
 Analyst: JIC  
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	320		mg/kg	2.6	0.88	100
Toluene	140		mg/kg	5.3	2.9	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	92		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-11 D  
 Client ID: 136N-SB22-4.0-4.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 12:10  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 11/01/24 05:08  
 Analyst: JIC  
 Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	140		mg/kg	1.3	0.44	50
Toluene	22.		mg/kg	2.7	1.4	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	89		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-12  
 Client ID: 136N-SB23-1.5-2.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 12:20  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:  
 Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 10/31/24 11:48  
 Analyst: LAC  
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	1.6		mg/kg	0.053	0.018	1
Toluene	0.93		mg/kg	0.11	0.058	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	<b>139</b>	Q	70-130
4-Bromofluorobenzene	<b>227</b>	Q	70-130
Dibromofluoromethane	96		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-13  
 Client ID: 136N-SB23-3.0-3.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 12:25  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 10/31/24 12:09  
 Analyst: LAC  
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	0.88		mg/kg	0.042	0.014	1
Toluene	1.1		mg/kg	0.083	0.045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	133	Q	70-130
4-Bromofluorobenzene	279	Q	70-130
Dibromofluoromethane	93		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-14  
 Client ID: 136N-SB24-1.0-1.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 12:35  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 10/31/24 12:29  
 Analyst: LAC  
 Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	1.3		mg/kg	0.058	0.019	1
Toluene	0.69		mg/kg	0.12	0.063	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	<b>328</b>	Q	70-130
Dibromofluoromethane	93		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-15  
 Client ID: 136N-SB24-4.0-4.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 12:40  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 11/01/24 04:37  
 Analyst: JIC  
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.0036		mg/kg	0.00057	0.00019	1
Toluene	ND		mg/kg	0.0011	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	173	Q	70-130
Dibromofluoromethane	95		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-16  
 Client ID: 136N-SB24-4.0-4.5D  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 12:42  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 10/31/24 10:47  
 Analyst: LAC  
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.00066	J	mg/kg	0.00099	0.00033	1
Toluene	ND		mg/kg	0.0020	0.0011	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	116		70-130
4-Bromofluorobenzene	<b>166</b>	Q	70-130
Dibromofluoromethane	95		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-17  
 Client ID: 136N-SB25-1.0-1.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 12:55  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:  
 Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 10/31/24 12:50  
 Analyst: LAC  
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	0.064		mg/kg	0.036	0.012	1
Toluene	0.20		mg/kg	0.073	0.039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	126		70-130
4-Bromofluorobenzene	154	Q	70-130
Dibromofluoromethane	94		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-18  
 Client ID: 136N-SB25-4.0-4.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 13:00  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 10/31/24 13:10  
 Analyst: LAC  
 Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	0.12		mg/kg	0.033	0.011	1
Toluene	0.090		mg/kg	0.067	0.036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	125		70-130
4-Bromofluorobenzene	178	Q	70-130
Dibromofluoromethane	92		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-19  
 Client ID: 136N-SB25-4.0-4.5D  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 13:05  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:  
 Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 10/31/24 13:31  
 Analyst: LAC  
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	0.096		mg/kg	0.035	0.012	1
Toluene	0.042	J	mg/kg	0.071	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	142	Q	70-130
Dibromofluoromethane	93		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-22  
 Client ID: 136N-SB29-1.0-1.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 14:27  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:  
 Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 11/07/24 19:54  
 Analyst: JIC  
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	7.4		mg/kg	0.077	0.026	1
Toluene	0.88		mg/kg	0.15	0.084	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	100		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-23  
 Client ID: 136N-SB29-3.0-3.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 14:30  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 11/07/24 20:20  
 Analyst: JIC  
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 High - Westborough Lab</b>						
Benzene	2.9		mg/kg	0.047	0.016	1
Toluene	3.8		mg/kg	0.095	0.051	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	<b>242</b>	Q	70-130
4-Bromofluorobenzene	<b>253</b>	Q	70-130
Dibromofluoromethane	99		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-24 D  
 Client ID: 136N-SB31-1.0-1.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 14:50  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 11/07/24 19:01  
 Analyst: JIC  
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	12.		mg/kg	0.48	0.16	10
Toluene	5.4		mg/kg	0.97	0.53	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	102		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-25  
 Client ID: 136N-SB31-2.5-3.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 14:55  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 11/07/24 20:46  
 Analyst: JIC  
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	0.62		mg/kg	0.040	0.013	1
Toluene	1.0		mg/kg	0.080	0.043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	117		70-130
4-Bromofluorobenzene	276	Q	70-130
Dibromofluoromethane	99		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-26  
 Client ID: 136N-SB32-0.5-1.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 15:05  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:  
 Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 11/07/24 22:05  
 Analyst: JIC  
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.97	E	mg/kg	0.0013	0.00044	1
Toluene	0.16		mg/kg	0.0027	0.0014	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	371	Q	70-130
4-Bromofluorobenzene	377	Q	70-130
Dibromofluoromethane	75		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-26  
 Client ID: 136N-SB32-0.5-1.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 15:05  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 11/08/24 13:35  
 Analyst: JIC  
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	ND		mg/kg	0.055	0.018	1
Toluene	ND		mg/kg	0.11	0.060	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	95		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-27  
 Client ID: 136N-SB32-2.5-3.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 15:09  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 11/07/24 21:13  
 Analyst: JIC  
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	0.71		mg/kg	0.041	0.013	1
Toluene	0.16		mg/kg	0.081	0.044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	100		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-28  
 Client ID: 136N-SB30-1.0-1.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 15:15  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 11/07/24 19:27  
 Analyst: JIC  
 Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	2.0		mg/kg	0.058	0.019	1
Toluene	1.6		mg/kg	0.12	0.062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	130		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	100		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-29  
 Client ID: 136N-SB30-2.0-2.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 15:20  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 11/07/24 18:35  
 Analyst: JIC  
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 High - Westborough Lab</b>						
Benzene	1.0		mg/kg	0.058	0.019	1
Toluene	1.0		mg/kg	0.12	0.062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	<b>194</b>	Q	70-130
4-Bromofluorobenzene	<b>165</b>	Q	70-130
Dibromofluoromethane	100		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-30  
 Client ID: 136N-SB28-1.5-2.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 15:25  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 11/08/24 14:01  
 Analyst: JIC  
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 High - Westborough Lab</b>						
Benzene	15.	E	mg/kg	0.025	0.0082	1
Toluene	0.14		mg/kg	0.049	0.027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	122		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	90		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-30 D  
 Client ID: 136N-SB28-1.5-2.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 15:25  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 11/07/24 16:47  
 Analyst: JIC  
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	16.		mg/kg	0.12	0.041	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	96		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-31 D  
 Client ID: 136N-SB28-2.5-3.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 15:30  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 11/07/24 17:12  
 Analyst: JIC  
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	790		mg/kg	2.9	0.96	100
Toluene	7.9		mg/kg	5.8	3.1	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	95		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-36  
 Client ID: 136N-SB35-1.5-2.0  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 16:05  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 11/08/24 14:27  
 Analyst: JIC  
 Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	1.5		mg/kg	0.055	0.018	1
Toluene	0.36		mg/kg	0.11	0.060	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	178	Q	70-130
Dibromofluoromethane	92		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-37  
 Client ID: 136N-SB35-3.0-3.5  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 16:10  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 11/07/24 18:03  
 Analyst: JIC  
 Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 High - Westborough Lab</b>						
Benzene	1.5		mg/kg	0.036	0.012	1
Toluene	0.44		mg/kg	0.071	0.039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	117		70-130
4-Bromofluorobenzene	<b>205</b>	Q	70-130
Dibromofluoromethane	94		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-38  
 Client ID: FB-241028  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 16:20  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:  
 Matrix: Water  
 Analytical Method: 1,8260D  
 Analytical Date: 10/31/24 16:28  
 Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	127		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-39  
 Client ID: TB-241028  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 16:25  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:  
 Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 10/31/24 10:05  
 Analyst: LAC  
 Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	ND		mg/kg	0.00050	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00054	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	98		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

Lab ID: L2462828-39  
 Client ID: TB-241028  
 Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 10/28/24 16:25  
 Date Received: 10/28/24  
 Field Prep: Not Specified

Sample Depth:  
 Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 10/31/24 10:26  
 Analyst: LAC  
 Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	ND		mg/kg	0.025	0.0083	1
Toluene	ND		mg/kg	0.050	0.027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	95		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 10/30/24 13:43  
Analyst: JIC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04-05,10 Batch: WG1991543-5					
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	96		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 10/30/24 13:43  
Analyst: JIC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 03,06-09 Batch: WG1991545-5					
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	96		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 10/31/24 10:19  
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 38 Batch: WG1991812-5					
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	127		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 10/31/24 09:04  
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 16,39 Batch: WG1991921-5					
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	94		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 1,8260D  
 Analytical Date: 10/31/24 09:04  
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 12-14,17-19,39 Batch: WG1991922-5					
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	94		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 10/31/24 21:44  
Analyst: TMS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 15 Batch: WG1991938-5					
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	103		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 10/31/24 21:44  
Analyst: TMS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 11 Batch: WG1991939-5					
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	102		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 11/07/24 09:39  
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 30-31,37 Batch: WG1994855-5					
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	97		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 11/07/24 18:08  
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 22-25,27-29 Batch: WG1994924-5					
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	102		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 11/07/24 18:08  
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 26 Batch: WG1994998-5					
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	103		70-130

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 11/08/24 09:47  
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 26,30,36 Batch: WG1995023-5					
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	97		70-130

### Lab Control Sample Analysis Batch Quality Control

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04-05,10 Batch: WG1991543-3 WG1991543-4								
Benzene	85		84		70-130	1		30
Toluene	81		81		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		109		70-130
Toluene-d8	98		100		70-130
4-Bromofluorobenzene	97		96		70-130
Dibromofluoromethane	99		99		70-130



## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 03,06-09 Batch: WG1991545-3 WG1991545-4								
Benzene	85		84		70-130	1		30
Toluene	81		81		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		109		70-130
Toluene-d8	98		100		70-130
4-Bromofluorobenzene	97		96		70-130
Dibromofluoromethane	99		99		70-130

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 38 Batch: WG1991812-3 WG1991812-4								
Benzene	91		97		70-130	6		20
Toluene	97		100		70-130	3		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	128		120		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	100		102		70-130
Dibromofluoromethane	121		119		70-130

### Lab Control Sample Analysis Batch Quality Control

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 16,39 Batch: WG1991921-3 WG1991921-4								
Benzene	90		93		70-130	3		30
Toluene	89		92		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	103		105		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	103		101		70-130
Dibromofluoromethane	96		98		70-130



### Lab Control Sample Analysis Batch Quality Control

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 12-14,17-19,39 Batch: WG1991922-3 WG1991922-4								
Benzene	90		93		70-130	3		30
Toluene	89		92		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	103		105		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	103		101		70-130
Dibromofluoromethane	96		98		70-130



## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

<b>Parameter</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>LCSD %Recovery</b>	<b>Qual</b>	<b>%Recovery Limits</b>	<b>RPD</b>	<b>Qual</b>	<b>RPD Limits</b>
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 15 Batch: WG1991938-3 WG1991938-4								
Benzene	111		108		70-130	3		30
Toluene	99		97		70-130	2		30

<b>Surrogate</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>LCSD %Recovery</b>	<b>Qual</b>	<b>Acceptance Criteria</b>
1,2-Dichloroethane-d4	97		98		70-130
Toluene-d8	108		108		70-130
4-Bromofluorobenzene	102		102		70-130
Dibromofluoromethane	96		97		70-130

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

<b>Parameter</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>LCSD %Recovery</b>	<b>Qual</b>	<b>%Recovery Limits</b>	<b>RPD</b>	<b>Qual</b>	<b>RPD Limits</b>
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 11 Batch: WG1991939-3 WG1991939-4								
Benzene	111		108		70-130	3		30
Toluene	99		97		70-130	2		30

<b>Surrogate</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>LCSD %Recovery</b>	<b>Qual</b>	<b>Acceptance Criteria</b>
1,2-Dichloroethane-d4	97		98		70-130
Toluene-d8	108		108		70-130
4-Bromofluorobenzene	102		102		70-130
Dibromofluoromethane	96		97		70-130

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 30-31,37 Batch: WG1994855-3 WG1994855-4								
Benzene	102		103		70-130	1		30
Toluene	106		107		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	115		110		70-130
Toluene-d8	109		109		70-130
4-Bromofluorobenzene	106		104		70-130
Dibromofluoromethane	101		99		70-130

### Lab Control Sample Analysis Batch Quality Control

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 22-25,27-29 Batch: WG1994924-3 WG1994924-4								
Benzene	85		86		70-130	1		30
Toluene	81		83		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	100		96		70-130
Toluene-d8	97		98		70-130
4-Bromofluorobenzene	93		92		70-130
Dibromofluoromethane	104		103		70-130



### Lab Control Sample Analysis Batch Quality Control

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 26 Batch: WG1994998-3 WG1994998-4								
Benzene	85		86		70-130	1		30
Toluene	81		83		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	100		96		70-130
Toluene-d8	97		98		70-130
4-Bromofluorobenzene	93		92		70-130
Dibromofluoromethane	104		103		70-130



### Lab Control Sample Analysis Batch Quality Control

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 26,30,36 Batch: WG1995023-3 WG1995023-4								
Benzene	107		103		70-130	4		30
Toluene	113		108		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		106		70-130
Toluene-d8	111		110		70-130
4-Bromofluorobenzene	111		108		70-130
Dibromofluoromethane	98		100		70-130



# **INORGANICS & MISCELLANEOUS**

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-03  
**Client ID:** 136N-SB21-1.5-2.0  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 10:50  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	87.8		%	0.100	NA	1	-	10/31/24 20:34	121,2540G	SJB



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-04  
**Client ID:** 136N-SB21-3.0-3.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 10:55  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	87.2		%	0.100	NA	1	-	10/31/24 20:34	121,2540G	SJB



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-05  
**Client ID:** AOI7-BH-08-2019R-2.0-2.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 11:10  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	65.2		%	0.100	NA	1	-	10/31/24 20:34	121,2540G	SJB



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-06  
**Client ID:** 136N-SB15R-4.0-4.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 11:25  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	78.4		%	0.100	NA	1	-	10/31/24 20:34	121,2540G	SJB



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-07  
**Client ID:** 136N-SB26-0.5-1.0  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 11:40  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	94.2		%	0.100	NA	1	-	10/31/24 20:34	121,2540G	SJB



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-08  
**Client ID:** 136N-SB26-0.5-1.0D  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 11:42  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	95.2		%	0.100	NA	1	-	10/31/24 20:34	121,2540G	SJB



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-09  
**Client ID:** 136N-SB26-4.0-4.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 11:45  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	85.6		%	0.100	NA	1	-	10/31/24 20:34	121,2540G	SJB



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-10  
**Client ID:** 136N-SB22-1.5-2.0  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 12:05  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	90.4		%	0.100	NA	1	-	10/31/24 20:34	121,2540G	SJB



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-11  
**Client ID:** 136N-SB22-4.0-4.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 12:10  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	96.1		%	0.100	NA	1	-	10/31/24 20:34	121,2540G	SJB



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-12  
**Client ID:** 136N-SB23-1.5-2.0  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 12:20  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	87.3		%	0.100	NA	1	-	10/31/24 20:34	121,2540G	SJB



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-13  
**Client ID:** 136N-SB23-3.0-3.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 12:25  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	88.9		%	0.100	NA	1	-	10/31/24 20:34	121,2540G	SJB



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-14  
**Client ID:** 136N-SB24-1.0-1.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 12:35  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	72.0		%	0.100	NA	1	-	10/31/24 20:34	121,2540G	SJB



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-15  
**Client ID:** 136N-SB24-4.0-4.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 12:40  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	85.6		%	0.100	NA	1	-	10/31/24 20:34	121,2540G	SJB



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-16  
**Client ID:** 136N-SB24-4.0-4.5D  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 12:42  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	90.0		%	0.100	NA	1	-	10/31/24 20:34	121,2540G	SJB



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-17  
**Client ID:** 136N-SB25-1.0-1.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 12:55  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	82.2		%	0.100	NA	1	-	10/31/24 20:34	121,2540G	SJB



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-18  
**Client ID:** 136N-SB25-4.0-4.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 13:00  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	86.2		%	0.100	NA	1	-	10/31/24 20:34	121,2540G	SJB



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-19  
**Client ID:** 136N-SB25-4.0-4.5D  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 13:05  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	83.8		%	0.100	NA	1	-	10/31/24 20:34	121,2540G	SJB



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-22  
**Client ID:** 136N-SB29-1.0-1.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 14:27  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	81.8		%	0.100	NA	1	-	11/06/24 06:11	121,2540G	ODJ



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-23  
**Client ID:** 136N-SB29-3.0-3.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 14:30  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	89.2		%	0.100	NA	1	-	11/06/24 06:11	121,2540G	ODJ



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-24  
**Client ID:** 136N-SB31-1.0-1.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 14:50  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	88.6		%	0.100	NA	1	-	11/06/24 06:11	121,2540G	ODJ



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-25  
**Client ID:** 136N-SB31-2.5-3.0  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 14:55  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	82.7		%	0.100	NA	1	-	11/06/24 06:11	121,2540G	ODJ



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-26  
**Client ID:** 136N-SB32-0.5-1.0  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 15:05  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	84.6		%	0.100	NA	1	-	11/06/24 06:11	121,2540G	ODJ



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-27  
**Client ID:** 136N-SB32-2.5-3.0  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 15:09  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	86.7		%	0.100	NA	1	-	11/06/24 06:11	121,2540G	ODJ



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-28  
**Client ID:** 136N-SB30-1.0-1.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 15:15  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	91.5		%	0.100	NA	1	-	11/06/24 06:11	121,2540G	ODJ



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-29  
**Client ID:** 136N-SB30-2.0-2.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 15:20  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	86.5		%	0.100	NA	1	-	11/06/24 06:11	121,2540G	ODJ



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-30  
**Client ID:** 136N-SB28-1.5-2.0  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 15:25  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	90.6		%	0.100	NA	1	-	11/06/24 06:11	121,2540G	ODJ



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-31  
**Client ID:** 136N-SB28-2.5-3.0  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 15:30  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	90.9		%	0.100	NA	1	-	11/06/24 18:11	121,2540G	SJB



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-36  
**Client ID:** 136N-SB35-1.5-2.0  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 16:05  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	84.1		%	0.100	NA	1	-	11/06/24 06:11	121,2540G	ODJ



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

**SAMPLE RESULTS**

**Lab ID:** L2462828-37  
**Client ID:** 136N-SB35-3.0-3.5  
**Sample Location:** 3144 W.PASSYUNK AVE.

**Date Collected:** 10/28/24 16:10  
**Date Received:** 10/28/24  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	82.2		%	0.100	NA	1	-	11/06/24 06:11	121,2540G	ODJ



## Lab Duplicate Analysis

*Batch Quality Control*

Project Name: PESRM-BDH

Project Number: P044.001.006

Lab Number: L2462828

Report Date: 11/13/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 03-19 QC Batch ID: WG1991680-1 QC Sample: L2462716-01 Client ID: DUP Sample						
Solids, Total	77.7	76.5	%	2		20
General Chemistry - Westborough Lab Associated sample(s): 22-30,36-37 QC Batch ID: WG1993662-1 QC Sample: L2462828-22 Client ID: 136N-SB29-1.0-1.5						
Solids, Total	81.8	83.4	%	2		20
General Chemistry - Westborough Lab Associated sample(s): 31 QC Batch ID: WG1994043-1 QC Sample: L2464409-01 Client ID: DUP Sample						
Solids, Total	91.2	95.4	%	5		20

**Project Name:** PESRM-BDH**Lab Number:** L2462828**Project Number:** P044.001.006**Report Date:** 11/13/24**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

**Cooler Information**

<b>Cooler</b>	<b>Custody Seal</b>
A	Absent
B	Absent
C	Absent
D	Absent

**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2462828-01A	Vial MeOH preserved	B	NA		2.0	Y	Absent		HOLD-8260HLW(14)
L2462828-01B	Vial water preserved	B	NA		2.0	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14)
L2462828-01C	Vial water preserved	B	NA		2.0	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14)
L2462828-01D	Plastic 120ml unpreserved	B	NA		2.0	Y	Absent		HOLD-WETCHEM()
L2462828-02A	Vial MeOH preserved	B	NA		2.0	Y	Absent		HOLD-8260HLW(14)
L2462828-02B	Vial water preserved	B	NA		2.0	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14)
L2462828-02C	Vial water preserved	B	NA		2.0	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14)
L2462828-02D	Plastic 120ml unpreserved	B	NA		2.0	Y	Absent		HOLD-WETCHEM()
L2462828-03A	Vial MeOH preserved	B	NA		2.0	Y	Absent		PA-8260HLW-BTEX(14)
L2462828-03B	Vial water preserved	B	NA		2.0	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-03C	Vial water preserved	B	NA		2.0	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-03D	Plastic 120ml unpreserved	B	NA		2.0	Y	Absent		TS(7)
L2462828-04A	Vial MeOH preserved	B	NA		2.0	Y	Absent		PA-8260HLW-BTEX(14)
L2462828-04B	Vial water preserved	B	NA		2.0	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-04C	Vial water preserved	B	NA		2.0	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-04D	Plastic 120ml unpreserved	B	NA		2.0	Y	Absent		TS(7)
L2462828-05A	Vial MeOH preserved	B	NA		2.0	Y	Absent		PA-8260HLW-BTEX(14)
L2462828-05B	Vial water preserved	B	NA		2.0	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-05C	Vial water preserved	B	NA		2.0	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-05D	Plastic 120ml unpreserved	B	NA		2.0	Y	Absent		TS(7)

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**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2462828-06A	Vial MeOH preserved	B	NA		2.0	Y	Absent		PA-8260HLW-BTEX(14)
L2462828-06B	Vial water preserved	B	NA		2.0	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-06C	Vial water preserved	B	NA		2.0	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-06D	Plastic 120ml unpreserved	B	NA		2.0	Y	Absent		TS(7)
L2462828-07A	Vial MeOH preserved	B	NA		2.0	Y	Absent		PA-8260HLW-BTEX(14)
L2462828-07B	Vial water preserved	B	NA		2.0	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-07C	Vial water preserved	B	NA		2.0	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-07D	Plastic 120ml unpreserved	B	NA		2.0	Y	Absent		TS(7)
L2462828-08A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2462828-08B	Vial water preserved	A	NA		2.1	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-08C	Vial water preserved	A	NA		2.1	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-08D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2462828-09A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2462828-09B	Vial water preserved	A	NA		2.1	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-09C	Vial water preserved	A	NA		2.1	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-09D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2462828-10A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2462828-10B	Vial water preserved	A	NA		2.1	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-10C	Vial water preserved	A	NA		2.1	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-10D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2462828-11A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2462828-11B	Vial water preserved	A	NA		2.1	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-11C	Vial water preserved	A	NA		2.1	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-11D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2462828-12A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2462828-12B	Vial water preserved	A	NA		2.1	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-12C	Vial water preserved	A	NA		2.1	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-12D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)

\*Values in parentheses indicate holding time in days



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**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2462828-13A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2462828-13B	Vial water preserved	A	NA		2.1	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-13C	Vial water preserved	A	NA		2.1	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-13D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2462828-14A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2462828-14B	Vial water preserved	A	NA		2.1	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-14C	Vial water preserved	A	NA		2.1	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-14D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2462828-15A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2462828-15B	Vial water preserved	A	NA		2.1	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-15C	Vial water preserved	A	NA		2.1	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-15D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2462828-16A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2462828-16B	Vial water preserved	A	NA		2.1	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-16C	Vial water preserved	A	NA		2.1	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-16D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2462828-17A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW-BTEX(14)
L2462828-17B	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-17C	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-17D	Plastic 120ml unpreserved	C	NA		2.3	Y	Absent		TS(7)
L2462828-18A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW-BTEX(14)
L2462828-18B	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-18C	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-18D	Plastic 120ml unpreserved	C	NA		2.3	Y	Absent		TS(7)
L2462828-19A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW-BTEX(14)
L2462828-19B	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-19C	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-19D	Plastic 120ml unpreserved	C	NA		2.3	Y	Absent		TS(7)



