ENVIRONMENTAL CONSTRUCTION COMPLETION REPORT

THE BELLWETHER DISTRICT, UNIT 1

2625 FRANCES HARPER DR
PHILADELPHIA, PA 19145

Prepared For:
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LANGAN

April 23, 2026
Langan Project No. 220181801

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ACRONYMS

ALTA – American Land Title Association
AOI – Area of Interest
AST – Aboveground Storage Tank
BDH – Bellwether District Holdings, LLC
CCR – Current Conditions Report and Comprehensive Remedial Plan
CEMP – Contractor's Earthwork Management Plan
CO&A – Consent Order and Agreement
COC – Constituents of Concern
CWMP – Construction Water Management Plan
CY - Cubic Yard
Completion Report – Environmental Construction Completion Report
EMP – Earthwork Management Plan
EP – Environmental Professional
EPA – Environmental Protection Agency
FEMA – Federal Emergency Management Agency
HASP – Health and Safety Plan
HRP – Hilco Redevelopment Partners
JDM – James D. Morrissey Inc.
MSC – Medium Specific Concentration
MOA – Memorandum of Agreement
NAPL – Nonaqueous Phase Liquid
NIR – Notice of Intent to Remediate
OSHA – Occupational Safety and Health Administration
PADEP – Pennsylvania Department of Environmental Protection
PES – Philadelphia Energy Solutions
PESRM – Philadelphia Energy Solutions Refining and Marketing LLC
PID – Photoionization Detector
RCRA – Resource Conservation and Recovery Act
RIR – Remedial Investigation Report
ROW – Right-of-Way
SCR – Site Characterization Report
sf – Square Foot
SPLP – Synthetic Precipitation Leaching Procedure
SMP – Soil Management Plan
SSS – Site-Specific Standard
SVOC – Semi-Volatile Organic Compound
TO – Toxic Organics
TSSA – Temporary Soil Stockpile Areas
UEC – Unanticipated Environmental Condition
VIMS – Vapor Intrusion Mitigation System
VMS – Vapor Mitigation System
VOC – Volatile Organic Compound

1.0 INTRODUCTION AND PURPOSE

Langan Engineering and Environmental Services, LLC (Langan) has prepared this Environmental Construction Completion Report ("Completion Report") on behalf of Bellwether District Holdings, LLC[1] (BDH) to document the management of soils and implementation of engineering controls during the construction of Unit 1[2] at the Bellwether District ("the Site"). Unit 1 is located at 2625 Frances Harper Dr. in Philadelphia, Pennsylvania and is within the larger former Philadelphia Energy Solution refinery facility ("the Facility") now known as The Bellwether District. A Site Location Map is included as Figure 1. Unit 1 has been redeveloped with an approximately 326,000-square-foot (sf) building, and associated paved areas, roadways, landscaping, and stormwater management features as depicted in Figure 2.

Remediation activities are being conducted at the Facility under the Pennsylvania Land Recycling and Environmental Remediation Standards Act (Act 2) by both Bellwether District Holdings, LLC (BDH) and Evergreen Resources Group, LLC (Evergreen)[3] in accordance with the Consent Order and Agreement (CO&A) among Pennsylvania Department of Environmental Protection (PADEP), Sunoco, Inc. (R&M) n/k/a Energy Transfer (R&M), LLC, and BDH 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, and BDH is responsible for addressing contamination at the Facility resulting from release(s) which occurred after September 8, 2012. Further, in accordance with the Facility's Soil Management Plan (SMP) which is an Attachment to the 2020 Amendment to the CO&A, BDH is responsible for:

1. Soil Tracking – relocating soil at the Facility in accordance with the SMP,

2. Unpaved Area Sampling – performing additional soil sampling and risk assessment where Facility soils were reused in areas not covered by an exposure barrier,

[1] Bellwether District Holdings, LLC (BDH) is the entity formerly known as Philadelphia Energy Solutions Refining and Marketing LLC (PESRM).
[2] During the development project, Unit 1 was also referred to as "Lot 15." The term "Unit 1" is used throughout this report; however, the terms "Lot 15" and "Unit 1" are used interchangeably in development plans and field documentation.
[3] While we understand that Evergreen Resources Management Operations, a series of Evergreen Resources Group, LLC, is now managing the legacy remedial work for Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC ("Evergreen") and Evergreen (R&M), LLC, for clarity, Evergreen, Inc. n/k/a ETC Evergreen Holdings LLC, Evergreen, Inc. (R&M) n/k/a Evergreen (R&M), LLC and Evergreen shall be referred to collectively as "Evergreen" in this Report.

3. New Surface Sampling – performing soil sampling from the new soil stratum created by soil removal in areas where soil is cut by BDH during mass grading,

4. Vapor Intrusion Assessment – installing vapor mitigation controls or, alternatively, demonstrating that such controls are not needed to mitigate potential vapor intrusion in accordance with PADEP guidance, and

5. Soil Engineering Controls – documenting the development components that are expected to serve as engineering controls in either Evergreen or BDH Act 2 Cleanup Plans for the Facility.

This Unit 1 Completion Report outlines the earthwork activities completed as part of the Unit 1 redevelopment and documents the completion of BDH's requirements under the SMP.

1.1 Site Description

The Facility covers over 1,300 acres on both the eastern and western banks of the Schuylkill River in Philadelphia, Pennsylvania. Environmental investigations conducted by Evergreen at the Site date back to at least the 1980's. Decommissioning and demolition of the former refinery was conducted between 2020 and 2024. Subgrade preparation of Unit 1 began in May 2023. Vertical construction of the Unit 1 building and other improvements began in March 2024 and were completed by June 2025.

2.0 SMP PRECHARACTERIZATION RESULTS

In accordance with the SMP, pre-excavation characterization sampling was conducted for soils to be moved as part of the mass grading of the Site. Based on the results of the pre-excavation soil sampling, soil was classified into Soil Category A, B, or E in accordance with the SMP.

- Category A – Precharacterization sampling results are below PADEP non-residential medium-specific concentration (MSC) values; soil can be reused beneath a soil engineering control or not beneath an engineering control with an accompanying risk assessment.
- Category B – Precharacterization sampling results are below non-residential direct contact MSC values and above nonresidential soil-to-groundwater numeric MSC values; soil can be reused beneath an impervious soil engineering control or not beneath an engineering control with an accompanying risk assessment at locations greater than 500 ft from a shoreline.

- Category E – Precharacterization sampling results are above non-residential direct contact MSC values and nonresidential soil-to-groundwater numeric MSC values; soil can be reused beneath an impervious soil engineering control.

The SMP also contemplated two additional Soil Categories (C and D); however, the results for the pre-excavation sampling did not yield any soil classified as Category C or D. Figure 3 shows the Soil Categories for Unit 1 prior to the start of mass grading as well as soil Categories where soil originated from other parts of the Facility and was placed either permanently or temporarily on Unit 1. Locations where no Soil Category is mapped were planned fill areas, not requiring pre-characterization.

After mass grading was completed, additional soil movement was conducted at Unit 1 to facilitate construction of building foundations, subgrade utilities, and other building and development infrastructure. Spoils generated from building and infrastructure installation were from deeper elevations than the mass grading cut elevations. Spoils from building and infrastructure installation were tracked as "unclassified" (U) and were either (1) treated as Category E soils or (2) placed in landscaped areas and characterized during subsequent unpaved area sampling and risk assessment.

3.0 EARTHWORK TRACKING

Soil movement during the Unit 1 development was tracked by Langan to ensure compliance with the SMP.

3.1 Grading and Development Plan

To prepare for construction of the building at Unit 1, subgrade in the area was prepared by cutting approximately 160,600 CY of soil to achieve an average interim building subgrade elevation of 17.10 feet in Philadelphia City Datum. Additionally, geotechnical ground improvement was conducted through the placement of 110,750 CY of soil to create an eight-foot-high pile of surcharge material over the 882-foot-long by 372-foot-wide building footprint. Geotechnical engineering surcharge is a preloading technique used to improve soil conditions and ensure the stability and longevity of the future structure. After approximately three months of surcharging, the surcharge pile was removed to restore the area to the interim subgrade elevation prior to the start of building construction. The civil engineering drawings depicting the soil volumes moved to prepare the site for development is provided in Appendix A.

Soil movement on Unit 1 included movement of soil from cut areas within Unit 1 as well as other areas of the Facility onto the Unit 1 building pad to increase the elevation of the building pad to the interim subgrade and to construct the surcharge pile for geotechnical ground improvement. Soil placed in the surcharge pile was subsequently removed from the building pad at the end of the surcharge period and placed elsewhere on the Facility.

3.2 Soil Tracking Procedure

BDH's Contractor (James D. Morrissey, Inc.; JDM) and the Environmental Professional (EP; Langan) were on-Site daily to monitor that soil movement was conducted in accordance with the SMP. The Contractor placed soil based on soil category into appropriate reuse areas. A Langan representative tracked soil movement to verify that the soil placement locations are appropriate based on SMP sampling results. Following each field workday, the Contractor sent Langan their reporting on soil moved, the SMP soil category, the approximate quantity of soil moved, and the coordinates and elevations of the locations where soil was placed. The EP reviewed the Contractors' records and compared them against the EP's own field notes to verify both parties agreed on recorded soil placement. If soil was moved into a non-compliant area, the EP oversaw the Contractor relocating the soil from the applicable area and documented the resolution.

3.3 Soil Tracking Summary

Earthwork tracking details identifying the specific soil volumes moved to and from Unit 1 during mass grading and vertical construction are provided as Appendix B, Table 1. These soil movements are summarized in the sections below.

3.3.1 Mass Grading – Soil Placed on Unit 1

From June 5, 2023, to August 6, 2023, Category A, B, and E soils originating inside and outside Unit 1 were placed within the Unit 1 building pad to raise the grade to the final subgrade elevation. Soil cuts for placement on Unit 1 are shown on Figures 4A and 4B. Additional soil was placed above the subgrade elevation in certain areas for interim grading to promote positive drainage prior to vertical construction. Approximately 139,810 CY of soil was placed on the Unit 1 building pad below the final building subgrade elevation of 17.10 feet in Philadelphia City Datum (18 inches below the finished floor elevation). The soil placed on the building pad beneath the subgrade elevation consisted of:

- 101,015 CY of Category A soil
- 30,375 CY of Category B soil

- 8,420 CY of Category E soil
- 15,750 CY of Category U soil[4]

From August 7, 2023 to August 29, 2023, Category A and B soils were placed on the Unit 1 building pad temporarily as geotechnical surcharge. Geotechnical surcharge on Unit 1 was placed at an elevation of 8 feet above finished grade at the edge of the building pad and crowned to 10 feet above finished grade at the center of the pad to promote positive drainage. Approximately 121,850 CY of soil was placed as surcharge on the proposed Unit 1 building pad.

- 86,975 CY of Category A soil
- 34,875 CY of Category B soil

Soil from the following source cells were imported onto Unit 1, as depicted on Figure 3:

Cut Location	Soil Category	Source Cell	Placement Location
Unit 1	A	IP1A-55	Unit 1 Building Pad and Unit 1 Landscaped areas
	B	IP1A-12	Unit 1 Building Pad
	E	IP1A-14	Unit 1 Building Pad
		IP1A-15	Unit 1 Building Pad
	U	North/South Truck Court	Unit 1 Landscaped areas
Outside Unit 1	A	IP1A-51	Unit 1 Building Pad
		IP1A-52	Unit 1 Building Pad
		IP1A-54	Unit 1 Building Pad and Unit 1 Landscaped areas
		IP1A-56	Unit 1 Building Pad
		IP1A-62	Unit 1 Building Pad
		IP1-A5-08-03	Unit 1 Building Pad
		IP1-A5-08-06 (Lot 14 Berms North)	Unit 1 Building Pad
		IP1-A5-08-07 (Lot 14 Berms South)	Unit 1 Building Pad
		Lot 12 Topsoil Stockpile	Unit 1 Parking Lot and Docks and Landscaped areas

[4] Category U soils generated and placed within Unit 1 were placed as part of the vertical construction phase and not as part of the initial soil grading plan.

Cut Location	Soil Category	Source Cell	Placement Location
	B	IP1A-02	Unit 1 Building Pad and Landscaped areas
		IP1A-06	Unit 1 Building Pad
		IP1A-12	Unit 1 Building Pad

The soil placements on Unit 1 are shown on Figures 4A through 4D, covering the SMP Soil Categories A, B, E, and U. The geotechnical surcharge temporary fill placement is shown on Figure 4E, documenting the soil cell placement and subsequent removal. Figures 5F and 5G show the final fill placement of Figures 4A through 4E in a cross-sectional view.

3.3.2 Mass Grading – Soil Exported from Unit 1 and Placed Elsewhere at the Facility

During grading activities in Unit 1, soil was relocated from the following Unit 1 cells to other areas of the Facility as depicted on Figures 5A and 5B. These figures include movement of Unit 1 surcharge material in addition to material cut from the original grades on Unit 1.

3.3.2.1 Soil Exported During Mass Grading

A total of 32 CY of material was removed from Unit 1 prior to surcharge placement and placed elsewhere at the Facility. These soils were categorized as follows:

- 8 CY of Category A soil
- 24 CY of Category B soil

[The 32 CY of soil exported from Unit 1 originated from cells IP1A-55 and IPIA-13 and was placed on the Lot 16 (Unit 2) building pad as shown in Figure 4A.]

Soil moved from Unit 1 during mass grading was placed in the following locations:

Cut Location	Soil Category	Source Cell	Placement Location
Unit 1	A	IP1A-55	Lot 16 Building Pad
	B	IP1A-13	Lot 16 Building Pad

3.3.2.2 Surcharge Removal

Following completion of the Unit 1 surcharge loading and compaction, approximately 119,900 CY of soil material was cut from the Unit 1 building pad surcharge pile prior to building construction. The volume removed is less than the original placement volume (approximately 121,850 CY) due to settlement and compaction induced by the surcharge

loading. The soils removed from the Unit 1 building pad were a combination of Category A and B soil and were managed conservatively as Category B soils upon removal from the Unit 1 building pad.

The geotechnical surcharge removal was completed on February 21, 2024.

3.3.2.3 Vertical Construction: Utilities Installation and Fine Grading

From March 12, 2024 to November 22, 2024, Category U (unclassified) soils were cut from Unit 1 as infrastructure cuts for regrading, road construction, or utility installation. Approximately 84,325 CY of soil were removed from Unit 1 and placed at other locations at the Facility as shown on Figures 5A and 5B. These Category U soils were either managed as Category E soils or placed in landscaped areas to be further characterized during unpaved area sampling and risk assessment.

3.4 Construction Quality Assurance Summary

Throughout the earthwork program, Langan was provided earthwork fill survey data (spatial [X,Y,Z], cut/fill soil types, cells IDs, etc.) from the Contractor on an approximate daily basis. To verify the Contractor-provided data was of sufficient quality to be used for SMP compliance documentation, Langan performed a QA/QC review of the provided data. A summary of the QA/QC procedure and a table of the soil movements is included in Appendix B. A summary of non-compliant soil placements and subsequent resolutions is provided in Appendix B, Table 2.

4.0 UNPAVED AREA SAMPLING

In accordance with the SMP, BDH performed soil sampling, analysis, and risk assessment to confirm that the soils placed in unpaved areas do not pose an unacceptable human health risk and will attain the Site-specific standard. As described in Appendix C-1, the maximum detected concentrations for constituents identified in surface soil in the unpaved areas were screened against applicable USEPA RSLs for commercial/industrial worker exposure to soil under the SSS framework. None of the constituents were detected at concentrations greater than the applicable RSLs. On this basis, all detected constituents screen out from further evaluation, and quantitative site-specific risk assessment calculations are not warranted for surface soil exposure in the unpaved areas. Accordingly, the analytical results support the conclusion that surface soil in the unpaved areas does not pose an unacceptable risk to future receptors following development.

5.0 NEW SURFACE SAMPLING

In accordance with the SMP, soil samples were collected from the new soil surface that was uncovered through bulk soil removal in cut areas. As described in Appendix C-2, constituents were not detected at concentrations greater than applicable MSCs in these soils.

6.0 VAPOR INTRUSION ASSESSMENT

Unit 1 includes an approximately 326,000 sf building. BDH prophylactically installed a vapor mitigation system beneath the Unit 1 building. In accordance with the SMP, BDH evaluated whether the mitigation system is needed to mitigate potential vapor intrusion in accordance with PADEP Guidance.

As detailed in Appendix D, concentrations in sub-slab soil gas samples collected from beneath the Unit 1 building are below vapor intrusion screening values from PADEP Guidance. Two rounds of sub-slab sampling with concentrations below screening values satisfy the 25 Pa. Code Chapter 250 requirements. Accordingly, Langan concludes that no potential vapor intrusion source is present, and, therefore, the mitigation system is not needed to mitigate potential vapor intrusion in accordance with PADEP Guidance.

7.0 SOIL ENGINEERING CONTROLS

The SMP requires that BDH document the development components that are expected to serve as soil engineering controls in either Evergreen or BDH Act 2 Cleanup Plans for the Facility. At Unit 1, the following development components were constructed and may serve as engineering controls:

- The building pad consisting of an eight-inch concrete slab;
- Northern and southern paved truck courts including heavy-duty concrete-paved truck trailer loading docks, opposite trailer heavy-duty asphalt-paved parking spaces, and heavy-duty asphalt-paved driveways;
- Pedestrian regular asphalt-paved parking on the western exterior side of the building; and,
- Pedestrian regular concrete-paved sidewalks on the western exterior side and connecting to proposed Frances Harper Drive on the right-of-way.
- The stormwater bioretention area, which includes a low permeability liner and underdrain.

The development components constructed during the redevelopment on Unit 1 that may serve as engineering controls are shown on the Capping Exhibit included as Figure 2 of this report.

8.0 CLOSING

This Unit 1 Completion Report documents the earthwork activities completed as part of the Unit 1 redevelopment and documents the completion of BDH's requirements under the SMP.

1. Soil Tracking – during mass grading and redevelopment of Unit 1, soils that were relocated either onto Unit 1 or away from Unit 1 to other parts of the Facility were tracked, the soil movements were confirmed to be in compliance with the SMP.

2. Unpaved Area Sampling –BDH performed soil sampling, analysis, and risk assessment in unpaved areas and demonstrated that facility soils placed in these areas do not pose an unacceptable risk to future receptors.

3. New Surface Sampling – BDH performed soil sampling from the new soil stratum created by soil removal in areas where soil was cut by BDH during mass grading. Constituents were not detected at concentrations greater than applicable MSCs in these soils.

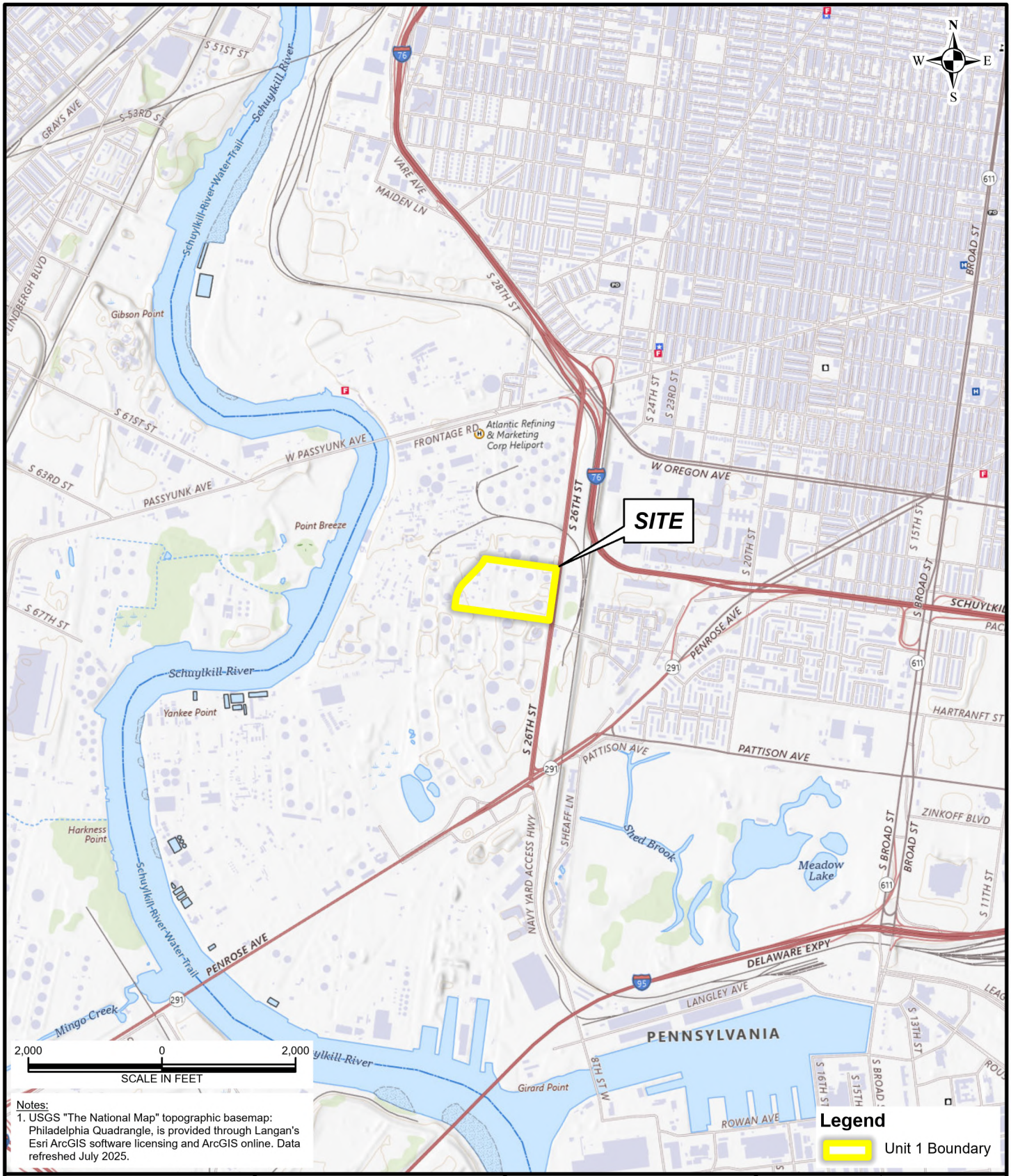
4. Vapor Intrusion Assessment – BDH prophylactically installed a vapor mitigation system at the Unit 1 building and conducted sampling that demonstrated the mitigation system is not needed to mitigate potential vapor intrusion in accordance with PADEP Guidance.

5. Soil Engineering Controls – BDH documented the development components that may serve as engineering controls in either Evergreen or BDH Act 2 Cleanup Plans for the Facility.

9.0 REFERENCES

- Authorization to Discharge under the National Pollutant Discharge Elimination System (NPDES) Individual Permit for Discharges of Stormwater Associated with Construction Activities, PADEP, December 2022.
- Consent Order and Agreement, Commonwealth of Pennsylvania Department of Environmental Protection, Evergreen, Inc. (R&M), December 17, 2003.
- Earthwork Management Plan, Pennoni, March 2023.
- First Amendment to Consent Order and Agreement, Commonwealth of Pennsylvania Department of Environmental Protection (PADEP), Evergreen (R&M) LLC. June 26, 2020.
- Management of Fill Policy, PADEP, January 2020.
- Settlement Agreement and Covenant Not to Sue among EPA, PESRM, and Philadelphia Energy Solutions LLC, Docket Number CERC/RCRA-03-2012-0224DC.
- Soil Management Plan (SMP), Terraphase Engineering Inc. (Terraphase), June 16, 2020.

Figures



Notes:
1. USGS "The National Map" topographic basemap: Philadelphia Quadrangle, is provided through Langan's Esri ArcGIS software licensing and ArcGIS online. Data refreshed July 2025.

Legend

Unit 1 Boundary

LANGAN

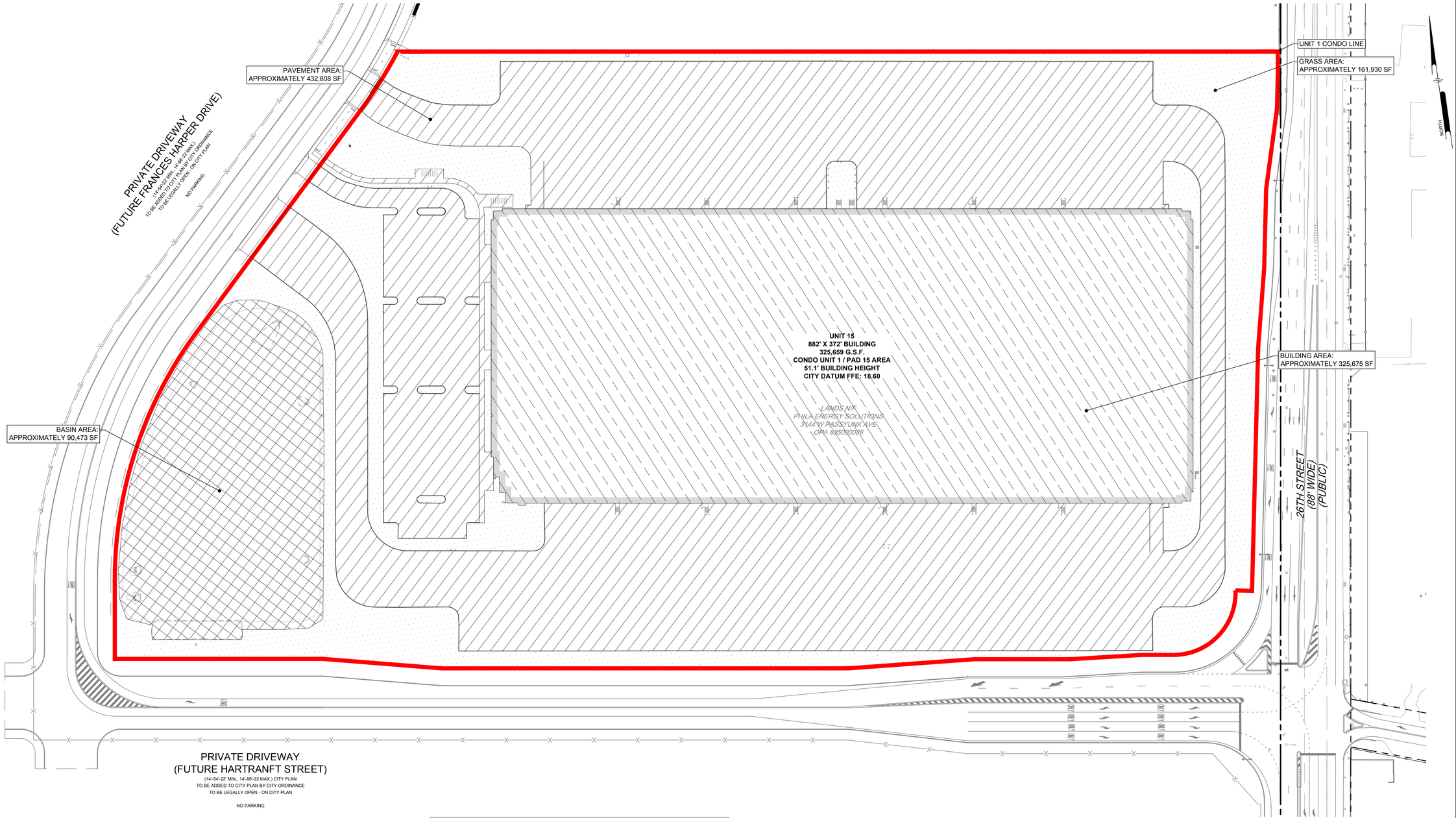
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Project	**BELLWETHER DISTRICT HOLDINGS, LLC** PHILADELPHIA PHILADELPHIA COUNTY PENNSYLVANIA
Figure Title	**SITE LOCATION MAP – UNIT 1**
Project No.	220181801
Date	8/11/2025
Scale	1"=2,000'
Drawn By	SH
Figure	1

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CAPPING AREAS		
IMPERVIOUS AREA		
	BUILDING	325,675 SF
	PAVEMENT	432,808 SF
	BASIN	90,473 SF
TOTAL IMPERVIOUS AREA		848,956 SF
PERVIOUS AREA		
	GRASS	161,930 SF
TOTAL PERVIOUS AREA		161,930 SF

NOTES:

1. BASIN AREA IS A IMPERVIOUS LINED STORMWATER BIORETENTION AREA WITH AN UNDERDRAIN AND IS, THEREFORE, INCLUDED AS AN IMPERVIOUS AREA FOR CAPPING PURPOSES.
2. GRASS AREAS ARE UNDERLAINED BY TWO FEET OF CLEAN IMPORT FILL OR ON-SITE MATERIAL THAT HAS BEEN APPROVED FOR REUSE IN THE TOP TWO FEET BASED ON A SITE-SPECIFIC RISK ASSESSMENT.

REFERENCED DOCUMENTS

PLAN PREPARED BASED INFORMATION FROM THE FOLLOWING:
1. "THE BELLWETHER DISTRICT INDUSTRIAL PAD 15, ISSUED FOR CONSTRUCTION", PREPARED BY PENNONI, DATED 2024-04-05.
2. "THE BELLWETHER DISTRICT CONDOMINIUM, ALTA/NSPS LAND TITLE SURVEY PLAN, 2625 FRANCES HARPER DRIVE, UNIT 1 - LOT 15", DRAWING NO. V0301, PREPARED BY PENNONI, LAST REVISED, 2025-09-10.
3. SITE-SPECIFIC SOIL MANAGEMENT PLAN (SOIL MANAGEMENT PLAN), PREPARED BY HRP PHILADELPHIA HOLDINGS, LLC, DATED JUNE 2020.

LEGEND

- EXISTING PROPERTY LINE
- EXISTING RIGHT-OF-WAY LINE
- EXISTING EASEMENT
- EXISTING 100 YEAR FLOODPLAIN
- EXISTING 500 YEAR FLOODPLAIN
- EXISTING FLOODWAY
- EXISTING BUILDING
- EXISTING CURB
- EXISTING SIDEWALK
- EXISTING EDGE OF GRAVEL
- EXISTING TRAFFIC MARKING
- EXISTING FENCE
- EXISTING TREE
- 15 EXISTING MAJOR CONTOUR
- 14 EXISTING MINOR CONTOUR
- 14.00 EXISTING SPOT ELEVATION
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING PEDESTRIAN/STREET LIGHT
- EXISTING FIRE HYDRANT
- EXISTING CITY INLET
- EXISTING UNDERGROUND SEWER
- S EXISTING UNDERGROUND SEWER LINE
- D EXISTING UNDERGROUND STORM LINE
- W EXISTING WATER LINE
- F EXISTING FIRE WATER LINE
- UC EXISTING UNDERGROUND COMMUNICATION LINE
- UE EXISTING UNDERGROUND ELECTRIC LINE
- UG EXISTING UNDERGROUND GAS LINE
- UR EXISTING UNDERGROUND REFINERY PIPE
- EXISTING UTILITY STRUCTURES
- PROPOSED PROPERTY/CONDO LINES
- FUTURE RIGHT-OF-WAY LINES
- PROPOSED LIMIT OF OFFSITE IMPROVEMENTS
- PROPOSED LIGHT DUTY PAVEMENT
- PROPOSED BUILDING AT GRADE
- PROPOSED DOOR
- PROPOSED BUILDING OVERHANG
- PROPOSED CONCRETE SIDEWALK
- PROPOSED LANDSCAPED AREA
- PROPOSED PARKING LOT LANDSCAPED AREA
- PROPOSED STORMWATER BASIN
- PROPOSED LANDSCAPE BUFFER
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED WALL
- PROPOSED PARKING STRIPING
- PROPOSED STOP BAR/PAVEMENT MARKING
- PROPOSED SIGN
- PROPOSED DRIVE RAMP
- PROPOSED BUILDING STAIRS
- PROPOSED PARKING LOT TREE
- PROPOSED YARD TREE
- PROPOSED BUFFER TREE
- PROPOSED STREET TREE
- PROPOSED MONUMENT
- PROPOSED LIGHT POLE
- POTENTIAL FUTURE DRIVEWAY LOCATION
- PROPOSED STORM INLET
- PROPOSED STORM MANHOLE
- PROPOSED SANITARY MANHOLE
- PROPOSED FIRE DEPT. CONNECTION (FDC)
- PROPOSED GAS METER
- PROPOSED JUNCTION BOX
- PROPOSED FIRE HYDRANT

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CALL 1-800-242-1776
PA. ACT 287 OF 1974 REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL OR BLAST PENNSYLVANIA ONE-CALL SYSTEM, INC.
SERIAL NUMBER(S): 20212173645

PENNONI ASSOCIATES INC.
1900 Market Street, Suite 300
Philadelphia, PA 19103
T 215.222.3000 F 215.222.3588

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

THE BELLWETHER DISTRICT
2626 FRANCES HARPER DR

CAPPING EXHIBIT

BELLWETHER DISTRICT HOLDINGS, LLC.
3144 W PASSYUNK AVENUE
PHILADELPHIA, PA 19145

NO.	DATE	REVISIONS	BY

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PROJECT	PESRM21001
DATE	2025-11-20
DRAWING SCALE	1"= 50"
DRAWN BY	JPR
APPROVED BY	JCM

EX-1

SHEET 1 OF 1

PLOTTED: 11/24/2025 - 1:48 PM, BY: Ian Kuttle PLOTSTYLE: Pennoni-NCS.ctb PROJECT STATUS: —
U:\Accounts\PESRM\PESRM21001 - HRS Bellwether\Land Lds & Xt\SDS\DGN_EX\BETDS2025-11-24 v.21 Capping Exhibit (ALTA Ave&Lib Survey)(EX-1).dwg

Legend

- Unit 1 Boundary
- Lot Boundaries
- Unit 1 Earthwork Source Cells

Sampling Cell Boundaries

- A (≤ NonRes DC & S-GW MSCs)
- B (> NonRes S-GW MSC only)
- E (> NonRes DC & S-GW MSCs)
- Not Classified

N W E S

Outlot 1
Lot 13
Lot 12
Lot 16
ROW-1
Shoreline Lot
Lot 11
Unit 1
ROW-2
ROW-3
ROW-4
Outlot 2
Lot 9
Lot 14
Lot 8
ROW-5
Lot 4
Outlot 3
Lot 7

IP1A-62
IP1A-02
IP1A-02
IP1A-06
IP1A-52
IP1A-56
IP1A-54
IP1A-12
IP1A-55
IP1A-51
IP1A-14
IP1A-15
IP1A-54
IP1A-54
IP1-A5-08-03
IP1-A5-08-06
IP1-A5-16
IP1-A5-15
IP1-A5-08-07
IP1-A5-17

400 0 400
SCALE IN FEET

Notes:
1. Imagery provided through Langan's subscription to Nearmap.com. Flown on 07/21/2025.

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Project
BELLWETHER DISTRICT HOLDINGS, LLC
PHILADELPHIA
PHILADELPHIA COUNTY PENNSYLVANIA

Drawing Title
EARTHWORK SOURCE CELLS – UNIT 1

Project No.	Figure
220181801	3
Date: 11/11/2025	
Scale: 1"=400'	
Drawn By: SH	

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Path: \\langan.com\data\PHL\data8\220181801\Project Data\ArcGIS\APRX\220181801_2025\220181801_2025.aprx Date: 11/11/2025 User: shennessy Time: 12:17 PM



Legend

- Unit 1 Development Plan
- Unit 1 Boundary
- Building Pad
- Impervious Surfaces
- Soil Type A - Surcharge Removed or Interim to Final Grade Cuts
- Soil Type A

125 0 125
SCALE IN FEET

Notes:
1. Imagery provided through Langan's subscription to Nearmap.com. Flown on 07/21/2025.
2. Original concept plan from 2020 shown.
3. Earthwork Fill Placement shown through 08/26/2025.
4. In areas where removed soil overlaps existing soil, the soil type layer will appear lighter in color.

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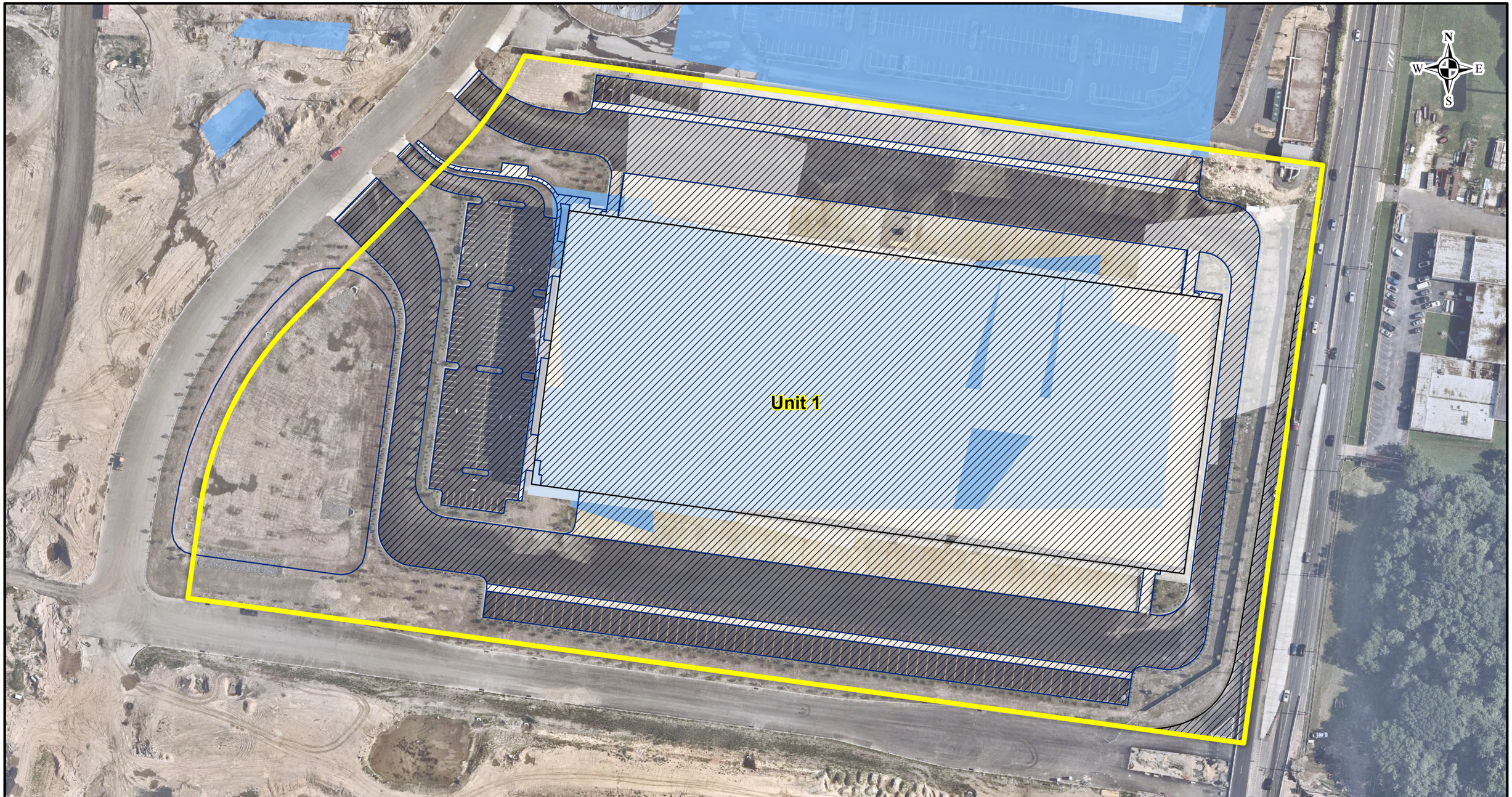
Project
BELLWETHER DISTRICT HOLDINGS, LLC
PHILADELPHIA
PHILADELPHIA COUNTY PENNSYLVANIA

Drawing Title
CATEGORY A SOILS PLACED AT UNIT 1

Project No. 220181801	Figure 4A
Date 4/2/2026	
Scale 1"=125'	
Drawn By SH	

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Path: \\langan.com\data\PHL\data8\220181801\Project Data\ArcGIS\APRX\220181801_2025\220181801_2025.aprx Date: 4/2/2026 User: shennessy Time: 12:04 PM



Legend

- Unit 1 Development Plan
- Unit 1 Boundary
- Building Pad
- Impervious Surfaces
- Soil Type B - Surcharge Removed or Interim to Final Grade Cuts
- Soil Type B

125 0 125
SCALE IN FEET

Notes:
1. Imagery provided through Langan's subscription to Nearmap.com. Flown on 07/21/2025.
2. Original concept plan from 2020 shown.
3. Earthwork Fill Placement shown through 08/26/2025.
4. In areas where removed soil overlaps existing soil, the soil type layer will appear lighter in color.

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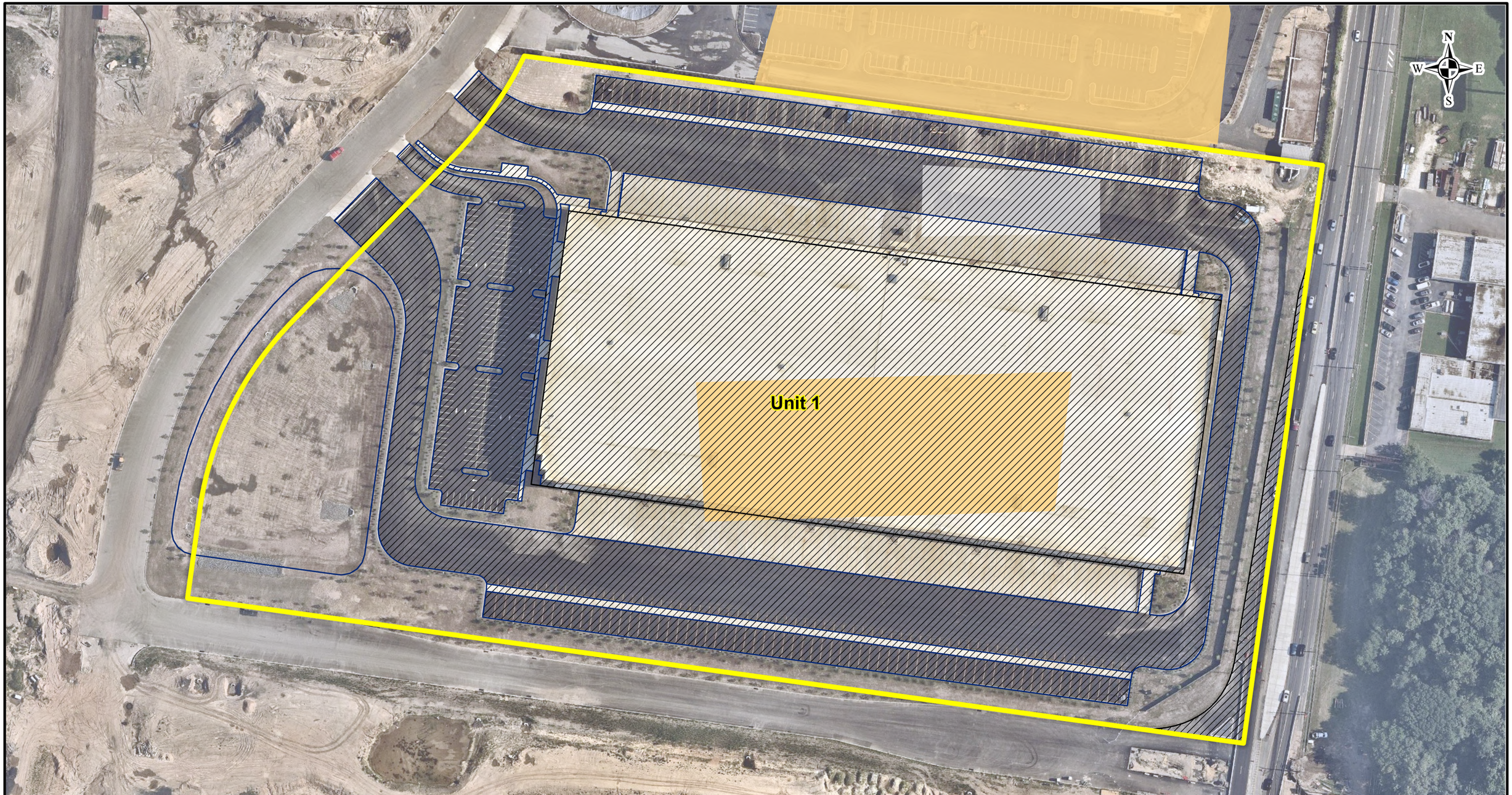
Project
BELLWETHER DISTRICT HOLDINGS, LLC
PHILADELPHIA
PHILADELPHIA COUNTY PENNSYLVANIA

Drawing Title
CATEGORY B SOILS PLACED AT UNIT 1

Project No.	220181801
Date	4/2/2026
Scale	1"=125'
Drawn By	SH
Figure	4B

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Path: \\langan.com\data\PHL\data8\220181801\Project Data\ArcGIS\APRX\220181801_2025\220181801_2025.aprx Date: 4/2/2026 User: shennessy Time: 12:12 PM



Legend

- Unit 1 Development Plan
- Unit 1 Boundary
- Building Pad
- Impervious Surfaces
- Soil Type E - Surcharge Removed or Interim to Final Grade Cuts
- Soil Type E

125 0 125
SCALE IN FEET

Notes:
1. Imagery provided through Langan's subscription to Nearmap.com. Flown on 07/21/2025.
2. Original concept plan from 2020 shown.
3. Earthwork Fill Placement shown through 08/26/2025.
4. In areas where removed soil overlaps existing soil, the soil type layer will appear lighter in color.

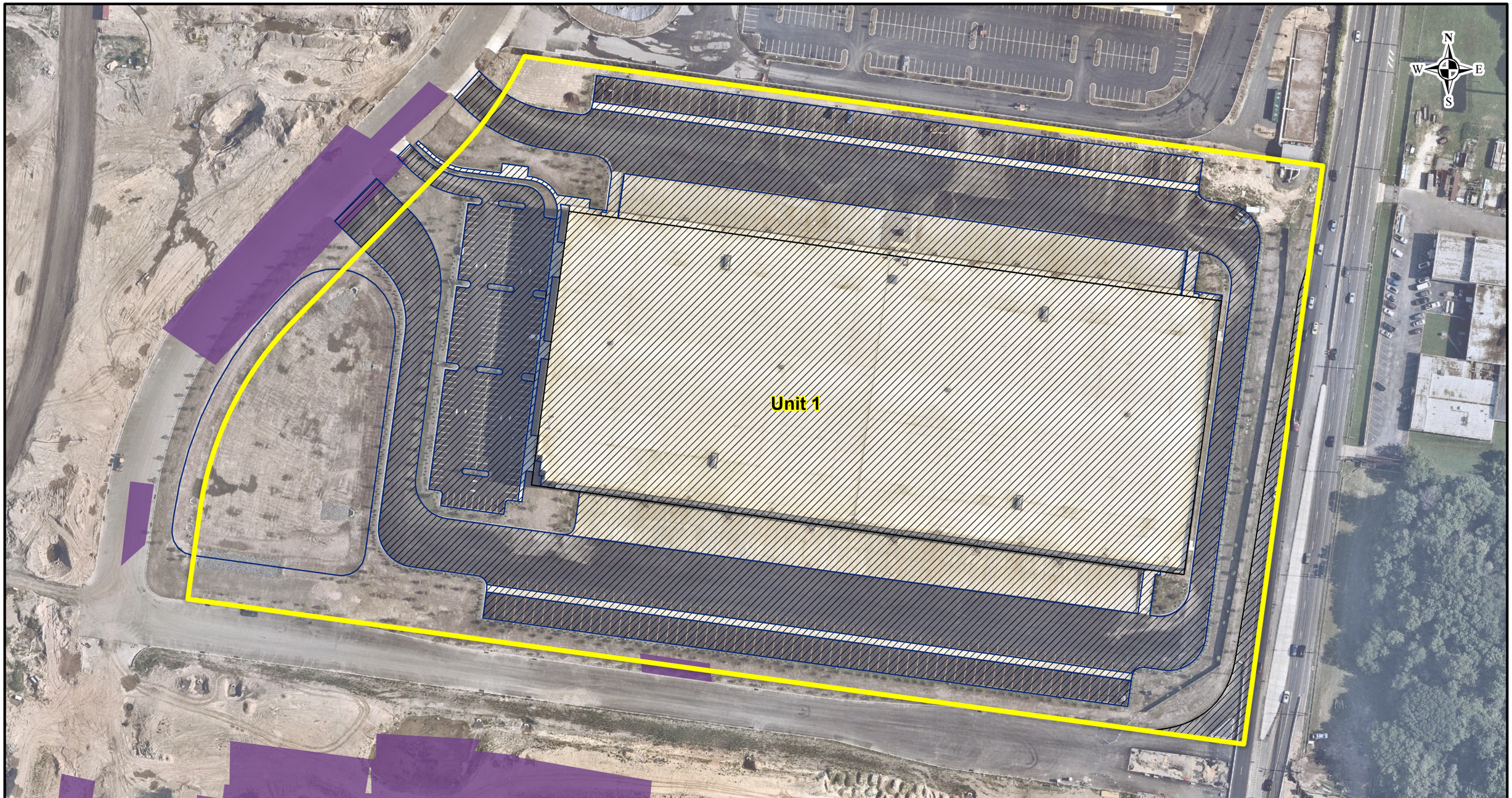
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Project
BELLWETHER DISTRICT HOLDINGS, LLC
PHILADELPHIA
PHILADELPHIA COUNTY PENNSYLVANIA

Drawing Title
CATEGORY E SOILS PLACED AT UNIT 1

Project No.	220181801
Date	4/2/2026
Scale	1"=125'
Drawn By	SH
Figure	4C

© 2026 Langan



Legend

- Unit 1 Development Plan
- Unit 1 Boundary
- Building Pad
- Impervious Surfaces
- Soil Type U

125 0 125
SCALE IN FEET

Notes:
1. Imagery provided through Langan's subscription to Nearmap.com. Flown on 07/21/2025.
2. Original concept plan from 2020 shown.
3. Earthwork Fill Placement shown through 08/26/2025.
4. In areas where removed soil overlaps existing soil, the soil type layer will appear lighter in color.

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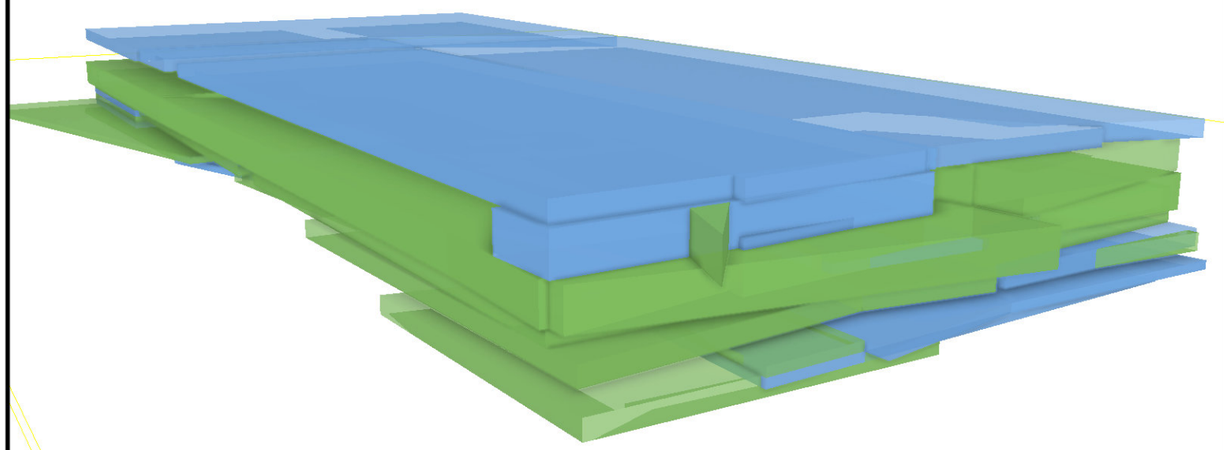
Project
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PHILADELPHIA COUNTY PENNSYLVANIA

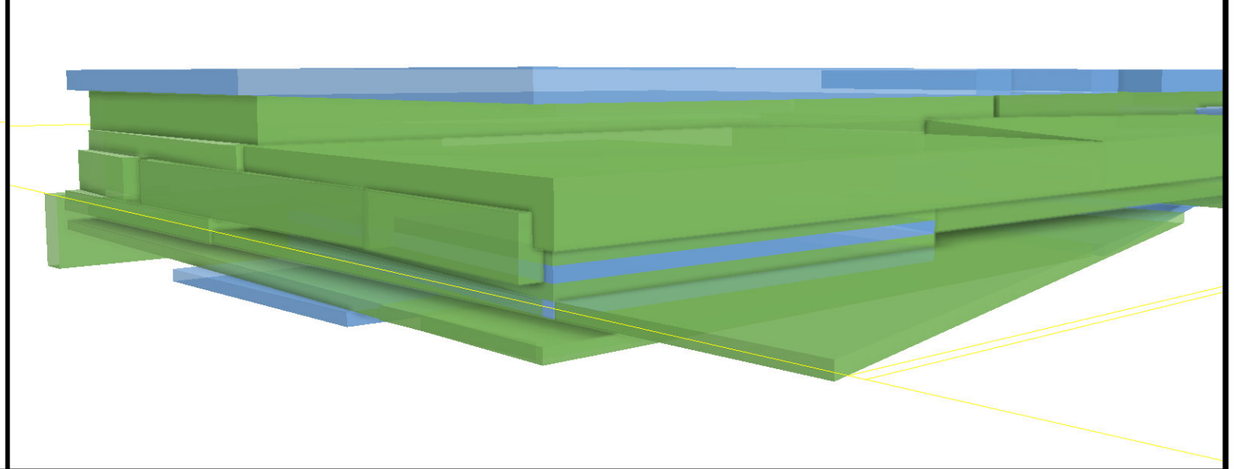
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UNCLASSIFIED SOILS PLACED AT UNIT 1

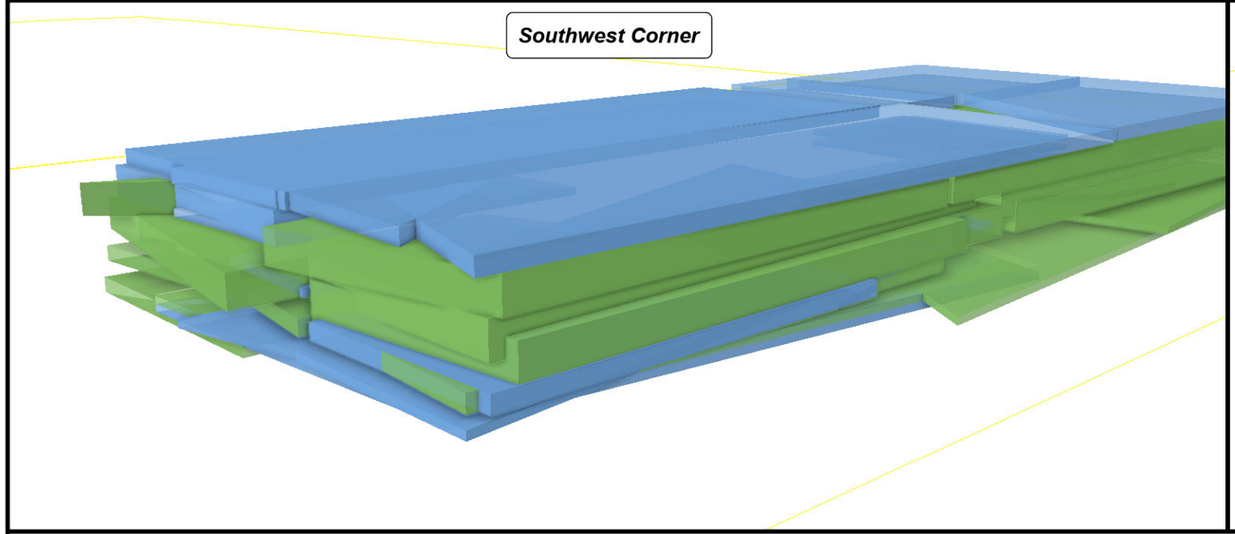
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Date: 4/2/2026	
Scale: 1"=125'	
Drawn By: SH	

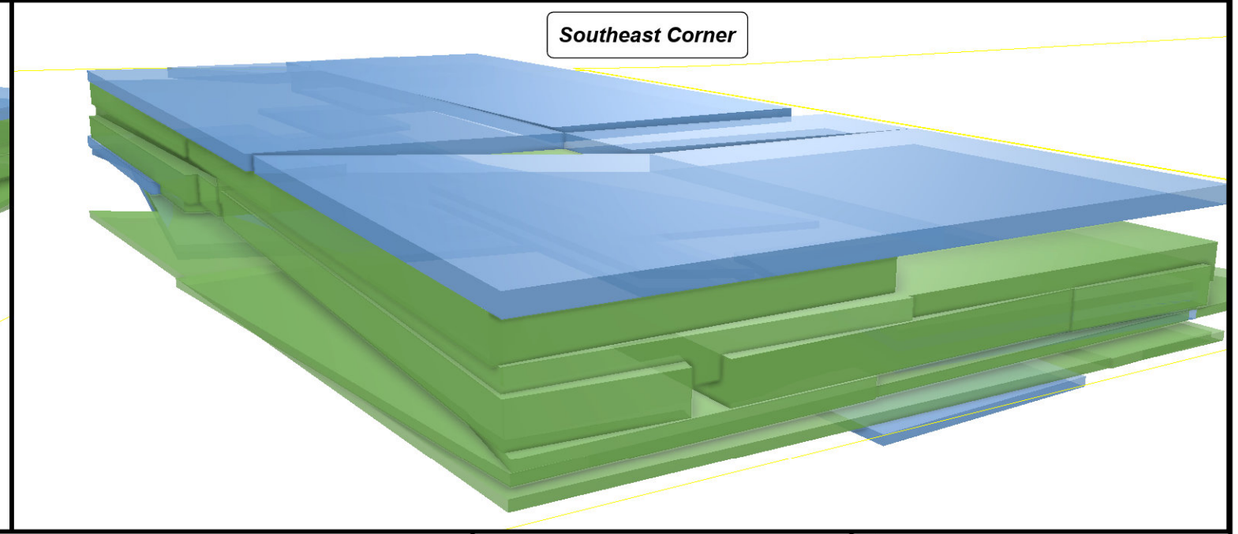
© 2026 Langan

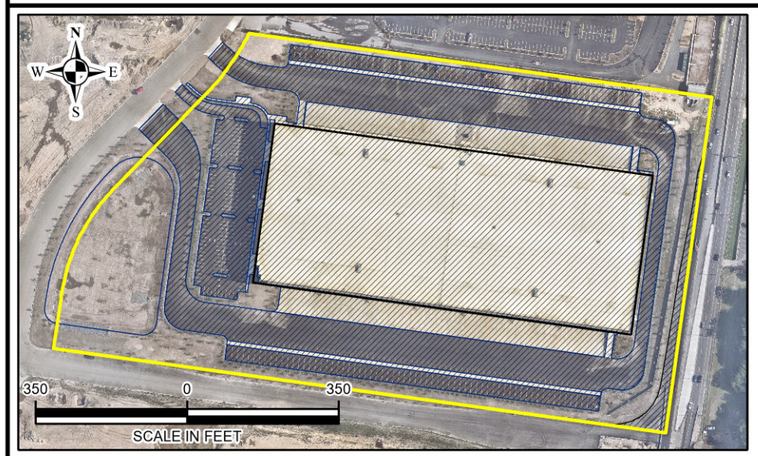
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Legend

- Unit 1 Development Plan
- Unit 1 Boundary
- Building Pad
- Impervious Surfaces
- A Soils
- B Soils
- E Soils
- U Soils

Notes:

1. Mapped soil fill locations are based on coordinates and fill depths provided by JDM.
2. Fill areas without depth data are mapped with 0.5 ft. thickness.
3. Image depicted with 10x vertical exaggeration.
4. Original concept plan from 2020 shown.
5. Imagery provided through Langan's subscription toNearmap.com. Flown on 07/21/2025.

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Project

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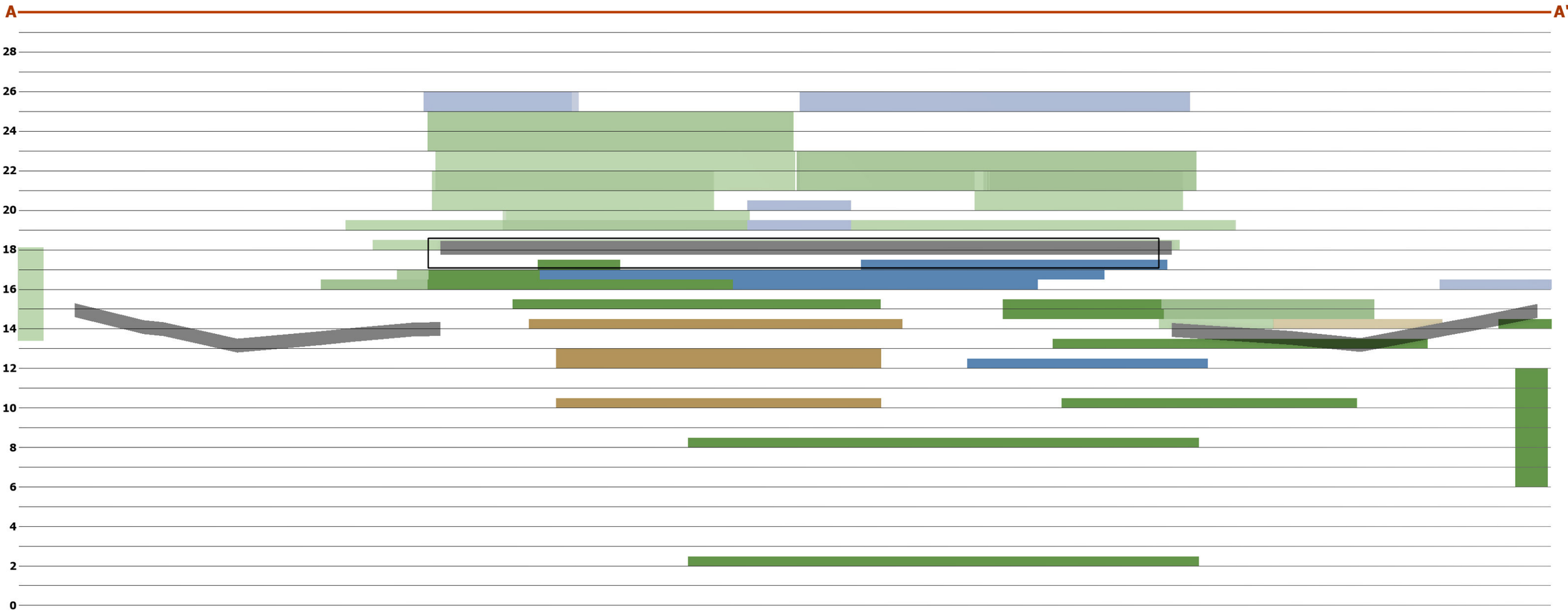
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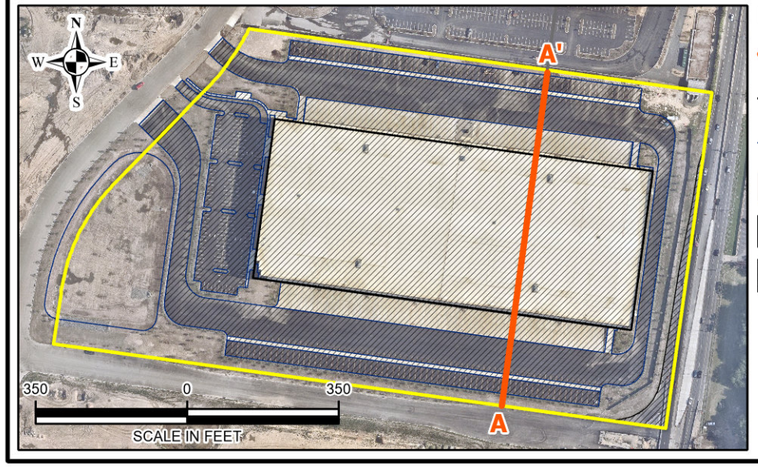
SURCHARGE VIEWS – UNIT 1

Project No.	220181801
Date	3/5/2026
Scale	SEE MAP
Drawn By	SH
Figure	4E

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Path: \\langan.com\data\PHL\data8\220181801\Project Data\ArcGIS\APRX\3D Soil Mapping\3D Soil Mapping\3D Soil Mapping.aprx Date: 3/5/2026 User: jfraser Time: 3:23 PM





Legend

- Cross Section A-A'
- Elevation (Philadelphia City Datum, Feet)
- Unit 1 Development Plan
- Unit 1 Boundary
- Building Pad
- Impervious Surfaces

50 0 50
HORIZONTAL SCALE IN FEET

- Parking Lots, Roadways, Drive Aisles, and Building Pad (impervious surfaces)

Soil Placement (transparent where surcharge removed or interim to final grade cut)

- A Soils
- B Soils
- E Soils

Notes:
1. Imagery provided through Langan's subscription to Nearmap.com. Flown on 07/21/2025.
2. Mapped soil fill locations are based on coordinates and fill depths provided by JDM.
3. Fill areas without depth data are mapped with 0.5 ft thickness.
4. Cross section is depicted with 10x vertical exaggeration.
5. Original concept plan from 2020 shown.
6. Impervious surface elevation profile is based on drawing titled PESRM21001-CG-GP-LOT15-SUBGRADE provided by Pennoni on 4/3/2024.

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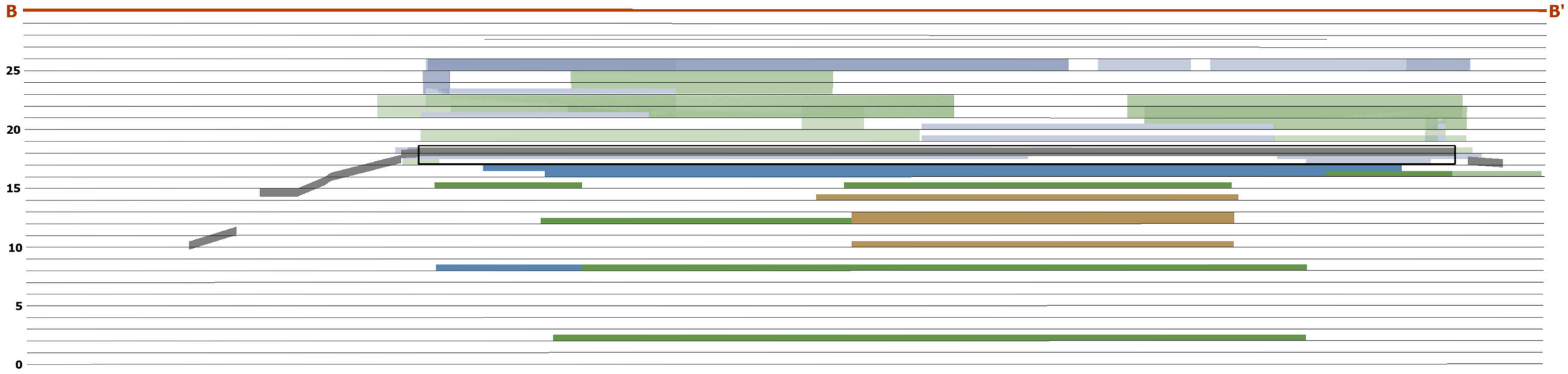
Project
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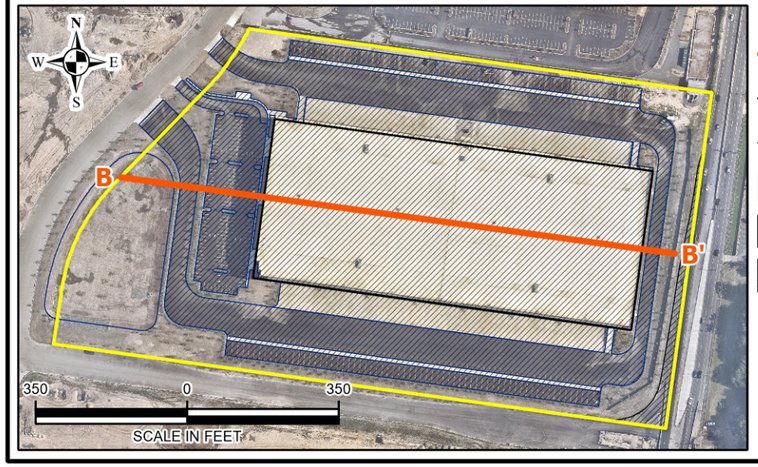
Drawing Title
CROSS SECTION A-A' – UNIT 1

Project No.	220181801
Date	3/5/2026
Scale	SEE MAP
Drawn By	SH
Figure	4F

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Path: \\langan.com\data\PHL\data8\220181801\Project Data\ArcGIS\APRX\3D Soil Mapping\3D Soil Mapping\3D Soil Mapping.aprx Date: 3/5/2026 User: jfraser Time: 3:24 PM





Legend

- Cross Section B-B'
- Elevation (Philadelphia City Datum, Feet)
- Unit 1 Development Plan
- Unit 1 Boundary
- Building Pad
- Impervious Surfaces

80 0 80
HORIZONTAL SCALE IN FEET

- Parking Lots, Roadways, Drive Aisles, and Building Pad (impervious surfaces)

Soil Placement (transparent where surcharge removed or interim to final grade cut)

- A Soils
- B Soils
- E Soils

Notes:
1. Imagery provided through Langan's subscription to Nearmap.com. Flown on 07/21/2025.
2. Mapped soil fill locations are based on coordinates and fill depths provided by JDM.
3. Fill areas without depth data are mapped with 0.5 ft thickness.
4. Cross section is depicted with 10x vertical exaggeration.
5. Original concept plan from 2020 shown.
6. Impervious surface elevation profile is based on drawing titled PESRM21001-CG-GP-LOT15-SUBGRADE provided by Pennoni on 4/3/2024.