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**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2462828-20A	Vial MeOH preserved	C	NA		2.3	Y	Absent		HOLD-8260HLW(14)
L2462828-20B	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14)
L2462828-20C	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14)
L2462828-20D	Plastic 120ml unpreserved	C	NA		2.3	Y	Absent		HOLD-WETCHEM()
L2462828-21A	Vial MeOH preserved	C	NA		2.3	Y	Absent		HOLD-8260HLW(14)
L2462828-21B	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14)
L2462828-21C	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14)
L2462828-21D	Plastic 120ml unpreserved	C	NA		2.3	Y	Absent		HOLD-WETCHEM()
L2462828-22A	Vial MeOH preserved	C	NA		2.3	Y	Absent		HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-22B	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-22C	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-22D	Plastic 120ml unpreserved	C	NA		2.3	Y	Absent		HOLD-WETCHEM(),TS(7)
L2462828-23A	Vial MeOH preserved	C	NA		2.3	Y	Absent		HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-23B	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-23C	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-23D	Plastic 120ml unpreserved	C	NA		2.3	Y	Absent		HOLD-WETCHEM(),TS(7)
L2462828-24A	Vial MeOH preserved	C	NA		2.3	Y	Absent		HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-24B	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-24C	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-24D	Plastic 120ml unpreserved	C	NA		2.3	Y	Absent		HOLD-WETCHEM(),TS(7)
L2462828-25A	Vial MeOH preserved	C	NA		2.3	Y	Absent		HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-25B	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-25C	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-25D	Plastic 120ml unpreserved	C	NA		2.3	Y	Absent		HOLD-WETCHEM(),TS(7)
L2462828-26A	Vial MeOH preserved	D	NA		2.2	Y	Absent		HOLD-8260HLW(14),PA-8260HLW-BTEX(14),PA-8260H(14)
L2462828-26B	Vial water preserved	D	NA		2.2	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14),PA-8260HLW-BTEX(14),PA-8260H(14)
L2462828-26C	Vial water preserved	D	NA		2.2	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14),PA-8260HLW-BTEX(14),PA-8260H(14)

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**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2462828-26D	Plastic 120ml unpreserved	D	NA		2.2	Y	Absent		HOLD-WETCHEM(),TS(7)
L2462828-27A	Vial MeOH preserved	D	NA		2.2	Y	Absent		HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-27B	Vial water preserved	D	NA		2.2	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-27C	Vial water preserved	D	NA		2.2	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-27D	Plastic 120ml unpreserved	D	NA		2.2	Y	Absent		HOLD-WETCHEM(),TS(7)
L2462828-28A	Vial MeOH preserved	D	NA		2.2	Y	Absent		PA-8260HLW-BTEX(14)
L2462828-28B	Vial water preserved	D	NA		2.2	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-28C	Vial water preserved	D	NA		2.2	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-28D	Plastic 120ml unpreserved	D	NA		2.2	Y	Absent		TS(7)
L2462828-29A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW-BTEX(14)
L2462828-29B	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-29C	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:40	PA-8260HLW-BTEX(14)
L2462828-29D	Plastic 120ml unpreserved	C	NA		2.3	Y	Absent		TS(7)
L2462828-30A	Vial MeOH preserved	C	NA		2.3	Y	Absent		HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-30B	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-30C	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-30D	Plastic 120ml unpreserved	C	NA		2.3	Y	Absent		HOLD-WETCHEM(),TS(7)
L2462828-31A	Vial MeOH preserved	D	NA		2.2	Y	Absent		HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-31B	Vial water preserved	D	NA		2.2	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-31C	Vial water preserved	D	NA		2.2	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-31D	Plastic 120ml unpreserved	D	NA		2.2	Y	Absent		HOLD-WETCHEM(),TS(7)
L2462828-32A	Vial MeOH preserved	C	NA		2.3	Y	Absent		HOLD-8260HLW(14)
L2462828-32B	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:51	HOLD-8260HLW(14)
L2462828-32C	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:40	HOLD-8260HLW(14)
L2462828-32D	Plastic 120ml unpreserved	C	NA		2.3	Y	Absent		HOLD-WETCHEM()
L2462828-33A	Vial MeOH preserved	D	NA		2.2	Y	Absent		HOLD-8260HLW(14)
L2462828-33B	Vial water preserved	D	NA		2.2	Y	Absent	29-OCT-24 07:51	HOLD-8260HLW(14)
L2462828-33C	Vial water preserved	D	NA		2.2	Y	Absent	29-OCT-24 07:50	HOLD-8260HLW(14)

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<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2462828-33D	Plastic 120ml unpreserved	D	NA		2.2	Y	Absent		HOLD-WETCHEM()
L2462828-34A	Vial MeOH preserved	D	NA		2.2	Y	Absent		HOLD-8260HLW(14)
L2462828-34B	Vial water preserved	D	NA		2.2	Y	Absent	29-OCT-24 07:51	HOLD-8260HLW(14)
L2462828-34C	Vial water preserved	D	NA		2.2	Y	Absent	29-OCT-24 07:51	HOLD-8260HLW(14)
L2462828-34D	Plastic 120ml unpreserved	D	NA		2.2	Y	Absent		HOLD-WETCHEM()
L2462828-35A	Vial MeOH preserved	D	NA		2.2	Y	Absent		HOLD-8260HLW(14)
L2462828-35B	Vial water preserved	D	NA		2.2	Y	Absent	29-OCT-24 07:51	HOLD-8260HLW(14)
L2462828-35C	Vial water preserved	D	NA		2.2	Y	Absent	29-OCT-24 07:51	HOLD-8260HLW(14)
L2462828-35D	Plastic 120ml unpreserved	D	NA		2.2	Y	Absent		HOLD-WETCHEM()
L2462828-36A	Vial MeOH preserved	C	NA		2.3	Y	Absent		HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-36B	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:51	HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-36C	Vial water preserved	C	NA		2.3	Y	Absent	29-OCT-24 07:51	HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-36D	Plastic 120ml unpreserved	C	NA		2.3	Y	Absent		HOLD-WETCHEM(),TS(7)
L2462828-37A	Vial MeOH preserved	D	NA		2.2	Y	Absent		HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-37B	Vial water preserved	D	NA		2.2	Y	Absent	29-OCT-24 07:51	HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-37C	Vial water preserved	D	NA		2.2	Y	Absent	29-OCT-24 07:51	HOLD-8260HLW(14),PA-8260HLW-BTEX(14)
L2462828-37D	Plastic 120ml unpreserved	D	NA		2.2	Y	Absent		HOLD-WETCHEM(),TS(7)
L2462828-38A	Vial HCl preserved	C	NA		2.3	Y	Absent		PA-8260-BTEX(14)
L2462828-38B	Vial HCl preserved	C	NA		2.3	Y	Absent		PA-8260-BTEX(14)
L2462828-38C	Vial HCl preserved	C	NA		2.3	Y	Absent		PA-8260-BTEX(14)
L2462828-39A	Vial MeOH preserved	D	NA		2.2	Y	Absent		PA-8260HLW-BTEX(14),PA-8260H(14)
L2462828-39B	Vial water preserved	D	NA		2.2	Y	Absent	29-OCT-24 07:51	PA-8260HLW-BTEX(14),PA-8260H(14)
L2462828-39C	Vial water preserved	D	NA		2.2	Y	Absent	29-OCT-24 07:51	PA-8260HLW-BTEX(14),PA-8260H(14)

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

## GLOSSARY

### Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)  Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers



**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

### 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-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

#### Data Qualifiers

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.)

**Project Name:** PESRM-BDH  
**Project Number:** P044.001.006

**Lab Number:** L2462828  
**Report Date:** 11/13/24

## REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



## Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

### Westborough Facility

**EPA 624.1:** m/p-xylene, o-xylene, Naphthalene

**EPA 625.1:** alpha-Terpineol

**EPA 8260D:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

**EPA 8270E:** NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol, Azobenzene; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine, 2,6-Dichlorophenol.

**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.

**Nonpotable Water:** **EPA RSK-175 Dissolved Gases**

**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, EPA 1600, EPA 1603, SM9222D.**

### Mansfield Facility:

#### Drinking Water

**EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

**EPA 522, EPA 537.1.**

#### Non-Potable Water

**EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

**EPA 245.1 Hg.**

**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.





# CHAIN OF CUSTODY

PAGE 2 OF 4

WESTBORO, MA  
TEL: 508-898-9220  
FAX: 508-898-8193

MANSFIELD, MA  
TEL: 508-822-9300  
FAX: 508-822-3288

## Client Information

Client: Terraphase Engineering Inc.  
Address: 100 Canal Pointe Blvd.  
Suite 100, Princeton, NJ  
Phone: 609 236 8171 ext 92  
Fax:  
Email: nick\_scala@terrphase.com  
 These samples have been previously analyzed by Alpha

## Project Information

Project Name: PESRM - BDH  
Project Location: 3144 W. Passyunk  
Project #: PD44.001.006  
Project Manager: Nick Scala  
ALPHA Quote #:

## Turn-Around Time

Standard  RUSH (only confirmed if pre-approved)  
Date Due: Time:

Other Project Specific Requirements/Comments/Detection Limits:  
Please send EDDs to EDD@terrphase.com

Date Rec'd in Lab: 10/29/24  
ALPHA Job #: L2462828

## Report Information - Data Deliverables

FAX  EMAIL  
 ADEx  Add'l Deliverables

## Billing Information

Same as Client info PO #:

## Regulatory Requirements/Report Limits

State / Fed Program	Criteria

ANALYSIS

Benzene (8260)

Toluene (8260)

**SAMPLE HANDLING**

Filtration \_\_\_\_\_

Done

Not needed

Lab to do

Preservation \_\_\_\_\_

Lab to do

(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS		Sample Specific Comments		
		Date	Time			Benzene (8260)	Toluene (8260)			
62828-11	136N-SB22-4.0-4.5	10/28/24	1210	SO MMM	X	X				
12	136N-SB23-1.5-2.0	↓	1220	↓	↓	↓	↓			
13	136N-SB23-3.0-3.5		1225						X	X
14	136N-SB24-1.0-1.5		1235						X	X
15	136N-SB24-4.0-4.5		1240						X	X
16	136N-SB24-4.0-4.5D		1242						X	X
17	136N-SB25-1.0-1.5		1255						X	X
18	136N-SB25-4.0-4.5		1300						X	X
19	136N-SB25-4.0-4.5D		1305						X	X
20	136N-SB33-1.0-1.5		1400						H	H

Container Type	V	V
Preservative	O	O

Relinquished By: *[Signature]* Terraphase 10/28/24 1746  
Date/Time: 10/28/24 18:18  
Received By: Anthony Green 10/28/24 1746  
Date/Time: 10/28/24 2350

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.

TOTAL # BOTTLES 10/28/24 2350



# CHAIN OF CUSTODY

PAGE 3 OF 4

WESTBORO, MA  
TEL: 508-898-9220  
FAX: 508-898-9193

MANSFIELD, MA  
TEL: 508-822-9300  
FAX: 508-822-3288

## Client Information

Client: Terraphase Engineering Inc  
Address: 100 Canal Pointe Blvd  
Suite 110, Princeton, NJ  
Phone: 609 236 8171 ext 92  
Fax:  
Email: Nick.Scala@terrphase.com  
 These samples have been previously analyzed by Alpha.

## Project Information

Project Name: PESRM- BDH  
Project Location: 3144 W. Passyunk  
Phila. PA  
Project #: P044.001-006  
Project Manager: Nick Scala  
ALPHA Quote #:

## Turn-Around Time

Standard  RUSH (only confirmed if pre-approved)  
Date Due: Time:

Other Project Specific Requirements/Comments/Detection Limits:  
Send EDDs to EDD@terrphase.com

Date Rec'd in Lab: 10/29/24

ALPHA Job #: L2462828

## Report Information - Data Deliverables

FAX  EMAIL  
 ADEx  Add'l Deliverables

## Billing Information

Same as Client info PO #:

## Regulatory Requirements/Report Limits

State /Fed Program Criteria

ANALYSIS

Benzene - 8260  
Toluene - 8260

SAMPLE HANDLING

Filtration \_\_\_\_\_

Done

Not needed

Lab to do

Preservation

Lab to do

(Please specify below)

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	Analysis		Sample Specific Comments
		Date	Time					
62828-21	136N-SB33-4.0-4.5	10/28/24	1405	SO MMM	H H			
22	136N-SB29-1.0-1.5		1427		H H			
23	136N-SB29-3.0-3.5		1430		H H			
24	136N-SB31-1.0-1.5		1450		H H			
25	136N-SB31-2.5-3.0		1455		H H			
26	136N-SB32- <del>0.5-1.0</del> <sup>0.5-1.0</sup>		1505		H H			
27	136N-SB32-2.5-3.0		1509		H H			
28	136N-SB30-1.0-1.5		1515		H H			
29	136N-SB30-2.0-2.5		1520		H H			
30	136N-SB28-1.5-2.0		1525		H H			

Container Type	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					
Preservative	<input type="checkbox"/>	<input type="checkbox"/>					

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Relinquished By: <u>Anthony Green</u>	Date/Time: <u>17:46 10/28/24</u>	Received By: <u>Anthony Green</u>	Date/Time: <u>10/28/24 17:46</u>
<u>Anthony Green</u>	<u>10/28/24 18:40</u>	<u>Anthony Green</u>	<u>10/28/24 21:27</u>
	<u>10/28/24 23:50</u>		<u>10/28/24 23:50</u>

0510 12/6/01



# CHAIN OF CUSTODY

PAGE 4 OF 4

Date Rec'd in Lab: 10/29/24

ALPHA Job #: L2462828

WESTBORO, MA  
TEL: 508-898-9220  
FAX: 508-898-9193

MANSFIELD, MA  
TEL: 508-822-9300  
FAX: 508-822-3288

### Client Information

Client: Terraphase Engineering Inc  
Address: 100 Canal Pointe Blvd  
Suite 110, Princeton, NJ  
Phone: 609 236 8171 ext. 92  
Fax:

Email: Nick.Scala@terrphase.com

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

send EDDs to EDD@terrphase.com

### Project Information

Project Name: PESRM- BDH  
Project Location: 3144 W. Passyunk Phila. PA  
Project #: PO44.001.006  
Project Manager: NICK SCALA  
ALPHA Quote #:

### Turn-Around Time

Standard  RUSH (only confirmed if pre-approved)

Date Due: \_\_\_\_\_ Time: \_\_\_\_\_

### Report Information - Data Deliverables

FAX  EMAIL  
 ADEx  Add'l Deliverables

### Billing Information

Same as Client info PO #:

### Regulatory Requirements/Report Limits

State /Fed Program \_\_\_\_\_ Criteria \_\_\_\_\_

ANALYSIS	Benzene - 8260	Toluene - 8260	TOTAL BOTTLES

**SAMPLE HANDLING**

Filtration \_\_\_\_\_

Done

Not needed

Lab to do

Preservation \_\_\_\_\_

Lab to do

(Please specify below)

Sample Specific Comments \_\_\_\_\_

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials			
		Date	Time					
<u>02828-31</u>	<u>136 N - SB28 - 2.5-3.0</u>	<u>10/28/24</u>	<u>1530</u>	<u>So</u>	<u>MMM</u>	<u>H</u>	<u>H</u>	
<u>32</u>	<u>136 N - SB 34 - 1.0-1.5</u>	}	<u>1545</u>	↓	↓	<u>H</u>	<u>H</u>	
<u>33</u>	<u>136 N - SB 34 - 4.5-5.0</u>		<u>1550</u>			<u>H</u>	<u>H</u>	
<u>34</u>	<u>136 N - SB 36 - 1.5-2.0</u>		<u>1555</u>			<u>H</u>	<u>H</u>	
<u>35</u>	<u>136 N - SB 36 - 3.0-3.5</u>		<u>1600</u>			<u>H</u>	<u>H</u>	
<u>36</u>	<u>136 N - SB 35 - 1.5-2.0</u>		<u>1605</u>			<u>H</u>	<u>H</u>	
<u>37</u>	<u>136 N - SB 35 - 3.0-3.5</u>		<u>1610</u>			<u>H</u>	<u>H</u>	
<u>38</u>	<u>FB - 241028</u>		<u>1620</u>			<u>WA</u>	<u>X</u>	<u>X</u>
<u>39</u>	<u>TB - 241028</u>		<u>1625</u>			<u>WA</u>	<u>X</u>	<u>X</u>

Container Type ✓ ✓  
Preservative 0 0

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.

Relinquished By: <u>Anthony Green</u>	Date/Time: <u>10/28/24 17:14</u>	Received By: <u>Anthony Green</u>	Date/Time: <u>10/29/24 17:14</u>
--	-------------------------------------	--------------------------------------	-------------------------------------

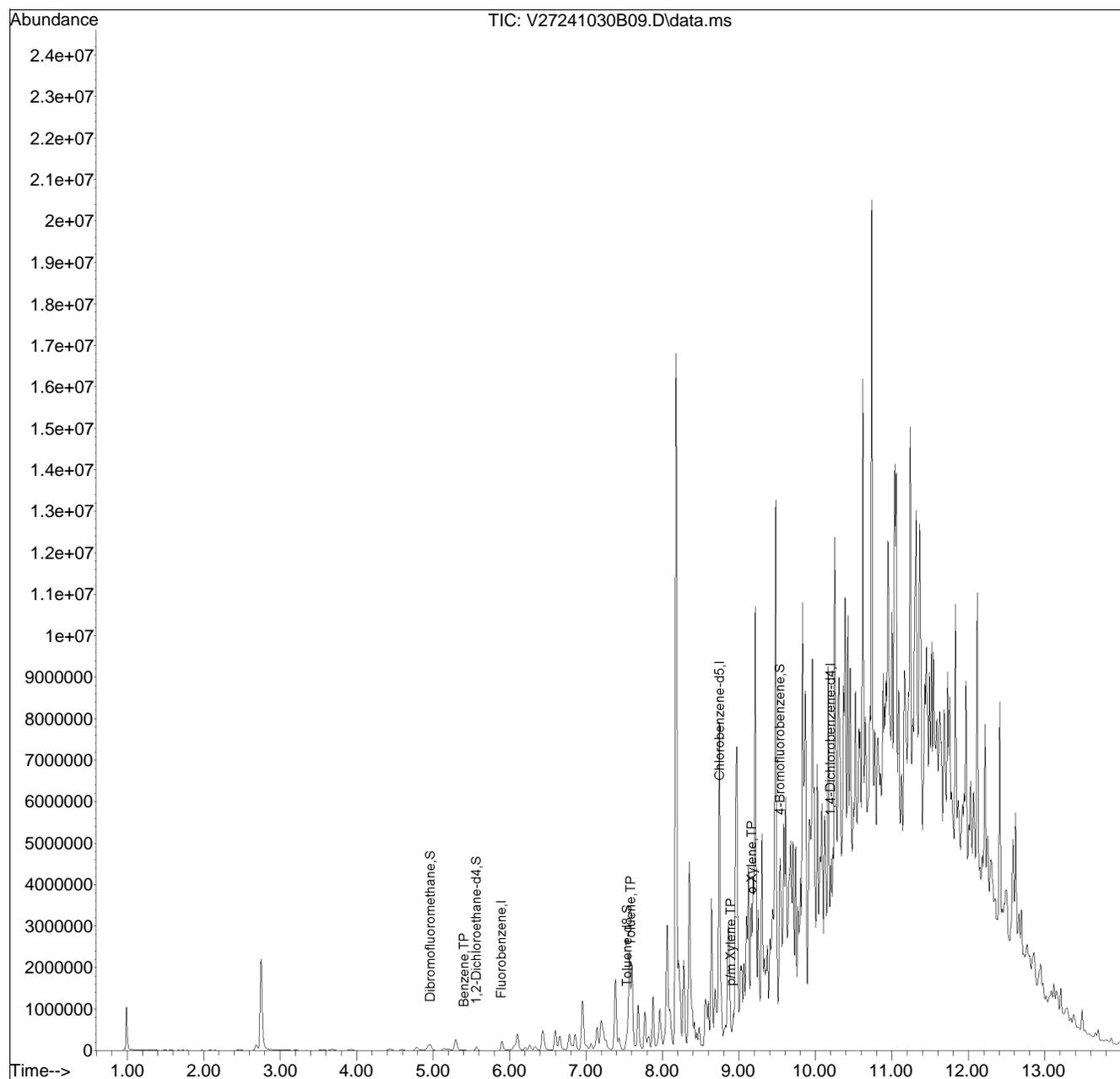
10/29/24 17:14

## Quantitation Report (QT Reviewed)

Data Path : K:\VOA127\2024\241030B\  
Data File : V27241030B09.D  
Acq On : 30 Oct 2024 03:05 pm  
Operator : VOA127:JIC  
Sample : L2462828-06,31,4.05,5,,C,32.70,37.00,0.25  
Misc : WG1991545,ICAL21556  
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 31 08:49:26 2024  
Quant Method : K:\VOA127\2024\241030B\V127\_241001N\_8260.m  
Quant Title : VOLATILES BY GC/MS  
QLast Update : Wed Oct 02 10:48:39 2024  
Response via : Initial Calibration

Sub List : 8260-BTEX - Standard BTEX List241030B01.D•

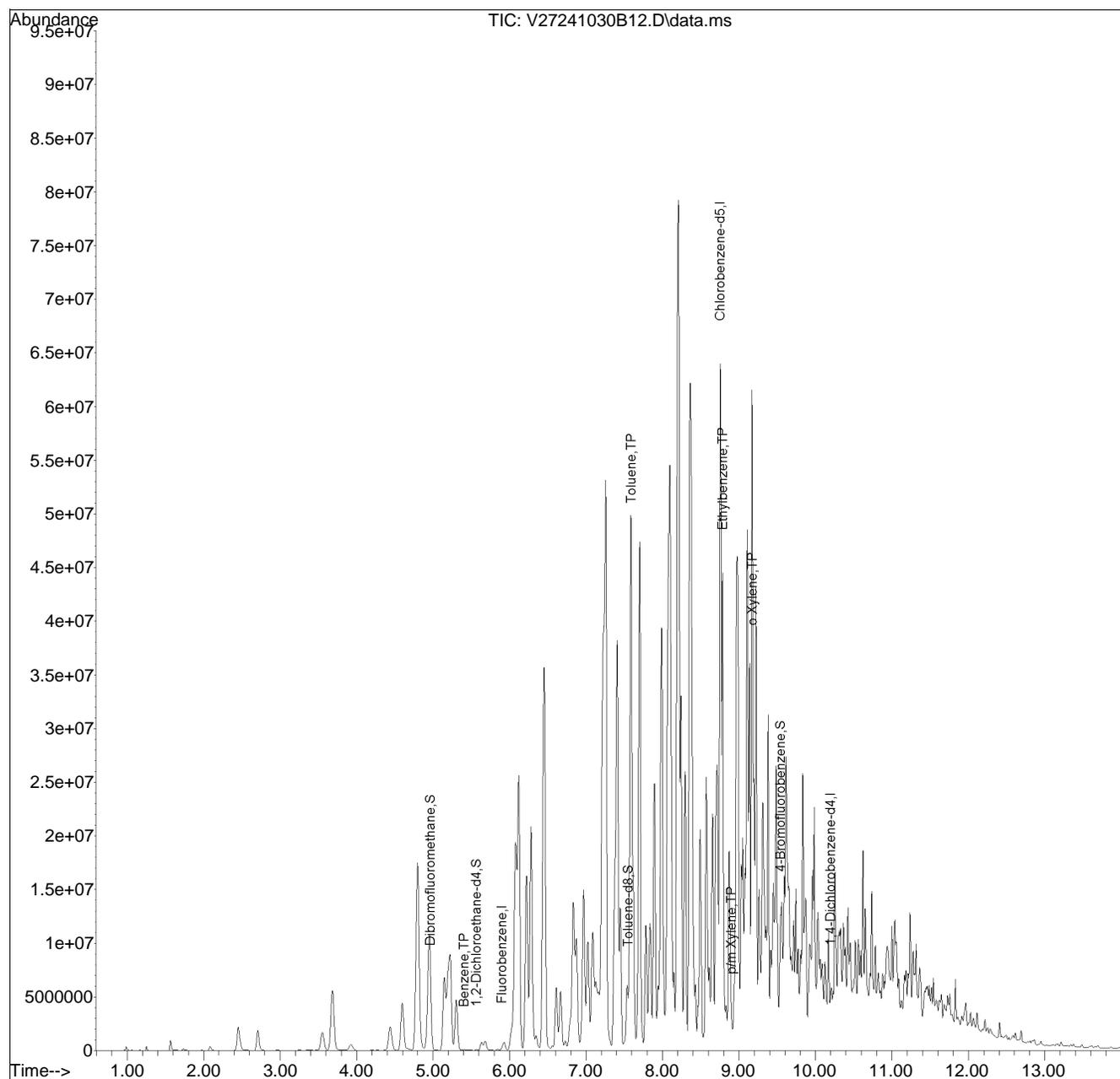


## Quantitation Report (QT Reviewed)

Data Path : K:\VOA127\2024\241030B\  
Data File : V27241030B12.D  
Acq On : 30 Oct 2024 04:07 pm  
Operator : VOA127:JIC  
Sample : L2462828-09,31,5.76,5,,C,32.62,38.63,0.25  
Misc : WG1991545,ICAL21556  
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 31 08:50:04 2024  
Quant Method : K:\VOA127\2024\241030B\V127\_241001N\_8260.m  
Quant Title : VOLATILES BY GC/MS  
QLast Update : Wed Oct 02 10:48:39 2024  
Response via : Initial Calibration

Sub List : 8260-BTEX - Standard BTEX List241030B01.D•

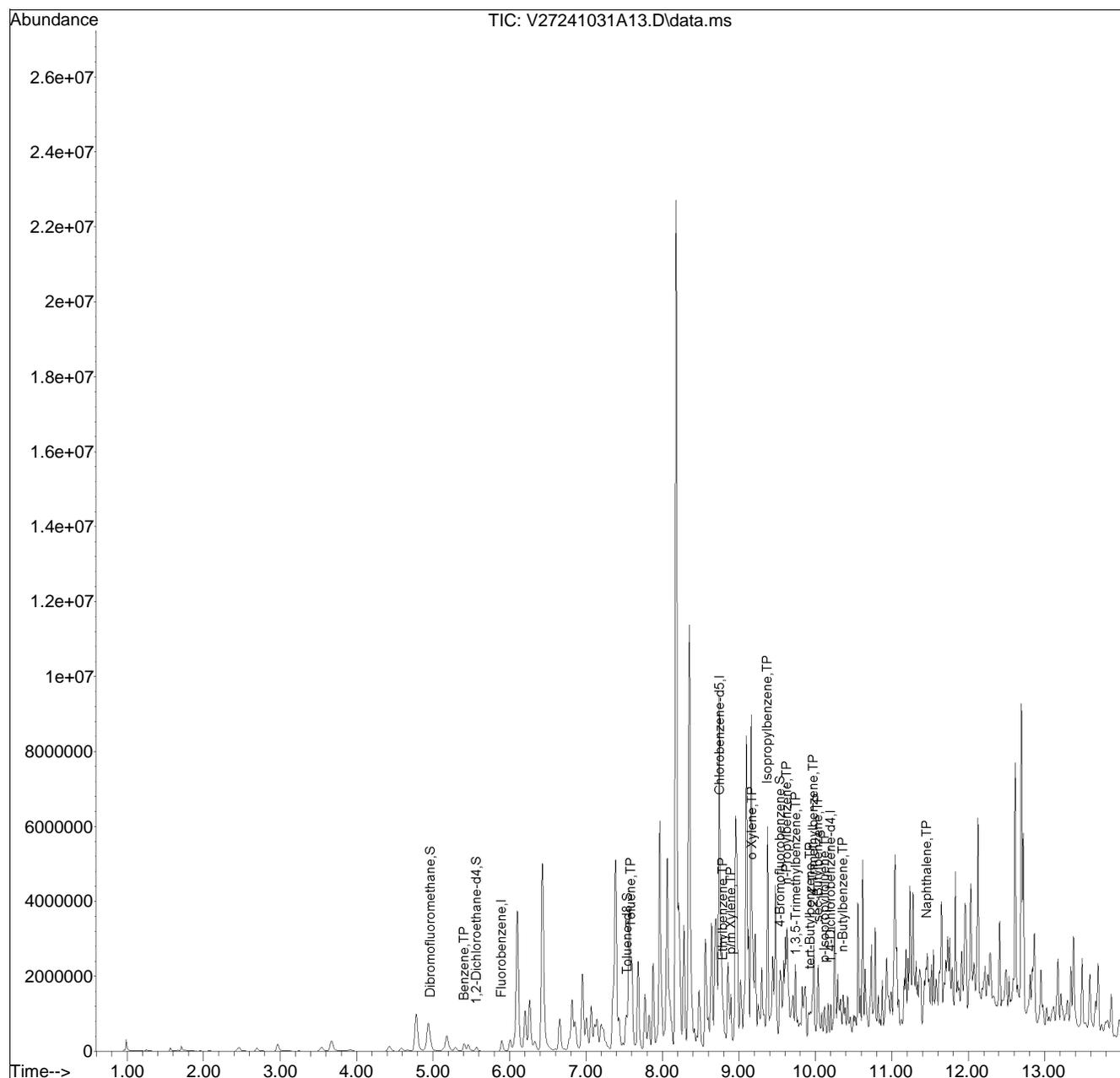


Quantitation Report (QT Reviewed)

Data Path : K:\VOA127\2024\241031A\  
 Data File : V27241031A13.D  
 Acq On : 31 Oct 2024 11:48 am  
 Operator : VOA127:LAC  
 Sample : L2462828-12,31H,2.90,5,0.100,,A,30.37,33.77,0  
 Misc : WG1991922,ICAL21556  
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 31 17:51:34 2024  
 Quant Method : K:\VOA127\2024\241031A\V127\_241001N\_8260.m  
 Quant Title : VOLATILES BY GC/MS  
 QLast Update : Wed Oct 02 10:48:39 2024  
 Response via : Initial Calibration

Sub List : 8260-NYCP51 - NYCP5141031A\V27241031A01.D•

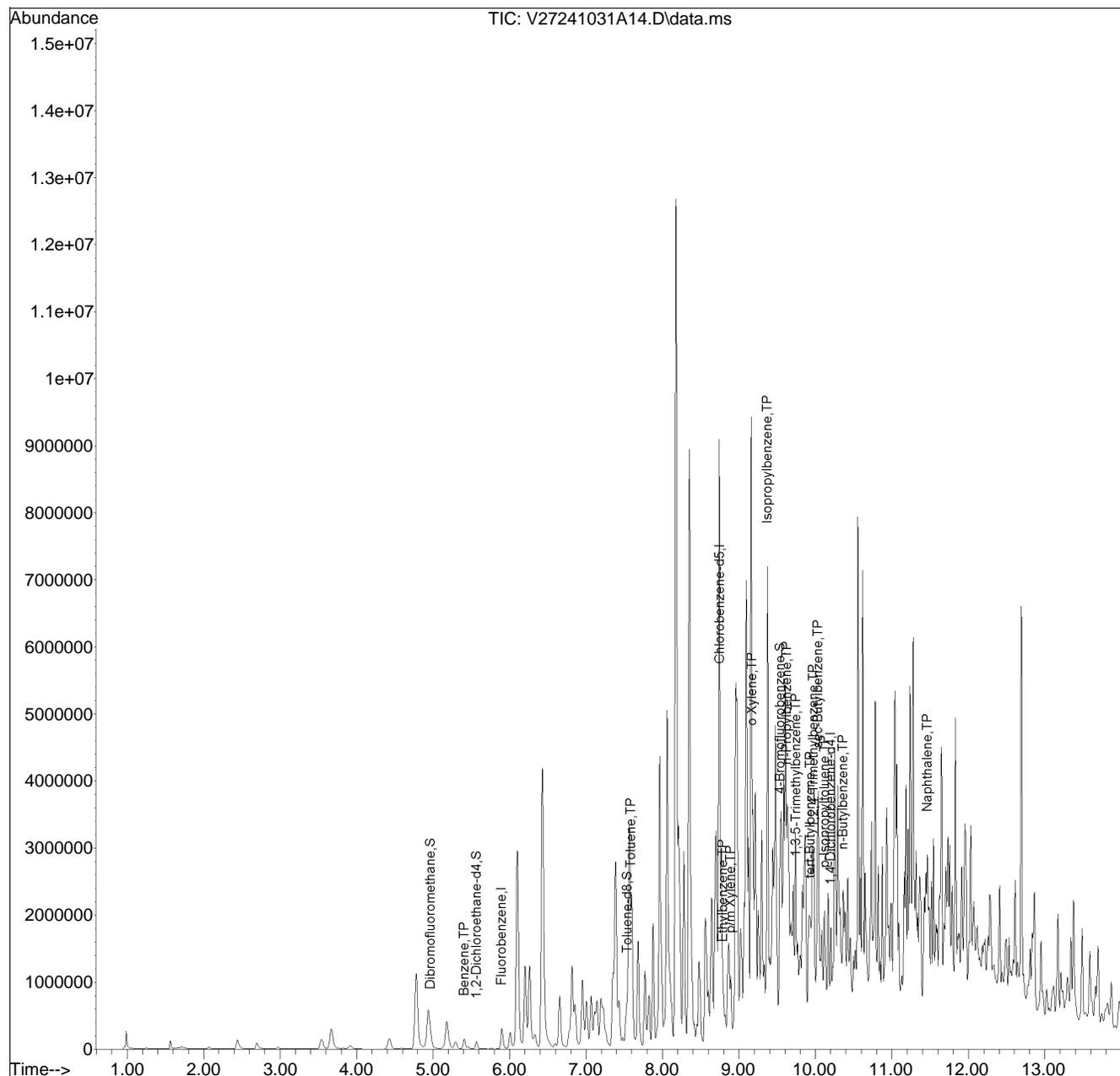


Quantitation Report (QT Reviewed)

Data Path : K:\VOA127\2024\241031A\  
 Data File : V27241031A14.D  
 Acq On : 31 Oct 2024 12:09 pm  
 Operator : VOA127:LAC  
 Sample : L2462828-13,31H,3.66,5,0.100,,A,30.52,34.68,0  
 Misc : WG1991922,ICAL21556  
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Oct 31 17:52:13 2024  
 Quant Method : K:\VOA127\2024\241031A\V127\_241001N\_8260.m  
 Quant Title : VOLATILES BY GC/MS  
 QLast Update : Wed Oct 02 10:48:39 2024  
 Response via : Initial Calibration

Sub List : 8260-NYCP51 - NYCP5141031A\V27241031A01.D•

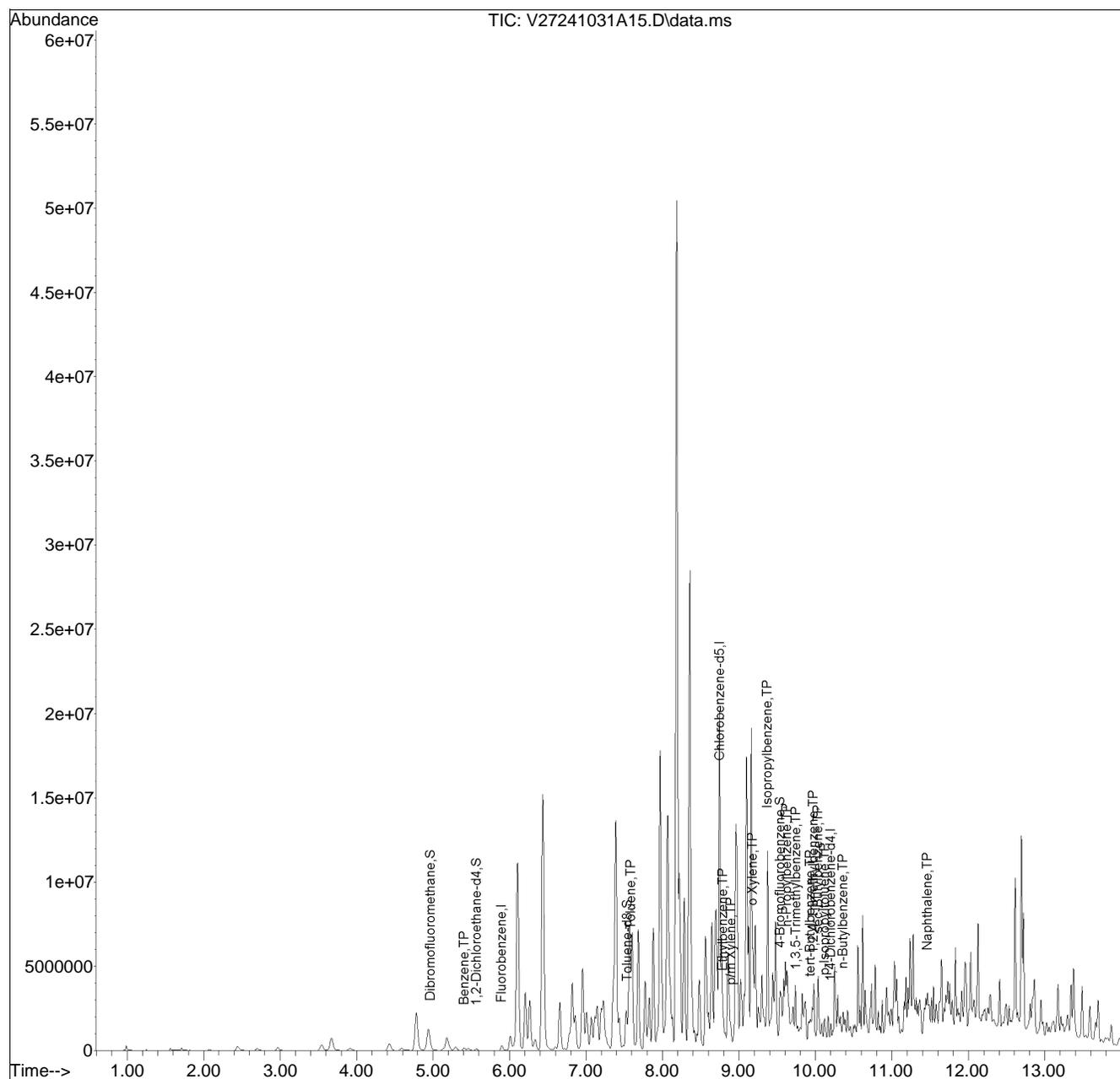


## Quantitation Report (QT Reviewed)

Data Path : K:\VOA127\2024\241031A\  
 Data File : V27241031A15.D  
 Acq On : 31 Oct 2024 12:29 pm  
 Operator : VOA127:LAC  
 Sample : L2462828-14,31H,3.57,5,0.100,,A,30.38,34.45,0  
 Misc : WG1991922,ICAL21556  
 ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 31 17:52:55 2024  
 Quant Method : K:\VOA127\2024\241031A\V127\_241001N\_8260.m  
 Quant Title : VOLATILES BY GC/MS  
 QLast Update : Wed Oct 02 10:48:39 2024  
 Response via : Initial Calibration

Sub List : 8260-NYCP51 - NYCP5141031A\V27241031A01.D•

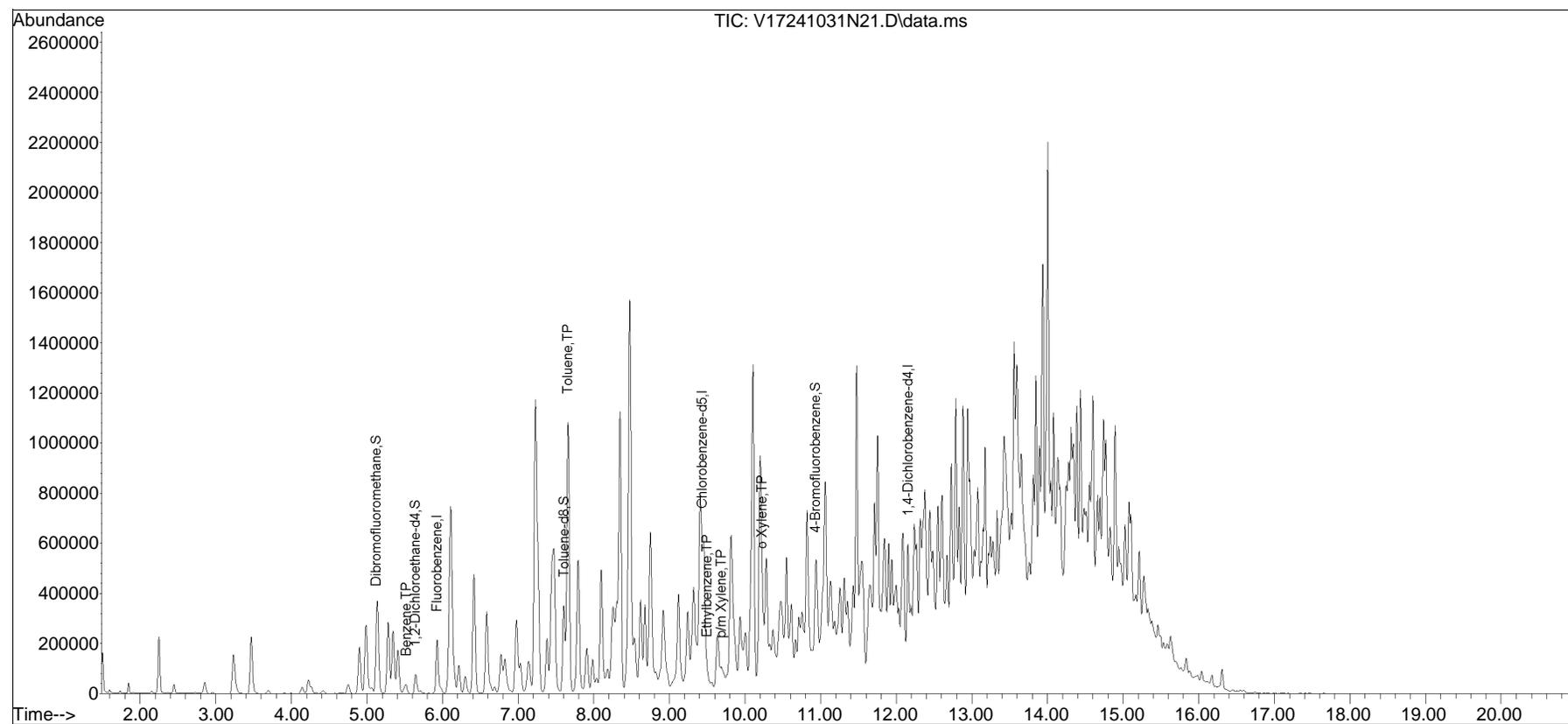


## Quantitation Report (QT Reviewed)

Data Path : K:\VOA117\2024\241031N\  
Data File : V17241031N21.D  
Acq On : 01 Nov 2024 04:37 am  
Operator : voa117:JIC  
Sample : L2462828-15,31,5.12,5,,B,32.44,37.81,0.25  
Misc : WG1991938,ICAL21482  
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Nov 01 08:29:33 2024  
Quant Method : K:\VOA117\2024\241031N\V117\_240910N\_8260.m  
Quant Title : VOLATILES BY GC/MS  
QLast Update : Wed Sep 11 12:06:06 2024  
Response via : Initial Calibration

Sub List : 8260-BTEX - Standard BTEX List241031N01.D•

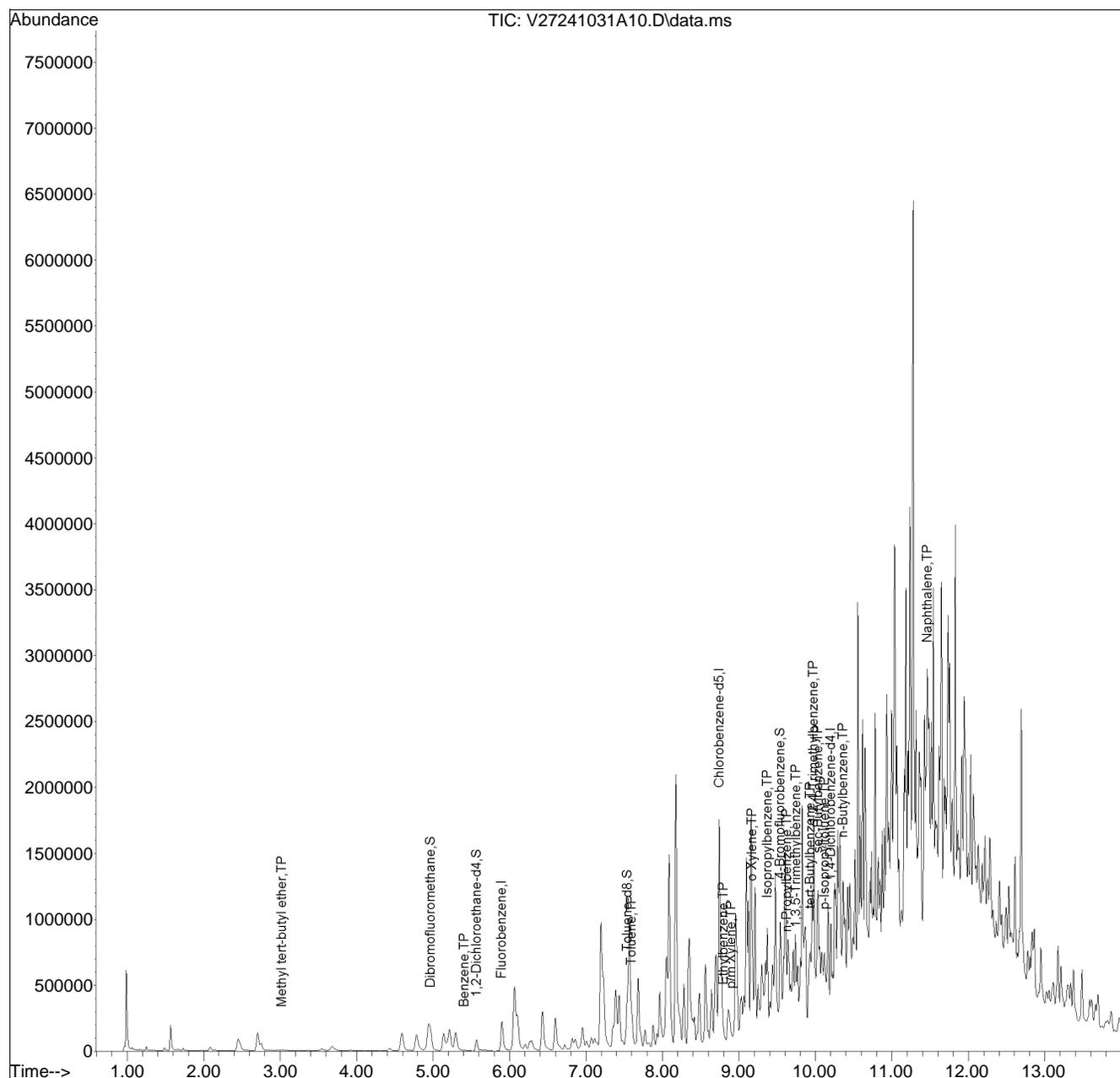


Quantitation Report (QT Reviewed)