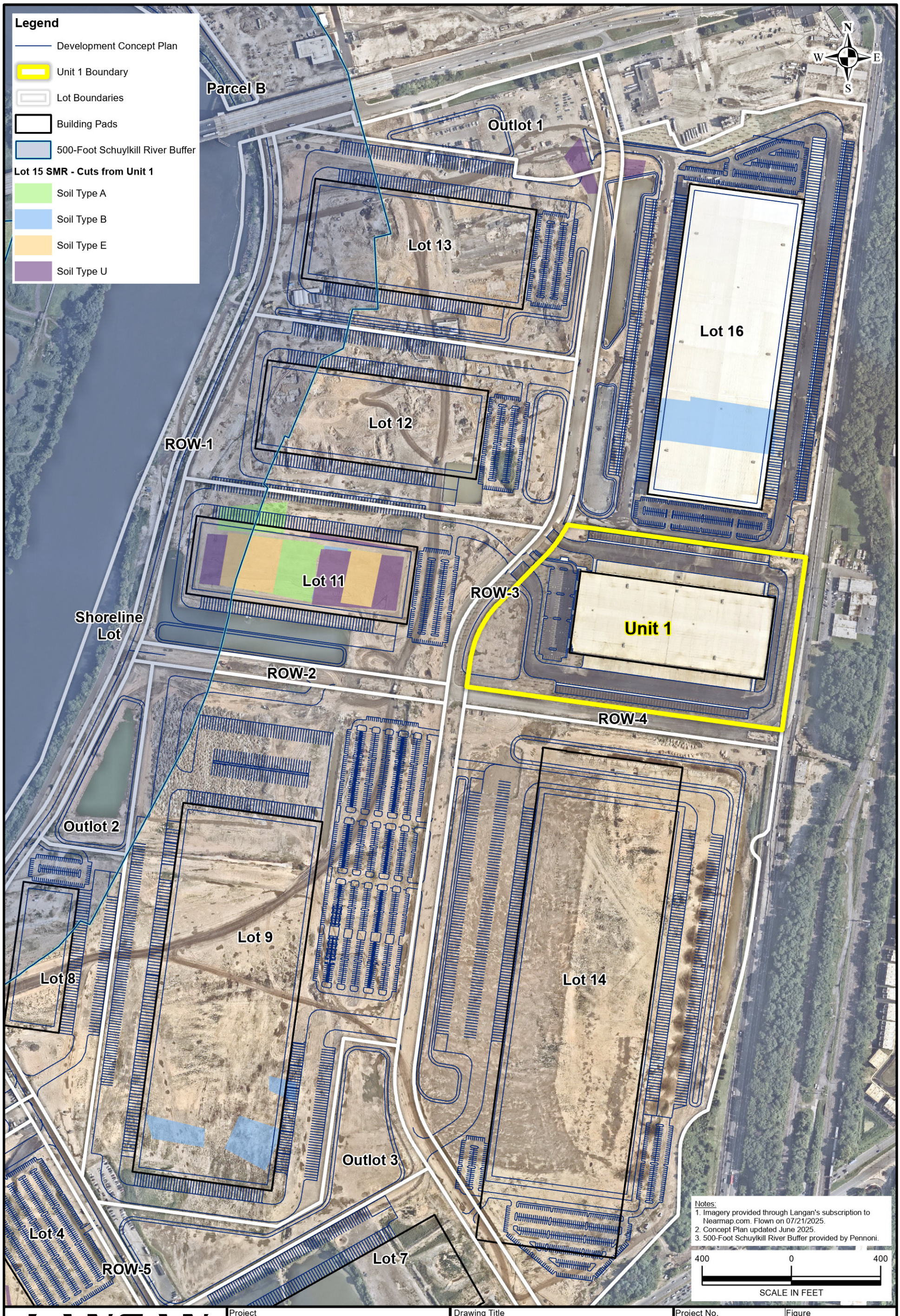
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BELLWETHER DISTRICT HOLDINGS, LLC
PHILADELPHIA
PHILADELPHIA COUNTY PENNSYLVANIA

Drawing Title
CROSS SECTION B-B' – UNIT 1

Project No.	220181801
Date	3/5/2026
Scale	SEE MAP
Drawn By	SH
Figure	4G

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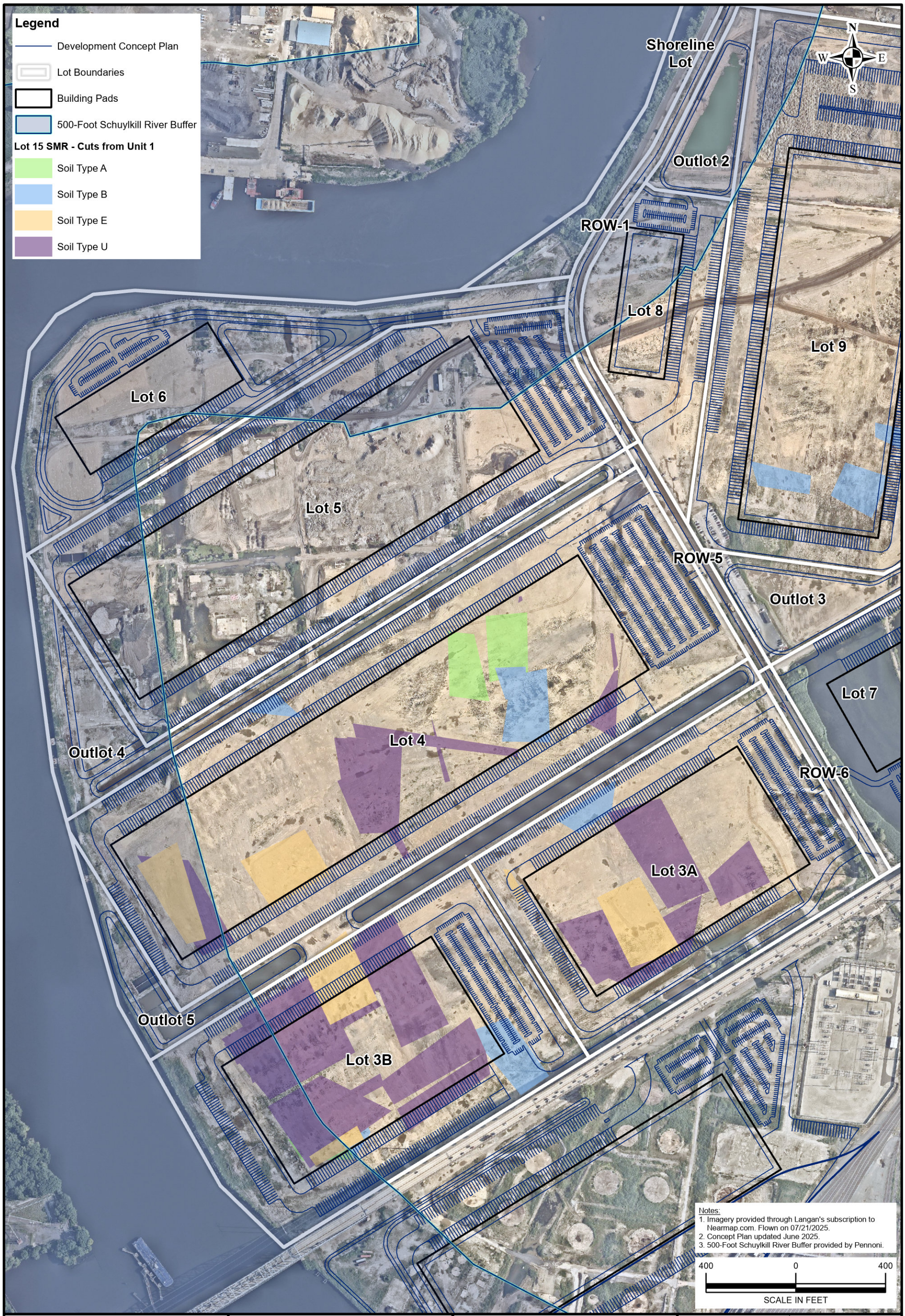
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Project
BELLWETHER DISTRICT HOLDINGS, LLC
PHILADELPHIA
PHILADELPHIA COUNTY PENNSYLVANIA

Drawing Title
SOIL CUT FROM UNIT 1 AND RELOCATED TO THE FACILITY – NORTH

Project No. 220181801	Figure 5A
Date 3/5/2026	
Scale 1"=400'	
Drawn By SH	

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Project
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PHILADELPHIA
PHILADELPHIA COUNTY PENNSYLVANIA

Drawing Title
SOIL CUT FROM UNIT 1 AND RELOCATED TO THE FACILITY – SOUTH

Project No.	Figure
220181801	5B
Date: 3/5/2026	
Scale: 1"=400'	
Drawn By: SH	

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Appendix A
Civil Construction Grading Plans and Cut/Fill Exhibits

THE BELLWETHER DISTRICT

EARTHWORK MANAGEMENT PLAN EXHIBITS
L&I PERMIT SP-2022-000403

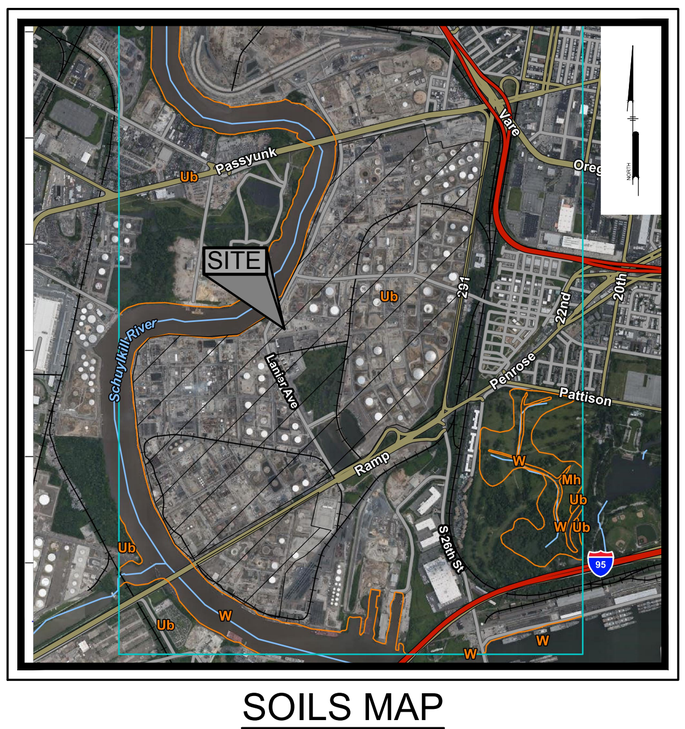
PREPARED FOR:

OWNER/DEVELOPER

PHILADELPHIA ENERGY SOLUTIONS REFINING AND MARKETING LLC

3144 PASSYUNK AVENUE,

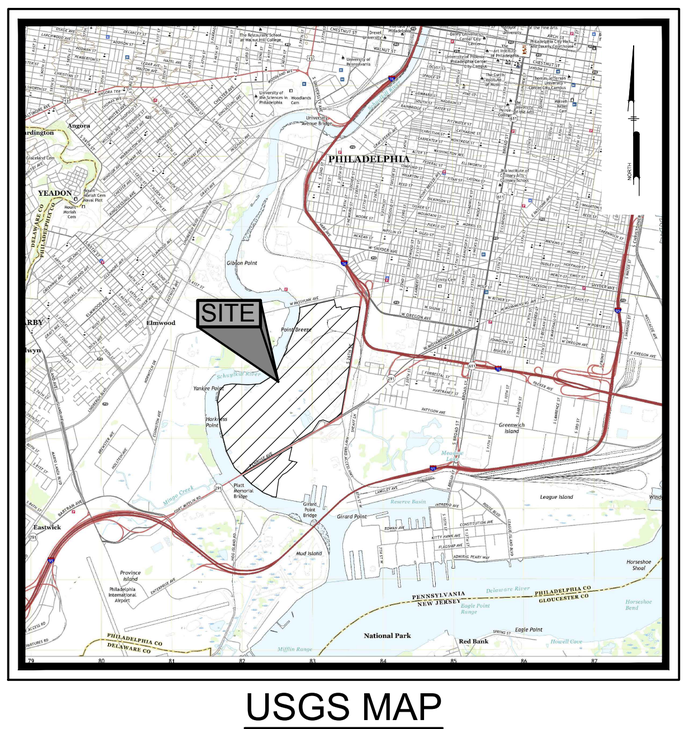
PHILADELPHIA, PA 19145



SOILS MAP
Scale: 1" = 2000'



LOCATION MAP
Scale: 1" = 3000'



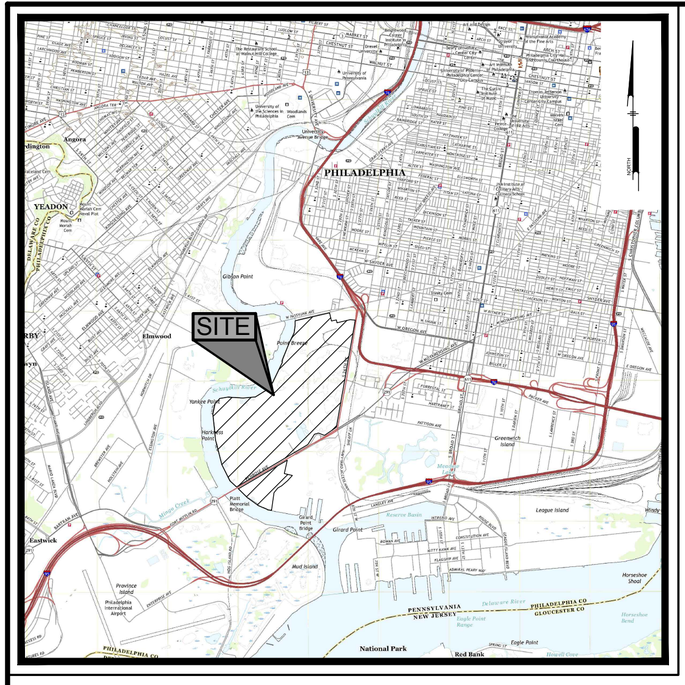
USGS MAP
Scale: 1" = 5000'

SHEET LIST TABLE			
PAGE	SHEET TITLE	ISSUED DATE	REVISED DATE
1	GRADING PLAN	2/28/2023	
2	CUT FILL EXHIBIT - EXISTING GRADE TO SITE PREPARATION	2/28/2023	
3	SOIL SAMPLING EXHIBIT	2/28/2023	
4	SOIL CAP EXHIBIT	2/28/2023	

PREPARED BY:

PENNONI ASSOCIATES INC.

1900 Market Street, Suite 300
Philadelphia, PA 19103
T 215.222.3000
F 215.222.3588



LOCATION MAP

Scale: 1" = 5000'

REVISIONS			
NO.	DESCRIPTION	DATE	BY

NORTH

METAL TANK FRAME & REMAINS

TANK

PASSYUNK AVENUE (120' WIDE) (PUBLIC)

PROPOSED 10 FT WIDE DIVERSION BERM TO BE ESTABLISHED 3 FT ABOVE EXISTING FINISHED GRADE

TANK 7300

TANK 7308

TANK 7306

TANK 7307

TANKS

TANK PARTIALLY DEMOLISHED

TANK 30

PROPOSED 10 FT WIDE DIVERSION BERM TO BE ESTABLISHED 3 FT ABOVE EXISTING FINISHED GRADE

PROPOSED 10 FT WIDE DIVERSION BERM TO BE ESTABLISHED 3 FT ABOVE EXISTING FINISHED GRADE

PROPOSED 10 FT WIDE DIVERSION BERM TO BE ESTABLISHED 3 FT ABOVE EXISTING FINISHED GRADE

26TH STREET (68' WIDE) (PUBLIC)

TANK 54

TANK IN TUB

RM-100

TANK 150

TANK 151

TANK 152

TANK 841

TANK 840

TANK 833

TANK 883

Approximate Location of Unit 1, Lot 15

PROPOSED L&I PERMIT LIMIT OF DISTURBANCE 3,835,204 SF (88.04 AC)

FLOOD ELEVATIONS	CITY DATUM	NGVD29 DATUM	NAVD88 DATUM
AT PASSYUNK AVENUE			
500 YEAR FLOOD ELEV.	6.76	12.60	11.17
100 YEAR FLOOD ELEV.	4.16	10.00	8.57
AT PENROSE AVENUE			
500 YEAR FLOOD ELEV.	6.76	12.60	11.17
100 YEAR FLOOD ELEV.	5.16	11.00	9.57

NOTES:
1.) BUILDING FFE SET A MINIMUM OF 4 FT ABOVE THE 100 YEAR FLOOD ELEVATION AND ABOVE THE 500 YEAR FLOOD ELEVATION.
2.) REFERENCE SOIL MANAGEMENT PLAN, DATED JUNE 15TH 2020.

NOTES:
1.) THIS EXHIBIT ILLUSTRATES THE PROPOSED DESIGN ELEVATIONS FOR THE PROPOSED SITE PREPARATION GRADES AND BUILDING PAD SURCHARGE FOR THE L&I PERMIT SP-2022-000403 GRADING, PREPARED BY PENNONI ASSOCIATES, DATED 2022-10-19.
2.) THIS PLAN ASSUMES LOT 15 BUILDING FFE AT ELEVATION 18.60 AND LOT 16 BUILDING FFE AT ELEVATION 23.60.
3.) EXISTING MINOR CONTOURS ARE NOT DISPLAYING FOR EXHIBIT CLARITY.

SURCHARGE ASSUMPTIONS
- SURCHARGE TOP EDGE OFFSET 10 FT FROM FACE OF BUILDING
- SURCHARGE SIDE SLOPE 1:1 TO BOTTOM EDGE
- SURCHARGE BOTTOM SET AT PROPOSED SUBGRADE OF BUILDING PAD

SURCHARGE VALUES LISTED BELOW:
- LOT 15 = 8.0 FT HIGH SURCHARGE STARTING AT ELEVATION 17.10. (TOP ELEVATION AT ELEVATION 25.10.)
- LOT 16 = 5.4 FT HIGH SURCHARGE STARTING AT ELEVATION 22.10. (TOP ELEVATION AT ELEVATION 27.50.)

0 150' 300'

PENNONI ASSOCIATES INC.
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Philadelphia, PA 19103
T 215.222.3000 F 215.222.3588

ALL DOCUMENTS PREPARED BY PENNONI ASSOCIATES ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON THE EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY PENNONI ASSOCIATES FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO PENNONI ASSOCIATES; AND OWNER SHALL INDEMNIFY AND HOLD HARMLESS PENNONI ASSOCIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

EARTHWORK MANAGEMENT PLAN - L&I PERMIT SP-2022-000403
3144 W. PASSYUNK AVENUE
PHILADELPHIA, PA 19153

GRADING AND SURCHARGE PLAN

PHILADELPHIA ENERGY SOLUTIONS REFINING AND MARKETING LLC
3144 W. PASSYUNK AVENUE
PHILADELPHIA, PA 19153

PROJECT	PESRM21001
DATE	2023-02-28
DRAWING SCALE	1" = 150'
DRAWN BY	0105
APPROVED BY	JCM

REVISIONS			
NO.	DESCRIPTION	DATE	BY



LOCATION MAP

Scale: 1" = 5000'

CUT FILL RANGE TABLE		
COLOR	DEPTH	
	-28.00	-15.00
	-15.00	-10.00
	-10.00	-5.00
	-5.00	0.00
	0.00	5.00
	5.00	10.00
	10.00	15.00
	15.00	20.00

FLOOD ELEVATIONS	CITY DATUM	NGVD29 DATUM	NAVD88 DATUM
AT PASSYUNK AVENUE			
500 YEAR FLOOD ELEV.	6.76	12.60	11.17
100 YEAR FLOOD ELEV.	4.16	10.00	8.57
AT PENROSE AVENUE			
500 YEAR FLOOD ELEV.	6.76	12.60	11.17
100 YEAR FLOOD ELEV.	5.16	11.00	9.57

NOTES:
1.) BUILDING FFE SET A MINIMUM OF 4 FT ABOVE THE 100 YEAR FLOOD ELEVATION AND ABOVE THE 500 YEAR FLOOD ELEVATION.
2.) REFERENCE SOIL MANAGEMENT PLAN, DATED JUNE 15TH 2020.

NORTH

PARCEL #77-3611000 N/F LANDS OF CITY OF PHILADELPHIA GAS WORKS

PARCEL #48-2302800 N/F LANDS OF CHARLES A. PATRICIA ORLANDO

METAL TANK FRAME & REMAINS

TANK

PASSYUNK AVENUE (120' WIDE) (PUBLIC)

PARCEL #88-4097024 LANDS N/F SUNOCO PARTNERS MARKETING & TERMINALS L.P. DOC. ID #52228486

TANK 7300

TANK 7308

TANK 7306

TANK 7307

TANKS

PHASE 1 ROW CUT FILL VOLUMES
LOT AREA: 7.9 AC±
CUT: 72,115 CY
FILL: 2,863 CY
NET CONDITION: 69,252 CY CUT

LOT 16 CUT FILL VOLUMES
CITY DATUM FFE: 23.60
LOT AREA: 47.7 AC±
CUT: 226,297 CY
FILL: 201,647 CY
NET CONDITION: 24,640 CY CUT

Approximate Location of Unit 1, Lot 15

26TH STREET (68' WIDE) (PUBLIC)

LOT 11 CUT FILL VOLUMES
LOT AREA: 6.4 AC±
CUT: 59,728 CY
FILL: 3,002 CY
NET CONDITION: 56,726 CY CUT

LOT 15 CUT FILL VOLUMES
CITY DATUM FFE: 18.60
LOT AREA: 22.6 AC±
CUT: 42,148 CY
FILL: 203,723 CY
NET CONDITION: 161,575 CY FILL

TANK 54
TANK
TANK 150
TANK 841
TANK 840
TANK 833
TANK 883

NOTES:
1.) THIS EXHIBIT COMPARES THE CHANGE IN EXISTING FINISHED GRADES FROM "EXISTING CONDITIONS ALTA SURVEY", PREPARED BY DYNAMIC ENGINEERING DATED 2021-10-06 AND PROPOSED SITE PREPARATION GRADES AND BUILDING PAD SURCHARGE FROM L&I PERMIT SP-2022-000403 GRADING, PREPARED BY PENNONI ASSOCIATES, DATED 2022-10-19. IT IS ESTIMATED THE NET EARTH WORK CONDITION FOR THE L&I PERMIT SP-2022-000403 GRADING IS APPROX. 10,925 CY OF FILL.
2.) AS NOTED ON SHEET 4, "SOIL CAP EXHIBIT", AN ADDITIONAL 119,574 CY OF SOIL WILL BE REMOVED TO PROGRESS FROM INTERIM GRADE TO FINAL SUBGRADE.

SURCHARGE ASSUMPTIONS
- SURCHARGE TOP EDGE OFFSET 10 FT FROM FACE OF BUILDING
- SURCHARGE SIDE SLOPE 1:1 TO BOTTOM EDGE
- SURCHARGE BOTTOM SET AT PROPOSED SUBGRADE OF BUILDING PAD

SURCHARGE VALUES LISTED BELOW:
- LOT 15 = 8.0 FT HIGH SURCHARGE STARTING AT ELEVATION 17.10. (TOP ELEVATION AT ELEVATION 25.10.)
- LOT 16 = 5.4 FT HIGH SURCHARGE STARTING AT ELEVATION 22.10. (TOP ELEVATION AT ELEVATION 27.50.)

0 150' 300'

PENNONI ASSOCIATES INC.
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ALL DOCUMENTS PREPARED BY PENNONI ASSOCIATES ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON THE EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY PENNONI ASSOCIATES FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO PENNONI ASSOCIATES; AND OWNER SHALL INDEMNIFY AND HOLD HARMLESS PENNONI ASSOCIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

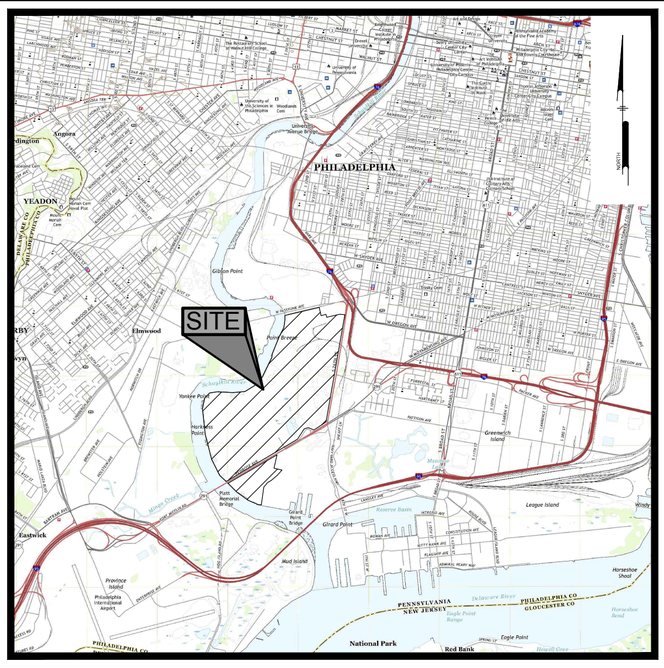
EARTHWORK MANAGEMENT PLAN - L&I PERMIT SP-2022-000403
3144 W. PASSYUNK AVENUE
PHILADELPHIA, PA 19153

CUT FILL EXHIBIT -
EXISTING GRADE TO SITE PREPARATION

PHILADELPHIA ENERGY SOLUTIONS REFINING AND MARKETING LLC
3144 W. PASSYUNK AVENUE
PHILADELPHIA, PA 19153

PROJECT	PESRM21001
DATE	2023-02-28
DRAWING SCALE	1" = 150'
DRAWN BY	0105
APPROVED BY	JCM

REVISIONS			
NO.	DESCRIPTION	DATE	BY



LOCATION MAP

Scale: 1" = 5000'

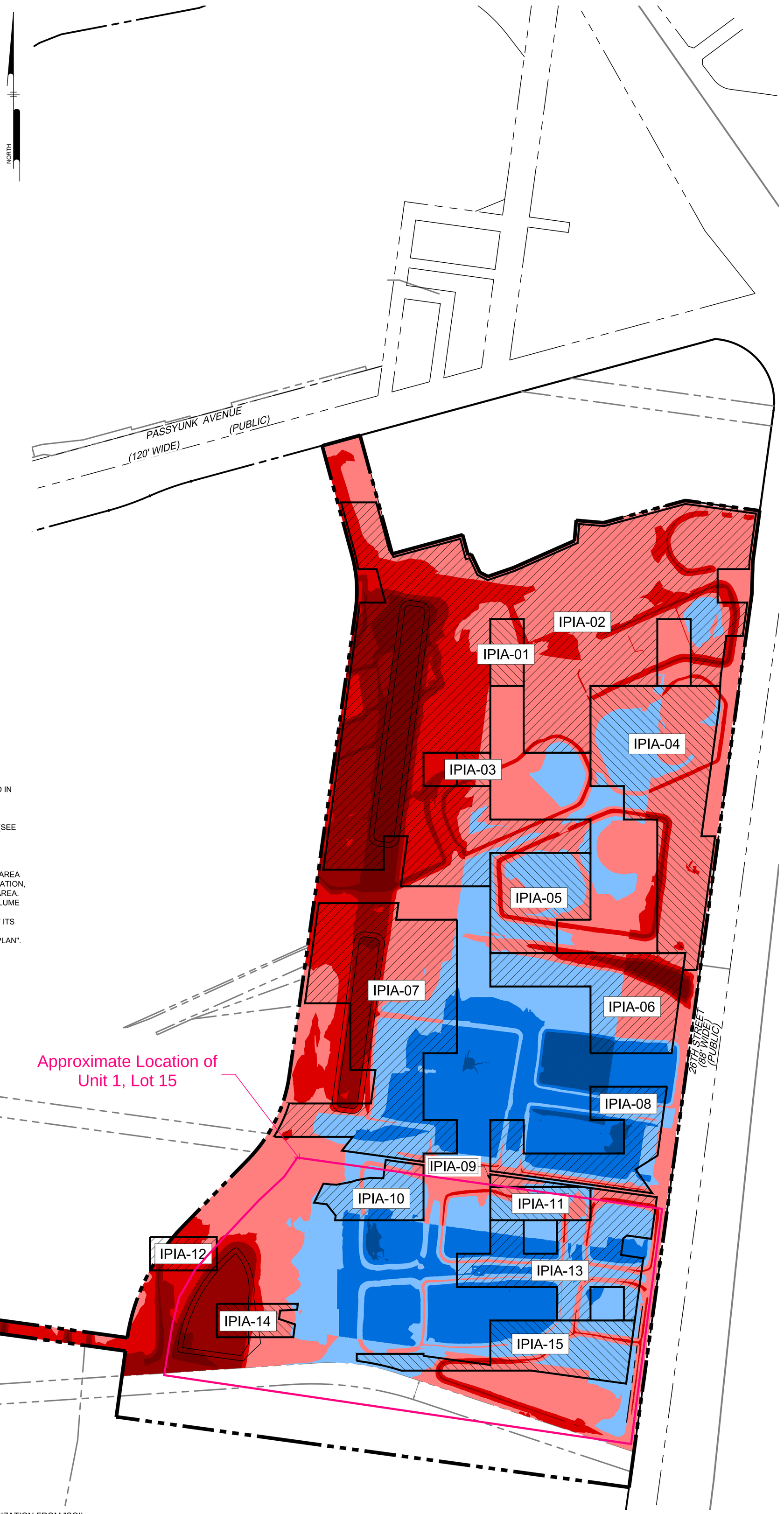
TESTING AREA	SOIL TYPE	CUT (CY)
IP1A-02	B	210,620.00
IP1A-06	B	12,433.00
IP1A-07	B	33,852.00
IP1A-09	B	1,094.00
IP1A-10	B	206.00
IP1A-12	B	5,392.00
IP1A-13	B	2,576.00
B SOIL TOTAL		**266,173.00**
IP1A-01	E	2,947.00
IP1A-03	E	2,585.00
IP1A-04	E	13,847.00
IP1A-05	E	3,036.00
IP1A-11	E	1,170.00
IP1A-14	E	6,060.00
IP1A-15	E	2,705.00
E SOIL TOTAL		**32,350.00**
REMAINING AREA	A	**199,384.00**
TOTAL CUT		**497,907.00**

SOIL TYPE A (NO HATCH)

SOIL TYPE B

SOIL TYPE E

SOIL CLASSIFICATION NOTES:
1.) MATERIAL EXCAVATED FROM AREAS IDENTIFIED AS SOIL "TYPE A" SOIL MAY BE PLACED IN LANDSCAPED AREAS.
2.) MATERIAL EXCAVATED FROM AREAS IDENTIFIED AS SOIL "TYPE B" MUST BE PLACED UNDER AN AREA THAT WILL HAVE AN IMPERVIOUS CAP IN THE FINAL DEVELOPED CONDITION OR IN LANDSCAPED AREAS THAT ARE MORE THAN 500FT FROM A SHORELINE (SEE 'SOIL CAP EXHIBIT,' WHICH DEFINES IMPERVIOUS CAP AREAS ON LOTS 15 AND 16).
3.) MATERIAL EXCAVATED FROM AREAS IDENTIFIED AS SOIL "TYPE E" MUST BE PLACED UNDER AN AREA THAT WILL HAVE AN IMPERVIOUS CAP IN THE FINAL DEVELOPED CONDITION (SEE 'SOIL CAP EXHIBIT,' WHICH DEFINES THESE AREAS ON LOTS 15 AND 16).
4.) THE CONTRACTOR SHALL TRACK VOLUMES OF SOIL REMOVED FROM EACH SOIL TYPE AREA AND PROVIDE SURVEY DOCUMENTATION OF THEIR REMOVAL AND FINAL PLACEMENT LOCATION, WHETHER IT BE WITHIN THE LIMITS OF A FUTURE IMPERVIOUS SOIL CAP OR LANDSCAPE AREA. IF THE MATERIAL IS USED AS SURCHARGE OR FOR INTERIM GRADING PURPOSES, THE VOLUME MUST BE TRACKED DURING SURCHARGE AND INTERIM GRADING PLACEMENT AND AFTER REMOVAL FROM THE SURCHARGE PILE OR INTERIM GRADING ELEVATIONS TO DOCUMENT ITS FINAL PLACEMENT.
5.) ALL EXCAVATED SOIL MUST BE HANDLED IN ACCORDANCE WITH THE "SOIL HANDLING PLAN".



NOTES:
1.) THIS EXHIBIT IDENTIFIES THE SAMPLING CELL BOUNDARIES AND SOIL CATEGORIZATION FROM "SOIL MANAGEMENT PLAN ADDENDUM NO. 2", PREPARED BY TERRAPHASE ENGINEERING, DATED 2022-12-14.
2.) SOIL CATEGORIZATION VOLUMES FOR EACH SAMPLING CELL BOUNDARY ARE CALCULATED BY COMPARING THE CHANGE IN EXISTING FINISHED GRADES FROM "EXISTING CONDITIONS ALTA SURVEY", PREPARED BY DYNAMIC ENGINEERING, DATED 2021-10-06 AND PROPOSED SUBGRADES FROM "THE BELLWETHER DISTRICT - OVERALL CUT FILL MASTERPLAN", PREPARED BY PENNONI ASSOCIATES, DATED 2023-01-31.
3.) REFER TO SOIL MANAGEMENT PLAN ADDENDUM NO. 2" PREPARED BY TERRAPHASE ENGINEERING, DATED 2022-12-14 FOR ADDITIONAL INFORMATION.

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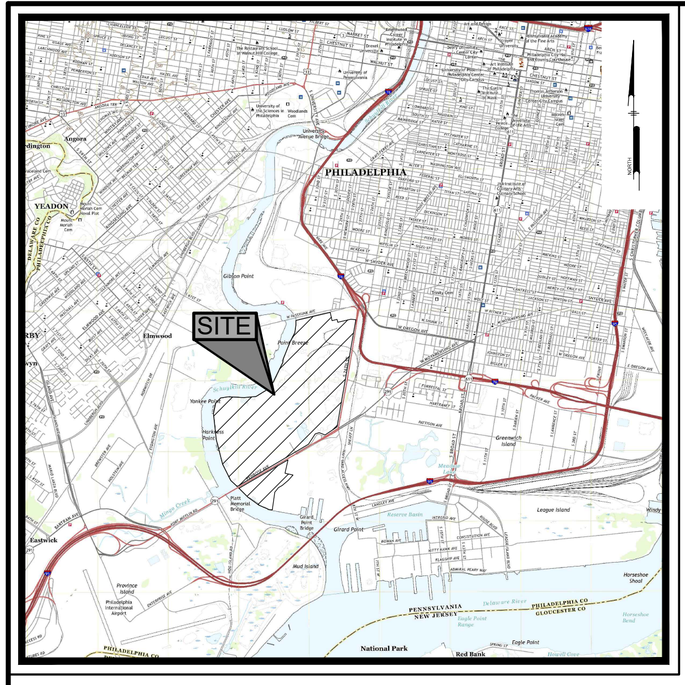
EARTHWORK MANAGEMENT PLAN - L&I PERMIT SP-2022-000403
3144 W. PASSYUNK AVENUE
PHILADELPHIA, PA 19153

SOIL SAMPLING EXHIBIT

PHILADELPHIA ENERGY SOLUTIONS REFINING AND MARKETING LLC
3144 W. PASSYUNK AVENUE
PHILADELPHIA, PA 19153

PROJECT	PESRM21001
DATE	2023-02-28
DRAWING SCALE	1" = 150'
DRAWN BY	0105
APPROVED BY	JCM

REVISIONS			
NO.	DESCRIPTION	DATE	BY


SITE
PHILADELPHIA
YEADON
Elmwood
Gibson Point
Yorktown Point
Hawkins Point
Greenwich Island
League Island
Gilard Point
Mud Island
Province Island
Philadelphia International Airport
Eagle Point
National Park
Red Bank
Eastwick
PENNSYLVANIA
NEW JERSEY
PHILADELPHIA CO
GLOUCESTER CO
Delaware River
Schuylkill River
Mingo Creek
Moyer Creek
Reserve Basin
Horseshoe Shoal
Horseshoe Bend
Eagle Point Gorge
Angora
Woodlands Cem
Mount Moriah Cem
Mount Peace Cem
Holy Redeemer Cemetery
Mount Carmel Cem
Mount Calvary Cem
Mount Vernon Cem
Mount Zion Cem
Mount Lebanon Cem
Mount Hope Cem
Mount Olivet Cem
Mount Peace Cem
Mount Moriah Cem

Appendix B
Langan Final Fill Survey Data Tracking

Environmental Professional Data QA/QC Protocol

Throughout the earthwork program, Langan was provided earthwork fill survey data (spatial [X,Y,Z], cut/fill soil types, cells IDs, etc.) from the earthwork contractor (James D. Morrissey, Inc.; JDM) on an approximate daily basis. To verify the contractor-provided data was of sufficient quality to be used for SMP compliance documentation, Langan performed a QA/QC review of the provided data.

Contractor provided earthwork data was reviewed for erroneous data, including elevation errors (typos) and incomplete data. If potential errors were identified, Langan reevaluated the data against the primary source (JDM's provided data) and/or requested new data from JDM if the source was determined to be obviously erroneous. If new data could not be obtained from JDM, Langan estimated a corrected value (i.e., coordinates) by comparing JDM's mapped soil placement with a Langan-mapped corresponding soil placement. Langan maintains records indicating if the provided JDM soil placement data was edited as part of the QA/QC process.

Langan compared the JDM-provided earthwork data with Langan's observed earthwork movements to verify concurrence between Langan and contractor observations. Discrepancies between Langan and JDM's soil tracking were identified, reviewed, and resolved. When Langan identified a discrepancy, Langan first evaluated whether the discrepancy could have represented a potential non-compliant earthwork movement, e.g., Category E soil was placed in an area where an impervious barrier was not anticipated to be constructed as part of future redevelopment. If the discrepancy did not represent a potential non-compliant earthwork movement and was generally not substantive to the SMP and owner considerations, Langan recorded the discrepancy and relevant details, and no additional corrective action was needed. If the discrepancy could have represented a potential non-compliant earthwork movement, Langan contacted the earthwork contractor (JDM) and site owner (BDH) to explain the discrepancy, and the soil was relocated to a compliant area (e.g., a planned building slab or impervious parking area).

At Unit 1, all the discrepancies that Langan identified between Langan's soil tracking information and JDM's soil tracking information have been resolved.

Appendix B - Table 1 - JDM Earthwork Survey Data
Langan Earthwork Database
Bellwether District Holdings, LLC
Langan Project No. 220181801

Date	Cut_1_Cell	Conservative Soil Type	JDM Fill Area	Northing 1	Northing 2	Northing 3	Northing 4	Easting 1	Easting 2	Easting 3	Easting 4	Elevation Bottom	Elevation Top	Fill Thickness	Total CYs	Summary_Code
6/2/2023	IP1A-55	A	LOT 15 BUILDING PAD	222401.809	222560.725	222346.934	222496.549	2685177.330	2685185.503	2685406.710	2685462.905	12	12	0.5	363	20230602_IP1A-55_363_LOT 15 BUILDING PAD_12.00
6/2/2023	IP1A - 13	B	LOT 15 BUILDING PAD	222253.158	222284.669	222210.528	222242.422	2685340.818	2685344.896	2685667.815	2685668.216	12	12	0.5	363	20230602_IP1A - 13_363_LOT 15 BUILDING PAD_12.00
6/5/2023	IP1A - 15	E	LOT 15 Building Pad	226561.123	226347.857	226520.603	226466.310	2683640.164	2683693.704	2683972.127	2683979.841	10	10	0.5	2380	20230605_IP1A - 15_2380_LOT 15 Building Pad_10.00
6/5/2023	IP1A - 13	B	LOT 15 BUILDING PAD	220854.212	220966.011	220985.576	220854.212	2683202.628	2683219.847	2683252.576	2683202.628	12	12	0.5	150	20230605_IP1A - 13_150_LOT 15 BUILDING PAD_12.00
6/5/2023	IP1A - 11	E	LOT 15 Building Pad	226424.473	226512.761	226395.674	226438.364	2684254.304	2684265.856	2684414.647	2684512.109	14	14	0.5	250	20230605_IP1A - 11_250_LOT 15 Building Pad_14.00
6/6/2023	IP1A - 15	E	LOT 15 Building Pad	227709.360	227757.180	227664.550	227774.420	2682856.860	2682872.190	2682917.580	2682965.150	12	12	0.5	460	20230606_IP1A - 15_460_LOT 15 Building Pad_12.00
6/6/2023	IP1A - 14	E	LOT 15 Building Pad	222348.097	222580.908	222570.345	222309.530	2685164.647	2685194.646	2685448.465	2685449.475	12.5	12.5	0.5	2440	20230606_IP1A - 14_2440_LOT 15 Building Pad_12.50
6/6/2023	IP1A - 13	B	LOT 15 BUILDING PAD	222340.478	222532.780	222336.435	222510.919	2685452.777	2685479.258	2685708.960	2685726.843	17	17	0.5	210	20230606_IP1A - 13_210_LOT 15 BUILDING PAD_17.00
6/7/2023	IP1A-55	A	LOT 15 BUILDING PAD	222162.943	222297.198	222104.763	222256.264	2685242.711	2685301.614	2685658.899	2685675.646	14	14	0.5	740	20230607_IP1A-55_740_LOT 15 BUILDING PAD_14.00
6/7/2023	IP1A - 14	E	LOT 15 Building Pad	222487.976	222364.420	222352.108	222466.544	2685487.473	2685760.719	2685887.367	2685899.987	14	14	0.5	3140	20230607_IP1A - 14_3140_LOT 15 Building Pad_14.00
6/7/2023	IP1A - 10	B	LOT 15 BUILDING PAD	226035.220	226290.460	226007.760	226241.230	2684987.360	2685063.050	2685098.950	2685122.500	14.5	14.5	0.5	100	20230607_IP1A - 10_100_LOT 15 BUILDING PAD_14.50
6/8/2023	IP1A-55	A	LOT 15 BUILDING PAD	222362.471	222515.321	222363.988	222499.123	2685620.297	2685638.320	2685722.436	2685737.404	10	10	0.5	3000	20230608_IP1A-55_3000_LOT 15 BUILDING PAD_10.00
6/8/2023	IP1A-55	A	LOT 15 BUILDING PAD	222162.943	222297.198	222104.763	222256.264	2685242.711	2685301.614	2685658.899	2685675.646	15	15	0.5	1860	20230608_IP1A-55_1860_LOT 15 BUILDING PAD_15.00
6/9/2023	IP1A-55	A	LOT 15 BUILDING PAD	222204.255	222314.708	222162.096	222301.168	2685012.177	2685031.888	2685257.927	2685297.775	13	13	0.5	3680	20230609_IP1A-55_3680_LOT 15 BUILDING PAD_13.00
6/12/2023	IP1A-55	A	LOT 15 BUILDING PAD	222260.492	222347.049	222257.522	222351.397	2685225.030	2685301.036	2685490.710	2685569.652	14	14	0.5	4400	20230612_IP1A-55_4400_LOT 15 BUILDING PAD_14.00
6/13/2023	IP1A-55	A	LOT 15 BUILDING PAD	222162.943	222297.198	222104.763	222256.264	2685242.711	2685301.614	2685658.899	2685675.646	16	16	0.5	3640	20230613_IP1A-55_3640_LOT 15 BUILDING PAD_16.00
6/14/2023	IP1A-55	A	LOT 15 BUILDING PAD	221866.023	221978.000	221738.001	221901.837	2684852.335	2684872.625	2685590.597	2685604.300	14.5	14.5	0.5	2220	20230614_IP1A-55_2220_LOT 15 BUILDING PAD_14.50
6/14/2023	IP1A-54	A	LOT 15 BUILDING PAD	221610.474	221656.290	221589.660	221627.241	2685330.026	2685333.050	2685525.243	2685531.024	15	15	0.5	1200	20230614_IP1A-54_1200_LOT 15 BUILDING PAD_15.00
6/14/2023	IP1A-51	A	LOT 15 BUILDING PAD	221666.676	221981.156	221742.505	222008.950	2685588.408	2685647.262	2685818.555	2685850.007	15	15	0.5	1640	20230614_IP1A-51_1640_LOT 15 BUILDING PAD_15.00
6/15/2023	IP1A-55	A	LOT 15 BUILDING PAD	221866.023	221978.000	221738.001	221901.837	2684852.335	2684872.625	2685590.597	2685604.300	16	16	0.5	2600	20230615_IP1A-55_2600_LOT 15 BUILDING PAD_16.00
6/15/2023	IP1A-54	A	LOT 15 BUILDING PAD	222348.574	222348.699	222673.584	222677.015	2684782.417	2684808.537	2684820.585	2684854.496	16	16	0.5	2380	20230615_IP1A-54_2380_LOT 15 BUILDING PAD_16.00
6/15/2023	IP1A-51	A	LOT 15 BUILDING PAD	221546.095	221608.034	221476.458	221530.117	2683454.446	2683461.620	2684022.741	2684035.419	16	16	0.5	1100	20230615_IP1A-51_1100_LOT 15 BUILDING PAD_16.00
6/16/2023	IP1A-55	A	LOT 15 BUILDING PAD	219524.250	219694.778	219528.881	219687.588	2682981.835	2683039.206	2683085.573	2683124.060	16	16	0.5	640	20230616_IP1A-55_640_LOT 15 BUILDING PAD_16.00
6/16/2023	IP1A-54	A	LOT 15 BUILDING PAD	220860.164	221036.383	220856.680	221058.477	2683883.293	2683894.534	2684047.939	2684061.324	16	16	0.5	440	20230616_IP1A-54_440_LOT 15 BUILDING PAD_16.00
6/16/2023	IP1A-51	A	LOT 15 BUILDING PAD	226181.334	226424.010	226410.807	226127.435	2684477.333	2684541.169	2684711.813	2684716.216	16	16	0.5	1380	20230616_IP1A-51_1380_LOT 15 BUILDING PAD_16.00
6/19/2023	IP1A-12	B	LOT 15 BUILDING PAD	223270.719	223261.154	223705.041	223703.369	2684899.334	2684930.946	2684952.528	2684990.483	8	8	0.5	1460	20230619_IP1A-12_1460_LOT 15 BUILDING PAD_8.00
6/19/2023	IP1A-55	A	LOT 15 BUILDING PAD	222322.590	222357.196	222309.767	222346.643	2685168.312	2685173.232	2685248.857	2685261.358	15	15	0.5	2300	20230619_IP1A-55_2300_LOT 15 BUILDING PAD_15.00
6/19/2023	IP1A-54	A	LOT 15 BUILDING PAD	221650.300	221924.197	221547.181	221833.586	2684823.199	2684847.052	2685250.980	2685408.602	15	15	0.5	1140	20230619_IP1A-54_1140_LOT 15 BUILDING PAD_15.00
6/20/2023	IP1A-54	A	LOT 15 BUILDING PAD	221686.448	221815.604	221659.628	221788.917	2685572.870	2685587.265	2685742.892	2685753.155	2	2	0.5	660	20230620_IP1A-54_660_LOT 15 BUILDING PAD_2.00
6/20/2023	IP1A-55	A	LOT 15 BUILDING PAD	222348.574	222348.699	222673.584	222677.015	2684782.417	2684808.537	2684820.585	2684854.496	8	8	0.5	340	20230620_IP1A-55_340_LOT 15 BUILDING PAD_8.00
6/20/2023	IP1A-55	A	LOT 15 BUILDING PAD	221650.300	221924.197	221547.181	221833.586	2684823.199	2684847.052	2685250.980	2685408.602	16.5	16.5	0.5	1880	20230620_IP1A-55_1880_LOT 15 BUILDING PAD_16.50
6/20/2023	IP1A-54	A	LOT 15 BUILDING PAD	222348.574	222348.699	222673.584	222677.015	2684782.417	2684808.537	2684820.585	2684854.496	16.5	16.5	0.5	3400	20230620_IP1A-54_3400_LOT 15 BUILDING PAD_16.50
6/21/2023	IP1A-54	A	LOT 15 BUILDING PAD	221650.300	221924.197	221547.181	221833.586	2684823.199	2684847.052	2685250.980	2685408.602	2	2	0.5	5000	20230621_IP1A-54_5000_LOT 15 BUILDING PAD_2.00
6/21/2023	IP1A-55	A	LOT 15 BUILDING PAD	221678.003	221815.604	221659.628	221788.917	2685567.557	2685587.265	2685742.892	2685753.155	8	8	0.5	3650	20230621_IP1A-55_3650_LOT 15 BUILDING PAD_8.00
6/22/2023	IP1A-55	A	LOT 15 BUILDING PAD	222323.350	222482.098	222319.938	222448.446	2685718.290	2685733.515	2685892.748	2685913.762	16	16	0.5	3600	20230622_IP1A-55_3600_LOT 15 BUILDING PAD_16.00
6/22/2023	IP1A-12	B	LOT 15 BUILDING PAD	226246.746	226392.686	226226.000	226366.255	2684700.787	2684764.997	2684814.866	2684846.753	16	16	0.5	1875	20230622_IP1A-12_1875_LOT 15 BUILDING PAD_16.00
6/22/2023	IP1A-6	B	LOT 15 BUILDING PAD	223386.562	223211.030	223223.537	223504.007	2685703.130	2685786.022	2685830.159	2685896.345	16	16	0.5	2250	20230622_IP1A-6_2250_LOT 15 BUILDING PAD_16.00
6/23/2023	IP1A-54	A	LOT 15 BUILDING PAD	222245.907	222231.642	222207.261	222222.736	2685371.741	2685372.577	2685537.027	2685542.435	16.5	16.5	0.5	3225	20230623_IP1A-54_3225_LOT 15 BUILDING PAD_16.50
6/23/2023	IP1A-6	B	LOT 15 BUILDING PAD	222314.344	222436.258	222318.284	222404.861	2685716.905	2685730.138	2685887.863	2685900.698	16.5	16.5	0.5	3875	20230623_IP1A-6_3875_LOT 15 BUILDING PAD_16.50
6/26/2023	IP1A-54	A	LOT 15 BUILDING PAD	226035.270	226238.500	226233.170	226037.960	2684988.070	2685033.080	2685131.750	2685144.920	18	18	0.5	1825	20230626_IP1A-54_1825_LOT 15 BUILDING PAD_18.00
6/26/2023	IP1A-7	B	LOT 15 BUILDING PAD	223386.562	223211.030	223223.537	223504.007	2685703.130	2685786.022	2685830.159	2685896.345	18	18	0.5	1750	20230626_IP1A-7_1750_LOT 15 BUILDING PAD_18.00
6/28/2023	IP1A-54	A	LOT 15 BUILDING PAD	222363.627	222524.252	222337.674	222502.381	2685519.760	2685527.570	2685699.824	2685738.788	15.5	15.5	0.5	2125	20230628_IP1A-54_2125_LOT 15 BUILDING PAD_15.50
6/28/2023	IP1A-6	B	LOT 15 BUILDING PAD	223386.562	223211.030	223223.537	223504.007	2685703.130	2685786.022	2685830.159	2685896.345	15.5	15.5	0.5	1575	20230628_IP1A-6_1575_LOT 15 BUILDING PAD_15.50
6/29/2023	IP1A-54	A	LOT 15 BUILDING PAD	222363.627	222524.252	222337.674	222502.381	2685519.760	2685527.570	2685699.824	2685738.788	17.5	17.5	0.5	3650	20230629_IP1A-54_3650_LOT 15 BUILDING PAD_17.50
6/29/2023	IP1A-52	A	LOT 15 BUILDING PAD	221869.921	221711.592	221811.343	221727.956	2684827.344	2684835.307	2685264.467	2685275.926	17.5	17.5	0.5	850	20230629_IP1A-52_850_LOT 15 BUILDING PAD_17.50
6/29/2023	IP1A-7	B	LOT 15 BUILDING PAD	221724.277	221569.702	221499.958	221667.803	2685308.832	2685442.688	2685711.087	2685730.992	17.5	17.5	0.5	750	20230629_IP1A-7_750_LOT 15 BUILDING PAD_17.50
6/29/2023	IP1A-56	A	LOT 15 BUILDING PAD	222608.543	222776.890	222582.868	222734.141	2685204.535	2685209.767	2685488.917	2685490.575	18	18	0.5	1825	20230629_IP1A-56_1825_LOT 15 BUILDING PAD_18.00
6/30/2023	IP1A-54	A	LOT 15 BUILDING PAD	221650.300	221924.197	221547.181	221833.586	2684823.199	2684847.052	2685250.980	2685408.602	17	17	0.5	3000	20230630_IP1A-54_3000_LOT 15 BUILDING PAD_17.00
6/30/2023	IP1A-7	B	LOT 15 BUILDING PAD	221776.532	221848.570	221766.671	221716.641	2684838.208	2684859.600	2685271.248	2685276.475	17	17	0.5	2975	20230630_IP1A-7_2975_LOT 15 BUILDING PAD_17.00
7/5/2023	IP1A-7	B	LOT 15 BUILDING PAD	221811.166	221946.876	221783.208	221941.112	2685118.965	2685141.488	2685290.061	2685317.166	17	17	0.5	475	20230705_IP1A-7_475_LOT 15 BUILDING PAD_17.00
7/5/2023	IP1A-52	A	LOT 15 BUILDING PAD	222348.574	222348.699	222673.584	222677.015	2684782.417	2684808.537	2684820.585	2684854.496	17.5	17.5	0.5	2000	20230705_IP1A-52_2000_LOT 15 BUILDING PAD_17.50
7/5/2023	IP1A-54	A	LOT 15 BUILDING PAD	221536.325	221922.868	221498.897	221892.195	2685102.997	2685461.790	2685710.096	2685765.249	17.5	17.5	0.5	3350	20230705_IP1A-54_3350_LOT 15 BUILDING PAD_17.50
7/5/2023	IP1A-56	A	LOT 15 BUILDING PAD	221908.030	221815.763	221808.208	221886.170	2685585.949	2685585.973	2685754.521	2685761.859	18	18	0.5	450	20230705_IP1A-56_450_LOT 15 BUILDING PAD_18.00
7/6/2023	IP1A-54	A	LOT 15 BUILDING PAD	221625.312	221827.435	221623.606	221926.513	2684809.216	2684841.029	2685358.330	2685458.445	12	12	0.5	3000	20230706_IP1A-54_3000_LOT 15 BUILDING PAD_12.00
7/6/2023	IP1A-7	B	LOT 15 BUILDING PAD	221841.528	222007.261	221810.782	221976.312	2684859.437	2684865.874	2685117.586	2685145.530	12	12	0.5	250	20230706_IP1A-7_250_LOT 15 BUILDING PAD_12.00
7/6/2023	IP1A-2	B	LOT 15 BUILDING PAD	221628.880	221779.471	221580.323	221702.590	2684813.006	2684847.393	2685175.783	2685250.442	12	12	0.5	1650	20230706_IP1A-2_1650_LOT 15 BUILDING PAD_12.00
7/11/2023	IP1A-62	A	LOT 15 BUILDING PAD	221625.312	221827.435	221623.606	221926.513	2684809.216	2684841.029	2685358.330	2685458.445	18	18	0.5	1800	20230711_IP1A-62_1800_LOT 15 BUILDING PAD_18.00
7/12/2023	IP1A-62	A	LOT 15 BUILDING PAD	221822.715	222007.707	221808.654	221984.555	2684835.676	2684862.329	2684993.182	2685051.717	17.5	17.5	0.5	875	20230712_IP1A-62_875_LOT 15 BUILDING PAD_17.50
7/12/2023	IP1A-2	B	LOT 15 BUILDING PAD	221729.952	221778.337	221691.135	221740.221	2685257.826	2685281.188	2685548.194	2685584.377	17.5	17.5	0.5	1750	20230712_IP1A-2_1750_LOT 15 BUILDING PAD_17.50
7/13/2023	IP1A - 54	A	LOT 15 BUILDING PAD	221869.921	221711.592	221811.343	221727.956	2684827.344	2684835.307	2685264.467	2685275.926	17	17	0.5	1425	20230713_IP1A - 54_1425_LOT 15 BUILDING PAD_17.00
7/31/2023	Lot 15 Stockpile	A	LOT 15 BUILDING PAD	221602.841	221715.098	221738.286	221622.459	2685087.292	2685102.997	2685351.953	2685354.430	18	18	0.5	5525	20230731_Lot 15 Stockpile_5525_LOT 15 BUILDING PAD_18
7/31/2023	Lot 15 Stockpile	B	LOT 15 BUILDING PAD	221757.989	221910.377	221699.944	221884.758	2685549.299	2685580.930	2685715.080	2685753.641	18	18	0.5	1400	20230731_Lot 15 Stockpile_1400_LOT 15 BUILDING PAD_18.00
7/31/2023	IP1A-2	B	LOT 15 BUILDING PAD	221619.641	221768.257	221583.777	221736.752	2684818.605	2684838.687	2685096.735	2685114.406	18	18	0.5	1475	20230731_IP1A-2_1475_LOT 15 BUILDING PAD_18.00
8/1/2023	IP1A - 54	A	LOT 15 BUILDING PAD	221623.503	221666.392	221475.889	221511.420	2682902.591	2682910.016	2683990.650	2684001.612	16	16	0.5	625	20230801_IP1A - 54_625_LOT 15 BUILDING PAD_16.00
8/1/2023	IP1A - 56	A	LOT 15 BUILDING PAD	221602.841	221715.098	221622.459	221759.931	2685087.292	2685102.997	2685354.430	2685365.111	18	18	0.5	2000	20230801_IP1A - 56_2000_LOT 15 BUILDING PAD_18.00
8/1/2023	Lot 15 Stockpile	A	LOT 15 BUILDING PAD	221625.312	221827.435	221623.606	221926.513	2684809.216	2684841.029	2685358.330	2685458.445	18	18	0.5	1725	20230801_Lot 15 Stockpile_1725_LOT 15 BUILDING PAD_18.00
8/1/2023	41 - IP1A - 301-N02	B	LOT 15 BUILDING PAD	222156.673	222248.754	222145.650	222238.187	2685147.264	2685197.848	2685294.549	2685306.687	18	18	0.5	1025	20230801_41 - IP1A - 301-N02_1025_LOT 15 BUILDING PAD_18.00
8/1/2023	Lot 15 Stockpile	B	LOT 15 BUILDING PAD	226502.480	226610.670	226510.400	226546.340	2684502.110	2684550.370	2684569.250	2684613.020	18	18	0.5	1725	20230801_Lot 15 Stockpile_1725_LOT 15 BUILDING PAD_18.00
8/1/2023	IP1A - 54	A	LOT 15 BUILDING PAD	221625.312	221827.435	221623.606	221926.513	2684809.216	2684841.029	2685358.330	2685458.445	19	19	0.5	2450	20230801_IP1A - 54_2450_LOT 15 BUILDING PAD_19.00
8/2/2023	IP1A-2	B	LOT 15 BUILDING PAD	222329.080	222564.725	222421.145	222517.039	2685155.332	2685208.498	2685408.654	2685413.115	19	19	0.5	875	20230802_IP1A-2_875_LOT 15 BUILDING PAD_19.00
8/2/2023	IP1A - 301-N02	B	LOT 15 BUILDING PAD	222329.080	222564.725	222421.145	222517.039	2685155.332	2685208.498	2685408.654	2685413.115	20	20	0.5	3250	20230802_IP1A - 301-N02_3250_LOT 15 BUILDING PAD_20.00
8/3/2023	IP1A - 54	A	LOT 15 BUILDING PAD	222358.402	222505.933	222342.959	222563.260	2685154.748	2685179.592	2685397.189	2685467.672	17	18	1	1825	20230803_IP1A - 54_1825_LOT 15 BUILDING PAD_17.00 - 18.00
8/3/2023	IP1A - 54	A	LOT 15 BUILDING PAD	222233.167	222280.465	222243.377	222190.438	2685367.065	2685385.206	2685675.267	2685697.724	19	20	1	1825	20230803_IP1A - 54_1825_LOT 15 BUILDING PAD_19.00 - 20.00
8/3/2023	IP1A - 54	A	LOT 15 BUILDING PAD	226266.150	226465.080	226278.620	226479.750	2683698.440	2683767.820	2683971.290	2683977.180	19	20	1	1850	20230803_IP1A - 54_1850_LOT 15 BUILDING PAD_19.00 - 20.00
8/4/2023	IP1A-2	B	LOT 15 BUILDING PAD	226018.618	226332.488	226000.572	226147.461	2684973.841	2685029.163	2685086.545	2685114.098	19	19	0.5	275	20230804_IP1A-2_275_LOT 15 BUILDING PAD_19.00
8/4/2023	IP1A - 54	A	LOT 15 BUILDING PAD	221833.698	222077.903	221818.207	222063.976	2683946.797	2683997.975	2684049.331	2684090.890	19	20	1	1425	20230804_IP1A - 54_1425_LOT 15 BUILDING PAD_19.00 - 20.00
8/4/2023	IP1A - 301-N02	B	LOT 15 BUILDING PAD	222347.691	222432.806	222303.489	222392.481	2685156.465	2685173.023	2685447.246	2685452.620	20	20	0.5	1000	20230804_IP1A - 301-N02_1000_LOT 15 BUILDING PAD_20.00
8/4/2023	IP1A - 54	A	LOT 15 BUILDING PAD	222454.794	222331.432	222318.171	222519.153	2685012.575	2685012.972	2685128.608	2685152.473	19	21	2	700	20230804_IP1A - 54_700_LOT 15 BUILDING PAD_19.00 - 21.00
8/7/2023	IP1A - 54	A	LOT 15 BUILDING PAD	220374.182	220443.631	220477.631	220350.149	2683022.120	2683024.997	2683248.381	2683254.389	19	20	1	2325	20230807_IP1A - 54_2325_LOT 15 BUILDING PAD_19.00 - 20.00
8/7/2023	IP1A - 06	B	LOT 15 BUILDING PAD	221757.989	221910.377	221699.944	221884.758	2685549.299	2685580.930	2685715.080	2685753.641	19	20	1	100	20230807_IP1A - 06_100_LOT 15 BUILDING PAD_19.00 - 20.00
8/8/2023	IP1A - 54	A	LOT 15 BUILDING PAD	221631.758	221702.950	221499.077	221539.646	2682843.953	2682854.742	2683794.937	2683800.671	19	20	1	2800	20230808_IP1A - 54_2800_LOT 15 BUILDING PAD_19.00 - 20.00

Appendix B - Table 1 - JDM Earthwork Survey Data
Langan Earthwork Database
Bellwether District Holdings, LLC
Langan Project No. 220181801

Date	Cut_1_Cell	Conservative Soil Type	JDM Fill Area	Northing 1	Northing 2	Northing 3	Northing 4	Easting 1	Easting 2	Easting 3	Easting 4	Elevation Bottom	Elevation Top	Fill Thickness	Total CYs	Summary_Code
8/8/2023	IP1A - 07	B	LOT 15 BUILDING PAD	221777.318	221867.576	221839.589	221752.966	2684843.103	2684862.024	2685036.612	2685049.753	21	21	0.5	850	20230808_IP1A - 07_850_LOT 15 BUILDING PAD_21.00 & Crown
8/9/2023	Lot 14 A Berms	A	LOT 15 BUILDING PAD	220578.306	220639.132	220572.585	220593.082	2683049.468	2683049.510	2683121.525	2683375.070	20	22	2	4325	20230809_Lot 14 A Berms_4325_LOT 15 BUILDING PAD_20.00 - 22.00
8/9/2023	Lot 14 A Berms	A	LOT 15 BUILDING PAD	220694.679	220730.902	220692.656	220667.546	2682822.929	2682830.372	2683194.154	2683194.657	20	22	2	2100	20230809_Lot 14 A Berms_2100_LOT 15 BUILDING PAD_20.00 - 22.00
8/10/2023	IP1A - 54	A	LOT 15 BUILDING PAD	226089.500	226311.310	226081.340	226259.980	2684863.310	2684939.230	2684994.360	2685066.360	20	22	2	2025	20230810_IP1A - 54_2025_LOT 15 BUILDING PAD_20.00 - 22.00
8/10/2023	Lot 14 A Berms	A	LOT 15 BUILDING PAD	222326.354	222261.376	222245.677	222326.635	2685573.909	2685575.488	2685694.437	2685699.964	20	22	2	2475	20230810_Lot 14 A Berms_2475_LOT 15 BUILDING PAD_20.00 - 22.00
8/11/2023	IP1A - 54	A	LOT 15 BUILDING PAD	222409.798	222544.341	222395.618	222543.065	2685166.975	2685198.724	2685460.498	2685467.723	20	22	2	1550	20230811_IP1A - 54_1550_LOT 15 BUILDING PAD_20.00 - 22.00
8/11/2023	Lot 14 A Berms	A	LOT 15 BUILDING PAD	222490.610	222308.677	222295.544	222461.866	2685737.299	2685761.330	2685856.731	2685912.915	20	22	2	2750	20230811_Lot 14 A Berms_2750_LOT 15 BUILDING PAD_20.00 - 22.00
8/14/2023	IP1A - 54	A	LOT 15 BUILDING PAD	222547.909	222513.377	222492.065	222534.070	2685189.236	2685192.427	2685457.419	2685468.081	20	22	2	2650	20230814_IP1A - 54_2650_LOT 15 BUILDING PAD_20.00 - 22.00
8/14/2023	Lot 14 A Berms	A	LOT 15 BUILDING PAD	220981.021	220993.925	221381.476	221378.465	2684101.155	2684126.827	2684137.648	2684202.510	20	22	2	2575	20230814_Lot 14 A Berms_2575_LOT 15 BUILDING PAD_20.00 - 22.00
8/15/2023	Lot 14 A Berms	A	LOT 15 BUILDING PAD	226057.210	226247.950	226027.030	226236.270	2684864.270	2685016.090	2685099.900	2685100.900	21	23	2	5000	20230815_Lot 14 A Berms_5000_LOT 15 BUILDING PAD_21.00 - 23.00
8/15/2023	IP1A - 54	A	LOT 15 BUILDING PAD	226708.871	227160.824	226714.386	227106.181	2682771.611	2682872.534	2682888.882	2682962.095	21	23	2	1875	20230815_IP1A - 54_1875_LOT 15 BUILDING PAD_21.00 - 23.00
8/15/2023	IP1A - 55	A	LOT 15 BUILDING PAD	226185.721	226406.320	226390.612	226186.326	2684701.495	2684752.786	2684806.368	2684812.583	21	23	2	750	20230815_IP1A - 55_750_LOT 15 BUILDING PAD_21.00 - 23.00
8/15/2023	IP1A-2	B	LOT 15 BUILDING PAD	226295.640	226566.043	226355.177	226494.773	2683608.662	2683662.728	2683893.050	2684034.615	23	23	0.5	150	20230815_IP1A-2_150_LOT 15 BUILDING PAD_23.00
8/16/2023	Lot 14 A Berms	A	LOT 15 BUILDING PAD	226209.634	226067.080	226044.752	226164.673	2684732.420	2684759.553	2684918.443	2684946.304	21	23	2	3175	20230816_Lot 14 A Berms_3175_LOT 15 BUILDING PAD_21.00 - 23.00
8/16/2023	Lot 14 A Berms	A	LOT 15 BUILDING PAD	222581.281	222735.102	222541.287	222660.082	2685491.963	2685496.810	2685734.578	2685749.275	21	23	2	3225	20230816_Lot 14 A Berms_3225_LOT 15 BUILDING PAD_21.00 - 23.00
8/16/2023	IP1A - 54	A	LOT 15 BUILDING PAD	222581.281	222735.102	222541.287	222660.082	2685491.963	2685496.810	2685734.578	2685749.275	21	23	2	350	20230816_IP1A - 54_350_LOT 15 BUILDING PAD_21.00 - 23.00
8/17/2023	Lot 14 A Berms	A	LOT 15 BUILDING PAD	221503.712	221939.099	221499.168	221982.269	2685373.380	2685396.351	2685711.317	2685763.705	21	23	2	3475	20230817_Lot 14 A Berms_3475_LOT 15 BUILDING PAD_21.00 - 23.00
8/17/2023	Lot 14 A Berms	A	LOT 15 BUILDING PAD	221729.952	221778.337	221691.135	221740.221	2685257.826	2685281.188	2685548.194	2685584.377	21	23	2	4650	20230817_Lot 14 A Berms_4650_LOT 15 BUILDING PAD_21.00 - 23.00
8/17/2023	IP1A - 54	A	LOT 15 BUILDING PAD	221757.989	221910.377	221699.944	221884.758	2685549.299	2685580.930	2685715.080	2685753.641	21	23	2	1050	20230817_IP1A - 54_1050_LOT 15 BUILDING PAD_21.00 - 23.00
8/18/2023	Lot 14 A Berms	A	LOT 15 BUILDING PAD	220744.104	221150.550	220729.326	221147.364	2683231.590	2683278.155	2683513.062	2683594.363	21	23	2	2575	20230818_Lot 14 A Berms_2575_LOT 15 BUILDING PAD_21.00 - 23.00
8/18/2023	Lot 14 A Berms	A	LOT 15 BUILDING PAD	226097.140	226318.430	226269.380	226034.750	2684802.870	2684876.220	2685084.260	2685095.030	21	23	2	3675	20230818_Lot 14 A Berms_3675_LOT 15 BUILDING PAD_21.00 - 23.00
8/21/2023	Lot 14 A Berms	A	LOT 15 BUILDING PAD	221497.039	221553.665	221472.535	221528.859	2683689.477	2683690.898	2683947.395	2683956.928	23	25	2	3125	20230821_Lot 14 A Berms_3125_LOT 15 BUILDING PAD_23.00 - 25.00
8/21/2023	Lot 14 A Berms	A	LOT 15 BUILDING PAD	220981.021	220993.925	221381.476	221378.465	2684101.155	2684126.827	2684137.648	2684202.510	23	25	2	5725	20230821_Lot 14 A Berms_5725_LOT 15 BUILDING PAD_23.00 - 25.00
8/22/2023	Lot 14 A Berms	A	LOT 15 BUILDING PAD	226315.300	226461.750	226322.620	226444.740	2683997.550	2684066.500	2684088.780	2684153.000	23	25	2	5675	20230822_Lot 14 A Berms_5675_LOT 15 BUILDING PAD_23.00 - 25.00
8/22/2023	Lot 14 A Berms	A	LOT 15 BUILDING PAD	222338.839	222360.262	222289.735	222329.651	2685570.827	2685643.200	2685658.593	2685660.877	23	25	2	3900	20230822_Lot 14 A Berms_3900_LOT 15 BUILDING PAD_23.00 - 25.00
8/23/2023	Lot 14 A Berms	A	LOT 15 BUILDING PAD	222423.710	222564.225	222369.041	222508.917	2685468.138	2685491.298	2685636.112	2685662.046	23	25	2	625	20230823_Lot 14 A Berms_625_LOT 15 BUILDING PAD_23.00 - 25.00
8/23/2023	Lot 14 A Berms	A	LOT 15 BUILDING PAD	226389.220	226476.930	226380.870	226446.550	2684012.970	2684016.020	2684061.890	2684081.940	23	25	2	7825	20230823_Lot 14 A Berms_7825_LOT 15 BUILDING PAD_23.00 - 25.00
8/23/2023	IP1A-3	B	LOT 15 BUILDING PAD	227127.484	227167.479	226974.907	227218.340	2682950.755	2682972.939	2683111.758	2683200.723	23	25	2	700	20230823_IP1A-3_700_LOT 15 BUILDING PAD_23.00 - 25.00
8/23/2023	IP1A-4	B	LOT 15 BUILDING PAD	226566.000	226350.256	226328.753	226502.807	2683650.081	2683652.592	2683983.360	2684038.423	23	25	2	350	20230823_IP1A-4_350_LOT 15 BUILDING PAD_23.00 - 25.00
8/24/2023	IP1A-5	B	LOT 15 BUILDING PAD	227702.330	227819.860	227665.130	227763.030	2682914.140	2682988.680	2683041.970	2683060.840	25	26	1	6350	20230824_IP1A-5_6350_LOT 15 BUILDING PAD_25.00 - 26.00
8/24/2023	IP1A-6	B	LOT 15 BUILDING PAD	227701.240	227765.820	227678.340	227738.470	2682871.340	2682885.260	2682956.650	2683016.390	25	26	1	2250	20230824_IP1A-6_2250_LOT 15 BUILDING PAD_25.00 - 26.00
8/24/2023	IP1A-7	B	LOT 15 BUILDING PAD	226488.440	226663.010	226452.970	226623.080	2684345.810	2684387.080	2684558.080	2684642.570	25	26	1	250	20230824_IP1A-7_250_LOT 15 BUILDING PAD_25.00 - 26.00
8/25/2023	IP1A-2	B	LOT 15 BUILDING PAD	226287.233	226386.019	226260.460	226364.542	2684730.745	2684828.226	2684967.174	2684989.016	25	26	1	3125	20230825_IP1A-2_9375_LOT 15 BUILDING PAD_25.00 - 26.00
8/25/2023	IP1A-2	B	LOT 15 BUILDING PAD	222565.032	222632.187	222395.618	222543.065	2685264.064	2685272.197	2685460.498	2685467.723	25	26	1	3125	20230825_IP1A-2_9375_LOT 15 BUILDING PAD_25.00 - 26.00
8/25/2023	IP1A-2	B	LOT 15 BUILDING PAD	222265.332	222324.298	222197.605	222260.957	2685160.151	2685169.392	2685646.476	2685694.551	25	26	1	3125	20230825_IP1A-2_9375_LOT 15 BUILDING PAD_25.00 - 26.00
8/28/2023	IP1A-02	B	LOT 15 BUILDING PAD	222277.911	222132.182	222092.896	222236.456	2685408.530	2685422.027	2685561.216	2685681.698	25	26	1	8100	20230828_IP1A-02_8100_LOT 15 BUILDING PAD_25.00 - 26.00
8/28/2023	IP1A-02	B	LOT 15 BUILDING PAD	222147.418	222235.944	222126.714	222221.855	2685292.199	2685302.459	2685405.362	2685424.925	25	26	1	8100	20230828_IP1A-02_8100_LOT 15 BUILDING PAD_25.00 - 26.00
8/29/2023	IP1A-2	B	LOT 15 BUILDING PAD	221895.939	222142.241	221880.331	222104.275	2683495.288	2683524.978	2683632.851	2683686.054	25	26	1	1000	20230829_IP1A-2_1000_LOT 15 BUILDING PAD_25.00 - 26.00
7/16/2024	Lot 15 Roadway	U	Lot 15	217082.953	217026.354	217392.860	217336.922	2680634.991	2680669.747	2681142.755	2681176.747	11.6	12.9	1.3	625	[2024/07/16]-[Lot 15-NW]-[11.6-to-12.9]-[U]
7/17/2024	Lot 15 Roadway	U	Lot 15	219506.046	219663.865	219495.584	219658.216	2682902.034	2682923.438	2682955.098	2682958.390	10.8	13.5	2.7	1750	[2024/07/17]-[Lot 15-NW]-[10.8-to-13.5]-[U]
2/11/2025	Lot 16 Unclass.	U	Lot 15	221369.815	221383.011	221408.520	221394.730	2685065.788	2684972.434	2684969.270	2685063.000	9.698	10.07	0.372	75	[2025/02/11]-[Lot 15-S]-[9.698-to-10.07]-[U]
3/5/2025	Lot 12 Topsoil	A	Lot 15	221309.064	221360.852	221378.706	221327.538	2685636.130	2685136.618	2685135.707	2685636.848	13.407	18.126	4.719	300	[2025/03/05]-[Lot 15-N]-[13.407-to-18.126]-[A]

Appendix B-2 - EP Earthwork Tracking Spreadsheet (Data with Discrepancies Only)
Environmental Professional Construction Oversight
Bellwether District Holdings, LLC
Langan Project No. 220181801

Date	Observer	Cut Prism ID	Cut Prism Soil Type (A, B, or E)	Fill Prism	Fill Prism Under Cap? (Y/N)	Placement Elevation	Quadrant	No. of Truckloads	Estimated Volume (CY)	Project	Discrepancy of Consequence to SMP Compliance	Discrepancy Description
6/26/2023	RH	IP1A-02	B	Lot 15 Building Pad	Y	18	NW, SW	70	1750	1A	No	Cut cell named cited as IP1A-07 on JDM's report. Cut originated from cell IP1A-02.
6/29/2023	BC	IP1A-02	B	Lot 15 Building Pad	Y	17.5	SW	30	750	1A	No	Cut cell named cited as IP1A-07 on JDM's report. Cut originated from cell IP1A-02.
6/30/2023	RH	IP1A-02	B	Lot 15 Building Pad	Y	17	NE	119	2975	1A	No	Cut cell named cited as IP1A-07 on JDM's report. Cut originated from cell IP1A-02.
7/5/2023	SC	IP1A-02	B	Lot 15 Building Pad	Y	11.25	NW	19	475	1A	No	Cut cell named cited as IP1A-07 on JDM's report. Cut originated from cell IP1A-02.
7/6/2023	SC	IP1A-02	B	Lot 15 Building Pad	Y	17	NW	10	250	1A	No	Cut cell named cited as IP1A-07 on JDM's report. Cut originated from cell IP1A-02.
7/7/2023	SC	IP1A-02	B	Lot 15 Building Pad	Y	5	NW	123	3075	1A	No	Cut cell named cited as IP1A-07 on JDM's report. Cut originated from cell IP1A-02.
8/1/2023	RH	IP1A-02	B	Lot 15 Building Pad	Y	18	NW, SW, SE	41	1025	1A	No	Cut cell named cited as IP1A-301-N02 on JDM's report. Cut originated from cell IP1A-02.
8/2/2023	RH	IP1A-02	B	Lot 15 Building Pad	Y	19	SE, NE	35	875	1A	No	JDM reported soil movement occurred on 8/1/2023 while Langan reported movement occurred on 8/2/2023.
8/2/2023	RH	IP1A-02	B	Lot 15 Building Pad	Y	20	NW, NE	130	3250	1A	No	Cut cell named cited as IP1A-301-N02 on JDM's report. Cut originated from cell IP1A-02.
8/2/2023	RH	IP1A-54	A	Lot 15 Building Pad	Y	16	NW	25	625	1A	No	Soil movement cited on 8/1/2023 on JDM report. Langan observed movement on 8/2/2023.
8/2/2023	RH	IP1A-54	A	Lot 15 Building Pad	Y	19	SE, NE	98	2450	1A	No	Soil movement cited on 8/1/2023 on JDM report. Langan observed movement on 8/2/2023.
8/4/2023	RH	IP1A-02	B	Lot 15 Building Pad	Y	20	NE	40	1000	1A	No	Cut cell named cited as IP1A-301-N02 on JDM's report. Cut originated from cell IP1A-02.
8/17/2023	RH	Lot 14 Berms S	A	Surcharge - Lot 15 Building Pad	Y	21-23	NE	186	4650	1A	No	Soil movement not reported by Langan. A soils placed in compliant location.
8/23/2023	EA	IP1A-02	B	Surcharge - Lot 15 Building Pad	Y	23-25	NW	14	350	1A	No	Cut cell named cited as IP1A-07 on JDM's report. Cut originated from cell IP1A-02.
8/24/2023	EA	IP1A-02	B	Surcharge - Lot 15 Building Pad	Y	25-26	NW	90	2250	1A	No	Cut cell named cited as IP1A-07 on JDM's report. Cut originated from cell IP1A-02.
8/24/2023	EA	IP1A-02	B	Surcharge - Lot 15 Building Pad	Y	25-26	NW	10	250	1A	No	Cut cell named cited as IP1A-301-N02 on JDM's report. Cut originated from cell IP1A-02.
9/6/2023	RH/KM	IP1A-54	A	Lot 15 - Basin	N	-	-	-	0	1A	No	Soil movement not reported by JDM. Soils not moved beyond their original cell.
11/9/2023	DM	Surcharge - Lot 15 Building Pad	B	Lot 16 Parking Lot & Docks	Y	16-31.5	SE	-	0	1A	No	Soil movement not reported by Langan. B soils placed in compliant location.
11/17/2023	RH	Surcharge - Lot 15 Building Pad	B	Lot 16 Parking Lot & Docks	Y	-	-	6	150	1A	No	Soil movement not reported by Langan. B soils placed in compliant location.
11/20/2023	JX	Surcharge - Lot 15 Building Pad	B	Lot 16 Parking Lot & Docks	Y	-	-	10	250	1A	No	Soil movement not reported by Langan. B soils placed in compliant location.
11/30/2023	KM	Surcharge - Lot 15 Building Pad	B	Lot 11 Building Pad	Y	16-18	NW & SW	200	5000	1B	No	Langan reported fill placement in loading docks in addition to building pad. Fill placement is compliant.
2/21/2024	RH/JC	Surcharge - Lot 15 Building Pad	B	Lot 9 Building Pad	Y	3.0-6.0	SE	6	150	1B	No	Langan reported fill placement in loading docks in addition to building pad. Fill placement is compliant.
7/22/2024	RH/BF/KM	Lot 15 Infrastructure Cuts	U	Lot 4 Parking Lot & Docks	Y	5.2-8.0	NE/SE	75	0	1B	No	Soil movement not reported by Langan. U soils placed in compliant location.
7/24/2024	RH/BF/KM	Lot 15 Infrastructure Cuts	U	Lot 4 Building Pad	Y	2.1-6.0	SW/NW/NE	20	500	1B	No	Langan reported fill placement in loading docks in addition to building pad. Fill placement is compliant.
8/5/2024	RH/JC/SB	IP1A-13	B	Lot 3A Building Pad	Y	3.5-4.5	SW	15	375	1B	No	Soil movement not reported by Langan. U soils placed in compliant location.
8/5/2024	RH/JC/SB	Lot 15 Infrastructure Cuts	U	Lot 4 Building Pad	Y	6.5-8.5	SW	26	875	1B	No	Langan reported fill placement in loading docks in addition to building pad. Fill placement is compliant.
9/17/2024	BF/DM/KM	Lot 15 Infrastructure Cuts	U	Lot 3B Building Pad	Y	-	-	-	-	1B	No	Soil movement not reported by JDM. U soils placed in compliant location.
9/17/2024	BF/DM/KM	Lot 15 Infrastructure Cuts	U	Lot 3B Parking Lot & Docks	Y	-	-	-	-	1B	No	Soil movement not reported by JDM. U soils placed in compliant location.

Appendix C-1
Post Construction Sampling – Unpaved Areas

FINAL

Technical Memorandum

To:	Bellwether District Holdings, LLC c/o Amy Piccone Senior Remediation Manager HRP Group	From:	Kevin Long, Senior Principal Consultant Nick Scala, PG, LSRP, Principal Geologist Terraphase Engineering Inc.
Date:	April 3, 2026	Project No.:	P044.001.018C
Subject:	**Soil Characterization of Unpaved Areas in Unit 1** **2625 Frances Harper Drive** **Former Philadelphia Energy Solutions Refinery, Philadelphia, PA**		

1 Introduction

Terraphase Engineering Inc. (Terraphase) has prepared this Technical Memorandum (Memo), on behalf of Bellwether District Holdings, LLC (BDH), to detail the soil characterization and analytical results associated with soil placed in unpaved areas located in Unit 1 during redevelopment (the "Site"; **Figure 1**). Unit 1 is located at 2625 Frances Harper Drive and within the Former Philadelphia Energy Solutions (PES) Refinery property (the "Facility") at 3144 West Passyunk Avenue in Philadelphia, Pennsylvania. In accordance with the Facility's Soil Management Plan (SMP), BDH is responsible for performing additional soil sampling and risk assessment where Facility soil was reused in areas not covered by an exposure barrier.

The sampling activities described were performed to characterize chemical concentrations in surface soil that originated from the Facility and was placed in unpaved areas during redevelopment. The Facility soil placed in the unpaved areas is overlain by approximately ½ feet (ft) of imported topsoil. Although the imported topsoil is certified Clean Fill in accordance with the Pennsylvania Department of Environmental Protection (PADEP) *Management of Fill Policy* (PADEP 2021a), the thickness of the topsoil is not sufficient to serve as an Exposure Barrier in accordance with the SMP.

Accordingly, surface soil data from the unpaved areas were evaluated to determine whether constituents are present at concentrations that would warrant quantitative risk assessment calculations under the Site-Specific Standard (SSS) framework of Pennsylvania's *Land Recycling and Environmental Remediation Standards Act* (Act 2).

2 Sampling Methodology

Soil sampling was completed by Terraphase and its subcontractor, MB Drilling, LLC, on October 29, 2024. The effort involved the completion of 12 shallow soil borings (**Figure 2**) and the collection of soil samples from each boring location. Sampling locations were selected using a systematic random approach in

which the unpaved area, totaling 3.5 acres, was first subdivided into 12 equally sized areas.[1] Within each of the 12 areas, a sampling point was then randomly generated and selected. The overall outcome of this approach was the selection of 12 sample locations through a systematic random methodology, which provides sufficient coverage of the study area, as recommended by PADEP (2021b) for generating soil results to be used to demonstrate attainment under Act 2.

Prior to the initiation of the sampling activities, the Pennsylvania One Call System (811 Dig Safe) was contacted to identify underground utilities. In addition, a review of available information provided by Facility representatives regarding the presence or absence of underground utilities was conducted. Finally, a private utility locator was retained to use geophysical and electromagnetic techniques to identify potential utilities or subsurface structures at proposed drilling locations.

Soil borings were completed using direct-push (i.e., Geoprobe) drilling methods and field screened (i.e., staining, odors, and elevated photoionization detector [PID] readings) to identify zones within the selected shallow interval (i.e., 0.0 to 1.5 ft below ground surface [bgs]) with the greatest indication of potential contamination. A discrete soil sample was collected from the six-inch interval identified through field screening or from 0.0 to 0.5 ft bgs if no indication of impacts was identified and analyzed for volatile organic compounds (VOCs). A vertical composite[2] sample was collected over the 0.0 to 1.5 ft interval for semi-volatile organic compounds (SVOCs) and lead analyses.

Consistent with prior work completed at the Facility under the Soil Management Plan (SMP), each soil sample was analyzed for the comprehensive PADEP Short List of Petroleum Products Inventory (Table III-5 of the *Land Recycling Program Technical Guidance Manual* [TGM; PADEP 2021b]; specifically, each of the analytes listed in Short Lists 1 through 5):

- **Short List 1**. *Leaded Gasoline, Aviation Gasoline and Jet Fuel*: benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, and lead.
- **Short List 2**. *Unleaded Gasoline*: benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene.
- **Short List 3**. *Kerosene, Fuel Oil No. 1*: benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene.
- **Short List 4**. *Diesel Fuel and Fuel Oil No. 2*: benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene.

[1] The *Management of Fill Policy Land Recycling* (PADEP 2021a) and *Technical Guidance Manual* (PADEP 2021b) do not specify the number of samples to be collected for a given exposure area size (e.g., acres). For risk assessments, USEPA's (2022) *ProUCL Version 5.2.0 Technical Guide* suggests that no less than 10 samples be collected to support computation of "reasonably reliable" and "accurate" estimates of exposure point concentrations (e.g., UCLs on the mean). In the case of Unit 1, with consideration for USEPA's recommended minimum sampling frequency and the expected heterogeneous nature of the surface soil in these unpaved areas, the collection of 12 samples provides a reasonable dataset from which to reliably and accurately estimate exposure concentrations.

[2] The aliquot was composited and thoroughly homogenized in a stainless-steel container.

- **Short List 5**. *Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids*: benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, and benzo(g,h,i)perylene.

VOCs, SVOCs, and lead were analyzed via United States Environmental Protection Agency (USEPA) Methods 8260D, 8270E, and 6010D, respectively. Laboratory analytical services were provided by Pace Analytical of Westborough, Massachusetts, a PADEP-certified laboratory. Soil samples submitted for analysis were placed directly into laboratory-provided glassware and stored on ice in a cooler under appropriate chain-of-custody protocol.

Copies of the laboratory reports are included in **Attachment A**.

3 Screening Evaluation of Analytical Results

Consistent with the TGM (PADEP 2021b), the soil analytical results were evaluated under the SSS framework to determine whether constituents are present at concentrations that would warrant quantitative risk assessment calculations for future receptor exposure. This evaluation was performed by screening the maximum detected concentrations in surface soil against applicable United States Environmental Protection Agency (USEPA) Regional Screening Levels (RSLs). As current and future land use[3] on Unit 1 is commercial and/or industrial, soil analytical results were compared to the applicable USEPA RSLs for commercial/industrial worker exposure to chemicals in soil based on a chemical-specific target excess lifetime cancer risk of $1x10^{-6}$ and a target hazard quotient of 0.1. Using this screening approach, constituents for which maximum detected concentrations are less than or equal to the RSLs do not warrant quantitative evaluation under the SSS framework.

As shown in **Table 1**, none of the constituents analyzed in soil in the unpaved areas were detected at concentrations greater than the RSLs. On this basis, all analyzed constituents screen out from further evaluation, and quantitative site-specific risk assessment calculations are not warranted for surface soil exposure in the unpaved areas.

4 Summary and Conclusions

Terraphase performed sampling and analysis of soil originating at the Facility that was placed in the unpaved areas of Unit 1 during redevelopment. Soil sample locations were determined using a systematic random methodology. The samples were collected and analyzed for VOCs, SVOCs, and lead in accordance with PADEP guidelines.

As part of this evaluation, maximum detected concentrations for constituents identified in surface soil in the unpaved areas were screened against applicable USEPA RSLs for commercial/industrial worker exposure to soil under the SSS framework. None of the constituents were detected at concentrations greater than the applicable RSLs.

[3] As part of its redevelopment, restrictions will be established for the Facility in one or more environmental covenants. The environmental covenants will include restrictions limiting on-site land use to commercial or industrial purposes.

On this basis, all detected constituents screen out from further evaluation, and quantitative site-specific risk assessment calculations are not warranted for surface soil exposure in the unpaved areas. Accordingly, the analytical results support the conclusion that surface soil in the unpaved areas does not pose an unacceptable risk to future receptors following development.

5 References

Pennsylvania Department of Environmental Protection (PADEP). 2021a. *Management of Fill Policy*. January 16.

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

United States Environmental Protection Agency (USEPA). 2022. *ProUCL Version 5.2.0 Technical Guide*. April.

Attachments (4):

- Table 1 Soil Analytical Results
- Figure 1 Site Location Map
- Figure 2 Site Layout and Sampling Locations
- Attachment A Laboratory Reports

Tables

1. Soil Analytical Results

Table 1
Soil Analytical Results
Unit 1 Unpaved Areas
2625 Frances Harper Drive
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	USEPA Regional Screening Levels (Industrial)	Lot15-LA-01 LOT15-LA-01-SS01 0.5 - 2.0 Grab/Comp 10/29/2024	Lot15-LA-02 LOT15-LA-02-SS01 0.5 - 2.0 Grab/Comp 10/29/2024	Lot15-LA-03 LOT15-LA-03-SS01 0.5 - 2.0 Grab/Comp 10/29/2024	Lot15-LA-04 LOT15-LA-04-SS01 0.5 - 2.0 Grab/Comp 10/29/2024	Lot15-LA-05 LOT15-LA-05-SS01 0.5 - 2.0 Grab/Comp 10/29/2024	Lot15-LA-06 LOT15-LA-06-SS01 0.5 - 2.0 Grab/Comp 10/29/2024	Lot15-LA-07 LOT15-LA-07-SS01 0.5 - 2.0 Grab/Comp 10/29/2024	Lot15-LA-08 LOT15-LA-08-SS01 0.5 - 2.0 Grab/Comp 10/29/2024	Lot15-LA-09 LOT15-LA-09-SS01 0.5 - 2.0 Grab/Comp 10/29/2024	Lot15-LA-10 LOT15-LA-10-SS01 0.5 - 2.0 Grab/Comp 10/29/2024	Lot15-LA-11 LOT15-LA-11-SS01 0.5 - 2.0 Grab/Comp 10/29/2024	Lot15-LA-12 LOT15-LA-12-SS01 0.5 - 2.0 Grab/Comp 10/29/2024
Volatile Organic Compounds													
Benzene	5.1	ND (0.00045)	ND (0.00053)	ND (0.00052)	0.00035 J (0.00058)	0.00047 (0.00047)	0.00032 J (0.00056)	ND (0.0005)	ND (0.00049)	0.00062 (0.00051)	0.022 J (0.026)	ND (0.00045)	0.00042 J (0.00056)
Cumene	990	ND (0.0009)	ND (0.001)	ND (0.001)	ND (0.0012)	0.00039 J (0.00094)	0.0017 (0.0011)	ND (0.001)	ND (0.00098)	ND (0.001)	0.81 (0.053)	ND (0.0009)	ND (0.0011)
1,2-Dibromoethane	0.16	ND (0.00045)	ND (0.00053)	ND (0.00052)	ND (0.00058)	ND (0.00047)	ND (0.00056)	ND (0.0005)	ND (0.00049)	ND (0.00051)	ND (0.026)	ND (0.00045)	ND (0.00056)
1,2-Dichloroethane	2	ND (0.0009)	ND (0.001)	ND (0.001)	ND (0.0012)	ND (0.00094)	ND (0.0011)	ND (0.001)	ND (0.00098)	ND (0.001)	ND (0.053)	ND (0.0009)	ND (0.0011)
Ethyl Benzene	25	ND (0.0009)	ND (0.001)	ND (0.001)	ND (0.0012)	0.00032 J (0.00094)	0.0011 (0.0011)	ND (0.001)	ND (0.00098)	ND (0.001)	0.33 (0.053)	ND (0.0009)	ND (0.0011)
Methyl tert-butyl ether	210	ND (0.0018)	ND (0.0021)	ND (0.0021)	ND (0.0023)	0.00025 J (0.0019)	ND (0.0023)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.11)	ND (0.0018)	ND (0.0022)
Toluene	4700	ND (0.0009)	ND (0.001)	ND (0.001)	ND (0.0012)	ND (0.00094)	ND (0.0011)	ND (0.001)	ND (0.00098)	ND (0.001)	0.23 (0.053)	ND (0.0009)	ND (0.0011)
1,2,4-Trimethylbenzene	180	ND (0.0018)	ND (0.0021)	ND (0.0021)	ND (0.0023)	0.00032 J (0.0019)	0.0063 (0.0023)	ND (0.002)	ND (0.002)	ND (0.002)	4.1 (0.11)	ND (0.0018)	ND (0.0022)
1,3,5-Trimethylbenzene	150	ND (0.0018)	ND (0.0021)	ND (0.0021)	ND (0.0023)	ND (0.0019)	0.0023 (0.0023)	ND (0.002)	ND (0.002)	ND (0.002)	1.5 (0.11)	ND (0.0018)	ND (0.0022)
Xylenes (total)	250	ND (0.0018)	ND (0.0021)	ND (0.0021)	ND (0.0023)	ND (0.0019)	0.00248 J (0.0023)	ND (0.002)	ND (0.002)	ND (0.002)	4.7 J (0.11)	ND (0.0018)	ND (0.0022)
Semivolatile Organic Compounds													
Anthracene	23000	0.069 J (0.11)	0.052 J (0.1)	0.068 J (0.1)	0.089 J (0.11)	0.059 J (0.11)	ND (0.12)	ND (0.11)	ND (0.11)	0.044 J (0.11)	0.088 J (0.11)	ND (0.1)	0.066 J (0.1)
Benzo(a)anthracene	21	0.2 (0.11)	0.14 (0.1)	0.28 (0.1)	0.17 (0.11)	0.18 (0.11)	0.12 (0.12)	0.062 J (0.11)	0.078 J (0.11)	0.15 (0.11)	0.21 (0.11)	ND (0.1)	0.14 (0.1)
Benzo(a)pyrene	2.1	0.26 (0.15)	0.14 (0.14)	0.31 (0.14)	0.15 (0.14)	0.16 (0.14)	0.16 (0.15)	0.1 J (0.14)	0.19 (0.14)	0.16 (0.14)	0.21 (0.14)	ND (0.14)	0.16 (0.14)
Benzo(b)fluoranthene	21	0.31 (0.11)	0.17 (0.1)	0.41 (0.1)	0.18 (0.11)	0.22 (0.11)	0.16 (0.12)	0.11 (0.11)	0.18 (0.11)	0.19 (0.11)	0.25 (0.11)	ND (0.1)	0.18 (0.1)
Benzo(g,h,i)perylene	2300	0.22 (0.15)	0.12 J (0.14)	0.24 (0.14)	0.096 J (0.14)	0.11 J (0.14)	0.18 (0.15)	0.084 J (0.14)	0.11 J (0.14)	0.14 (0.14)	0.16 (0.14)	ND (0.14)	0.17 (0.14)
Chrysene	2100	0.28 (0.11)	0.14 (0.1)	0.31 (0.1)	0.16 (0.11)	0.21 (0.11)	0.15 (0.12)	0.059 J (0.11)	0.072 J (0.11)	0.17 (0.11)	0.26 (0.11)	ND (0.1)	0.19 (0.1)
Fluorene	3000	0.043 J (0.18)	0.024 J (0.17)	0.028 J (0.17)	0.045 J (0.18)	0.096 J (0.18)	0.02 J (0.19)	ND (0.18)	ND (0.18)	0.024 J (0.18)	0.22 (0.18)	ND (0.18)	0.046 J (0.18)
Naphthalene	8.6	0.1 (0.036)	0.038 (0.034)	0.046 (0.035)	0.057 (0.036)	0.049 (0.036)	0.057 (0.038)	ND (0.036)	ND (0.036)	0.096 (0.035)	0.2 (0.036)	ND (0.035)	0.12 (0.035)
Phenanthrene	2300	0.23 (0.11)	0.18 (0.1)	0.22 (0.1)	0.34 (0.11)	0.34 (0.11)	0.13 (0.12)	0.042 J (0.11)	0.035 J (0.11)	0.15 (0.11)	0.58 (0.11)	ND (0.1)	0.22 (0.1)
Pyrene	2300	0.4 (0.11)	0.23 (0.1)	0.4 (0.1)	0.28 (0.11)	0.25 (0.11)	0.15 (0.12)	0.074 J (0.11)	0.06 J (0.11)	0.2 (0.11)	0.42 (0.11)	0.018 J (0.1)	0.24 (0.1)
Metals													
Lead	800	91.4 (4.16)	53.8 (4.1)	65.1 (4.12)	17.6 (4.2)	74 (10.2)	82.2 (4.57)	28.1 (4.24)	10.5 (4.26)	80.2 (4.15)	54.5 (4.15)	21.9 (8.34)	76.1 (4.08)

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 The collection depths presented are relative to the planned placement of 0.5 ft of topsoil during redevelopment.
3 A discrete sample was collected at each boring from the 0.5 ft interval identified within the 0.5-2.0 ft bgs interval displaying the highest indication of contamination using field screening techniques (i.e., PID reading and/or visual observation) and analyzed for VOCs.
4 A vertical composite sample was collected at each boring over the 0.5-2.0 ft bgs interval and analyzed for SVOCs and lead.
5 Regional Screening Levels are the lower of the cancer and noncancer based values at a target cancer risk of 1E-6 or target hazard quotient of 0.1, respectively.
6 No concentrations greater than the RSLs

Abbreviations:
ND - Not Detected
J - Estimated Concentration
Comp - Composite

Figures

1. Site Location Map
2. Site Layout and Sampling Locations



0 2,000 4,000 Feet

1 Inch = 2000 Feet

N

Legend

Facility Boundary

Unit Boundary

Note: Aerial Imagery Source: NearMap (February 2025)

SAFETY FIRST

terraphase engineering

CLIENT: Bellwether District Holdings, LLC

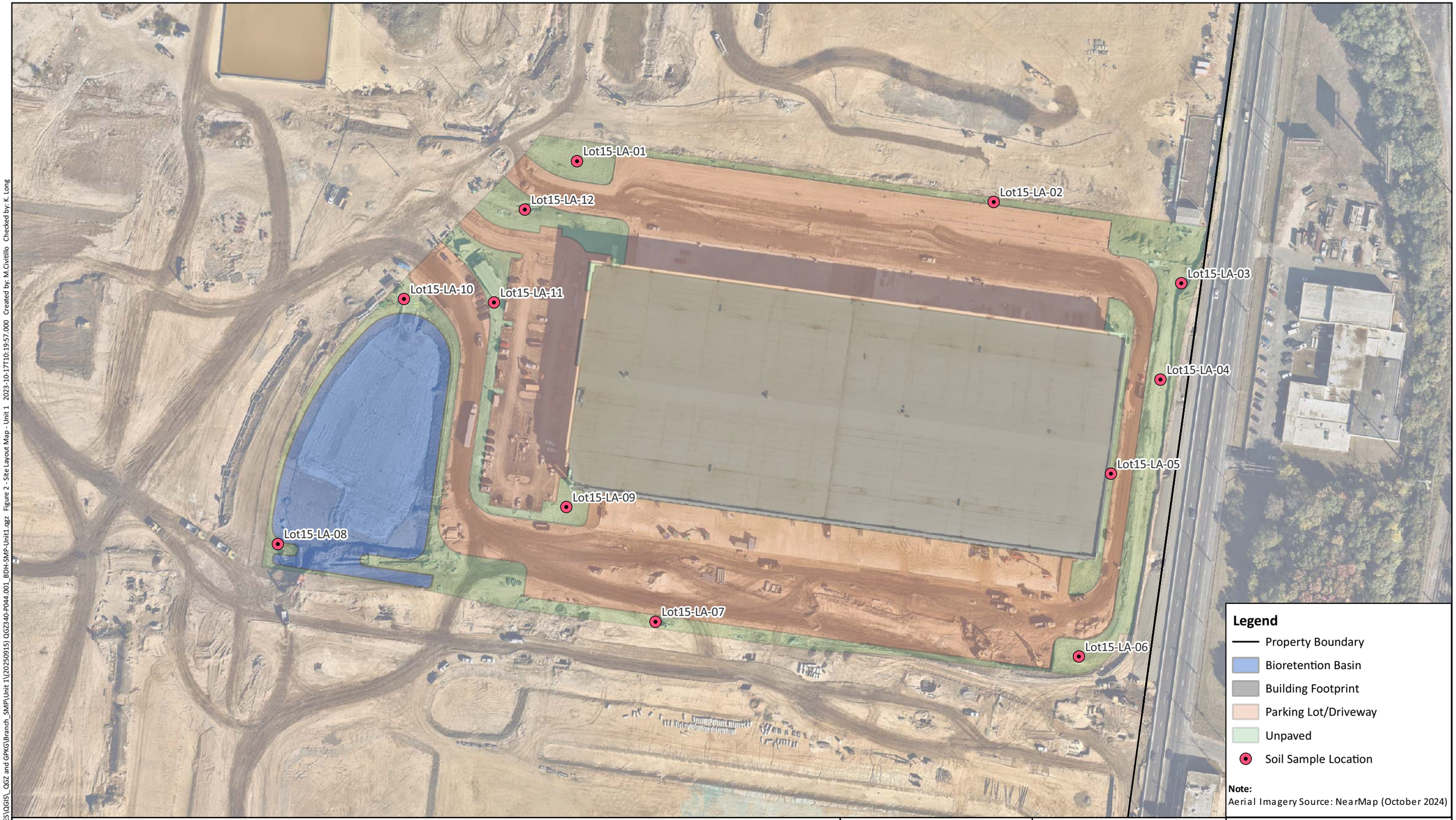
PROJECT: Unit 1 Unpaved Area Sampling

PROJECT NUMBER: P044.001.018C

Site Location Map

FIGURE 1

N:\GIS\Prj\P044.001_PESRM-PES\QGIS_QGZ and GPKG\Branch_SMP\Lot 15\(20250421) QGZ340-P044.001_BDH-SMP-Lot15.qgz Figure 1 - Site Location Map 2023-10-17T10:19:57.000 Created by: A.Spiers Checked by: K. Long



N:\GIS\Prj\P044.001_PESRM-PES\QGIS_QGZ and GPKG\Branch_SMP\Unit 1\(20250915) QGZ340-P044.001_BDH-SMP-Unit1.qgz Figure 2 - Site Layout Map - Unit 1 2023-10-17T10:19:57.000 Created by: M.Civitillo Checked by: K. Long

Attachment A

Laboratory Reports

ANALYTICAL REPORT

Lab Number:	L2463127
Client:	Terraphase Engineering Inc. 1100 East Hector Street Suite 400 Conshohocken, PA 19428
ATTN:	Nick Scala
Phone:	(215) 297-3502
Project Name:	PESRM
Project Number:	P044.001.001
Report Date:	11/08/24

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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).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2463127-01	LOT15-LA-10-SS01	SOIL	3144 W. PASSYUNK AVE.	10/29/24 10:25	10/29/24
L2463127-02	LOT15-LA-11-SS01	SOIL	3144 W. PASSYUNK AVE.	10/29/24 10:35	10/29/24
L2463127-03	LOT15-LA-12-SS01	SOIL	3144 W. PASSYUNK AVE.	10/29/24 10:45	10/29/24
L2463127-04	LOT15-LA-11B-SS01	SOIL	3144 W. PASSYUNK AVE.	10/29/24 11:30	10/29/24
L2463127-05	LOT15-LA-12B-SS01	SOIL	3144 W. PASSYUNK AVE.	10/29/24 11:40	10/29/24
L2463127-06	LOT15-LA-01-SS01	SOIL	3144 W. PASSYUNK AVE.	10/29/24 11:50	10/29/24
L2463127-07	LOT15-LA-01B-SS01	SOIL	3144 W. PASSYUNK AVE.	10/29/24 12:00	10/29/24
L2463127-08	LOT15-LA-07-SS01	SOIL	3144 W. PASSYUNK AVE.	10/29/24 12:10	10/29/24
L2463127-09	LOT15-LA-08-SS01	SOIL	3144 W. PASSYUNK AVE.	10/29/24 12:15	10/29/24
L2463127-10	LOT15-LA-08B-SS01	SOIL	3144 W. PASSYUNK AVE.	10/29/24 12:30	10/29/24
L2463127-11	LOT15-LA-09B-SS01	SOIL	3144 W. PASSYUNK AVE.	10/29/24 12:40	10/29/24
L2463127-12	LOT15-LA-02-SS01	SOIL	3144 W. PASSYUNK AVE.	10/29/24 13:30	10/29/24
L2463127-13	LOT15-LA-02B-SS01	SOIL	3144 W. PASSYUNK AVE.	10/29/24 13:40	10/29/24
L2463127-14	LOT15-LA-03-SS01	SOIL	3144 W. PASSYUNK AVE.	10/29/24 13:50	10/29/24
L2463127-15	LOT15-LA-04-SS01	SOIL	3144 W. PASSYUNK AVE.	10/29/24 14:00	10/29/24
L2463127-16	LOT15-LA-05-SS01	SOIL	3144 W. PASSYUNK AVE.	10/29/24 14:05	10/29/24
L2463127-17	LOT15-LA-05B-SS01	SOIL	3144 W. PASSYUNK AVE.	10/29/24 14:15	10/29/24
L2463127-18	LOT15-LA-06-SS01	SOIL	3144 W. PASSYUNK AVE.	10/29/24 14:20	10/29/24
L2463127-19	LOT15-LA-06B-SS01	SOIL	3144 W. PASSYUNK AVE.	10/29/24 14:30	10/29/24
L2463127-20	LOT15-LA-09-SS01	SOIL	3144 W. PASSYUNK AVE.	10/29/24 14:40	10/29/24

Project Name:	PESRM	**Lab Number:**	L2463127
Project Number:	P044.001.001	**Report Date:**	11/08/24

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.

Project Name:	PESRM	**Lab Number:**	L2463127
Project Number:	P044.001.001	**Report Date:**	11/08/24

Case Narrative (continued)

Report Submission

November 08, 2024: This final report includes the results of all requested analyses. Additional requests will be reported separately.

November 07, 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.

November 06, 2024: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2463127-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (153%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Total Metals

L2463127-01, -02, -03, -06, -08, -09, -12, -15, -16, -18, and -20: The sample has an elevated detection limit due to the dilution required by the sample matrix.

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

Authorized Signature: Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative Date: 11/08/24

ORGANICS

VOLATILES

Project Name: PESRM **Lab Number:** L2463127

Project Number: P044.001.001 **Report Date:** 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-01
Client ID: LOT15-LA-10-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 10:25
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/01/24 19:46
Analyst: JIC
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	0.022	J	mg/kg	0.026	0.0088	1
1,2-Dichloroethane	ND		mg/kg	0.053	0.014	1
Toluene	0.23		mg/kg	0.053	0.029	1
1,2-Dibromoethane	ND		mg/kg	0.026	0.016	1
Ethylbenzene	0.33		mg/kg	0.053	0.0075	1
p/m-Xylene	3.3		mg/kg	0.11	0.030	1
o-Xylene	1.4		mg/kg	0.053	0.015	1
Xylenes, Total	4.7		mg/kg	0.053	0.015	1
Isopropylbenzene	0.81		mg/kg	0.053	0.0058	1
1,3,5-Trimethylbenzene	1.5		mg/kg	0.11	0.010	1
1,2,4-Trimethylbenzene	4.1		mg/kg	0.11	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	**153**	Q	70-130
Dibromofluoromethane	84		70-130

Project Name: PESRM **Lab Number:** L2463127

Project Number: P044.001.001 **Report Date:** 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-02
Client ID: LOT15-LA-11-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 10:35
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/05/24 11:26
Analyst: AJK
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00045	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00090	0.00023	1
Toluene	ND		mg/kg	0.00090	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00045	0.00026	1
Ethylbenzene	ND		mg/kg	0.00090	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00050	1
o-Xylene	ND		mg/kg	0.00090	0.00026	1
Xylenes, Total	ND		mg/kg	0.00090	0.00026	1
Isopropylbenzene	ND		mg/kg	0.00090	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	92		70-130

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-03
Client ID: LOT15-LA-12-SS01
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 10/29/24 10:45
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/01/24 20:37
Analyst: JIC
Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	0.00042	J	mg/kg	0.00056	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	ND		mg/kg	0.0011	0.00060	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00032	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0022	0.00062	1
o-Xylene	ND		mg/kg	0.0011	0.00032	1
Xylenes, Total	ND		mg/kg	0.0011	0.00032	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	104		70-130

Project Name: PESRM **Lab Number:** L2463127

Project Number: P044.001.001 **Report Date:** 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-06
Client ID: LOT15-LA-01-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 11:50
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/01/24 21:03
Analyst: JIC
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00045	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00090	0.00023	1
Toluene	ND		mg/kg	0.00090	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00045	0.00026	1
Ethylbenzene	ND		mg/kg	0.00090	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00050	1
o-Xylene	ND		mg/kg	0.00090	0.00026	1
Xylenes, Total	ND		mg/kg	0.00090	0.00026	1
Isopropylbenzene	ND		mg/kg	0.00090	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	104		70-130

Project Name: PESRM **Lab Number:** L2463127

Project Number: P044.001.001 **Report Date:** 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-08
Client ID: LOT15-LA-07-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 12:10
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/01/24 21:29
Analyst: JIC
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00056	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	103		70-130

Project Name: PESRM **Lab Number:** L2463127

Project Number: P044.001.001 **Report Date:** 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-09
Client ID: LOT15-LA-08-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 12:15
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/03/24 17:34
Analyst: JIC
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00049	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00098	0.00025	1
Toluene	ND		mg/kg	0.00098	0.00053	1
1,2-Dibromoethane	ND		mg/kg	0.00049	0.00029	1
Ethylbenzene	ND		mg/kg	0.00098	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00055	1
o-Xylene	ND		mg/kg	0.00098	0.00028	1
Xylenes, Total	ND		mg/kg	0.00098	0.00028	1
Isopropylbenzene	ND		mg/kg	0.00098	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	102		70-130

Project Name: PESRM **Lab Number:** L2463127

Project Number: P044.001.001 **Report Date:** 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-12
Client ID: LOT15-LA-02-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 13:30
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/01/24 21:55
Analyst: JIC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00053	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00027	1
Toluene	ND		mg/kg	0.0010	0.00057	1
1,2-Dibromoethane	ND		mg/kg	0.00053	0.00031	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00059	1
o-Xylene	ND		mg/kg	0.0010	0.00031	1
Xylenes, Total	ND		mg/kg	0.0010	0.00031	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	102		70-130

Project Name: PESRM **Lab Number:** L2463127

Project Number: P044.001.001 **Report Date:** 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-14
Client ID: LOT15-LA-03-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 13:50
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/01/24 22:21
Analyst: JIC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00027	1
Toluene	ND		mg/kg	0.0010	0.00057	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00031	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00059	1
o-Xylene	ND		mg/kg	0.0010	0.00031	1
Xylenes, Total	ND		mg/kg	0.0010	0.00031	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	103		70-130

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-15
Client ID: LOT15-LA-04-SS01
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 10/29/24 14:00
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/01/24 22:47
Analyst: JIC
Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	0.00035	J	mg/kg	0.00058	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00030	1
Toluene	ND		mg/kg	0.0012	0.00063	1
1,2-Dibromoethane	ND		mg/kg	0.00058	0.00034	1
Ethylbenzene	ND		mg/kg	0.0012	0.00016	1
p/m-Xylene	ND		mg/kg	0.0023	0.00065	1
o-Xylene	ND		mg/kg	0.0012	0.00034	1
Xylenes, Total	ND		mg/kg	0.0012	0.00034	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	103		70-130

Project Name: PESRM **Lab Number:** L2463127

Project Number: P044.001.001 **Report Date:** 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-16
Client ID: LOT15-LA-05-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 14:05
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/04/24 14:05
Analyst: JIC
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00025	J	mg/kg	0.0019	0.00019	1
Benzene	0.00047		mg/kg	0.00047	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00094	0.00024	1
Toluene	ND		mg/kg	0.00094	0.00051	1
1,2-Dibromoethane	ND		mg/kg	0.00047	0.00027	1
Ethylbenzene	0.00032	J	mg/kg	0.00094	0.00013	1
p/m-Xylene	ND		mg/kg	0.0019	0.00052	1
o-Xylene	ND		mg/kg	0.00094	0.00027	1
Xylenes, Total	ND		mg/kg	0.00094	0.00027	1
Isopropylbenzene	0.00039	J	mg/kg	0.00094	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	0.00032	J	mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	105		70-130

Project Name: PESRM **Lab Number:** L2463127

Project Number: P044.001.001 **Report Date:** 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-18
Client ID: LOT15-LA-06-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 14:20
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/01/24 23:38
Analyst: JIC
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	0.00032	J	mg/kg	0.00056	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	ND		mg/kg	0.0011	0.00061	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	0.0011		mg/kg	0.0011	0.00016	1
p/m-Xylene	0.0015	J	mg/kg	0.0023	0.00063	1
o-Xylene	0.00098	J	mg/kg	0.0011	0.00033	1
Xylenes, Total	0.0025	J	mg/kg	0.0011	0.00033	1
Isopropylbenzene	0.0017		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.0023		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	0.0063		mg/kg	0.0023	0.00038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	99		70-130

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-20
Client ID: LOT15-LA-09-SS01
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 10/29/24 14:40
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/02/24 00:04
Analyst: JIC
Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00021	1
Benzene	0.00062		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00058	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	102		70-130

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 11/01/24 15:27
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 03,06,08,12,14-15,18,20 Batch: WG1992776-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	99		70-130

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 11/01/24 15:27
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1992778-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	99		70-130

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 11/03/24 14:33
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 09 Batch: WG1992791-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	99		70-130

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 11/04/24 10:09
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 16 Batch: WG1993241-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	99		70-130

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 11/05/24 09:43
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02 Batch: WG1993364-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 03,06,08,12,14-15,18,20 Batch: WG1992776-3 WG1992776-4								
Methyl tert butyl ether	75		73		66-130	3		30
Benzene	98		94		70-130	4		30
1,2-Dichloroethane	92		90		70-130	2		30
Toluene	90		86		70-130	5		30
1,2-Dibromoethane	107		105		70-130	2		30
Ethylbenzene	103		100		70-130	3		30
p/m-Xylene	106		104		70-130	2		30
o-Xylene	105		101		70-130	4		30
Isopropylbenzene	106		101		70-130	5		30
1,3,5-Trimethylbenzene	101		99		70-130	2		30
1,2,4-Trimethylbenzene	100		98		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		95		70-130
Toluene-d8	108		107		70-130
4-Bromofluorobenzene	103		102		70-130
Dibromofluoromethane	97		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1992778-3 WG1992778-4								
Methyl tert butyl ether	75		73		66-130	3		30
Benzene	98		94		70-130	4		30
1,2-Dichloroethane	92		90		70-130	2		30
Toluene	90		86		70-130	5		30
1,2-Dibromoethane	107		105		70-130	2		30
Ethylbenzene	103		100		70-130	3		30
p/m-Xylene	106		104		70-130	2		30
o-Xylene	105		101		70-130	4		30
Isopropylbenzene	106		101		70-130	5		30
1,3,5-Trimethylbenzene	101		99		70-130	2		30
1,2,4-Trimethylbenzene	100		98		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		95		70-130
Toluene-d8	108		107		70-130
4-Bromofluorobenzene	102		102		70-130
Dibromofluoromethane	97		98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 09 Batch: WG1992791-3 WG1992791-4								
Methyl tert butyl ether	105		102		66-130	3		30
Benzene	103		101		70-130	2		30
1,2-Dichloroethane	100		98		70-130	2		30
Toluene	105		102		70-130	3		30
1,2-Dibromoethane	107		104		70-130	3		30
Ethylbenzene	107		103		70-130	4		30
p/m-Xylene	107		104		70-130	3		30
o-Xylene	104		101		70-130	3		30
Isopropylbenzene	106		107		70-130	1		30
1,3,5-Trimethylbenzene	105		106		70-130	1		30
1,2,4-Trimethylbenzene	106		108		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		102		70-130
Toluene-d8	107		107		70-130
4-Bromofluorobenzene	116		108		70-130
Dibromofluoromethane	104		103		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

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 Batch: WG1993241-3 WG1993241-4								
Methyl tert butyl ether	95		93		66-130	2		30
Benzene	92		90		70-130	2		30
1,2-Dichloroethane	88		87		70-130	1		30
Toluene	89		89		70-130	0		30
1,2-Dibromoethane	95		96		70-130	1		30
Ethylbenzene	88		88		70-130	0		30
p/m-Xylene	92		92		70-130	0		30
o-Xylene	91		92		70-130	1		30
Isopropylbenzene	89		88		70-130	1		30
1,3,5-Trimethylbenzene	90		90		70-130	0		30
1,2,4-Trimethylbenzene	90		92		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		95		70-130
Toluene-d8	103		102		70-130
4-Bromofluorobenzene	102		102		70-130
Dibromofluoromethane	100		99		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02 Batch: WG1993364-3 WG1993364-4								
Methyl tert butyl ether	80		76		66-130	5		30
Benzene	101		100		70-130	1		30
1,2-Dichloroethane	94		91		70-130	3		30
Toluene	93		91		70-130	2		30
1,2-Dibromoethane	113		109		70-130	4		30
Ethylbenzene	106		105		70-130	1		30
p/m-Xylene	110		110		70-130	0		30
o-Xylene	108		108		70-130	0		30
Isopropylbenzene	112		108		70-130	4		30
1,3,5-Trimethylbenzene	106		105		70-130	1		30
1,2,4-Trimethylbenzene	106		105		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		93		70-130
Toluene-d8	108		108		70-130
4-Bromofluorobenzene	105		104		70-130
Dibromofluoromethane	95		97		70-130

SEMIVOLATILES

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-01
Client ID: LOT15-LA-10-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 10:25
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 11/05/24 06:24
Analyst: SLR
Percent Solids: 91%

Extraction Method: EPA 3546
Extraction Date: 11/02/24 23:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.20		mg/kg	0.036	0.022	1
Fluorene	0.22		mg/kg	0.18	0.018	1
Phenanthrene	0.58		mg/kg	0.11	0.022	1
Anthracene	0.088	J	mg/kg	0.11	0.035	1
Pyrene	0.42		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.21		mg/kg	0.11	0.020	1
Chrysene	0.26		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.25		mg/kg	0.11	0.030	1
Benzo(a)pyrene	0.21		mg/kg	0.14	0.044	1
Benzo(ghi)perylene	0.16		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	94		30-120
4-Terphenyl-d14	99		18-120

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-02
Client ID: LOT15-LA-11-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 10:35
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 11/05/24 03:37
Analyst: SLR
Percent Solids: 94%

Extraction Method: EPA 3546
Extraction Date: 11/02/24 23:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.035	0.022	1
Fluorene	ND		mg/kg	0.18	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	0.018	J	mg/kg	0.10	0.018	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.020	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.030	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.043	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	64		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	72		18-120

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-03
Client ID: LOT15-LA-12-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 10:45
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 11/05/24 07:36
Analyst: SLR
Percent Solids: 93%

Extraction Method: EPA 3546
Extraction Date: 11/02/24 23:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.12		mg/kg	0.035	0.021	1
Fluorene	0.046	J	mg/kg	0.18	0.017	1
Phenanthrene	0.22		mg/kg	0.10	0.021	1
Anthracene	0.066	J	mg/kg	0.10	0.034	1
Pyrene	0.24		mg/kg	0.10	0.018	1
Benzo(a)anthracene	0.14		mg/kg	0.10	0.020	1
Chrysene	0.19		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	0.18		mg/kg	0.10	0.030	1
Benzo(a)pyrene	0.16		mg/kg	0.14	0.043	1
Benzo(ghi)perylene	0.17		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	63		23-120
2-Fluorobiphenyl	88		30-120
4-Terphenyl-d14	80		18-120

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-06
Client ID: LOT15-LA-01-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 11:50
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 11/05/24 07:12
Analyst: SLR
Percent Solids: 91%

Extraction Method: EPA 3546
Extraction Date: 11/02/24 23:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.10		mg/kg	0.036	0.022	1
Fluorene	0.043	J	mg/kg	0.18	0.018	1
Phenanthrene	0.23		mg/kg	0.11	0.022	1
Anthracene	0.069	J	mg/kg	0.11	0.036	1
Pyrene	0.40		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.20		mg/kg	0.11	0.020	1
Chrysene	0.28		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.31		mg/kg	0.11	0.031	1
Benzo(a)pyrene	0.26		mg/kg	0.15	0.044	1
Benzo(ghi)perylene	0.22		mg/kg	0.15	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	90		30-120
4-Terphenyl-d14	84		18-120

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-08
Client ID: LOT15-LA-07-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 12:10
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 11/05/24 02:01
Analyst: SLR
Percent Solids: 91%

Extraction Method: EPA 3546
Extraction Date: 11/03/24 08:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.036	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	0.042	J	mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.035	1
Pyrene	0.074	J	mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.062	J	mg/kg	0.11	0.020	1
Chrysene	0.059	J	mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.11		mg/kg	0.11	0.030	1
Benzo(a)pyrene	0.10	J	mg/kg	0.14	0.044	1
Benzo(ghi)perylene	0.084	J	mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	80		30-120
4-Terphenyl-d14	79		18-120

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-09
Client ID: LOT15-LA-08-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 12:15
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 11/05/24 00:49
Analyst: SLR
Percent Solids: 94%

Extraction Method: EPA 3546
Extraction Date: 11/02/24 23:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.036	0.022	1
Fluorene	ND		mg/kg	0.18	0.017	1
Phenanthrene	0.035	J	mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.035	1
Pyrene	0.060	J	mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.078	J	mg/kg	0.11	0.020	1
Chrysene	0.072	J	mg/kg	0.11	0.018	1
Benzo(b)fluoranthene	0.18		mg/kg	0.11	0.030	1
Benzo(a)pyrene	0.19		mg/kg	0.14	0.043	1
Benzo(ghi)perylene	0.11	J	mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	86		30-120
4-Terphenyl-d14	95		18-120

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-12
Client ID: LOT15-LA-02-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 13:30
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 11/05/24 06:48
Analyst: SLR
Percent Solids: 95%

Extraction Method: EPA 3546
Extraction Date: 11/02/24 23:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.038		mg/kg	0.034	0.021	1
Fluorene	0.024	J	mg/kg	0.17	0.017	1
Phenanthrene	0.18		mg/kg	0.10	0.021	1
Anthracene	0.052	J	mg/kg	0.10	0.033	1
Pyrene	0.23		mg/kg	0.10	0.017	1
Benzo(a)anthracene	0.14		mg/kg	0.10	0.019	1
Chrysene	0.14		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	0.17		mg/kg	0.10	0.029	1
Benzo(a)pyrene	0.14		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	0.12	J	mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	62		23-120
2-Fluorobiphenyl	90		30-120
4-Terphenyl-d14	86		18-120

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-14
Client ID: LOT15-LA-03-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 13:50
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 11/05/24 06:00
Analyst: SLR
Percent Solids: 95%

Extraction Method: EPA 3546
Extraction Date: 11/02/24 23:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.046		mg/kg	0.035	0.021	1
Fluorene	0.028	J	mg/kg	0.17	0.017	1
Phenanthrene	0.22		mg/kg	0.10	0.021	1
Anthracene	0.068	J	mg/kg	0.10	0.034	1
Pyrene	0.40		mg/kg	0.10	0.017	1
Benzo(a)anthracene	0.28		mg/kg	0.10	0.020	1
Chrysene	0.31		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	0.41		mg/kg	0.10	0.029	1
Benzo(a)pyrene	0.31		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	0.24		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	75		23-120
2-Fluorobiphenyl	90		30-120
4-Terphenyl-d14	86		18-120

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-15
Client ID: LOT15-LA-04-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 14:00
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 11/05/24 02:25
Analyst: SLR
Percent Solids: 93%

Extraction Method: EPA 3546
Extraction Date: 11/02/24 23:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.057		mg/kg	0.036	0.022	1
Fluorene	0.045	J	mg/kg	0.18	0.017	1
Phenanthrene	0.34		mg/kg	0.11	0.022	1
Anthracene	0.089	J	mg/kg	0.11	0.035	1
Pyrene	0.28		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.17		mg/kg	0.11	0.020	1
Chrysene	0.16		mg/kg	0.11	0.018	1
Benzo(b)fluoranthene	0.18		mg/kg	0.11	0.030	1
Benzo(a)pyrene	0.15		mg/kg	0.14	0.043	1
Benzo(ghi)perylene	0.096	J	mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	82		30-120
4-Terphenyl-d14	83		18-120

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-16
Client ID: LOT15-LA-05-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 14:05
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 11/05/24 08:24
Analyst: SLR
Percent Solids: 92%

Extraction Method: EPA 3546
Extraction Date: 11/02/24 23:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.049		mg/kg	0.036	0.022	1
Fluorene	0.096	J	mg/kg	0.18	0.018	1
Phenanthrene	0.34		mg/kg	0.11	0.022	1
Anthracene	0.059	J	mg/kg	0.11	0.035	1
Pyrene	0.25		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.18		mg/kg	0.11	0.020	1
Chrysene	0.21		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.22		mg/kg	0.11	0.030	1
Benzo(a)pyrene	0.16		mg/kg	0.14	0.044	1
Benzo(ghi)perylene	0.11	J	mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	92		30-120
4-Terphenyl-d14	89		18-120

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-18
Client ID: LOT15-LA-06-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 14:20
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 11/05/24 04:01
Analyst: SLR
Percent Solids: 86%

Extraction Method: EPA 3546
Extraction Date: 11/02/24 23:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.057		mg/kg	0.038	0.023	1
Fluorene	0.020	J	mg/kg	0.19	0.019	1
Phenanthrene	0.13		mg/kg	0.12	0.023	1
Anthracene	ND		mg/kg	0.12	0.037	1
Pyrene	0.15		mg/kg	0.12	0.019	1
Benzo(a)anthracene	0.12		mg/kg	0.12	0.022	1
Chrysene	0.15		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	0.16		mg/kg	0.12	0.032	1
Benzo(a)pyrene	0.16		mg/kg	0.15	0.047	1
Benzo(ghi)perylene	0.18		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	84		23-120
2-Fluorobiphenyl	86		30-120
4-Terphenyl-d14	86		18-120

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-20
Client ID: LOT15-LA-09-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 14:40
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 11/05/24 05:13
Analyst: SLR
Percent Solids: 93%

Extraction Method: EPA 3546
Extraction Date: 11/02/24 23:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.096		mg/kg	0.035	0.022	1
Fluorene	0.024	J	mg/kg	0.18	0.017	1
Phenanthrene	0.15		mg/kg	0.11	0.021	1
Anthracene	0.044	J	mg/kg	0.11	0.034	1
Pyrene	0.20		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.15		mg/kg	0.11	0.020	1
Chrysene	0.17		mg/kg	0.11	0.018	1
Benzo(b)fluoranthene	0.19		mg/kg	0.11	0.030	1
Benzo(a)pyrene	0.16		mg/kg	0.14	0.043	1
Benzo(ghi)perylene	0.14		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	92		30-120
4-Terphenyl-d14	83		18-120

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 11/05/24 03:02
Analyst: SLR

Extraction Method: EPA 3546
Extraction Date: 11/02/24 23:01

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,06,08-09,12,14-16,18,20 Batch: WG1992367-1					
Naphthalene	ND		mg/kg	0.033	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.099	0.020
Anthracene	ND		mg/kg	0.099	0.032
Pyrene	ND		mg/kg	0.099	0.016
Benzo(a)anthracene	ND		mg/kg	0.099	0.018
Chrysene	ND		mg/kg	0.099	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.099	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	85		25-120
Phenol-d6	85		10-120
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	78		30-120
2,4,6-Tribromophenol	77		10-136
4-Terphenyl-d14	95		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,06,08-09,12,14-16,18,20 Batch: WG1992367-2 WG1992367-3								
Naphthalene	73		74		40-140	1		50
Fluorene	84		80		40-140	5		50
Phenanthrene	81		80		40-140	1		50
Anthracene	83		82		40-140	1		50
Pyrene	81		78		35-142	4		50
Benzo(a)anthracene	82		80		40-140	2		50
Chrysene	83		80		40-140	4		50
Benzo(b)fluoranthene	79		80		40-140	1		50
Benzo(a)pyrene	83		83		40-140	0		50
Benzo(ghi)perylene	92		84		40-140	9		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	84		83		25-120
Phenol-d6	85		82		10-120
Nitrobenzene-d5	71		70		23-120
2-Fluorobiphenyl	73		71		30-120
2,4,6-Tribromophenol	83		75		10-136
4-Terphenyl-d14	89		79		18-120

METALS

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-01
Client ID: LOT15-LA-10-SS01
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 10/29/24 10:25
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	54.5		mg/kg	4.15	0.222	2	11/01/24 23:16	11/05/24 17:29	EPA 3050B	1,6010D	DHL

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-02
Client ID: LOT15-LA-11-SS01
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 10/29/24 10:35
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	21.9		mg/kg	8.34	0.447	4	11/01/24 23:16	11/07/24 14:50	EPA 3050B	1,6010D	DHL

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-03
Client ID: LOT15-LA-12-SS01
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 10/29/24 10:45
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	76.1		mg/kg	4.08	0.218	2	11/01/24 23:16	11/05/24 17:42	EPA 3050B	1,6010D	DHL

Project Name: PESRM **Lab Number:** L2463127

Project Number: P044.001.001 **Report Date:** 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-06 Date Collected: 10/29/24 11:50

Client ID: LOT15-LA-01-SS01 Date Received: 10/29/24

Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	91.4		mg/kg	4.16	0.223	2	11/01/24 23:16	11/05/24 17:48	EPA 3050B	1,6010D	DHL

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-08
Client ID: LOT15-LA-07-SS01
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 10/29/24 12:10
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	28.1		mg/kg	4.24	0.228	2	11/01/24 23:16	11/05/24 18:32	EPA 3050B	1,6010D	DHL

Project Name: PESRM **Lab Number:** L2463127

Project Number: P044.001.001 **Report Date:** 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-09 Date Collected: 10/29/24 12:15

Client ID: LOT15-LA-08-SS01 Date Received: 10/29/24

Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	10.5		mg/kg	4.26	0.228	2	11/01/24 23:16	11/05/24 18:38	EPA 3050B	1,6010D	DHL

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-12
Client ID: LOT15-LA-02-SS01
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 10/29/24 13:30
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	53.8		mg/kg	4.10	0.220	2	11/01/24 23:16	11/05/24 18:44	EPA 3050B	1,6010D	DHL

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-14
Client ID: LOT15-LA-03-SS01
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 10/29/24 13:50
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	65.1		mg/kg	4.12	0.221	2	11/01/24 23:16	11/05/24 18:51	EPA 3050B	1,6010D	DHL

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-15
Client ID: LOT15-LA-04-SS01
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 10/29/24 14:00
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	17.6		mg/kg	4.20	0.225	2	11/01/24 23:16	11/05/24 18:58	EPA 3050B	1,6010D	DHL

Project Name: PESRM **Lab Number:** L2463127

Project Number: P044.001.001 **Report Date:** 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-16 Date Collected: 10/29/24 14:05

Client ID: LOT15-LA-05-SS01 Date Received: 10/29/24

Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	74.0		mg/kg	10.2	0.548	5	11/01/24 23:16	11/07/24 14:54	EPA 3050B	1,6010D	DHL

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-18
Client ID: LOT15-LA-06-SS01
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 10/29/24 14:20
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	82.2		mg/kg	4.57	0.245	2	11/01/24 23:16	11/05/24 19:11	EPA 3050B	1,6010D	DHL

Project Name: PESRM
Project Number: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-20
Client ID: LOT15-LA-09-SS01
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 10/29/24 14:40
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	80.2		mg/kg	4.15	0.223	2	11/01/24 23:16	11/05/24 19:17	EPA 3050B	1,6010D	DHL

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-03,06,08-09,12,14-16,18,20 Batch: WG1991775-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	11/01/24 23:16	11/04/24 13:21	1,6010D	DHL

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM

Project Number: P044.001.001

Lab Number: L2463127

Report Date: 11/08/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03,06,08-09,12,14-16,18,20 Batch: WG1991775-2								
Lead, Total	104		-		80-120	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03,06,08-09,12,14-16,18,20 QC Batch ID: WG1991775-3 QC Sample: L2463740-01 Client ID: MS Sample												
Lead, Total	197	43	235	88		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PESRM

Project Number: P044.001.001

Lab Number: L2463127

Report Date: 11/08/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03,06,08-09,12,14-16,18,20 QC Batch ID: WG1991775-4 QC Sample: L2463740-01 Client ID: DUP Sample						
Lead, Total	197	183	mg/kg	7		20

INORGANICS
&
MISCELLANEOUS

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-01
Client ID: LOT15-LA-10-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 10:25
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.8		%	0.100	NA	1	-	11/01/24 18:46	121,2540G	SJB

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-02
Client ID: LOT15-LA-11-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 10:35
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.1		%	0.100	NA	1	-	11/01/24 18:46	121,2540G	SJB

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-03
Client ID: LOT15-LA-12-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 10:45
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.4		%	0.100	NA	1	-	11/01/24 18:46	121,2540G	SJB

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-06
Client ID: LOT15-LA-01-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 11:50
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.8		%	0.100	NA	1	-	11/01/24 18:46	121,2540G	SJB

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-08
Client ID: LOT15-LA-07-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 12:10
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.3		%	0.100	NA	1	-	11/01/24 18:46	121,2540G	SJB

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-09
Client ID: LOT15-LA-08-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 12:15
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.6		%	0.100	NA	1	-	11/01/24 18:46	121,2540G	SJB

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-12
Client ID: LOT15-LA-02-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 13:30
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.3		%	0.100	NA	1	-	11/01/24 19:41	121,2540G	SJB

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-14
Client ID: LOT15-LA-03-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 13:50
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.7		%	0.100	NA	1	-	11/01/24 19:41	121,2540G	SJB

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-15
Client ID: LOT15-LA-04-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 14:00
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.9		%	0.100	NA	1	-	11/01/24 19:41	121,2540G	SJB

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-16
Client ID: LOT15-LA-05-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 14:05
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.7		%	0.100	NA	1	-	11/01/24 19:41	121,2540G	SJB

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-18
Client ID: LOT15-LA-06-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 14:20
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.9		%	0.100	NA	1	-	11/01/24 19:41	121,2540G	SJB

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

SAMPLE RESULTS

Lab ID: L2463127-20
Client ID: LOT15-LA-09-SS01
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 10/29/24 14:40
Date Received: 10/29/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.4		%	0.100	NA	1	-	11/01/24 19:41	121,2540G	SJB

Lab Duplicate Analysis

Batch Quality Control

Project Name: PESRM

Project Number: P044.001.001

Lab Number: L2463127

Report Date: 11/08/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03,06,08-09 QC Batch ID: WG1992127-1 QC Sample: L2462994-01 Client ID: DUP Sample						
Solids, Total	82.5	82.1	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 12,14-16,18,20 QC Batch ID: WG1992134-1 QC Sample: L2463127-12 Client ID: LOT15-LA-02-SS01						
Solids, Total	95.3	95.4	%	0		20

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent
D	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2463127-01A	Vial MeOH preserved	B	NA		4.7	Y	Absent		PA-8260HLW(14)
L2463127-01B	Vial water preserved	B	NA		4.7	Y	Absent	30-OCT-24 09:12	PA-8260HLW(14)
L2463127-01C	Vial water preserved	B	NA		4.7	Y	Absent	30-OCT-24 09:12	PA-8260HLW(14)
L2463127-01D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		PB-TI(180)
L2463127-01E	Glass 120ml/4oz unpreserved	B	NA		4.7	Y	Absent		PA-PAH(14)
L2463127-01F	Plastic 120ml unpreserved	B	NA		4.7	Y	Absent		TS(7)
L2463127-02A	Vial MeOH preserved	D	NA		5.2	Y	Absent		PA-8260HLW(14)
L2463127-02B	Vial water preserved	D	NA		5.2	Y	Absent	30-OCT-24 09:12	PA-8260HLW(14)
L2463127-02C	Vial water preserved	D	NA		5.2	Y	Absent	30-OCT-24 09:12	PA-8260HLW(14)
L2463127-02D	Metals Only-Glass 60mL/2oz unpreserved	D	NA		5.2	Y	Absent		PB-TI(180)
L2463127-02E	Glass 120ml/4oz unpreserved	D	NA		5.2	Y	Absent		PA-PAH(14)
L2463127-02F	Plastic 120ml unpreserved	D	NA		5.2	Y	Absent		TS(7)
L2463127-03A	Vial MeOH preserved	D	NA		5.2	Y	Absent		PA-8260HLW(14)
L2463127-03B	Vial water preserved	D	NA		5.2	Y	Absent	30-OCT-24 09:12	PA-8260HLW(14)
L2463127-03C	Vial water preserved	D	NA		5.2	Y	Absent	30-OCT-24 09:12	PA-8260HLW(14)
L2463127-03D	Metals Only-Glass 60mL/2oz unpreserved	D	NA		5.2	Y	Absent		PB-TI(180)
L2463127-03E	Glass 120ml/4oz unpreserved	D	NA		5.2	Y	Absent		PA-PAH(14)
L2463127-03F	Plastic 120ml unpreserved	D	NA		5.2	Y	Absent		TS(7)
L2463127-04A	Vial MeOH preserved	D	NA		5.2	Y	Absent		HOLD-8260HLW(14)
L2463127-04B	Vial water preserved	D	NA		5.2	Y	Absent	30-OCT-24 09:12	HOLD-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2463127-04C	Vial water preserved	D	NA		5.2	Y	Absent	30-OCT-24 09:12	HOLD-8260HLW(14)
L2463127-04D	Metals Only-Glass 60mL/2oz unpreserved	D	NA		5.2	Y	Absent		HOLD-METAL(180)
L2463127-04E	Glass 120ml/4oz unpreserved	D	NA		5.2	Y	Absent		HOLD-8270(14)
L2463127-04F	Plastic 120ml unpreserved	D	NA		5.2	Y	Absent		HOLD-WETCHEM()
L2463127-05A	Vial MeOH preserved	D	NA		5.2	Y	Absent		HOLD-8260HLW(14)
L2463127-05B	Vial water preserved	D	NA		5.2	Y	Absent	30-OCT-24 09:12	HOLD-8260HLW(14)
L2463127-05C	Vial water preserved	D	NA		5.2	Y	Absent	30-OCT-24 09:12	HOLD-8260HLW(14)
L2463127-05D	Metals Only-Glass 60mL/2oz unpreserved	D	NA		5.2	Y	Absent		HOLD-METAL(180)
L2463127-05E	Glass 120ml/4oz unpreserved	D	NA		5.2	Y	Absent		HOLD-8270(14)
L2463127-05F	Plastic 120ml unpreserved	D	NA		5.2	Y	Absent		HOLD-WETCHEM()
L2463127-06A	Vial MeOH preserved	D	NA		5.2	Y	Absent		PA-8260HLW(14)
L2463127-06B	Vial water preserved	D	NA		5.2	Y	Absent	30-OCT-24 09:12	PA-8260HLW(14)
L2463127-06C	Vial water preserved	D	NA		5.2	Y	Absent	30-OCT-24 09:12	PA-8260HLW(14)
L2463127-06D	Metals Only-Glass 60mL/2oz unpreserved	D	NA		5.2	Y	Absent		PB-TI(180)
L2463127-06E	Glass 120ml/4oz unpreserved	D	NA		5.2	Y	Absent		PA-PAH(14)
L2463127-06F	Plastic 120ml unpreserved	D	NA		5.2	Y	Absent		TS(7)
L2463127-07A	Vial MeOH preserved	B	NA		4.7	Y	Absent		HOLD-8260HLW(14)
L2463127-07B	Vial water preserved	B	NA		4.7	Y	Absent	30-OCT-24 09:12	HOLD-8260HLW(14)
L2463127-07C	Vial water preserved	B	NA		4.7	Y	Absent	30-OCT-24 09:12	HOLD-8260HLW(14)
L2463127-07D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		HOLD-METAL(180)
L2463127-07E	Glass 120ml/4oz unpreserved	B	NA		4.7	Y	Absent		HOLD-8270(14)
L2463127-07F	Plastic 120ml unpreserved	B	NA		4.7	Y	Absent		HOLD-WETCHEM()
L2463127-08A	Vial MeOH preserved	B	NA		4.7	Y	Absent		PA-8260HLW(14)
L2463127-08B	Vial water preserved	B	NA		4.7	Y	Absent	30-OCT-24 09:12	PA-8260HLW(14)
L2463127-08C	Vial water preserved	B	NA		4.7	Y	Absent	30-OCT-24 09:12	PA-8260HLW(14)
L2463127-08D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		PB-TI(180)
L2463127-08E	Glass 120ml/4oz unpreserved	B	NA		4.7	Y	Absent		PA-PAH(14)
L2463127-08F	Plastic 120ml unpreserved	B	NA		4.7	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2463127-09A	Vial MeOH preserved	B	NA		4.7	Y	Absent		PA-8260HLW(14)
L2463127-09B	Vial water preserved	B	NA		4.7	Y	Absent	30-OCT-24 09:12	PA-8260HLW(14)
L2463127-09C	Vial water preserved	B	NA		4.7	Y	Absent	30-OCT-24 09:12	PA-8260HLW(14)
L2463127-09D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		PB-TI(180)
L2463127-09E	Glass 120ml/4oz unpreserved	B	NA		4.7	Y	Absent		PA-PAH(14)
L2463127-09F	Plastic 120ml unpreserved	B	NA		4.7	Y	Absent		TS(7)
L2463127-10A	Vial MeOH preserved	B	NA		4.7	Y	Absent		HOLD-8260HLW(14)
L2463127-10B	Vial water preserved	B	NA		4.7	Y	Absent	30-OCT-24 09:12	HOLD-8260HLW(14)
L2463127-10C	Vial water preserved	B	NA		4.7	Y	Absent	30-OCT-24 09:12	HOLD-8260HLW(14)
L2463127-10D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		HOLD-METAL(180)
L2463127-10E	Glass 120ml/4oz unpreserved	B	NA		4.7	Y	Absent		HOLD-8270(14)
L2463127-10F	Plastic 120ml unpreserved	B	NA		4.7	Y	Absent		HOLD-WETCHEM()
L2463127-11A	Vial MeOH preserved	C	NA		4.9	Y	Absent		HOLD-8260HLW(14)
L2463127-11B	Vial water preserved	C	NA		4.9	Y	Absent	30-OCT-24 09:12	HOLD-8260HLW(14)
L2463127-11C	Vial water preserved	C	NA		4.9	Y	Absent	30-OCT-24 09:12	HOLD-8260HLW(14)
L2463127-11D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		4.9	Y	Absent		HOLD-METAL(180)
L2463127-11E	Glass 120ml/4oz unpreserved	C	NA		4.9	Y	Absent		HOLD-8270(14)
L2463127-11F	Plastic 120ml unpreserved	C	NA		4.9	Y	Absent		HOLD-WETCHEM()
L2463127-12A	Vial MeOH preserved	C	NA		4.9	Y	Absent		PA-8260HLW(14)
L2463127-12B	Vial water preserved	C	NA		4.9	Y	Absent	30-OCT-24 09:12	PA-8260HLW(14)
L2463127-12C	Vial water preserved	C	NA		4.9	Y	Absent	30-OCT-24 09:12	PA-8260HLW(14)
L2463127-12D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		4.9	Y	Absent		PB-TI(180)
L2463127-12E	Glass 120ml/4oz unpreserved	C	NA		4.9	Y	Absent		PA-PAH(14)
L2463127-12F	Plastic 120ml unpreserved	C	NA		4.9	Y	Absent		TS(7)
L2463127-13A	Vial MeOH preserved	A	NA		3.4	Y	Absent		HOLD-8260HLW(14)
L2463127-13B	Vial water preserved	A	NA		3.4	Y	Absent	30-OCT-24 09:12	HOLD-8260HLW(14)
L2463127-13C	Vial water preserved	A	NA		3.4	Y	Absent	30-OCT-24 09:12	HOLD-8260HLW(14)
L2463127-13D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.4	Y	Absent		HOLD-METAL(180)