Data Path : K:\VOA127\2024\241031A\  
 Data File : V27241031A10.D  
 Acq On : 31 Oct 2024 10:47 am  
 Operator : VOA127:LAC  
 Sample : L2462828-16,31,2.80,5,,C,32.71,36.01,0.50  
 Misc : WG1991921,ICAL21556  
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 31 17:47:40 2024  
 Quant Method : K:\VOA127\2024\241031A\V127\_241001N\_8260.m  
 Quant Title : VOLATILES BY GC/MS  
 QLast Update : Wed Oct 02 10:48:39 2024  
 Response via : Initial Calibration

Sub List : 8260-NYCP51 - NYCP5141031A\V27241031A01.D•

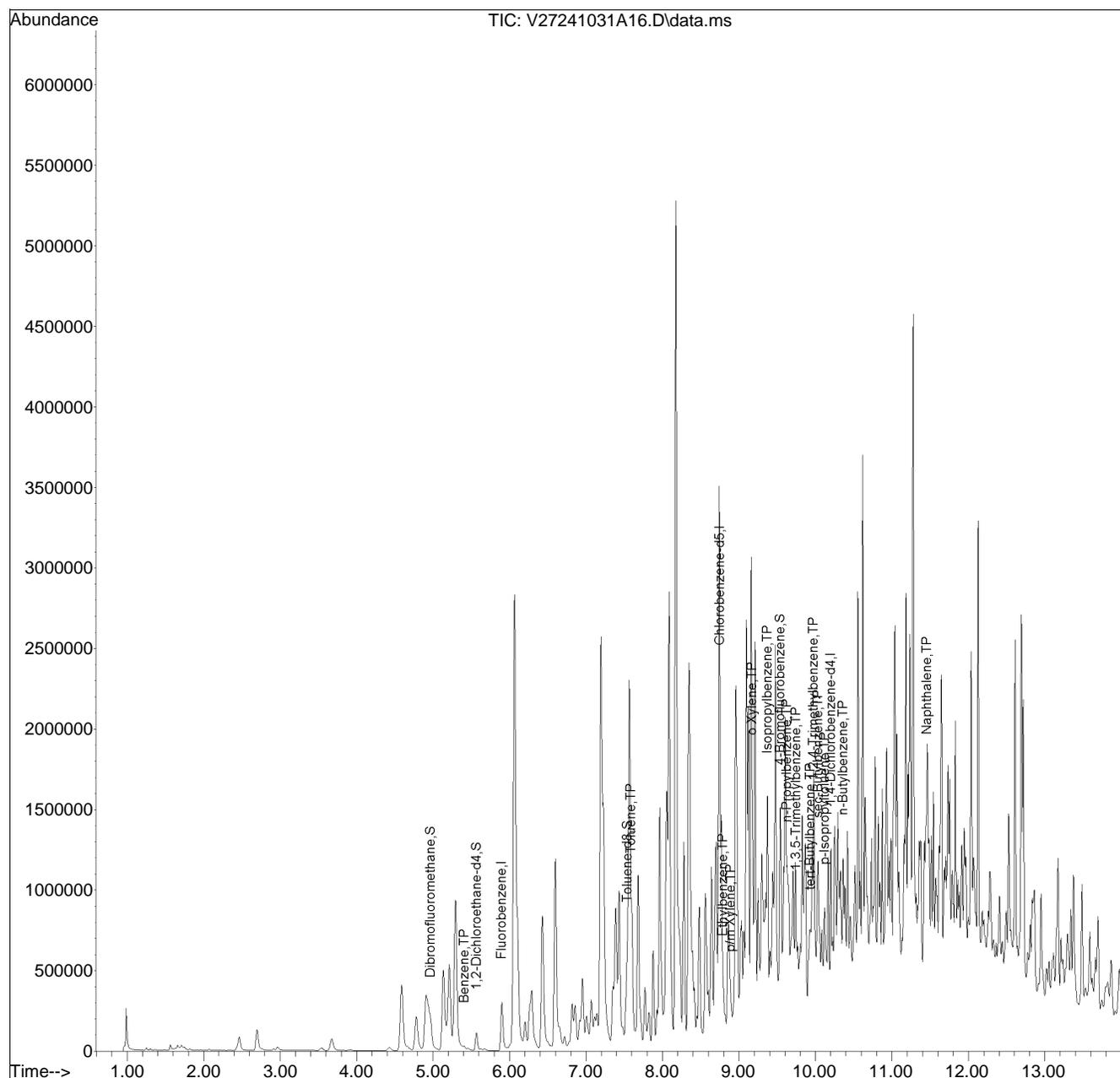


Quantitation Report (QT Reviewed)

Data Path : K:\VOA127\2024\241031A\  
 Data File : V27241031A16.D  
 Acq On : 31 Oct 2024 12:50 pm  
 Operator : VOA127:LAC  
 Sample : L2462828-17,31H,4.92,5,0.100,,A,30.30,35.72,0  
 Misc : WG1991922,ICAL21556  
 ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 31 17:53:38 2024  
 Quant Method : K:\VOA127\2024\241031A\V127\_241001N\_8260.m  
 Quant Title : VOLATILES BY GC/MS  
 QLast Update : Wed Oct 02 10:48:39 2024  
 Response via : Initial Calibration

Sub List : 8260-NYCP51 - NYCP5141031A\V27241031A01.D•

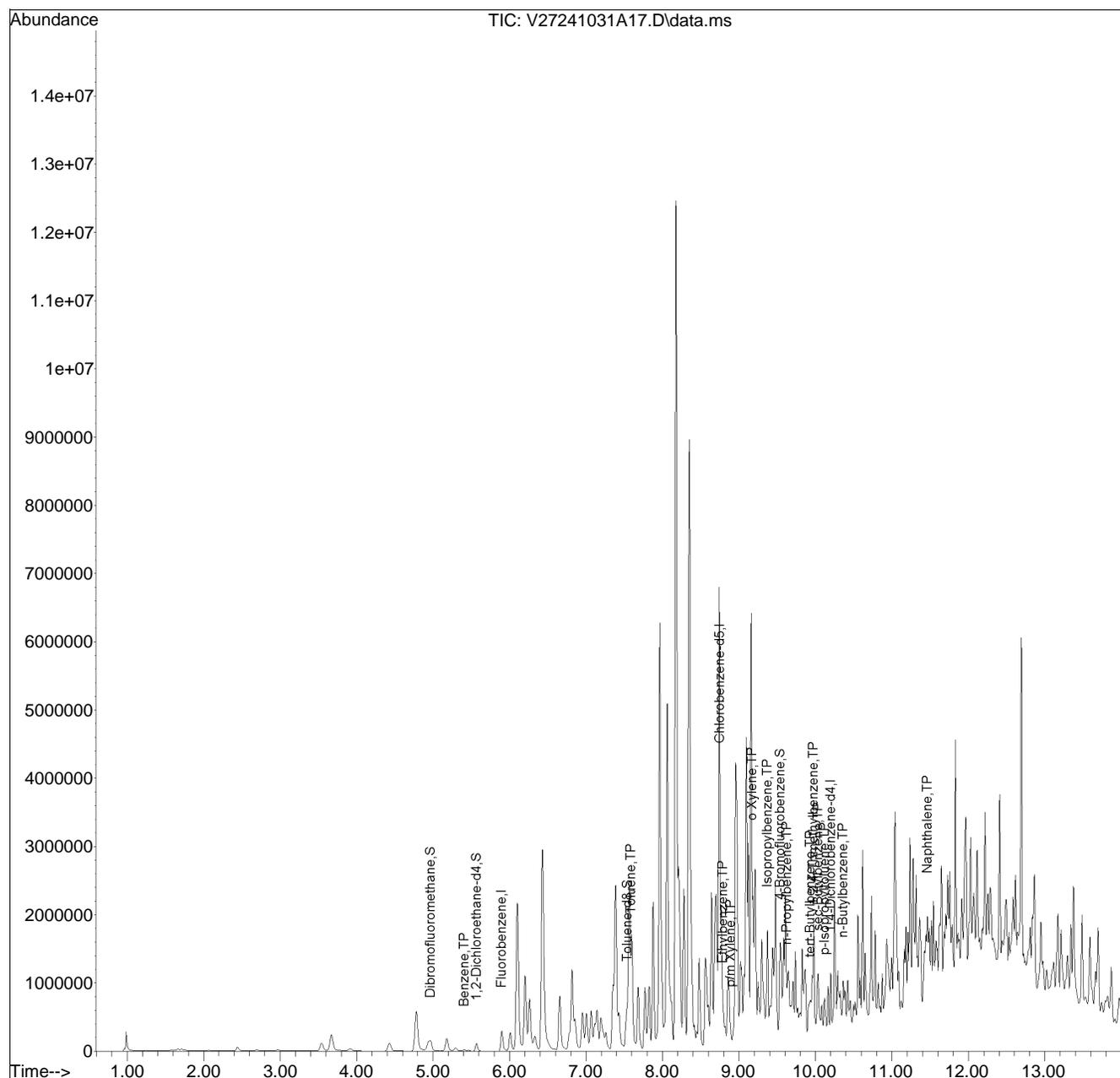


Quantitation Report (QT Reviewed)

Data Path : K:\VOA127\2024\241031A\  
 Data File : V27241031A17.D  
 Acq On : 31 Oct 2024 01:10 pm  
 Operator : VOA127:LAC  
 Sample : L2462828-18,31H,4.92,5,0.100,,A,30.60,36.02,0  
 Misc : WG1991922,ICAL21556  
 ALS Vial : 17 Sample Multiplier: 1

Quant Time: Oct 31 17:54:24 2024  
 Quant Method : K:\VOA127\2024\241031A\V127\_241001N\_8260.m  
 Quant Title : VOLATILES BY GC/MS  
 QLast Update : Wed Oct 02 10:48:39 2024  
 Response via : Initial Calibration

Sub List : 8260-NYCP51 - NYCP5141031A\V27241031A01.D•

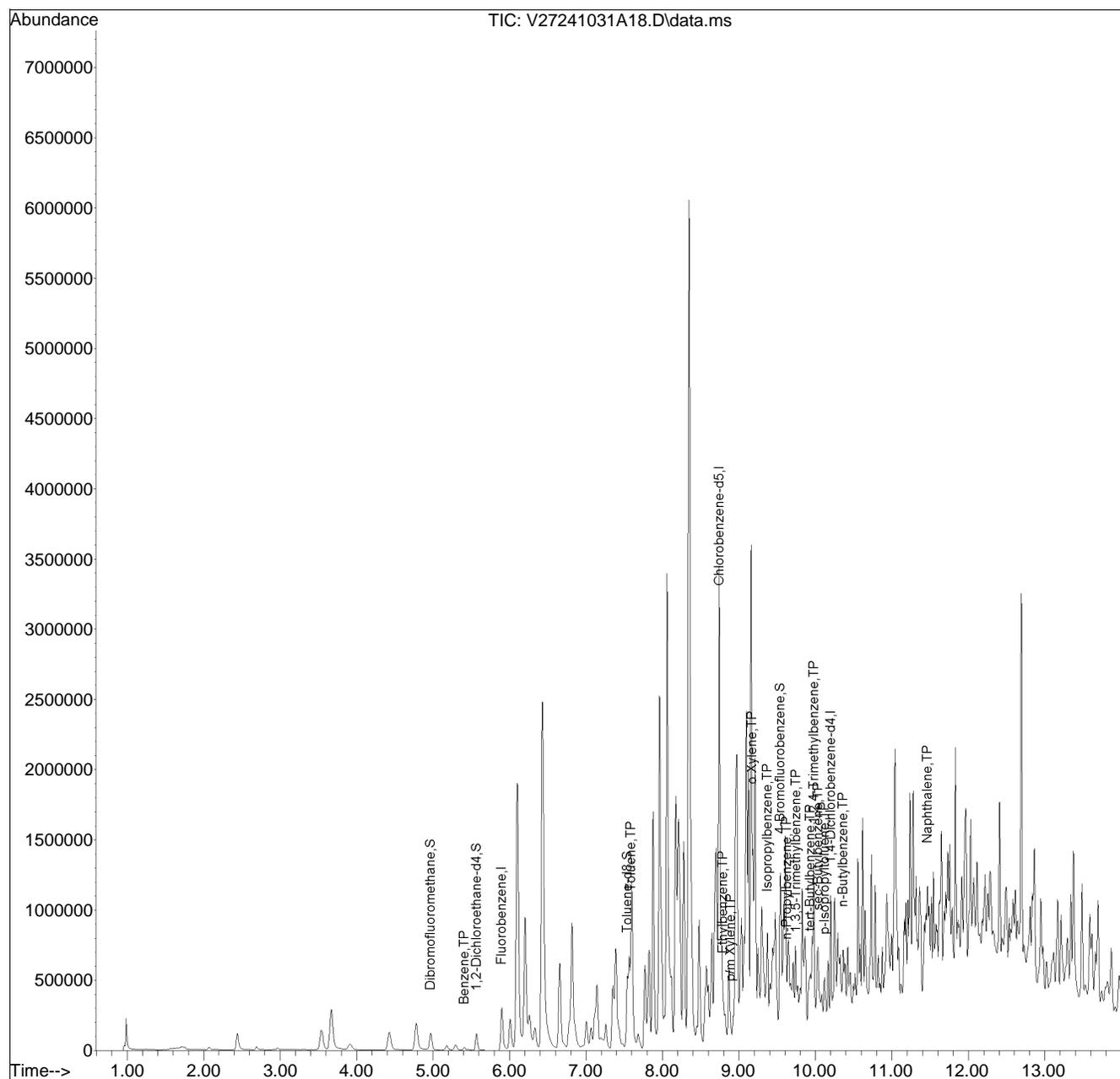


## Quantitation Report (QT Reviewed)

Data Path : K:\VOA127\2024\241031A\  
 Data File : V27241031A18.D  
 Acq On : 31 Oct 2024 01:31 pm  
 Operator : VOA127:LAC  
 Sample : L2462828-19,31H,4.89,5,0.100,,A,30.30,35.69,0  
 Misc : WG1991922,ICAL21556  
 ALS Vial : 18 Sample Multiplier: 1

Quant Time: Oct 31 17:54:56 2024  
 Quant Method : K:\VOA127\2024\241031A\V127\_241001N\_8260.m  
 Quant Title : VOLATILES BY GC/MS  
 QLast Update : Wed Oct 02 10:48:39 2024  
 Response via : Initial Calibration

Sub List : 8260-NYCP51 - NYCP5141031A\V27241031A01.D•

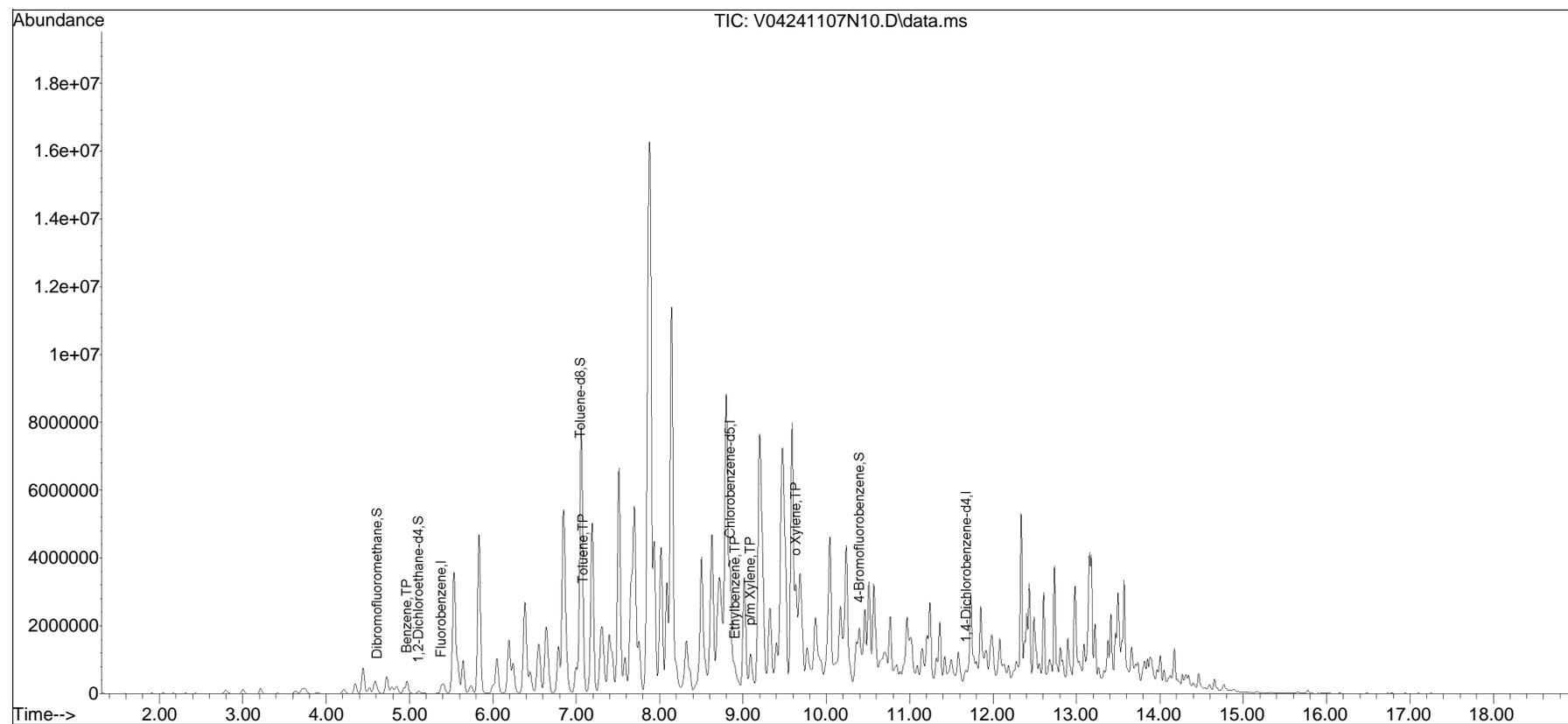


## Quantitation Report (QT Reviewed)

Data Path : K:\VOA104\2024\241107P\  
Data File : V04241107N10.D  
Acq On : 7 Nov 2024 8:20 pm  
Operator : VOA104:JIC  
Sample : L2462828-23,31H,3.16,5,0.100,,A,30.33,33.99,0  
Misc : WG1994924,ICAL21630  
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Nov 08 08:13:13 2024  
Quant Method : K:\VOA104\2024\241107P\V104\_241024B\_8260.m  
Quant Title : VOLATILES BY GC/MS  
QLast Update : Fri Oct 25 15:02:47 2024  
Response via : Initial Calibration

Sub List : 8260-BTEX - Standard BTEX List241107N02.D•

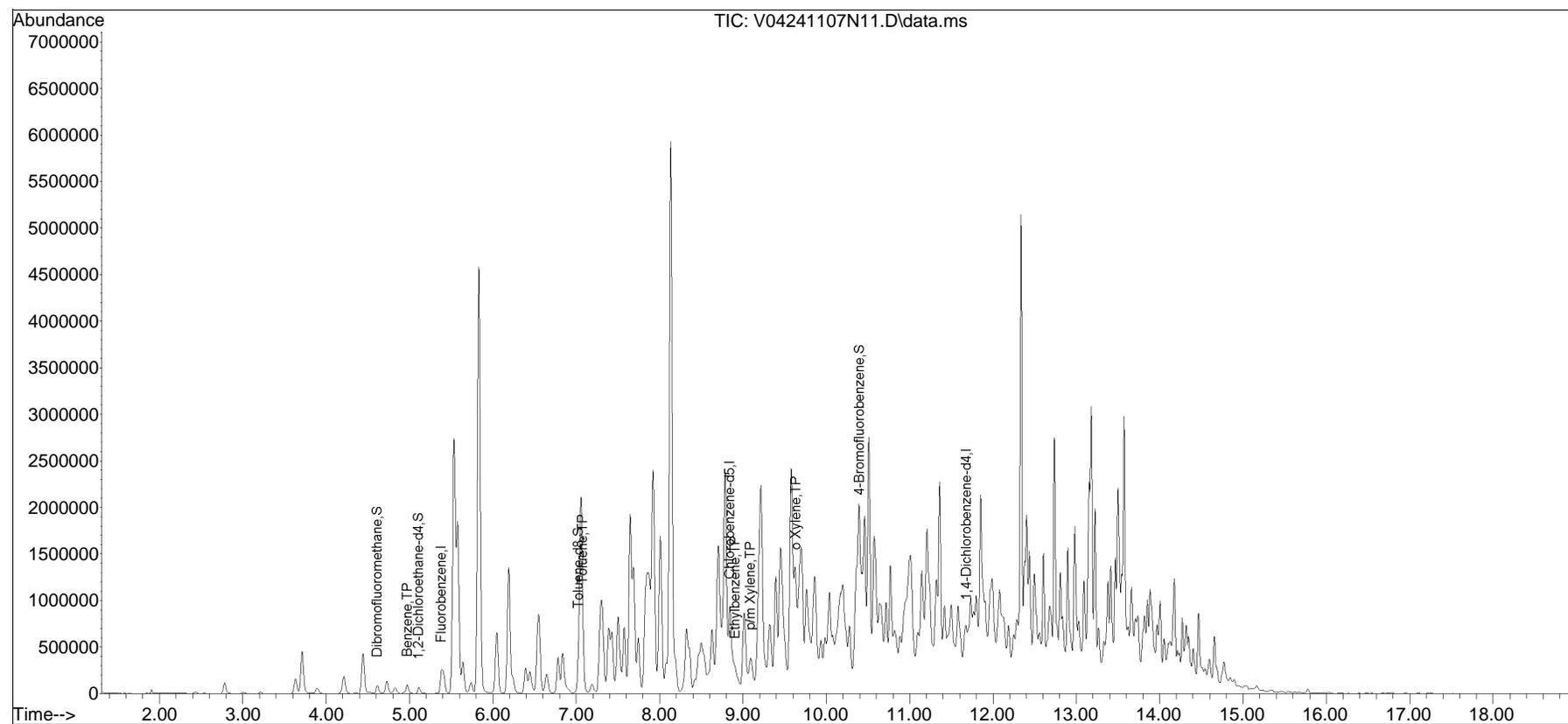


## Quantitation Report (QT Reviewed)

Data Path : K:\VOA104\2024\241107P\  
Data File : V04241107N11.D  
Acq On : 7 Nov 2024 8:46 pm  
Operator : VOA104:JIC  
Sample : L2462828-25,31H,4.37,5,0.100,,A,30.24,35.11,0  
Misc : WG1994924,ICAL21630  
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Nov 08 08:13:18 2024  
Quant Method : K:\VOA104\2024\241107P\V104\_241024B\_8260.m  
Quant Title : VOLATILES BY GC/MS  
QLast Update : Fri Oct 25 15:02:47 2024  
Response via : Initial Calibration