*Values in parentheses indicate holding time in days

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2463127-13E	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		HOLD-8270(14)
L2463127-13F	Plastic 120ml unpreserved	A	NA		3.4	Y	Absent		HOLD-WETCHEM()
L2463127-14A	Vial MeOH preserved	C	NA		4.9	Y	Absent		PA-8260HLW(14)
L2463127-14B	Vial water preserved	C	NA		4.9	Y	Absent	30-OCT-24 09:12	PA-8260HLW(14)
L2463127-14C	Vial water preserved	C	NA		4.9	Y	Absent	30-OCT-24 09:12	PA-8260HLW(14)
L2463127-14D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		4.9	Y	Absent		PB-TI(180)
L2463127-14E	Glass 120ml/4oz unpreserved	C	NA		4.9	Y	Absent		PA-PAH(14)
L2463127-14F	Plastic 120ml unpreserved	C	NA		4.9	Y	Absent		TS(7)
L2463127-15A	Vial MeOH preserved	A	NA		3.4	Y	Absent		PA-8260HLW(14)
L2463127-15B	Vial water preserved	A	NA		3.4	Y	Absent	30-OCT-24 09:12	PA-8260HLW(14)
L2463127-15C	Vial water preserved	A	NA		3.4	Y	Absent	30-OCT-24 09:12	PA-8260HLW(14)
L2463127-15D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.4	Y	Absent		PB-TI(180)
L2463127-15E	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		PA-PAH(14)
L2463127-15F	Plastic 120ml unpreserved	A	NA		3.4	Y	Absent		TS(7)
L2463127-16A	Vial MeOH preserved	A	NA		3.4	Y	Absent		PA-8260HLW(14)
L2463127-16B	Vial water preserved	A	NA		3.4	Y	Absent	30-OCT-24 09:12	PA-8260HLW(14)
L2463127-16C	Vial water preserved	A	NA		3.4	Y	Absent	30-OCT-24 09:12	PA-8260HLW(14)
L2463127-16D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.4	Y	Absent		PB-TI(180)
L2463127-16E	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		PA-PAH(14)
L2463127-16F	Plastic 120ml unpreserved	A	NA		3.4	Y	Absent		TS(7)
L2463127-17A	Vial MeOH preserved	A	NA		3.4	Y	Absent		HOLD-8260HLW(14)
L2463127-17B	Vial water preserved	A	NA		3.4	Y	Absent	30-OCT-24 09:12	HOLD-8260HLW(14)
L2463127-17C	Vial water preserved	A	NA		3.4	Y	Absent	30-OCT-24 09:12	HOLD-8260HLW(14)
L2463127-17D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.4	Y	Absent		HOLD-METAL(180)
L2463127-17E	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		HOLD-8270(14)
L2463127-17F	Plastic 120ml unpreserved	A	NA		3.4	Y	Absent		HOLD-WETCHEM()
L2463127-18A	Vial MeOH preserved	A	NA		3.4	Y	Absent		PA-8260HLW(14)
L2463127-18B	Vial water preserved	A	NA		3.4	Y	Absent	30-OCT-24 09:12	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PESRM
Project Number: P044.001.001

Lab Number: L2463127
Report Date: 11/08/24

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2463127-18C	Vial water preserved	A	NA		3.4	Y	Absent	30-OCT-24 09:12	PA-8260HLW(14)
L2463127-18D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.4	Y	Absent		PB-TI(180)
L2463127-18E	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		PA-PAH(14)
L2463127-18F	Plastic 120ml unpreserved	A	NA		3.4	Y	Absent		TS(7)
L2463127-19A	Vial MeOH preserved	C	NA		4.9	Y	Absent		HOLD-8260HLW(14)
L2463127-19B	Vial water preserved	C	NA		4.9	Y	Absent	30-OCT-24 09:12	HOLD-8260HLW(14)
L2463127-19C	Vial water preserved	C	NA		4.9	Y	Absent	30-OCT-24 09:12	HOLD-8260HLW(14)
L2463127-19D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		4.9	Y	Absent		HOLD-METAL(180)
L2463127-19E	Glass 120ml/4oz unpreserved	C	NA		4.9	Y	Absent		HOLD-8270(14)
L2463127-19F	Plastic 120ml unpreserved	C	NA		4.9	Y	Absent		HOLD-WETCHEM()
L2463127-20A	Vial MeOH preserved	C	NA		4.9	Y	Absent		PA-8260HLW(14)
L2463127-20B	Vial water preserved	C	NA		4.9	Y	Absent	30-OCT-24 09:12	PA-8260HLW(14)
L2463127-20C	Vial water preserved	C	NA		4.9	Y	Absent	30-OCT-24 09:12	PA-8260HLW(14)
L2463127-20D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		4.9	Y	Absent		PB-TI(180)
L2463127-20E	Glass 120ml/4oz unpreserved	C	NA		4.9	Y	Absent		PA-PAH(14)
L2463127-20F	Plastic 120ml unpreserved	C	NA		4.9	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Project Name:	PESRM	**Lab Number:**	L2463127
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GLOSSARY

Acronyms

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

Report Format: DU Report with 'J' Qualifiers

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Footnotes

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

Terms

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

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

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

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

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

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

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

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

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

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

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers

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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: P044.001.001
Lab Number: L2463127
Report Date: 11/08/24

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 1 OF 2

Date Rec'd in Lab: 10/30/24

L2463127 05NOV24
TERRAPHASE

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

Client Information

Client: Teraphase Engineering Inc.
Address: 100 Canal Pointe Blvd Suite 110
Phone: 609-236-8171 ext 92
Fax: –
Email: nick.scala@teraphase.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: PESRM
Project Location: 3144 W Passyunk Ave
Project #: P044.001.001
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

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:
please email EDDs to EDD@teraphase.com
see attached short list for analyses

X - run
H - hold

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: Site specific VOCs (8260) Shortlist 1-5	Site specific SVOCs (8270) Shortlist 1-5	Lead (6010D) Shortlist 1-5	SAMPLE HANDLING	TOTAL # BOTTLES
63127.01	Lot15-LA-10-SS01	10/29/24	1025	So	MMM	X	X	X		3
02	Lot 15-LA-11-SS01		1035			X	X	X		3
03	Lot 15-LA-12-SS01		1045			X	X	X		3
04	Lot 15-LA-11b-SS01		1130			H	H	H		3
05	Lot 15-LA-12b-SS01		1140			H	H	H		3
06	Lot 15-LA-01-SS01		1150			X	X	X		3
07	Lot 15-LA-01b-SS01		1200			H	H	H		3
08	Lot 15-LA-07-SS01		1210			X	X	X		3
09	Lot 15-LA-08-SS01		1215			X	X	X		3
10	Lot 15-LA-08b-SS01		1230			H	H	H		3
	Container Type					V	G	G		
	Preservative					0	0	0		

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)
Sample Specific Comments

Relinquished By:	Date/Time	Received By:	Date/Time
Thanne Nzon	10/29/24 @1607	Nicole Orr Pace	10/29/24 1607
Nicole Orr Pace	10/29/24 1844	Anthony Green	10/29 1844
Anthony Green	10/30/24 0410		OCT 29 2024 12:53 10/30/24 0110

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

10/30/24 0310

FORM NO: 01-01 (rev. 14-OCT-07)

CHAIN OF CUSTODY

PAGE 2 OF 2

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

Date Rec'd in Lab: 10/30/24

ALPHA Job #: L2463127

Client Information

Client: Terraphase Engineering Inc
Address: 100 Canal Pointe Blvd Suite 110
Phone: 609-236-8171 x 92
Fax: -
Email: nick.scala@terraphase.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: PESEM
Project Location: 3144 W Passyunk Ave
Project #: P044.001.001
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

Other Project Specific Requirements/Comments/Detection Limits:
please email EDDs to EDD@terraphase.com
see attached shortlist for analyses

X-run H-hold

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Site Specific VOCs (8260) Shortlist 1-5	Site Specific SVOCs (8270) Shortlist 1-5	Lead (6010) Shortlist 1-5	Sample Specific Comments	Total # Bottles
L3127-11	Lot 15-LA-09b-SS01	10/29/24	1240	SO	MMM	H	H	H		
12	Lot 15-LA-02-SS01		1330			X	X	X		
13	Lot 15-LA-02b-SS01		1340			H	H	H		
14	Lot 15-LA-03-SS01		1350			X	X	X		
15	Lot 15-LA-04-SS01		1400			X	X	X		
16	Lot 15-LA-05-SS01		1405			X	X	X		
17	Lot 15-LA-05b-SS01		1415			H	H	H		
18	Lot 15-LA-06-SS01		1420			X	X	X		
19	Lot 15-LA-06b-SS01		1430			H	H	H		
20	Lot 15-LA-09-SS01		1440			X	X	X		

SAMPLE HANDLING

Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Container Type	V	G	G
Preservative	D	C	B

Relinquished By:	Date/Time	Received By:	Date/Time
Marne Mourne	10/29/24@1607	Nicole Raz	10/29/24 1607
Nicole Raz	10/29/24 18:46		10/29/24 18:46
Anthony Green	10/29/24 2253	Anthony Green	OCT 29 2024 2253
	10/30/24 0110		10/30/24 0110

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

10/30/24 3:10

10/30/24 0310

FORM NO. 01-01 (rev. 14-OCT-07)

Short List 1-5:

Analyte	Soil Methods	GW Methods
Benzene	EPA 8260D	EPA 8260D, 8011
Cumene	EPA 8260D	EPA 8260D, 8011
1,2-Dibromoethane	EPA 8260D	EPA 8260D, 8011
1,2-Dichloroethane	EPA 8260D	EPA 8260D, 8011
Ethyl Benzene	EPA 8260D	EPA 8260D, 8011
Toluene	EPA 8260D	EPA 8260D, 8011
1,2,4-Trimethylbenzene	EPA 8260D	EPA 8260D, 8011
1,3,5-Trimethylbenzene	EPA 8260D	EPA 8260D, 8011
Methyl tert-butyl ether	EPA 8260D	EPA 8260D, 8011
Xylenes (total)	EPA 8260D	EPA 8260D, 8011
Anthracene	EPA 8270E	EPA 8270E-SIM
Benzo(a)anthracene	EPA 8270E	EPA 8270E-SIM
Benzo(a)pyrene	EPA 8270E	EPA 8270E-SIM
Benzo(b)fluoranthene	EPA 8270E	EPA 8270E-SIM
Benzo(g,h,i)perylene	EPA 8270E	EPA 8270E-SIM
Chrysene	EPA 8270E	EPA 8270E-SIM
Fluorene	EPA 8270E	EPA 8270E-SIM
Naphthalene	EPA 8270E	EPA 8270E-SIM
Phenanthrene	EPA 8270E	EPA 8270E-SIM
Pyrene	EPA 8270E	EPA 8270E-SIM
Lead	EPA 6010D	Dissolved Lead – EPA 6020B

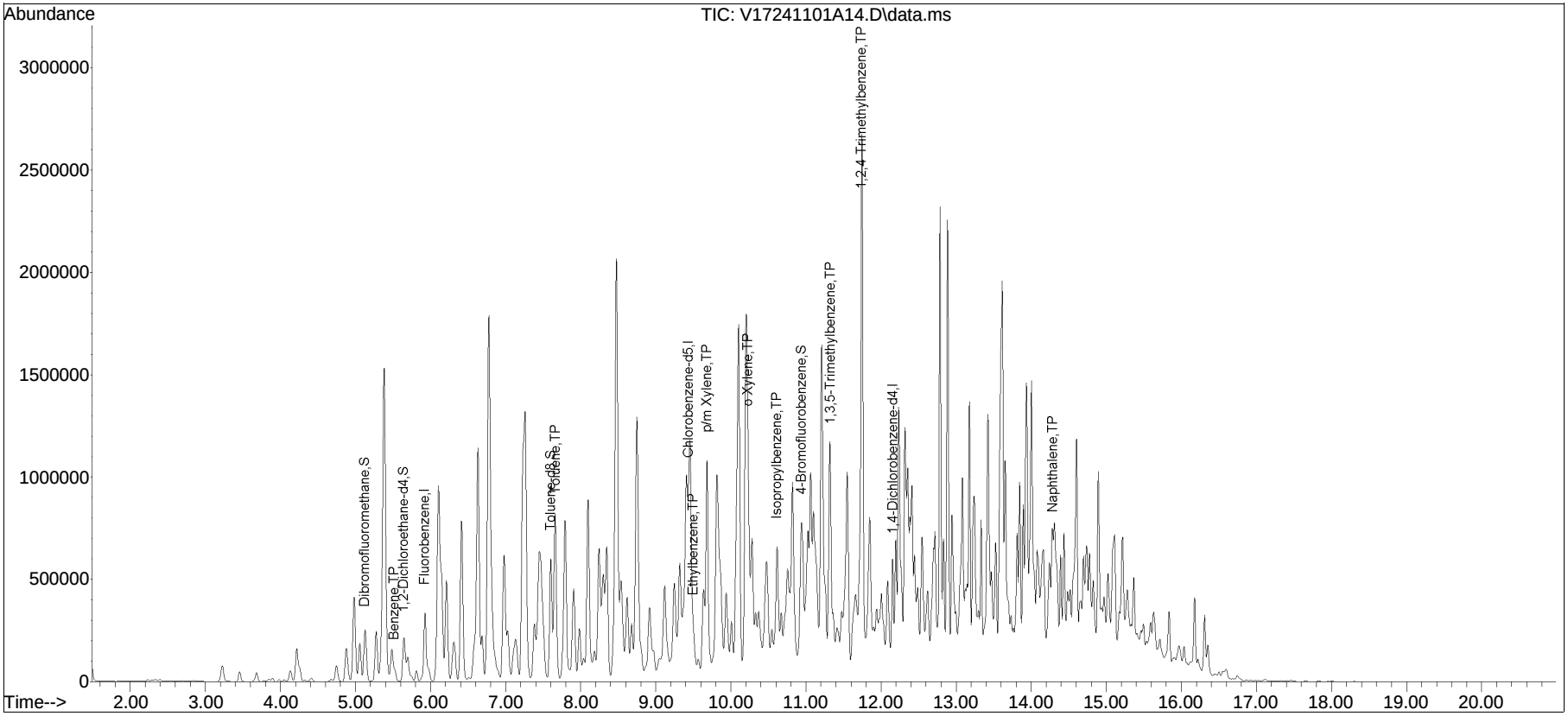
Serial_No:11082412:36

Quantitation Report (QT Reviewed)

Data Path : K:\VOA117\2024\241101A\
Data File : V17241101A14.D
Acq On : 01 Nov 2024 07:46 pm
Operator : voa117:JIC
Sample : L2463127-01,31H,5.73,5,0.100,,A,30.35,36.58,0
Misc : WG1992778,ICAL21482
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Nov 04 10:02:07 2024
Quant Method : K:\VOA117\2024\241101A\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-PA_ShortList - PA Short list101A01.D•



Appendix C-2
Post Construction Sampling – Subgrade

FINAL

Technical Memorandum

To:	Bellwether District Holdings, LLC c/o Amy Piccone Senior Remediation Manager HRP Group	From:	Kevin Long, Senior Principal Consultant Nick Scala, PG, LSRP, Principal Geologist Terraphase Engineering Inc.
Date:	September 19, 2025	Project No.:	P044.001.018C
Subject:	**Soil Management Plan – Subgrade Soil Characterization – Unit 1** **2625 Frances Harper Drive** **Former Philadelphia Energy Solutions Refinery, Philadelphia, PA**		

1 Introduction

Terraphase Engineering Inc. (Terraphase) has prepared this Technical Memorandum (Memo), on behalf of Bellwether District Holdings, LLC (BDH), to summarize the analytical results for soil samples collected from the top two feet of soil that was uncovered through mass grading activities (the "Subgrade Soil Samples" or "Subgrade Soil Sampling") at Unit 1 (the "Site"; **Figure 1**). Unit 1 is located at 2625 Frances Harper Drive, within the Former Philadelphia Energy Solutions (PES) Refinery property (the "Facility") at 3144 West Passyunk Avenue in Philadelphia, Pennsylvania.

This sampling was performed in accordance with the *Soil Management Plan* (SMP; HRP 2020) prepared by HRP Philadelphia Holdings, LLC for the Facility and approved by the Pennsylvania Department of Environmental Protection (PADEP). The SMP was prepared to describe the soil management approach in connection with BDH's redevelopment activities and to ensure that redevelopment of the Facility was consistent with site-wide remediation activities being conducted by Evergreen Resources Management Operations (Evergreen) pursuant to PADEP and United States Environmental Protection Agency (USEPA) requirements and various legal agreements among BDH, Evergreen, PADEP, and USEPA.

The objective of the Subgrade Soil Sampling is to fully characterize underlying soil in cut areas for the purposes of Act 2 compliance. The sampling methodology and results associated with the Subgrade Soil Sampling are provided below.

2 Sampling Methodology

The Subgrade Soil Sampling was completed between September 2023 and April 2025 as portions of Unit 1 became available for sampling following mass grading. Sampling was performed by Ransom Consulting, LLC (Ransom) on September 8, 2023 and May 15, 2024 and by Terraphase on September 16, 2024, November 7, 2024, and April 9, 2025. Samples were collected after the completion of mass grading but before placement of surface finishes (e.g., building foundations, roadways, topsoil,

landscaping, etc.). The effort involved the installation of 30 shallow soil borings (**Figure 2**) and the collection of surface soil samples from each boring location. The soil sample locations were targeted in the SMP Pre-Characterization Sampling cells.[1]

Prior to the initiation of the sampling activities, the Pennsylvania One Call System (811 Dig Safe) was contacted to identify underground utilities. In addition, a review of available information provided by Facility representatives regarding the presence/absence of underground utilities was used in the selection of sampling locations. Terraphase also coordinated the completion of a geophysical survey to identify potential subsurface anomalies and any underground utilities or obstructions near subsurface drilling locations.

Soil borings were advanced to 2-feet below ground surface (bgs) using direct-push (i.e., Geoprobe) drilling methods or using a hand tool (i.e., hand auger) and field screened using photoionization detector (PID) to identify potentially impacted intervals. One discrete soil sample was collected from the 6-inch interval exhibiting evidence of contamination (e.g., staining, odors, elevated PID readings) or, in the absence of contamination, from 0 to 0.5 feet bgs, and analyzed for volatile organic compounds (VOCs). A vertical composite[2] sample was collected over the 0 to 2 foot interval and submitted to the laboratory for semi-volatile organic compounds (SVOCs) and lead analyses.

Consistent with prior work completed at the Facility under the SMP, each soil sample was analyzed for the comprehensive Pennsylvania Department of Environmental Protection (PADEP) Short List of Petroleum Products Inventory (Table III-5 of the *Land Recycling Program Technical Guidance Manual* [March 2021]; specifically, each of the analytes listed in Short Lists 1 through 5):

- **Short List 1**. *Leaded Gasoline, Aviation Gasoline and Jet Fuel*: benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, and lead.
- **Short List 2**. *Unleaded Gasoline*: benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene.
- **Short List 3**. *Kerosene, Fuel Oil No. 1*: benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene.
- **Short List 4**. *Diesel Fuel and Fuel Oil No. 2*: benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene.
- **Short List 5**. *Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids*: benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, and benzo(g,h,i)perylene.

VOCs, SVOCs, and lead were analyzed via United States Environmental Protection Agency (USEPA) Methods 8260D, 8270E, and 6010D, respectively. Laboratory analytical services were provided by Alpha

[1] Pre-Characterization cells were previously determined and sampled in accordance with the *Soil Management Plan* (SMP) pre-excavation soil characterization (Terraphase 2022).

[2] The aliquot was composited and thoroughly homogenized in a stainless-steel container.

Analytical (now Pace) of Westborough, Massachusetts and SGS North America Inc. of Dayton, New Jersey, both PADEP-certified laboratories. Soil samples submitted for analyses were placed directly into laboratory provided glassware and stored on ice in a cooler under appropriate chain of custody protocol.

Copies of the laboratory reports are included in **Attachment A**.

3 Analytical Results

As probable future land use[3] on Unit 1 is commercial and/or industrial, soil analytical results were compared to the following Non-Residential (Non-Res) Statewide Health Standard (SHS) Medium Specific Concentration (MSC) numeric values:

- Non-Res MSCs for Direct Contact (DC) Exposure to Surface Soil (0-2 feet)
- Non-Res MSCs for Soil-to-Groundwater (SGW) for Used Aquifers (Total Dissolved Solids [TDS] ≤ 2,500)

As summarized in **Table 1**, none of the constituents were detected at concentrations greater than these MSCs.

References

Hilco Redevelopment Partners, Philadelphia Holdings, LLC (HRP). 2020. *Final Soil Management Plan*. June 15.

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

Terraphase Engineering Inc. (Terraphase). 2022. Soil Management Plan Addendum No. 2 – Industrial Phase IA Area. August. Amended February 2023.

Attachments (4):

- Table 1 Summary of Soil Analytical Results
- Figure 1 Site Location Map
- Figure 2 Subgrade Soil Analytical Results
- Attachment A Laboratory Reports[4]

[3] As part of its redevelopment, restrictions will be established for the Facility in one or more environmental covenants. The environmental covenants will include restrictions limiting on-site land use to commercial or industrial purposes.

[4] Samples L2352498-01 through L2352498-12 were collected as part of investigation and closure activities associated with the Girard Point Hazardous Waste Storage Pad and are not related to this effort.

Tables

Table 1 – Summary of Soil Analytical Results

Table 1
Summary of Soil Analytical Results
Unit 1 Subgrade Sampling
Bellwether District Holdings, LLC

Location			201-E01-c	201-E02-a	201-E03-x	201-E04-b	201-F01-b	201-F02-a	201-F03-d	201-F04-c	201-F05-d	301-AA07-c
Field Sample ID	Non-Res Direct	Non-Res Used	201-E01-SG	201-E02-SG	201-E03-SG	201-E04-SG	201-F01-SG	201-F02-SG	201-F03-SG	201-F04-SG	201-F05-SG	301-AA07-SG
Collection Depth (ft bgs)	Contact MSCs for	Aquifer	1.5 - 2.0	1.5 - 2.0	1.0 - 1.5	1.5 - 2.0	1.0 - 1.5	8.5 - 9.0*	1.0 - 1.5	8.0 - 8.5**	0.5 - 1.0	1.5 - 2.0
Sample Method	Surface Soil	(TDS ≤ 2500)	Grab/Composite	Grab/Composite	Grab/Composite	Grab/Composite	Grab/Composite	Grab/Composite	Grab/Composite	Grab/Composite	Grab/Composite	Grab/Composite
Sample Date	(0-2 ft)	Soil-to-GW MSC	9/16/2024	9/16/2024	5/15/2024	5/15/2024	9/16/2024	9/8/2023	5/15/2024	9/8/2023	11/7/2024	4/9/2025
Comments												
Volatile Organic Compounds												
Benzene	280	0.5	ND (0.00056)	0.00081 (0.00062)	ND (0.00057)	0.0035 (0.00051)	0.00018 J (0.0005)	0.024 (0.00048)	ND (0.001)	0.007 (0.0004)	ND (0.00046)	ND (0.00048)
Cumene	10000	2500	ND (0.0011)	0.0008 J (0.0012)	0.00041 J (0.0011)	0.00093 J (0.001)	0.00049 J (0.001)	0.029 (0.00096)	ND (0.0021)	0.0013 (0.0008)	ND (0.00093)	ND (0.0019)
1,2-Dibromoethane	3.7	0.005	ND (0.00056)	ND (0.00062)	ND (0.00057)	ND (0.00051)	ND (0.0005)	ND (0.00048)	ND (0.001)	ND (0.0004)	ND (0.00046)	ND (0.00096)
1,2-Dichloroethane	85	0.5	ND (0.0011)	ND (0.0012)	ND (0.0011)	ND (0.001)	ND (0.001)	ND (0.00096)	ND (0.0021)	ND (0.0008)	ND (0.00093)	ND (0.00096)
Ethyl Benzene	880	70	ND (0.0011)	ND (0.0012)	ND (0.0011)	0.0005 J (0.001)	ND (0.001)	0.02 (0.00096)	ND (0.0021)	0.0012 (0.0008)	ND (0.00093)	0.0049 (0.00096)
Methyl tert-butyl ether	8500	2	ND (0.0023)	ND (0.0025)	ND (0.0023)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0042)	ND (0.0016)	ND (0.0018)	ND (0.00096)
Toluene	10000	100	ND (0.0011)	ND (0.0012)	ND (0.0011)	0.0011 (0.001)	ND (0.001)	0.002 (0.00096)	ND (0.0021)	0.00063 J (0.0008)	ND (0.00093)	ND (0.00096)
1,2,4-Trimethylbenzene	4700	300	ND (0.0023)	ND (0.0025)	ND (0.0023)	0.0027 (0.002)	ND (0.002)	0.011 (0.0019)	ND (0.0042)	0.0032 (0.0016)	ND (0.0018)	ND (0.0019)
1,3,5-Trimethylbenzene	4700	93	ND (0.0023)	ND (0.0025)	ND (0.0023)	0.0022 (0.002)	ND (0.002)	0.0066 (0.0019)	ND (0.0042)	0.0012 J (0.0016)	ND (0.0018)	ND (0.0019)
Xylenes (total)	7900	1000	ND (0.0023)	0.00145 J (0.0025)	ND (0.0023)	0.0045 J (0.002)	0.00115 J (0.002)	0.0116 J (0.0019)	ND (0.0042)	0.00379 J (0.0016)	ND (0.0018)	0.0372 (0.00096)
Semivolatile Organic Compounds												
Anthracene	190000	350	ND (0.11)	0.033 J (0.1)	0.044 J (0.11)	ND (0.12)	ND (0.11)	0.052 J (0.11)	ND (0.11)	0.1 J (0.11)	0.039 J (0.11)	ND (0.037)
Benzo(a)anthracene	130	340	0.13 (0.11)	0.12 (0.1)	0.2 (0.11)	ND (0.12)	0.039 J (0.11)	0.088 J (0.11)	0.13 (0.11)	0.22 (0.11)	0.12 (0.11)	0.0259 J (0.037)
Benzo(a)pyrene	91	46	0.17 (0.15)	0.12 J (0.14)	0.21 (0.15)	ND (0.15)	0.046 J (0.14)	0.092 J (0.15)	0.12 J (0.15)	0.2 (0.14)	0.12 J (0.15)	0.0314 J (0.037)
Benzo(b)fluoranthene	76	170	0.23 (0.11)	0.17 (0.1)	0.28 (0.11)	ND (0.12)	0.047 J (0.11)	0.1 J (0.11)	0.19 (0.11)	0.24 (0.11)	0.15 (0.11)	0.045 (0.037)
Benzo(g,h,i)perylene	190000	180	0.18 (0.15)	0.13 J (0.14)	0.15 (0.15)	ND (0.15)	0.052 J (0.14)	0.066 J (0.15)	0.11 J (0.15)	0.1 J (0.14)	0.074 J (0.15)	0.029 J (0.037)
Chrysene	760	230	0.15 (0.11)	0.14 (0.1)	0.21 (0.11)	ND (0.12)	0.05 J (0.11)	0.11 (0.11)	0.14 (0.11)	0.2 (0.11)	0.13 (0.11)	0.0375 (0.037)
Fluorene	130000	3800	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.19)	ND (0.18)	0.094 J (0.18)	ND (0.18)	0.054 J (0.18)	0.022 J (0.18)	ND (0.037)
Naphthalene	66	25	ND (0.037)	0.028 J (0.034)	ND (0.036)	ND (0.039)	ND (0.036)	0.13 (0.037)	ND (0.037)	0.047 (0.036)	ND (0.037)	ND (0.037)
Phenanthrene	190000	10000	0.11 (0.11)	0.14 (0.1)	0.15 (0.11)	ND (0.12)	0.037 J (0.11)	0.19 (0.11)	0.051 J (0.11)	0.37 (0.11)	0.2 (0.11)	0.016 J (0.037)
Pyrene	96000	2200	0.24 (0.11)	0.22 (0.1)	0.32 (0.11)	0.024 J (0.12)	0.06 J (0.11)	0.16 (0.11)	0.13 (0.11)	0.34 (0.11)	0.24 (0.11)	0.0439 (0.037)
Metals												
Lead	1000	450	27 (4.36)	58 (4.05)	55.1 (4.42)	40.2 (4.68)	40.5 (4.14)	75 (2.19)	82 (21.7)	69.6 (2.17)	54.8 (4.28)	8.4 (2.3)

Notes:

1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.

2 The collection depth indicates the 0.5 ft interval from which the discrete sample (i.e., volatile organic compounds) was collected. The discrete sample was collected from the 0.5 ft interval within the 0-2.0 ft bgs interval displaying the highest indication of contamination using field screening techniques (i.e., PID readings and/or visual observation).

3 A vertical composite sample was collected at each boring over the 0-2.0 ft bgs interval and analyzed for semivolatile organic compounds and lead.

4 No concentrations exceed the Non-Res Direct Contact MSCs for Surface Soil (0-2 ft).

5 No concentrations exceed the Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC.

* The sample was collected from 8.5-9.0 ft bgs due to 8.45 ft of surcharge at the location.

** The sample was collected from 8.0-8.5 ft bgs due to 7.95 ft of surcharge at the location.

Abbreviations:

ND - Not Detected

J - Estimated Concentration

Table 1
Summary of Soil Analytical Results
Unit 1 Subgrade Sampling
Bellwether District Holdings, LLC

Location			301-AA08-x	301-AA09-a	301-AB06-d	301-AB07-x	301-AB08-b	301-AB09-b	301-AC07-d	301-AC08-b	301-AC09-a	301-V04-d
Field Sample ID	Non-Res Direct	Non-Res Used	301-AA08-SG	301-AA09-SG	301-AB06-SG	301-AB07-SG	301-AB08-SG	301-AB09-SG	301-AC07-SG	301-AC08-SG	301-AC09-SG	301-V04-SG
Collection Depth (ft bgs)	Contact MSCs for	Aquifer	0.0 - 0.5	1.0 - 1.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	1.0 - 1.5	0.5 - 1.0	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0
Sample Method	Surface Soil	(TDS ≤ 2500)	Grab/Composite	Grab/Composite	Grab/Composite	Grab/Composite	Grab/Composite	Grab/Composite	Grab/Composite	Grab/Composite	Grab/Composite	Grab/Composite
Sample Date	(0-2 ft)	Soil-to-GW MSC	4/9/2025	5/15/2024	4/9/2025	4/9/2025	11/7/2024	5/15/2024	11/7/2024	11/7/2024	5/15/2024	9/16/2024
Comments												
Volatile Organic Compounds												
Benzene	280	0.5	ND (0.00043)	0.00053 J (0.00056)	ND (0.0005)	ND (0.00048)	ND (0.031)	ND (0.00046)	0.032 (0.00064)	ND (0.0005)	ND (0.00043)	0.00027 J (0.00051)
Cumene	10000	2500	ND (0.0017)	ND (0.0011)	ND (0.002)	ND (0.0019)	ND (0.063)	ND (0.00091)	0.0089 (0.0013)	ND (0.001)	ND (0.00086)	ND (0.001)
1,2-Dibromoethane	3.7	0.005	ND (0.00086)	ND (0.00056)	ND (0.00099)	ND (0.00096)	ND (0.031)	ND (0.00046)	ND (0.00064)	ND (0.0005)	ND (0.00043)	ND (0.00051)
1,2-Dichloroethane	85	0.5	ND (0.00086)	ND (0.0011)	ND (0.00099)	ND (0.00096)	ND (0.063)	ND (0.00091)	ND (0.0013)	ND (0.001)	ND (0.00086)	ND (0.001)
Ethyl Benzene	880	70	ND (0.00086)	0.00026 J (0.0011)	ND (0.00099)	ND (0.00096)	ND (0.063)	ND (0.00091)	0.025 (0.0013)	ND (0.001)	ND (0.00086)	ND (0.001)
Methyl tert-butyl ether	8500	2	ND (0.00086)	ND (0.0022)	ND (0.00099)	ND (0.00096)	ND (0.12)	ND (0.0018)	ND (0.0026)	ND (0.002)	ND (0.0017)	ND (0.002)
Toluene	10000	100	ND (0.00086)	ND (0.0011)	ND (0.00099)	ND (0.00096)	ND (0.063)	ND (0.00091)	0.016 (0.0013)	ND (0.001)	ND (0.00086)	ND (0.001)
1,2,4-Trimethylbenzene	4700	300	ND (0.0017)	0.00039 J (0.0022)	ND (0.002)	ND (0.0019)	ND (0.12)	ND (0.0018)	0.013 (0.0026)	ND (0.002)	ND (0.0017)	0.0013 J (0.002)
1,3,5-Trimethylbenzene	4700	93	ND (0.0017)	0.0013 J (0.0022)	ND (0.002)	ND (0.0019)	ND (0.12)	ND (0.0018)	0.0061 (0.0026)	ND (0.002)	ND (0.0017)	0.0091 (0.002)
Xylenes (total)	7900	1000	ND (0.00086)	0.00126 J (0.0022)	ND (0.00099)	ND (0.00096)	ND (0.12)	ND (0.0018)	0.071 J (0.0026)	ND (0.002)	ND (0.0017)	0.00141 J (0.002)
Semivolatile Organic Compounds												
Anthracene	190000	350	ND (0.04)	0.14 (0.11)	0.0258 J (0.037)	ND (0.04)	0.038 J (0.11)	0.081 J (0.11)	0.048 J (0.11)	ND (0.11)	ND (0.12)	ND (1)
Benzo(a)anthracene	130	340	0.0249 J (0.04)	0.3 (0.11)	0.092 (0.037)	0.0199 J (0.04)	0.12 (0.11)	0.25 (0.11)	0.13 (0.11)	0.06 J (0.11)	ND (0.12)	ND (1)
Benzo(a)pyrene	91	46	0.0309 J (0.04)	0.29 (0.14)	0.0898 (0.037)	0.0261 J (0.04)	0.13 J (0.14)	0.26 (0.15)	0.15 (0.14)	0.052 J (0.15)	ND (0.15)	ND (1.4)
Benzo(b)fluoranthene	76	170	0.0454 (0.04)	0.35 (0.11)	0.123 (0.037)	0.0414 (0.04)	0.16 (0.11)	0.3 (0.11)	0.18 (0.11)	0.066 J (0.11)	ND (0.12)	ND (1)
Benzo(g,h,i)perylene	190000	180	0.0296 J (0.04)	0.19 (0.14)	0.0682 (0.037)	0.0278 J (0.04)	0.12 J (0.14)	0.19 (0.15)	0.17 (0.14)	0.04 J (0.15)	ND (0.15)	ND (1.4)
Chrysene	760	230	0.0384 J (0.04)	0.29 (0.11)	0.0935 (0.037)	0.0297 J (0.04)	0.17 (0.11)	0.26 (0.11)	0.18 (0.11)	0.061 J (0.11)	ND (0.12)	ND (1)
Fluorene	130000	3800	ND (0.04)	0.062 J (0.18)	ND (0.037)	ND (0.04)	0.031 J (0.18)	ND (0.19)	0.023 J (0.18)	ND (0.18)	ND (0.19)	ND (1.8)
Naphthalene	66	25	ND (0.04)	0.085 (0.036)	ND (0.037)	ND (0.04)	0.025 J (0.036)	0.032 J (0.038)	0.058 (0.036)	ND (0.036)	ND (0.038)	ND (0.35)
Phenanthrene	190000	10000	ND (0.04)	0.46 (0.11)	0.0867 (0.037)	0.0132 J (0.04)	0.14 (0.11)	0.3 (0.11)	0.14 (0.11)	0.068 J (0.11)	ND (0.12)	ND (1)
Pyrene	96000	2200	0.0399 J (0.04)	0.57 (0.11)	0.171 (0.037)	0.0342 J (0.04)	0.2 (0.11)	0.43 (0.11)	0.2 (0.11)	0.1 J (0.11)	ND (0.12)	ND (1)
Metals												
Lead	1000	450	8.1 (2.5)	49.2 (4.36)	13.2 (2.3)	7.4 (2.5)	27.8 (4.15)	12.6 (4.6)	209 (4.23)	42.3 (4.4)	6.4 (4.5)	194 (4.23)

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 The collection depth indicates the 0.5 ft interval from which the discrete sample (i.e., volatile organic compounds) was collected. The discrete sample was collected from the 0.5 ft interval within the 0-2.0 ft bgs interval displaying the highest indication of contamination using field screening techniques (i.e., PID readings and/or visual observation).
3 A vertical composite sample was collected at each boring over the 0-2.0 ft bgs interval and analyzed for semivolatile organic compounds and lead.
4 No concentrations exceed the Non-Res Direct Contact MSCs for Surface Soil (0-2 ft).
5 No concentrations exceed the Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC.
* The sample was collected from 8.5-9.0 ft bgs due to 8.45 ft of surcharge at the location.
** The sample was collected from 8.0-8.5 ft bgs due to 7.95 ft of surcharge at the location.

Abbreviations:
ND - Not Detected
J - Estimated Concentration

Table 1
Summary of Soil Analytical Results
Unit 1 Subgrade Sampling
Bellwether District Holdings, LLC

Location			301-W03-d	301-W04-c	301-X03-x	301-Y04-c	301-Y05-b	301-Z05-d	301-Z06-x	302-AD11-x	302-AD12-x	302-AD13-b
Field Sample ID	Non-Res Direct	Non-Res Used	301-W03-SG	301-W04-SG	301-X03-SG	301-Y04-SG	301-Y05-SG	301-Z05-SG	301-Z06-SG	302-AD11-SG	302-AD12-SG	302-AD13-SG
Collection Depth (ft bgs)	Contact MSCs for	Aquifer	1.5 - 2.0	0.5 - 1.0	0.5 - 1.0	1.0 - 1.5	1.0 - 1.5	0.0 - 0.5	0.5 - 1.0	0.0 - 0.5	0.5 - 1.0	0.5 - 1.0
Sample Method	Surface Soil	(TDS ≤ 2500)	Grab/Composite	Grab/Composite	Grab/Composite	Grab/Composite	Grab/Composite	Grab/Composite	Grab/Composite	Grab/Composite	Grab/Composite	Grab/Composite
Sample Date	(0-2 ft)	Soil-to-GW MSC	9/16/2024	5/15/2024	5/15/2024	5/15/2024	5/15/2024	4/9/2025	9/16/2024	11/7/2024	11/7/2024	11/7/2024
Comments												
Volatile Organic Compounds												
Benzene	280	0.5	ND (0.00058)	ND (0.029)	0.0003 J (0.00044)	0.001 (0.0005)	ND (0.00054)	ND (0.00054)	ND (0.00065)	ND (0.00054)	ND (0.00051)	ND (0.00055)
Cumene	10000	2500	ND (0.0012)	0.061 (0.059)	0.00032 J (0.00089)	ND (0.00099)	ND (0.0011)	ND (0.0021)	ND (0.0013)	0.00092 J (0.0011)	ND (0.001)	ND (0.0011)
1,2-Dibromoethane	3.7	0.005	ND (0.00058)	ND (0.029)	ND (0.00044)	ND (0.0005)	ND (0.00054)	ND (0.0011)	ND (0.00065)	ND (0.00054)	ND (0.00051)	ND (0.00055)
1,2-Dichloroethane	85	0.5	ND (0.0012)	ND (0.059)	ND (0.00089)	ND (0.00099)	ND (0.0011)	ND (0.0011)	ND (0.0013)	ND (0.0011)	ND (0.001)	ND (0.0011)
Ethyl Benzene	880	70	ND (0.0012)	0.24 (0.059)	0.00013 J (0.00089)	ND (0.00099)	ND (0.0011)	0.0449 (0.0011)	0.00021 J (0.0013)	0.00018 J (0.0011)	ND (0.001)	ND (0.0011)
Methyl tert-butyl ether	8500	2	ND (0.0023)	ND (0.12)	ND (0.0018)	ND (0.002)	ND (0.0022)	ND (0.0011)	ND (0.0026)	ND (0.0022)	ND (0.002)	ND (0.0022)
Toluene	10000	100	ND (0.0012)	0.24 (0.059)	ND (0.00089)	ND (0.00099)	ND (0.0011)	ND (0.0011)	ND (0.0013)	ND (0.0011)	ND (0.001)	ND (0.0011)
1,2,4-Trimethylbenzene	4700	300	ND (0.0023)	4.3 (0.12)	0.00061 J (0.0018)	ND (0.002)	ND (0.0022)	ND (0.0021)	0.0022 J (0.0026)	0.001 J (0.0022)	ND (0.002)	ND (0.0022)
1,3,5-Trimethylbenzene	4700	93	ND (0.0023)	1.3 (0.12)	0.00048 J (0.0018)	ND (0.002)	ND (0.0022)	ND (0.0021)	0.001 J (0.0026)	0.00035 J (0.0022)	ND (0.002)	ND (0.0022)
Xylenes (total)	7900	1000	ND (0.0023)	4 J (0.12)	0.00117 J (0.0018)	ND (0.002)	ND (0.0022)	0.293 (0.0011)	ND (0.0026)	ND (0.0022)	ND (0.002)	ND (0.0022)
Semivolatile Organic Compounds												
Anthracene	190000	350	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.1)	0.068 J (0.11)	ND (0.04)	ND (0.11)	0.079 J (0.11)	1 (0.11)	0.065 J (0.099)
Benzo(a)anthracene	130	340	0.069 J (0.11)	0.064 J (0.11)	0.072 J (0.11)	0.059 J (0.1)	0.26 (0.11)	0.0291 J (0.04)	0.066 J (0.11)	0.18 (0.11)	1.5 (0.11)	0.18 (0.099)
Benzo(a)pyrene	91	46	0.077 J (0.14)	0.056 J (0.14)	0.073 J (0.15)	0.051 J (0.14)	0.27 (0.15)	0.0322 J (0.04)	0.075 J (0.15)	0.23 (0.15)	1.2 (0.15)	0.17 (0.13)
Benzo(b)fluoranthene	76	170	0.094 J (0.11)	0.068 J (0.11)	0.088 J (0.11)	0.063 J (0.1)	0.32 (0.11)	0.0562 (0.04)	0.097 J (0.11)	0.29 (0.11)	1.3 (0.11)	0.21 (0.099)
Benzo(g,h,i)perylene	190000	180	0.079 J (0.14)	0.034 J (0.14)	0.053 J (0.15)	0.032 J (0.14)	0.17 (0.15)	0.0377 J (0.04)	0.069 J (0.15)	0.2 (0.15)	0.68 (0.15)	0.14 (0.13)
Chrysene	760	230	0.093 J (0.11)	0.061 J (0.11)	0.074 J (0.11)	0.058 J (0.1)	0.26 (0.11)	0.0353 J (0.04)	0.078 J (0.11)	0.19 (0.11)	1.7 (0.11)	0.18 (0.099)
Fluorene	130000	3800	0.023 J (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	0.024 J (0.18)	ND (0.04)	ND (0.18)	0.028 J (0.19)	0.7 (0.18)	0.023 J (0.16)
Naphthalene	66	25	0.052 (0.035)	0.024 J (0.036)	0.026 J (0.037)	0.021 J (0.035)	0.027 J (0.037)	ND (0.04)	ND (0.037)	0.04 (0.038)	0.31 (0.037)	0.037 (0.033)
Phenanthrene	190000	10000	0.083 J (0.11)	0.11 (0.11)	0.094 J (0.11)	0.1 (0.1)	0.31 (0.11)	0.0137 J (0.04)	0.033 J (0.11)	0.17 (0.11)	3 (0.11)	0.24 (0.099)
Pyrene	96000	2200	0.1 J (0.11)	0.097 J (0.11)	0.11 (0.11)	0.096 J (0.1)	0.42 (0.11)	0.0436 (0.04)	0.13 (0.11)	0.27 (0.11)	3 (0.11)	0.32 (0.099)
Metals												
Lead	1000	450	84.3 (4.26)	45.7 (4.22)	82.7 (4.42)	32.8 (4.06)	214 (4.44)	8.7 (2.5)	18.9 (4.25)	28.3 (4.45)	142 (4.27)	51 (4.01)

Notes:

1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.

2 The collection depth indicates the 0.5 ft interval from which the discrete sample (i.e., volatile organic compounds) was collected. The discrete sample was collected from the 0.5 ft interval within the 0-2.0 ft bgs interval displaying the highest indication of contamination using field screening techniques (i.e., PID readings and/or visual observation).

3 A vertical composite sample was collected at each boring over the 0-2.0 ft bgs interval and analyzed for semivolatile organic compounds and lead.

4 No concentrations exceed the Non-Res Direct Contact MSCs for Surface Soil (0-2 ft).

5 No concentrations exceed the Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC.

* The sample was collected from 8.5-9.0 ft bgs due to 8.45 ft of surcharge at the location.

** The sample was collected from 8.0-8.5 ft bgs due to 7.95 ft of surcharge at the location.

Abbreviations:

ND - Not Detected

J - Estimated Concentration

Figures

Figure 1 – Site Location Map

Figure 2 – Subgrade Soil Analytical Results



0 2,000 4,000 Feet

1 Inch = 2000 Feet

N

Legend

Facility Boundary

Unit Boundary

SAFETY FIRST

terraphase engineering

CLIENT: Bellwether District Holdings, LLC

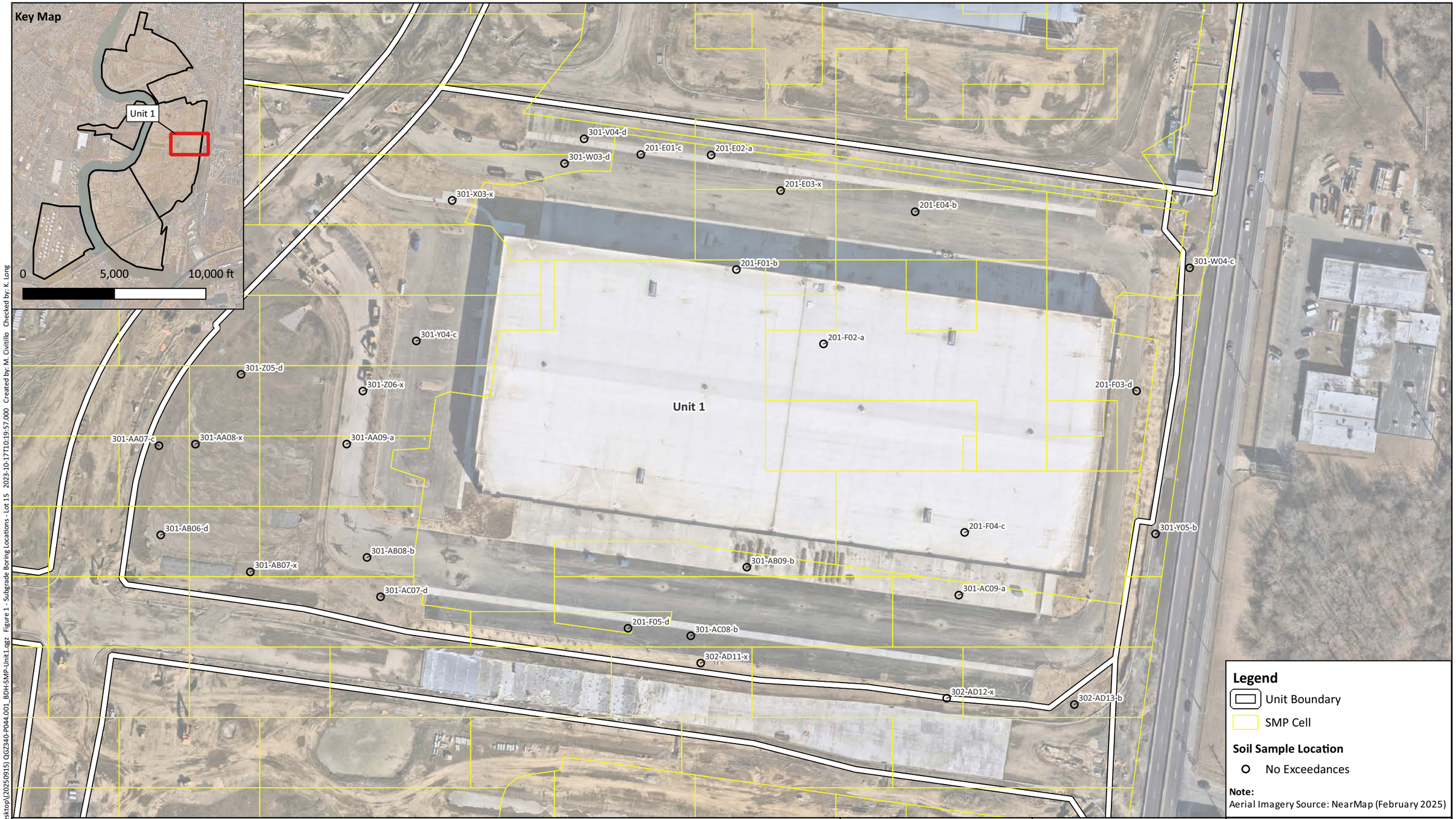
PROJECT: Unit 1 Subgrade Soil Sampling

PROJECT NUMBER: P044.001.018C

Site Location Map

FIGURE 1

C:\Users\Mia\OneDrive - TEI\Desktop\(20250915) QGZ340-P044.001_BDH-SMP-Unit1.qgz Figure 1 -Site Location Map 2023-10-17T10:19:57.000 Created by: M. Civitillo Checked by: K. Long



C:\Users\Mia\OneDrive - TEI\Desktop\(20250915) QGZ340-P044.001_BDH-SMP-Unit1.qgz Figure 1 - Subgrade Boring Locations - Lot 15 2023-10-17T10:19:57.000 Created by: M. Civitillo Checked by: K. Long

SAFETY FIRST

terraphase engineering

CLIENT: Bellwether District Holdings, LLC

PROJECT: Unit 1 Subgrade Soil Sampling

PROJECT NUMBER: P044.001.018C

Subgrade Soil Analytical Results

FIGURE 2

Attachment A

Laboratory Reports

Note: Lab Report L2352498 was modified by Terraphase to exclude lab results for samples L2352498-01 through L2352498-12 which were collected as part of investigation and closure activities associated with the Girard Point Hazardous Waste Storage Pad and are not related to the Subgrade Soil Sampling effort for Unit 1.

ANALYTICAL REPORT

Lab Number:	L2352498
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	RCRA PAD CLOSURE - PHIL REF
Project Number:	200.00135.007
Report Date:	09/22/23

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0826), IL (200077), IN (C-MA-03), KY (KY98045), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), OH (CL108), OR (MA-1316), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #525-23-122-91930).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: RCRA PAD CLOSURE - PHIL REF
Project Number: 200.00135.007

Lab Number: L2352498
Report Date: 09/22/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2352498-01	GPSP-13-SS01	SOIL	PHILADELPHIA	09/08/23 09:30	09/08/23
L2352498-02	GPSP-01-SS01	SOIL	PHILADELPHIA	09/08/23 09:50	09/08/23
L2352498-03	GPSP-06-SS01	SOIL	PHILADELPHIA	09/08/23 10:10	09/08/23
L2352498-04	GPSP-05-SS01	SOIL	PHILADELPHIA	09/08/23 10:25	09/08/23
L2352498-05	GPSP-12-SS01	SOIL	PHILADELPHIA	09/08/23 10:50	09/08/23
L2352498-06	GPSP-11-SS01	SOIL	PHILADELPHIA	09/08/23 11:15	09/08/23
L2352498-07	GPSP-10-SS01	SOIL	PHILADELPHIA	09/08/23 11:35	09/08/23
L2352498-08	GPSP-17-SS01	SOIL	PHILADELPHIA	09/08/23 11:50	09/08/23
L2352498-09	GPSP-14-SS01	SOIL	PHILADELPHIA	09/08/23 12:15	09/08/23
L2352498-10	GPSP-09-SS01	SOIL	PHILADELPHIA	09/08/23 12:35	09/08/23
L2352498-11	GPSP-04-SS01	SOIL	PHILADELPHIA	09/08/23 12:55	09/08/23
L2352498-12	GPSP-23-SS01	SOIL	PHILADELPHIA	09/08/23 14:15	09/08/23
L2352498-13	201-F04-SG	SOIL	PHILADELPHIA	09/08/23 15:40	09/08/23
L2352498-14	201-F02-SG	SOIL	PHILADELPHIA	09/08/23 15:55	09/08/23
L2352498-15	FB-230908	WATER	PHILADELPHIA	09/08/23 16:25	09/08/23
L2352498-16	TB-230908	WATER	PHILADELPHIA	09/08/23 00:00	09/08/23

Project Name:	RCRA PAD CLOSURE - PHIL REF	**Lab Number:**	L2352498
Project Number:	200.00135.007	**Report Date:**	09/22/23

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	RCRA PAD CLOSURE - PHIL REF	**Lab Number:**	L2352498
Project Number:	200.00135.007	**Report Date:**	09/22/23

Case Narrative (continued)

Report Submission

September 22, 2023: This final report includes the results of all requested analyses.

September 19, 2023: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

The analysis of Semivolatile Organics was subcontracted. A copy of the laboratory report is included as an addendum. Please note: This data is only available in PDF format and is not available on Data Merger.

Sample Receipt

L2352498-01 through -16: The Client IDs were changed at the client's request.

Volatile Organics

L2352498-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (141%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2352498-07D2: The surrogate recovery is outside the acceptance criteria for dibromofluoromethane (150%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2352498-09 and -11: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (132%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2352498-11: The sample was analyzed as a High Level Methanol based upon screen results. The sample was then analyzed as a Low Level in order to achieve lower reporting limits. The results of both analyses are reported. Differences were noted between the results of the analyses which have been attributed to vial discrepancies.

Project Name:	RCRA PAD CLOSURE - PHIL REF	**Lab Number:**	L2352498
Project Number:	200.00135.007	**Report Date:**	09/22/23

Case Narrative (continued)

Microextractables

L2352498-15 and -16: The sample container was preserved with HCl which is a method deviation.

Total Metals

The WG1826065-3 MS recovery for lead (0%), performed on L2352498-01, does not apply because the sample concentration is greater than four times the spike amount added.

The WG1826065-3 MS recovery, performed on L2352498-01, is outside the acceptance criteria for vanadium (70%). A post digestion spike was performed and was within acceptance criteria.

The WG1826065-4 Laboratory Duplicate RPD for vanadium (27%), performed on L2352498-01, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

Hexavalent Chromium

L2352498-06: The sample has an elevated detection limit due to the dilution required by the sample matrix.

The WG1827451-2 LCS recovery for chromium, hexavalent (74%), associated with L2352498-01 through -10, is outside our in-house acceptance criteria, but within the vendor-certified acceptance limits. The results of the original analyses are reported.

The WG1827453-2 LCS recovery for chromium, hexavalent (74%), associated with L2352498-11 and -12, is outside our in-house acceptance criteria, but within the vendor-certified acceptance limits. The results of the original analyses are reported.

The WG1827451-5 Soluble MS recovery for chromium, hexavalent (20%), performed on L2352498-01, was outside the acceptance criteria. This has been attributed to matrix interference. A post-spike was performed with a recovery of 97%.

The WG1827453-5 Soluble MS recovery for chromium, hexavalent (68%), performed on L2352112-11, was outside the acceptance criteria. This has been attributed to matrix interference. A post-spike was performed with a recovery of 97%.

Project Name:	RCRA PAD CLOSURE - PHIL REF	**Lab Number:**	L2352498
Project Number:	200.00135.007	**Report Date:**	09/22/23

Case Narrative (continued)

Cyanide, Total

The WG1828761-2 LCS recovery for cyanide, total (121%), associated with L2352498-05 through -12, is outside our in-house acceptance criteria, but within the vendor-certified acceptance limits. The results of the original analyses are reported.

The WG1828761-4/-5 MS/MSD recoveries, performed on L2352498-05, are outside the acceptance criteria for cyanide, total (160%/160%).

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

Authorized Signature:  Kelly Stenstrom

Title: Technical Director/Representative Date: 09/22/23

ORGANICS

VOLATILES

Project Name: RCRA PAD CLOSURE - PHIL REF **Lab Number:** L2352498

Project Number: 200.00135.007 **Report Date:** 09/22/23

SAMPLE RESULTS

Lab ID: L2352498-13
Client ID: 201-F04-SG
Sample Location: PHILADELPHIA

Date Collected: 09/08/23 15:40
Date Received: 09/08/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 09/14/23 21:31
Analyst: JIC
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0016	0.00016	1
Benzene	0.0070		mg/kg	0.00040	0.00013	1
1,2-Dichloroethane	ND		mg/kg	0.00080	0.00021	1
Toluene	0.00063	J	mg/kg	0.00080	0.00044	1
1,2-Dibromoethane	ND		mg/kg	0.00040	0.00024	1
Ethylbenzene	0.0012		mg/kg	0.00080	0.00011	1
p/m-Xylene	0.0028		mg/kg	0.0016	0.00045	1
o-Xylene	0.00099		mg/kg	0.00080	0.00023	1
Xylenes, Total	0.0038		mg/kg	0.00080	0.00023	1
Isopropylbenzene	0.0013		mg/kg	0.00080	0.00008	1
1,3,5-Trimethylbenzene	0.0012	J	mg/kg	0.0016	0.00016	1
1,2,4-Trimethylbenzene	0.0032		mg/kg	0.0016	0.00027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	85		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	100		70-130

Project Name: RCRA PAD CLOSURE - PHIL REF **Lab Number:** L2352498

Project Number: 200.00135.007 **Report Date:** 09/22/23

SAMPLE RESULTS

Lab ID: L2352498-14
Client ID: 201-F02-SG
Sample Location: PHILADELPHIA

Date Collected: 09/08/23 15:55
Date Received: 09/08/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 09/14/23 21:57
Analyst: JIC
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	0.024		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00096	0.00024	1
Toluene	0.0020		mg/kg	0.00096	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	0.020		mg/kg	0.00096	0.00013	1
p/m-Xylene	0.0088		mg/kg	0.0019	0.00054	1
o-Xylene	0.0028		mg/kg	0.00096	0.00028	1
Xylenes, Total	0.012		mg/kg	0.00096	0.00028	1
Isopropylbenzene	0.029		mg/kg	0.00096	0.00010	1
1,3,5-Trimethylbenzene	0.0066		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	0.011		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	78		70-130
4-Bromofluorobenzene	128		70-130
Dibromofluoromethane	75		70-130

Project Name: RCRA PAD CLOSURE - PHIL REF
Lab Number: L2352498
Project Number: 200.00135.007
Report Date: 09/22/23

SAMPLE RESULTS

Lab ID: L2352498-15
Client ID: FB-230908
Sample Location: PHILADELPHIA

Date Collected: 09/08/23 16:25
Date Received: 09/08/23
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 09/18/23 19:44
Analyst: JKH

Extraction Method: EPA 8011
Extraction Date: 09/18/23 16:18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: RCRA PAD CLOSURE - PHIL REF **Lab Number:** L2352498

Project Number: 200.00135.007 **Report Date:** 09/22/23

SAMPLE RESULTS

Lab ID: L2352498-15
Client ID: FB-230908
Sample Location: PHILADELPHIA

Date Collected: 09/08/23 16:25
Date Received: 09/08/23
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 09/13/23 10:25
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Carbon disulfide	ND		ug/l	5.0	0.30	1
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	96		70-130

Project Name: RCRA PAD CLOSURE - PHIL REF
Lab Number: L2352498
Project Number: 200.00135.007
Report Date: 09/22/23

SAMPLE RESULTS

Lab ID: L2352498-16
Client ID: TB-230908
Sample Location: PHILADELPHIA

Date Collected: 09/08/23 00:00
Date Received: 09/08/23
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 09/18/23 19:52
Analyst: JKH

Extraction Method: EPA 8011
Extraction Date: 09/18/23 16:18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: RCRA PAD CLOSURE - PHIL REF **Lab Number:** L2352498

Project Number: 200.00135.007 **Report Date:** 09/22/23

SAMPLE RESULTS

Lab ID: L2352498-16
Client ID: TB-230908
Sample Location: PHILADELPHIA

Date Collected: 09/08/23 00:00
Date Received: 09/08/23
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 09/13/23 10:48
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Carbon disulfide	ND		ug/l	5.0	0.30	1
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	100		70-130

Project Name: RCRA PAD CLOSURE - PHIL REF **Lab Number:** L2352498

Project Number: 200.00135.007 **Report Date:** 09/22/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 09/13/23 08:26
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 15-16 Batch: WG1827549-5					
Carbon disulfide	ND		ug/l	5.0	0.30
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	96		70-130

Project Name: RCRA PAD CLOSURE - PHIL REF **Lab Number:** L2352498

Project Number: 200.00135.007 **Report Date:** 09/22/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 09/14/23 09:55
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-09 Batch: WG1827883-5					
Carbon disulfide	ND		mg/kg	0.50	0.23
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	94		70-130

Project Name: RCRA PAD CLOSURE - PHIL REF
Project Number: 200.00135.007
Lab Number: L2352498
Report Date: 09/22/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 09/14/23 15:22
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 10-11 Batch: WG1827938-5					
Carbon disulfide	ND		mg/kg	0.50	0.23
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	108		70-130

Project Name: RCRA PAD CLOSURE - PHIL REF **Lab Number:** L2352498

Project Number: 200.00135.007 **Report Date:** 09/22/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 09/14/23 15:22
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 12-14 Batch: WG1827939-5					
Carbon disulfide	ND		mg/kg	0.010	0.0046
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	108		70-130

Project Name: RCRA PAD CLOSURE - PHIL REF **Lab Number:** L2352498

Project Number: 200.00135.007 **Report Date:** 09/22/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 09/15/23 11:28
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-04,06-07,09 Batch: WG1828684-5					
Carbon disulfide	ND		mg/kg	0.50	0.23
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	108		70-130

Project Name: RCRA PAD CLOSURE - PHIL REF
Project Number: 200.00135.007
Lab Number: L2352498
Report Date: 09/22/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 09/15/23 11:28
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 11 Batch: WG1828685-5					
Carbon disulfide	ND		mg/kg	0.010	0.0046
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	108		70-130

Project Name: RCRA PAD CLOSURE - PHIL REF
Project Number: 200.00135.007
Lab Number: L2352498
Report Date: 09/22/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 09/18/23 17:34
Analyst: JKH

Extraction Method: EPA 8011
Extraction Date: 09/18/23 16:18

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 15-16 Batch: WG1828861-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: RCRA PAD CLOSURE - PHIL REF
Project Number: 200.00135.007
Lab Number: L2352498
Report Date: 09/22/23

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: WG1827549-3 WG1827549-4								
Carbon disulfide	94		94		51-130	0		20
Methyl tert butyl ether	91		91		63-130	0		20
Benzene	100		99		70-130	1		20
1,2-Dichloroethane	94		93		70-130	1		20
Toluene	98		98		70-130	0		20
Ethylbenzene	95		96		70-130	1		20
p/m-Xylene	100		100		70-130	0		20
o-Xylene	95		95		70-130	0		20
Isopropylbenzene	95		97		70-130	2		20
1,3,5-Trimethylbenzene	95		96		64-130	1		20
1,2,4-Trimethylbenzene	96		98		70-130	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	92		97		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	96		99		70-130
Dibromofluoromethane	98		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: RCRA PAD CLOSURE - PHIL REF
Project Number: 200.00135.007

Lab Number: L2352498
Report Date: 09/22/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-09 Batch: WG1827883-3 WG1827883-4								
Carbon disulfide	97		83		59-130	16		30
Methyl tert butyl ether	72		**62**	Q	66-130	15		30
Benzene	101		101		70-130	0		30
1,2-Dichloroethane	101		103		70-130	2		30
Toluene	102		93		70-130	9		30
1,2-Dibromoethane	87		84		70-130	4		30
Ethylbenzene	104		101		70-130	3		30
p/m-Xylene	100		91		70-130	9		30
o-Xylene	101		92		70-130	9		30
Isopropylbenzene	110		107		70-130	3		30
1,3,5-Trimethylbenzene	112		127		70-130	13		30
1,2,4-Trimethylbenzene	111		124		70-130	11		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	100		102		70-130
Toluene-d8	107		104		70-130
4-Bromofluorobenzene	101		113		70-130
Dibromofluoromethane	94		82		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: RCRA PAD CLOSURE - PHIL REF

Project Number: 200.00135.007

Lab Number: L2352498

Report Date: 09/22/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 10-11 Batch: WG1827938-3 WG1827938-4								
Carbon disulfide	**150**	Q	120		59-130	22		30
Methyl tert butyl ether	100		100		66-130	0		30
Benzene	112		107		70-130	5		30
1,2-Dichloroethane	112		114		70-130	2		30
Toluene	99		96		70-130	3		30
1,2-Dibromoethane	110		115		70-130	4		30
Ethylbenzene	100		96		70-130	4		30
p/m-Xylene	103		100		70-130	3		30
o-Xylene	103		102		70-130	1		30
Isopropylbenzene	99		91		70-130	8		30
1,3,5-Trimethylbenzene	95		91		70-130	4		30
1,2,4-Trimethylbenzene	94		93		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		105		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	87		87		70-130
Dibromofluoromethane	104		102		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: RCRA PAD CLOSURE - PHIL REF
Project Number: 200.00135.007

Lab Number: L2352498
Report Date: 09/22/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 12-14 Batch: WG1827939-3 WG1827939-4								
Carbon disulfide	**150**	Q	120		59-130	22		30
Methyl tert butyl ether	100		100		66-130	0		30
Benzene	112		107		70-130	5		30
1,2-Dichloroethane	112		114		70-130	2		30
Toluene	99		96		70-130	3		30
1,2-Dibromoethane	110		115		70-130	4		30
Ethylbenzene	100		96		70-130	4		30
p/m-Xylene	103		100		70-130	3		30
o-Xylene	103		102		70-130	1		30
Isopropylbenzene	99		91		70-130	8		30
1,3,5-Trimethylbenzene	95		91		70-130	4		30
1,2,4-Trimethylbenzene	94		93		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		105		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	87		87		70-130
Dibromofluoromethane	104		102		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: RCRA PAD CLOSURE - PHIL REF
Project Number: 200.00135.007

Lab Number: L2352498
Report Date: 09/22/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-04,06-07,09 Batch: WG1828684-3 WG1828684-4								
Carbon disulfide	**137**	Q	**174**	Q	59-130	24		30
Methyl tert butyl ether	98		95		66-130	3		30
Benzene	112		114		70-130	2		30
1,2-Dichloroethane	110		110		70-130	0		30
Toluene	101		103		70-130	2		30
1,2-Dibromoethane	111		108		70-130	3		30
Ethylbenzene	103		104		70-130	1		30
p/m-Xylene	107		107		70-130	0		30
o-Xylene	106		106		70-130	0		30
Isopropylbenzene	101		101		70-130	0		30
1,3,5-Trimethylbenzene	98		99		70-130	1		30
1,2,4-Trimethylbenzene	98		98		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	106		106		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	87		85		70-130
Dibromofluoromethane	102		105		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: RCRA PAD CLOSURE - PHIL REF
Project Number: 200.00135.007

Lab Number: L2352498
Report Date: 09/22/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 11 Batch: WG1828685-3 WG1828685-4								
Carbon disulfide	**137**	Q	**174**	Q	59-130	24		30
Methyl tert butyl ether	98		95		66-130	3		30
Benzene	112		114		70-130	2		30
1,2-Dichloroethane	110		110		70-130	0		30
Toluene	101		103		70-130	2		30
1,2-Dibromoethane	111		108		70-130	3		30
Ethylbenzene	103		104		70-130	1		30
p/m-Xylene	107		107		70-130	0		30
o-Xylene	106		106		70-130	0		30
Isopropylbenzene	101		101		70-130	0		30
1,3,5-Trimethylbenzene	98		99		70-130	1		30
1,2,4-Trimethylbenzene	98		98		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	106		107		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	86		85		70-130
Dibromofluoromethane	102		105		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: RCRA PAD CLOSURE - PHIL REF

Project Number: 200.00135.007

Lab Number: L2352498

Report Date: 09/22/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab	Associated sample(s): 15-16 Batch: WG1828861-2								
1,2-Dibromoethane	95		-		80-120	-		20	A

SEMIVOLATILES

Project Name: RCRA PAD CLOSURE - PHIL REF
Lab Number: L2352498
Project Number: 200.00135.007
Report Date: 09/22/23

SAMPLE RESULTS

Lab ID: L2352498-13
Client ID: 201-F04-SG
Sample Location: PHILADELPHIA

Date Collected: 09/08/23 15:40
Date Received: 09/08/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 09/14/23 04:56
Analyst: EJL
Percent Solids: 91%

Extraction Method: EPA 3546
Extraction Date: 09/12/23 22:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.047		mg/kg	0.036	0.022	1
Fluorene	0.054	J	mg/kg	0.18	0.018	1
Phenanthrene	0.37		mg/kg	0.11	0.022	1
Anthracene	0.10	J	mg/kg	0.11	0.035	1
Pyrene	0.34		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.22		mg/kg	0.11	0.020	1
Chrysene	0.20		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.24		mg/kg	0.11	0.030	1
Benzo(a)pyrene	0.20		mg/kg	0.14	0.044	1
Benzo(ghi)perylene	0.10	J	mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	60		18-120

Project Name: RCRA PAD CLOSURE - PHIL REF
Lab Number: L2352498
Project Number: 200.00135.007
Report Date: 09/22/23

SAMPLE RESULTS

Lab ID: L2352498-14
Client ID: 201-F02-SG
Sample Location: PHILADELPHIA

Date Collected: 09/08/23 15:55
Date Received: 09/08/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 09/14/23 05:20
Analyst: EJL
Percent Solids: 89%

Extraction Method: EPA 3546
Extraction Date: 09/12/23 22:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.13		mg/kg	0.037	0.023	1
Fluorene	0.094	J	mg/kg	0.18	0.018	1
Phenanthrene	0.19		mg/kg	0.11	0.022	1
Anthracene	0.052	J	mg/kg	0.11	0.036	1
Pyrene	0.16		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.088	J	mg/kg	0.11	0.021	1
Chrysene	0.11		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.10	J	mg/kg	0.11	0.031	1
Benzo(a)pyrene	0.092	J	mg/kg	0.15	0.045	1
Benzo(ghi)perylene	0.066	J	mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	98		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	69		18-120

Project Name: RCRA PAD CLOSURE - PHIL REF
Project Number: 200.00135.007
Lab Number: L2352498
Report Date: 09/22/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 09/13/23 07:59
Analyst: IM

Extraction Method: EPA 3546
Extraction Date: 09/12/23 15:06

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 13-14 Batch: WG1826609-1					
Naphthalene	ND		mg/kg	0.033	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.099	0.020
Anthracene	ND		mg/kg	0.099	0.032
Pyrene	ND		mg/kg	0.099	0.016
Benzo(a)anthracene	ND		mg/kg	0.099	0.019
Chrysene	ND		mg/kg	0.099	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.099	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	89		25-120
Phenol-d6	85		10-120
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	74		30-120
2,4,6-Tribromophenol	83		10-136
4-Terphenyl-d14	82		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: RCRA PAD CLOSURE - PHIL REF
Project Number: 200.00135.007