Sub List : 8260-BTEX - Standard BTEX List241107N02.D•

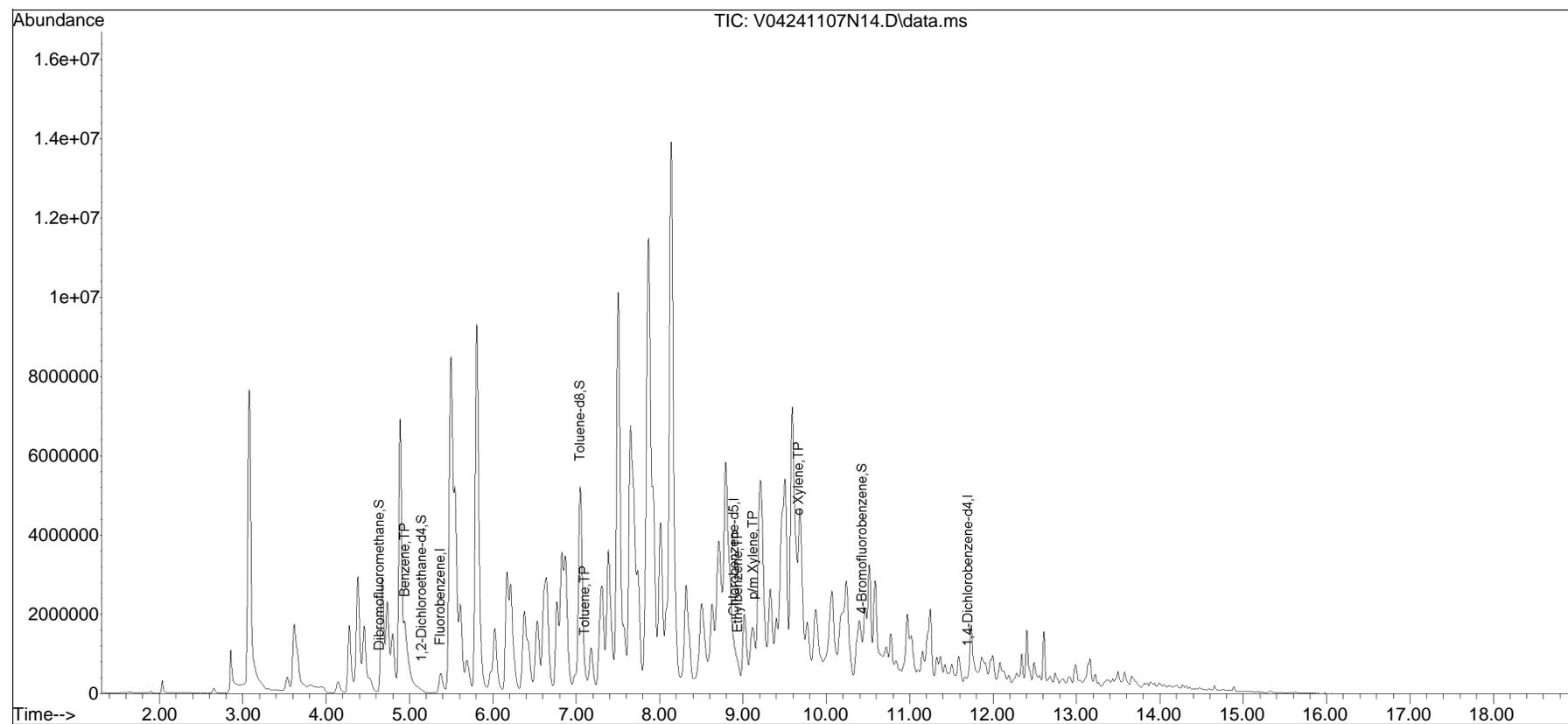


## Quantitation Report (QT Reviewed)

Data Path : K:\VOA104\2024\241107P\  
Data File : V04241107N14.D  
Acq On : 7 Nov 2024 10:05 pm  
Operator : VOA104:JIC  
Sample : L2462828-26,31,2.22,5,,B,30.30,32.77,0.25  
Misc : WG1994998,ICAL21630  
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Nov 08 14:08:09 2024  
Quant Method : K:\VOA104\2024\241107P\V104\_241024B\_8260.m  
Quant Title : VOLATILES BY GC/MS  
QLast Update : Fri Oct 25 15:02:47 2024  
Response via : Initial Calibration

Sub List : 8260-BTEX - Standard BTEX List241107N02.D•

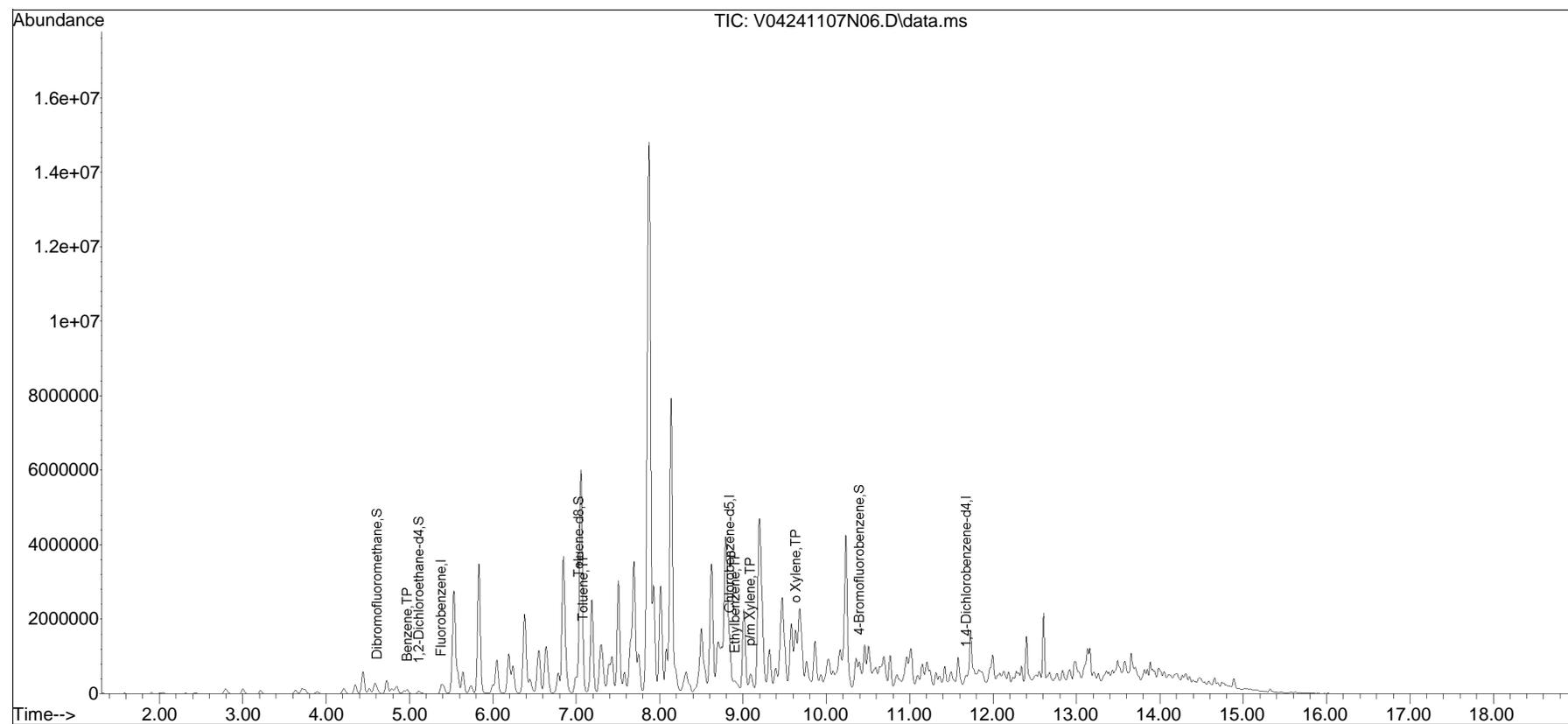


## Quantitation Report (QT Reviewed)

Data Path : K:\VOA104\2024\241107P\  
Data File : V04241107N06.D  
Acq On : 7 Nov 2024 6:35 pm  
Operator : VOA104:JIC  
Sample : 12462828-29,31h,2.69,5,0.100,,a,30.35,33.54,0  
Misc : WG1994924,ICAL21630  
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 08 08:12:56 2024  
Quant Method : K:\VOA104\2024\241107P\V104\_241024B\_8260.m  
Quant Title : VOLATILES BY GC/MS  
QLast Update : Fri Oct 25 15:02:47 2024  
Response via : Initial Calibration

Sub List : 8260-BTEX - Standard BTEX List241107N02.D•

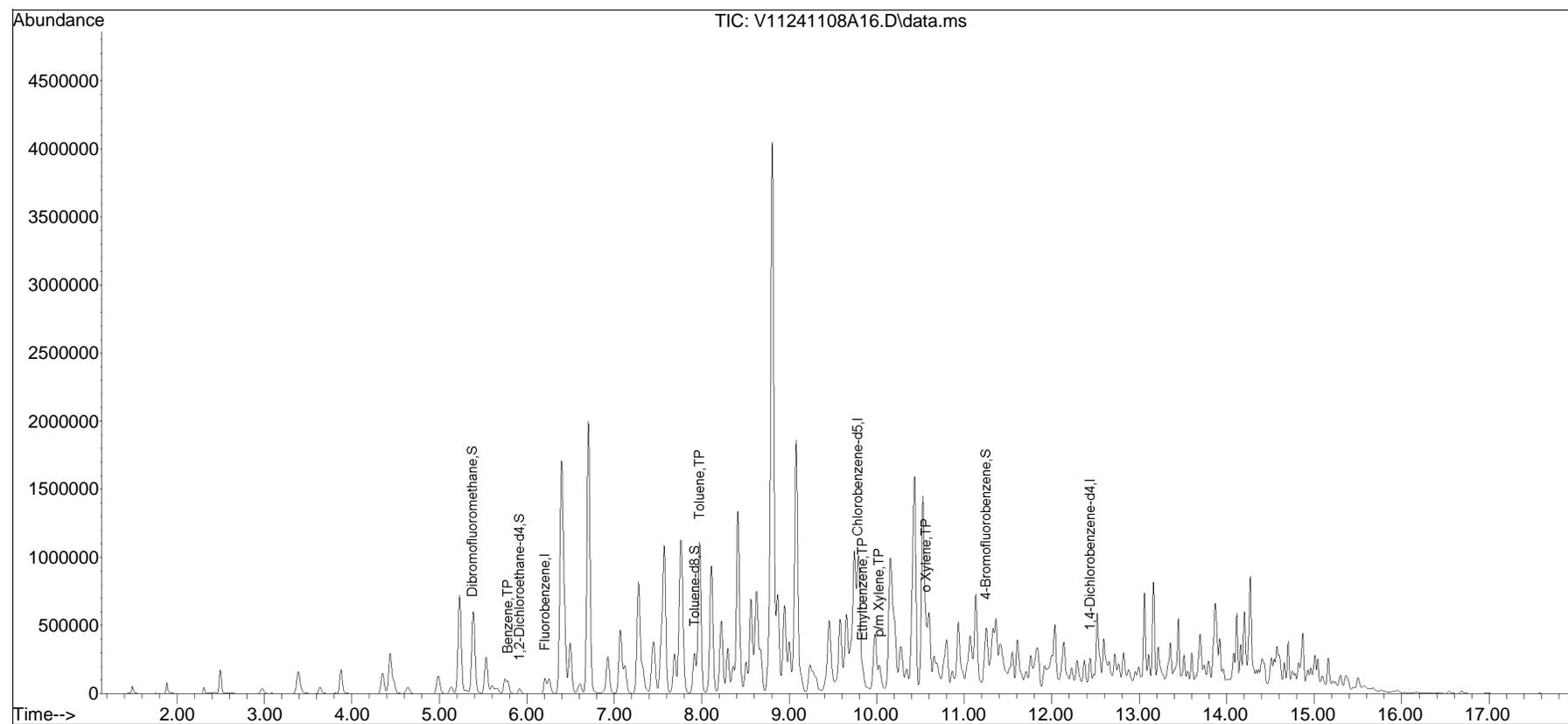


## Quantitation Report (QT Reviewed)

Data Path : K:\VOA111\2024\241108\  
Data File : V11241108A16.D  
Acq On : 08 Nov 2024 02:27 pm  
Operator : VOA111:JIC  
Sample : 12462828-36,31h,2.95,5,0.100,,a,30.24,33.69,0  
Misc : WG1995023,ICAL21553  
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 08 15:10:48 2024  
Quant Method : K:\VOA111\2024\241108A\V111\_241001N\_8260.m  
Quant Title : VOLATILES BY GC/MS  
QLast Update : Wed Oct 02 10:11:55 2024  
Response via : Initial Calibration

Sub List : 8260-BTEX - Standard BTEX List241108A01.D•

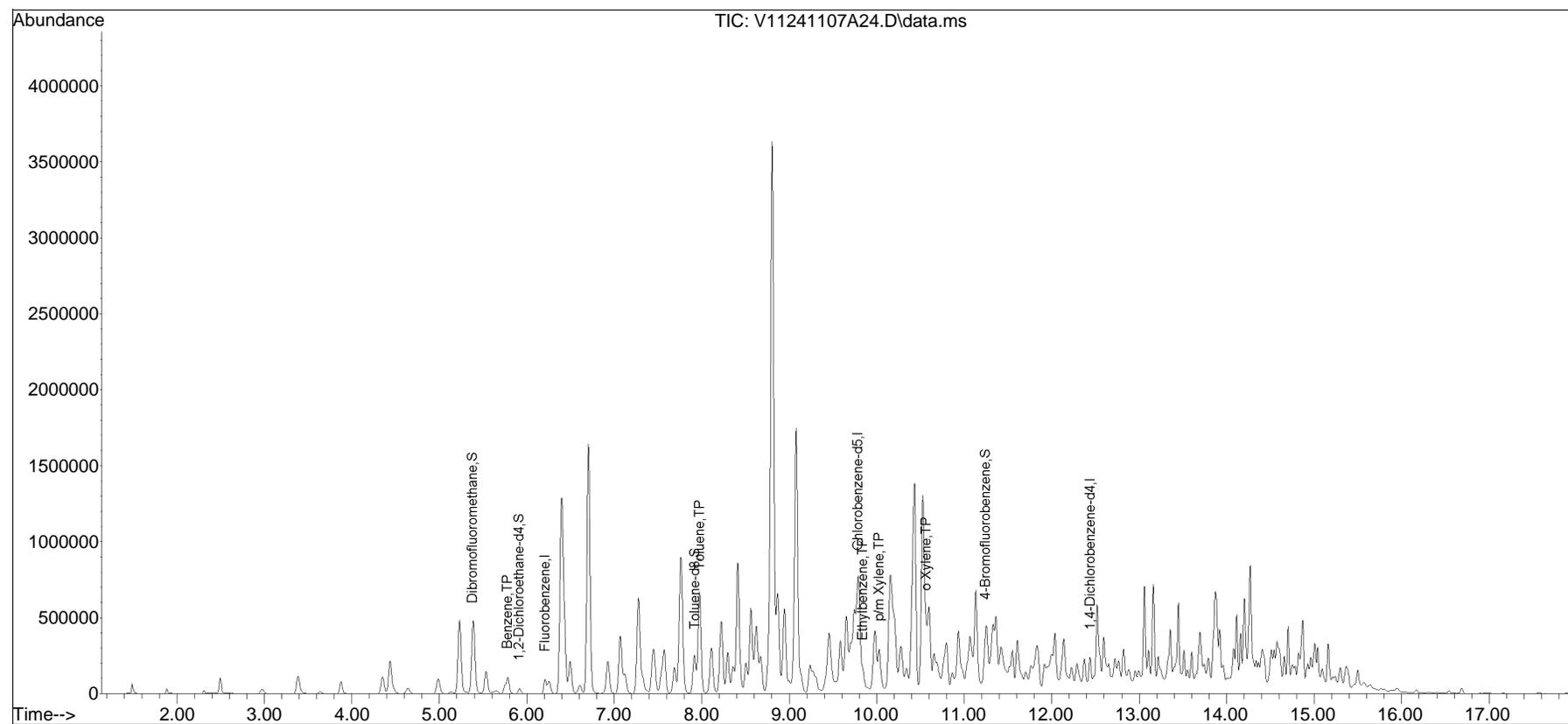


## Quantitation Report (QT Reviewed)

Data Path : K:\VOA111\2024\241107A\  
Data File : V11241107A24.D  
Acq On : 07 Nov 2024 06:03 pm  
Operator : VOA111:JIC  
Sample : 12462828-37,31h,5.02,5,0.100,,a,30.26,35.78,0  
Misc : WG1994855,ICAL21553  
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Nov 08 07:41:59 2024  
Quant Method : K:\VOA111\2024\241107A\V111\_241001N\_8260.m  
Quant Title : VOLATILES BY GC/MS  
QLast Update : Wed Oct 02 10:11:55 2024  
Response via : Initial Calibration

Sub List : 8260-BTEX - Standard BTEX List241107A01.D•



# Appendix E

## Data Quality Assurance and Control Checks



**Table E-1**

**Summary of QAQC Analytical Results**

**136 Naphtha Release Area**

Bellwether District Holdings, LLC, Philadelphia, PA

Location	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC
Field Sample ID	FB-240523	TB-240523	FB-240524	TB-240524	FB-241028	TB-241028
Sample Date	5/23/2024	5/23/2024	5/24/2024	5/24/2024	10/28/2024	10/28/2024
Comments	Field Blank	Trip Blank	Field Blank	Trip Blank	Field Blank	Trip Blank
<b>Volatile Organic Compounds (mg/kg)</b>	NA	NA	NA	NA	NA	ND
<b>Volatile Organic Compounds (ug/L)</b>	ND	ND	ND	ND	ND	NA
<b>Semivolatile Organic Compounds (ug/L)</b>	ND	NA	ND	NA	NA	NA

**Notes:**

- 1 All concentrations reported in ug/L (ppb) or mg/kg (ppm); detection limits in parentheses.
- 2 Only compounds with at least one detection are shown.

**Abbreviations:**

- ND - Not Detected
- NA - Not Analyzed

**Table E-2**

**Quality Control Methodology**

Bellwether District Holdings, LLC

<b>Multiple VOC Runs Data Quality</b>	<b>Solution</b>
If the surrogate recoveries for one run are <b>within acceptance criteria</b> and the other run has <b>3-4 surrogates outside of acceptance criteria</b> :	The run with surrogate recoveries within acceptance criteria is selected as reportable.
If the surrogate recoveries for one run are <b>within acceptance criteria</b> and has some <b>detections</b> and the other run has <b>1-2 surrogates outside of acceptance criteria</b> :	The run with surrogate recoveries within acceptance criteria is selected as reportable.
If one run has surrogate recoveries <b>within acceptance criteria</b> but is <b>non-detect</b> and the other run has <b>1-2 surrogates outside of acceptance criteria</b> but has <b>detections</b> :	The run with detections is selected as reportable and the run with non-detects is not reported.
If both runs have <b>detections</b> and <b>surrogate recoveries outside of acceptance criteria</b> :	The run with more surrogates recoveries outside acceptance criteria is not reported and the run with fewer surrogate recoveries outside of acceptance criteria is selected as reportable.
If one run has surrogate recoveries <b>outside of acceptance criteria</b> but is <b>non-detect</b> and the other run has <b>1-2 more surrogates outside of acceptance criteria</b> but has <b>detections</b> :	The run with detections is selected as reportable and the run with non-detects is not reported.
If both runs have the <b>same number of surrogates</b> with recovery outside the acceptance criteria:	If both results are detected, the higher of detections is selected as reportable; if one result is detected and one is non-detect, the detection is selected as reportable; if both results are non-detect, the lower reporting limit is selected as reportable.
If two VOC runs are reported and there are no QC issues for both runs:	If both results are detected, the higher of detections is selected as reportable; if one result is detected and one is non-detect, the detection is selected as reportable; if both results are non-detect, the lower reporting limit is selected as reportable.

**Table E-3**  
**Quality Control Checklist**  
 Bellwether District Holdings, LLC, Philadelphia, PA

Date Sampled	SDG	Keyfile-Related			EDD-Related											Check for Concerning Qualifiers	Comments
		Check Lab Login	Check Keyfile	COC/Field Notes Uploaded	Check Sample IDs	Check Analyte List Reported	Review EDD for Issues	Dates, Matrix and Sample	Multiple Results					Resolved			
									Reported	Surrogate Recovery	Data Qualifiers	Reasonable Limits	Other				
5/23/2024	L2428914	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	<p>L2428914-12 (136N-SB02-3.0-3.5): VOCs reported for two runs. The internal standard (IS) response(s) for 1,4-dichlorobenzene-d4 (24%) and the surrogate recovery for toluene-d8 (131%) and 4-bromofluorobenzene (624%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. Since the IS response was below method criteria, all associated compounds are considered to have a potentially high bias. A high-level analysis was performed, and those results are also reported. The run with surrogate recoveries within acceptance criteria is selected as reportable. The high run is reported and the low run is not reportable.</p> <p>L2428914-16 (FB-240523): SVOCs reported for two runs. The WG1927316-2/-3 LCS/LCSD recoveries, associated with L2428914-16, were outside the acceptance criteria for individual target compounds; however, the criteria were achieved upon re-extraction outside of holding time. The results of both extractions are reported; however, all results are considered to have a potentially low bias for naphthalene (31%/31%). The reextracted run is reported and the first extraction run is not reportable.</p>	
5/24/2024	L2429024	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	<p>L2429024-08 (FB-240524): SVOCs reported for two runs. The WG1927316-2/-3 LCS/LCSD recoveries, associated with L2429024-08, were outside the acceptance criteria for naphthalene (31%/31%); however, the criteria was achieved upon re-extraction outside of holding time. The results of both extractions are reported. The reextracted run is reported and the first extraction run is not reportable.</p>	
10/28/2024	L2462828	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	<p>L2462828-26 (136N-SB32-0.5-1.0): VOCs reported for two runs. The IS response(s) for chlorobenzene-d5 (32%), and 1,4-dichlorobenzene-d4 (15%) and the surrogate recoveries for toluene-d8 (371%) and 4-bromofluorobenzene (377%) were outside the acceptance criteria due to obvious interferences. The high run is reported and the low run is not reportable.</p> <p>L2462828-39 (TB-241028): VOCs reported for two runs. The low run is reported and the high run is not reportable.</p>	

# Appendix F

## Soil Boring Logs

Project: **Philadelphia Energy Soln. Refining and Mktg. LLC**  
 Project Location: **3144 West Passyunk Avenue**  
 Project Number: **P044.001.006**

**Log of Boring 136N-SB01**  
**Sheet 1 of 1**

Date(s) Drilled <b>5/23/24</b>	Logged By <b>K. O'Rourke</b>	Checked By <b>A. Strohl</b>
Drilling Method <b>Direct Push</b>	Drill Bit Size/Type <b>2" x 5' macrocore</b>	Total Depth of Borehole <b>5 feet bgs</b>
Drill Rig Type <b>7822 DT Geoprobe</b>	Drilling Contractor <b>MB Drilling</b>	Elevation <b>NA</b>
Groundwater Level <b>1.5 feet bgs</b>	Sampling Method(s) <b>Grab</b>	Temporary Well <b>NA</b>
Borehole Backfill <b>Soil Cuttings</b>	Location <b>2679948.58304 E, 219506.253254 N</b>	

Depth (feet)	Recovery (inches)	Sample Type	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0			SM		SILTY SAND, tan brown, poorly graded, roots, damp, dense	0	
0.2			ML		SILT, grey tan, dense, low dilatancy and plasticity, wet	0.2	Sample 136N-SB01-1.0-1.5 and 136N-SB01-1.0-1.5D from 1.0-1.5' bgs
0.6			SP		SAND, grey, poorly graded, wet, dense, fine grained	0.6	
0.6					saturation		
0.2			ML		SILT, grey tan, dense, low dilatancy or plasticity, wet	0.2	
1.4	46/60					1.4	
5.3						5.3	
5.9						5.9	
3.1					↓ increase in silt content	3.1	
7.4						7.4	
					End of boring		
6							
8							
10							

V:\Projects\P044 - PESRM\PE\Deliverables\Act2\Closure\136NaphthaRelease\Field Notes\136N Soil Borings.bg4[no well shallow.pl]

Project: **Philadelphia Energy Soln. Refining and Mktg. LLC**  
 Project Location: **3144 West Passyunk Avenue**  
 Project Number: **P044.001.006**

**Log of Boring 136N-SB02**  
**Sheet 1 of 1**

Date(s) Drilled <b>5/23/24</b>	Logged By <b>K. O'Rourke</b>	Checked By <b>A. Strohl</b>
Drilling Method <b>Direct Push</b>	Drill Bit Size/Type <b>2" x 5' macrocore</b>	Total Depth of Borehole <b>10 feet bgs</b>
Drill Rig Type <b>7822 DT Geoprobe</b>	Drilling Contractor <b>MB Drilling</b>	Elevation <b>NA</b>
Groundwater Level <b>3.5 feet bgs</b>	Sampling Method(s) <b>Grab</b>	Temporary Well <b>NA</b>
Borehole Backfill <b>Soil Cuttings</b>	Location <b>2679948.58304 E, 219496.125802 N</b>	

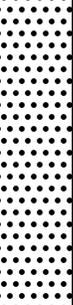
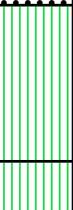
Depth (feet)	Recovery (inches)	Sample Type	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0			SP		SAND, tan brown, poorly graded, roots, damp	0.0	
			SP		SAND, tan, poorly graded, damp, loose	0.4	
2	38/60					0.2	
						0.1	
						7.8	
			SM		SILTY SAND, black, fine grained, dense, petroleum-like odor, damp	8.9	Sample 136N-SB02-3.0-3.5 from 3.0-3.5' bgs
			SM		SILTY SAND, firm, no dilatancy, low plasticity and dilatancy, petroleum-like odor, wet	13.1	
4					saturation/concrete and brick fragments	8.2	
					brick fragments	7.4	
					brick fragments	3.3	
6						3.0	
						7.7	
						1.6	
						2.3	
	40/60				black color, petroleum-like odor from 7.0-10.0' bgs	7.8	
8						1.6	
			SP		SAND, poorly graded, wet, black, loose	1.7	
						4.3	
						6.9	
10					End of boring		

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Project: **Philadelphia Energy Soln. Refining and Mktg. LLC**  
 Project Location: **3144 West Passyunk Avenue**  
 Project Number: **P044.001.006**

**Log of Boring 136N-SB03**  
**Sheet 1 of 1**

Date(s) Drilled <b>5/23/24</b>	Logged By <b>K. O'Rourke</b>	Checked By <b>A. Strohl</b>
Drilling Method <b>Direct Push</b>	Drill Bit Size/Type <b>2" x 5' macrocore</b>	Total Depth of Borehole <b>5 feet bgs</b>
Drill Rig Type <b>7822 DT Geoprobe</b>	Drilling Contractor <b>MB Drilling</b>	Elevation <b>NA</b>
Groundwater Level <b>4.5 feet bgs</b>	Sampling Method(s) <b>Grab</b>	Temporary Well <b>NA</b>
Borehole Backfill <b>Soil Cuttings</b>	Location <b>2679943.81718 E, 219486.594083 N</b>	

Depth (feet)	Recovery (inches)	Sample Type	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0			SW		SAND, brown, damp, loose, roots from 0.0-0.5' bgs, gravel, some fines	0.6	Sample 136N-SB03-3.0-3.5 from 3.0-3.5' bgs
0.4						0.4	
0.0						0.0	
1.4						1.4	
2	46/60					5.1	
1.7			ML		SILT, tan brown, hard, low plasticity and dilatancy, dense, black staining	0.2	
0.2						0.0	
0.0						0.0	
0.0					▼ saturation	0.0	
0.0					End of boring	0.0	
6							
8							
10							

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Project: **Philadelphia Energy Soln. Refining and Mktg. LLC**  
 Project Location: **3144 West Passyunk Avenue**  
 Project Number: **P044.001.006**

**Log of Boring 136N-SB04**  
**Sheet 1 of 1**

Date(s) Drilled <b>5/23/24</b>	Logged By <b>K. O'Rourke</b>	Checked By <b>A. Strohl</b>
Drilling Method <b>Direct Push</b>	Drill Bit Size/Type <b>2" x 5' macrocore</b>	Total Depth of Borehole <b>5 feet bgs</b>
Drill Rig Type <b>7822 DT Geoprobe</b>	Drilling Contractor <b>MB Drilling</b>	Elevation <b>NA</b>
Groundwater Level <b>4.0 feet bgs</b>	Sampling Method(s) <b>Grab</b>	Temporary Well <b>NA</b>
Borehole Backfill <b>Soil Cuttings</b>	Location <b>2679950.6681 E, 219487.487682 N</b>	

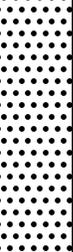
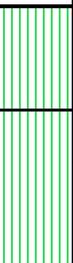
Depth (feet)	Recovery (inches)	Sample Type	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0			SW		SAND, brown, damp, loose, roots from 0.0-0.5' bgs, gravel, some fines	0	
2	24/60		SP		SAND, black, loose, dry, poorly graded	1.8	
			ML		SILT, tan brown, hard, dense, low plasticity and dilatancy, damp brick fragments with staining immediately below, petroleum-like smell	0	
4					↓ saturation	0	Sample 136N-SB04-3.5-4.0 from 3.5-4.0' bgs
6					End of boring	0	
8							
10							

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Project: **Philadelphia Energy Soln. Refining and Mktg. LLC**  
 Project Location: **3144 West Passyunk Avenue**  
 Project Number: **P044.001.006**

**Log of Boring 136N-SB05**  
**Sheet 1 of 1**

Date(s) Drilled <b>5/23/24</b>	Logged By <b>K. O'Rourke</b>	Checked By <b>A. Strohl</b>
Drilling Method <b>Direct Push</b>	Drill Bit Size/Type <b>2" x 5' macrocore</b>	Total Depth of Borehole <b>5 feet bgs</b>
Drill Rig Type <b>7822 DT Geoprobe</b>	Drilling Contractor <b>MB Drilling</b>	Elevation <b>NA</b>
Groundwater Level <b>2.5 feet bgs</b>	Sampling Method(s) <b>Grab</b>	Temporary Well <b>NA</b>
Borehole Backfill <b>Soil Cuttings</b>	Location <b>2679944.29811 E, 219471.916916 N</b>	

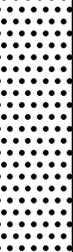
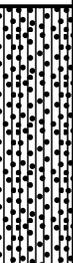
Depth (feet)	Recovery (inches)	Sample Type	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0			SW		SAND, brown, damp, loose, roots from 0.0-0.5' bgs, gravel, some fines	0	
2	40/60		ML		↓ SILT, grey and black, wet, staining, petroleum-like odor, low plasticity and dilatancy saturation	1.3 4.6	Sample 136N-SB05-2.0-2.5 from 2.0-2.5' bgs
4					↓ Black sand layer for 1-inch, petroleum-like odor, silt below firmer	16.0 27.2	
5					End of boring	38.6 22.4	
6							
8							
10							

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Project: **Philadelphia Energy Soln. Refining and Mktg. LLC**  
 Project Location: **3144 West Passyunk Avenue**  
 Project Number: **P044.001.006**

**Log of Boring 136N-SB06**  
**Sheet 1 of 1**

Date(s) Drilled <b>5/23/24</b>	Logged By <b>K. O'Rourke</b>	Checked By <b>A. Strohl</b>
Drilling Method <b>Direct Push</b>	Drill Bit Size/Type <b>2" x 5' macrocore</b>	Total Depth of Borehole <b>5 feet bgs</b>
Drill Rig Type <b>7822 DT Geoprobe</b>	Drilling Contractor <b>MB Drilling</b>	Elevation <b>NA</b>
Groundwater Level <b>2.5 feet bgs</b>	Sampling Method(s) <b>Grab</b>	Temporary Well <b>NA</b>
Borehole Backfill <b>Soil Cuttings</b>	Location <b>2679953.84374 E, 219455.66641 N</b>	

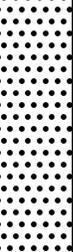
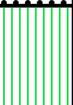
Depth (feet)	Recovery (inches)	Sample Type	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0			SW		SAND, brown, damp, loose, roots from 0.0-0.5' bgs, gravel, some fines	0	
2	30/60		SM		SILTY SAND, black, poorly graded, petroleum-like odor, wet saturation	9.8	Sample 136N-SB06-2.0-2.5 from 2.0-2.5' bgs
4						7.4	
						237.6	
						23.4	
						4.9	
						9.0	
6					End of boring		
8							
10							

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Project: **Philadelphia Energy Soln. Refining and Mktg. LLC**  
 Project Location: **3144 West Passyunk Avenue**  
 Project Number: **P044.001.006**

**Log of Boring 136N-SB07**  
**Sheet 1 of 1**

Date(s) Drilled <b>5/23/24</b>	Logged By <b>K. O'Rourke</b>	Checked By <b>A. Strohl</b>
Drilling Method <b>Direct Push</b>	Drill Bit Size/Type <b>2" x 5' macrocore</b>	Total Depth of Borehole <b>5 feet bgs</b>
Drill Rig Type <b>7822 DT Geoprobe</b>	Drilling Contractor <b>MB Drilling</b>	Elevation <b>NA</b>
Groundwater Level <b>3.0 feet bgs</b>	Sampling Method(s) <b>Grab</b>	Temporary Well <b>NA</b>
Borehole Backfill <b>Soil Cuttings</b>	Location <b>2679951.05693 E, 219449.859984 N</b>	

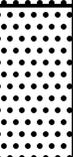
Depth (feet)	Recovery (inches)	Sample Type	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0			SW		SAND, brown, some silt, gravel, well graded, wet (just rained)	0	
2	25/60		SW		SAND, brown, coarse grained, gravel, well graded, little to no fines, damp	0.1 0.3 0.3	
4			ML		SILT, some sand, low dilatancy and plasticity, dark brown, petroleum-like odor, wet	0.5	Sample 136N-SB07-2.5-3.0 from 2.5-3.0' bgs
4			SM		SILTY SAND, poorly graded, brown, loose, wet	2.8 400.4	
4			ML		SILT, some sand, low dilatancy and plasticity, dark brown, petroleum-like odor, wet	21.4	
6					End of boring	8.7	
10							

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Project: **Philadelphia Energy Soln. Refining and Mktg. LLC**  
 Project Location: **3144 West Passyunk Avenue**  
 Project Number: **P044.001.006**

**Log of Boring 136N-SB08**  
**Sheet 1 of 1**

Date(s) Drilled <b>5/23/24</b>	Logged By <b>K. O'Rourke</b>	Checked By <b>A. Strohl</b>
Drilling Method <b>Direct Push</b>	Drill Bit Size/Type <b>2" x 5' macrocore</b>	Total Depth of Borehole <b>5 feet bgs</b>
Drill Rig Type <b>7822 DT Geoprobe</b>	Drilling Contractor <b>MB Drilling</b>	Elevation <b>NA</b>
Groundwater Level <b>3.0 feet bgs</b>	Sampling Method(s) <b>Grab</b>	Temporary Well <b>NA</b>
Borehole Backfill <b>Soil Cuttings</b>	Location <b>2679954.70247 E, 219437.37157 N</b>	

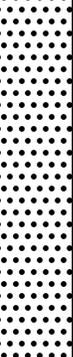
Depth (feet)	Recovery (inches)	Sample Type	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0			SW		brick and concrete for 1 foot	0.7	Sample 136N-SB08-2.0-2.5 from 2.0-2.5' bgs (not brick or concrete).
					SAND, brown, damp, loose, roots 0.0-0.5' bgs, gravel, some fines	0.0	
						0.0	
2	22/60					0.0	
			SW		GRAVELLY SAND, black, petroleum-like odor, dense, well graded, wet saturation	7.1	
						55.5	
4			SM		SILTY SAND, poorly graded, black, wet, dense	49.1	
						25.2	
					End of boring	13.0	
6							
8							
10							

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Project: **Philadelphia Energy Soln. Refining and Mktg. LLC**  
 Project Location: **3144 West Passyunk Avenue**  
 Project Number: **P044.001.006**

**Log of Boring 136N-SB09**  
**Sheet 1 of 1**

Date(s) Drilled <b>5/23/24</b>	Logged By <b>K. O'Rourke</b>	Checked By <b>A. Strohl</b>
Drilling Method <b>Direct Push</b>	Drill Bit Size/Type <b>2" x 5' macrocore</b>	Total Depth of Borehole <b>5 feet bgs</b>
Drill Rig Type <b>7822 DT Geoprobe</b>	Drilling Contractor <b>MB Drilling</b>	Elevation <b>NA</b>
Groundwater Level <b>3.5 feet bgs</b>	Sampling Method(s) <b>Grab</b>	Temporary Well <b>NA</b>
Borehole Backfill <b>Soil Cuttings</b>	Location <b>2679953.94463 E, 219420.467782 N</b>	

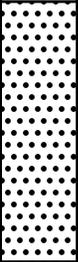
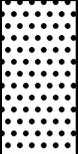
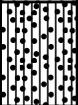
Depth (feet)	Recovery (inches)	Sample Type	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0			SW		SAND, well graded, roots near surface, some fines, tan brown, dense	6.4	Sample 136N-SB09-3.0-3.5 from 3.0-3.5' bgs
						0.7	
						0.9	
						1.4	
2	36/60					2.9	
						17.4	
						48.9	
		SM			SILTY SAND, dark brown, wet, petroleum-like odor, stained, dense saturation	19.3	
4					wood	31.4	
			SP		SAND, some fines, poorly graded, dark brown, stained, petroleum-like smell, wet	30.6	
					End of boring		
6							
8							
10							

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Project: **Philadelphia Energy Soln. Refining and Mktg. LLC**  
 Project Location: **3144 West Passyunk Avenue**  
 Project Number: **P044.001.006**

**Log of Boring 136N-SB10**  
**Sheet 1 of 1**

Date(s) Drilled <b>5/23/24</b>	Logged By <b>K. O'Rourke</b>	Checked By <b>A. Strohl</b>
Drilling Method <b>Direct Push</b>	Drill Bit Size/Type <b>2" x 5' macrocore</b>	Total Depth of Borehole <b>5 feet bgs</b>
Drill Rig Type <b>7822 DT Geoprobe</b>	Drilling Contractor <b>MB Drilling</b>	Elevation <b>NA</b>
Groundwater Level <b>2.5 feet bgs</b>	Sampling Method(s) <b>Grab</b>	Temporary Well <b>NA</b>
Borehole Backfill <b>Soil Cuttings</b>	Location <b>2679955.90216 E, 219401.976565 N</b>	

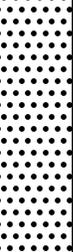
Depth (feet)	Recovery (inches)	Sample Type	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0			SW		SAND, tan, well graded, roots and grass for 0.5' bgs, loose, some gravel	0	
0.1							
0.8							
2	36/60				saturation	0.3	
2.8						2.8	Sample 136N-SB10-2.0-2.5 from 2.0-2.5' bgs
1.3						1.3	
1.3						1.3	
4			SM		SILTY SAND, black, dense, poorly graded, petroleum-like odor, wet	13.9	
25.7						25.7	
26.9						26.9	
6					End of boring		
8							
10							

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Project: **Philadelphia Energy Soln. Refining and Mktg. LLC**  
 Project Location: **3144 West Passyunk Avenue**  
 Project Number: **P044.001.006**

**Log of Boring 136N-SB11**  
**Sheet 1 of 1**

Date(s) Drilled <b>5/24/24</b>	Logged By <b>K. O'Rourke</b>	Checked By <b>A. Strohl</b>
Drilling Method <b>Direct Push</b>	Drill Bit Size/Type <b>2" x 5' macrocore</b>	Total Depth of Borehole <b>5 feet bgs</b>
Drill Rig Type <b>7822 DT Geoprobe</b>	Drilling Contractor <b>MB Drilling</b>	Elevation <b>NA</b>
Groundwater Level <b>2.5 feet bgs</b>	Sampling Method(s) <b>Grab</b>	Temporary Well <b>NA</b>
Borehole Backfill <b>Soil Cuttings</b>	Location <b>2679958.88903 E, 219402.370802 N</b>	

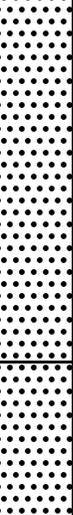
Depth (feet)	Recovery (inches)	Sample Type	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0			SW		SAND, brown, damp, loose, roots from 0.0-0.5' bgs, gravel, some fines	0	Sample 136N-SB11-2.0-2.5 from 2.0-2.5' bgs
0.1						0.1	
0.0						0.0	
2	26/60					0.5	
0.5					↓ saturation	0.0	
0.0						0.0	
6.4						6.4	
4			SM		SILTY SAND, black, wet, petroleum-like smell, loose	38.3	
38.3					↓ piece of wood	30.3	
30.3					End of boring		
6							
8							
10							

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Project: **Philadelphia Energy Soln. Refining and Mktg. LLC**  
 Project Location: **3144 West Passyunk Avenue**  
 Project Number: **P044.001.006**

**Log of Boring 136N-SB12**  
**Sheet 1 of 1**

Date(s) Drilled <b>5/24/24</b>	Logged By <b>K. O'Rourke</b>	Checked By <b>A. Strohl</b>
Drilling Method <b>Direct Push</b>	Drill Bit Size/Type <b>2" x 5' macrocore</b>	Total Depth of Borehole <b>5 feet bgs</b>
Drill Rig Type <b>7822 DT Geoprobe</b>	Drilling Contractor <b>MB Drilling</b>	Elevation <b>NA</b>
Groundwater Level <b>3.5 feet bgs</b>	Sampling Method(s) <b>Grab</b>	Temporary Well <b>NA</b>
Borehole Backfill <b>Soil Cuttings</b>	Location <b>2679957.58846 E, 219393.202091 N</b>	

Depth (feet)	Recovery (inches)	Sample Type	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0			sw		SAND, brown, very loose, well graded, roots from 0.0-0.5' bgs, gravel, some silt, low recovery due to softness/looseness	0	Sample 136N-SB12-3.0-3.5 from 3.0-3.5' bgs
2	15/60					0	
4					saturation	0	
6					End of boring	0	
8						0	
10						0	

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Project: **Philadelphia Energy Soln. Refining and Mktg. LLC**  
 Project Location: **3144 West Passyunk Avenue**  
 Project Number: **P044.001.006**

**Log of Boring 136N-SB13**  
**Sheet 1 of 1**

Date(s) Drilled <b>5/24/24</b>	Logged By <b>K. O'Rourke</b>	Checked By <b>A. Strohl</b>
Drilling Method <b>Direct Push</b>	Drill Bit Size/Type <b>2" x 5' macrocore</b>	Total Depth of Borehole <b>3 feet bgs</b>
Drill Rig Type <b>7822 DT Geoprobe</b>	Drilling Contractor <b>MB Drilling</b>	Elevation <b>NA</b>
Groundwater Level <b>1.5 feet bgs</b>	Sampling Method(s) <b>Grab</b>	Temporary Well <b>NA</b>
Borehole Backfill <b>Soil Cuttings</b>	Location <b>2679956.38009 E, 219385.933335 N</b>	

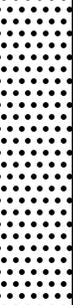
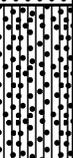
Depth (feet)	Recovery (inches)	Sample Type	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0			SP		SAND, tan brown, poorly graded, damp, roots, dense	0.7	Sample 136N-SB13-1.0-1.5 from 1.0-1.5' bgs
					darker color, coarser grains	0.6	
	26/36		SM		SILTY SAND, black, petroleum-like odor, wet, soft saturation, black color, petroleum-like odor	36.8	
2					chunk of wood coarser sand, black, wet	106.2	
					End of boring, hit refusal at 3.0' bgs twice	297.2	
						13.3	
4							
6							
8							
10							

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Project: **Philadelphia Energy Soln. Refining and Mktg. LLC**  
 Project Location: **3144 West Passyunk Avenue**  
 Project Number: **P044.001.006**

**Log of Boring 136N-SB14**  
**Sheet 1 of 1**

Date(s) Drilled <b>5/23/24</b>	Logged By <b>K. O'Rourke</b>	Checked By <b>A. Strohl</b>
Drilling Method <b>Direct Push</b>	Drill Bit Size/Type <b>2" x 5' macrocore</b>	Total Depth of Borehole <b>5 feet bgs</b>
Drill Rig Type <b>7822 DT Geoprobe</b>	Drilling Contractor <b>MB Drilling</b>	Elevation <b>NA</b>
Groundwater Level <b>3.0 feet bgs</b>	Sampling Method(s) <b>Grab</b>	Temporary Well <b>NA</b>
Borehole Backfill <b>Soil Cuttings</b>	Location <b>2679960.05809 E, 219382.664004 N</b>	

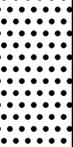
Depth (feet)	Recovery (inches)	Sample Type	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0			SW		SAND, brown, well graded, roots from 0.0-0.5' bgs, some silt, gravel, damp	0.2 1.1 0.4 0.3	
2	26/60					0.1 0.6	Sample 136B-SB14-2.5-3.0 from 2.5-3.0' bgs
					saturation	6.3	
4			SM		SILTY SAND, black, petroleum-like odor, poorly graded, wet	189.4 104.3	
6					End of boring	52.4	
8							
10							

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Project: **Philadelphia Energy Soln. Refining and Mktg. LLC**  
 Project Location: **3144 West Passyunk Avenue**  
 Project Number: **P044.001.006**

**Log of Boring 136N-SB15**  
**Sheet 1 of 1**

Date(s) Drilled <b>5/24/24</b>	Logged By <b>K. O'Rourke</b>	Checked By <b>A. Strohl</b>
Drilling Method <b>Direct Push</b>	Drill Bit Size/Type <b>2" x 5' macrocore</b>	Total Depth of Borehole <b>5 feet bgs</b>
Drill Rig Type <b>7822 DT Geoprobe</b>	Drilling Contractor <b>MB Drilling</b>	Elevation <b>NA</b>
Groundwater Level <b>1.5 feet bgs</b>	Sampling Method(s) <b>Grab</b>	Temporary Well <b>NA</b>
Borehole Backfill <b>Soil Cuttings</b>	Location <b>2679966.88701 E, 219378.457882 N</b>	

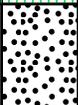
Depth (feet)	Recovery (inches)	Sample Type	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0			SW		SAND, brown, damp, loose, roots from 0.0-0.5 bgs, gravel, some fines	0.8	Sample 136N-SB15-1.0-1.5 from 1.0-1.5' bgs
0.9						0.9	
1.310						1310	
1.5					↓ saturation	2306	
2.306						1332	
2.609	24/60		SW		SAND, black, sticky, tar-like, well graded, petroleum-like smell, wet	2609	
3.970						3970	
4.228					↓ large rock	228	
4.200.1						200.1	
5.105.3			ML		SILT, tan brown, modeling, hard, wet, low plasticity and dilatancy	105.3	
6					End of boring		
8							
10							

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Project: **Philadelphia Energy Soln. Refining and Mktg. LLC**  
 Project Location: **3144 West Passyunk Avenue**  
 Project Number: **P044.001.006**

**Log of Boring 136N-SB16**  
**Sheet 1 of 1**

Date(s) Drilled <b>5/24/24</b>	Logged By <b>K. O'Rourke</b>	Checked By <b>A. Strohl</b>
Drilling Method <b>Direct Push</b>	Drill Bit Size/Type <b>2" x 5' macrocore</b>	Total Depth of Borehole <b>5 feet bgs</b>
Drill Rig Type <b>7822 DT Geoprobe</b>	Drilling Contractor <b>MB Drilling</b>	Elevation <b>NA</b>
Groundwater Level <b>2.5 feet bgs</b>	Sampling Method(s) <b>Grab</b>	Temporary Well <b>NA</b>
Borehole Backfill <b>Soil Cuttings</b>	Location <b>2679978.85674 E, 219385.116002 N</b>	

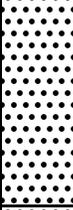
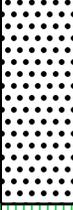
Depth (feet)	Recovery (inches)	Sample Type	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0			SW		SAND, brown, well graded, roots from 0.0-0.5' bgs, some silt, gravel	2.6	Sample 136N-SB16-2.0-2.5 from 2.0-2.5' bgs
			SM		SILTY SAND, black, damp, dense, poorly graded, no odor	3.1 4.9	
2	24/60		ML		SILT, black, petroleum-like odor, soft, wet, low plasticity and dilatancy saturation and brick fragment	3.7 31.6 81.6	
4			SP		SAND, poorly graded, black, petroleum-like odor, loose, wet	206.2 93.7	
					End of boring	41.7 11.5	
6							
8							
10							