Lab Number: L2352498
Report Date: 09/22/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 13-14 Batch: WG1826609-2 WG1826609-3								
Naphthalene	79		76		40-140	4		50
Fluorene	77		76		40-140	1		50
Phenanthrene	79		75		40-140	5		50
Anthracene	80		76		40-140	5		50
Pyrene	77		72		35-142	7		50
Benzo(a)anthracene	77		73		40-140	5		50
Chrysene	81		78		40-140	4		50
Benzo(b)fluoranthene	82		74		40-140	10		50
Benzo(a)pyrene	84		78		40-140	7		50
Benzo(ghi)perylene	76		73		40-140	4		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	98		91		25-120
Phenol-d6	91		88		10-120
Nitrobenzene-d5	76		75		23-120
2-Fluorobiphenyl	71		69		30-120
2,4,6-Tribromophenol	80		76		10-136
4-Terphenyl-d14	77		73		18-120

METALS

Project Name: RCRA PAD CLOSURE - PHIL REF
Lab Number: L2352498
Project Number: 200.00135.007
Report Date: 09/22/23

SAMPLE RESULTS

Lab ID: L2352498-13
Client ID: 201-F04-SG
Sample Location: PHILADELPHIA
Date Collected: 09/08/23 15:40
Date Received: 09/08/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	69.6		mg/kg	2.17	0.116	1	09/12/23 23:26	09/13/23 15:20	EPA 3050B	1,6010D	DMB

Project Name: RCRA PAD CLOSURE - PHIL REF
Lab Number: L2352498
Project Number: 200.00135.007
Report Date: 09/22/23

SAMPLE RESULTS

Lab ID: L2352498-14
Client ID: 201-F02-SG
Sample Location: PHILADELPHIA
Date Collected: 09/08/23 15:55
Date Received: 09/08/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	75.0		mg/kg	2.19	0.117	1	09/12/23 23:26	09/13/23 15:25	EPA 3050B	1,6010D	DMB

Project Name: RCRA PAD CLOSURE - PHIL REF
Lab Number: L2352498
Project Number: 200.00135.007
Report Date: 09/22/23

SAMPLE RESULTS

Lab ID: L2352498-15
Client ID: FB-230908
Sample Location: PHILADELPHIA
Date Collected: 09/08/23 16:25
Date Received: 09/08/23
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		ug/l	4.000	0.4290	1	09/11/23 21:00	09/18/23 12:43	EPA 3005A	1,6020B	EJF
Arsenic, Total	ND		ug/l	0.5000	0.1650	1	09/11/23 21:00	09/18/23 12:43	EPA 3005A	1,6020B	EJF
Chromium, Total	0.3652	J	ug/l	1.000	0.1780	1	09/11/23 21:00	09/18/23 12:43	EPA 3005A	1,6020B	EJF
Lead, Total	0.4681	J	ug/l	1.000	0.3430	1	09/11/23 21:00	09/18/23 12:43	EPA 3005A	1,6020B	EJF
Nickel, Total	ND		ug/l	2.000	0.5560	1	09/11/23 21:00	09/18/23 12:43	EPA 3005A	1,6020B	EJF
Vanadium, Total	ND		ug/l	5.000	1.570	1	09/11/23 21:00	09/18/23 12:43	EPA 3005A	1,6020B	EJF

Project Name: RCRA PAD CLOSURE - PHIL REF **Lab Number:** L2352498

Project Number: 200.00135.007 **Report Date:** 09/22/23

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 15 Batch: WG1826010-1										
Antimony, Total	ND		ug/l	4.000	0.4290	1	09/11/23 21:00	09/14/23 11:44	1,6020B	EJF
Arsenic, Total	ND		ug/l	0.5000	0.1650	1	09/11/23 21:00	09/14/23 11:44	1,6020B	EJF
Chromium, Total	ND		ug/l	1.000	0.1780	1	09/11/23 21:00	09/14/23 11:44	1,6020B	EJF
Lead, Total	ND		ug/l	1.000	0.3430	1	09/11/23 21:00	09/14/23 11:44	1,6020B	EJF
Nickel, Total	ND		ug/l	2.000	0.5560	1	09/11/23 21:00	09/14/23 11:44	1,6020B	EJF
Vanadium, Total	ND		ug/l	5.000	1.570	1	09/11/23 21:00	09/14/23 11:44	1,6020B	EJF

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-14 Batch: WG1826065-1										
Antimony, Total	ND		mg/kg	2.00	0.152	1	09/12/23 23:26	09/13/23 09:53	1,6010D	DMB
Arsenic, Total	ND		mg/kg	0.400	0.083	1	09/12/23 23:26	09/13/23 09:53	1,6010D	DMB
Chromium, Total	ND		mg/kg	0.400	0.038	1	09/12/23 23:26	09/13/23 09:53	1,6010D	DMB
Lead, Total	ND		mg/kg	2.00	0.107	1	09/12/23 23:26	09/13/23 09:53	1,6010D	DMB
Nickel, Total	ND		mg/kg	1.00	0.097	1	09/12/23 23:26	09/13/23 09:53	1,6010D	DMB
Vanadium, Total	ND		mg/kg	0.400	0.081	1	09/12/23 23:26	09/13/23 09:53	1,6010D	DMB

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis

Batch Quality Control

Project Name: RCRA PAD CLOSURE - PHIL REF

Project Number: 200.00135.007

Lab Number: L2352498

Report Date: 09/22/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 15 Batch: WG1826010-2								
Antimony, Total	87		-		80-120	-		
Arsenic, Total	98		-		80-120	-		
Chromium, Total	91		-		80-120	-		
Lead, Total	97		-		80-120	-		
Nickel, Total	90		-		80-120	-		
Vanadium, Total	92		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-14 Batch: WG1826065-2 SRM Lot Number: D119-540								
Antimony, Total	131		-		10-190	-		
Arsenic, Total	100		-		83-117	-		
Chromium, Total	96		-		82-119	-		
Lead, Total	98		-		82-118	-		
Nickel, Total	96		-		82-117	-		
Vanadium, Total	92		-		79-121	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: RCRA PAD CLOSURE - PHIL REF
Project Number: 200.00135.007

Lab Number: L2352498
Report Date: 09/22/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 15 QC Batch ID: WG1826010-3 QC Sample: L2351877-01 Client ID: MS Sample												
Antimony, Total	0.9708J	500	462.7	92		-	-		75-125	-		20
Arsenic, Total	0.7784	120	123.0	102		-	-		75-125	-		20
Chromium, Total	0.6660J	200	184.7	92		-	-		75-125	-		20
Lead, Total	0.4272J	530	526.6	99		-	-		75-125	-		20
Nickel, Total	2.139	500	456.2	91		-	-		75-125	-		20
Vanadium, Total	ND	500	459.1	92		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-14 QC Batch ID: WG1826065-3 QC Sample: L2352498-01 Client ID: GPSP-13-SS01												
Antimony, Total	1.28J	51.8	45.7	88		-	-		75-125	-		20
Arsenic, Total	11.6	12.4	24.5	104		-	-		75-125	-		20
Chromium, Total	40.1	20.7	58.6	89		-	-		75-125	-		20
Lead, Total	349	54.9	264	**0**	Q	-	-		75-125	-		20
Nickel, Total	23.0	51.8	72.3	95		-	-		75-125	-		20
Vanadium, Total	41.5	51.8	77.8	**70**	Q	-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: RCRA PAD CLOSURE - PHIL REF

Project Number: 200.00135.007

Lab Number: L2352498

Report Date: 09/22/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 15 QC Batch ID: WG1826010-4 QC Sample: L2351877-01 Client ID: DUP Sample						
Antimony, Total	0.9708J	1.577J	ug/l	NC		20
Arsenic, Total	0.7784	0.8172	ug/l	5		20
Chromium, Total	0.6660J	0.7208J	ug/l	NC		20
Lead, Total	0.4272J	0.4350J	ug/l	NC		20
Nickel, Total	2.139	2.287	ug/l	7		20
Vanadium, Total	ND	ND	ug/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01-14 QC Batch ID: WG1826065-4 QC Sample: L2352498-01 Client ID: GPSP-13-SS01						
Antimony, Total	1.28J	1.70J	mg/kg	NC		20
Arsenic, Total	11.6	11.8	mg/kg	2		20
Chromium, Total	40.1	43.8	mg/kg	9		20
Lead, Total	349	308	mg/kg	12		20
Nickel, Total	23.0	27.9	mg/kg	19		20
Vanadium, Total	41.5	54.4	mg/kg	**27**	Q	20

INORGANICS
&
MISCELLANEOUS

Project Name: RCRA PAD CLOSURE - PHIL REF
Project Number: 200.00135.007
Lab Number: L2352498
Report Date: 09/22/23

SAMPLE RESULTS

Lab ID: L2352498-13
Client ID: 201-F04-SG
Sample Location: PHILADELPHIA
Sample Depth:
Matrix: Soil

Date Collected: 09/08/23 15:40
Date Received: 09/08/23
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.1		%	0.100	NA	1	-	09/09/23 10:50	121,2540G	ROI

Project Name: RCRA PAD CLOSURE - PHIL REF
Project Number: 200.00135.007
Lab Number: L2352498
Report Date: 09/22/23

SAMPLE RESULTS

Lab ID: L2352498-14
Client ID: 201-F02-SG
Sample Location: PHILADELPHIA
Sample Depth:
Matrix: Soil

Date Collected: 09/08/23 15:55
Date Received: 09/08/23
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.0		%	0.100	NA	1	-	09/09/23 10:50	121,2540G	ROI

Project Name: RCRA PAD CLOSURE - PHIL REF
Project Number: 200.00135.007
Lab Number: L2352498
Report Date: 09/22/23

SAMPLE RESULTS

Lab ID: L2352498-15
Client ID: FB-230908
Sample Location: PHILADELPHIA
Sample Depth:
Matrix: Water

Date Collected: 09/08/23 16:25
Date Received: 09/08/23
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	ND		ug/l	5.00	1.80	1	09/13/23 13:25	09/13/23 16:40	1,9010C/9012B	JER
Chromium, Hexavalent	6.00	J	ug/l	10.0	3.00	1	09/09/23 07:00	09/09/23 07:55	1,7196A	OCF

Project Name: RCRA PAD CLOSURE - PHIL REF **Lab Number:** L2352498

Project Number: 200.00135.007 **Report Date:** 09/22/23

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 15 Batch: WG1825491-1										
Chromium, Hexavalent	3.00	J	ug/l	10.0	3.00	1	09/09/23 07:00	09/09/23 07:49	1,7196A	OCF
General Chemistry - Westborough Lab for sample(s): 01-04 Batch: WG1826338-1										
Cyanide, Total	ND		mg/kg	0.93	0.20	1	09/12/23 09:20	09/12/23 13:32	1,9010C/9012B	JER
General Chemistry - Westborough Lab for sample(s): 15 Batch: WG1826962-1										
Cyanide, Total	ND		ug/l	5.00	1.80	1	09/13/23 13:25	09/13/23 16:29	1,9010C/9012B	JER
General Chemistry - Westborough Lab for sample(s): 01-10 Batch: WG1827451-1										
Chromium, Hexavalent	ND		mg/kg	0.800	0.160	1	09/14/23 12:41	09/14/23 22:00	1,7196A	WMT
General Chemistry - Westborough Lab for sample(s): 11-12 Batch: WG1827453-1										
Chromium, Hexavalent	ND		mg/kg	0.800	0.160	1	09/14/23 12:41	09/14/23 22:22	1,7196A	WMT
General Chemistry - Westborough Lab for sample(s): 05-12 Batch: WG1828761-1										
Cyanide, Total	ND		mg/kg	0.93	0.20	1	09/18/23 19:15	09/19/23 00:30	1,9010C/9012B	JER

Lab Control Sample Analysis

Batch Quality Control

Project Name: RCRA PAD CLOSURE - PHIL REF

Project Number: 200.00135.007

Lab Number: L2352498

Report Date: 09/22/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 15 Batch: WG1825491-2								
Chromium, Hexavalent	91		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-04 Batch: WG1826338-2 WG1826338-3								
Cyanide, Total	99		91		80-120	9		35
General Chemistry - Westborough Lab Associated sample(s): 15 Batch: WG1826962-2 WG1826962-3								
Cyanide, Total	106		99		85-115	7		20
General Chemistry - Westborough Lab Associated sample(s): 01-10 Batch: WG1827451-2								
Chromium, Hexavalent	**74**	Q	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 11-12 Batch: WG1827453-2								
Chromium, Hexavalent	**74**	Q	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 05-12 Batch: WG1828761-2 WG1828761-3								
Cyanide, Total	**121**	Q	119		80-120	2		35

Matrix Spike Analysis
Batch Quality Control

Project Name: RCRA PAD CLOSURE - PHIL REF
Project Number: 200.00135.007

Lab Number: L2352498
Report Date: 09/22/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 15 QC Batch ID: WG1825491-4 QC Sample: L2352498-15 Client ID: FB-230908												
Chromium, Hexavalent	6.00J	0.2	90.0	90		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-04 QC Batch ID: WG1826338-4 WG1826338-5 QC Sample: L2352112-06 Client ID: MS Sample												
Cyanide, Total	1.3J	14	13	82		12	**74**	Q	75-125	8		35
General Chemistry - Westborough Lab Associated sample(s): 15 QC Batch ID: WG1826962-4 WG1826962-5 QC Sample: L2350975-08 Client ID: MS Sample												
Cyanide, Total	ND	200	216	108		217	108		80-120	0		20
General Chemistry - Westborough Lab Associated sample(s): 01-10 QC Batch ID: WG1827451-4 QC Sample: L2352498-01 Client ID: GPSP-13-SS01												
Chromium, Hexavalent	ND	1520	1140	75		-	-		75-125	-		20
General Chemistry - Westborough Lab Associated sample(s): 11-12 QC Batch ID: WG1827453-4 QC Sample: L2352112-11 Client ID: MS Sample												
Chromium, Hexavalent	ND	1170	875	75		-	-		75-125	-		20
General Chemistry - Westborough Lab Associated sample(s): 05-12 QC Batch ID: WG1828761-4 WG1828761-5 QC Sample: L2352498-05 Client ID: GPSP-12-SS01												
Cyanide, Total	ND	11	17	**160**	Q	17	**160**	Q	75-125	0		35

Lab Duplicate Analysis

Batch Quality Control

Project Name: RCRA PAD CLOSURE - PHIL REF

Project Number: 200.00135.007

Lab Number: L2352498

Report Date: 09/22/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 15 QC Batch ID: WG1825491-3 QC Sample: L2352498-15 Client ID: FB-230908						
Chromium, Hexavalent	6.00J	6.00J	ug/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01-12 QC Batch ID: WG1825529-1 QC Sample: L2352462-01 Client ID: DUP Sample						
Solids, Total	92.2	91.7	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 13-14 QC Batch ID: WG1825530-1 QC Sample: L2351876-01 Client ID: DUP Sample						
Solids, Total	51.6	47.8	%	8		20
General Chemistry - Westborough Lab Associated sample(s): 01-10 QC Batch ID: WG1827451-6 QC Sample: L2352498-01 Client ID: GPSP-13-SS01						
Chromium, Hexavalent	ND	ND	mg/kg	NC		20
General Chemistry - Westborough Lab Associated sample(s): 11-12 QC Batch ID: WG1827453-6 QC Sample: L2352112-11 Client ID: DUP Sample						
Chromium, Hexavalent	ND	ND	mg/kg	NC		20

Project Name: RCRA PAD CLOSURE - PHIL REF
Project Number: 200.00135.007

Lab Number: L2352498
Report Date: 09/22/23

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2352498-01A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2352498-01B	Vial water preserved	B	NA		3.5	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-01C	Vial water preserved	B	NA		3.5	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-01D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		AS-TI(180),NI-TI(180),CR-TI(180),SB-TI(180),PB-TI(180),V-TI(180)
L2352498-01E	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		SUB-8270()
L2352498-01F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		TCN-9010(14),HEXCR-7196(30)
L2352498-01G	Plastic 120ml unpreserved	B	NA		3.5	Y	Absent		TS(7)
L2352498-02A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2352498-02B	Vial water preserved	B	NA		3.5	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-02C	Vial water preserved	B	NA		3.5	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-02D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		AS-TI(180),NI-TI(180),CR-TI(180),PB-TI(180),SB-TI(180),V-TI(180)
L2352498-02E	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		SUB-8270()
L2352498-02F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		TCN-9010(14),HEXCR-7196(30)
L2352498-02G	Plastic 120ml unpreserved	B	NA		3.5	Y	Absent		TS(7)
L2352498-03A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2352498-03B	Vial water preserved	B	NA		3.5	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-03C	Vial water preserved	B	NA		3.5	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-03D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		AS-TI(180),CR-TI(180),NI-TI(180),PB-TI(180),SB-TI(180),V-TI(180)
L2352498-03E	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		SUB-8270()
L2352498-03F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		TCN-9010(14),HEXCR-7196(30)
L2352498-03G	Plastic 120ml unpreserved	B	NA		3.5	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Project Name: RCRA PAD CLOSURE - PHIL REF
Project Number: 200.00135.007

Lab Number: L2352498
Report Date: 09/22/23

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2352498-04A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2352498-04B	Vial water preserved	B	NA		3.5	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-04C	Vial water preserved	B	NA		3.5	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-04D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		AS-TI(180),CR-TI(180),NI-TI(180),SB-TI(180),PB-TI(180),V-TI(180)
L2352498-04E	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		SUB-8270()
L2352498-04F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		TCN-9010(14),HEXCR-7196(30)
L2352498-04G	Plastic 120ml unpreserved	B	NA		3.5	Y	Absent		TS(7)
L2352498-05A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2352498-05B	Vial water preserved	B	NA		3.5	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-05C	Vial water preserved	B	NA		3.5	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-05D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		AS-TI(180),CR-TI(180),NI-TI(180),SB-TI(180),PB-TI(180),V-TI(180)
L2352498-05E	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		SUB-8270()
L2352498-05F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		TCN-9010(14),HEXCR-7196(30)
L2352498-05G	Plastic 120ml unpreserved	B	NA		3.5	Y	Absent		TS(7)
L2352498-06A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2352498-06B	Vial water preserved	B	NA		3.5	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-06C	Vial water preserved	B	NA		3.5	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-06D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		AS-TI(180),CR-TI(180),NI-TI(180),PB-TI(180),SB-TI(180),V-TI(180)
L2352498-06E	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		SUB-8270()
L2352498-06F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		TCN-9010(14),HEXCR-7196(30)
L2352498-06G	Plastic 120ml unpreserved	B	NA		3.5	Y	Absent		TS(7)
L2352498-07A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2352498-07B	Vial water preserved	B	NA		3.5	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-07C	Vial water preserved	B	NA		3.5	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-07D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		AS-TI(180),CR-TI(180),NI-TI(180),SB-TI(180),PB-TI(180),V-TI(180)
L2352498-07E	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		SUB-8270()
L2352498-07F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		TCN-9010(14),HEXCR-7196(30)

*Values in parentheses indicate holding time in days

Project Name: RCRA PAD CLOSURE - PHIL REF
Project Number: 200.00135.007

Lab Number: L2352498
Report Date: 09/22/23

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2352498-07G	Plastic 120ml unpreserved	B	NA		3.5	Y	Absent		TS(7)
L2352498-08A	Vial MeOH preserved	B	NA		3.5	Y	Absent		PA-8260HLW(14)
L2352498-08B	Vial water preserved	B	NA		3.5	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-08C	Vial water preserved	B	NA		3.5	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-08D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		AS-TI(180),CR-TI(180),NI-TI(180),SB-TI(180),PB-TI(180),V-TI(180)
L2352498-08E	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		SUB-8270()
L2352498-08F	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		TCN-9010(14),HEXCR-7196(30)
L2352498-08G	Plastic 120ml unpreserved	B	NA		3.5	Y	Absent		TS(7)
L2352498-09A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2352498-09B	Vial water preserved	A	NA		2.3	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-09C	Vial water preserved	A	NA		2.3	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-09D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		AS-TI(180),CR-TI(180),NI-TI(180),PB-TI(180),SB-TI(180),V-TI(180)
L2352498-09E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		SUB-8270()
L2352498-09F	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		TCN-9010(14),HEXCR-7196(30)
L2352498-09G	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2352498-10A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2352498-10B	Vial water preserved	A	NA		2.3	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-10C	Vial water preserved	A	NA		2.3	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-10D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		AS-TI(180),NI-TI(180),CR-TI(180),PB-TI(180),SB-TI(180),V-TI(180)
L2352498-10E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		SUB-8270()
L2352498-10F	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		TCN-9010(14),HEXCR-7196(30)
L2352498-10G	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2352498-11A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2352498-11B	Vial water preserved	A	NA		2.3	Y	Absent	09-SEP-23 05:18	PA-8260H(14),PA-8260HLW(14)
L2352498-11C	Vial water preserved	A	NA		2.3	Y	Absent	09-SEP-23 05:18	PA-8260H(14),PA-8260HLW(14)
L2352498-11D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		AS-TI(180),CR-TI(180),NI-TI(180),SB-TI(180),PB-TI(180),V-TI(180)
L2352498-11E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		SUB-8270()

*Values in parentheses indicate holding time in days

Project Name: RCRA PAD CLOSURE - PHIL REF
Project Number: 200.00135.007

Lab Number: L2352498
Report Date: 09/22/23

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2352498-11F	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		TCN-9010(14),HEXCR-7196(30)
L2352498-11G	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2352498-12A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2352498-12B	Vial water preserved	A	NA		2.3	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-12C	Vial water preserved	A	NA		2.3	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-12D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		AS-TI(180),NI-TI(180),CR-TI(180),PB-TI(180),SB-TI(180),V-TI(180)
L2352498-12E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		SUB-8270()
L2352498-12F	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		TCN-9010(14),HEXCR-7196(30)
L2352498-12G	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2352498-13A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2352498-13B	Vial water preserved	A	NA		2.3	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-13C	Vial water preserved	A	NA		2.3	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-13D	Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		HOLD-SUB()
L2352498-13E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2352498-13F	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2352498-14A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2352498-14B	Vial water preserved	A	NA		2.3	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-14C	Vial water preserved	A	NA		2.3	Y	Absent	09-SEP-23 05:18	PA-8260HLW(14)
L2352498-14D	Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		HOLD-SUB()
L2352498-14E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2352498-14F	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2352498-15A	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2352498-15B	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2352498-15C	Vial HCl preserved	A	NA		2.3	Y	Absent		8011(14)
L2352498-15D	Plastic 250ml unpreserved	A	7	7	2.3	Y	Absent		HEXCR-7196-PPB(1)
L2352498-15E	Plastic 250ml NaOH preserved	A	>12	>12	2.3	Y	Absent		TCN-9010-PPB(14)
L2352498-15F	Amber 250ml unpreserved	A	7	7	2.3	Y	Absent		SUB-8270(7)
L2352498-15G	Amber 250ml unpreserved	A	7	7	2.3	Y	Absent		SUB-8270(7)

*Values in parentheses indicate holding time in days

Project Name: RCRA PAD CLOSURE - PHIL REF
Project Number: 200.00135.007

Lab Number: L2352498
Report Date: 09/22/23

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2352498-15H	Plastic 250ml HNO3 preserved	A	<2	<2	2.3	Y	Absent		CR-6020T-PPB(180),SB-6020T-PPB(180),AS-6020T-PPB(180),PB-6020T-PPB(180),NI-6020T-PPB(180),V-6020T-PPB(180)
L2352498-16A	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2352498-16B	Vial HCl preserved	A	NA		2.3	Y	Absent		8011(14)

*Values in parentheses indicate holding time in days

Project Name:	RCRA PAD CLOSURE - PHIL REF	**Lab Number:**	L2352498
Project Number:	200.00135.007	**Report Date:**	09/22/23

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name:	RCRA PAD CLOSURE - PHIL REF	**Lab Number:**	L2352498
Project Number:	200.00135.007	**Report Date:**	09/22/23

Footnotes

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

Terms

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

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

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

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

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

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

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

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

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

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

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers

Project Name:	RCRA PAD CLOSURE - PHIL REF	**Lab Number:**	L2352498
Project Number:	200.00135.007	**Report Date:**	09/22/23

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:	RCRA PAD CLOSURE - PHIL REF	**Lab Number:**	L2352498
Project Number:	200.00135.007	**Report Date:**	09/22/23

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

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

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

Certification Information

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

Westborough Facility
EPA 624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625.1: alpha-Terpineol
EPA 8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 524.2: THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables).
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2

Date Rec'd in Lab: 9/9/23

ALPHA Job #: L2352498

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

Client Information

Client: Ransom Consulting LLC
Address: 2127 Hamilton Avenue
Hamilton, NJ 08619
Phone: 609-584-0090
Fax:
Email: william.schmidt@ransomenv.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: PES Refinery
Project Location: Philadelphia
Project #: 200.00135
Project Manager: William Schmidt
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

Other Project Specific Requirements/Comments/Detection Limits:

ANALYSIS: see attached Table 1

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 Date	Collection Time	Sample Matrix	Sampler's Initials		Sample Specific Comments	TOTAL # BOTTLES
52498-01	GPSP-13	9/8/23	9:30	S	ND	X		7
02	GPSP-01		9:50			X		7
03	GPSP-06		10:10			X		7
04	GPSP-05		10:25			X		7
05	GPSP-12		10:50			X		7
06	GPSP-11		11:15			X		7
07	GPSP-10		11:35			X		7
08	GPSP-17		11:50			X		7
09	GPSP-14		12:15			X		7
10	GPSP-09	↓	12:35	↓	↓	X		7

Container Type																			
Preservative																			

Relinquished By:	Date/Time	Received By:	Date/Time
	9/8/23/16:45		9.8.23 1645
	9.8.23 1800		9/8/23 1800
	9/8/23 2100	Anthony Green SEP 08 2023	2100

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

09109123-0243

CHAIN OF CUSTODY

PAGE 2 OF 2

Date Rec'd in Lab: 9/9/23

ALPHA Job #: L2352498

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

Client Information

Client: Ransom Consulting LLC
Address: 2123 Hamilton Avenue
Hamilton, NJ 08619
Phone: 609-584-0020
Fax:
Email: william.schmidt@ransomenv.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: PES Refinery
Project Location: Philadelphia
Project #: 200.0135
Project Manager: William Schmidt
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

Other Project Specific Requirements/Comments/Detection Limits:

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: 5 ae attached Tanks	PAH	Lead	VOC fraction of Target	SAMPLE HANDLING	Sample Specific Comments	TOTAL # BOTTLES
52498-11	GPSP-02	9/8/23	12:55	S	ND	X						7
12	GPSP-23		14:15			X						7
13	201-FOB4-C		15:40			X	X	X				6
14	201-FOB-9		15:55	↓		X	X	X				6
15	Field Blank		16:25	W		X						8
16	Trip blank	↓	16:25	W	↓				X			2

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

9/9/23 0240

09091 23-0240

Container Type																			
Preservative																			

Relinquished By:	Date/Time	Received By:	Date/Time
	9/8/23/16:45		9.8.23 1645
	9.8.23 1800		9/8/23 1800
	9/8/23 2300	Anthony Green SEP 08 2023	2300

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.

Table 1
Proposed Target Analyte List and Analytical Methods
Tanks 1086 and 1087 Storage Pad and the Girard Point Waste Storage Pad
Philadelphia Energy Solutions Refining and Marketing LLC, Philadelphia, PA

Constituents for Analysis	Analytical Method
Volatile Organic Compounds	*SW-846 Method 8260*
Benzene	
1,2-Dibromoethane (EBD)	
1,2-Dichloroethane (EDC)	
Carbon Disulfide	
Ethyl Benzene	
Isopropylbenzene (Cumene)	
Methyl Tertiary Butyl Ether (MTBE)	
Toluene	
1,2,4-Trimethylbenzene	
1,3,5-Trimethylbenzene	
Xylenes (total)	
Semi-Volatile Compounds	*SW-846 Method 8270*
Acenaphthene	
Anthracene	
Benzo(a)anthracene	
Benzo(a)pyrene	
Benzo(b)fluoranthene	
Benzo(k)fluoranthene	
Benzo(g,h,i)perylene	
bis(2-Ethylhexyl)phthalate	
Chrysene	
Dibenz(a,h)anthracene	
Di-n-butylphthalate	
7,12-Dimethylbenz(a)anthracene	
2,4-Dimethylphenol	
Fluorene	
Indeno(1,2,3-cd)pyrene	
3-Methylcholanthrene	
2-Methylphenol	
3-Methylphenol	
4-Methylphenol	
Naphthalene	
o-cresol	
m-cresol	
p-resol	
Phenanthrene	
Phenol	
Pyrene	
Metals	*SW-846 Method 6010*
Antimony	
Arsenic	
Cyanide (total)	*SW-846 Method 9012*
Lead	*SW-846 Method 6010*
Nickel	
Vanadium	
Chromium (total)	
Chromium (hexavalent)	*SW-846 Method 7196*

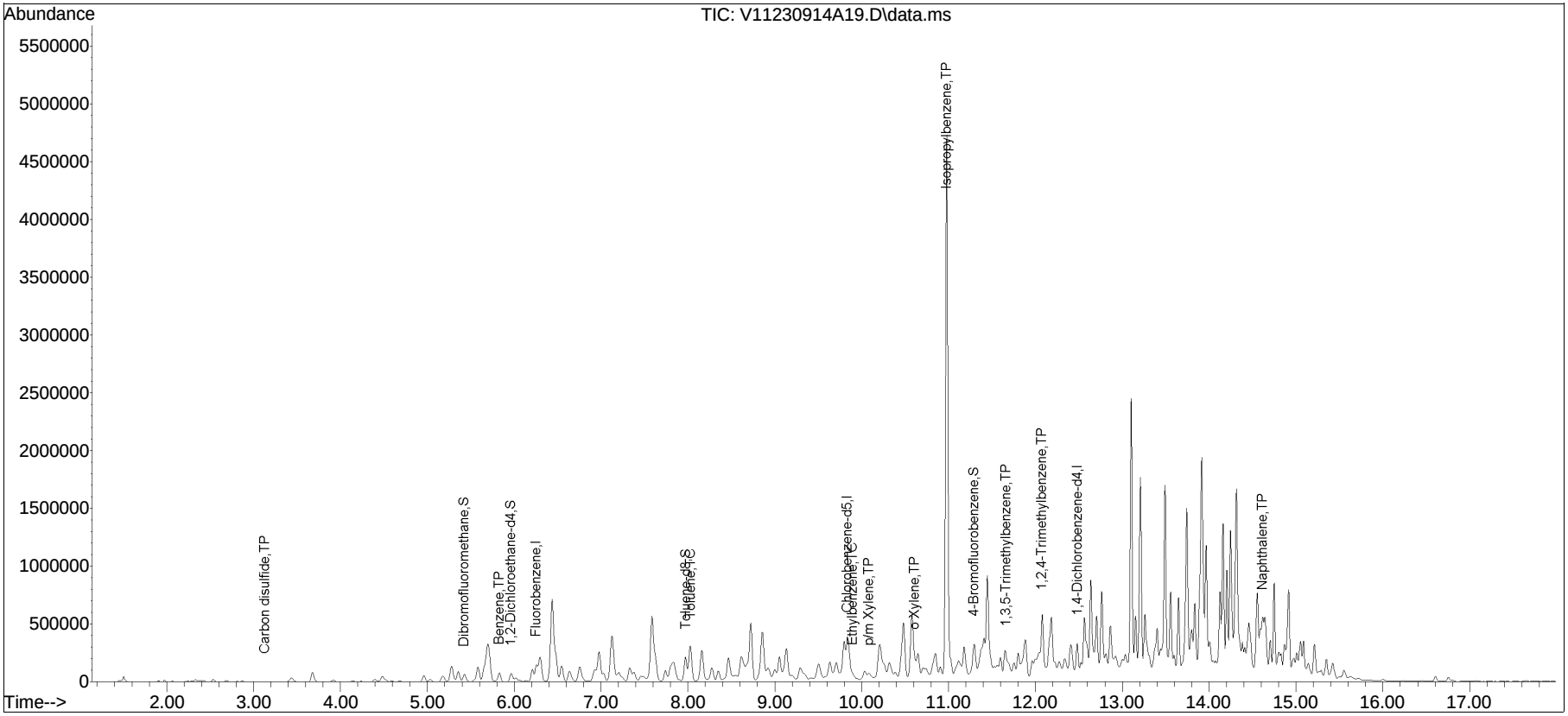
Notes:
1) The Evergreen and PADEP agreed upon Philadelphia Refinery Target Compound List is provided in regular font.
2) Additional analytes based on the waste codes for the waste stored at the GP Waste Stroage Pad are italicized.
3) The Tanks 1086 and 1087 Storage Pad samples will also be analyzed for pH.

Quantitation Report (QT Reviewed)

Data Path : K:\VOA111\2023\230914A\
Data File : V11230914A19.D
Acq On : 14 Sep 2023 03:23 pm
Operator : VOA111:LAC
Sample : L2352498-01,31H,5.80,5,0.100,,A
Misc : WG1827883,ICAL20211
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Sep 14 16:25:47 2023
Quant Method : K:\VOA111\2023\230914A\V111_230727N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Jul 28 06:34:25 2023
Response via : Initial Calibration

Sub List : 8260-PA_ShortList+CS2 - PA Short list+CS2•

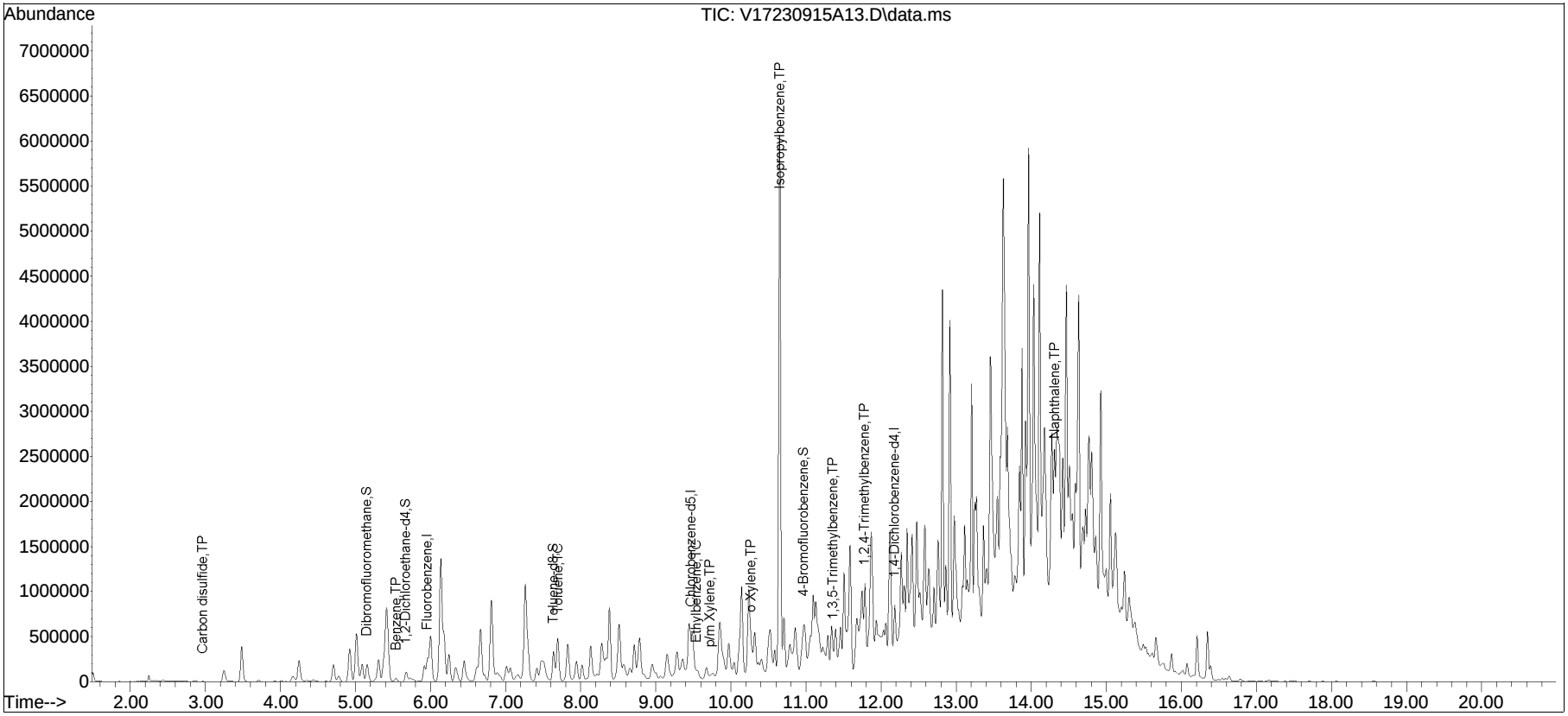


Quantitation Report (QT Reviewed)

Data Path : K:\VOA117\2023\230915A\
Data File : V17230915A13.D
Acq On : 15 Sep 2023 03:01 pm
Operator : VOA117:lac
Sample : L2352498-07D2,31H,5.69,5,0.05,,A
Misc : WG1828684,ICAL20195
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Sep 15 15:25:45 2023
Quant Method : K:\VOA117\2023\230915A\V117_230724A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jul 25 06:46:55 2023
Response via : Initial Calibration

Sub List : 8260-PA_ShortList+CS2 - PA Short list+CS2•

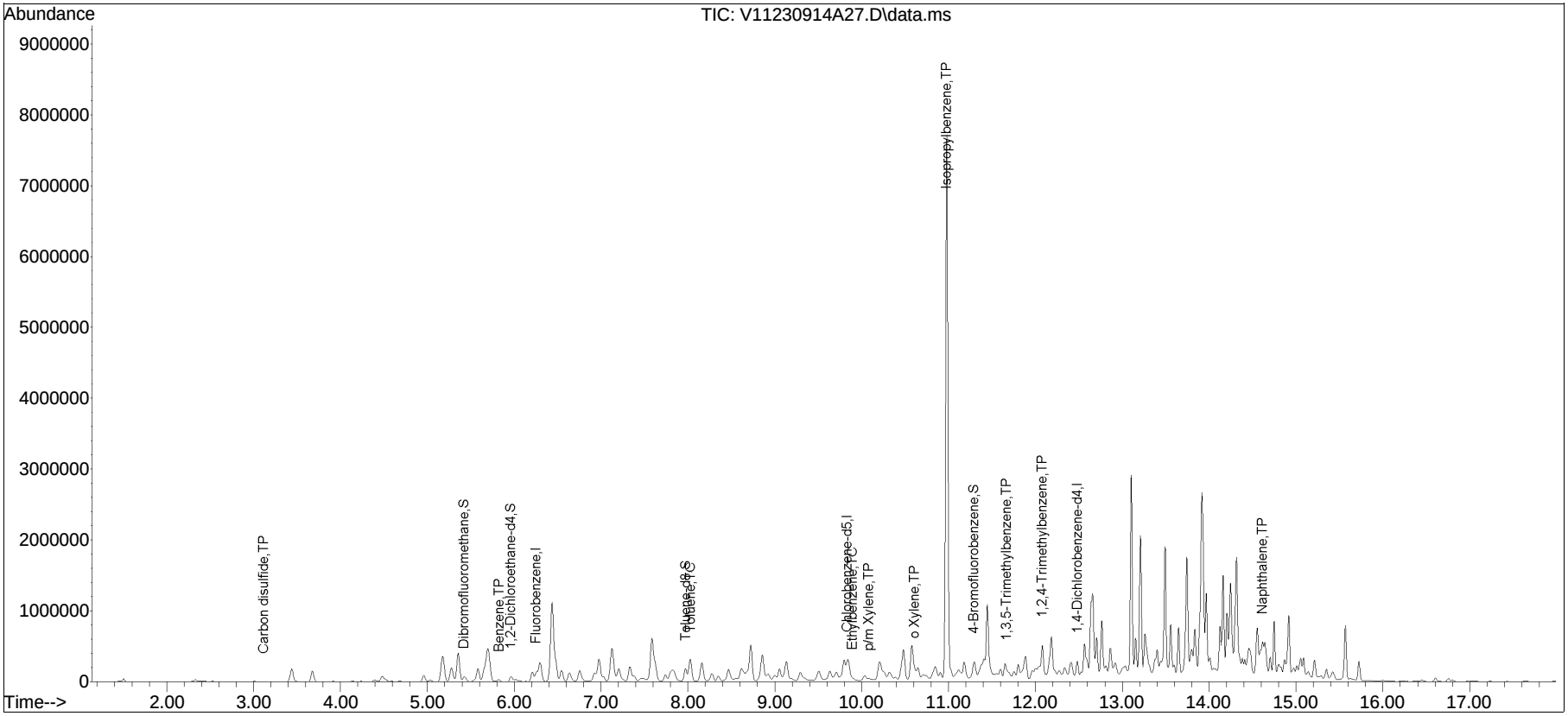


Quantitation Report (QT Reviewed)

Data Path : K:\VOA111\2023\230914A\
Data File : V11230914A27.D
Acq On : 14 Sep 2023 06:45 pm
Operator : VOA111:JIC
Sample : L2352498-09,31H,5.93,5,0.100,,A
Misc : WG1827883,ICAL20211
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Sep 15 07:54:54 2023
Quant Method : K:\VOA111\2023\230914A\V111_230727N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Jul 28 06:34:25 2023
Response via : Initial Calibration

Sub List : 8260-PA_ShortList+CS2 - PA Short list+CS2•

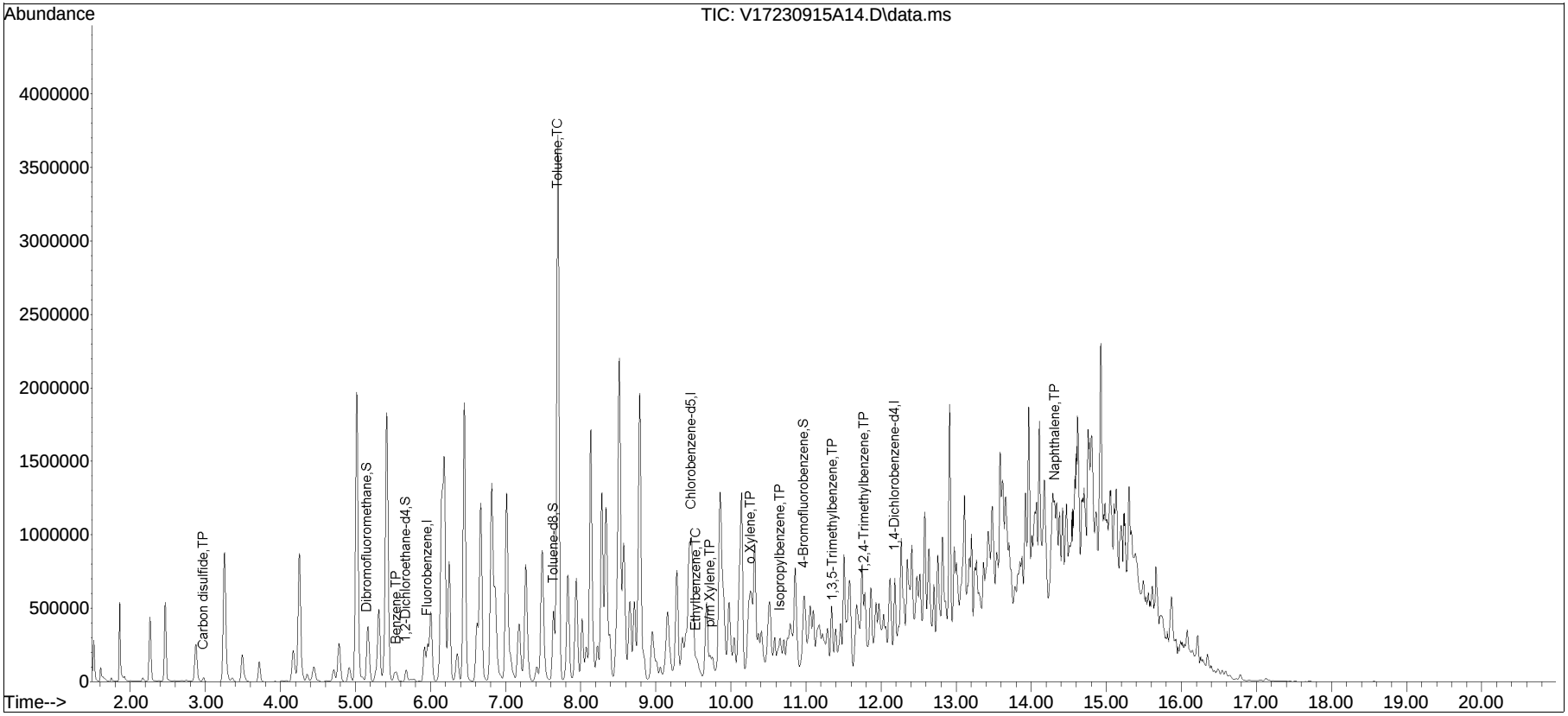


Quantitation Report (QT Reviewed)

Data Path : K:\VOA117\2023\230915A\
Data File : V17230915A14.D
Acq On : 15 Sep 2023 03:28 pm
Operator : VOA117:AJK
Sample : L2352498-11,31,5.78,5,,B
Misc : WG1828685,ICAL20195
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Sep 17 21:08:34 2023
Quant Method : K:\VOA117\2023\230915A\V117_230724A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jul 25 06:46:55 2023
Response via : Initial Calibration

Sub List : 8260-PA_ShortList+CS2 - PA Short list+CS2•



ANALYTICAL REPORT

Lab Number:	L2426929
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	HILCO PHILADELPHIA REFINERY
Project Number:	200.00135.025
Report Date:	05/22/24

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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).

Project Name: HILCO PHILADELPHIA REFINERY
Project Number: 200.00135.025

Lab Number: L2426929
Report Date: 05/22/24

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2426929-01	301-AA09-SG	SOIL	PHILADELPHIA, PA	05/15/24 09:35	05/15/24
L2426929-02	301-Y04-SG	SOIL	PHILADELPHIA, PA	05/15/24 09:45	05/15/24
L2426929-03	301-X03-SG	SOIL	PHILADELPHIA, PA	05/15/24 09:55	05/15/24
L2426929-04	301-AB09-SG	SOIL	PHILADELPHIA, PA	05/15/24 10:10	05/15/24
L2426929-05	301-AC09-SG	SOIL	PHILADELPHIA, PA	05/15/24 10:25	05/15/24
L2426929-06	301-Y05-SG	SOIL	PHILADELPHIA, PA	05/15/24 11:05	05/15/24
L2426929-07	201-F03-SG	SOIL	PHILADELPHIA, PA	05/15/24 11:20	05/15/24
L2426929-08	301-W04-SG	SOIL	PHILADELPHIA, PA	05/15/24 11:25	05/15/24
L2426929-09	201-E04-SG	SOIL	PHILADELPHIA, PA	05/15/24 11:35	05/15/24
L2426929-10	201-E03-SG	SOIL	PHILADELPHIA, PA	05/15/24 11:45	05/15/24

Project Name:	HILCO PHILADELPHIA REFINERY	**Lab Number:**	L2426929
Project Number:	200.00135.025	**Report Date:**	05/22/24

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.

Project Name:	HILCO PHILADELPHIA REFINERY	**Lab Number:**	L2426929
Project Number:	200.00135.025	**Report Date:**	05/22/24

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.

Sample Receipt

L2426929-09: The Client ID was specified by the client.

Total Metals

L2426929-01 through -10: The sample has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by the sample matrix.

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

Authorized Signature: Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative Date: 05/22/24

ORGANICS

VOLATILES

Project Name: HILCO PHILADELPHIA REFINERY **Lab Number:** L2426929

Project Number: 200.00135.025 **Report Date:** 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-01
Client ID: 301-AA09-SG
Sample Location: PHILADELPHIA, PA

Date Collected: 05/15/24 09:35
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 05/20/24 17:14
Analyst: JIC
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00023	1
Benzene	0.00053	J	mg/kg	0.00056	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	ND		mg/kg	0.0011	0.00061	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	0.00026	J	mg/kg	0.0011	0.00016	1
p/m-Xylene	0.00071	J	mg/kg	0.0022	0.00063	1
o-Xylene	ND		mg/kg	0.0011	0.00033	1
Xylenes, Total	0.00071	J	mg/kg	0.0011	0.00033	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.0013	J	mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	0.00039	J	mg/kg	0.0022	0.00038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	82		70-130

Project Name: HILCO PHILADELPHIA REFINERY
Lab Number: L2426929
Project Number: 200.00135.025
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-02
Client ID: 301-Y04-SG
Sample Location: PHILADELPHIA, PA

Date Collected: 05/15/24 09:45
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 05/20/24 17:52
Analyst: JIC
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.0010		mg/kg	0.00050	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00099	0.00025	1
Toluene	ND		mg/kg	0.00099	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	ND		mg/kg	0.00099	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00055	1
o-Xylene	ND		mg/kg	0.00099	0.00029	1
Xylenes, Total	ND		mg/kg	0.00099	0.00029	1
Isopropylbenzene	ND		mg/kg	0.00099	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	101		70-130

Project Name: HILCO PHILADELPHIA REFINERY **Lab Number:** L2426929

Project Number: 200.00135.025 **Report Date:** 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-03
Client ID: 301-X03-SG
Sample Location: PHILADELPHIA, PA

Date Collected: 05/15/24 09:55
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 05/20/24 18:31
Analyst: JIC
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	0.00030	J	mg/kg	0.00044	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00089	0.00023	1
Toluene	ND		mg/kg	0.00089	0.00048	1
1,2-Dibromoethane	ND		mg/kg	0.00044	0.00026	1
Ethylbenzene	0.00013	J	mg/kg	0.00089	0.00012	1
p/m-Xylene	0.00079	J	mg/kg	0.0018	0.00050	1
o-Xylene	0.00038	J	mg/kg	0.00089	0.00026	1
Xylenes, Total	0.0012	J	mg/kg	0.00089	0.00026	1
Isopropylbenzene	0.00032	J	mg/kg	0.00089	0.00009	1
1,3,5-Trimethylbenzene	0.00048	J	mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.00061	J	mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	102		70-130

Project Name: HILCO PHILADELPHIA REFINERY **Lab Number:** L2426929

Project Number: 200.00135.025 **Report Date:** 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-04
Client ID: 301-AB09-SG
Sample Location: PHILADELPHIA, PA

Date Collected: 05/15/24 10:10
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 05/18/24 16:57
Analyst: JIC
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00091	0.00023	1
Toluene	ND		mg/kg	0.00091	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	ND		mg/kg	0.00091	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00051	1
o-Xylene	ND		mg/kg	0.00091	0.00026	1
Xylenes, Total	ND		mg/kg	0.00091	0.00026	1
Isopropylbenzene	ND		mg/kg	0.00091	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	102		70-130

Project Name: HILCO PHILADELPHIA REFINERY **Lab Number:** L2426929

Project Number: 200.00135.025 **Report Date:** 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-05
Client ID: 301-AC09-SG
Sample Location: PHILADELPHIA, PA

Date Collected: 05/15/24 10:25
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 05/18/24 17:24
Analyst: JIC
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0017	0.00017	1
Benzene	ND		mg/kg	0.00043	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00086	0.00022	1
Toluene	ND		mg/kg	0.00086	0.00046	1
1,2-Dibromoethane	ND		mg/kg	0.00043	0.00025	1
Ethylbenzene	ND		mg/kg	0.00086	0.00012	1
p/m-Xylene	ND		mg/kg	0.0017	0.00048	1
o-Xylene	ND		mg/kg	0.00086	0.00025	1
Xylenes, Total	ND		mg/kg	0.00086	0.00025	1
Isopropylbenzene	ND		mg/kg	0.00086	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0017	0.00016	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0017	0.00028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	106		70-130

Project Name: HILCO PHILADELPHIA REFINERY **Lab Number:** L2426929

Project Number: 200.00135.025 **Report Date:** 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-06
Client ID: 301-Y05-SG
Sample Location: PHILADELPHIA, PA

Date Collected: 05/15/24 11:05
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 05/18/24 17:50
Analyst: JIC
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	ND		mg/kg	0.0011	0.00059	1
1,2-Dibromoethane	ND		mg/kg	0.00054	0.00032	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
p/m-Xylene	ND		mg/kg	0.0022	0.00061	1
o-Xylene	ND		mg/kg	0.0011	0.00032	1
Xylenes, Total	ND		mg/kg	0.0011	0.00032	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	107		70-130

Project Name: HILCO PHILADELPHIA REFINERY **Lab Number:** L2426929

Project Number: 200.00135.025 **Report Date:** 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-07
Client ID: 201-F03-SG
Sample Location: PHILADELPHIA, PA

Date Collected: 05/15/24 11:20
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 05/18/24 18:17
Analyst: JIC
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0042	0.00042	1
Benzene	ND		mg/kg	0.0010	0.00034	1
1,2-Dichloroethane	ND		mg/kg	0.0021	0.00053	1
Toluene	ND		mg/kg	0.0021	0.0011	1
1,2-Dibromoethane	ND		mg/kg	0.0010	0.00061	1
Ethylbenzene	ND		mg/kg	0.0021	0.00029	1
p/m-Xylene	ND		mg/kg	0.0042	0.0012	1
o-Xylene	ND		mg/kg	0.0021	0.00060	1
Xylenes, Total	ND		mg/kg	0.0021	0.00060	1
Isopropylbenzene	ND		mg/kg	0.0021	0.00023	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0042	0.00040	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0042	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	111		70-130

Project Name: HILCO PHILADELPHIA REFINERY
Lab Number: L2426929
Project Number: 200.00135.025
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-08
Client ID: 301-W04-SG
Sample Location: PHILADELPHIA, PA
Date Collected: 05/15/24 11:25
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 05/18/24 18:43
Analyst: JIC
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.029	0.0097	1
1,2-Dichloroethane	ND		mg/kg	0.059	0.015	1
Toluene	0.24		mg/kg	0.059	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	0.24		mg/kg	0.059	0.0083	1
p/m-Xylene	2.7		mg/kg	0.12	0.033	1
o-Xylene	1.3		mg/kg	0.059	0.017	1
Xylenes, Total	4.0		mg/kg	0.059	0.017	1
Isopropylbenzene	0.061		mg/kg	0.059	0.0064	1
1,3,5-Trimethylbenzene	1.3		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	4.3		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	92		70-130

Project Name: HILCO PHILADELPHIA REFINERY **Lab Number:** L2426929

Project Number: 200.00135.025 **Report Date:** 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-09
Client ID: 201-E04-SG
Sample Location: PHILADELPHIA, PA

Date Collected: 05/15/24 11:35
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 05/20/24 19:10
Analyst: JIC
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.0035		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0011		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	0.00050	J	mg/kg	0.0010	0.00014	1
p/m-Xylene	0.0026		mg/kg	0.0020	0.00057	1
o-Xylene	0.0019		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.0045		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.00093	J	mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0022		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.0027		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	89		70-130

Project Name: HILCO PHILADELPHIA REFINERY **Lab Number:** L2426929

Project Number: 200.00135.025 **Report Date:** 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-10
Client ID: 201-E03-SG
Sample Location: PHILADELPHIA, PA

Date Collected: 05/15/24 11:45
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 05/18/24 19:37
Analyst: JIC
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	ND		mg/kg	0.00057	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	ND		mg/kg	0.0011	0.00062	1
1,2-Dibromoethane	ND		mg/kg	0.00057	0.00033	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0023	0.00064	1
o-Xylene	ND		mg/kg	0.0011	0.00033	1
Xylenes, Total	ND		mg/kg	0.0011	0.00033	1
Isopropylbenzene	0.00041	J	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	97		70-130

Project Name: HILCO PHILADELPHIA REFINERY **Lab Number:** L2426929

Project Number: 200.00135.025 **Report Date:** 05/22/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 05/18/24 13:24
Analyst: RAW

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04-07,10 Batch: WG1923397-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	105		70-130

Project Name: HILCO PHILADELPHIA REFINERY **Lab Number:** L2426929

Project Number: 200.00135.025 **Report Date:** 05/22/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 05/18/24 13:24
Analyst: RAW

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 08 Batch: WG1923399-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	105		70-130

Project Name: HILCO PHILADELPHIA REFINERY **Lab Number:** L2426929

Project Number: 200.00135.025 **Report Date:** 05/22/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 05/20/24 10:05
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-03,09 Batch: WG1923726-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: HILCO PHILADELPHIA REFINERY
Project Number: 200.00135.025

Lab Number: L2426929
Report Date: 05/22/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04-07,10 Batch: WG1923397-3 WG1923397-4								
Methyl tert butyl ether	85		80		66-130	6		30
Benzene	95		90		70-130	5		30
1,2-Dichloroethane	78		74		70-130	5		30
Toluene	96		92		70-130	4		30
1,2-Dibromoethane	96		91		70-130	5		30
Ethylbenzene	97		94		70-130	3		30
p/m-Xylene	103		98		70-130	5		30
o-Xylene	99		94		70-130	5		30
Isopropylbenzene	103		98		70-130	5		30
1,3,5-Trimethylbenzene	97		94		70-130	3		30
1,2,4-Trimethylbenzene	98		94		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	84		84		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	92		93		70-130
Dibromofluoromethane	98		99		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: HILCO PHILADELPHIA REFINERY

Project Number: 200.00135.025

Lab Number: L2426929

Report Date: 05/22/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 08 Batch: WG1923399-3 WG1923399-4								
Methyl tert butyl ether	85		80		66-130	6		30
Benzene	95		90		70-130	5		30
1,2-Dichloroethane	78		74		70-130	5		30
Toluene	96		92		70-130	4		30
1,2-Dibromoethane	96		91		70-130	5		30
Ethylbenzene	97		94		70-130	3		30
p/m-Xylene	103		98		70-130	5		30
o-Xylene	99		94		70-130	5		30
Isopropylbenzene	103		98		70-130	5		30
1,3,5-Trimethylbenzene	97		94		70-130	3		30
1,2,4-Trimethylbenzene	98		94		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	84		84		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	92		93		70-130
Dibromofluoromethane	98		99		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: HILCO PHILADELPHIA REFINERY

Project Number: 200.00135.025

Lab Number: L2426929

Report Date: 05/22/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-03,09 Batch: WG1923726-3 WG1923726-4								
Methyl tert butyl ether	97		94		66-130	3		30
Benzene	92		89		70-130	3		30
1,2-Dichloroethane	94		93		70-130	1		30
Toluene	88		84		70-130	5		30
1,2-Dibromoethane	93		92		70-130	1		30
Ethylbenzene	89		86		70-130	3		30
p/m-Xylene	89		86		70-130	3		30
o-Xylene	90		87		70-130	3		30
Isopropylbenzene	89		85		70-130	5		30
1,3,5-Trimethylbenzene	88		85		70-130	3		30
1,2,4-Trimethylbenzene	90		87		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		98		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	106		103		70-130
Dibromofluoromethane	103		103		70-130

SEMIVOLATILES

Project Name: HILCO PHILADELPHIA REFINERY
Lab Number: L2426929
Project Number: 200.00135.025
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-01
Client ID: 301-AA09-SG
Sample Location: PHILADELPHIA, PA

Date Collected: 05/15/24 09:35
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 05/19/24 22:05
Analyst: EK
Percent Solids: 91%

Extraction Method: EPA 3546
Extraction Date: 05/17/24 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.085		mg/kg	0.036	0.022	1
Fluorene	0.062	J	mg/kg	0.18	0.018	1
Phenanthrene	0.46		mg/kg	0.11	0.022	1
Anthracene	0.14		mg/kg	0.11	0.035	1
Pyrene	0.57		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.30		mg/kg	0.11	0.020	1
Chrysene	0.29		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.35		mg/kg	0.11	0.030	1
Benzo(a)pyrene	0.29		mg/kg	0.14	0.044	1
Benzo(ghi)perylene	0.19		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	89		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	71		18-120

Project Name: HILCO PHILADELPHIA REFINERY
Lab Number: L2426929
Project Number: 200.00135.025
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-02
Client ID: 301-Y04-SG
Sample Location: PHILADELPHIA, PA

Date Collected: 05/15/24 09:45
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 05/19/24 21:41
Analyst: EK
Percent Solids: 94%

Extraction Method: EPA 3546
Extraction Date: 05/17/24 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.021	J	mg/kg	0.035	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	0.10		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	0.096	J	mg/kg	0.10	0.017	1
Benzo(a)anthracene	0.059	J	mg/kg	0.10	0.020	1
Chrysene	0.058	J	mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	0.063	J	mg/kg	0.10	0.029	1
Benzo(a)pyrene	0.051	J	mg/kg	0.14	0.043	1
Benzo(ghi)perylene	0.032	J	mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	94		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	71		18-120

Project Name: HILCO PHILADELPHIA REFINERY
Lab Number: L2426929
Project Number: 200.00135.025
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-03
Client ID: 301-X03-SG
Sample Location: PHILADELPHIA, PA

Date Collected: 05/15/24 09:55
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 05/19/24 21:17
Analyst: EK
Percent Solids: 89%

Extraction Method: EPA 3546
Extraction Date: 05/17/24 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.026	J	mg/kg	0.037	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	0.094	J	mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	0.11		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.072	J	mg/kg	0.11	0.021	1
Chrysene	0.074	J	mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.088	J	mg/kg	0.11	0.031	1
Benzo(a)pyrene	0.073	J	mg/kg	0.15	0.045	1
Benzo(ghi)perylene	0.053	J	mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	91		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	73		18-120

Project Name: HILCO PHILADELPHIA REFINERY
Lab Number: L2426929
Project Number: 200.00135.025
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-04
Client ID: 301-AB09-SG
Sample Location: PHILADELPHIA, PA

Date Collected: 05/15/24 10:10
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 05/19/24 20:53
Analyst: EK
Percent Solids: 86%

Extraction Method: EPA 3546
Extraction Date: 05/17/24 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.032	J	mg/kg	0.038	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	0.30		mg/kg	0.11	0.023	1
Anthracene	0.081	J	mg/kg	0.11	0.037	1
Pyrene	0.43		mg/kg	0.11	0.019	1
Benzo(a)anthracene	0.25		mg/kg	0.11	0.021	1
Chrysene	0.26		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	0.30		mg/kg	0.11	0.032	1
Benzo(a)pyrene	0.26		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	0.19		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	101		23-120
2-Fluorobiphenyl	80		30-120
4-Terphenyl-d14	85		18-120

Project Name: HILCO PHILADELPHIA REFINERY
Lab Number: L2426929
Project Number: 200.00135.025
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-05
Client ID: 301-AC09-SG
Sample Location: PHILADELPHIA, PA

Date Collected: 05/15/24 10:25
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 05/19/24 20:29
Analyst: EK
Percent Solids: 86%

Extraction Method: EPA 3546
Extraction Date: 05/17/24 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.038	0.023	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.023	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.032	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	73		18-120

Project Name: HILCO PHILADELPHIA REFINERY
Lab Number: L2426929
Project Number: 200.00135.025
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-06
Client ID: 301-Y05-SG
Sample Location: PHILADELPHIA, PA

Date Collected: 05/15/24 11:05
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 05/19/24 20:05
Analyst: EK
Percent Solids: 89%

Extraction Method: EPA 3546
Extraction Date: 05/17/24 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.027	J	mg/kg	0.037	0.022	1
Fluorene	0.024	J	mg/kg	0.18	0.018	1
Phenanthrene	0.31		mg/kg	0.11	0.022	1
Anthracene	0.068	J	mg/kg	0.11	0.036	1
Pyrene	0.42		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.26		mg/kg	0.11	0.021	1
Chrysene	0.26		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.32		mg/kg	0.11	0.031	1
Benzo(a)pyrene	0.27		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	0.17		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	91		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	80		18-120

Project Name: HILCO PHILADELPHIA REFINERY
Lab Number: L2426929
Project Number: 200.00135.025
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-07
Client ID: 201-F03-SG
Sample Location: PHILADELPHIA, PA

Date Collected: 05/15/24 11:20
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 05/19/24 19:41
Analyst: EK
Percent Solids: 89%

Extraction Method: EPA 3546
Extraction Date: 05/17/24 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.037	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	0.051	J	mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	0.13		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.13		mg/kg	0.11	0.021	1
Chrysene	0.14		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.19		mg/kg	0.11	0.031	1
Benzo(a)pyrene	0.12	J	mg/kg	0.15	0.045	1
Benzo(ghi)perylene	0.11	J	mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	92		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	83		18-120

Project Name: HILCO PHILADELPHIA REFINERY
Lab Number: L2426929
Project Number: 200.00135.025
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-08
Client ID: 301-W04-SG
Sample Location: PHILADELPHIA, PA

Date Collected: 05/15/24 11:25
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 05/19/24 17:42
Analyst: EK
Percent Solids: 91%

Extraction Method: EPA 3546
Extraction Date: 05/17/24 01:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.024	J	mg/kg	0.036	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	0.11		mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.035	1
Pyrene	0.097	J	mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.064	J	mg/kg	0.11	0.020	1
Chrysene	0.061	J	mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.068	J	mg/kg	0.11	0.031	1
Benzo(a)pyrene	0.056	J	mg/kg	0.14	0.044	1
Benzo(ghi)perylene	0.034	J	mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	64		30-120
4-Terphenyl-d14	63		18-120

Project Name: HILCO PHILADELPHIA REFINERY
Lab Number: L2426929
Project Number: 200.00135.025
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-09
Client ID: 201-E04-SG
Sample Location: PHILADELPHIA, PA

Date Collected: 05/15/24 11:35
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 05/19/24 18:05
Analyst: EK
Percent Solids: 85%

Extraction Method: EPA 3546
Extraction Date: 05/17/24 01:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.039	0.024	1
Fluorene	ND		mg/kg	0.19	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	0.024	J	mg/kg	0.12	0.019	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.047	1
Benzo(ghi)perylene	ND		mg/kg	0.15	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	90		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	73		18-120

Project Name: HILCO PHILADELPHIA REFINERY
Lab Number: L2426929
Project Number: 200.00135.025
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-10
Client ID: 201-E03-SG
Sample Location: PHILADELPHIA, PA

Date Collected: 05/15/24 11:45
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 05/19/24 18:29
Analyst: EK
Percent Solids: 89%

Extraction Method: EPA 3546
Extraction Date: 05/17/24 01:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.036	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	0.15		mg/kg	0.11	0.022	1
Anthracene	0.044	J	mg/kg	0.11	0.036	1
Pyrene	0.32		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.20		mg/kg	0.11	0.020	1
Chrysene	0.21		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.28		mg/kg	0.11	0.031	1
Benzo(a)pyrene	0.21		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	0.15		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	90		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	73		18-120

Project Name: HILCO PHILADELPHIA REFINERY
Project Number: 200.00135.025
Lab Number: L2426929
Report Date: 05/22/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 05/17/24 00:49
Analyst: SZ

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

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-07 Batch: WG1922121-1					
Naphthalene	ND		mg/kg	0.033	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.10	0.020
Anthracene	ND		mg/kg	0.10	0.032
Pyrene	ND		mg/kg	0.10	0.016
Benzo(a)anthracene	ND		mg/kg	0.10	0.019
Chrysene	ND		mg/kg	0.10	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	59		25-120
Phenol-d6	57		10-120
Nitrobenzene-d5	55		23-120
2-Fluorobiphenyl	70		30-120
2,4,6-Tribromophenol	96		10-136
4-Terphenyl-d14	72		18-120

Project Name: HILCO PHILADELPHIA REFINERY
Project Number: 200.00135.025
Lab Number: L2426929
Report Date: 05/22/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 05/18/24 02:48
Analyst: EK

Extraction Method: EPA 3546
Extraction Date: 05/16/24 23:45

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 08-10 Batch: WG1922224-1					
Naphthalene	ND		mg/kg	0.033	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.10	0.020
Anthracene	ND		mg/kg	0.10	0.032
Pyrene	ND		mg/kg	0.10	0.016
Benzo(a)anthracene	ND		mg/kg	0.10	0.019
Chrysene	ND		mg/kg	0.10	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	96		25-120
Phenol-d6	95		10-120
Nitrobenzene-d5	101		23-120
2-Fluorobiphenyl	86		30-120
2,4,6-Tribromophenol	92		10-136
4-Terphenyl-d14	96		18-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: HILCO PHILADELPHIA REFINERY

Project Number: 200.00135.025

Lab Number: L2426929

Report Date: 05/22/24

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: WG1922121-2 WG1922121-3								
Naphthalene	62		62		40-140	0		50
Fluorene	69		69		40-140	0		50
Phenanthrene	64		66		40-140	3		50
Anthracene	68		68		40-140	0		50
Pyrene	71		71		35-142	0		50
Benzo(a)anthracene	66		67		40-140	2		50
Chrysene	66		67		40-140	2		50
Benzo(b)fluoranthene	73		69		40-140	6		50
Benzo(a)pyrene	76		74		40-140	3		50
Benzo(ghi)perylene	68		66		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	61		60		25-120
Phenol-d6	60		58		10-120
Nitrobenzene-d5	59		59		23-120
2-Fluorobiphenyl	70		71		30-120
2,4,6-Tribromophenol	98		94		10-136
4-Terphenyl-d14	72		69		18-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: HILCO PHILADELPHIA REFINERY

Project Number: 200.00135.025

Lab Number: L2426929

Report Date: 05/22/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 08-10 Batch: WG1922224-2 WG1922224-3								
Naphthalene	91		94		40-140	3		50
Fluorene	94		101		40-140	7		50
Phenanthrene	93		96		40-140	3		50
Anthracene	96		98		40-140	2		50
Pyrene	100		104		35-142	4		50
Benzo(a)anthracene	96		98		40-140	2		50
Chrysene	92		95		40-140	3		50
Benzo(b)fluoranthene	87		92		40-140	6		50
Benzo(a)pyrene	93		96		40-140	3		50
Benzo(ghi)perylene	91		93		40-140	2		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	101		107		25-120
Phenol-d6	99		108		10-120
Nitrobenzene-d5	102		111		23-120
2-Fluorobiphenyl	86		92		30-120
2,4,6-Tribromophenol	98		106		10-136
4-Terphenyl-d14	99		100		18-120

METALS

Project Name: HILCO PHILADELPHIA REFINERY
Lab Number: L2426929
Project Number: 200.00135.025
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-01
Client ID: 301-AA09-SG
Sample Location: PHILADELPHIA, PA
Date Collected: 05/15/24 09:35
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	49.2		mg/kg	4.36	0.234	2	05/20/24 23:35	05/21/24 10:04	EPA 3050B	1,6010D	DMC

Project Name: HILCO PHILADELPHIA REFINERY
Lab Number: L2426929
Project Number: 200.00135.025
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-02
Client ID: 301-Y04-SG
Sample Location: PHILADELPHIA, PA
Date Collected: 05/15/24 09:45
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	32.8		mg/kg	4.06	0.218	2	05/20/24 23:35	05/21/24 10:56	EPA 3050B	1,6010D	DMC

Project Name: HILCO PHILADELPHIA REFINERY
Lab Number: L2426929
Project Number: 200.00135.025
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-03
Client ID: 301-X03-SG
Sample Location: PHILADELPHIA, PA
Date Collected: 05/15/24 09:55
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	82.7		mg/kg	4.42	0.237	2	05/20/24 23:35	05/21/24 11:03	EPA 3050B	1,6010D	DMC

Project Name: HILCO PHILADELPHIA REFINERY
Lab Number: L2426929
Project Number: 200.00135.025
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-04
Client ID: 301-AB09-SG
Sample Location: PHILADELPHIA, PA
Date Collected: 05/15/24 10:10
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	12.6		mg/kg	4.60	0.247	2	05/20/24 23:35	05/21/24 11:10	EPA 3050B	1,6010D	DMC

Project Name: HILCO PHILADELPHIA REFINERY
Lab Number: L2426929
Project Number: 200.00135.025
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-05
Client ID: 301-AC09-SG
Sample Location: PHILADELPHIA, PA
Date Collected: 05/15/24 10:25
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.40		mg/kg	4.50	0.241	2	05/20/24 23:35	05/21/24 11:17	EPA 3050B	1,6010D	DMC

Project Name: HILCO PHILADELPHIA REFINERY
Lab Number: L2426929
Project Number: 200.00135.025
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-06
Client ID: 301-Y05-SG
Sample Location: PHILADELPHIA, PA
Date Collected: 05/15/24 11:05
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	214		mg/kg	4.44	0.238	2	05/20/24 23:35	05/21/24 11:23	EPA 3050B	1,6010D	DMC

Project Name: HILCO PHILADELPHIA REFINERY
Lab Number: L2426929
Project Number: 200.00135.025
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-07
Client ID: 201-F03-SG
Sample Location: PHILADELPHIA, PA
Date Collected: 05/15/24 11:20
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	82.0		mg/kg	21.7	1.16	10	05/20/24 23:35	05/21/24 12:10	EPA 3050B	1,6010D	DMC

Project Name: HILCO PHILADELPHIA REFINERY
Lab Number: L2426929
Project Number: 200.00135.025
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-08
Client ID: 301-W04-SG
Sample Location: PHILADELPHIA, PA
Date Collected: 05/15/24 11:25
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	45.7		mg/kg	4.22	0.226	2	05/20/24 23:35	05/21/24 11:37	EPA 3050B	1,6010D	DMC

Project Name: HILCO PHILADELPHIA REFINERY
Lab Number: L2426929
Project Number: 200.00135.025
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-09
Client ID: 201-E04-SG
Sample Location: PHILADELPHIA, PA
Date Collected: 05/15/24 11:35
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	40.2		mg/kg	4.68	0.251	2	05/20/24 23:35	05/21/24 11:44	EPA 3050B	1,6010D	DMC

Project Name: HILCO PHILADELPHIA REFINERY
Lab Number: L2426929
Project Number: 200.00135.025
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-10
Client ID: 201-E03-SG
Sample Location: PHILADELPHIA, PA
Date Collected: 05/15/24 11:45
Date Received: 05/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	55.1		mg/kg	4.42	0.237	2	05/20/24 23:35	05/21/24 11:50	EPA 3050B	1,6010D	DMC

Project Name: HILCO PHILADELPHIA REFINERY
Project Number: 200.00135.025
Lab Number: L2426929
Report Date: 05/22/24

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-10 Batch: WG1922642-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	05/20/24 23:35	05/21/24 09:38	1,6010D	DMC

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis

Batch Quality Control

Project Name: HILCO PHILADELPHIA REFINERY

Project Number: 200.00135.025

Lab Number: L2426929

Report Date: 05/22/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-10 Batch: WG1922642-2								
Lead, Total	98		-		80-120	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: HILCO PHILADELPHIA REFINERY
Project Number: 200.00135.025

Lab Number: L2426929
Report Date: 05/22/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-10 QC Batch ID: WG1922642-3 QC Sample: L2424507-02 Client ID: MS Sample												
Lead, Total	41.3	49.2	73.0	**64**	Q	-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: HILCO PHILADELPHIA REFINERY

Project Number: 200.00135.025

Lab Number: L2426929

Report Date: 05/22/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-10 QC Batch ID: WG1922642-4 QC Sample: L2424507-02 Client ID: DUP Sample						
Lead, Total	41.3	27.6	mg/kg	**40**	Q	20

INORGANICS
&
MISCELLANEOUS

Project Name: HILCO PHILADELPHIA REFINERY
Project Number: 200.00135.025
Lab Number: L2426929
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-01
Client ID: 301-AA09-SG
Sample Location: PHILADELPHIA, PA
Sample Depth:
Matrix: Soil

Date Collected: 05/15/24 09:35
Date Received: 05/15/24
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.1		%	0.100	NA	1	-	05/17/24 00:32	121,2540G	WJM

Project Name: HILCO PHILADELPHIA REFINERY
Project Number: 200.00135.025
Lab Number: L2426929
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-02
Client ID: 301-Y04-SG
Sample Location: PHILADELPHIA, PA
Sample Depth:
Matrix: Soil

Date Collected: 05/15/24 09:45
Date Received: 05/15/24
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.4		%	0.100	NA	1	-	05/17/24 00:32	121,2540G	WJM

Project Name: HILCO PHILADELPHIA REFINERY
Project Number: 200.00135.025
Lab Number: L2426929
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-03
Client ID: 301-X03-SG
Sample Location: PHILADELPHIA, PA
Sample Depth:
Matrix: Soil

Date Collected: 05/15/24 09:55
Date Received: 05/15/24
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.1		%	0.100	NA	1	-	05/17/24 00:32	121,2540G	WJM

Project Name: HILCO PHILADELPHIA REFINERY
Project Number: 200.00135.025
Lab Number: L2426929
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-04
Client ID: 301-AB09-SG
Sample Location: PHILADELPHIA, PA
Sample Depth:
Matrix: Soil

Date Collected: 05/15/24 10:10
Date Received: 05/15/24
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.3		%	0.100	NA	1	-	05/17/24 00:32	121,2540G	WJM

Project Name: HILCO PHILADELPHIA REFINERY
Project Number: 200.00135.025
Lab Number: L2426929
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-05
Client ID: 301-AC09-SG
Sample Location: PHILADELPHIA, PA
Sample Depth:
Matrix: Soil

Date Collected: 05/15/24 10:25
Date Received: 05/15/24
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.1		%	0.100	NA	1	-	05/17/24 00:32	121,2540G	WJM

Project Name: HILCO PHILADELPHIA REFINERY
Project Number: 200.00135.025
Lab Number: L2426929
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-06
Client ID: 301-Y05-SG
Sample Location: PHILADELPHIA, PA
Sample Depth:
Matrix: Soil

Date Collected: 05/15/24 11:05
Date Received: 05/15/24
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.4		%	0.100	NA	1	-	05/17/24 00:32	121,2540G	WJM

Project Name: HILCO PHILADELPHIA REFINERY
Project Number: 200.00135.025
Lab Number: L2426929
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-07
Client ID: 201-F03-SG
Sample Location: PHILADELPHIA, PA
Sample Depth:
Matrix: Soil

Date Collected: 05/15/24 11:20
Date Received: 05/15/24
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.2		%	0.100	NA	1	-	05/17/24 00:32	121,2540G	WJM

Project Name: HILCO PHILADELPHIA REFINERY
Project Number: 200.00135.025
Lab Number: L2426929
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-08
Client ID: 301-W04-SG
Sample Location: PHILADELPHIA, PA
Sample Depth:
Matrix: Soil

Date Collected: 05/15/24 11:25
Date Received: 05/15/24
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.1		%	0.100	NA	1	-	05/17/24 00:32	121,2540G	WJM

Project Name: HILCO PHILADELPHIA REFINERY
Project Number: 200.00135.025
Lab Number: L2426929
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-09
Client ID: 201-E04-SG
Sample Location: PHILADELPHIA, PA
Sample Depth:
Matrix: Soil

Date Collected: 05/15/24 11:35
Date Received: 05/15/24
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.3		%	0.100	NA	1	-	05/17/24 00:32	121,2540G	WJM

Project Name: HILCO PHILADELPHIA REFINERY
Project Number: 200.00135.025
Lab Number: L2426929
Report Date: 05/22/24

SAMPLE RESULTS

Lab ID: L2426929-10
Client ID: 201-E03-SG
Sample Location: PHILADELPHIA, PA
Sample Depth:
Matrix: Soil

Date Collected: 05/15/24 11:45
Date Received: 05/15/24
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.5		%	0.100	NA	1	-	05/17/24 00:32	121,2540G	WJM

Lab Duplicate Analysis

Batch Quality Control

Project Name: HILCO PHILADELPHIA REFINERY

Project Number: 200.00135.025

Lab Number: L2426929

Report Date: 05/22/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-10 QC Batch ID: WG1922210-1 QC Sample: L2426929-01 Client ID: 301-AA09-SG						
Solids, Total	91.1	90.1	%	1		20

Project Name: HILCO PHILADELPHIA REFINERY
Project Number: 200.00135.025

Lab Number: L2426929
Report Date: 05/22/24

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(*)
L2426929-01A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2426929-01B	Vial water preserved	A	NA		2.1	Y	Absent	16-MAY-24 14:46	PA-8260HLW(14)
L2426929-01C	Vial water preserved	A	NA		2.1	Y	Absent	16-MAY-24 14:46	PA-8260HLW(14)
L2426929-01D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2426929-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2426929-01F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2426929-02A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2426929-02B	Vial water preserved	A	NA		2.1	Y	Absent	16-MAY-24 14:46	PA-8260HLW(14)
L2426929-02C	Vial water preserved	A	NA		2.1	Y	Absent	16-MAY-24 14:46	PA-8260HLW(14)
L2426929-02D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2426929-02E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2426929-02F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2426929-03A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2426929-03B	Vial water preserved	A	NA		2.1	Y	Absent	16-MAY-24 14:46	PA-8260HLW(14)
L2426929-03C	Vial water preserved	A	NA		2.1	Y	Absent	16-MAY-24 14:46	PA-8260HLW(14)
L2426929-03D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2426929-03E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2426929-03F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2426929-04A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2426929-04B	Vial water preserved	A	NA		2.1	Y	Absent	16-MAY-24 14:46	PA-8260HLW(14)
L2426929-04C	Vial water preserved	A	NA		2.1	Y	Absent	16-MAY-24 14:46	PA-8260HLW(14)
L2426929-04D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2426929-04E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)

*Values in parentheses indicate holding time in days

Project Name: HILCO PHILADELPHIA REFINERY
Project Number: 200.00135.025

Lab Number: L2426929
Report Date: 05/22/24

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2426929-04F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2426929-05A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2426929-05B	Vial water preserved	A	NA		2.1	Y	Absent	16-MAY-24 14:46	PA-8260HLW(14)
L2426929-05C	Vial water preserved	A	NA		2.1	Y	Absent	16-MAY-24 14:46	PA-8260HLW(14)
L2426929-05D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2426929-05E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2426929-05F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2426929-06A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2426929-06B	Vial water preserved	A	NA		2.1	Y	Absent	16-MAY-24 14:46	PA-8260HLW(14)
L2426929-06C	Vial water preserved	A	NA		2.1	Y	Absent	16-MAY-24 14:46	PA-8260HLW(14)
L2426929-06D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2426929-06E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2426929-06F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2426929-07A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2426929-07B	Vial water preserved	A	NA		2.1	Y	Absent	16-MAY-24 14:46	PA-8260HLW(14)
L2426929-07C	Vial water preserved	A	NA		2.1	Y	Absent	16-MAY-24 14:46	PA-8260HLW(14)
L2426929-07D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2426929-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2426929-07F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2426929-08A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2426929-08B	Vial water preserved	A	NA		2.1	Y	Absent	16-MAY-24 14:46	PA-8260HLW(14)
L2426929-08C	Vial water preserved	A	NA		2.1	Y	Absent	16-MAY-24 14:46	PA-8260HLW(14)
L2426929-08D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2426929-08E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2426929-08F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2426929-09A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2426929-09B	Vial water preserved	A	NA		2.1	Y	Absent	16-MAY-24 14:46	PA-8260HLW(14)
L2426929-09C	Vial water preserved	A	NA		2.1	Y	Absent	16-MAY-24 14:46	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: HILCO PHILADELPHIA REFINERY
Project Number: 200.00135.025

Lab Number: L2426929
Report Date: 05/22/24

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2426929-09D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2426929-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2426929-09F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)
L2426929-10A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2426929-10B	Vial water preserved	A	NA		2.1	Y	Absent	16-MAY-24 14:46	PA-8260HLW(14)
L2426929-10C	Vial water preserved	A	NA		2.1	Y	Absent	16-MAY-24 14:46	PA-8260HLW(14)
L2426929-10D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2426929-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		PB-TI(180)
L2426929-10F	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		PA-PAH(14)

*Values in parentheses indicate holding time in days

Project Name:	HILCO PHILADELPHIA REFINERY	**Lab Number:**	L2426929
Project Number:	200.00135.025	**Report Date:**	05/22/24

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:	HILCO PHILADELPHIA REFINERY	**Lab Number:**	L2426929
Project Number:	200.00135.025	**Report Date:**	05/22/24

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:	HILCO PHILADELPHIA REFINERY	**Lab Number:**	L2426929
Project Number:	200.00135.025	**Report Date:**	05/22/24

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:	HILCO PHILADELPHIA REFINERY	**Lab Number:**	L2426929
Project Number:	200.00135.025	**Report Date:**	05/22/24

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, 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 OF

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 5/16/24

ALPHA Job #: L2426929

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name: Hilco Philadelphia Refinery
Project Location: Philadelphia, PA
Project #: 200.00135.025
Project Manager: William Schmidt
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

**** See attached list of compounds**

Report Information — Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program: PADEP Act 2
Criteria:

ANALYSIS

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 Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs **	SVOCs **	Lead**	Sample Specific Comments	TOTAL # BOTTLES
26929-01	301-AA09-SG	5/15/24	9:35	SO	WR	☒	☒	☒		6
-02	301-Y04-SG	5/15/24	9:45	SO	WR	☒	☒	☒		
-03	301-X03-SG	5/15/24	9:55	SO	WR	☒	☒	☒		
-04	301-AB07-SG	5/15/24	10:10	SO	WR	☒	☒	☒		
-05	301-AC09-SG	5/15/24	10:25	SO	WR	☒	☒	☒		
-06	301-Y05-SG	5/15/24	11:05	SO	WR	☒	☒	☒		
-07	201-E03-SG	5/15/24	11:20	SO	WR	☒	☒	☒		
-08	301-W04-SG	5/15/24	11:25	SO	WR	☒	☒	☒		
-09	201-F04-SG	5/15/24	11:35	SO	WR	☒	☒	☒		
-10	201-E03-SG	5/15/24	11:45	SO	WR	☒	☒	☒		
	Container Type					G	G	G		
	Preservative					F	A	A		

Relinquished By:	Date/Time	Received By:	Date/Time
WR	5/15/24 1330		5/15/24 14:00
	5/15/24 1900		5/15 18:00
	5/15/24		5/15 22:00
	5/16 6:20		5/16/24 0020

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(G-NJ) (rev. 5-JAN-12)

ANALYTICAL REPORT

Lab Number:	L2453085
Client:	Terraphase Engineering Inc. 1100 East Hector Street Suite 400 Conshohocken, PA 19428
ATTN:	Nick Scala
Phone:	(215) 297-3502
Project Name:	BOH-SMP SAMPLING
Project Number:	P044.001.001
Report Date:	09/23/24

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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).

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001

Lab Number: L2453085
Report Date: 09/23/24

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2453085-01	201-E02-SG	SOIL	3144 W. PASSYUNK AVE.	09/16/24 14:05	09/16/24
L2453085-02	201-E01-SG	SOIL	3144 W. PASSYUNK AVE.	09/16/24 14:35	09/16/24
L2453085-03	201-F01-SG	SOIL	3144 W. PASSYUNK AVE.	09/16/24 15:10	09/16/24
L2453085-04	301-V04-SG	SOIL	3144 W. PASSYUNK AVE.	09/16/24 15:45	09/16/24
L2453085-05	301-W03-SG	SOIL	3144 W. PASSYUNK AVE.	09/16/24 16:20	09/16/24
L2453085-06	301-Z06-SG	SOIL	3144 W. PASSYUNK AVE.	09/16/24 17:15	09/16/24

Project Name:	BOH-SMP SAMPLING	**Lab Number:**	L2453085
Project Number:	P044.001.001	**Report Date:**	09/23/24

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.

Project Name:	BOH-SMP SAMPLING	**Lab Number:**	L2453085
Project Number:	P044.001.001	**Report Date:**	09/23/24

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.

Semivolatile Organics

L2453085-04D: The sample has elevated detection limits due to the dilution required by the sample matrix.

Total Metals

L2453085-01 through -06: The sample has an elevated detection limit for lead due to the dilution required by the sample matrix.

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

Authorized Signature: Tiffani Morrissey - Tiffani Morrissey

Title: Technical Director/Representative Date: 09/23/24

ORGANICS

VOLATILES

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001
Lab Number: L2453085
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2453085-01
Client ID: 201-E02-SG
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/16/24 14:05
Date Received: 09/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 09/23/24 10:42
Analyst: MKS
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	0.00081		mg/kg	0.00062	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00032	1
Toluene	ND		mg/kg	0.0012	0.00067	1
1,2-Dibromoethane	ND		mg/kg	0.00062	0.00036	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
p/m-Xylene	0.00074	J	mg/kg	0.0025	0.00069	1
o-Xylene	0.00071	J	mg/kg	0.0012	0.00036	1
Xylenes, Total	0.0014	J	mg/kg	0.0012	0.00036	1
Isopropylbenzene	0.00080	J	mg/kg	0.0012	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	105		70-130

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001
Lab Number: L2453085
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2453085-02
Client ID: 201-E01-SG
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 09/16/24 14:35
Date Received: 09/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 09/21/24 14:56
Analyst: JIC
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	ND		mg/kg	0.00056	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	ND		mg/kg	0.0011	0.00061	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0023	0.00063	1
o-Xylene	ND		mg/kg	0.0011	0.00033	1
Xylenes, Total	ND		mg/kg	0.0011	0.00033	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	112		70-130

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001
Lab Number: L2453085
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2453085-03
Client ID: 201-F01-SG
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 09/16/24 15:10
Date Received: 09/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 09/23/24 11:08
Analyst: MKS
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.00018	J	mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.00058	J	mg/kg	0.0020	0.00056	1
o-Xylene	0.00057	J	mg/kg	0.0010	0.00029	1
Xylenes, Total	0.0012	J	mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.00049	J	mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	106		70-130

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001
Lab Number: L2453085
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2453085-04
Client ID: 301-V04-SG
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/16/24 15:45
Date Received: 09/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 09/23/24 11:34
Analyst: MKS
Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.00027	J	mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.00077	J	mg/kg	0.0020	0.00057	1
o-Xylene	0.00064	J	mg/kg	0.0010	0.00030	1
Xylenes, Total	0.0014	J	mg/kg	0.0010	0.00030	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0091		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.0013	J	mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	105		70-130

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001
Lab Number: L2453085
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2453085-05
Client ID: 301-W03-SG
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 09/16/24 16:20
Date Received: 09/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 09/21/24 15:22
Analyst: JIC
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	ND		mg/kg	0.00058	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00030	1
Toluene	ND		mg/kg	0.0012	0.00063	1
1,2-Dibromoethane	ND		mg/kg	0.00058	0.00034	1
Ethylbenzene	ND		mg/kg	0.0012	0.00016	1
p/m-Xylene	ND		mg/kg	0.0023	0.00065	1
o-Xylene	ND		mg/kg	0.0012	0.00034	1
Xylenes, Total	ND		mg/kg	0.0012	0.00034	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	122		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	116		70-130

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001
Lab Number: L2453085
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2453085-06
Client ID: 301-Z06-SG
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 09/16/24 17:15
Date Received: 09/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 09/21/24 15:48
Analyst: JIC
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00065	0.00022	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00034	1
Toluene	ND		mg/kg	0.0013	0.00071	1
1,2-Dibromoethane	ND		mg/kg	0.00065	0.00038	1
Ethylbenzene	0.00021	J	mg/kg	0.0013	0.00018	1
p/m-Xylene	ND		mg/kg	0.0026	0.00073	1
o-Xylene	ND		mg/kg	0.0013	0.00038	1
Xylenes, Total	ND		mg/kg	0.0013	0.00038	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	0.0010	J	mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	0.0022	J	mg/kg	0.0026	0.00044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	124		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	85		70-130
Dibromofluoromethane	113		70-130

Project Name: BOH-SMP SAMPLING **Lab Number:** L2453085

Project Number: P044.001.001 **Report Date:** 09/23/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 09/21/24 08:52
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02,05-06 Batch: WG1975106-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	107		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001

Lab Number: L2453085
Report Date: 09/23/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02,05-06 Batch: WG1975106-3 WG1975106-4								
Methyl tert butyl ether	102		98		66-130	4		30
Benzene	98		93		70-130	5		30
1,2-Dichloroethane	106		103		70-130	3		30
Toluene	104		98		70-130	6		30
1,2-Dibromoethane	98		94		70-130	4		30
Ethylbenzene	100		95		70-130	5		30
p/m-Xylene	101		96		70-130	5		30
o-Xylene	99		95		70-130	4		30
Isopropylbenzene	97		92		70-130	5		30
1,3,5-Trimethylbenzene	98		95		70-130	3		30
1,2,4-Trimethylbenzene	96		93		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	119		118		70-130
Toluene-d8	103		103		70-130
4-Bromofluorobenzene	93		90		70-130
Dibromofluoromethane	108		108		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001

Lab Number: L2453085
Report Date: 09/23/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,03-04 Batch: WG1975208-3 WG1975208-4								
Methyl tert butyl ether	106		106		66-130	0		30
Benzene	94		95		70-130	1		30
1,2-Dichloroethane	90		93		70-130	3		30
Toluene	95		94		70-130	1		30
1,2-Dibromoethane	100		99		70-130	1		30
Ethylbenzene	93		92		70-130	1		30
p/m-Xylene	91		89		70-130	2		30
o-Xylene	88		87		70-130	1		30
Isopropylbenzene	89		90		70-130	1		30
1,3,5-Trimethylbenzene	98		97		70-130	1		30
1,2,4-Trimethylbenzene	95		96		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		96		70-130
Toluene-d8	103		103		70-130
4-Bromofluorobenzene	100		102		70-130
Dibromofluoromethane	106		105		70-130

SEMIVOLATILES

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001
Lab Number: L2453085
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2453085-01
Client ID: 201-E02-SG
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/16/24 14:05
Date Received: 09/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 09/23/24 01:29
Analyst: SLR
Percent Solids: 95%

Extraction Method: EPA 3546
Extraction Date: 09/21/24 20:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.028	J	mg/kg	0.034	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	0.14		mg/kg	0.10	0.021	1
Anthracene	0.033	J	mg/kg	0.10	0.033	1
Pyrene	0.22		mg/kg	0.10	0.017	1
Benzo(a)anthracene	0.12		mg/kg	0.10	0.019	1
Chrysene	0.14		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	0.17		mg/kg	0.10	0.029	1
Benzo(a)pyrene	0.12	J	mg/kg	0.14	0.042	1
Benzo(ghi)perylene	0.13	J	mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	33		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	88		18-120

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001
Lab Number: L2453085
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2453085-02
Client ID: 201-E01-SG
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/16/24 14:35
Date Received: 09/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 09/23/24 01:47
Analyst: SLR
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 09/21/24 20:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.037	0.023	1
Fluorene	ND		mg/kg	0.19	0.018	1
Phenanthrene	0.11		mg/kg	0.11	0.023	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	0.24		mg/kg	0.11	0.019	1
Benzo(a)anthracene	0.13		mg/kg	0.11	0.021	1
Chrysene	0.15		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.23		mg/kg	0.11	0.032	1
Benzo(a)pyrene	0.17		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	0.18		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	29		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	75		18-120

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001
Lab Number: L2453085
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2453085-03
Client ID: 201-F01-SG
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/16/24 15:10
Date Received: 09/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 09/23/24 02:05
Analyst: SLR
Percent Solids: 92%

Extraction Method: EPA 3546
Extraction Date: 09/21/24 20:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.036	0.022	1
Fluorene	ND		mg/kg	0.18	0.017	1
Phenanthrene	0.037	J	mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.035	1
Pyrene	0.060	J	mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.039	J	mg/kg	0.11	0.020	1
Chrysene	0.050	J	mg/kg	0.11	0.018	1
Benzo(b)fluoranthene	0.047	J	mg/kg	0.11	0.030	1
Benzo(a)pyrene	0.046	J	mg/kg	0.14	0.043	1
Benzo(ghi)perylene	0.052	J	mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	35		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	89		18-120

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001
Lab Number: L2453085
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2453085-04 D
Client ID: 301-V04-SG
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/16/24 15:45
Date Received: 09/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 09/23/24 02:23
Analyst: SLR
Percent Solids: 93%

Extraction Method: EPA 3546
Extraction Date: 09/21/24 20:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.35	0.21	10
Fluorene	ND		mg/kg	1.8	0.17	10
Phenanthrene	ND		mg/kg	1.0	0.21	10
Anthracene	ND		mg/kg	1.0	0.34	10
Pyrene	ND		mg/kg	1.0	0.18	10
Benzo(a)anthracene	ND		mg/kg	1.0	0.20	10
Chrysene	ND		mg/kg	1.0	0.18	10
Benzo(b)fluoranthene	ND		mg/kg	1.0	0.30	10
Benzo(a)pyrene	ND		mg/kg	1.4	0.43	10
Benzo(ghi)perylene	ND		mg/kg	1.4	0.21	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**20**	Q	23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	65		18-120

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001
Lab Number: L2453085
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2453085-05
Client ID: 301-W03-SG
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/16/24 16:20
Date Received: 09/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 09/23/24 02:41
Analyst: SLR
Percent Solids: 91%

Extraction Method: EPA 3546
Extraction Date: 09/21/24 20:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.052		mg/kg	0.035	0.022	1
Fluorene	0.023	J	mg/kg	0.18	0.017	1
Phenanthrene	0.083	J	mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.034	1
Pyrene	0.10	J	mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.069	J	mg/kg	0.11	0.020	1
Chrysene	0.093	J	mg/kg	0.11	0.018	1
Benzo(b)fluoranthene	0.094	J	mg/kg	0.11	0.030	1
Benzo(a)pyrene	0.077	J	mg/kg	0.14	0.043	1
Benzo(ghi)perylene	0.079	J	mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	26		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	81		18-120

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001
Lab Number: L2453085
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2453085-06
Client ID: 301-Z06-SG
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/16/24 17:15
Date Received: 09/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 09/23/24 02:59
Analyst: SLR
Percent Solids: 89%

Extraction Method: EPA 3546
Extraction Date: 09/21/24 20:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.037	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	0.033	J	mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	0.13		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.066	J	mg/kg	0.11	0.021	1
Chrysene	0.078	J	mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.097	J	mg/kg	0.11	0.031	1
Benzo(a)pyrene	0.075	J	mg/kg	0.15	0.045	1
Benzo(ghi)perylene	0.069	J	mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**22**	Q	23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	73		18-120

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001
Lab Number: L2453085
Report Date: 09/23/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 09/22/24 16:44
Analyst: IM

Extraction Method: EPA 3546
Extraction Date: 09/21/24 20:56

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-06 Batch: WG1974701-1					
Naphthalene	ND		mg/kg	0.033	0.020
Fluorene	ND		mg/kg	0.17	0.016
Phenanthrene	ND		mg/kg	0.10	0.020
Anthracene	ND		mg/kg	0.10	0.032
Pyrene	ND		mg/kg	0.10	0.016
Benzo(a)anthracene	ND		mg/kg	0.10	0.019
Chrysene	ND		mg/kg	0.10	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	76		25-120
Phenol-d6	77		10-120
Nitrobenzene-d5	80		23-120
2-Fluorobiphenyl	74		30-120
2,4,6-Tribromophenol	65		10-136
4-Terphenyl-d14	74		18-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: BOH-SMP SAMPLING

Project Number: P044.001.001

Lab Number: L2453085

Report Date: 09/23/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-06 Batch: WG1974701-2 WG1974701-3								
Naphthalene	87		80		40-140	8		50
Fluorene	91		82		40-140	10		50
Phenanthrene	95		85		40-140	11		50
Anthracene	98		87		40-140	12		50
Pyrene	92		83		35-142	10		50
Benzo(a)anthracene	93		84		40-140	10		50
Chrysene	94		84		40-140	11		50
Benzo(b)fluoranthene	91		81		40-140	12		50
Benzo(a)pyrene	94		83		40-140	12		50
Benzo(ghi)perylene	89		81		40-140	9		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	91		81		25-120
Phenol-d6	90		81		10-120
Nitrobenzene-d5	95		88		23-120
2-Fluorobiphenyl	90		81		30-120
2,4,6-Tribromophenol	87		76		10-136
4-Terphenyl-d14	90		80		18-120

METALS

Project Name: BOH-SMP SAMPLING
Lab Number: L2453085
Project Number: P044.001.001
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2453085-01
Client ID: 201-E02-SG
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 09/16/24 14:05
Date Received: 09/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	58.0		mg/kg	4.05	0.217	2	09/20/24 09:40	09/20/24 21:11	EPA 3050B	1,6010D	DMC

Project Name: BOH-SMP SAMPLING
Lab Number: L2453085
Project Number: P044.001.001
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2453085-02
Client ID: 201-E01-SG
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 09/16/24 14:35
Date Received: 09/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	27.0		mg/kg	4.36	0.234	2	09/20/24 09:40	09/20/24 21:15	EPA 3050B	1,6010D	DMC

Project Name: BOH-SMP SAMPLING
Lab Number: L2453085
Project Number: P044.001.001
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2453085-03
Client ID: 201-F01-SG
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 09/16/24 15:10
Date Received: 09/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	40.5		mg/kg	4.14	0.222	2	09/20/24 09:40	09/20/24 21:19	EPA 3050B	1,6010D	DMC

Project Name: BOH-SMP SAMPLING
Lab Number: L2453085
Project Number: P044.001.001
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2453085-04
Client ID: 301-V04-SG
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 09/16/24 15:45
Date Received: 09/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	194		mg/kg	4.23	0.227	2	09/20/24 09:40	09/20/24 21:23	EPA 3050B	1,6010D	DMC

Project Name: BOH-SMP SAMPLING
Lab Number: L2453085
Project Number: P044.001.001
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2453085-05
Client ID: 301-W03-SG
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 09/16/24 16:20
Date Received: 09/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	84.3		mg/kg	4.26	0.228	2	09/20/24 09:40	09/20/24 21:27	EPA 3050B	1,6010D	DMC

Project Name: BOH-SMP SAMPLING
Lab Number: L2453085
Project Number: P044.001.001
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2453085-06
Client ID: 301-Z06-SG
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 09/16/24 17:15
Date Received: 09/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	18.9		mg/kg	4.25	0.228	2	09/20/24 09:40	09/20/24 21:31	EPA 3050B	1,6010D	DMC

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001
Lab Number: L2453085
Report Date: 09/23/24

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-06 Batch: WG1974088-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	09/20/24 09:40	09/20/24 11:44	1,6010D	DMC

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis

Batch Quality Control

Project Name: BOH-SMP SAMPLING

Project Number: P044.001.001

Lab Number: L2453085

Report Date: 09/23/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-06 Batch: WG1974088-2								
Lead, Total	105		-		80-120	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001

Lab Number: L2453085
Report Date: 09/23/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1974088-3 QC Sample: L2454058-01 Client ID: MS Sample												
Lead, Total	20.0	45.4	73.4	118		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: BOH-SMP SAMPLING

Project Number: P044.001.001

Lab Number: L2453085

Report Date: 09/23/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1974088-4 QC Sample: L2454058-01 Client ID: DUP Sample						
Lead, Total	20.0	23.4	mg/kg	16		20

INORGANICS
&
MISCELLANEOUS

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001

Lab Number: L2453085
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2453085-01
Client ID: 201-E02-SG
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/16/24 14:05
Date Received: 09/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.2		%	0.100	NA	1	-	09/17/24 13:19	121,2540G	ROI

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001

Lab Number: L2453085
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2453085-02
Client ID: 201-E01-SG
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/16/24 14:35
Date Received: 09/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.1		%	0.100	NA	1	-	09/17/24 13:19	121,2540G	ROI

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001

Lab Number: L2453085
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2453085-03
Client ID: 201-F01-SG
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/16/24 15:10
Date Received: 09/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.0		%	0.100	NA	1	-	09/17/24 13:19	121,2540G	ROI

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001

Lab Number: L2453085
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2453085-04
Client ID: 301-V04-SG
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/16/24 15:45
Date Received: 09/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.5		%	0.100	NA	1	-	09/17/24 13:19	121,2540G	ROI

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001

Lab Number: L2453085
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2453085-05
Client ID: 301-W03-SG
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/16/24 16:20
Date Received: 09/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.2		%	0.100	NA	1	-	09/17/24 13:19	121,2540G	ROI

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001

Lab Number: L2453085
Report Date: 09/23/24

SAMPLE RESULTS

Lab ID: L2453085-06
Client ID: 301-Z06-SG
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 09/16/24 17:15
Date Received: 09/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.2		%	0.100	NA	1	-	09/17/24 13:19	121,2540G	ROI

Lab Duplicate Analysis

Batch Quality Control

Project Name: BOH-SMP SAMPLING

Project Number: P044.001.001

Lab Number: L2453085

Report Date: 09/23/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-06 QC Batch ID: WG1972608-1 QC Sample: L2453052-01 Client ID: DUP Sample						
Solids, Total	88.3	88.7	%	0		20

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001

Lab Number: L2453085
Report Date: 09/23/24

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(*)
L2453085-01A	Vial MeOH preserved	A	NA		2.6	Y	Absent		PA-8260HLW(14)
L2453085-01B	Vial water preserved	A	NA		2.6	Y	Absent	17-SEP-24 10:57	PA-8260HLW(14)
L2453085-01C	Vial water preserved	A	NA		2.6	Y	Absent	17-SEP-24 10:57	PA-8260HLW(14)
L2453085-01D	Plastic 120ml unpreserved	A	NA		2.6	Y	Absent		TS(7)
L2453085-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.6	Y	Absent		PB-TI(180)
L2453085-01F	Glass 120ml/4oz unpreserved	A	NA		2.6	Y	Absent		PA-PAH(14)
L2453085-02A	Vial MeOH preserved	A	NA		2.6	Y	Absent		PA-8260HLW(14)
L2453085-02B	Vial water preserved	A	NA		2.6	Y	Absent	17-SEP-24 10:57	PA-8260HLW(14)
L2453085-02C	Vial water preserved	A	NA		2.6	Y	Absent	17-SEP-24 10:57	PA-8260HLW(14)
L2453085-02D	Plastic 120ml unpreserved	A	NA		2.6	Y	Absent		TS(7)
L2453085-02E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.6	Y	Absent		PB-TI(180)
L2453085-02F	Glass 120ml/4oz unpreserved	A	NA		2.6	Y	Absent		PA-PAH(14)
L2453085-03A	Vial MeOH preserved	A	NA		2.6	Y	Absent		PA-8260HLW(14)
L2453085-03B	Vial water preserved	A	NA		2.6	Y	Absent	17-SEP-24 10:57	PA-8260HLW(14)
L2453085-03C	Vial water preserved	A	NA		2.6	Y	Absent	17-SEP-24 10:57	PA-8260HLW(14)
L2453085-03D	Plastic 120ml unpreserved	A	NA		2.6	Y	Absent		TS(7)
L2453085-03E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.6	Y	Absent		PB-TI(180)
L2453085-03F	Glass 120ml/4oz unpreserved	A	NA		2.6	Y	Absent		PA-PAH(14)
L2453085-04A	Vial MeOH preserved	A	NA		2.6	Y	Absent		PA-8260HLW(14)
L2453085-04B	Vial water preserved	A	NA		2.6	Y	Absent	17-SEP-24 10:57	PA-8260HLW(14)
L2453085-04C	Vial water preserved	A	NA		2.6	Y	Absent	17-SEP-24 10:57	PA-8260HLW(14)
L2453085-04D	Plastic 120ml unpreserved	A	NA		2.6	Y	Absent		TS(7)
L2453085-04E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.6	Y	Absent		PB-TI(180)

*Values in parentheses indicate holding time in days

Project Name: BOH-SMP SAMPLING
Project Number: P044.001.001

Lab Number: L2453085
Report Date: 09/23/24

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2453085-04F	Glass 120ml/4oz unpreserved	A	NA		2.6	Y	Absent		PA-PAH(14)
L2453085-05A	Vial MeOH preserved	A	NA		2.6	Y	Absent		PA-8260HLW(14)
L2453085-05B	Vial water preserved	A	NA		2.6	Y	Absent	17-SEP-24 10:57	PA-8260HLW(14)
L2453085-05C	Vial water preserved	A	NA		2.6	Y	Absent	17-SEP-24 10:57	PA-8260HLW(14)
L2453085-05D	Plastic 120ml unpreserved	A	NA		2.6	Y	Absent		TS(7)
L2453085-05E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.6	Y	Absent		PB-TI(180)
L2453085-05F	Glass 120ml/4oz unpreserved	A	NA		2.6	Y	Absent		PA-PAH(14)
L2453085-06A	Vial MeOH preserved	A	NA		2.6	Y	Absent		PA-8260HLW(14)
L2453085-06B	Vial water preserved	A	NA		2.6	Y	Absent	17-SEP-24 10:57	PA-8260HLW(14)
L2453085-06C	Vial water preserved	A	NA		2.6	Y	Absent	17-SEP-24 10:57	PA-8260HLW(14)
L2453085-06D	Plastic 120ml unpreserved	A	NA		2.6	Y	Absent		TS(7)
L2453085-06E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.6	Y	Absent		PB-TI(180)
L2453085-06F	Glass 120ml/4oz unpreserved	A	NA		2.6	Y	Absent		PA-PAH(14)

*Values in parentheses indicate holding time in days

Project Name:	BOH-SMP SAMPLING	**Lab Number:**	L2453085
Project Number:	P044.001.001	**Report Date:**	09/23/24

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:	BOH-SMP SAMPLING	**Lab Number:**	L2453085
Project Number:	P044.001.001	**Report Date:**	09/23/24

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:	BOH-SMP SAMPLING	**Lab Number:**	L2453085
Project Number:	P044.001.001	**Report Date:**	09/23/24

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:	BOH-SMP SAMPLING	**Lab Number:**	L2453085
Project Number:	P044.001.001	**Report Date:**	09/23/24

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, 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 1 OF 1

Date Rec'd in Lab: 9/17/24

L2453085 23SEP24
TERRAPHASE

ALPHA ANALYTICAL
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
Address: 100 Canal Pointe Blvd. Ste 110
Princeton, NJ
Phone: 609-236-8171 x92
Fax:
Email: Nick.scala@terraphase.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: BDH- SMP Sampling
Project Location: 3144 W. Passyunk Ave.
Project #: D044.001.001A
Project Manager: Nick Scala
ALPHA Quote #: 28195

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: Time:

Report Information - Data Deliver

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables
☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:
Please send Equis EDD to EDD@terraphase.com

ANALYSIS: PAHs, SHORTLIST 1-5, VOCs, SVOCs, Lead

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 Date	Collection Time	Sample Matrix	Sampler's Initials			Sample Specific Comments	TOTAL # BOTTLES
53085-01	201-E02-SG	9/16/24	14:05	So	MMM	X	X		
-02	201-E01-SG	9/16/24	14:35	So	MMM	X	X		
-03	201-F01-SG	9/16/24	15:10	So	MMM	X	X		
-04	301-V04-SG	9/16/24	15:45	So	MMM	X	X		
-05	301-W03-SG	9/16/24	16:20	So	MMM	X	X		
-06	301-Z06-SG	9/16/24	17:15	So	MMM	X	X		

Ellie Johnstone 9/16/24

Container Type									
Preservative									

Relinquished By:	Date/Time	Received By:	Date/Time
Ellie Johnstone	9/16/24 1747		
Dylan PALS	9/16/24 1800	Dylan PALS	9/16/24 1745 1800
Anthony Green	9/16/24 2100	Anthony Green	SEP 16 2024 2300
Anthony Green	9/17/24 0025	Anthony Green	9/17/24 0025

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.

Rec: 9/17/24 0220

Rec: 9/17/24 2:20

ANALYTICAL REPORT

Lab Number:	L2465272
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:	P044.001.001A
Report Date:	11/14/24

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-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).

Project Name: PESRM-BDH
Project Number: P044.001.001A

Lab Number: L2465272
Report Date: 11/14/24

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2465272-01	301-AC07-SG	SOIL	3144 W.PASSYUNK AVE.	11/07/24 10:55	11/07/24
L2465272-02	301-AB08-SG	SOIL	3144 W.PASSYUNK AVE.	11/07/24 11:10	11/07/24
L2465272-03	201-F05-SG	SOIL	3144 W.PASSYUNK AVE.	11/07/24 11:30	11/07/24
L2465272-04	301-AC08-SG	SOIL	3144 W.PASSYUNK AVE.	11/07/24 11:45	11/07/24
L2465272-05	302-AD11-SG	SOIL	3144 W.PASSYUNK AVE.	11/07/24 11:55	11/07/24
L2465272-06	302-AD13-SG	SOIL	3144 W.PASSYUNK AVE.	11/07/24 12:15	11/07/24
L2465272-07	302-AD12-SG	SOIL	3144 W.PASSYUNK AVE.	11/07/24 12:30	11/07/24

Project Name:	PESRM-BDH	**Lab Number:**	L2465272
Project Number:	P044.001.001A	**Report Date:**	11/14/24

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.

Project Name:	PESRM-BDH	**Lab Number:**	L2465272
Project Number:	P044.001.001A	**Report Date:**	11/14/24

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

L2465272-01: The surrogate recoveries are outside the method acceptance criteria for 1,2-dichloroethane-d4 (65%) and dibromofluoromethane (52%) due to interference with the Internal Standard.

L2465272-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (148%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2465272-02: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2465272-02: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (138%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

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

Caitlin Walukevich

Title: Technical Director/Representative Date: 11/14/24

ORGANICS

VOLATILES

Project Name: PESRM-BDH
Project Number: P044.001.001A
Lab Number: L2465272
Report Date: 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-01
Client ID: 301-AC07-SG
Sample Location: 3144 W.PASSYUNK AVE.
Date Collected: 11/07/24 10:55
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/14/24 10:56
Analyst: AJK
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	0.032		mg/kg	0.00064	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00033	1
Toluene	0.016		mg/kg	0.0013	0.00070	1
1,2-Dibromoethane	ND		mg/kg	0.00064	0.00038	1
Ethylbenzene	0.025		mg/kg	0.0013	0.00018	1
p/m-Xylene	0.055		mg/kg	0.0026	0.00072	1
o-Xylene	0.016		mg/kg	0.0013	0.00037	1
Xylenes, Total	0.071		mg/kg	0.0013	0.00037	1
Isopropylbenzene	0.0089		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	0.0061		mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	0.013		mg/kg	0.0026	0.00043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**65**	Q	70-130
Toluene-d8	128		70-130
4-Bromofluorobenzene	**148**	Q	70-130
Dibromofluoromethane	**52**	Q	70-130

Project Name: PESRM-BDH
Project Number: P044.001.001A
Lab Number: L2465272
Report Date: 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-02
Client ID: 301-AB08-SG
Sample Location: 3144 W.PASSYUNK AVE.
Date Collected: 11/07/24 11:10
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/13/24 21:33
Analyst: JIC
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.031	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.063	0.016	1
Toluene	ND		mg/kg	0.063	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	ND		mg/kg	0.063	0.0088	1
p/m-Xylene	ND		mg/kg	0.12	0.035	1
o-Xylene	ND		mg/kg	0.063	0.018	1
Xylenes, Total	ND		mg/kg	0.063	0.018	1
Isopropylbenzene	ND		mg/kg	0.063	0.0068	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	**138**	Q	70-130
Dibromofluoromethane	88		70-130

Project Name: PESRM-BDH
Project Number: P044.001.001A
Lab Number: L2465272
Report Date: 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-03
Client ID: 201-F05-SG
Sample Location: 3144 W.PASSYUNK AVE.
Date Collected: 11/07/24 11:30
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/13/24 13:35
Analyst: TMH
Percent Solids: 90%

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	93		70-130

Project Name: PESRM-BDH
Lab Number: L2465272
Project Number: P044.001.001A
Report Date: 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-04
Client ID: 301-AC08-SG
Sample Location: 3144 W.PASSYUNK AVE.
Date Collected: 11/07/24 11:45
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/13/24 14:00
Analyst: TMH
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00056	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	94		70-130

Project Name: PESRM-BDH
Project Number: P044.001.001A
Lab Number: L2465272
Report Date: 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-05
Client ID: 302-AD11-SG
Sample Location: 3144 W.PASSYUNK AVE.
Date Collected: 11/07/24 11:55
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/13/24 15:15
Analyst: TMH
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	ND		mg/kg	0.0011	0.00058	1
1,2-Dibromoethane	ND		mg/kg	0.00054	0.00032	1
Ethylbenzene	0.00018	J	mg/kg	0.0011	0.00015	1
p/m-Xylene	ND		mg/kg	0.0022	0.00060	1
o-Xylene	ND		mg/kg	0.0011	0.00031	1
Xylenes, Total	ND		mg/kg	0.0011	0.00031	1
Isopropylbenzene	0.00092	J	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.00035	J	mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.0010	J	mg/kg	0.0022	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	93		70-130

Project Name: PESRM-BDH
Project Number: P044.001.001A
Lab Number: L2465272
Report Date: 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-06
Client ID: 302-AD13-SG
Sample Location: 3144 W.PASSYUNK AVE.
Date Collected: 11/07/24 12:15
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/13/24 14:25
Analyst: TMH
Percent Solids: 98%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00055	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	ND		mg/kg	0.0011	0.00060	1
1,2-Dibromoethane	ND		mg/kg	0.00055	0.00032	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0022	0.00062	1
o-Xylene	ND		mg/kg	0.0011	0.00032	1
Xylenes, Total	ND		mg/kg	0.0011	0.00032	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	96		70-130

Project Name: PESRM-BDH **Lab Number:** L2465272

Project Number: P044.001.001A **Report Date:** 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-07
Client ID: 302-AD12-SG
Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 11/07/24 12:30
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/13/24 14:50
Analyst: TMH
Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00021	1
Benzene	ND		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	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	109		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	96		70-130

Project Name: PESRM-BDH
Project Number: P044.001.001A

Lab Number: L2465272
Report Date: 11/14/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 11/13/24 13:10
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 03-07 Batch: WG1997466-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	90		70-130

Project Name: PESRM-BDH
Project Number: P044.001.001A

Lab Number: L2465272
Report Date: 11/14/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 11/13/24 13:10
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02 Batch: WG1997470-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	90		70-130

Project Name: PESRM-BDH **Lab Number:** L2465272

Project Number: P044.001.001A **Report Date:** 11/14/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 11/14/24 09:48
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1997610-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	126		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	95		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM-BDH

Project Number: P044.001.001A

Lab Number: L2465272

Report Date: 11/14/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 03-07 Batch: WG1997466-3 WG1997466-4								
Methyl tert butyl ether	76		78		66-130	3		30
Benzene	85		85		70-130	0		30
1,2-Dichloroethane	85		88		70-130	3		30
Toluene	92		90		70-130	2		30
1,2-Dibromoethane	100		100		70-130	0		30
Ethylbenzene	90		89		70-130	1		30
p/m-Xylene	91		90		70-130	1		30
o-Xylene	92		91		70-130	1		30
Isopropylbenzene	94		93		70-130	1		30
1,3,5-Trimethylbenzene	96		94		70-130	2		30
1,2,4-Trimethylbenzene	96		95		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		99		70-130
Toluene-d8	106		105		70-130
4-Bromofluorobenzene	105		104		70-130
Dibromofluoromethane	93		93		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM-BDH

Project Number: P044.001.001A

Lab Number: L2465272

Report Date: 11/14/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02 Batch: WG1997470-3 WG1997470-4								
Methyl tert butyl ether	76		78		66-130	3		30
Benzene	85		85		70-130	0		30
1,2-Dichloroethane	85		88		70-130	3		30
Toluene	92		90		70-130	2		30
1,2-Dibromoethane	100		100		70-130	0		30
Ethylbenzene	90		89		70-130	1		30
p/m-Xylene	91		90		70-130	1		30
o-Xylene	92		91		70-130	1		30
Isopropylbenzene	94		93		70-130	1		30
1,3,5-Trimethylbenzene	96		94		70-130	2		30
1,2,4-Trimethylbenzene	96		95		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		99		70-130
Toluene-d8	106		105		70-130
4-Bromofluorobenzene	105		104		70-130
Dibromofluoromethane	93		93		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM-BDH

Project Number: P044.001.001A

Lab Number: L2465272

Report Date: 11/14/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1997610-3 WG1997610-4								
1,2-Dichloroethane	112		117		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	122		123		70-130
Toluene-d8	97		98		70-130
4-Bromofluorobenzene	104		105		70-130
Dibromofluoromethane	96		98		70-130

SEMIVOLATILES

Project Name: PESRM-BDH
Project Number: P044.001.001A
Lab Number: L2465272
Report Date: 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-01
Client ID: 301-AC07-SG
Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 11/07/24 10:55
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 11/13/24 11:59
Analyst: JG
Percent Solids: 92%

Extraction Method: EPA 3546
Extraction Date: 11/11/24 20:19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.058		mg/kg	0.036	0.022	1
Fluorene	0.023	J	mg/kg	0.18	0.018	1
Phenanthrene	0.14		mg/kg	0.11	0.022	1
Anthracene	0.048	J	mg/kg	0.11	0.035	1
Pyrene	0.20		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.13		mg/kg	0.11	0.020	1
Chrysene	0.18		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.18		mg/kg	0.11	0.030	1
Benzo(a)pyrene	0.15		mg/kg	0.14	0.044	1
Benzo(ghi)perylene	0.17		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	93		23-120
2-Fluorobiphenyl	82		30-120
4-Terphenyl-d14	79		18-120

Project Name: PESRM-BDH
Project Number: P044.001.001A
Lab Number: L2465272
Report Date: 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-02
Client ID: 301-AB08-SG
Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 11/07/24 11:10
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 11/13/24 10:43
Analyst: JG
Percent Solids: 92%

Extraction Method: EPA 3546
Extraction Date: 11/11/24 20:19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.025	J	mg/kg	0.036	0.022	1
Fluorene	0.031	J	mg/kg	0.18	0.018	1
Phenanthrene	0.14		mg/kg	0.11	0.022	1
Anthracene	0.038	J	mg/kg	0.11	0.035	1
Pyrene	0.20		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.12		mg/kg	0.11	0.020	1
Chrysene	0.17		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.16		mg/kg	0.11	0.030	1
Benzo(a)pyrene	0.13	J	mg/kg	0.14	0.044	1
Benzo(ghi)perylene	0.12	J	mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	112		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	84		18-120

Project Name: PESRM-BDH
Project Number: P044.001.001A
Lab Number: L2465272
Report Date: 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-03
Client ID: 201-F05-SG
Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 11/07/24 11:30
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 11/13/24 09:03
Analyst: JG
Percent Solids: 90%

Extraction Method: EPA 3546
Extraction Date: 11/11/24 20:19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.037	0.022	1
Fluorene	0.022	J	mg/kg	0.18	0.018	1
Phenanthrene	0.20		mg/kg	0.11	0.022	1
Anthracene	0.039	J	mg/kg	0.11	0.036	1
Pyrene	0.24		mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.12		mg/kg	0.11	0.021	1
Chrysene	0.13		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.15		mg/kg	0.11	0.031	1
Benzo(a)pyrene	0.12	J	mg/kg	0.15	0.045	1
Benzo(ghi)perylene	0.074	J	mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	87		23-120
2-Fluorobiphenyl	75		30-120
4-Terphenyl-d14	84		18-120

Project Name: PESRM-BDH
Project Number: P044.001.001A
Lab Number: L2465272
Report Date: 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-04
Client ID: 301-AC08-SG
Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 11/07/24 11:45
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 11/13/24 11:09
Analyst: JG
Percent Solids: 89%

Extraction Method: EPA 3546
Extraction Date: 11/11/24 20:19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.036	0.022	1
Fluorene	ND		mg/kg	0.18	0.018	1
Phenanthrene	0.068	J	mg/kg	0.11	0.022	1
Anthracene	ND		mg/kg	0.11	0.036	1
Pyrene	0.10	J	mg/kg	0.11	0.018	1
Benzo(a)anthracene	0.060	J	mg/kg	0.11	0.021	1
Chrysene	0.061	J	mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	0.066	J	mg/kg	0.11	0.031	1
Benzo(a)pyrene	0.052	J	mg/kg	0.15	0.045	1
Benzo(ghi)perylene	0.040	J	mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	91		23-120
2-Fluorobiphenyl	75		30-120
4-Terphenyl-d14	79		18-120

Project Name: PESRM-BDH
Project Number: P044.001.001A
Lab Number: L2465272
Report Date: 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-05
Client ID: 302-AD11-SG
Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 11/07/24 11:55
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 11/13/24 11:34
Analyst: JG
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 11/11/24 20:19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.040		mg/kg	0.038	0.023	1
Fluorene	0.028	J	mg/kg	0.19	0.018	1
Phenanthrene	0.17		mg/kg	0.11	0.023	1
Anthracene	0.079	J	mg/kg	0.11	0.037	1
Pyrene	0.27		mg/kg	0.11	0.019	1
Benzo(a)anthracene	0.18		mg/kg	0.11	0.021	1
Chrysene	0.19		mg/kg	0.11	0.020	1
Benzo(b)fluoranthene	0.29		mg/kg	0.11	0.032	1
Benzo(a)pyrene	0.23		mg/kg	0.15	0.046	1
Benzo(ghi)perylene	0.20		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	93		23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	78		18-120

Project Name: PESRM-BDH
Project Number: P044.001.001A
Lab Number: L2465272
Report Date: 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-06
Client ID: 302-AD13-SG
Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 11/07/24 12:15
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 11/13/24 09:53
Analyst: JG
Percent Solids: 98%

Extraction Method: EPA 3546
Extraction Date: 11/11/24 20:19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.037		mg/kg	0.033	0.020	1
Fluorene	0.023	J	mg/kg	0.16	0.016	1
Phenanthrene	0.24		mg/kg	0.099	0.020	1
Anthracene	0.065	J	mg/kg	0.099	0.032	1
Pyrene	0.32		mg/kg	0.099	0.016	1
Benzo(a)anthracene	0.18		mg/kg	0.099	0.019	1
Chrysene	0.18		mg/kg	0.099	0.017	1
Benzo(b)fluoranthene	0.21		mg/kg	0.099	0.028	1
Benzo(a)pyrene	0.17		mg/kg	0.13	0.040	1
Benzo(ghi)perylene	0.14		mg/kg	0.13	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	84		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	77		18-120

Project Name: PESRM-BDH
Project Number: P044.001.001A
Lab Number: L2465272
Report Date: 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-07
Client ID: 302-AD12-SG
Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 11/07/24 12:30
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 11/13/24 10:18
Analyst: JG
Percent Solids: 90%

Extraction Method: EPA 3546
Extraction Date: 11/11/24 20:19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.31		mg/kg	0.037	0.022	1
Fluorene	0.70		mg/kg	0.18	0.018	1
Phenanthrene	3.0		mg/kg	0.11	0.022	1
Anthracene	1.0		mg/kg	0.11	0.036	1
Pyrene	3.0		mg/kg	0.11	0.018	1
Benzo(a)anthracene	1.5		mg/kg	0.11	0.021	1
Chrysene	1.7		mg/kg	0.11	0.019	1
Benzo(b)fluoranthene	1.3		mg/kg	0.11	0.031	1
Benzo(a)pyrene	1.2		mg/kg	0.15	0.045	1
Benzo(ghi)perylene	0.68		mg/kg	0.15	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	94		23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	81		18-120

Project Name: PESRM-BDH
Project Number: P044.001.001A

Lab Number: L2465272
Report Date: 11/14/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 11/13/24 00:43
Analyst: JG

Extraction Method: EPA 3546
Extraction Date: 11/11/24 20:19

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-07 Batch: WG1995998-1					
Naphthalene	ND		mg/kg	0.033	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.098	0.020
Anthracene	ND		mg/kg	0.098	0.032
Pyrene	ND		mg/kg	0.098	0.016
Benzo(a)anthracene	ND		mg/kg	0.098	0.018
Chrysene	ND		mg/kg	0.098	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.098	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	84		30-120
4-Terphenyl-d14	89		18-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM-BDH

Project Number: P044.001.001A

Lab Number: L2465272

Report Date: 11/14/24

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: WG1995998-2 WG1995998-3								
Naphthalene	74		80		40-140	8		50
Fluorene	82		92		40-140	11		50
Phenanthrene	76		86		40-140	12		50
Anthracene	80		89		40-140	11		50
Pyrene	81		90		35-142	11		50
Benzo(a)anthracene	73		83		40-140	13		50
Chrysene	74		83		40-140	11		50
Benzo(b)fluoranthene	83		92		40-140	10		50
Benzo(a)pyrene	86		98		40-140	13		50
Benzo(ghi)perylene	85		97		40-140	13		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	74		82		23-120
2-Fluorobiphenyl	79		89		30-120
4-Terphenyl-d14	82		95		18-120

METALS

Project Name: PESRM-BDH **Lab Number:** L2465272

Project Number: P044.001.001A **Report Date:** 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-01 Date Collected: 11/07/24 10:55

Client ID: 301-AC07-SG Date Received: 11/07/24

Sample Location: 3144 W.PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	209		mg/kg	4.23	0.227	2	11/11/24 14:34	11/14/24 10:42	EPA 3050B	1,6010D	DHL

Project Name: PESRM-BDH
Lab Number: L2465272
Project Number: P044.001.001A
Report Date: 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-02
Client ID: 301-AB08-SG
Sample Location: 3144 W.PASSYUNK AVE.
Date Collected: 11/07/24 11:10
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	27.8		mg/kg	4.15	0.222	2	11/11/24 14:34	11/14/24 10:49	EPA 3050B	1,6010D	DHL

Project Name: PESRM-BDH
Lab Number: L2465272
Project Number: P044.001.001A
Report Date: 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-03
Client ID: 201-F05-SG
Sample Location: 3144 W.PASSYUNK AVE.
Date Collected: 11/07/24 11:30
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	54.8		mg/kg	4.28	0.229	2	11/12/24 16:48	11/12/24 21:16	EPA 3050B	1,6010D	JMF

Project Name: PESRM-BDH
Lab Number: L2465272
Project Number: P044.001.001A
Report Date: 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-04
Client ID: 301-AC08-SG
Sample Location: 3144 W.PASSYUNK AVE.
Date Collected: 11/07/24 11:45
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	42.3		mg/kg	4.40	0.236	2	11/12/24 16:48	11/12/24 21:36	EPA 3050B	1,6010D	JMF

Project Name: PESRM-BDH
Lab Number: L2465272
Project Number: P044.001.001A
Report Date: 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-05
Client ID: 302-AD11-SG
Sample Location: 3144 W.PASSYUNK AVE.
Date Collected: 11/07/24 11:55
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	28.3		mg/kg	4.45	0.239	2	11/12/24 16:48	11/12/24 21:43	EPA 3050B	1,6010D	JMF

Project Name: PESRM-BDH **Lab Number:** L2465272

Project Number: P044.001.001A **Report Date:** 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-06 Date Collected: 11/07/24 12:15

Client ID: 302-AD13-SG Date Received: 11/07/24

Sample Location: 3144 W.PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 98%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	51.0		mg/kg	4.01	0.215	2	11/12/24 16:48	11/12/24 22:10	EPA 3050B	1,6010D	JMF

Project Name: PESRM-BDH **Lab Number:** L2465272

Project Number: P044.001.001A **Report Date:** 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-07 Date Collected: 11/07/24 12:30

Client ID: 302-AD12-SG Date Received: 11/07/24

Sample Location: 3144 W.PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	142		mg/kg	4.27	0.229	2	11/12/24 16:48	11/12/24 22:17	EPA 3050B	1,6010D	JMF

Project Name: PESRM-BDH
Project Number: P044.001.001A
Lab Number: L2465272
Report Date: 11/14/24

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1995165-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	11/11/24 14:34	11/12/24 13:59	1,6010D	EFM

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 03-07 Batch: WG1995169-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	11/12/24 16:48	11/12/24 21:03	1,6010D	JMF

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM-BDH

Project Number: P044.001.001A

Lab Number: L2465272

Report Date: 11/14/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1995165-2								
Lead, Total	99		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 03-07 Batch: WG1995169-2								
Lead, Total	104		-		80-120	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PESRM-BDH
Project Number: P044.001.001A

Lab Number: L2465272
Report Date: 11/14/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1995165-3 QC Sample: L2464381-01 Client ID: MS Sample												
Lead, Total	416	48	431	**31**	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 03-07 QC Batch ID: WG1995169-3 QC Sample: L2465272-03 Client ID: 201-F05-SG												
Lead, Total	54.8	46.6	91.6	79		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PESRM-BDH

Project Number: P044.001.001A

Lab Number: L2465272

Report Date: 11/14/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1995165-4 QC Sample: L2464381-01 Client ID: DUP Sample						
Lead, Total	416	377	mg/kg	10		20
Total Metals - Mansfield Lab Associated sample(s): 03-07 QC Batch ID: WG1995169-4 QC Sample: L2465272-03 Client ID: 201-F05-SG						
Lead, Total	54.8	57.3	mg/kg	4		20

Project Name: PESRM-BDH
Project Number: P044.001.001A

Lab Serial Dilution Analysis
Batch Quality Control

Lab Number: L2465272
Report Date: 11/14/24

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1995165-6 QC Sample: L2464381-01 Client ID: DUP Sample						
Lead, Total	416	403	mg/kg	3		20

INORGANICS
&
MISCELLANEOUS

Project Name: PESRM-BDH
Project Number: P044.001.001A

Lab Number: L2465272
Report Date: 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-01
Client ID: 301-AC07-SG
Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 11/07/24 10:55
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.2		%	0.100	NA	1	-	11/09/24 21:20	121,2540G	SJB

Project Name: PESRM-BDH
Project Number: P044.001.001A

Lab Number: L2465272
Report Date: 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-02
Client ID: 301-AB08-SG
Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 11/07/24 11:10
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.0		%	0.100	NA	1	-	11/09/24 21:20	121,2540G	SJB

Project Name: PESRM-BDH
Project Number: P044.001.001A

Lab Number: L2465272
Report Date: 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-03
Client ID: 201-F05-SG
Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 11/07/24 11:30
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.6		%	0.100	NA	1	-	11/09/24 21:20	121,2540G	SJB

Project Name: PESRM-BDH
Project Number: P044.001.001A

Lab Number: L2465272
Report Date: 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-04
Client ID: 301-AC08-SG
Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 11/07/24 11:45
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.3		%	0.100	NA	1	-	11/09/24 21:20	121,2540G	SJB

Project Name: PESRM-BDH
Project Number: P044.001.001A

Lab Number: L2465272
Report Date: 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-05
Client ID: 302-AD11-SG
Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 11/07/24 11:55
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.6		%	0.100	NA	1	-	11/09/24 21:20	121,2540G	SJB

Project Name: PESRM-BDH
Project Number: P044.001.001A

Lab Number: L2465272
Report Date: 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-06
Client ID: 302-AD13-SG
Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 11/07/24 12:15
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	97.8		%	0.100	NA	1	-	11/09/24 21:20	121,2540G	SJB

Project Name: PESRM-BDH
Project Number: P044.001.001A

Lab Number: L2465272
Report Date: 11/14/24

SAMPLE RESULTS

Lab ID: L2465272-07
Client ID: 302-AD12-SG
Sample Location: 3144 W.PASSYUNK AVE.

Date Collected: 11/07/24 12:30
Date Received: 11/07/24
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.0		%	0.100	NA	1	-	11/09/24 21:20	121,2540G	SJB

Lab Duplicate Analysis

Batch Quality Control

Project Name: PESRM-BDH

Project Number: P044.001.001A

Lab Number: L2465272

Report Date: 11/14/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-07 QC Batch ID: WG1995343-1 QC Sample: L2464644-01 Client ID: DUP Sample						
Solids, Total	84.2	84.7	%	1		20

Project Name: PESRM-BDH
Project Number: P044.001.001A

Lab Number: L2465272
Report Date: 11/14/24

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(*)
L2465272-01A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2465272-01B	Vial water preserved	A	NA		2.2	Y	Absent	08-NOV-24 14:49	PA-8260HLW(14)
L2465272-01C	Vial water preserved	A	NA		2.2	Y	Absent	08-NOV-24 14:49	PA-8260HLW(14)
L2465272-01D	Plastic 2oz unpreserved for TS	A	NA		2.2	Y	Absent		TS(7)
L2465272-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.2	Y	Absent		PB-TI(180)
L2465272-01F	Glass 120ml/4oz unpreserved	A	NA		2.2	Y	Absent		PA-PAH(14)
L2465272-02A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2465272-02B	Vial water preserved	A	NA		2.2	Y	Absent	08-NOV-24 14:49	PA-8260HLW(14)
L2465272-02C	Vial water preserved	A	NA		2.2	Y	Absent	08-NOV-24 14:49	PA-8260HLW(14)
L2465272-02D	Plastic 2oz unpreserved for TS	A	NA		2.2	Y	Absent		TS(7)
L2465272-02E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.2	Y	Absent		PB-TI(180)
L2465272-02F	Glass 120ml/4oz unpreserved	A	NA		2.2	Y	Absent		PA-PAH(14)
L2465272-03A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2465272-03B	Vial water preserved	A	NA		2.2	Y	Absent	08-NOV-24 14:49	PA-8260HLW(14)
L2465272-03C	Vial water preserved	A	NA		2.2	Y	Absent	08-NOV-24 14:49	PA-8260HLW(14)
L2465272-03D	Plastic 2oz unpreserved for TS	A	NA		2.2	Y	Absent		TS(7)
L2465272-03E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.2	Y	Absent		PB-TI(180)
L2465272-03F	Glass 120ml/4oz unpreserved	A	NA		2.2	Y	Absent		PA-PAH(14)
L2465272-04A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2465272-04B	Vial water preserved	A	NA		2.2	Y	Absent	08-NOV-24 14:49	PA-8260HLW(14)
L2465272-04C	Vial water preserved	A	NA		2.2	Y	Absent	08-NOV-24 14:49	PA-8260HLW(14)
L2465272-04D	Plastic 2oz unpreserved for TS	A	NA		2.2	Y	Absent		TS(7)
L2465272-04E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.2	Y	Absent		PB-TI(180)

*Values in parentheses indicate holding time in days

Project Name: PESRM-BDH
Project Number: P044.001.001A

Lab Number: L2465272
Report Date: 11/14/24

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2465272-04F	Glass 120ml/4oz unpreserved	A	NA		2.2	Y	Absent		PA-PAH(14)
L2465272-05A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2465272-05B	Vial water preserved	A	NA		2.2	Y	Absent	08-NOV-24 14:49	PA-8260HLW(14)
L2465272-05C	Vial water preserved	A	NA		2.2	Y	Absent	08-NOV-24 14:49	PA-8260HLW(14)
L2465272-05D	Plastic 2oz unpreserved for TS	A	NA		2.2	Y	Absent		TS(7)
L2465272-05E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.2	Y	Absent		PB-TI(180)
L2465272-05F	Glass 120ml/4oz unpreserved	A	NA		2.2	Y	Absent		PA-PAH(14)
L2465272-06A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2465272-06B	Vial water preserved	A	NA		2.2	Y	Absent	08-NOV-24 14:49	PA-8260HLW(14)
L2465272-06C	Vial water preserved	A	NA		2.2	Y	Absent	08-NOV-24 14:49	PA-8260HLW(14)
L2465272-06D	Plastic 2oz unpreserved for TS	A	NA		2.2	Y	Absent		TS(7)
L2465272-06E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.2	Y	Absent		PB-TI(180)
L2465272-06F	Glass 120ml/4oz unpreserved	A	NA		2.2	Y	Absent		PA-PAH(14)
L2465272-07A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2465272-07B	Vial water preserved	A	NA		2.2	Y	Absent	08-NOV-24 14:49	PA-8260HLW(14)
L2465272-07C	Vial water preserved	A	NA		2.2	Y	Absent	08-NOV-24 14:49	PA-8260HLW(14)
L2465272-07D	Plastic 2oz unpreserved for TS	A	NA		2.2	Y	Absent		TS(7)
L2465272-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.2	Y	Absent		PB-TI(180)
L2465272-07F	Glass 120ml/4oz unpreserved	A	NA		2.2	Y	Absent		PA-PAH(14)

*Values in parentheses indicate holding time in days

Project Name:	PESRM-BDH	**Lab Number:**	L2465272
Project Number:	P044.001.001A	**Report Date:**	11/14/24

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	**Lab Number:**	L2465272
Project Number:	P044.001.001A	**Report Date:**	11/14/24

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	**Lab Number:**	L2465272
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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-BDH
Project Number: P044.001.001A
Lab Number: L2465272
Report Date: 11/14/24

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

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L2465272 14NOV24
TERRAPHASE

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

Date Rec'd in Lab: 11/8/24

Client Information

Client: Terraphase Engineering Inc.
Address: 100 Canal Pointe Blvd Suite 110
Phone: 609-236-8171 x92
Fax: —
Email: nick.scala@terraphase.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: PESRM - BDH
Project Location: 3144 W Passyunk Ave
Project #: P044.601.001 A
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

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Please send EDDs to EDD@terraphase.com

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Shortlist 1-5 VOCs (8260)	Shortlist 1-5 SVOCs (8270)	Lead	Sample Specific Comments	TOTAL # BOTTLES
65272-01	301-AC07-SG	11/7/24	1055	SO	MMM	X	X	X		
-02	301-AB08-SG		1110			X	X	X		
-03	201-F05-SG		1130			X	X	X		
-04	301-AC08-SG		1145			X	X	X		
-05	302-AD11-SG		1155			X	X	X		
-06	302-AD13-SG		1215			X	X	X		
-07	302-AD12-SG	↓	1230	↓	↓	X	X	X		

SAMPLE HANDLING
Filtration
☐ Done ☐ Not needed ☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Container Type										
Preservative										

Relinquished By:	Date/Time	Received By:	Date/Time
Marissa Mowrer	11/7/24 @ 1330	ST PALS	11/7/24 13:30
Stantec	11/7/24 1820		
	11/7/24		11/7/24 1820
11/8/24 0155	11/7/24	4/7/24 2300	

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.