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Project: **Philadelphia Energy Soln. Refining and Mktg. LLC**  
 Project Location: **3144 West Passyunk Avenue**  
 Project Number: **P044.001.006**

**Log of Boring 136N-SB17**  
**Sheet 1 of 1**

Date(s) Drilled <b>5/24/24</b>	Logged By <b>K. O'Rourke</b>	Checked By <b>A. Strohl</b>
Drilling Method <b>Direct Push</b>	Drill Bit Size/Type <b>2" x 5' macrocore</b>	Total Depth of Borehole <b>5 feet bgs</b>
Drill Rig Type <b>7822 DT Geoprobe</b>	Drilling Contractor <b>MB Drilling</b>	Elevation <b>NA</b>
Groundwater Level <b>2.0 feet bgs</b>	Sampling Method(s) <b>Grab</b>	Temporary Well <b>NA</b>
Borehole Backfill <b>Soil Cuttings</b>	Location <b>2679986.1698 E, 219379.871465 N</b>	

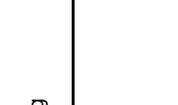
Depth (feet)	Recovery (inches)	Sample Type	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0			SW		SAND, higher silt content, gravel, brown, well graded, loose, damp, roots from 0.0-0.5' bgs	0.5 0.8 1.4	Sample 136N-SB17-1.5-2.0 from 1.5-2.0' bgs
2	36/60				↓ saturation	1.1 0.8 0.7 0.6 0.7	
4			ML		SILT, black, wet, soft, petroleum-like odor, low plasticity and dilatancy	101.5	
6					End of boring	5.5	
8							
10							

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Project: **Philadelphia Energy Soln. Refining and Mktg. LLC**  
 Project Location: **3144 West Passyunk Avenue**  
 Project Number: **P044.001.006**

**Log of Boring 136N-SB18**  
**Sheet 1 of 1**

Date(s) Drilled <b>5/24/24</b>	Logged By <b>K. O'Rourke</b>	Checked By <b>A. Strohl</b>
Drilling Method <b>Direct Push</b>	Drill Bit Size/Type <b>2" x 5' macrocore</b>	Total Depth of Borehole <b>5 feet bgs</b>
Drill Rig Type <b>7822 DT Geoprobe</b>	Drilling Contractor <b>MB Drilling</b>	Elevation <b>NA</b>
Groundwater Level <b>3.5 feet bgs</b>	Sampling Method(s) <b>Grab</b>	Temporary Well <b>NA</b>
Borehole Backfill <b>Soil Cuttings</b>	Location <b>2679992.14633 E, 219379.936482 N</b>	

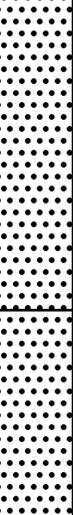
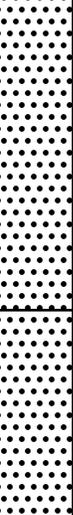
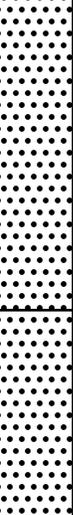
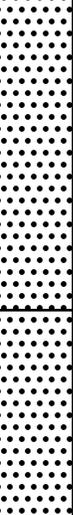
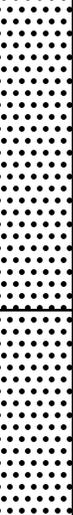
Depth (feet)	Recovery (inches)	Sample Type	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0			sw		SAND, higher silt content, gravel, well graded, brown, loose, damp, roots from 0.0-0.5' bgs	0.4	Sample 136N-SB18-1.0-1.5 from 1.0-1.5' bgs
0.5						0.5	
1.0						1.0	
1.5						1.0	
2.0	28/60					0.9	
2.5						0.7	
3.0						1.0	
3.5					saturation	0.6	
4.0						0.5	
4.5					End of boring	0.6	
6							
8							
10							

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Project: **Philadelphia Energy Soln. Refining and Mktg. LLC**  
 Project Location: **3144 West Passyunk Avenue**  
 Project Number: **P044.001.006**

**Log of Boring 136N-SB19**  
**Sheet 1 of 1**

Date(s) Drilled <b>5/24/24</b>	Logged By <b>K. O'Rourke</b>	Checked By <b>A. Strohl</b>
Drilling Method <b>Direct Push</b>	Drill Bit Size/Type <b>2" x 5' macrocore</b>	Total Depth of Borehole <b>5 feet bgs</b>
Drill Rig Type <b>7822 DT Geoprobe</b>	Drilling Contractor <b>MB Drilling</b>	Elevation <b>NA</b>
Groundwater Level <b>3.0 feet bgs</b>	Sampling Method(s) <b>Grab</b>	Temporary Well <b>NA</b>
Borehole Backfill <b>Soil Cuttings</b>	Location <b>2680001.08515 E, 219383.824179 N</b>	

Depth (feet)	Recovery (inches)	Sample Type	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0			sw		SAND, brown, well graded, loose, some silt, gravel, roots from 0.0-0.5' bgs, damp	0.1 0.4 0.4 0.9 0.7 1.1	Sample 136N-SB19-2.5-3.0 from 2.5-3.0' bgs
2	20/60					0.7 0.6 0.4 0.4	
4					saturation		
6					End of boring		
8							
10							

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Project: **Philadelphia Energy Soln. Refining and Mktg. LLC**  
 Project Location: **3144 West Passyunk Avenue**  
 Project Number: **P044.001.006**

**Key to Log of Boring**  
**Sheet 1 of 1**

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

**COLUMN DESCRIPTIONS**

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

**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**

-  SILT, SILT w/SAND, SANDY SILT (ML)
-  Silty SAND (SM)
-  Poorly graded SAND (SP)
-  Well graded SAND (SW)

**TYPICAL SAMPLER GRAPHIC SYMBOLS**

-  Grab Sample

**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**

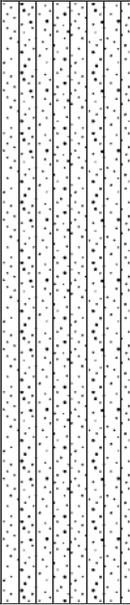
- 1: Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
- 2: Descriptions on these logs apply only at the specific 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.

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# Soil Boring: 136N-SB15R


<b>Terraphase Engineering</b>
Project: 136 Naphtha - PESRM Location: 3144 W Passyunk Ave, Philadelphia, PA Project Number: P044.001.006

Date Started: 10/28/2024	Date Completed: 10/28/2024
Client Name: Bellwether District Holdings, LLC	Drilling Firm: MB Drilling LLC
Driller: Joseph Flannery, Keith Butcher	Rig Type: Geoprobe 7822DT
Method: Direct Push	Boring Diameter: 2 in
Tooling: 5' x 2" Macrocore	Logged By: Marissa Mowrer
Checked By: DRAFT	Depth: 5'
Surface Elevation: N/A	Coordinates: 39.907529, -75.21362

Depth (ft)	% Recovery	PID (PPM)	Graphic Log	USCS	Visual Classification	Samples
						Sample Number
0.5		1.2		gp	Poorly graded gravel, light brown, dry, loose, few fines, angular 1/2" gravels, roots	
1		1.5				
1.5		1.3				
2		1.3				
2.5	40/60	1.6		sm	Silty sand, light brown, dry, loose, trace clay, trace 1/4" angular gravel and pulverized rock	
3		0.8				
3.5		11.7				
4		56.6				
4.5		78.7				
5		84.1			@4': increase density and moisture of silty sand  @4.5': color change to black, wet silty sand, petroleum-like odor, sheen	136N-SB15R-4.0-4.5
End boring at 5' bgs.						

# Soil Boring: 136N-SB21

## Terraphase Engineering

Project: 136 Naphtha - PESRM  
Location: 3144 W Passyunk Ave, Philadelphia, PA  
Project Number: P044.001.006

Date Started: 10/28/2024	Date Completed: 10/28/2024
Client Name: Bellwether District Holdings, LLC	Drilling Firm: MB Drilling LLC
Driller: Joseph Flannery, Keith Butcher	Rig Type: Geoprobe 7822DT
Method: Direct Push	Boring Diameter: 2 in
Tooling: 5' x 2" Macrocore	Logged By: Marissa Mowrer
Checked By: DRAFT	Depth: 5'
Surface Elevation: N/A	Coordinates: 39.907509, -75.213656

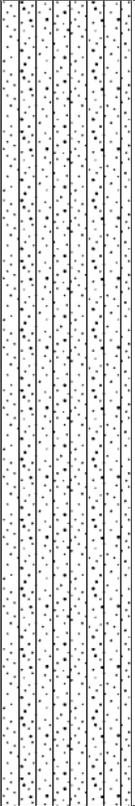
Depth (ft)	% Recovery	PID (PPM)	Graphic Log	USCS	Visual Classification	Samples
						Sample Number
0.3		0.3			Silty sand, brown, dry, loose	
0.5		1.8				
1		14.3				
1.5		34.8				136N-SB21-1.5-2.0
2		109.1				
2.5	50/60	23.8		sm		
3		62.1			@3': increase density, color change to dark brown	136N-SB21-3.0-3.5
3.5		30.8				
4		38.9			@4': color change to black, soft, wet silty sand, petroleum-like odor, sheen	
4.5		80.1				
5					End boring at 5' bgs.	

# Soil Boring: 136N-SB22

## Terraphase Engineering

Project: 136 Naphtha - PESRM  
Location: 3144 W Passyunk Ave, Philadelphia, PA  
Project Number: P044.001.006

Date Started: 10/28/2024	Date Completed: 10/28/2024
Client Name: Bellwether District Holdings, LLC	Drilling Firm: MB Drilling LLC
Driller: Joseph Flannery, Keith Butcher	Rig Type: Geoprobe 7822DT
Method: Direct Push	Boring Diameter: 2 in
Tooling: 5' x 2" Macrocore	Logged By: Marissa Mowrer
Checked By: DRAFT	Depth: 5'
Surface Elevation: N/A	Coordinates: 39.907498, -75.213621

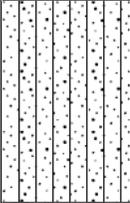
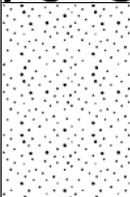
Depth (ft)	% Recovery	PID (PPM)	Graphic Log	USCS	Visual Classification	Samples
						Sample Number
0.5		1.8		sm	Silty sand, brown, dry, soft, trace 1/2" angular gravel, roots  @2.5': decrease gravel	136N-SB22-1.5-2.0
1		2.6				
1.5		5.6				
2		110.3				
2.5	55/60	1348				
3		913.3				
3.5		691.9	sp	Sand, black, dry, soft, medium coarse sand, brick debris, petroleum-like odor, sheen	136N-SB22-4.0-4.5	
4		594.3				
4.5		1165				
5		320.4	End boring at 5' bgs.			

# Soil Boring: 136N-SB23

## Terraphase Engineering

Project: 136 Naphtha - PESRM  
Location: 3144 W Passyunk Ave, Philadelphia, PA  
Project Number: P044.001.006

Date Started: 10/28/2024	Date Completed: 10/28/2024
Client Name: Bellwether District Holdings, LLC	Drilling Firm: MB Drilling LLC
Driller: Joseph Flannery, Keith Butcher	Rig Type: Geoprobe 7822DT
Method: Direct Push	Boring Diameter: 2 in
Tooling: 5' x 2" Macrocore	Logged By: Marissa Mowrer
Checked By: DRAFT	Depth: 5'
Surface Elevation: N/A	Coordinates: 39.907506, -75.21354

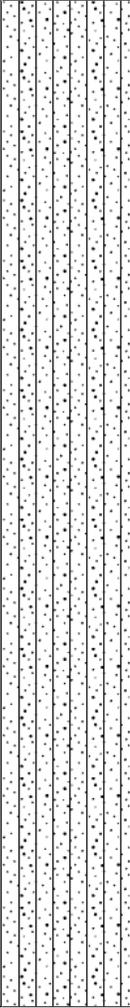
Depth (ft)	% Recovery	PID (PPM)	Graphic Log	USCS	Visual Classification	Samples
						Sample Number
0.5		20 466.8		sm	Silty sand, brown, dry, soft, trace 1/4" rounded gravel	
1		301.1		gp	Poorly graded gravel, dark brown, dry, soft, 1/2" gravels, brick debris, trace medium coarse sand	136N-SB23-1.5-2.0
1.5		960.1				
2		945.3				
2.5	46/60	120.6				
3		128.5			@3': dry, soft, 6" pulverized brick lens	136N-SB23-3.0-3.5
3.5		71.8				
4		60.8				
4.5		27.3		sp	Sand, black, wet, loose, coarse sand, trace fines, micaceous, petroleum-like odor and sheen	
5					End boring at 5' bgs.	

# Soil Boring: 136N-SB24

## Terraphase Engineering

Project: 136 Naphtha - PESRM  
Location: 3144 W Passyunk Ave, Philadelphia, PA  
Project Number: P044.001.006

Date Started: 10/28/2024	Date Completed: 10/28/2024
Client Name: Bellwether District Holdings, LLC	Drilling Firm: MB Drilling LLC
Driller: Joseph Flannery, Keith Butcher	Rig Type: Geoprobe 7822DT
Method: Direct Push	Boring Diameter: 2 in
Tooling: 5' x 2" Macrocore	Logged By: Marissa Mowrer
Checked By: DRAFT	Depth: 5'
Surface Elevation: N/A	Coordinates: 39.907496, -75.213496

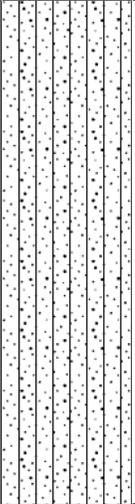
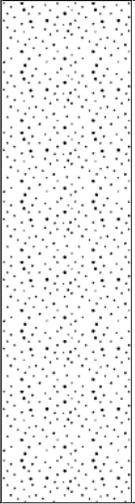
Depth (ft)	% Recovery	PID (PPM)	Graphic Log	USCS	Visual Classification	Samples
						Sample Number
		47.7			Silty sand, dark brown, dry, stiff, trace 1/4" angular gravel	
0.5		215.9				
1		681.8			@1': decrease stiffness	136N-SB24-1.0-1.5
1.5		187.6				
2		246			@2': dry, soft, 6" pulverized brick lens	
2.5	55/60	224.6		sm		
3		91				
3.5		69.5				
4		234			@4': color change to dark brown, increase stiffness, increase moisture	136N-SB24-4.0-4.5 136N-SB24-4.0-4.5D
4.5		144				
5					End boring at 5' bgs.	

# Soil Boring: 136N-SB25

## Terraphase Engineering

Project: 136 Naphtha - PESRM  
Location: 3144 W Passyunk Ave, Philadelphia, PA  
Project Number: P044.001.006

Date Started: 10/28/2024	Date Completed: 10/28/2024
Client Name: Bellwether District Holdings, LLC	Drilling Firm: MB Drilling LLC
Driller: Joseph Flannery, Keith Butcher	Rig Type: Geoprobe 7822DT
Method: Direct Push	Boring Diameter: 2 in
Tooling: 5' x 2" Macrocore	Logged By: Marissa Mowrer
Checked By: DRAFT	Depth: 5'
Surface Elevation: N/A	Coordinates: 39.907504, -75.21345

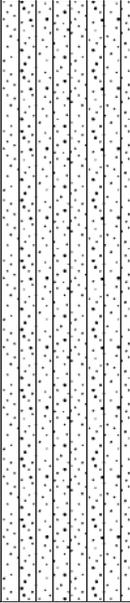
Depth (ft)	% Recovery	PID (PPM)	Graphic Log	USCS	Visual Classification	Samples
						Sample Number
0.5		15.5		sm	Silty sand, brown, dry, soft, 6" brick lens  @1.5': increase stiffness, color change to dark brown, increase moisture	136N-SB25-1.0-1.5
1		144.9				
1.5		228.2				
2		202.5				
2.5	44/60	190.9				
3		424.8		sp	Sand, black, dry, soft, medium coarse sand  @4': increase moisture, petroleum-like odor	136N-SB25-4.0-4.5 136N-SB25-4.0-4.5D
3.5		583.7				
4		324				
4.5		524.9				
5		54.6				
End boring at 5' bgs.						

# Soil Boring: 136N-SB26

## Terraphase Engineering

Project: 136 Naphtha - PESRM  
Location: 3144 W Passyunk Ave, Philadelphia, PA  
Project Number: P044.001.006

Date Started: 10/28/2024	Date Completed: 10/28/2024
Client Name: Bellwether District Holdings, LLC	Drilling Firm: MB Drilling LLC
Driller: Joseph Flannery, Keith Butcher	Rig Type: Geoprobe 7822DT
Method: Direct Push	Boring Diameter: 2 in
Tooling: 5' x 2" Macrocore	Logged By: Marissa Mowrer
Checked By: DRAFT	Depth: 5'
Surface Elevation: N/A	Coordinates: 39.907563, -75.213627

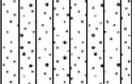
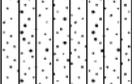
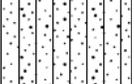
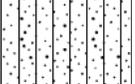
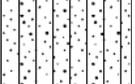
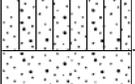
Depth (ft)	% Recovery	PID (PPM)	Graphic Log	USCS	Visual Classification	Samples
						Sample Number
0.5		2.5		gp	Poorly graded gravel, gray, dry, soft, 1/2" angular gravel	136N-SB26-0.5-1.0 136N-SB26-0.5-1.0D
1		5.4				
1.5		2.8				
2		3				
2.5	40/60	3.6		sm	Silty sand, dark brown, moist, stiff, trace 1/2" angular gravel, trace medium sand	136N-SB26-4.0-4.5
3		2.8				
3.5		2.2				
4		4.9				
4.5		41.7				
5		34.8	@4.5': color change to black, wet, petroleum-like odor, sheen			
End boring at 5' bgs.						

### Terraphase Engineering

Project: 136 Naphtha - PESRM  
 Location: 3144 W Passyunk Ave, Philadelphia, PA  
 Project Number: P044.001.006

# Soil Boring: 136N-SB28

Date Started: 10/28/2024	Date Completed: 10/28/2024
Client Name: Bellwether District Holdings, LLC	Drilling Firm: MB Drilling LLC
Driller: Joseph Flannery, Keith Butcher	Rig Type: Geoprobe 7822DT
Method: Direct Push	Boring Diameter: 2 in
Tooling: 5' x 2" Macrocore	Logged By: Marissa Mowrer
Checked By: DRAFT	Depth: 5'
Surface Elevation: N/A	Coordinates: 39.907465, -75.213623

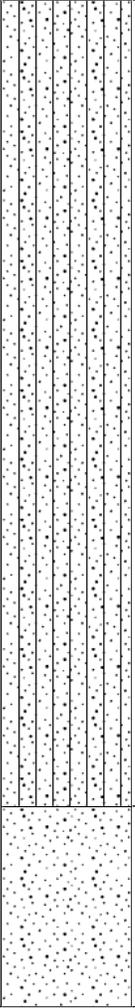
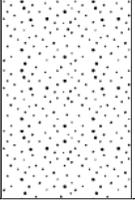
Depth (ft)	% Recovery	PID (PPM)	Graphic Log	USCS	Visual Classification	Samples
						Sample Number
0.5		6.6		sm	Silty sand, light brown, dry, loose, trace 1/2" angular gravel, roots	136N-SB28-1.5-2.0
1		22.4				
1.5		799.8				
2		1164				
2.5	55/60	1459		sp	Sand, black, wet silty sand, petroleum-like odor, sheen	136N-SB28-2.5-3.0
3		1427				
3.5		404.6				
4		473.9		sp	Sand, black, wet silty sand, petroleum-like odor, sheen	
4.5		219.1				
5		261.7				
End boring at 5' bgs.						

# Soil Boring: 136N-SB29

## Terraphase Engineering

Project: 136 Naphtha - PESRM  
Location: 3144 W Passyunk Ave, Philadelphia, PA  
Project Number: P044.001.006

Date Started: 10/28/2024	Date Completed: 10/28/2024
Client Name: Bellwether District Holdings, LLC	Drilling Firm: MB Drilling LLC
Driller: Joseph Flannery, Keith Butcher	Rig Type: Geoprobe 7822DT
Method: Direct Push	Boring Diameter: 2 in
Tooling: 5' x 2" Macrocore	Logged By: Marissa Mowrer
Checked By: DRAFT	Depth: 5'
Surface Elevation: N/A	Coordinates: 39.907502, -75.213577

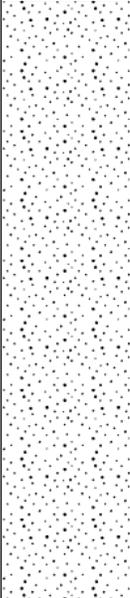
Depth (ft)	% Recovery	PID (PPM)	Graphic Log	USCS	Visual Classification	Samples	
						Sample Number	
0.5		3.9		sm	Silty sand, light brown, dry, soft, brick debris, roots	136N-SB29-1.0-1.5	
1		26.7					
1.5		391.3					
2		345.9					
2.5	45/60	491.9					
3		310.3					
3.5		461.6			@3': color change to dark brown	136N-SB29-3.0-3.5	
4		58.3					
4.5		20.6		sp	Sand, dark brown, dry, soft, medium sand, petroleum-like odor, sheen		
5	End boring at 5' bgs.						

# Soil Boring: 136N-SB30

## Terraphase Engineering

Project: 136 Naphtha - PESRM  
Location: 3144 W Passyunk Ave, Philadelphia, PA  
Project Number: P044.001.006

Date Started: 10/28/2024	Date Completed: 10/28/2024
Client Name: Bellwether District Holdings, LLC	Drilling Firm: MB Drilling LLC
Driller: Joseph Flannery, Keith Butcher	Rig Type: Geoprobe 7822DT
Method: Direct Push	Boring Diameter: 2 in
Tooling: 5' x 2" Macrocore	Logged By: Marissa Mowrer
Checked By: DRAFT	Depth: 5'
Surface Elevation: N/A	Coordinates: 39.907466, -75.213577

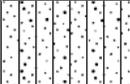
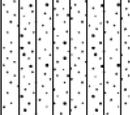
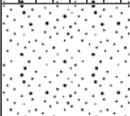
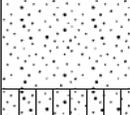
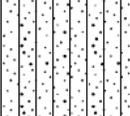
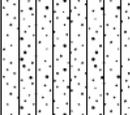
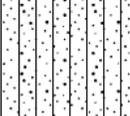
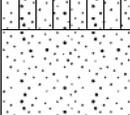
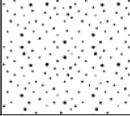
Depth (ft)	% Recovery	PID (PPM)	Graphic Log	USCS	Visual Classification	Samples
						Sample Number
0.5		18.9		gp	Poorly graded gravel, light brown, dry, soft, 1/2" angular gravel, brick debris, trace fines, roots	136N-SB30-1.0-1.5
1		97.6				
1.5		409.1			@1.5': increase fines, color change to dark brown	
2		310.1		sp	Sand, light brown, dry, soft, coarse sand, brick debris, pulverized rock	136N-SB30-2.0-2.5
2.5	49/60	833.5				
3		759.2				
3.5		712.7				
4		527.2				
4.5		424.8				
5		119.8				
End boring at 5' bgs.						