FORM NO. 01-01 (rev. 14-OCT-07)

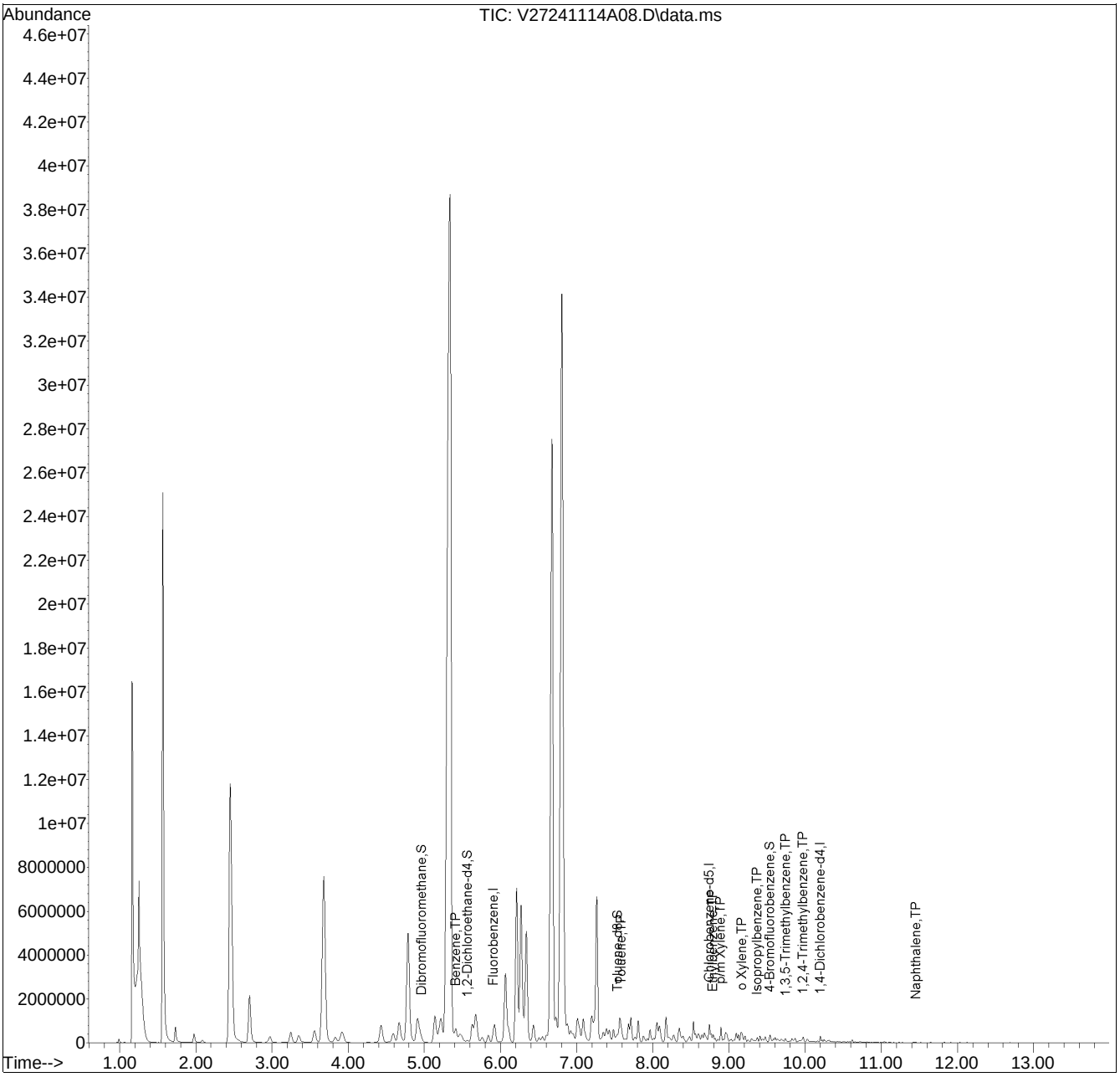
11108124-0155

Quantitation Report (QT Reviewed)

Data Path : K:\VOA127\2024\241114A\
Data File : V27241114A08.D
Acq On : 14 Nov 2024 10:56 am
Operator : VOA127:AJK
Sample : L2465272-01,31,4.21,5,,B,32.82,37.28,0.25
Misc : WG1997610,ICAL21556
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 14 11:35:35 2024
Quant Method : K:\VOA127\2024\241114A\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-PA_ShortList - PA Short list114A02.D•

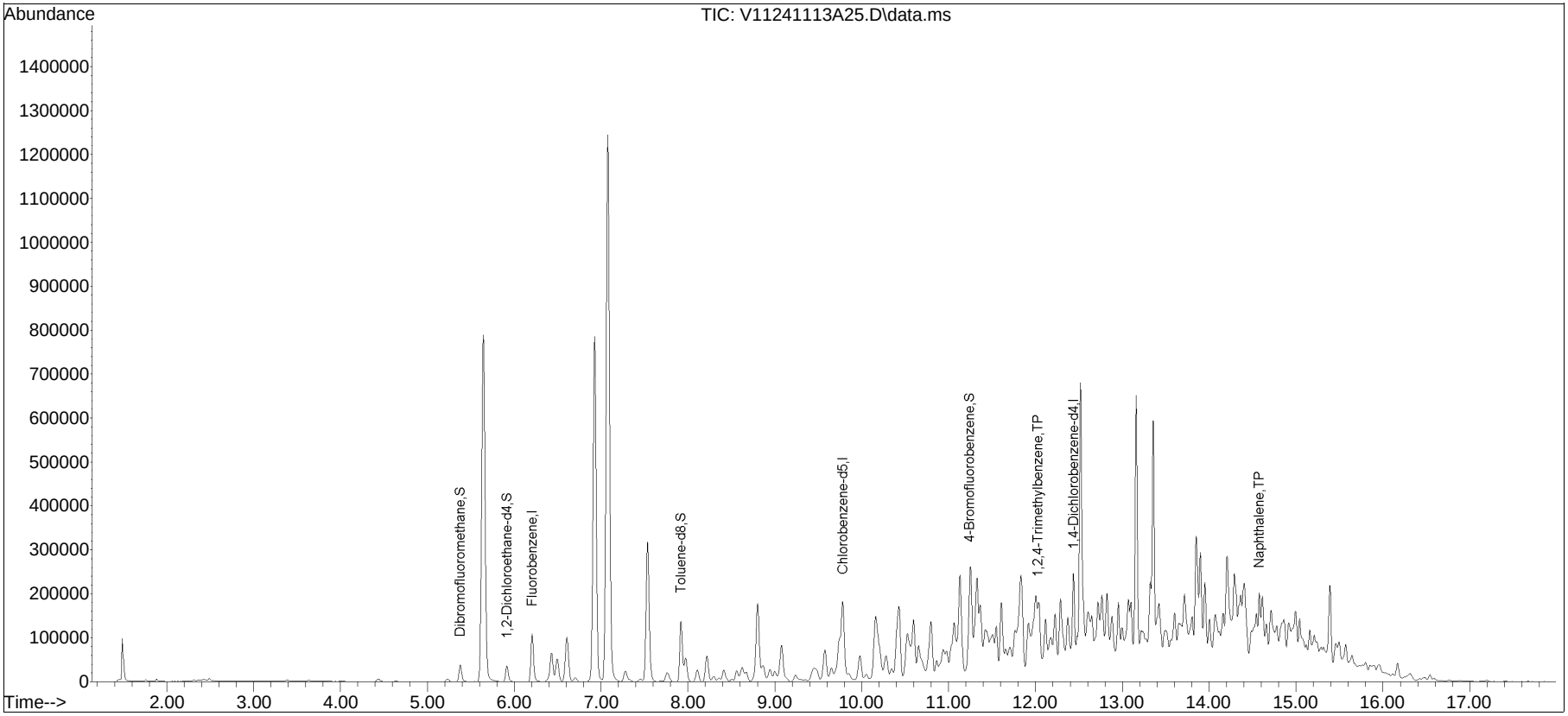


Quantitation Report (QT Reviewed)

Data Path : K:\VOA111\2024\241113A\
Data File : V11241113A25.D
Acq On : 13 Nov 2024 09:33 pm
Operator : VOA111:JIC
Sample : L2465272-02,31H,4.66,5,0.100,,A,30.18,35.34,0
Misc : WG1997470,ICAL21553
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Nov 14 06:16:50 2024
Quant Method : K:\VOA111\2024\241113A\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-PA_ShortList - PA Short list113A01.D•



The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report



Technical Report for

Terraphase Engineering Inc.

BDH Philadelphia Refinery, PA

P044.001.001A

SGS Job Number: JE9101

Sampling Date: 04/09/25

Report to:

Terraphase Engineering Inc.
100 Canal Pointe Boulevard Suite 110
Princeton, NJ 08540
nick.scala@terraphase.com; EDD@terraphase.com;
karsen.orourke@terraphase.com
ATTN: Nick Scala

Total number of pages in report: 54

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

Olga Azarian
Technical Director

Client Service contact: Victoria Pushkova 732-329-0200
Certifications: NJ(12129),NY(10983),CA,CO,CT,FL,HI,IL,IN,KY,LA (120428),MA,MD,ME,MN,NC,NH,NV, AK (UST-103),AZ (AZ0786),PA(68-00408),RI,SC,TX (T104704234),UT,VA,WA,WV

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EHS.US.CustomerCare@sgs.com

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Sample Summary

Terraphase Engineering Inc.

Job No: JE9101

BDH Philadelphia Refinery, PA
Project No: P044.001.001A

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
This report contains results reported as ND = Not detected. The following applies:							
Organics ND = Not detected above the MDL							
JE9101-1	04/09/25	09:25	KK	04/09/25	SO	Soil	301-Z05-SG
JE9101-2	04/09/25	10:00	KK	04/09/25	SO	Soil	301-AA08-SG
JE9101-3	04/09/25	10:30	KK	04/09/25	SO	Soil	301-AA07-SG
JE9101-4	04/09/25	11:00	KK	04/09/25	SO	Soil	301-AB06-SG
JE9101-5	04/09/25	11:45	KK	04/09/25	SO	Soil	301-AB07-SG

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Summary of Hits

Job Number: JE9101
Account: Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA
Collected: 04/09/25

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JE9101-1	**301-Z05-SG**					
Ethylbenzene		0.0449	0.0011	0.00049	mg/kg	SW846 8260D
Xylene (total)		0.293	0.0011	0.00049	mg/kg	SW846 8260D
Benzo(a)anthracene		0.0291 J	0.040	0.011	mg/kg	SW846 8270E
Benzo(a)pyrene		0.0322 J	0.040	0.018	mg/kg	SW846 8270E
Benzo(b)fluoranthene		0.0562	0.040	0.018	mg/kg	SW846 8270E
Benzo(g,h,i)perylene		0.0377 J	0.040	0.020	mg/kg	SW846 8270E
Chrysene		0.0353 J	0.040	0.013	mg/kg	SW846 8270E
Phenanthrene		0.0137 J	0.040	0.013	mg/kg	SW846 8270E
Pyrene		0.0436	0.040	0.013	mg/kg	SW846 8270E
Lead		8.7	2.5		mg/kg	SW846 6010D
JE9101-2	**301-AA08-SG**					
Benzo(a)anthracene		0.0249 J	0.040	0.011	mg/kg	SW846 8270E
Benzo(a)pyrene		0.0309 J	0.040	0.018	mg/kg	SW846 8270E
Benzo(b)fluoranthene		0.0454	0.040	0.018	mg/kg	SW846 8270E
Benzo(g,h,i)perylene		0.0296 J	0.040	0.020	mg/kg	SW846 8270E
Chrysene		0.0384 J	0.040	0.013	mg/kg	SW846 8270E
Pyrene		0.0399 J	0.040	0.013	mg/kg	SW846 8270E
Lead		8.1	2.5		mg/kg	SW846 6010D
JE9101-3	**301-AA07-SG**					
Ethylbenzene		0.0049	0.00096	0.00044	mg/kg	SW846 8260D
Xylene (total)		0.0372	0.00096	0.00044	mg/kg	SW846 8260D
Benzo(a)anthracene		0.0259 J	0.037	0.011	mg/kg	SW846 8270E
Benzo(a)pyrene		0.0314 J	0.037	0.017	mg/kg	SW846 8270E
Benzo(b)fluoranthene		0.0450	0.037	0.016	mg/kg	SW846 8270E
Benzo(g,h,i)perylene		0.0290 J	0.037	0.019	mg/kg	SW846 8270E
Chrysene		0.0375	0.037	0.012	mg/kg	SW846 8270E
Phenanthrene		0.0160 J	0.037	0.012	mg/kg	SW846 8270E
Pyrene		0.0439	0.037	0.012	mg/kg	SW846 8270E
Lead		8.4	2.3		mg/kg	SW846 6010D
JE9101-4	**301-AB06-SG**					
Anthracene		0.0258 J	0.037	0.023	mg/kg	SW846 8270E
Benzo(a)anthracene		0.0920	0.037	0.011	mg/kg	SW846 8270E
Benzo(a)pyrene		0.0898	0.037	0.017	mg/kg	SW846 8270E
Benzo(b)fluoranthene		0.123	0.037	0.017	mg/kg	SW846 8270E
Benzo(g,h,i)perylene		0.0682	0.037	0.019	mg/kg	SW846 8270E
Chrysene		0.0935	0.037	0.012	mg/kg	SW846 8270E
Phenanthrene		0.0867	0.037	0.013	mg/kg	SW846 8270E

Summary of Hits

Job Number: JE9101
Account: Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA
Collected: 04/09/25

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Pyrene		0.171	0.037	0.012	mg/kg	SW846 8270E
Lead		13.2	2.3		mg/kg	SW846 6010D
JE9101-5	**301-AB07-SG**					
Benzo(a)anthracene		0.0199 J	0.040	0.011	mg/kg	SW846 8270E
Benzo(a)pyrene		0.0261 J	0.040	0.018	mg/kg	SW846 8270E
Benzo(b)fluoranthene		0.0414	0.040	0.018	mg/kg	SW846 8270E
Benzo(g,h,i)perylene		0.0278 J	0.040	0.020	mg/kg	SW846 8270E
Chrysene		0.0297 J	0.040	0.012	mg/kg	SW846 8270E
Phenanthrene		0.0132 J	0.040	0.013	mg/kg	SW846 8270E
Pyrene		0.0342 J	0.040	0.013	mg/kg	SW846 8270E
Lead		7.4	2.5		mg/kg	SW846 6010D

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	301-Z05-SG		
Lab Sample ID:	JE9101-1	**Date Sampled:**	04/09/25
Matrix:	SO - Soil	**Date Received:**	04/09/25
Method:	SW846 8260D	**Percent Solids:**	83.1
Project:	BDH Philadelphia Refinery, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y214172.D	1	04/11/25 23:20	PS	n/a	n/a	VY9244
Run #2							

	Initial Weight
Run #1	5.6 g
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00054	0.00049	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.0011	0.00045	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0011	0.00050	mg/kg	
100-41-4	Ethylbenzene	0.0449	0.0011	0.00049	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0021	0.0015	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0011	0.00050	mg/kg	
108-88-3	Toluene	ND	0.0011	0.00056	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0021	0.00054	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0021	0.00046	mg/kg	
1330-20-7	Xylene (total)	0.293	0.0011	0.00049	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	87%		80-124%
17060-07-0	1,2-Dichloroethane-D4	89%		75-133%
2037-26-5	Toluene-D8	104%		79-125%
460-00-4	4-Bromofluorobenzene	108%		58-148%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	301-Z05-SG		
Lab Sample ID:	JE9101-1	**Date Sampled:**	04/09/25
Matrix:	SO - Soil	**Date Received:**	04/09/25
Method:	SW846 8270E SW846 3546	**Percent Solids:**	83.1
Project:	BDH Philadelphia Refinery, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P123868.D	1	04/14/25 17:22	AO	04/11/25 18:10	OP62705	E2P5578
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.040	0.025	mg/kg	
56-55-3	Benzo(a)anthracene	0.0291	0.040	0.011	mg/kg	J
50-32-8	Benzo(a)pyrene	0.0322	0.040	0.018	mg/kg	J
205-99-2	Benzo(b)fluoranthene	0.0562	0.040	0.018	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0377	0.040	0.020	mg/kg	J
218-01-9	Chrysene	0.0353	0.040	0.013	mg/kg	J
86-73-7	Fluorene	ND	0.040	0.018	mg/kg	
91-20-3	Naphthalene	ND	0.040	0.011	mg/kg	
85-01-8	Phenanthrene	0.0137	0.040	0.013	mg/kg	J
129-00-0	Pyrene	0.0436	0.040	0.013	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	52%		10-109%
321-60-8	2-Fluorobiphenyl	58%		11-109%
1718-51-0	Terphenyl-d14	64%		10-120%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	301-Z05-SG		
Lab Sample ID:	JE9101-1	**Date Sampled:**	04/09/25
Matrix:	SO - Soil	**Date Received:**	04/09/25
		Percent Solids:	83.1
Project:	BDH Philadelphia Refinery, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	8.7	2.5	mg/kg	1	04/14/25	04/14/25	KP	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA58304
(2) Prep QC Batch: MP53815

RL = Reporting Limit

Report of Analysis

Client Sample ID:	301-AA08-SG		
Lab Sample ID:	JE9101-2	**Date Sampled:**	04/09/25
Matrix:	SO - Soil	**Date Received:**	04/09/25
Method:	SW846 8260D	**Percent Solids:**	83.1
Project:	BDH Philadelphia Refinery, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y214168.D	1	04/11/25 21:53	PS	n/a	n/a	VY9244
Run #2							

	Initial Weight
Run #1	7.0 g
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00043	0.00039	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00086	0.00036	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00086	0.00040	mg/kg	
100-41-4	Ethylbenzene	ND	0.00086	0.00039	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0017	0.0012	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00086	0.00040	mg/kg	
108-88-3	Toluene	ND	0.00086	0.00045	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0017	0.00043	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0017	0.00037	mg/kg	
1330-20-7	Xylene (total)	ND	0.00086	0.00039	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		80-124%
17060-07-0	1,2-Dichloroethane-D4	94%		75-133%
2037-26-5	Toluene-D8	100%		79-125%
460-00-4	4-Bromofluorobenzene	105%		58-148%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	301-AA08-SG		
Lab Sample ID:	JE9101-2	**Date Sampled:**	04/09/25
Matrix:	SO - Soil	**Date Received:**	04/09/25
Method:	SW846 8270E SW846 3546	**Percent Solids:**	83.1
Project:	BDH Philadelphia Refinery, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P123869.D	1	04/14/25 17:40	AO	04/11/25 18:10	OP62705	E2P5578
Run #2							

	Initial Weight	Final Volume
Run #1	30.3 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.040	0.024	mg/kg	
56-55-3	Benzo(a)anthracene	0.0249	0.040	0.011	mg/kg	J
50-32-8	Benzo(a)pyrene	0.0309	0.040	0.018	mg/kg	J
205-99-2	Benzo(b)fluoranthene	0.0454	0.040	0.018	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0296	0.040	0.020	mg/kg	J
218-01-9	Chrysene	0.0384	0.040	0.013	mg/kg	J
86-73-7	Fluorene	ND	0.040	0.018	mg/kg	
91-20-3	Naphthalene	ND	0.040	0.011	mg/kg	
85-01-8	Phenanthrene	ND	0.040	0.013	mg/kg	
129-00-0	Pyrene	0.0399	0.040	0.013	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	54%		10-109%
321-60-8	2-Fluorobiphenyl	60%		11-109%
1718-51-0	Terphenyl-d14	62%		10-120%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	301-AA08-SG		
Lab Sample ID:	JE9101-2	**Date Sampled:**	04/09/25
Matrix:	SO - Soil	**Date Received:**	04/09/25
		Percent Solids:	83.1
Project:	BDH Philadelphia Refinery, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	8.1	2.5	mg/kg	1	04/14/25	04/14/25	KP	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA58304
(2) Prep QC Batch: MP53815

RL = Reporting Limit

Report of Analysis

Client Sample ID:	301-AA07-SG		
Lab Sample ID:	JE9101-3	**Date Sampled:**	04/09/25
Matrix:	SO - Soil	**Date Received:**	04/09/25
Method:	SW846 8260D	**Percent Solids:**	87.9
Project:	BDH Philadelphia Refinery, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y214169.D	1	04/11/25 22:15	PS	n/a	n/a	VY9244
Run #2							

	Initial Weight
Run #1	5.9 g
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00048	0.00044	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00096	0.00041	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00096	0.00045	mg/kg	
100-41-4	Ethylbenzene	0.0049	0.00096	0.00044	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0019	0.0014	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00096	0.00045	mg/kg	
108-88-3	Toluene	ND	0.00096	0.00051	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0019	0.00048	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0019	0.00042	mg/kg	
1330-20-7	Xylene (total)	0.0372	0.00096	0.00044	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%		80-124%
17060-07-0	1,2-Dichloroethane-D4	94%		75-133%
2037-26-5	Toluene-D8	100%		79-125%
460-00-4	4-Bromofluorobenzene	103%		58-148%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	301-AA07-SG		
Lab Sample ID:	JE9101-3	**Date Sampled:**	04/09/25
Matrix:	SO - Soil	**Date Received:**	04/09/25
Method:	SW846 8270E SW846 3546	**Percent Solids:**	87.9
Project:	BDH Philadelphia Refinery, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P123870.D	1	04/14/25 17:58	AO	04/11/25 18:10	OP62705	E2P5578
Run #2							

	Initial Weight	Final Volume
Run #1	30.6 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.037	0.023	mg/kg	
56-55-3	Benzo(a)anthracene	0.0259	0.037	0.011	mg/kg	J
50-32-8	Benzo(a)pyrene	0.0314	0.037	0.017	mg/kg	J
205-99-2	Benzo(b)fluoranthene	0.0450	0.037	0.016	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0290	0.037	0.019	mg/kg	J
218-01-9	Chrysene	0.0375	0.037	0.012	mg/kg	
86-73-7	Fluorene	ND	0.037	0.017	mg/kg	
91-20-3	Naphthalene	ND	0.037	0.010	mg/kg	
85-01-8	Phenanthrene	0.0160	0.037	0.012	mg/kg	J
129-00-0	Pyrene	0.0439	0.037	0.012	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	56%		10-109%
321-60-8	2-Fluorobiphenyl	58%		11-109%
1718-51-0	Terphenyl-d14	63%		10-120%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	301-AA07-SG		
Lab Sample ID:	JE9101-3	**Date Sampled:**	04/09/25
Matrix:	SO - Soil	**Date Received:**	04/09/25
		Percent Solids:	87.9
Project:	BDH Philadelphia Refinery, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	8.4	2.3	mg/kg	1	04/14/25	04/14/25	KP	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA58304
(2) Prep QC Batch: MP53815

RL = Reporting Limit

Report of Analysis

Client Sample ID:	301-AB06-SG		
Lab Sample ID:	JE9101-4	**Date Sampled:**	04/09/25
Matrix:	SO - Soil	**Date Received:**	04/09/25
Method:	SW846 8260D	**Percent Solids:**	88.3
Project:	BDH Philadelphia Refinery, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y214170.D	1	04/11/25 22:37	PS	n/a	n/a	VY9244
Run #2							

	Initial Weight
Run #1	5.7 g
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00050	0.00045	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00099	0.00042	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00099	0.00047	mg/kg	
100-41-4	Ethylbenzene	ND	0.00099	0.00045	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0020	0.0014	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00099	0.00047	mg/kg	
108-88-3	Toluene	ND	0.00099	0.00052	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0020	0.00050	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0020	0.00043	mg/kg	
1330-20-7	Xylene (total)	ND	0.00099	0.00045	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		80-124%
17060-07-0	1,2-Dichloroethane-D4	97%		75-133%
2037-26-5	Toluene-D8	102%		79-125%
460-00-4	4-Bromofluorobenzene	108%		58-148%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	301-AB06-SG		
Lab Sample ID:	JE9101-4	**Date Sampled:**	04/09/25
Matrix:	SO - Soil	**Date Received:**	04/09/25
Method:	SW846 8270E SW846 3546	**Percent Solids:**	88.3
Project:	BDH Philadelphia Refinery, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P123871.D	1	04/14/25 18:17	AO	04/11/25 18:10	OP62705	E2P5578
Run #2							

	Initial Weight	Final Volume
Run #1	30.3 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	0.0258	0.037	0.023	mg/kg	J
56-55-3	Benzo(a)anthracene	0.0920	0.037	0.011	mg/kg	
50-32-8	Benzo(a)pyrene	0.0898	0.037	0.017	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.123	0.037	0.017	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0682	0.037	0.019	mg/kg	
218-01-9	Chrysene	0.0935	0.037	0.012	mg/kg	
86-73-7	Fluorene	ND	0.037	0.017	mg/kg	
91-20-3	Naphthalene	ND	0.037	0.011	mg/kg	
85-01-8	Phenanthrene	0.0867	0.037	0.013	mg/kg	
129-00-0	Pyrene	0.171	0.037	0.012	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	64%		10-109%
321-60-8	2-Fluorobiphenyl	70%		11-109%
1718-51-0	Terphenyl-d14	75%		10-120%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	301-AB06-SG		
Lab Sample ID:	JE9101-4	**Date Sampled:**	04/09/25
Matrix:	SO - Soil	**Date Received:**	04/09/25
		Percent Solids:	88.3
Project:	BDH Philadelphia Refinery, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	13.2	2.3	mg/kg	1	04/14/25	04/14/25	KP	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA58304
(2) Prep QC Batch: MP53815

RL = Reporting Limit

Report of Analysis

Client Sample ID:	301-AB07-SG		
Lab Sample ID:	JE9101-5	**Date Sampled:**	04/09/25
Matrix:	SO - Soil	**Date Received:**	04/09/25
Method:	SW846 8260D	**Percent Solids:**	83.9
Project:	BDH Philadelphia Refinery, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y214171.D	1	04/11/25 22:58	PS	n/a	n/a	VY9244
Run #2							

	Initial Weight
Run #1	6.2 g
Run #2	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00048	0.00044	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.00096	0.00040	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00096	0.00045	mg/kg	
100-41-4	Ethylbenzene	ND	0.00096	0.00044	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0019	0.0014	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00096	0.00045	mg/kg	
108-88-3	Toluene	ND	0.00096	0.00050	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0019	0.00048	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0019	0.00041	mg/kg	
1330-20-7	Xylene (total)	ND	0.00096	0.00044	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		80-124%
17060-07-0	1,2-Dichloroethane-D4	95%		75-133%
2037-26-5	Toluene-D8	100%		79-125%
460-00-4	4-Bromofluorobenzene	104%		58-148%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	301-AB07-SG		
Lab Sample ID:	JE9101-5	**Date Sampled:**	04/09/25
Matrix:	SO - Soil	**Date Received:**	04/09/25
Method:	SW846 8270E SW846 3546	**Percent Solids:**	83.9
Project:	BDH Philadelphia Refinery, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P123872.D	1	04/14/25 18:35	AO	04/11/25 18:10	OP62705	E2P5578
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.040	0.024	mg/kg	
56-55-3	Benzo(a)anthracene	0.0199	0.040	0.011	mg/kg	J
50-32-8	Benzo(a)pyrene	0.0261	0.040	0.018	mg/kg	J
205-99-2	Benzo(b)fluoranthene	0.0414	0.040	0.018	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0278	0.040	0.020	mg/kg	J
218-01-9	Chrysene	0.0297	0.040	0.012	mg/kg	J
86-73-7	Fluorene	ND	0.040	0.018	mg/kg	
91-20-3	Naphthalene	ND	0.040	0.011	mg/kg	
85-01-8	Phenanthrene	0.0132	0.040	0.013	mg/kg	J
129-00-0	Pyrene	0.0342	0.040	0.013	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	55%		10-109%
321-60-8	2-Fluorobiphenyl	60%		11-109%
1718-51-0	Terphenyl-d14	63%		10-120%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	301-AB07-SG		
Lab Sample ID:	JE9101-5	**Date Sampled:**	04/09/25
Matrix:	SO - Soil	**Date Received:**	04/09/25
		Percent Solids:	83.9
Project:	BDH Philadelphia Refinery, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	7.4	2.5	mg/kg	1	04/14/25	04/14/25	KP	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA58304
(2) Prep QC Batch: MP53815

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SGS

So
SL

CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08810
~~TEL: 732-329-0200~~
www.sgs.com/ehsusa

Page 1 of 1

FED-EX Tracking #:
Bottle Order Control #: 326M-UP-031325-26
SGS Quote #:
SGS Job #: JE9101

Client / Reporting Information

Company Name: Terraphase Engineering
Street Address: 100 Canal Pointe Blvd
City: Princeton State: NJ Zip:
Project Contact: Nick.Scala@terraphase.com E-mail:
Phone #: 609 236 8171 x92
Sampler(s) Name(s): K. Kruzel, M. Maurer Phone #: 603 2757360

Project Information

Project Name: PESRM - BDH
Street: 3144 W. Passyunk Ave
City: Philadelphia State: PA
Project #: PO44.0010.01.A
Client Purchase Order #:
Project Manager: Nick Scala

Billing Information (If different from Report to)

Company Name:
Street Address:
City: State: Zip:
Attention:

Analysis Requested

Shortlist 1-5 VOCs 8260
Shortlist 1-5 SVOCs 8270
Lead 6010

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL - Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB - Field Blank
EB-Equipment Blank
RB - Rinse Blank
TB - Trip Blank

SGS Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Grab (G) Comp (C)	Source Chlorinated (Y/N)	Matrix	# of bottles	HCl	NaOH	HNO_3	H_2SO_4	NONE	DI Water	MEOH	ENCORE	pH Check (Lab Use Only)	LAB USE ONLY
1	301-205-SG		4/9/25	925	KK	G/c		So	5					2	2	1		X X X	D36
2	301-AA08-SG		4/9/25	1000	KK	G/c		So	5					2	2	1		X X X	L6T2
3	301-AA07-SG		4/9/25	1030	KK	G/c		So	5					2	2	1		X X X	14B2
4	301-AB06-SG		4/9/25	1100	KK	G/c		So	5					2	2	1		X X X	4444
5	301-AB07-SG		4/9/25	1145	KK	G/c		So	5					2	2	1		X X X	

Maurer / Maurer

Turn Around Time (Business Days)

Approved By (SGS PM) / Date:

- [ ] 10 Business Days
- [ ] 5 Business Days
- [ ] 3 Business Days*
- [ ] 2 Business Days*
- [ ] 1 Business Day*
- [ ] Other

Standard
TEI
TAT

All data available via SGS Engage
* Approval needed for 1-3 BD TAT

Deliverable

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] NJ Reduced (Level 3)
- [ ] Full Tier I (Level 4)
- [ ] Commercial "C"
- [ ] NJ DKQP
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] MA MCP Criteria
- [ ] CT RCP Criteria
- [ ] State Forms
- [x] EDD Format Equis

Commercial "A" = Results only; Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Please send EDDs to EDD@terraphase.com

http://www.sgs.com/en/terms-and-conditions

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished By:	Date / Time:	Received By:
1	[illegible]	4/9/25 1747	[illegible]
2			
3			K. Bowman 4/9/25
4			
5	K. Bowman 4/9/25 7:25 pm		James Kuo

Custody Seal #: ☐ Intact ☐ Not intact ☐ Absent
Therm ID: See Sample Receipt Summary
On Ice ☐
Cooler Temp. °C: 3.1 IR-50

EHSA-QAC-0023-06 Rev.Date:9/24/2024

Initial Assessment NF
Label Verification

SGS Sample Receipt Summary

Job Number: JE9101 **Client:** TERRAPHASE ENGINEERING INC. **Project:** BDH PHILADELPHIA REFINERY, PA

Date / Time Received: 4/9/2025 3:25:00 PM **Delivery Method:** COURIER **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (2.3);

Cooler Temps (Corrected) °C: Cooler 1: (2.8);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR-50		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Test Strip Lot #s: pH 1-12: 231619 pH 12+: 203117A Other: (Specify)

Comments

SM089-03
Rev. Date 12/7/17

JE9101: Chain of Custody
Page 2 of 2

MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (BFB)
- Surrogate Recovery Summaries

Method Blank Summary

Job Number: JE9101
Account: TERRPNJP Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY9244-MB	Y214152.D	1	04/11/25	PS	n/a	n/a	VY9244

The QC reported here applies to the following samples: **Method:** SW846 8260D

JE9101-1, JE9101-2, JE9101-3, JE9101-4, JE9101-5

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.46	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	0.42	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	0.47	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	0.45	ug/kg	
98-82-8	Isopropylbenzene	ND	2.0	1.4	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.47	ug/kg	
108-88-3	Toluene	ND	1.0	0.53	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.50	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.43	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	0.46	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	94%	80-124%
17060-07-0	1,2-Dichloroethane-D4	91%	75-133%
2037-26-5	Toluene-D8	100%	79-125%
460-00-4	4-Bromofluorobenzene	102%	58-148%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

Blank Spike Summary

Job Number: JE9101
Account: TERRPNJP Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY9244-BS	Y214150.D	1	04/11/25	PS	n/a	n/a	VY9244

The QC reported here applies to the following samples: **Method:** SW846 8260D

JE9101-1, JE9101-2, JE9101-3, JE9101-4, JE9101-5

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	46.6	93	82-119
106-93-4	1,2-Dibromoethane	50	55.8	112	58-145
107-06-2	1,2-Dichloroethane	50	42.6	85	76-118
100-41-4	Ethylbenzene	50	42.0	84	83-115
98-82-8	Isopropylbenzene	50	46.0	92	81-122
1634-04-4	Methyl Tert Butyl Ether	50	52.4	105	75-126
108-88-3	Toluene	50	45.2	90	82-118
95-63-6	1,2,4-Trimethylbenzene	50	50.4	101	80-119
108-67-8	1,3,5-Trimethylbenzene	50	50.4	101	79-120
1330-20-7	Xylene (total)	150	131	87	83-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	94%	80-124%
17060-07-0	1,2-Dichloroethane-D4	84%	75-133%
2037-26-5	Toluene-D8	96%	79-125%
460-00-4	4-Bromofluorobenzene	103%	58-148%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JE9101
Account: TERRPNJP Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JE9078-2MS	Y214155.D	1	04/11/25	PS	n/a	n/a	VY9244
JE9078-2MSD	Y214156.D	1	04/11/25	PS	n/a	n/a	VY9244
JE9078-2	Y214153.D	1	04/11/25	PS	n/a	n/a	VY9244

The QC reported here applies to the following samples: **Method:** SW846 8260D

JE9101-1, JE9101-2, JE9101-3, JE9101-4, JE9101-5

CAS No.	Compound	JE9078-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		63.3	56.5	89	63.3	53.1	84	6	61-132/13
106-93-4	1,2-Dibromoethane	ND		63.3	65.6	104	63.3	60.4	95	8	45-141/12
107-06-2	1,2-Dichloroethane	ND		63.3	51.7	82	63.3	47.9	76	8	64-119/12
100-41-4	Ethylbenzene	ND		63.3	49.7	78	63.3	45.6	72	9	51-133/19
98-82-8	Isopropylbenzene	ND		63.3	53.4	84	63.3	48.3	76	10	44-142/21
1634-04-4	Methyl Tert Butyl Ether	ND		63.3	61.9	98	63.3	57.1	90	8	62-125/12
108-88-3	Toluene	ND		63.3	55.0	87	63.3	50.3	79	9	56-135/15
95-63-6	1,2,4-Trimethylbenzene	ND		63.3	56.5	89	63.3	51.4	81	9	30-149/19
108-67-8	1,3,5-Trimethylbenzene	ND		63.3	57.2	90	63.3	51.8	82	10	36-145/19
1330-20-7	Xylene (total)	ND		190	155	82	190	141	74	9	50-138/17

CAS No.	Surrogate Recoveries	MS	MSD	JE9078-2	Limits
1868-53-7	Dibromofluoromethane	94%	94%	94%	80-124%
17060-07-0	1,2-Dichloroethane-D4	83%	83%	96%	75-133%
2037-26-5	Toluene-D8	98%	97%	99%	79-125%
460-00-4	4-Bromofluorobenzene	105%	105%	102%	58-148%

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Job Number: JE9101
Account: TERRPNJP Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

Sample: VY9183-BFB
Lab File ID: Y212423.D
Instrument ID: GCMSY
Injection Date: 01/30/25
Injection Time: 15:33

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	48419	20.4		Pass
75	30.0 - 60.0% of mass 95	122600	51.6		Pass
95	Base peak, 100% relative abundance	237696	100.0		Pass
96	5.0 - 9.0% of mass 95	15609	6.57		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	211885	89.1		Pass
175	5.0 - 9.0% of mass 174	16256	6.84	(7.67) [a]	Pass
176	95.0 - 101.0% of mass 174	202387	85.1	(95.5) [a]	Pass
177	5.0 - 9.0% of mass 176	13933	5.86	(6.88) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VY9183-IC9183	Y212424.D	01/30/25	16:05	00:32	Initial cal 0.2
VY9183-IC9183	Y212425.D	01/30/25	16:27	00:54	Initial cal 0.5
VY9183-IC9183	Y212426.D	01/30/25	16:49	01:16	Initial cal 1
VY9183-IC9183	Y212427.D	01/30/25	17:10	01:37	Initial cal 2
VY9183-IC9183	Y212428.D	01/30/25	17:32	01:59	Initial cal 4
VY9183-IC9183	Y212429.D	01/30/25	17:54	02:21	Initial cal 8
VY9183-IC9183	Y212430.D	01/30/25	18:16	02:43	Initial cal 20
VY9183-ICC9183	Y212431.D	01/30/25	18:38	03:05	Initial cal 50
VY9183-IC9183	Y212432.D	01/30/25	18:59	03:26	Initial cal 100
VY9183-IC9183	Y212433.D	01/30/25	19:21	03:48	Initial cal 200
VY9183-ICV9183	Y212436.D	01/30/25	20:26	04:53	Initial cal verification 50
VY9183-ICV9183	Y212437.D	01/30/25	20:48	05:15	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JE9101
Account: TERRPNJP Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

Sample: VY9244-BFB
Lab File ID: Y214148.D
Instrument ID: GCMSY
Injection Date: 04/11/25
Injection Time: 14:13

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	47294	18.5		Pass
75	30.0 - 60.0% of mass 95	96440	37.7		Pass
95	Base peak, 100% relative abundance	255680	100.0		Pass
96	5.0 - 9.0% of mass 95	17123	6.70		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	241621	94.5		Pass
175	5.0 - 9.0% of mass 174	19307	7.55	(7.99) [a]	Pass
176	95.0 - 101.0% of mass 174	233216	91.2	(96.5) [a]	Pass
177	5.0 - 9.0% of mass 176	16095	6.29	(6.90) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VY9244-CC9183	Y214148.D	04/11/25	14:13	00:00	Continuing cal 50
VY9244-CC9183	Y214149.D	04/11/25	14:44	00:31	Continuing cal 4
VY9244-BS	Y214150.D	04/11/25	15:06	00:53	Blank Spike
VY9244-MB	Y214152.D	04/11/25	16:05	01:52	Method Blank
JE9078-2	Y214153.D	04/11/25	16:27	02:14	(used for QC only; not part of job JE9101)
ZZZZZZ	Y214154.D	04/11/25	16:49	02:36	(unrelated sample)
JE9078-2MS	Y214155.D	04/11/25	17:10	02:57	Matrix Spike
JE9078-2MSD	Y214156.D	04/11/25	17:32	03:19	Matrix Spike Duplicate
ZZZZZZ	Y214158.D	04/11/25	18:16	04:03	(unrelated sample)
ZZZZZZ	Y214159.D	04/11/25	18:37	04:24	(unrelated sample)
ZZZZZZ	Y214160.D	04/11/25	18:59	04:46	(unrelated sample)
ZZZZZZ	Y214161.D	04/11/25	19:21	05:08	(unrelated sample)
ZZZZZZ	Y214162.D	04/11/25	19:43	05:30	(unrelated sample)
ZZZZZZ	Y214163.D	04/11/25	20:04	05:51	(unrelated sample)
ZZZZZZ	Y214164.D	04/11/25	20:26	06:13	(unrelated sample)
ZZZZZZ	Y214165.D	04/11/25	20:48	06:35	(unrelated sample)
ZZZZZZ	Y214166.D	04/11/25	21:10	06:57	(unrelated sample)
ZZZZZZ	Y214167.D	04/11/25	21:31	07:18	(unrelated sample)
JE9101-2	Y214168.D	04/11/25	21:53	07:40	301-AA08-SG
JE9101-3	Y214169.D	04/11/25	22:15	08:02	301-AA07-SG
JE9101-4	Y214170.D	04/11/25	22:37	08:24	301-AB06-SG
JE9101-5	Y214171.D	04/11/25	22:58	08:45	301-AB07-SG
JE9101-1	Y214172.D	04/11/25	23:20	09:07	301-Z05-SG

Surrogate Recovery Summary

Job Number: JE9101
Account: TERRPNJP Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

Method: SW846 8260D **Matrix:** SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
JE9101-1	Y214172.D	87	89	104	108
JE9101-2	Y214168.D	95	94	100	105
JE9101-3	Y214169.D	93	94	100	103
JE9101-4	Y214170.D	96	97	102	108
JE9101-5	Y214171.D	98	95	100	104
JE9078-2MS	Y214155.D	94	83	98	105
JE9078-2MSD	Y214156.D	94	83	97	105
VY9244-BS	Y214150.D	94	84	96	103
VY9244-MB	Y214152.D	94	91	100	102

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	80-124%
S2 = 1,2-Dichloroethane-D4	75-133%
S3 = Toluene-D8	79-125%
S4 = 4-Bromofluorobenzene	58-148%

MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (DFTPP)
- Surrogate Recovery Summaries

Method Blank Summary

Job Number: JE9101
Account: TERRPNJP Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP62705-MB1	P165088.D	1	04/14/25	AO	04/11/25	OP62705	EP7697

The QC reported here applies to the following samples: **Method:** SW846 8270E

JE9101-1, JE9101-2, JE9101-3, JE9101-4, JE9101-5

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	33	20	ug/kg	
56-55-3	Benzo(a)anthracene	ND	33	9.4	ug/kg	
50-32-8	Benzo(a)pyrene	ND	33	15	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	33	15	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	33	17	ug/kg	
218-01-9	Chrysene	ND	33	10	ug/kg	
86-73-7	Fluorene	ND	33	15	ug/kg	
91-20-3	Naphthalene	ND	33	9.4	ug/kg	
85-01-8	Phenanthrene	ND	33	11	ug/kg	
129-00-0	Pyrene	ND	33	11	ug/kg	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	58%	10-99%
4165-62-2	Phenol-d5	52%	10-96%
118-79-6	2,4,6-Tribromophenol	62%	10-123%
4165-60-0	Nitrobenzene-d5	61%	10-109%
321-60-8	2-Fluorobiphenyl	54%	11-109%
1718-51-0	Terphenyl-d14	69%	10-120%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Semi-Volatile		0	ug/kg	

Blank Spike Summary

Job Number: JE9101
Account: TERRPNJP Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP62705-BS1	P165089.D	1	04/14/25	AO	04/11/25	OP62705	EP7697

The QC reported here applies to the following samples: **Method:** SW846 8270E

JE9101-1, JE9101-2, JE9101-3, JE9101-4, JE9101-5

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
120-12-7	Anthracene	1670	1110	67	10-144
56-55-3	Benzo(a)anthracene	1670	1070	64	11-139
50-32-8	Benzo(a)pyrene	1670	1130	68	13-141
205-99-2	Benzo(b)fluoranthene	1670	1120	67	14-140
191-24-2	Benzo(g,h,i)perylene	1670	1060	64	13-138
218-01-9	Chrysene	1670	1080	65	11-139
86-73-7	Fluorene	1670	1020	61	12-139
91-20-3	Naphthalene	1670	788	47	10-141
85-01-8	Phenanthrene	1670	1080	65	10-142
129-00-0	Pyrene	1670	1060	64	13-141

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	52%	10-99%
4165-62-2	Phenol-d5	54%	10-96%
118-79-6	2,4,6-Tribromophenol	68%	10-123%
4165-60-0	Nitrobenzene-d5	58%	10-109%
321-60-8	2-Fluorobiphenyl	59%	11-109%
1718-51-0	Terphenyl-d14	66%	10-120%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JE9101
Account: TERRPNJP Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP62705-MS	P165095.D	1	04/14/25	AO	04/11/25	OP62705	EP7697
OP62705-MSD	P165096.D	1	04/14/25	AO	04/11/25	OP62705	EP7697
JE9076-1	P165097.D	1	04/14/25	AO	04/11/25	OP62705	EP7697

The QC reported here applies to the following samples: **Method:** SW846 8270E

JE9101-1, JE9101-2, JE9101-3, JE9101-4, JE9101-5

CAS No.	Compound	JE9076-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
120-12-7	Anthracene	151		1940	1170	53	1940	628	25	60	10-166/88
56-55-3	Benzo(a)anthracene	481		1940	1690	62	1940	637	8* [a]	91* [b]	10-163/88
50-32-8	Benzo(a)pyrene	549		1940	1740	62	1940	662	6* [a]	90* [b]	10-163/89
205-99-2	Benzo(b)fluoranthene	652		1940	1970	68	1940	672	1* [a]	98* [b]	10-156/91
191-24-2	Benzo(g,h,i)perylene	356		1940	1360	52	1940	607	13	77	10-158/89
218-01-9	Chrysene	571		1940	1830	65	1940	654	4* [a]	95* [b]	10-164/87
86-73-7	Fluorene	41.6		1940	974	48	1940	567	27	53	10-158/87
91-20-3	Naphthalene	42.0		1940	834	41	1940	424	20	65	10-146/87
85-01-8	Phenanthrene	506		1940	1780	66	1940	651	7* [a]	93	10-158/95
129-00-0	Pyrene	889		1940	2420	79	1940	724	-8* [a]	108* [b]	10-176/90

CAS No.	Surrogate Recoveries	MS	MSD	JE9076-1	Limits
367-12-4	2-Fluorophenol	40%	26%	28%	10-99%
4165-62-2	Phenol-d5	45%	30%	27%	10-96%
118-79-6	2,4,6-Tribromophenol	54%	35%	33%	10-123%
4165-60-0	Nitrobenzene-d5	42%	26%	29%	10-109%
321-60-8	2-Fluorobiphenyl	48%	30%	30%	11-109%
1718-51-0	Terphenyl-d14	49%	33%	30%	10-120%

(a) Outside control limits due to possible interference
(b) Analytical precision exceeds in-house control limits.

* = Outside of Control Limits.

Instrument Performance Check (DFTPP)

Job Number: JE9101
Account: TERRPNJP Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

Sample:	E2P5549-DFTPP	**Injection Date:**	03/07/25
Lab File ID:	2P123203.D	**Injection Time:**	11:46
Instrument ID:	GCMS2P		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	21704	37.0		Pass
68	Less than 2.0% of mass 69	239	0.41	(1.06) [a]	Pass
69	Mass 69 relative abundance	22638	38.6		Pass
70	Less than 2.0% of mass 69	109	0.19	(0.48) [a]	Pass
127	40.0 - 60.0% of mass 198	29072	49.6		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	58624	100.0		Pass
199	5.0 - 9.0% of mass 198	3938	6.72		Pass
275	10.0 - 30.0% of mass 198	15654	26.7		Pass
365	1.0 - 100.0% of mass 198	1576	2.69		Pass
441	Present, but less than mass 443	6006	10.2	(85.4) [b]	Pass
442	40.0 - 100.0% of mass 198	37752	64.4		Pass
443	17.0 - 23.0% of mass 442	7032	12.0	(18.6) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E2P5549-ICC5549	2P123204.D	03/07/25	12:00	00:14	Initial cal 50
E2P5549-IC5549	2P123205.D	03/07/25	12:20	00:34	Initial cal 1
E2P5549-IC5549	2P123206.D	03/07/25	12:38	00:52	Initial cal 2
E2P5549-IC5549	2P123207.D	03/07/25	12:56	01:10	Initial cal 5
E2P5549-IC5549	2P123208.D	03/07/25	13:14	01:28	Initial cal 10
E2P5549-IC5549	2P123209.D	03/07/25	13:33	01:47	Initial cal 25
E2P5549-IC5549	2P123210.D	03/07/25	13:51	02:05	Initial cal 80
E2P5549-IC5549	2P123211.D	03/07/25	14:09	02:23	Initial cal 100
E2P5549-IC5549	2P123212.D	03/07/25	14:27	02:41	Initial cal 1
E2P5549-IC5549	2P123213.D	03/07/25	14:46	03:00	Initial cal 2
E2P5549-IC5549	2P123214.D	03/07/25	15:04	03:18	Initial cal 5
E2P5549-IC5549	2P123215.D	03/07/25	15:23	03:37	Initial cal 10
E2P5549-IC5549	2P123216.D	03/07/25	15:41	03:55	Initial cal 25
E2P5549-IC5549	2P123217.D	03/07/25	15:59	04:13	Initial cal 50
E2P5549-IC5549	2P123218.D	03/07/25	16:17	04:31	Initial cal 80
E2P5549-IC5549	2P123219.D	03/07/25	16:36	04:50	Initial cal 100
E2P5549-ICV5549	2P123220.D	03/07/25	16:54	05:08	Initial cal verification 50
E2P5549-ICV5549	2P123221.D	03/07/25	17:13	05:27	Initial cal verification 50
E2P5549-ICV5549	2P123223.D	03/07/25	17:49	06:03	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JE9101
Account: TERRPNJP Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

Sample:	E2P5550-DFTPP	**Injection Date:**	03/11/25
Lab File ID:	2P123224.D	**Injection Time:**	11:38
Instrument ID:	GCMS2P		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	27248	38.8		Pass
68	Less than 2.0% of mass 69	464	0.66	(1.63) [a]	Pass
69	Mass 69 relative abundance	28437	40.5		Pass
70	Less than 2.0% of mass 69	186	0.27	(0.65) [a]	Pass
127	40.0 - 60.0% of mass 198	35629	50.8		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	70139	100.0		Pass
199	5.0 - 9.0% of mass 198	4915	7.01		Pass
275	10.0 - 30.0% of mass 198	17759	25.3		Pass
365	1.0 - 100.0% of mass 198	1829	2.61		Pass
441	Present, but less than mass 443	6388	9.11	(82.3) [b]	Pass
442	40.0 - 100.0% of mass 198	39926	56.9		Pass
443	17.0 - 23.0% of mass 442	7758	11.1	(19.4) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E2P5550-ICV5549	2P123225.D	03/11/25	11:55	00:17	Initial cal verification 50
E2P5551-CC5549	2P123227.D	03/12/25	08:15	20:37	Continuing cal 50
OP61993-MB1	2P123228.D	03/12/25	08:34	20:56	Method Blank
OP61993-LB7	2P123229.D	03/12/25	08:53	21:15	Leachate Blank
OP61993-BS1	2P123230.D	03/12/25	09:11	21:33	Blank Spike
ZZZZZZ	2P123231.D	03/12/25	09:29	21:51	(unrelated sample)
ZZZZZZ	2P123232.D	03/12/25	09:47	22:09	(unrelated sample)
JE6801-1	2P123233.D	03/12/25	10:06	22:28	(used for QC only; not part of job JE9101)
ZZZZZZ	2P123234.D	03/12/25	10:24	22:46	(unrelated sample)
ZZZZZZ	2P123235.D	03/12/25	10:41	23:03	(unrelated sample)
ZZZZZZ	2P123236.D	03/12/25	10:59	23:21	(unrelated sample)
ZZZZZZ	2P123237.D	03/12/25	11:18	23:40	(unrelated sample)
ZZZZZZ	2P123238.D	03/12/25	11:36	23:58	(unrelated sample)
ZZZZZZ	2P123239.D	03/12/25	11:54	24:16	(unrelated sample)
ZZZZZZ	2P123240.D	03/12/25	12:12	24:34	(unrelated sample)
ZZZZZZ	2P123241.D	03/12/25	12:30	24:52	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JE9101
Account: TERRPNJP Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

Sample:	EP7643-DFTPP	**Injection Date:**	01/21/25
Lab File ID:	P163762.D	**Injection Time:**	15:35
Instrument ID:	GCMSP		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	26902	31.7		Pass
68	Less than 2.0% of mass 69	542	0.64	(1.41) [a]	Pass
69	Mass 69 relative abundance	38395	45.2		Pass
70	Less than 2.0% of mass 69	267	0.31	(0.70) [a]	Pass
127	40.0 - 60.0% of mass 198	44542	52.4		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	84931	100.0		Pass
199	5.0 - 9.0% of mass 198	6561	7.73		Pass
275	10.0 - 30.0% of mass 198	23549	27.7		Pass
365	1.0 - 100.0% of mass 198	3174	3.74		Pass
441	Present, but less than mass 443	8525	10.0	(80.6) [b]	Pass
442	40.0 - 100.0% of mass 198	47733	56.2		Pass
443	17.0 - 23.0% of mass 442	10580	12.5	(22.2) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EP7643-ICC7643	P163763.D	01/21/25	15:45	00:10	Initial cal 50
EP7643-IC7643	P163764.D	01/21/25	16:11	00:36	Initial cal 1
EP7643-IC7643	P163765.D	01/21/25	16:36	01:01	Initial cal 2
EP7643-IC7643	P163766.D	01/21/25	18:07	02:32	Initial cal 5
EP7643-IC7643	P163767.D	01/21/25	18:32	02:57	Initial cal 10
EP7643-IC7643	P163768.D	01/21/25	18:57	03:22	Initial cal 25
EP7643-IC7643	P163769.D	01/21/25	19:22	03:47	Initial cal 80
EP7643-IC7643	P163770.D	01/21/25	19:47	04:12	Initial cal 100
EP7643-ICV7643	P163779.D	01/21/25	23:29	07:54	Initial cal verification 50
EP7643-ICV7643	P163780.D	01/21/25	23:54	08:19	Initial cal verification 50
EP7643-ICV7643	P163781.D	01/22/25	00:19	08:44	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JE9101
Account: TERRPNJP Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

Sample:	EP7644-DFTPP	**Injection Date:**	01/24/25
Lab File ID:	P163785.D	**Injection Time:**	11:23
Instrument ID:	GCMSP		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	22663	35.4		Pass
68	Less than 2.0% of mass 69	415	0.65	(1.39) [a]	Pass
69	Mass 69 relative abundance	29840	46.6		Pass
70	Less than 2.0% of mass 69	263	0.41	(0.88) [a]	Pass
127	40.0 - 60.0% of mass 198	35035	54.7		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	64045	100.0		Pass
199	5.0 - 9.0% of mass 198	4881	7.62		Pass
275	10.0 - 30.0% of mass 198	17053	26.6		Pass
365	1.0 - 100.0% of mass 198	2259	3.53		Pass
441	Present, but less than mass 443	6176	9.64	(86.9) [b]	Pass
442	40.0 - 100.0% of mass 198	34376	53.7		Pass
443	17.0 - 23.0% of mass 442	7108	11.1	(20.7) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EP7644-ICC7644	P163786.D	01/24/25	11:33	00:10	Initial cal 50
EP7644-IC7644	P163787.D	01/24/25	11:59	00:36	Initial cal 1
EP7644-IC7644	P163788.D	01/24/25	12:24	01:01	Initial cal 2
EP7644-IC7644	P163789.D	01/24/25	12:49	01:26	Initial cal 5
EP7644-IC7644	P163790.D	01/24/25	13:15	01:52	Initial cal 10
EP7644-IC7644	P163791.D	01/24/25	13:40	02:17	Initial cal 25
EP7644-IC7644	P163792.D	01/24/25	14:06	02:43	Initial cal 80
EP7644-IC7644	P163793.D	01/24/25	14:31	03:08	Initial cal 100
EP7644-ICV7644	P163794.D	01/24/25	14:56	03:33	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JE9101
Account: TERRPNJP Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

Sample:	EP7645-DFTPP	**Injection Date:**	01/28/25
Lab File ID:	P163796.D	**Injection Time:**	10:46
Instrument ID:	GCMSP		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	24762	34.5		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	34173	47.7		Pass
70	Less than 2.0% of mass 69	384	0.54	(1.12) [a]	Pass
127	40.0 - 60.0% of mass 198	39765	55.5		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	71704	100.0		Pass
199	5.0 - 9.0% of mass 198	5894	8.22		Pass
275	10.0 - 30.0% of mass 198	19409	27.1		Pass
365	1.0 - 100.0% of mass 198	2353	3.28		Pass
441	Present, but less than mass 443	6940	9.68	(89.8) [b]	Pass
442	40.0 - 100.0% of mass 198	36397	50.8		Pass
443	17.0 - 23.0% of mass 442	7730	10.8	(21.2) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EP7645-ICC7643	P163797.D	01/28/25	11:04	00:18	Initial cal 50
EP7645-IC7643	P163798.D	01/28/25	11:29	00:43	Initial cal 1
EP7645-IC7643	P163799.D	01/28/25	11:54	01:08	Initial cal 2
EP7645-IC7643	P163800.D	01/28/25	12:19	01:33	Initial cal 5
EP7645-IC7643	P163801.D	01/28/25	12:44	01:58	Initial cal 10
EP7645-IC7643	P163802.D	01/28/25	13:09	02:23	Initial cal 25
EP7645-IC7643	P163803.D	01/28/25	13:34	02:48	Initial cal 80
EP7645-IC7643	P163804.D	01/28/25	13:59	03:13	Initial cal 100
EP7645-ICV7643	P163805.D	01/28/25	15:41	04:55	Initial cal verification 50
EP7645-ICV7643	P163806.D	01/28/25	16:06	05:20	Initial cal verification 50
EP7645-ICV7643	P163807.D	01/28/25	16:31	05:45	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JE9101
Account: TERRPNJP Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

Sample:	EP7697-DFTPP	**Injection Date:**	04/14/25
Lab File ID:	P165075.D	**Injection Time:**	09:38
Instrument ID:	GCMSP		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	48579	33.5		Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
69	Mass 69 relative abundance	58523	40.3		Pass
70	Less than 2.0% of mass 69	437	0.30	(0.75) [a]	Pass
127	40.0 - 60.0% of mass 198	63085	43.5		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	145043	100.0		Pass
199	5.0 - 9.0% of mass 198	10182	7.02		Pass
275	10.0 - 30.0% of mass 198	39456	27.2		Pass
365	1.0 - 100.0% of mass 198	4638	3.20		Pass
441	Present, but less than mass 443	14047	9.68	(91.7) [b]	Pass
442	40.0 - 100.0% of mass 198	80731	55.7		Pass
443	17.0 - 23.0% of mass 442	15318	10.6	(19.0) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EP7697-CC7643	P165076.D	04/14/25	09:48	00:10	Continuing cal 50
EP7697-CC7645	P165078.D	04/14/25	10:37	00:59	Continuing cal 50
EP7697-CC7645	P165079.D	04/14/25	11:02	01:24	Continuing cal 5
EP7697-CC7643	P165080.D	04/14/25	11:26	01:48	Continuing cal 10
EP7697-CC7644	P165081.D	04/14/25	11:51	02:13	Continuing cal 50
ZZZZZZ	P165085.D	04/14/25	13:30	03:52	(unrelated sample)
OP62705-MB1	P165088.D	04/14/25	13:55	04:17	Method Blank
OP62705-BS1	P165089.D	04/14/25	14:19	04:41	Blank Spike
ZZZZZZ	P165090.D	04/14/25	14:44	05:06	(unrelated sample)
ZZZZZZ	P165092.D	04/14/25	15:33	05:55	(unrelated sample)
ZZZZZZ	P165093.D	04/14/25	15:58	06:20	(unrelated sample)
ZZZZZZ	P165094.D	04/14/25	16:23	06:45	(unrelated sample)
OP62705-MS	P165095.D	04/14/25	16:47	07:09	Matrix Spike
OP62705-MSD	P165096.D	04/14/25	17:12	07:34	Matrix Spike Duplicate
JE9076-1	P165097.D	04/14/25	17:36	07:58	(used for QC only; not part of job JE9101)
ZZZZZZ	P165098.D	04/14/25	18:01	08:23	(unrelated sample)
ZZZZZZ	P165099.D	04/14/25	18:26	08:48	(unrelated sample)
ZZZZZZ	P165100.D	04/14/25	18:50	09:12	(unrelated sample)
ZZZZZZ	P165101.D	04/14/25	19:15	09:37	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JE9101
Account: TERRPNJP Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

Sample:	EP7697-DFTPP	**Injection Date:**	04/14/25
Lab File ID:	P165075.D	**Injection Time:**	09:38
Instrument ID:	GCMSP		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	P165102.D	04/14/25	19:40	10:02	(unrelated sample)
ZZZZZZ	P165103.D	04/14/25	20:04	10:26	(unrelated sample)
ZZZZZZ	P165104.D	04/14/25	20:29	10:51	(unrelated sample)
ZZZZZZ	P165105.D	04/14/25	20:54	11:16	(unrelated sample)
ZZZZZZ	P165106.D	04/14/25	21:18	11:40	(unrelated sample)

Surrogate Recovery Summary

Job Number: JE9101
Account: TERRPNJP Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

Method: SW846 8270E **Matrix:** SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
JE9101-1	2P123868.D	52	58	64
JE9101-2	2P123869.D	54	60	62
JE9101-3	2P123870.D	56	58	63
JE9101-4	2P123871.D	64	70	75
JE9101-5	2P123872.D	55	60	63
OP62705-BS1	P165089.D	58	59	66
OP62705-MB1	P165088.D	61	54	69
OP62705-MS	P165095.D	42	48	49
OP62705-MSD	P165096.D	26	30	33

Surrogate Compounds	Recovery Limits
S1 = Nitrobenzene-d5	10-109%
S2 = 2-Fluorobiphenyl	11-109%
S3 = Terphenyl-d14	10-120%

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JE9101
Account: TERRPNJP - Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

QC Batch ID: MP53815
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 04/14/25

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	2.7	8.1		
Antimony	2.0	.22	.41		
Arsenic	2.0	.13	.28		
Barium	20	.1	1.9		
Beryllium	0.20	.02	.08		
Bismuth	2.0	.21	.52		
Boron	10	.1	3.7		
Cadmium	0.50	.02	.07		
Calcium	500	.77	21		
Chromium	1.0	.05	.37		
Cobalt	5.0	.04	.28		
Copper	2.5	.68	.84		
Iron	50	1.5	19		
Lead	2.0	.16	.41	0.020	<2.0
Lithium	5.0	.37	.92		
Magnesium	500	5.4	14		
Manganese	1.5	.01	.41		
Molybdenum	2.0	.05	.32		
Nickel	4.0	.03	.35		
Phosphorus	20	.18	3.3		
Potassium	1000	7.7	32		
Selenium	2.0	.2	.65		
Silicon	20	.13	11		
Silver	0.50	.09	.17		
Sodium	1000	2.3	78		
Strontium	5.0	.04	.18		
Sulfur	10	.41	3.9		
Thallium	1.0	.16	.58		
Tin	20	.09	3.8		
Titanium	1.0	.09	.34		
Tungsten	5.0	.2	1.8		
Vanadium	5.0	.08	.19		
Zinc	5.0	.02	2.3		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JE9101
Account: TERRPNJP - Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

QC Batch ID: MP53815 Methods: SW846 6010D
Matrix Type: SOLID Units: mg/kg

Prep Date: 04/14/25

Metal	RL	IDL	MDL	MB raw	final
Zirconium	2.0	.05	.54		

Associated samples MP53815: JE9101-1, JE9101-2, JE9101-3, JE9101-4, JE9101-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JE9101
Account: TERRPNJP - Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

QC Batch ID: MP53815
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 04/14/25

Metal	JE9184-15 Original MS		Spikelot MPSPK2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Bismuth					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead	40.6	248	237	87.6	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium					
Strontium					
Sulfur					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					
Zinc					

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JE9101
Account: TERRPNJP - Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

QC Batch ID: MP53815 Methods: SW846 6010D
Matrix Type: SOLID Units: mg/kg

Prep Date: 04/14/25

Metal	JE9184-15 Original MS	Spikelot MPSPK2	% Rec	QC Limits
Zirconium				

Associated samples MP53815: JE9101-1, JE9101-2, JE9101-3, JE9101-4, JE9101-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JE9101
Account: TERRPNJP - Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

QC Batch ID: MP53815
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 04/14/25

Metal	JE9184-15 Original	MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Bismuth						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead	40.6	256	236	91.1	3.2	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium						
Zinc						

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JE9101
Account: TERRPNJP - Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

QC Batch ID: MP53815 Methods: SW846 6010D
Matrix Type: SOLID Units: mg/kg

Prep Date: 04/14/25

Metal	JE9184-15 Original MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Zirconium					

Associated samples MP53815: JE9101-1, JE9101-2, JE9101-3, JE9101-4, JE9101-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JE9101
Account: TERRPNJP - Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

QC Batch ID: MP53815
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 04/14/25

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	185	200	92.5	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JE9101
Account: TERRPNJP - Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

QC Batch ID: MP53815
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 04/14/25

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Zirconium				

Associated samples MP53815: JE9101-1, JE9101-2, JE9101-3, JE9101-4, JE9101-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JE9101
Account: TERRPNJP - Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

QC Batch ID: MP53815
Matrix Type: SOLID

Methods: SW846 6010D
Units: ug/l

Prep Date: 04/14/25

Metal	JE9184-15 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	363	369	1.8	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

SERIAL DILUTION RESULTS SUMMARY

Login Number: JE9101
Account: TERRPNJP - Terraphase Engineering Inc.
Project: BDH Philadelphia Refinery, PA

QC Batch ID: MP53815 Methods: SW846 6010D
Matrix Type: SOLID Units: ug/l

Prep Date: 04/14/25

Metal	JE9184-15 Original SDL 1:5	%DIF	QC Limits
Zirconium			

Associated samples MP53815: JE9101-1, JE9101-2, JE9101-3, JE9101-4, JE9101-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

Appendix D
Vapor Intrusion Investigation Documents

October 31, 2023

Philadelphia Energy Solutions Refining and Marketing LLC
c/o Hilco Redevelopment Partners
Joseph Jeray, P.E., Vice President
99 Summer Street, Suite 1110
Boston, MA 02110

Re: Soil Vapor Sampling Results
Lot 15, 3144 West Passyunk Avenue
Philadelphia, Pennsylvania

Dear Mr. Jeray:

Cooperstown Environmental LLC ("Cooperstown") is pleased to herein provide the results of the soil vapor sampling conducted at Lot 15 in support of the redevelopment project located at 3144 West Passyunk Avenue in Philadelphia, Pennsylvania ("the Site"). This document provides a brief description of our project understanding, a discussion of the soil vapor sampling work plan and modifications made thereto, and a presentation of the sampling results, followed by a summary of observations for your consideration.

PROJECT UNDERSTANDING

Philadelphia Energy Solutions Refining and Marketing LLC ("PESRM"), acting as developer, has initiated a multi-building redevelopment at the Site, which was formerly an oil refinery. The first of the to-be-constructed buildings is planned for Lot 15. Soil and groundwater investigations conducted at Lot 15 prior to the subject soil vapor sampling event identified several petroleum hydrocarbons ("PHCs") as contaminants of concern ("COCs") with respect to the potential for vapor intrusion to future site buildings. In preparation for upcoming phases of the project, PESRM requested that Cooperstown prepare a soil vapor sampling plan for Lot 15. In addition to PHCs in soil vapor, PESRM requested that the plan include provisions for assessing concentrations of methane.

The end purpose of the sampling plan was to provide Clayco Corp. ("Clayco"), the General Contractor selected for the redevelopment of Lot 15, with a summary of existing soil vapor conditions to provide to their vapor intrusion mitigation system ("VIMS") design subcontractor for consideration in the design process. This procedure conforms with the prerequisites of the long form specification that was prepared for this project.

<u>Sampling Plan Considerations</u>
Derivation of the sampling plan was predicated on the need to inform the VIMS designer of the degree of vapor intrusion mitigation work necessary at Lot 15. The intent of the plan was to make available sufficient information such that the future designer would be able to incorporate the measures necessary to mitigate the potential for unacceptable exposures (i.e., those exposures that present health and safety risks) of future building occupants to Site COCs and methane, based on the designer's professional judgement. The sampling plan was <u>not</u> intended to assess the likelihood of a complete vapor intrusion pathway to the future building.

<u>Limitations</u>

As part of initial construction activities intended to prepare the desired ground surface for the future building, approximately 8 feet of pre-loading material (i.e., surcharge) was placed on the design level at Lot 15. Soil vapor sampling was conducted "through" this material, in general accordance with the recommendations of Cooperstown's August 28, 2023, Technical Memorandum, Langan Engineering and Environmental Services, Inc.'s ("Langan") September 8, 2023, VI Work Plan Addendum, and the narrative provided below.

SOIL GAS SAMPLING

In September 2023, Langan and their drilling subcontractor executed the soil vapor sampling plan that was prepared by Cooperstown. The proposed means and methods for the installation and sampling of soil vapor sampling points are provided in the Technical Memorandum and VI Work Plan Addendum included in **Exhibit A**. In general, these measures included:

- Demarcating a 70-grid pattern across the footprint of the future building.
- Installation of a soil vapor sampling implant (i.e., "point") in each grid cell via direct push methods.
- Soil gas purging of each sampling point following its installation and isolation (from atmospheric air) using valves, to allow for soil gas equilibration.
- Shut-in testing of summa canisters and appurtenances (valves, filters, fittings, and gauges).
- Assembly and leak testing of the shut-in-tested summa canisters and complete sampling trains (tubing, valves, wellhead connections, etc.) at each testing location.
- Purging of "dead volume" within each soil vapor sampling point/train and subsequent field screening of discharged soil gases.
- Collection of a soil vapor sample into each summa canister.
- Submission of samples to the laboratory under chain of custody protocols for analysis of VOCs via EPA Methods Toxic Organics ("TO")-15 and for methane via EPA Method 3C.

<u>Field Conditions</u>

Many of the proposed sampling locations were either unable to be installed or unable to be sampled, due to water in the subsurface or lack of soil gas (i.e., insufficient soil gas volume caused the sampling pump to pull a vacuum during purging). Initial direct-push installations of vapor sampling implants were attempted with Geoprobe Post Run Tubing® ("PRT"). During these installations, water from the sampling zone was either filling or actively being discharged from the sampling tubing. Presumably this phenomenon was associated with excess pore water pressure (i.e., the "extra" pressure, beyond hydrostatic) created by the emplaced surcharge. Attempting to mitigate this, Langan elected to employ Geoprobe Macro-Core® sample tubes to observe the depth to water and subsequently adjusted the soil vapor implant depth as needed based on soil core observations. Ultimately, 13 sampling locations were successfully installed and able to be purged and then either screened, sampled, or both, in the locations shown on **Exhibit B, Figure 1**.

To determine whether the subsurface water was perched from recent rainfall or if the regional groundwater table had risen to the future under-slab elevation, one set of couplet observation wells were installed within (and through) the surcharge. The shallower of the two wells was screened from approximately 9 to 14 feet below the top-of-surcharge grade, and the deeper was screened from approximately 15 to 25 feet. In a subsequent gauging event, the water level was measured at 8.1 feet below the top-of-casing in the shallow well, and at 20.95 feet below the top-of-casing in the deeper well.

SOIL GAS SAMPLING RESULTS

Results of the soil gas sampling, including laboratory analytical results, field screening measurements, and a figure denoting sampling locations are provided in **Exhibit B**. Due to an insufficient volume of gases having been collected in some of the samples, and to laboratory handling errors, only five of the thirteen submitted samples were able to be laboratory analyzed for methane.

Observations

Due to challenging field conditions and time constraints, many of the sampling locations were unable to be field screened or sampled. However, the soil vapor implants that were successfully installed are dispersed such that the extents of the planned building are reasonably represented (i.e., the installed wells are not clustered in one portion of the future building, so the collected data presents a suitable approximation of the conditions and potential variability within its footprint). The limited hydrogeological investigation conducted to evaluate encountered water conditions was consistent with past investigations which suggest that the regional groundwater table (located approximately 21 ft below top of casing; 13 ft below finished floor elevation) is unlikely to affect a future VIMS. Perched water encountered at approximately 9 ft below top of casing is likely due to excessive rainfall near the time of sampling and pore water released during surcharge-induced consolidation and is expected to dissipate prior to construction. However, this should be verified when the surcharge is removed.

Where sample collection and laboratory analyses were successful, elevated[1] PHC concentrations were reported in soil gas above corresponding areas of groundwater contamination, as anticipated. The highest concentrations of PHCs were observed in the south-central portion of the future building footprint.

Field screening results for methane reported values within or above the percent-by-volume explosive range in four of the thirteen sampling locations, with two samples registering values between the lower explosive limit ("LEL") and the upper explosive limit ("UEL") and two samples reporting above the UEL. Laboratory results[2] reported just one of these four locations to be within the explosive range, with the other three reporting concentrations ≤1.2% methane by volume. Hydrogen sulfide was also measured with handheld instrumentation during field screenings; readings from all sampled locations reported <1% hydrogen sulfide by volume.

The above summarizes the results of soil gas investigations conducted at Lot 15 to date. Please feel free to contact me with any questions.

Very sincerely yours,
Cooperstown Environmental LLC

[1] Exceeding Pennsylvania Department of Environmental Protection Sub-Slab Residential and/or Sub-Slab Nonresidential Sub-Slab Soil Gas Statewide Health Standard VI Screening Values (September 2022).
[2] For sample A11, Method ASTM D1946, which utilizes gas chromatography and a thermal conductivity detector, was used to analyze for methane, instead of EPA Method 3C.



Isaac Anderson, SVP
Principal

Attachments

Exhibit A – Lot 15 Soil Technical Memorandum and Revised VI Workplan Addendum
Exhibit B – Lot 15 Soil Vapor Sampling Results

EXHIBIT A

August 28, 2023

Philadelphia Energy Solutions Refining and Marketing LLC
c/o Hilco Redevelopment Partners
Joseph Jeray, P.E., Vice President
99 Summer Street, Suite 1110
Boston, MA 02110

Re: Draft Soil Vapor Sampling Plan
Lot 15, 3144 West Passyunk Avenue
Philadelphia, Pennsylvania

Dear Mr. Jeray:

Cooperstown Environmental LLC ("Cooperstown") is pleased to provide this Technical Memorandum describing a soil vapor sampling plan in support of the redevelopment project located at 3144 West Passyunk Avenue in Philadelphia, Pennsylvania ("the Site"). This document provides a brief description of our project understanding, followed by the recommended means and methods for conducting soil vapor investigations.