# Soil Boring: 136N-SB31

## Terraphase Engineering

Project: 136 Naphtha - PESRM  
Location: 3144 W Passyunk Ave, Philadelphia, PA  
Project Number: P044.001.006

Date Started: 10/28/2024	Date Completed: 10/28/2024
Client Name: Bellwether District Holdings, LLC	Drilling Firm: MB Drilling LLC
Driller: Joseph Flannery, Keith Butcher	Rig Type: Geoprobe 7822DT
Method: Direct Push	Boring Diameter: 2 in
Tooling: 5' x 2" Macrocore	Logged By: Marissa Mowrer
Checked By: DRAFT	Depth: 5'
Surface Elevation: N/A	Coordinates: 39.90747, -75.213536

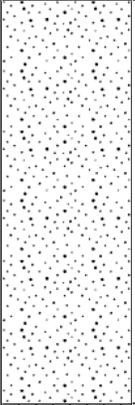
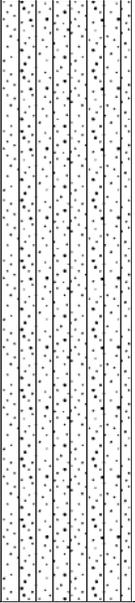
Depth (ft)	% Recovery	PID (PPM)	Graphic Log	USCS	Visual Classification	Samples
						Sample Number
0.5		15.4		sm	Silty sand, dark brown, dry, soft, trace gravel	136N-SB31-1.0-1.5
1		228.1		sp	Sand, dark brown, damp, soft, medium coarse sand	
1.5		659.3		sp	Sand, dark brown, damp, soft, medium coarse sand	136N-SB31-2.5-3.0
2		585.7		sm	Silty sand, dark brown, damp, stiff, brick debris, sheen	
2.5	60/60	404.8		sm	Silty sand, dark brown, damp, stiff, brick debris, sheen	136N-SB31-2.5-3.0
3		374.5		sm	Silty sand, dark brown, damp, stiff, brick debris, sheen	
3.5		253.9		sm	Silty sand, dark brown, damp, stiff, brick debris, sheen	136N-SB31-2.5-3.0
4		82.8		sp	Sand, black, wet coarse sand, petroleum-like odor, sheen	
4.5		20.8		sp	Sand, black, wet coarse sand, petroleum-like odor, sheen	136N-SB31-2.5-3.0
5					End boring at 5' bgs.	

# Soil Boring: 136N-SB32

## Terraphase Engineering

Project: 136 Naphtha - PESRM  
Location: 3144 W Passyunk Ave, Philadelphia, PA  
Project Number: P044.001.006

Date Started: 10/28/2024	Date Completed: 10/28/2024
Client Name: Bellwether District Holdings, LLC	Drilling Firm: MB Drilling LLC
Driller: Joseph Flannery, Keith Butcher	Rig Type: Geoprobe 7822DT
Method: Direct Push	Boring Diameter: 2 in
Tooling: 5' x 2" Macrocore	Logged By: Marissa Mowrer
Checked By: DRAFT	Depth: 5'
Surface Elevation: N/A	Coordinates: 39.90747, -75.213491

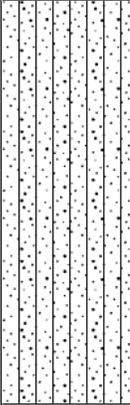
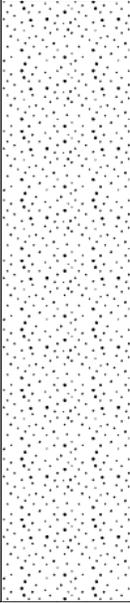
Depth (ft)	% Recovery	PID (PPM)	Graphic Log	USCS	Visual Classification	Samples	
						Sample Number	
0.5		10.5		sp	Sand, black, damp, soft, medium coarse sand, trace gravel	136N-SB32-0.5-1.0	
1		832.6					
1.5		354.4					
2		153.8					
2.5	55/60	52.8		sm	Silty sand, dark brown, damp, stiff, trace brick debris  @2.5': 6" pulverized brick lens  @3.5': 6" coarse brown sand lens	136N-SB32-2.5-3.0	
2.5		53.3					
3		20.8					
3.5		15					
4		10.8					
4.5		9.7					
5			End boring at 5' bgs.				

# Soil Boring: 136N-SB35

## Terraphase Engineering

Project: 136 Naphtha - PESRM  
Location: 3144 W Passyunk Ave, Philadelphia, PA  
Project Number: P044.001.006

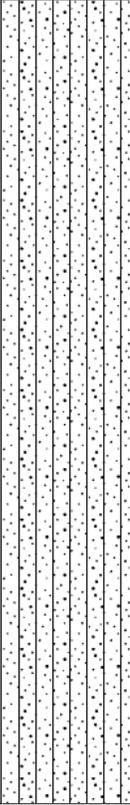
Date Started: 10/28/2024	Date Completed: 10/28/2024
Client Name: Bellwether District Holdings, LLC	Drilling Firm: MB Drilling LLC
Driller: Joseph Flannery, Keith Butcher	Rig Type: Geoprobe 7822DT
Method: Direct Push	Boring Diameter: 2 in
Tooling: 5' x 2" Macrocore	Logged By: Marissa Mowrer
Checked By: DRAFT	Depth: 5'
Surface Elevation: N/A	Coordinates: 39.907507, -75.213736

Depth (ft)	% Recovery	PID (PPM)	Graphic Log	USCS	Visual Classification	Samples
						Sample Number
0.5		6.2		sm	Silty sand, light brown, dry, loose, trace 1/2" angular gravel, brick debris	136N-SB35-1.5-2.0
1		3.5				
1.5		6.6				
2		14.2		sp	Sand, black, damp, loose, medium coarse, brick debris	136N-SB35-3.0-3.5
2.5	45/60	73.6				
3		239.8				
3.5		481.8				
4		361.2				
4.5		137.1	@4': increase pulverized brick debris, petroleum-like odor, sheen			
5		73.1	End boring at 5' bgs.			

# Soil Boring: AOI7- BH-08-2019R


<b>Terraphase Engineering</b>
Project: 136 Naphtha - PESRM Location: 3144 W Passyunk Ave, Philadelphia, PA Project Number: P044.001.006

Date Started: 10/28/2024	Date Completed: 10/28/2024
Client Name: Bellwether District Holdings, LLC	Drilling Firm: MB Drilling LLC
Driller: Joseph Flannery, Keith Butcher	Rig Type: Geoprobe 7822DT
Method: Direct Push	Boring Diameter: 2 in
Tooling: 5' x 2" Macrocore	Logged By: Marissa Mowrer
Checked By: DRAFT	Depth: 5'
Surface Elevation: N/A	Coordinates: 39.907505, -75.213499

Depth (ft)	% Recovery	PID (PPM)	Graphic Log	USCS	Visual Classification	Samples
						Sample Number
0.5		2.1		gp	Poorly graded gravel, light brown, dry, loose, rounded 1/2" gravels	AOI7-BH-08-2019R-2.0 -2.5
1		101.4				
1.5		222		sm	Silty sand, brown, damp, trace clay with pulverized brick and gravels	
2		21.3				
2.5	55/60	36.1				
3		128.2				
3.5		24.6				
4		13.8				
4.5		10.8				
5						
@4': color change to black, wet silty sand, petroleum-like odor, sheen						
End boring at 5' bgs.						

# Appendix G

## 75%/10x Rule Calculations



**Table G-1**  
**Benzene 75%/10x Calculations**  
**136 Naphtha Release Area**  
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Sample Name	Sample Date	Chemical	CASRN	Conc (mg/kg)	Qual	Limit (mg/kg)	Exposure Conc (mg/kg)	PADEP Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW (mg/kg)	Exceeds Criteria	Exceeds 10x Criteria
136N-SB01	136N-SB01-1.0-1.5	5/23/2024	Benzene	71-43-2		U	0.00066	0.00066	0.5	No	No
136N-SB01	136N-SB01-1.0-1.5D	5/23/2024	Benzene	71-43-2		U	0.00069	0.00069	0.5	No	No
136N-SB02	136N-SB02-3.0-3.5	5/23/2024	Benzene	71-43-2		U	0.028	0.028	0.5	No	No
136N-SB03	136N-SB03-3.0-3.5	5/23/2024	Benzene	71-43-2	0.0032		0.00042	0.0032	0.5	No	No
136N-SB04	136N-SB04-3.5-4.0	5/23/2024	Benzene	71-43-2		U	0.00041	0.00041	0.5	No	No
136N-SB05	136N-SB05-2.0-2.5	5/23/2024	Benzene	71-43-2		U	0.0005	0.0005	0.5	No	No
136N-SB06	136N-SB06-2.0-2.5	5/23/2024	Benzene	71-43-2	0.008		0.00047	0.008	0.5	No	No
136N-SB07	136N-SB07-2.5-3.0	5/23/2024	Benzene	71-43-2	0.75		0.03	0.75	0.5	Yes	No
136N-SB08	136N-SB08-2.0-2.5	5/23/2024	Benzene	71-43-2		U	0.00051	0.00051	0.5	No	No
136N-SB09	136N-SB09-3.0-3.5	5/23/2024	Benzene	71-43-2	0.0029		0.0005	0.0029	0.5	No	No
136N-SB10	136N-SB10-2.0-2.5	5/23/2024	Benzene	71-43-2		U	0.00049	0.00049	0.5	No	No
136N-SB11	136N-SB11-2.0-2.5	5/24/2024	Benzene	71-43-2	0.00045	J	0.0005	0.00045	0.5	No	No
136N-SB12	136N-SB12-3.0-3.5	5/24/2024	Benzene	71-43-2	0.00093		0.0006	0.00093	0.5	No	No
136N-SB13	136N-SB13-1.0-1.5	5/24/2024	Benzene	71-43-2	0.00034	J	0.00052	0.00034	0.5	No	No
136N-SB14	136N-SB14-2.5-3.0	5/23/2024	Benzene	71-43-2	0.018		0.00046	0.018	0.5	No	No
136N-SB16	136N-SB16-2.0-2.5	5/24/2024	Benzene	71-43-2	0.0028		0.00056	0.0028	0.5	No	No
136N-SB17	136N-SB17-1.5-2.0	5/24/2024	Benzene	71-43-2	0.00042	J	0.00049	0.00042	0.5	No	No
136N-SB18	136N-SB18-1.0-1.5	5/24/2024	Benzene	71-43-2	0.00024	J	0.0005	0.00024	0.5	No	No
136N-SB19	136N-SB19-2.5-3.0	5/23/2024	Benzene	71-43-2		U	0.00048	0.00048	0.5	No	No
136N-SB20	136N-SB20-2.5-3.0	5/23/2024	Benzene	71-43-2	0.00046		0.00046	0.00046	0.5	No	No

<b>Percentage of Non-Exceeding Locations</b>	95%
<b>Number of Locations Exceeding 10x Criteria</b>	0

# Appendix H

## Response to Comments

## Response to PADEP Comments on the Combined Remedial Investigation and Final Act 2 Report – 2019 Light Naphtha Release Area

Former Philadelphia Energy Solutions Refinery, 3144 West Passyunk Ave, Philadelphia, PA

The following provides responses to the Pennsylvania Department of Environmental Protection's (PADEP) comments received on August 26, 2021, upon their review of the *Combined Remedial Investigation and Final Report* (2021 RI/Final Report) for the 2019 Light Naphtha Release Area. The 2021 RI/Final Report was submitted to PADEP by Langan Engineering and Environmental Services, Inc. (Langan) on June 29, 2021. Terraphase has prepared a *Remedial Investigation and Final Report for the 136 Naphtha Release Area (Girard Point)* (RI/Final Report) to address the deficiencies noted by PADEP. The responses below were prepared by Terraphase Engineering Inc. (Terraphase) on behalf of Bellwether District Holdings, LLC (BDH).

**Comment 1:** The release location is not clearly identified as required by 25 Pa. Code Section 250.204(b) and (d), as referenced by 25 Pa. Code Section 250.312(a). The text of the Final Report indicates there were two release locations along the product line, however the Philadelphia Energy Solutions Investigation Report indicates "there are a total of 3 blown out portions of the line within 20 feet of each other in the old 6 Still lot and four other blown out gaskets on flanges throughout the line." Clarification to the release location relative to the area investigated is needed.

**Response 1:** Section 2.1 of the RI/Final Report prepared by Terraphase, on behalf of BDH, clarifies the location(s) of the release.

**Comment 2:** Soil characterization is incomplete as exceedances of benzene and toluene were present in four locations in proximity to the release and the closest 2010 and 2012 historical samples to the 2019 Naphtha release samples were below Statewide health standard medium specific concentrations. This contradicts the suggestion that the exceedances in this area are a result of historical activities. Complete soil delineation is required by 25 Pa. Code Section 250.204(b) and (d), as referenced by 25 Pa. Code Section 250.312(a).

**Response 2:** BDH completed additional soil attainment and soil characterization sampling in May and October 2024, respectively, and analyzed for benzene and toluene. Section 3 of the RI/Final Report prepared by Terraphase describes the results of the sampling and discusses the nature and extent of soil contamination. Based on the identification of multiple buried drums, LNAPL seepage, and soil contamination consistent with the surrounding area, as discussed in Section 2 of the RI/Final Report, Pre-Existing Contamination is diffuse throughout the area in and around the Site. BDH's May and October 2024 attainment soil sampling demonstrates that all contamination associated with the February 2019 release has been removed and any remaining (Pre-Existing) contamination in the area is associated with unrelated release(s) that Evergreen will manage as part of the 2012 Buyer-Seller Agreement and the 2020 First Amendment to that Agreement.

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**Comment 3:** All environmental media impacted by the release were not addressed as required by 25 Pa. Code Section 250.204(b), as referenced by 25 Pa. Code Section 250.312(a). The Final Report states that “soil and groundwater conditions outside of the naphtha discharge area are being addressed by Evergreen.” If groundwater is not being addressed by Hilco, then documentation of Evergreen’s agreement to address this release’s impact on groundwater is required.

**Response 3:** As presented in **Attachments A** and **B**, groundwater samples were collected from wells located in the vicinity and downgradient of the release area (i.e., C-61, C-105, C-175, and C-176). Table 1 provides groundwater analytical results for the target analytes for the naphtha release area (i.e., PADEP Petroleum Short List for unleaded gasoline (Table III-5 of the *Land Recycling Program Technical Guidance Manual* [PADEP 2021a]) that were collected post-release (i.e., after February 22, 2019). Since none of the target analytes were detected at concentrations above the applicable Medium Specific Concentrations (MSCs), there is no evidence of impact to groundwater as a result of the release. Analytical results are presented in **Attachment A** and the location of the monitoring wells are shown on **Attachment B**. Section 2.6 of the RI/Final Report also includes discussion on the investigation of groundwater in the area of the release.

**Comment 4:** Documentation regarding remedial activities was not included as required by 25 Pa. Code Section 250.204(f)(1), as referenced by 25 Pa. Code Section 250.312(c). Documentation for the liquid recovery via vacuum trucks and treatment, locations of the test pits where recovery took place, and supporting documentation regarding the extent of the release supporting the basis that characterization and remedial efforts were guided by visual observation were all not included in the Final Report.

**Response 4:** The liquids recovered via vacuum truck were moved to and stored within aboveground storage tank GP 272, a three-million-gallon waste oil tank within the former Girard Point Refinery (Langan 2021). The waste was eventually treated via the on-Facility wastewater treatment system. Details regarding the liquid recovery that was conducted in response to the release are also provided in Section 2.1 of the RI/Final Report.

During response activities, test pits were installed along the compromised product line from which the light naphtha product was released, and the observed water/product mixture was removed. Documentation was not provided that illustrated their exact locations. Text on the remediation response and test pits are included in Section 2.1 of the RI/Final Report.

Supporting documentation of the field observations from the March 2019 soil sampling, including observations of dark staining, hydrocarbon odor, and the presence of sheen, used to determine the extent of remedial action is provided in Table 6 of Stantec’s November 13, 2020 *Unit 137 Release in the Area of Former 136 Unit: Investigation Summary*.

**Comment 5:** Documentation for the systematic random soil sampling grid design was not included in the report as required by 25 Pa. Code Section 250.703, as referenced by 25 Pa. Code 250.312(d).

**Response 5:** Post-excavation sampling was initially conducted by Stantec, on behalf of PES, on December 12, 2019 and, as noted, documentation for the systematic random soil sampling grid design was not included in the 2021 RI/Final Report prepared by Langan. Terraphase, on behalf

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of BDH, collected “post-excavation” attainment soil samples within the footprint of the prior excavation in May 2024 at locations determined using PADEP’s Systematic Random Sampling Workbook (see Section 3 of the RI/Final Report prepared by Terraphase). Documentation of the systematic random soil sampling grid design is provided in Appendix F of the RI/Final Report.

**Comment 6:** The ecological assessment documentation related to the habitats of concern provided in Appendix F to the report was not consistent with the statements provided in the text of the report and should be revised for the subsequent submittal.

**Response 6:** Section 6.2 of the RI/Final Report prepared by Terraphase describes the ecological screening evaluation that was conducted in accordance with Section II.B.5 of the *Land Recycling Program Technical Guidance Manual* (PADEP 2021). Following the regulatory framework for conducting an ecological screening evaluation under the Statewide Health Standard (SHS), the screening determined no further ecological evaluated is required.

**Comment 7:** Post-excavation soil samples were collected at depths ranging from 2 to 4.5 feet below grade and documentation in the report suggest these samples were collected at saturated soil depths; therefore, the data should be compared to the saturated soil-to-groundwater numeric values.

**Response 7:** Comment noted. Terraphase, on behalf of BDH, collected “post-excavation” attainment soil samples within the footprint of the prior excavation in May 2024 at locations determined using PADEP’s Systematic Random Sampling Workbook (see Section 3 of the RI/Final Report prepared by Terraphase and Response #5). These samples were collected from unsaturated soil and compared against the appropriate applicable MSCs.

**Comment 8:** The depth of the excavation was not stated in the report.

**Response 8:** Section 7 of the 2021 RI/Final Report prepared by Langan states that excavation depth extended to just above the water table, which was between 2 and 6 ft bgs. For the purposes of the “post-excavation” attainment soil sampling, Terraphase conservatively assumed that the excavation area was uniformly advanced to a depth of 6 ft bgs, as described in Section 3 of the RI/Final Report.

## References

Langan Engineering and Environmental Services, Inc. (Langan). 2021. *Combined Remedial Investigation/Final Act 2 Report*. June 14.

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

Stantec. 2020. *Unit 137 Line Release in the Area of Former 136 Unit: Investigation Summary*. November 13.



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Attachments

Attachment A – Post-Release Groundwater Analytical Results

Attachment B – Monitoring Well Locations Figure

# Attachment A

## Post-Release Groundwater Analytical Results



**Table 1**

**Post-Release Groundwater Analytical Results**

**136 Naphtha Release Area**

Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	C-105	C-105	C-105	C-105	C-105	C-105	C-175	C-175	C-175
Field Sample ID	Groundwater MSC	C-105-20220118_30460070	C-105_20220429	C-105_20220628	C-105_20230509	C-105_20240422	C-175-20220118_30460070	C-175_20220413	C-175_20220413	C-175_20220628
Sample Date	Used Aquifer	1/18/2022	4/29/2022	6/28/2022	5/9/2023	4/22/2024	1/18/2022	4/13/2022	4/13/2022	6/28/2022
Comments	(TDS ≤ 2500)									
<b>Volatile Organic Compounds</b>										
Benzene	0.005	ND (0.001)	ND (0.0005)	NA	ND (0.0005)	ND (0.0005)	0.00078 J (0.001)	0.0013 (0.0005)		NA
Cumene	3.5	ND (0.001)	ND (0.001)	NA	0.0016 (0.001)	ND (0.001)	0.0034 (0.001)	0.0097 (0.001)		NA
Ethyl Benzene	0.7	ND (0.001)	ND (0.001)	NA	ND (0.001)	ND (0.001)	0.00059 J (0.001)	0.0011 (0.001)		NA
Methyl tert-butyl ether	0.02	ND (0.001)	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)		NA
Toluene	1	ND (0.001)	ND (0.001)	NA	ND (0.001)	ND (0.001)	0.00061 J (0.001)	ND (0.001)		NA
1,2,4-Trimethylbenzene	0.53	ND (0.001)	ND (0.002)	NA	ND (0.002)	ND (0.002)	0.0025 (0.001)	0.0042 (0.002)		NA
1,3,5-Trimethylbenzene	0.53	ND (0.001)	ND (0.002)	NA	ND (0.002)	ND (0.002)	0.00083 J (0.001)	0.0014 J (0.002)		NA
Xylenes (total)	10	ND (0.003)	ND (0.001)	NA	ND (0.001)	ND (0.001)	0.004 (0.003)	0.0052 (0.001)		NA
<b>Semivolatile Organic Compounds</b>										
Naphthalene	0.1	ND (0.00099)	ND (0.000087)	ND (0.00008)	ND (0.000083)	0.0000419 J (0.00008)	0.00092 J (0.001)	0.00049 (0.000087)		0.00149 (0.00008)

**Notes:**

- All concentrations reported in mg/L (ppm); detection limits in parentheses.
- Only PADEP's Shortlist for Unleaded Gasoline Parameters are shown.
- No concentrations exceed the Non-Residential Groundwater MSC Used Aquifer (TDS ≤ 2500).

**Abbreviations:**

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

**Table 1**

**Post-Release Groundwater Analytical Results**

**136 Naphtha Release Area**

Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	C-176	C-176	C-176	C-176	C-61	C-61	C-61
Field Sample ID	Groundwater MSC	C-176-20220118_30460070	C-176_20220413	C-176_20220627	C-176_20240422	C-61-20220118_30460070	C-61_20220413	C-61_20220628
Sample Date	Used Aquifer	1/18/2022	4/13/2022	6/27/2022	4/22/2024	1/18/2022	4/13/2022	6/28/2022
Comments	(TDS ≤ 2500)							
<b>Volatile Organic Compounds</b>								
Benzene	0.005	ND (0.001)	0.00055 (0.0005)	NA	ND (0.0005)	ND (0.001)	ND (0.0005)	NA
Cumene	3.5	0.0014 (0.001)	0.0045 (0.001)	NA	0.0046 (0.001)	0.00067 J (0.001)	ND (0.001)	NA
Ethyl Benzene	0.7	ND (0.001)	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.001)	NA
Methyl tert-butyl ether	0.02	0.00025 J (0.001)	ND (0.001)	NA	ND (0.001)	0.0027 (0.001)	0.0025 (0.001)	NA
Toluene	1	ND (0.001)	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.001)	NA
1,2,4-Trimethylbenzene	0.53	0.0012 (0.001)	ND (0.002)	NA	ND (0.002)	ND (0.001)	ND (0.002)	NA
1,3,5-Trimethylbenzene	0.53	ND (0.001)	ND (0.002)	NA	ND (0.002)	ND (0.001)	ND (0.002)	NA
Xylenes (total)	10	0.002 J (0.003)	0.0023 (0.001)	NA	0.0014 (0.001)	ND (0.003)	ND (0.001)	NA
<b>Semivolatile Organic Compounds</b>								
Naphthalene	0.1	0.0022 (0.00098)	0.00074 (0.000087)	0.000548 (0.000074)	0.000111 (0.00008)	ND (0.00098)	ND (0.00008)	ND (0.00008)

**Notes:**

- 1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
- 2 Only PADEP's Shortlist for Unleaded Gasoline Parameters are shown.
- 3 No concentrations exceed the Non-Residential Groundwater MSC Used Aquifer (TDS ≤ 2500).

**Abbreviations:**

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

# Attachment B

## Monitoring Well Locations Figure



N:\GIS\Prj\044.001\_PESRM-PES\OGIS\OGZ and GPKG\Branch\_Act 2 Areas\136 Naphtha Release\20250204\OGZ228\_P044.002\_BDH\_136Naphtha.gz RTC Figure 1 - Groundwater Sampling Results 2023-10-17T10:19:57.000 Created by: M.Civilillo Checked by: K. Long



Legend	
	Property Boundary
	Approx. Extent of PES Nov 25, 2019 - Dec 12, 2019 Excavation
	Evergreen Monitoring Well

Aerial imagery source: Nearmap (March 2019)

0 10 20 30 40 ft  
  
 1 Inch = 40 Feet

N

**SAFETY FIRST**

**terrphase**  
 engineering

CLIENT:	Bellwether District Holdings, LLC
PROJECT:	136 Naphtha Release
PROJECT NUMBER:	P044.002.006

<b>Monitoring Well Locations</b>
<b>Figure 1</b>