PROJECT UNDERSTANDING

Philadelphia Energy Solutions Refining and Marketing LLC ("PESRM"), acting as developer, has initiated a multi-building redevelopment at the Site, which was formerly an oil refinery. In total, twenty-two buildings covering a footprint of approximately twelve million square feet are planned for the redevelopment. The first of the to-be-constructed buildings is planned for Lot 15. Soil and groundwater investigations conducted at Lot 15 to date have identified several petroleum hydrocarbons ("PHCs") as contaminants of concern ("COCs") with respect to the potential for vapor intrusion to future site buildings. Soil vapor sampling across Lot 15 is yet to be conducted, as mass grading and general remediation work is only now approaching its conclusion. In preparation for the next phase of the project, you requested that Cooperstown prepare a soil vapor sampling plan for Lot 15. In addition to PHCs in soil vapor, you requested that the plan include provisions for assessing concentrations of methane.

Regulatory Considerations

Cooperstown understands that the sampling plan is predicated on the need to define the *degree of vapor intrusion mitigation work necessary* at Lot 15 so as to minimize the potential for unacceptable exposure of future building occupants to Site COCs and methane. The scope of this work is not intended to preclude the to-be-constructed Lot 15 building from undergoing mitigation measures. In other words, the work is not intended to assess the vapor intrusion pathway and whether it is complete per Pennsylvania Department of Environmental Protection ("PADEP") requirements, rather to determine what type of vapor intrusion mitigation system ("VIMS") is warranted.

Logistical Considerations

PESRM has informed Cooperstown that 6 to 8 feet of pre-loading material (i.e., surcharge) will be placed on the design level (i.e., the desired ground surface) at Lot 15. Per our earlier email correspondence, no drainage structures or utilities are being installed within the surcharge pile and the

top of the pile will be prepared by others to accommodate the use of a drill rig for installation of soil vapor sampling "points".

SOIL GAS SAMPLING PLAN

Cooperstown has prepared this soil vapor sampling plan in accordance with our July 19, 2023, proposal. The following outlines results of the work described as Task 1 therein:

Lot 15 Data Review

Prior to development of this sampling plan, Cooperstown reviewed pertinent information relating to environmental investigations that have taken place in Area of Interest ("AOI")-1, also known as the Point Breeze No. 1 Tank Farm, where the future Lot 15 building will reside. This information was made available to us in part by PESRM and was also found on the Philadelphia Refinery Legacy Remediation website[1] that is hosted by Evergreen Resources Group, LLC ("Evergreen"), who is responsible for subgrade Site investigations and remediation of "legacy" (i.e., pre-2012) contamination. The following summarizes relevant findings:

- PESRM communicated that the depth to groundwater at the Site is generally between 15-25 feet below the pre-construction ground surface; boring logs from late 2022 tank farm monitoring well installations (that are in the vicinity of Lot 15) reported the depth to groundwater as being approximately 12-19 feet below surface grade.
- Groundwater flow has been determined by others to be the south/southeast and the current Conceptual Site Model ("CSM") attributes this flow direction to a leaking sewer line in the area.
- Native soil predominantly consists of layers of sand and gravel, exhibiting various degrees of grading, which are interspersed with the occasional lens of silt or clay backfill. Native layers are generally described in boring logs as "loose", with dense and fine-grained descriptions being applied to fill layers located closer to the ground surface (typically, from 0-10 feet).
- Exceedances of Non-Residential Vapor Intrusion Values in unconfined aquifer groundwater are present in the eastern third of Lot 15. Most samples were collected between 2009-2016, with only a few having been collected in 2022. Soil staining and petroleum odors were noted in unsaturated soils during the installation of PESRM groundwater monitoring well TG03-MW-04, in the northeast corner of the lot.
- Immediately to the southwest of the proposed building footprint lies a light non-aqueous phase liquid ("LNAPL") plume consisting of a mix of light and middle distillates. The plume appears to be the convergence of the individual light distillate and middle distillate plumes that are themselves adjoined to northwest and southwest sides of the mixed plume, respectively.

Soil Vapor Sampling Guidance & PADEP Requirements

Soil vapor sampling for the volatile organic compounds ("VOCs") that make up the Philadelphia Refinery Target Compound List (a PADEP-prescribed Site-specific analyte list – see **Exhibit A**) and methane, is to be conducted in general accordance with PADEP's January 2019 *Land Recycling Program Technical Guidance Manual Section IV* ("TGM Section IV")*: Vapor Intrusion*.

Analytical Methods

VOCs

[1] This website makes ACT 2 environmental reports readily accessible to the public and provides opportunity for public comment.

Per PADEP's TGM Section IV, EPA Method TO-15 is preferred for VOC analysis in vapor intrusion investigations.[2] Table IV-C-3 of that same document provides alternative methods for soil gas sampling, including EPA Method TO-15 SIM for low-level VOCs. Depending on the laboratory that is selected for VOC analysis, TO-15 reporting limits for the analytes listed in the Philadelphia Refinery Target Compound List ("Target Compound List") may already be below PADEP's sub-slab soil gas statewide health standard vapor intrusion screening values ("SV_{SS}"); in such an instance, EPA Method TO-15 SIM would not be necessary. We have confirmed that Alpha Analytical Laboratory meets the detection limits so that SIM would not be necessary for this testing. We have not investigated other laboratories for this purpose.

SVOCs

Table IV-C-3 prescribes EPA Method TO-17 for analysis of SVOCs to C-28; all the analytes listed in the Target Compound List have fewer than 28 carbon atoms and therefore could be sampled for using this method. However, none of the SVOCs analytes in the Target Compound List are included in PADEP's SV_{SS}s, nor are there statewide health standard vapor intrusion screening values ("SVGW") for SVOCs in groundwater, soil, soil gas, or indoor air. For this reason, and because of the low likelihood of SVOCs presenting more of a vapor intrusion-related health risk than VOCs, sampling of SVOCs in soil gas has been omitted from this sampling plan.

Methane

For analysis of fixed gases (including methane) in soil gas, TGM Section IV provides for the use of EPA Method 3C or ASTM 1946; EPA Method 3C has been selected for this sampling plan.

Sampling Point Installations

Soil vapor sampling points shall be installed in general accordance with TGM Section IV-Appendix C.

Prior to sampling point installations, a sampling grid shall be laid out across the future building footprint. Each grid cell shall be 64 feet x 74 feet and oriented as shown in the attached drawing, **X1.00, *Soil Vapor Sampling Plan***. Soil vapor sampling point borings shall be advanced via direct push to a depth that corresponds to the interval of the subsurface that is 4 feet below the design level for the future building slab[3]. Thereafter, sampling points shall be installed in accordance with Section 6.4 of Geoprobe Systems®' May 2006 Technical Bulletin No. MK3098 for soil vapor implants. In general, this entails installing a stainless-steel wire mesh screen (that is fitted to the sampling point tubing) through the drive rods and threading that screen (counterclockwise) into an expendable drive point (also called an "anchor") at the end of the rods. The annular space surrounding the screen is filled with glass beads or sand as the drive rods are being retracted, and 16-mesh bentonite (that is hydrated in "lifts" as the rods are being pulled) is used to create an air seal around the tubing to surface grade. An in-line valve shall be installed on the tubing and all above-grade components shall be protected with a short length of 2-inch PVC pipe with cap that is pushed into the soil. Use of 1/4-inch outside diameter Teflon tubing fitted with Swagelok ferrules (or equivalent compression-style non-reactive fittings) is recommended[4]. Following soil vapor sampling point installations, three well volumes shall be purged from the sampling points and the valves shall be closed.

[2] See Appendix C Section 8.d)

[3] This depth was selected to avoid the potential for cross-contamination of samples owing to contributions from potential source material in the surcharge pile. Generally, 3 feet is the minimum accepted depth below surface for the setting of exterior soil gas wells to prevent short-circuiting to the atmosphere/sample dilution, and 5 feet is preferred.

[4] TGM Section IV-Appendix C-8(a)ii for sampling QA/QC and Methods for sampling equipment.

It is important to diligently follow the field procedures for sealing above the sampling interval and to install the soil gas sampling points with care. It is also important to ensure that valve on the sample point tubing is closed after installation of the point and between sampling events, as barometric pressure fluctuations will induce cyclical inhalation of ambient air and exhalation of soil gas, both of which can compromise representativeness of the sample.

Sampling Procedures and QA/QC

Soil vapor sampling points shall be allowed to equilibrate for a minimum of 48 hours following installation (with the sampling point valve in the closed position) before sampling occurs. Soil gas sampling shall not take place within 72 hours after a rainfall event of a ½-inch or greater.

Sampling procedures for VOCs and methane shall generally adhere to the TGM Section IV guidelines. VOC and methane samples from each sampling grid shall be collected jointly, in a single, certified pre-cleaned 2.7-litre summa canister fitted with filter and flow regulator that is supplied by the selected laboratory. All sampling equipment shall be tagged with matching serial numbers provided by the laboratory. Shut-in testing of summa canisters and regulators shall be conducted prior to sample collection. Vacuum leak testing of full sampling trains shall also be conducted prior to sample collection. Methods for conducting these tests are described below:

Shut-in Testing

Remove the threaded cap from the summa canister and attach the analog gauge and regulator (this arrangement constitutes the "summa canister setup"). Tighten all fittings and then seal the end of the regulator with the threaded cap. Open the valve on the summa canister for 15 seconds and then close the valve again to allow the closed system to equilibrate[5]. There will now be vacuum in the tubing between the valve and capped end of the flow controller, which the regulator should register. Record the vacuum reading on the gauge; it should be within 4 inHg of the laboratory's recorded vacuum for the canister, if it is not, the summa canister cannot be utilized for sampling. Continue to monitor the pressure on the gauge for 3 to 5 minutes to ensure it does not change (i.e., that the fittings are tight and there are no leaks). If the vacuum reading changes, re-tighten the fittings and attempt the test again until there are no leaks, or it is determined that the summa canister cannot be used.

Vacuum Leak Testing and Purging of "Dead Volume" in Sampling Train

Vacuum Leak Testing. Leak testing of the sampling train (i.e., summa canister setup + the tubing connecting it to the well head) consist of connecting the sampling tubing to the summa canister setup utilizing the materials and methods specified in TGM Section IV (i.e., no use of silicone or polyethylene tubing) and described above, and then applying a fixed vacuum to the entire sampling train while monitoring it for pressure leaks, as indicated via use of a gauge. The gauge is connected to the sampling train tubing via a tee fitting, a second tee fitting connected to the tubing with an in-line valve is also attached to the tubing and used to evacuate the sampling train and hold pressure within. See **Figure X1.01** for a schematic of the sampling train.

To perform the vacuum leak testing, follow the steps below in order:

1. Following shut-in testing, assemble the sampling train and vacuum leak testing setup as shown for Methane and VOC in **Figure X1.01**.

[5] The "dead volume" within the tubing between the canister valve and brass cap could be interpreted as a leak if this equilibration were not allowed.

2. Make sure the valve on the sampling point is CLOSED.
3. Make sure the valve on the summa canister is CLOSED.
4. Make sure the in-line valve connected to the vacuum pump is OPEN.
5. Start the vacuum pump.
6. Observe the gauge, allow vacuum pump to evacuate air from the sampling train until the gauge reads -30 inHg.
7. Close the in-line valve connected to the vacuum pump and turn the vacuum pump off.
8. Observe the gauge for 1 minute to make sure there are no leaks (i.e., the gauge reading doesn't change).
9. Tighten fittings as necessary to stop any detected leaks.

Purging of "Dead Volume. Immediately prior to collecting the VOC and methane sample, purge approximately three times the "dead volume" of air within the sampling point, sampling train, and glass bead "sand" pack from each sampling point. Collect the purge volume in bags to verify the extracted volume. A photoionization detector ("PID") shall be used to measure total VOCs and a four-gas meter shall be used to monitor the lower explosive limit ("LEL") of the purged gas; these readings shall be recorded. After verifying the volume, measuring and recording the VOC concentration and LEL value, it may be discharged to the atmosphere.

To purge the dead volume, follow the steps below in order:

1. Immediately following vacuum leak testing, open the valve on the top of the wellhead, thereby allowing air from the well into the sampling train.
2. Open the in-line valve that is connected to the vacuum pump and start the vacuum pump.
3. Purge three "dead space" volumes of air, collecting the discharged air into Tedlar or Kynar bags to quantify the volume discharge.
4. Measure the air in the bag[6] with a PID and four-gas meter and record the total VOC concentration and reported LEL value.
5. Close the in-line valve connected to the vacuum pump and turn the vacuum pump off.
6. Open the valve on the summa canister to begin sample collection.
7. Open the valves on the sampling bags to discharge contents to the atmosphere.

After opening the valve, summa canister initial pressures and sampling times shall be recorded, and sampling shall proceed for the duration of the regulator. At the close of the sampling period (i.e., after closing the summa canister valve), final pressures and time shall also be recorded. See Section 6.1.8 of the TGM Section IV for full Sample Recordation requirements. The sampling train can now be disassembled and the valve on the sampling point closed.

Laboratory Selection and QA/QC Requirements

Only PADEP-accredited laboratories (state or NELAP) shall be used for VOC and methane sample analyses.

Sampling Frequency

VOCs

PADEP does not provide specific guidance for the number of soil gas samples that should be collected per unit area of planned or existing building, as some other regulatory agencies do, but rather, a site-specific approach to account for seasonal and temporal variability is suggested. PADEP's focus is more

[6] Only new sampling bags shall be used to collect measurements. Used bags can be reused to verify volumes.

on representativeness over time, rather than on the overall number of samples or determining the degree of exposure mitigation required.

For perspective, prescribed soil gas sampling densities for large buildings issued by the Michigan Department of Energy, Great Lakes, and Energy ("EGLE") and the Minnesota Pollution Control Agency ("PCA") are as follows: for buildings >10,000 ft^2, EGLE recommends nine samples plus one additional sample for every 2,500 ft^2 of building thereafter; PCA recommends twenty-two for buildings of 100,000 ft^2 and two for every 10,000 additional ft^2. For the future Lot 15 building, 135 samples would be required by EGLE standards, and 68 samples per PCA.

For the purposes of this investigation, Cooperstown anticipates a VOC sampling frequency closer to that of PCA would suffice. Therefore, VOC samples shall be collected at a rate of 1 per 5,000 ft^2. A statistical evaluation of the results from this investigation shall be used to inform future VOC soil gas investigations at the Site, to determine whether fewer samples would suffice or if more are needed.

Methane

EPA Method 3C references EPA Method 25C for sample collection procedures. That document contains provisions for the sampling of landfill gas and recommends a sample collection frequency of 2 per hectare (approximately 5 per acre). Not all landfills have occupied buildings constructed over them, however, so Cooperstown recommends sampling at a slightly higher interval of frequency of approximately 1 per 10,000 ft^2, or roughly 4 per acre.

Sampling Summary

The following table summarizes the recommended sampling plan:

	VOCs	Methane
Sample Collection Medium	2.7L Summa Canister	2.7L Summa Canister
Laboratory Analytical Method	EPA Method TO-15	EPA Method 3C
Sample Collection Duration	30 minutes	30 minutes
Flow Rate	100 mL/min	100 mL/min
Frequency of Samples	1 per ~5,000 ft^2	1 per ~10,000 ft^2
Number of Sampling Locations	70	35
Grid Location of Samples	All Grids	Every Other Grid
Frequency of Duplicate Samples (1)	1 per 20 samples	1 per 20 samples
Number of Duplicate Samples	4	2
Grid Locations of Duplicate Samples	B4, C8, C13, D10	C4, C10
Frequency of Field Blank Samples	0 (2)	0
Number of Field Blanks	0	0
Location of Field Blank Samples	Not Applicable	Not Applicable
Number of Trip Blanks	0	0
Number of Office Blanks	0	0
Total Number of Samples	**74**	**37**

Notes:

(1) Duplicate samples shall be connected to the sampling train with a tee fitting and each summa canister shall be fitted with its own regulator.

(2) Trip blanks are not typically required for TO-15 sampling, per the TGM Section IV Appendix C8.c. Duplicate samples will be collected at a frequency of 20% for EPA Method TO-15.

Sampling Vapor Point Installation Priority

To ensure that a sufficient sampling density is achieved across the building footprint (should work be forestalled due to unforeseen circumstances), sampling points shall be installed with the priority shown in **Figure X1.02**, where the blue number at the top of each grid indicates the sample priority.

Very sincerely yours,
Cooperstown Environmental LLC



Isaac Anderson, SVP
Principal



James T. Curtis, P.E., LSP
President

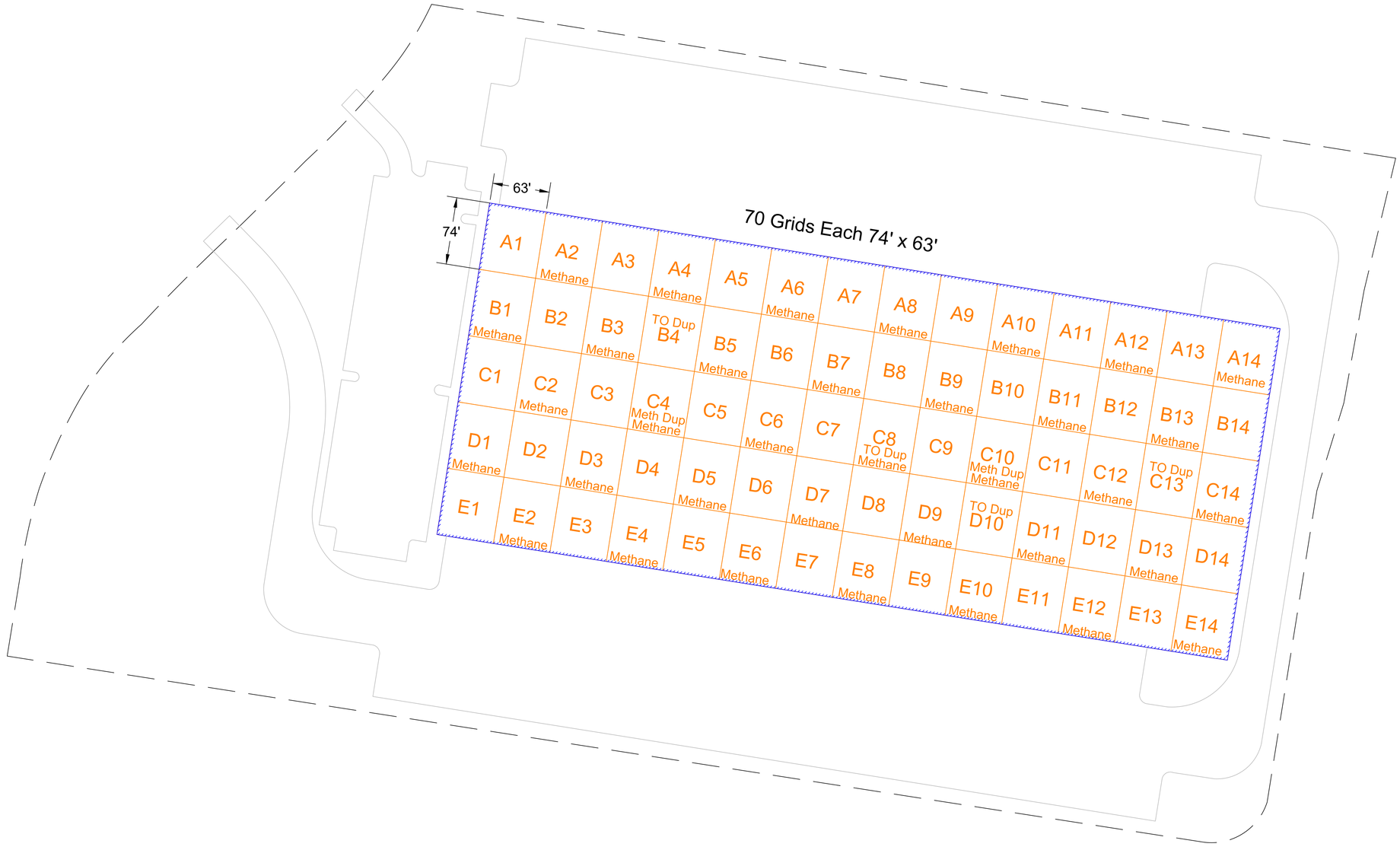
Attachments

Figures

X1.00 – Soil Vapor Sampling Plan
X1.01 – Sampling Train Schematic
X1.02 – Soil Vapor Sampling Point Installation Priority Plan

Exhibit A – Philadelphia Refinery Target Compound List

0' 30' 60' 90'
1" = 60'



A n EPA Method TO-15 sample shall be collected from all 70 grids.
Additional sampling is indicated as follows:

TO Dup = EPA Method TO-15 Duplicate Sample Required
Methane = Methane Sample Required
MethDup = Methane Duplicate Sample Required

General Notes

No.	Revision/Issue	Date
01	DRAFT SET	XX/XX//22

Firm Name and Address

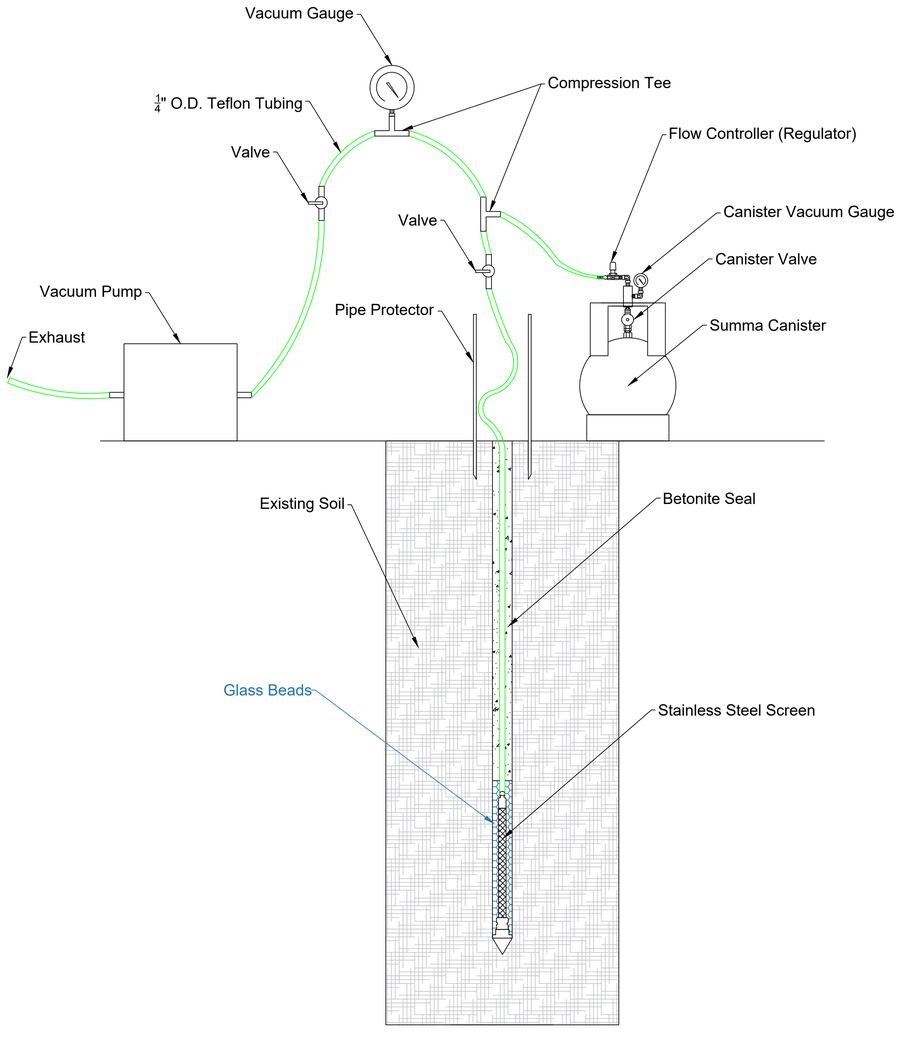
COOPERSTOWN environmental
23 Main Street • Andover, MA • 01810
Phone (978) 470-4755 • Fax (978) 470-4756
www.cooperstownenv.com

Project Name and Address

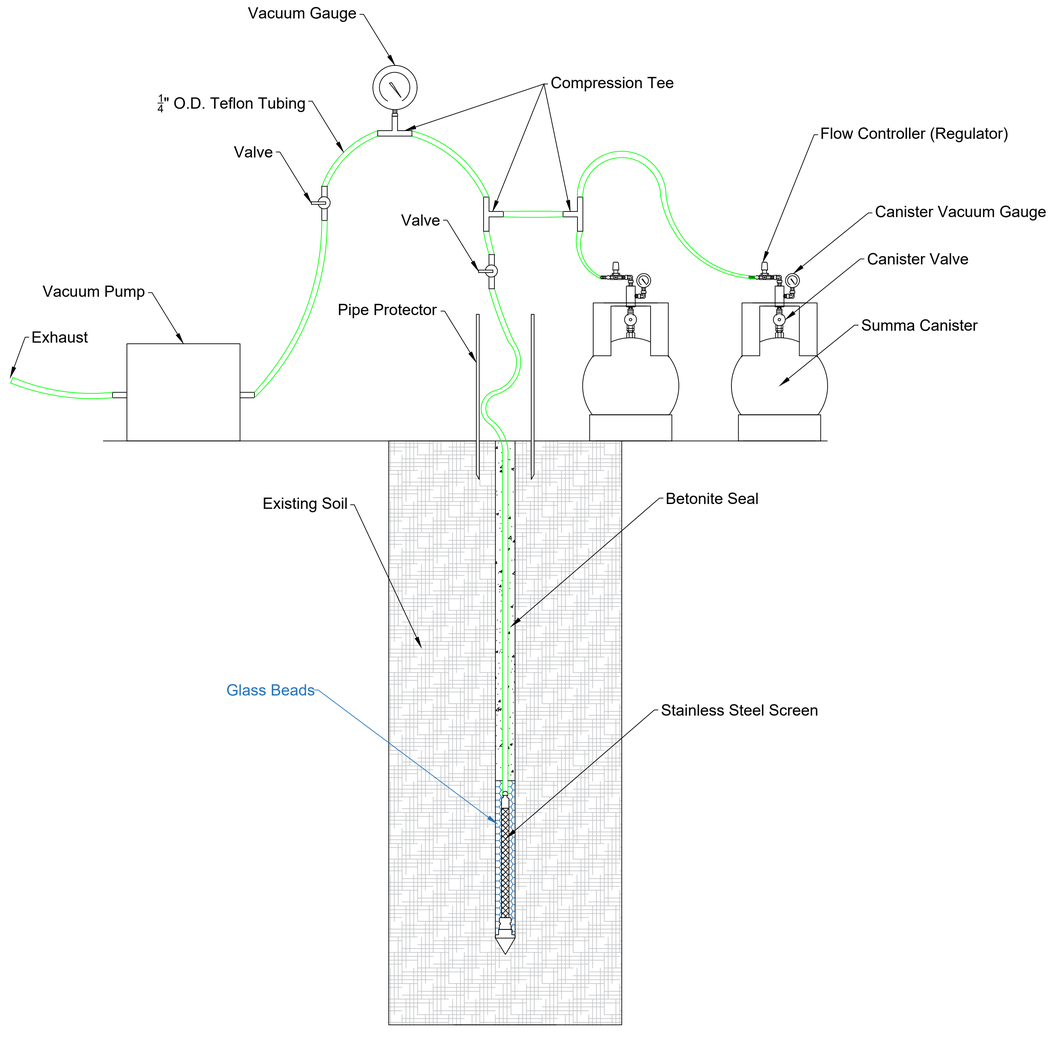
PROPOSED BUILDING 15
3144 WEST PASSYUNK AVENUE
PHILADELPHIA, PA

SOIL VAPOR SAMPLING PLAN

Project	Sheet
BLDG 15	X1.00
Date: 08/23/2023	
Scale: 1" = 60'	



Methane & VOC



Methane & VOC DUP

General Notes

No.	Revision/Issue	Date
01	DRAFT SET	XX/XX//22

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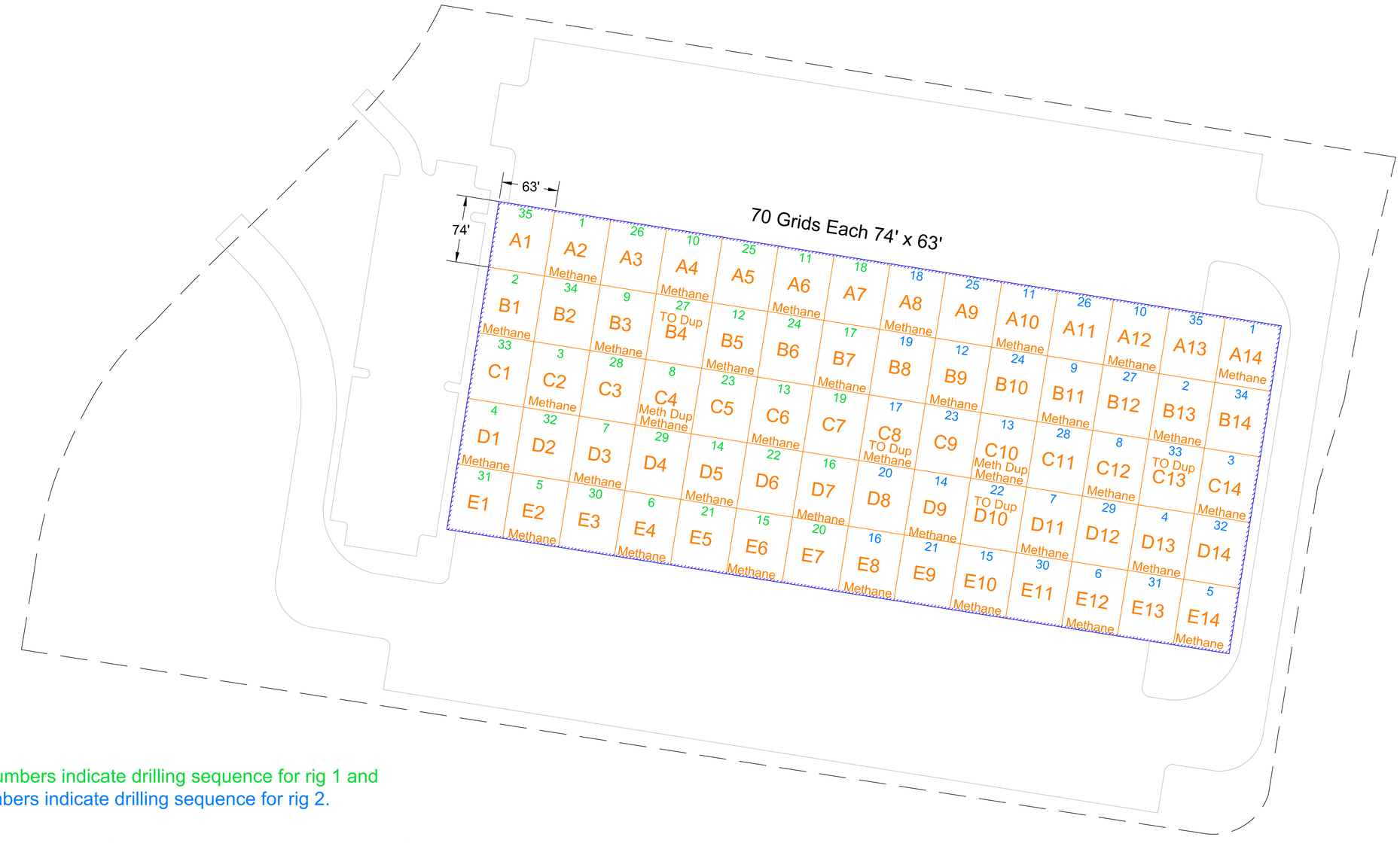
Project Name and Address

PROPOSED BUILDING 15
3144 WEST PASSYUNK AVENUE
PHILADELPHIA, PA

SAMPLING TRAIN DIAGRAMS

Project	Sheet
BLDG 15	X1.01
Date: 08/23/2023	
Scale: NOT TO SCALE	

0' 30' 60' 90'
1" = 60'



Green numbers indicate drilling sequence for rig 1 and
blue numbers indicate drilling sequence for rig 2.

An EPA Method TO-15 sample shall be collected from all 70 grids.
Additional sampling is indicated as follows:

TO Dup = EPA Method TO-15 Duplicate Sample Required
Methane = Methane Sample Required
MethDup = Methane Duplicate Sample Required

General Notes

No.	Revision/Issue	Date
01	DRAFT SET	XX/XX//22

Firm Name and Address

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Project Name and Address

PROPOSED BUILDING 15
3144 WEST PASSYUNK AVENUE
PHILADELPHIA, PA

SOIL VAPOR SAMPLING POINT
INSTALLATION PRIORITY PLAN

Project	Sheet
BLDG 15	X1.02
Date: 08/28/2023	
Scale: 1" = 60'	

EXHIBIT A

TABLE 1
Philadelphia Refinery Target Compound List and Associated Act 2 Soil Cleanup Standards

Target Compound	EPA Analytical Method	CAS No.	Non-Residential Direct Contact Numeric Value (0-2 ft bgs)	Non-Residential Soil to Groundwater Numeric Value
Volatile Compounds				
Benzene	8260	71-43-2	290	0.50
1,2-Dibromoethane (EDB)	8260	106-93-4	3.7	0.0050
1,2-Dichloroethane (EDC)	8260	107-06-2	86	0.5
Ethylbenzene	8260	100-41-4	890	70
Isopropylbenzene (Cumene)	8260	98-82-8	10,000	2,500
Methyl Tertiary Butyl Ether	8260	1634-04-4	8,600	2
Naphthalene	8270	91-20-3	760	25
Toluene	8260	108-88-3	10,000	100
1,2,4-Trimethylbenzene	8260	95-63-6	560	35
1,3,5-Trimethylbenzene	8260	108-67-8	10,000	210
Xylenes (Total)	8260	1330-20-7	8,000	1,000
Semi-Volatile Compounds				
Anthracene	8270	120-12-7	190,000	350
Benzo(a)anthracene	8270	56-55-3	130	430
Benzo(a)pyrene	8270	50-32-8	12	46
Benzo(b)fluoranthene	8270	205-99-2	76	170
Benzo(g,h,i)perylene	8270	191-24-2	190,000	180
Chrysene	8270	218-01-9	760	230
Fluorene	8270	86-73-7	130,000	3,800
Phenanthrene	8270	85-01-8	190,000	10,000
Pyrene	8270	129-00-0	96,000	2,200
Metals				
Lead	6010/6020	7439-92-1	1,000	450

Notes:
1. The Act 2 Standards are subject to change, and the Standards in effect at the time of an Act 2 report submittal will apply.

LANGAN

Technical Excellence
Practical Experience
Client Responsiveness

September 8, 2023
Revised, September 19, 2023

via email: jjeray@hilcoglobal.com; apiccone@hilcoglobal.com

Mr. Joe Jeray
Ms. Amy Piccone
Philadelphia Energy Solutions Refining and Marketing LLC
c/o Hilco Redevelopment Partners (HRP)
2929 Arch Street, Suite 1650
Philadelphia, PA 19104

Subject: VI Work Plan Addendum
The Bellwether District – Lot 15 Redevelopment
3144 West Passyunk Avenue
Philadelphia, PA 19153
Langan Project No.: 220181807

Dear Mr. Jeray and Ms. Piccone:

Langan Engineering and Environmental Services, Inc. (Langan) is pleased to provide this Work Plan Addendum to Philadelphia Energy Solutions Refining and Marketing LLC (PESRM; the "Client") for the proposed soil gas investigation at Lot 15 of the Bellwether District located at 3144 West Passyunk Avenue, Philadelphia, Pennsylvania (the "Site"). On behalf of PESRM, Cooperstown Environmental LLC prepared a draft soil gas investigation work plan ("Work Plan"), dated August 28, 2023, for the Site. This addendum amends the Work Plan by summarizing specific scope deviations from the Work Plan that were discussed and agreed upon between Langan and the Client via telephone on September 6, 2023 and September 18, 2023. The finalized scope of the proposed soil gas investigation can be found in our proposal submitted under separate cover.

Scope deviations to the Work Plan include the following:

Shortened Equilibration Duration and Elimination of Post-Installation Purge
While conforming to soil vapor sampling guidance outlined in Section IV, Appendix IV-C of the January 2019 Pennsylvania Department of Environmental Protection (PADEP) Land Recycling Program Technical Guidance Manual (TGM), a 2-hour equilibration period will be substituted for the Work Plan-proposed 48-hour equilibration period. Based on sampling during the week of September 11, 2023, Langan observed soil gas probes become inundated and unusable in less than 3 hours. Due to most points becoming unusable after the 2-hour equilibration period, Langan and PESRM decided to perform the quality assurance testing, purging and sampling immediately after probe installation starting on September 19, 2023. In addition, due to a vacuum forming in many probes (either due to inundation or lack of sufficient soil gas volume), Langan will omit the post-installation purge and only perform the pre-sampling purge as of September 19, 2023.

Addition of Helium Leak Detection Test
In conformance with soil vapor sampling guidance outlined in Section IV, Appendix IV-C of the January 2019 PADEP Land Recycling Program TGM, a helium leak detection test will be performed after the shut-in test at each soil gas sample location prior to sampling. The helium test will confirm the soil gas sampling points are properly sealed above the target sampling depth, thereby preventing potential subsurface infiltration of ambient air. To perform this test, helium will be introduced into an above-grade sampling chamber during the sample tubing purge. Direct readings of helium in the purge exhaust of less than 10 percent of the shroud concentration prior to purging will be considered sufficient to verify a tight seal.

Modification of Sampling Sequence
The sequence of sampling will be modified from the Work Plan-proposed sequence outlined in the Work Plan's "Soil Vapor Point Installation Priority Plan" figure. This modification is necessary to compensate for the use of a single drilling rig instead of two drilling rigs that were originally proposed. Due to the short lead time, Langan could only find one drilling rig available.

Fixed Gas Field Screening
All 70 soil gas sampling locations will be field screened for the following fixed gases prior to sampling: methane, oxygen, carbon dioxide, and hydrogen sulfide. Field screening will be performed using a field-calibrated landfill gas meter (Landtec GEM-5000 Plus or similar; with a methane detection limit of 0.1% by volume) and measurements will be recorded on logs.

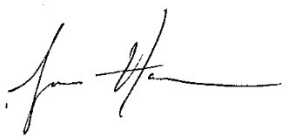
Elimination of 72-hour Post Precipitation Waiting Period
The Work Plan initially specified that samples should not be collected within 72 hours after a rainfall event of ½ inch or greater. During the week of September 11, 2023, Langan followed this specification; however, most soil gas probes became unusable after 72 hours. Another rainfall event greater than ½ inch occurred between September 10 and 11, 2023. Due to schedule concerns, the proposed sampling depths and observations that wells were inundated within 3 hours even during dry conditions, Langan and PESRM decided to eliminate the 72-hour post rainfall waiting period.

Installation of Temporary Wells
To better understand the hydrogeologic conditions at the Site and the potential impact of the surcharge on the perched water conditions at the Site, Langan will install one nested pair of wells. Both wells will be constructed with 5 feet of screen, a surrounding sand pack to 2 feet above the top of screen (approximately 7 feet thick) and an overlying bentonite seal. The shallow well was constructed so the screen straddles the depth at which perched water has entered the soil gas probes (screened approximately 9 to 14 ft bgs). The deeper well would target the unconfined groundwater (alluvial) aquifer. Based on historical data from the Remedial Investigation Report for Area of Interest 1 prepared by Stantec and dated August 5, 2016, groundwater at the Lot 15 site ranges from 28 to 41 ft bgs. The deeper well was screened from approximately 15 to 25 ft bgs.

CLOSING

Langan appreciates the opportunity to provide you with this Work Plan Addendum and looks forward to working with you on this important project. If you should have any questions regarding this fee estimate, or require additional information, please contact us.

Sincerely,
Langan Engineering and Environmental Services, Inc.



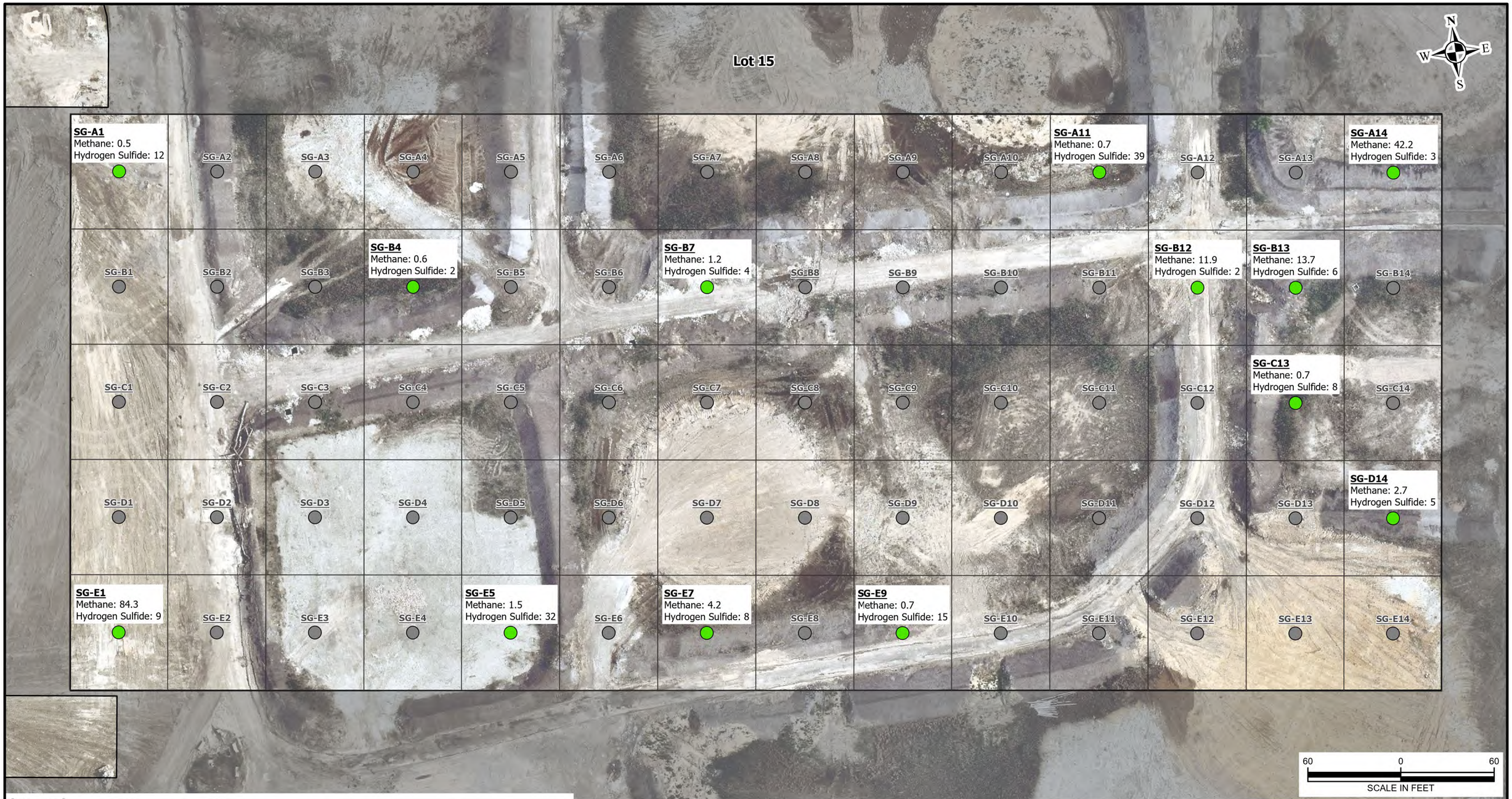
Jason Hanna, CHMM
Principal, Vice President

cc: A. Statkiewicz – Langan
M. McDade – Langan
A. Goldberg – Langan
C. Drake - Langan

Attachment: August 28, 2023 Work Plan prepared by Cooperstown Environmental LLC

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EXHIBIT B



Legend

- Soil Gas Sample Location – Field Screened
- Soil Gas Sample Location – Not Installed or Unable to be Field Screened
- Soil Gas Sampling Grid
- Parking and Truck Docks

Notes:
1. Imagery provided through Langan's subscription to Nearmap. Flown 5/14/2023.
2. All locations of Site reconnaissance observations are approximate.
3. L&I Area Features provided by Terraphase, 5/22/2023
4. Methane concentrations reported in percent by volume (% v/v).
5. Hydrogen sulfide concentrations reported in parts per million (ppm).

LANGAN

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Langan Engineering & Environmental Services, Inc.
Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.
Langan International LLC

Collectively known as Langan

Project
PHILADELPHIA ENERGY SOLUTIONS REFINING AND MARKETING LLC
PHILADELPHIA
PHILADELPHIA COUNTY PENNSYLVANIA

Drawing Title
SUMMARY OF METHANE AND HYDROGEN SULFIDE FIELD READINGS

Project No. 220181801	Figure 1
Date 9/25/2023	
Scale 1"=60'	
Drawn By SH	

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Path: \\langan.com\data\PHL\data8\220181801\Project Data\ArcGIS\APRX\220181801\220181801.aprx Date: 9/25/2023 User: shennessy Time: 8:32 AM

Table 1
Soil Gas Field Measurements
PESRM - 3144 W Passyunk Avenue
Philadelphia, Pennsylvania

Sample Type	Location	Date	Methane Field Screening (%v/v)	Methane Laboratory Data (%v/v)	Carbon Dioxide (%v/v)	Oxygen (%)	Hydrogen Sulfide (ppm)	VOC from Borehole (ppm)	VOC from Pump Exhaust (ppm)
Exterior Soil Gas	A1	9/19/2023	0.5	RP	0.1	14.5	12	3.8	3.8
	A9	9/21/2023	NR	RP	NR	NR	NR	113	10
	A11	9/21/2023	0.7	RP	2.2	12.7	39	88.9	237.5
	A14	9/14/2023	42.2	0.78	0.1	17.7	3	1598	2515
	B4	9/19/2023	0.6	RP	0.4	18.3	2	0.2	29.4
	B7	9/14/2023	1.2	1.2	0.1	5.0	4	0.7	0.3
	B12	9/21/2023	11.9	0.675	0.3	1.1	2	421	35
	B13	9/14/2023	13.7	6.2	0.2	0.7	6	77.6	10.2
	C13	9/20/2023	0.7	RP	0.6	13.7	8	247	220
	D14	9/15/2023	2.7	0.54	0.1	7.7	5	6.4	NR
	E1	9/19/2023	84.3	RP	0.3	12.6	9	52.4	92.1
	E5	9/15/2023	1.5	RP	0.9	11.5	32	8.7	0.7
	E7	9/20/2023	4.2	RP	0.0	6.8	8	308	44
	E9	9/20/2023	0.7	RP	0.6	8.2	15	790	169

Notes:

% v/v - percent by volume

ppm - parts per million

NR - not reported

RP - Results Pending

Table 2 - Soil Gas Analytical Results
PESRM
Lot 15 Soil Gas Investigation

Location	PADEP Sub-Slab Soil Gas Screening Values - Residential	PADEP Sub-Slab Soil Gas Screening Values - Nonresidential	A1	A14	B4	B7	B12	B13
Sample ID			**SG-A1_10.5_091923**	**SG-A14_10.5_091423**	**SG-B4_11.5_091923**	**SG-B7_11.5_091423**	**SG-B12_11.5_092123**	**SG-B13_11.5_091423**
Units	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3
1,3-Butadiene	31	520	**32.3**	ND	4.87	ND	ND	ND
Isopropanol	8,000	110,000	ND	ND	ND	ND	ND	ND
Carbon disulfide	28,000	390,000	367	ND	86.6	ND	49.2	27.2
1,1-Dichloroethane	590	9,800	ND	ND	ND	ND	ND	ND
Chloroform	41	680	**44.1**	ND	ND	ND	ND	ND
Hexane	28,000	390,000	6,410	ND	1,970	3,390	2,570	1,720
Benzene	120	2,000	**142**	ND	63.3	**1,300**	**767**	**124**
Cyclohexane	240,000	3,400,000	6,400	ND	2,290	3,440	7,160	8,500
Total xylenes	4,000	56,000	214	ND	266	ND	371	ND
Toluene	200,000	2,800,000	83.7	ND	83.7	ND	191	ND
Tetrachloroethene (PCE)	1,600	22,000	ND	ND	ND	ND	ND	ND
Ethylbenzene	370	6,300	60.4	ND	54.7	ND	151	ND
p/m-xylene	NS	NS	160	ND	203	ND	278	ND
o-xylene	NS	NS	53.4	ND	63.4	ND	93.4	ND
Isopropylbenzene	16,000	220,000	48.2	ND	11.4	ND	341	ND
1,3,5-trimethylbenzene	2,400	34,000	41.7	ND	19.3	ND	ND	ND
1,2,4-trimethylbenzene	2,400	34,000	91.4	ND	53.6	ND	ND	ND
Naphthalene	28	460	24.4	ND	ND	ND	ND	ND

Notes:

Soil gas results were compared to the PADEP Sub-Slab Soil Gas Statewide Health Standard VI Screening Values (September 2022)

PADEP - Pennsylvania Department of Environmental Protection

NS - No standard

ND - Non-detect

ug/m3 - Micrograms per cubic meter

Legend:

Exceeds Sub-Slab Residential

Exceeds Sub-Slab Nonresidential

Table 2 - Soil Gas Analytical Results
PESRM
Lot 15 Soil Gas Investigation

Location	PADEP Sub-Slab Soil Gas Screening Values - Residential	PADEP Sub-Slab Soil Gas Screening Values - Nonresidential	C13	D6	D14	E5	E7
Sample ID			SG-C13_10.5_092023	SG-D6_11.5_092023	SG-D14_9.5_091423	SG-E5_10.5_091923	SG-E7_10.5_092023
Units	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3
1,3-Butadiene	31	520	ND	ND	ND	ND	ND
Isopropanol	8,000	110,000	ND	ND	ND	383	ND
Carbon disulfide	28,000	390,000	517	ND	60.1	225	283
1,1-Dichloroethane	590	9,800	ND	213	ND	ND	ND
Chloroform	41	680	ND	ND	ND	ND	ND
Hexane	28,000	390,000	**28,800**	5,920	**47,200**	**377,000**	**183,000**
Benzene	120	2,000	**11,100**	**3,230**	**722**	**42,200**	**12,000**
Cyclohexane	240,000	3,400,000	25,300	9,670	11,400	174,000	104,000
Total xylenes	4,000	56,000	**38,600**	**5,950**	1,550	**447,000**	**5,130**
Toluene	200,000	2,800,000	10,600	260	ND	950	972
Tetrachloroethene (PCE)	1,600	22,000	59.9	ND	ND	ND	ND
Ethylbenzene	370	6,300	**9,470**	**4,690**	**717**	**124,000**	**2,330**
p/m-xylene	NS	NS	28,100	3,230	1,370	433,000	4,100
o-xylene	NS	NS	10,500	2,710	191	15,100	1,020
Isopropylbenzene	16,000	220,000	2,490	978	386	**26,400**	1,810
1,3,5-trimethylbenzene	2,400	34,000	**3,730**	1,230	374	**42,300**	723
1,2,4-trimethylbenzene	2,400	34,000	**8,160**	1,180	1,000	**91,400**	**4,010**
Naphthalene	28	460	ND	ND	ND	ND	ND

Notes:

Soil gas results were compared to the PADEP Sub-Slab Soil Gas Statewide Health Standard VI Screening Values (September 2022)

PADEP - Pennsylvania Department of Environmental Protection

NS - No standard

ND - Non-detect

ug/m3 - Micrograms per cubic meter

Legend:

Exceeds Sub-Slab Residential

Exceeds Sub-Slab Nonresidential

ANALYTICAL REPORT

Lab Number:	L2355579
Client:	Langan Engineering & Environmental 6000 Lombardo Center Suite 210 Cleveland, OH 44131
ATTN:	Anna Statkiewicz
Phone:	(216) 328-3354
Project Name:	PESRM SOIL GAS
Project Number:	220181807
Report Date:	10/19/23

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Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0825), DoD (L2474), FL (E87814), IL (200081), IN (C-MA-04), KY (KY98046), LA (85084), ME (MA00030), MD (350), MI (99110) , NJ (MA015), NY (11627), NC (685), OH (CL106), OR (MA-0262), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #525-23-107-88708), USFWS (Permit #206964).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: PESRM SOIL GAS
Project Number: 220181807

Lab Number: L2355579
Report Date: 10/19/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2355579-01	SG-A11_10.5_092123	SOIL_VAPOR	3144 W PASSYUNK AVE. PHILADELPHIA, PA	09/21/23 14:20	09/21/23
L2355579-02	SG-B12_11.5_092123	SOIL_VAPOR	3144 W PASSYUNK AVE. PHILADELPHIA, PA	09/21/23 11:33	09/21/23

Project Name:	PESRM SOIL GAS	**Lab Number:**	L2355579
Project Number:	220181807	**Report Date:**	10/19/23

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	PESRM SOIL GAS	**Lab Number:**	L2355579
Project Number:	220181807	**Report Date:**	10/19/23

Case Narrative (continued)

Report Submission

October 19, 2023: This final report includes the results of all requested analyses. The results for subcontracted methane analysis is included as an addendum at the back of this report.

Report Submission

October 03, 2023: This is a preliminary report. A final report will be issued as soon as the fixed gas analysis is completed. This anlaysis is being subcontracted to the Pace National lab.

Volatile Organics in Air

Canisters were released from the laboratory on September 13, 2023. The canister certification results are provided as an addendum.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

L2355579-02D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

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

Authorized Signature: Christopher J. Anderson

Title: Technical Director/Representative Date: 10/19/23

AIR

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2355579
Report Date: 10/19/23

SAMPLE RESULTS

Lab ID: L2355579-02 D
Client ID: SG-B12_11.5_092123
Sample Location: 3144 W PASSYUNK AVE. PHILADELPHIA, PA
Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 10/03/23 05:45
Analyst: JMB

Date Collected: 09/21/23 11:33
Date Received: 09/21/23
Field Prep: Not Specified

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	ND	39.1	14.8	ND	193	73.2		195.3
Chloromethane	ND	39.1	11.2	ND	80.7	23.1		195.3
Vinyl chloride	ND	39.1	11.4	ND	99.9	29.1		195.3
1,3-Butadiene	ND	39.1	12.1	ND	86.5	26.8		195.3
Bromomethane	ND	39.1	10.7	ND	152	41.5		195.3
Chloroethane	ND	39.1	12.7	ND	103	33.5		195.3
Vinyl bromide	ND	39.1	14.1	ND	171	61.6		195.3
Acrolein	ND	97.6	29.1	ND	224	66.7		195.3
Acetone	ND	195.	100.	ND	463	238.		195.3
Trichlorofluoromethane	ND	39.1	15.4	ND	220	86.5		195.3
Isopropanol	ND	97.6	53.1	ND	240	131.		195.3
Acrylonitrile	ND	97.6	17.4	ND	212	37.8		195.3
1,1-Dichloroethene	ND	39.1	11.1	ND	155	44.0		195.3
Methylene chloride	ND	97.6	24.4	ND	339	84.8		195.3
3-Chloropropene	ND	39.1	16.8	ND	122	52.6		195.3
Carbon disulfide	15.8	39.1	9.08	49.2	122	28.3	J	195.3
Freon-113	ND	39.1	9.88	ND	300	75.7		195.3
trans-1,2-Dichloroethene	ND	39.1	14.7	ND	155	58.3		195.3
1,1-Dichloroethane	ND	39.1	11.1	ND	158	44.9		195.3
Methyl tert butyl ether	ND	39.1	8.79	ND	141	31.7		195.3
Chloroform	ND	39.1	10.8	ND	191	52.7		195.3
Tetrahydrofuran	ND	97.6	22.8	ND	288	67.2		195.3
1,2-Dichloroethane	ND	39.1	15.4	ND	158	62.3		195.3

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2355579
Report Date: 10/19/23

SAMPLE RESULTS

Lab ID: L2355579-02 D
Client ID: SG-B12_11.5_092123
Sample Location: 3144 W PASSYUNK AVE. PHILADELPHIA, PA
Sample Depth:

Date Collected: 09/21/23 11:33
Date Received: 09/21/23
Field Prep: Not Specified

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
n-Hexane	728	39.1	14.5	2570	138	51.1		195.3
1,1,1-Trichloroethane	ND	39.1	12.0	ND	213	65.5		195.3
Benzene	240	39.1	12.6	767	125	40.3		195.3
Carbon tetrachloride	ND	39.1	13.4	ND	246	84.3		195.3
Cyclohexane	2080	39.1	14.2	7160	135	48.9		195.3
1,2-Dichloropropane	ND	39.1	12.3	ND	181	56.8		195.3
Bromodichloromethane	ND	39.1	13.4	ND	262	89.8		195.3
1,4-Dioxane	ND	39.1	10.5	ND	141	37.8		195.3
Trichloroethene	ND	39.1	10.7	ND	210	57.5		195.3
Methyl Methacrylate	ND	97.6	44.1	ND	400	181.		195.3
Xylenes, Total	85.5	39.1	12.1	371	170	52.6	J	195.3
4-Methyl-2-pentanone	ND	97.6	37.1	ND	400	152.		195.3
1,1,2-Trichloroethane	ND	39.1	11.4	ND	213	62.2		195.3
Toluene	50.8	39.1	16.9	191	147	63.7		195.3
1,3-Dichloropropane	ND	39.1	10.5	ND	181	48.5		195.3
Dibromochloromethane	ND	39.1	11.0	ND	333	93.7		195.3
1,2-Dibromoethane	ND	39.1	10.6	ND	300	81.5		195.3
Tetrachloroethene	ND	39.1	12.2	ND	265	82.7		195.3
Chlorobenzene	ND	39.1	10.1	ND	180	46.5		195.3
Ethylbenzene	34.8	39.1	11.2	151	170	48.6	J	195.3
p/m-Xylene	64.0	78.1	24.4	278	339	106.	J	195.3
Bromoform	ND	39.1	11.6	ND	404	120.		195.3
Styrene	ND	39.1	11.6	ND	166	49.4		195.3
1,1,2,2-Tetrachloroethane	ND	39.1	10.2	ND	269	70.0		195.3
o-Xylene	21.5	39.1	12.1	93.4	170	52.6	J	195.3
Isopropylbenzene	69.3	39.1	12.1	341	192	59.5		195.3

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2355579
Report Date: 10/19/23

SAMPLE RESULTS

Lab ID: L2355579-02 D
Client ID: SG-B12_11.5_092123
Sample Location: 3144 W PASSYUNK AVE. PHILADELPHIA, PA
Sample Depth:

Date Collected: 09/21/23 11:33
Date Received: 09/21/23
Field Prep: Not Specified

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
1,3,5-Trimethylbenzene	ND	39.1	11.7	ND	192	57.5		195.3
1,2,4-Trimethylbenzene	ND	39.1	11.3	ND	192	55.6		195.3
Benzyl chloride	ND	39.1	18.3	ND	202	94.8		195.3
1,4-Dichlorobenzene	ND	39.1	16.1	ND	235	96.8		195.3
1,2-Dichlorobenzene	ND	39.1	12.1	ND	235	72.7		195.3
1,2,4-Trichlorobenzene	ND	39.1	19.5	ND	290	145.		195.3
Naphthalene	ND	39.1	15.2	ND	205	79.7		195.3

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	103		60-140
Bromochloromethane	102		60-140
chlorobenzene-d5	108		60-140

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2355579
Report Date: 10/19/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 10/02/23 17:41

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 02 Batch: WG1834653-4								
Dichlorodifluoromethane	ND	0.200	0.076	ND	0.989	0.374		1
Chloromethane	ND	0.200	0.058	ND	0.413	0.119		1
Vinyl chloride	ND	0.200	0.058	ND	0.511	0.149		1
1,3-Butadiene	ND	0.200	0.062	ND	0.442	0.137		1
Bromomethane	ND	0.200	0.055	ND	0.777	0.212		1
Chloroethane	ND	0.200	0.065	ND	0.528	0.171		1
Vinyl bromide	ND	0.200	0.072	ND	0.874	0.316		1
Acrolein	ND	0.500	0.149	ND	1.15	0.342		1
Acetone	ND	1.00	0.515	ND	2.38	1.22		1
Trichlorofluoromethane	ND	0.200	0.079	ND	1.12	0.442		1
Isopropanol	ND	0.500	0.272	ND	1.23	0.669		1
Acrylonitrile	ND	0.500	0.089	ND	1.09	0.194		1
1,1-Dichloroethene	ND	0.200	0.057	ND	0.793	0.225		1
Methylene chloride	ND	0.500	0.125	ND	1.74	0.434		1
3-Chloropropene	ND	0.200	0.086	ND	0.626	0.269		1
Carbon disulfide	ND	0.200	0.047	ND	0.623	0.145		1
Freon-113	ND	0.200	0.051	ND	1.53	0.388		1
trans-1,2-Dichloroethene	ND	0.200	0.076	ND	0.793	0.299		1
1,1-Dichloroethane	ND	0.200	0.057	ND	0.809	0.230		1
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
Xylenes, Total	ND	0.200	0.062	ND	0.869	0.270		1
Chloroform	ND	0.200	0.055	ND	0.977	0.270		1
Tetrahydrofuran	ND	0.500	0.117	ND	1.47	0.345		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
n-Hexane	ND	0.200	0.074	ND	0.705	0.262		1

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2355579
Report Date: 10/19/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 10/02/23 17:41

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 02 Batch: WG1834653-4								
1,1,1-Trichloroethane	ND	0.200	0.061	ND	1.09	0.335		1
Benzene	ND	0.200	0.064	ND	0.639	0.205		1
Carbon tetrachloride	ND	0.200	0.069	ND	1.26	0.432		1
Cyclohexane	ND	0.200	0.073	ND	0.688	0.251		1
1,2-Dichloropropane	ND	0.200	0.063	ND	0.924	0.292		1
Bromodichloromethane	ND	0.200	0.069	ND	1.34	0.462		1
1,4-Dioxane	ND	0.200	0.054	ND	0.721	0.194		1
Trichloroethene	ND	0.200	0.055	ND	1.07	0.295		1
Methyl Methacrylate	ND	0.500	0.226	ND	2.05	0.925		1
4-Methyl-2-pentanone	ND	0.500	0.190	ND	2.05	0.779		1
1,1,2-Trichloroethane	ND	0.200	0.058	ND	1.09	0.318		1
Toluene	ND	0.200	0.087	ND	0.754	0.327		1
1,3-Dichloropropane	ND	0.200	0.054	ND	0.924	0.248		1
Dibromochloromethane	ND	0.200	0.057	ND	1.70	0.482		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Tetrachloroethene	ND	0.200	0.063	ND	1.36	0.425		1
Chlorobenzene	ND	0.200	0.052	ND	0.921	0.238		1
Ethylbenzene	ND	0.200	0.058	ND	0.869	0.250		1
p/m-Xylene	ND	0.400	0.125	ND	1.74	0.543		1
Bromoform	ND	0.200	0.060	ND	2.07	0.616		1
Styrene	ND	0.200	0.060	ND	0.852	0.254		1
1,1,2,2-Tetrachloroethane	ND	0.200	0.052	ND	1.37	0.357		1
o-Xylene	ND	0.200	0.062	ND	0.869	0.270		1
Isopropylbenzene	ND	0.200	0.062	ND	0.983	0.305		1
1,3,5-Trimethylbenzene	ND	0.200	0.060	ND	0.983	0.295		1

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2355579
Report Date: 10/19/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 10/02/23 17:41

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 02 Batch: WG1834653-4								
1,2,4-Trimethylbenzene	ND	0.200	0.058	ND	0.983	0.284		1
Benzyl chloride	ND	0.200	0.094	ND	1.04	0.486		1
1,4-Dichlorobenzene	ND	0.200	0.083	ND	1.20	0.497		1
1,2-Dichlorobenzene	ND	0.200	0.062	ND	1.20	0.372		1
1,2,4-Trichlorobenzene	ND	0.200	0.100	ND	1.48	0.742		1
Naphthalene	ND	0.200	0.078	ND	1.05	0.409		1

Lab Control Sample Analysis
Batch Quality Control

Project Name: PESRM SOIL GAS
Project Number: 220181807

Lab Number: L2355579
Report Date: 10/19/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 02 Batch: WG1834653-3								
Dichlorodifluoromethane	83		-		70-130	-		
Chloromethane	91		-		70-130	-		
Vinyl chloride	104		-		70-130	-		
1,3-Butadiene	104		-		70-130	-		
Bromomethane	103		-		70-130	-		
Chloroethane	104		-		70-130	-		
Vinyl bromide	87		-		70-130	-		
Acrolein	97		-		60-113	-		
Acetone	81		-		40-160	-		
Trichlorofluoromethane	83		-		70-130	-		
Isopropanol	79		-		40-160	-		
Acrylonitrile	98		-		70-130	-		
1,1-Dichloroethene	92		-		70-130	-		
Methylene chloride	98		-		70-130	-		
3-Chloropropene	85		-		70-130	-		
Carbon disulfide	83		-		70-130	-		
Freon-113	91		-		70-130	-		
trans-1,2-Dichloroethene	85		-		70-130	-		
1,1-Dichloroethane	86		-		70-130	-		
Methyl tert butyl ether	78		-		70-130	-		
Chloroform	91		-		70-130	-		
Tetrahydrofuran	76		-		70-130	-		
1,2-Dichloroethane	78		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM SOIL GAS

Project Number: 220181807

Lab Number: L2355579

Report Date: 10/19/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 02 Batch: WG1834653-3								
n-Hexane	105		-		70-130	-		
1,1,1-Trichloroethane	90		-		70-130	-		
Benzene	92		-		70-130	-		
Carbon tetrachloride	94		-		70-130	-		
Cyclohexane	104		-		70-130	-		
1,2-Dichloropropane	97		-		70-130	-		
Bromodichloromethane	102		-		70-130	-		
1,4-Dioxane	104		-		70-130	-		
Trichloroethene	103		-		70-130	-		
Methyl Methacrylate	98		-		40-160	-		
4-Methyl-2-pentanone	92		-		70-130	-		
1,1,2-Trichloroethane	99		-		70-130	-		
Toluene	94		-		70-130	-		
1,3-Dichloropropane	84		-		70-130	-		
Dibromochloromethane	102		-		70-130	-		
1,2-Dibromoethane	89		-		70-130	-		
Tetrachloroethene	90		-		70-130	-		
Chlorobenzene	89		-		70-130	-		
Ethylbenzene	92		-		70-130	-		
p/m-Xylene	93		-		70-130	-		
Bromoform	102		-		70-130	-		
Styrene	89		-		70-130	-		
1,1,2,2-Tetrachloroethane	99		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM SOIL GAS

Project Number: 220181807

Lab Number: L2355579

Report Date: 10/19/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 02 Batch: WG1834653-3								
o-Xylene	96		-		70-130	-		
Isopropylbenzene	88		-		70-130	-		
1,3,5-Trimethylbenzene	88		-		70-130	-		
1,2,4-Trimethylbenzene	91		-		70-130	-		
Benzyl chloride	96		-		70-130	-		
1,4-Dichlorobenzene	93		-		70-130	-		
1,2-Dichlorobenzene	90		-		70-130	-		
1,2,4-Trichlorobenzene	91		-		70-130	-		
Naphthalene	99		-		70-130	-		

Project Name: PESRM SOIL GAS

Project Number: 220181807

Lab Number: L2355579

Report Date: 10/19/23

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controler Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L2355579-01	SG-A11_10.5_092123	01636	Flow 1	09/11/23	436545		-	-	-	Pass	100	01	196
L2355579-01	SG-A11_10.5_092123	3024	2.7L Can	09/11/23	436545	L2328111-01	Pass	-29.2	-27.5	-	-	-	-
L2355579-02	SG-B12_11.5_092123	02171	Flow 2	09/13/23	436736		-	-	-	Pass	100	77	26
L2355579-02	SG-B12_11.5_092123	207	2.7L Can	09/11/23	436545	L2272622-01	Pass	-29.7	-23.1	-	-	-	-

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2272622
Report Date: 10/19/23

Air Canister Certification Results

Lab ID: L2272622-01
Client ID: CAN 207 SHELF 1
Sample Location:

Date Collected: 12/27/22 18:00
Date Received: 12/28/22
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 12/28/22 17:55
Analyst: TJS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	0.058	ND	0.707	0.207		1
Propylene	ND	0.500	0.060	ND	0.861	0.103		1
Propane	ND	0.500	0.132	ND	0.902	0.238		1
Dichlorodifluoromethane	ND	0.200	0.058	ND	0.989	0.288		1
Chloromethane	ND	0.200	0.069	ND	0.413	0.142		1
Freon-114	ND	0.200	0.059	ND	1.40	0.413		1
Methanol	ND	5.00	1.84	ND	6.55	2.41		1
Vinyl chloride	ND	0.200	0.063	ND	0.511	0.160		1
1,3-Butadiene	ND	0.200	0.067	ND	0.442	0.148		1
Butane	ND	0.200	0.065	ND	0.475	0.154		1
Bromomethane	ND	0.200	0.077	ND	0.777	0.300		1
Chloroethane	ND	0.200	0.081	ND	0.528	0.212		1
Ethanol	ND	5.00	0.733	ND	9.42	1.38		1
Dichlorofluoromethane	ND	0.200	0.081	ND	0.842	0.340		1
Vinyl bromide	ND	0.200	0.072	ND	0.874	0.313		1
Acrolein	ND	0.500	0.060	ND	1.15	0.137		1
Acetone	ND	1.00	0.689	ND	2.38	1.64		1
Acetonitrile	ND	0.200	0.082	ND	0.336	0.138		1
Trichlorofluoromethane	ND	0.200	0.069	ND	1.12	0.386		1
Isopropanol	ND	0.500	0.478	ND	1.23	1.17		1
Acrylonitrile	ND	0.500	0.056	ND	1.09	0.120		1
Pentane	ND	0.200	0.066	ND	0.590	0.194		1
Ethyl ether	ND	0.200	0.074	ND	0.606	0.223		1
1,1-Dichloroethene	ND	0.200	0.064	ND	0.793	0.255		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2272622
Report Date: 10/19/23

Air Canister Certification Results

Lab ID: L2272622-01
Client ID: CAN 207 SHELF 1
Sample Location:

Date Collected: 12/27/22 18:00
Date Received: 12/28/22
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	0.047	ND	1.52	0.141		1
Methylene chloride	ND	0.500	0.134	ND	1.74	0.466		1
3-Chloropropene	ND	0.200	0.059	ND	0.626	0.183		1
Carbon disulfide	ND	0.200	0.056	ND	0.623	0.174		1
Freon-113	ND	0.200	0.066	ND	1.53	0.503		1
trans-1,2-Dichloroethene	ND	0.200	0.064	ND	0.793	0.255		1
1,1-Dichloroethane	ND	0.200	0.063	ND	0.809	0.254		1
Methyl tert butyl ether	ND	0.200	0.053	ND	0.721	0.189		1
Vinyl acetate	ND	1.00	0.048	ND	3.52	0.169		1
2-Butanone	ND	0.500	0.048	ND	1.47	0.142		1
Xylenes, total	ND	0.600	0.045	ND	0.869	0.197		1
cis-1,2-Dichloroethene	ND	0.200	0.117	ND	0.793	0.464		1
Ethyl Acetate	ND	0.500	0.122	ND	1.80	0.440		1
Chloroform	ND	0.200	0.063	ND	0.977	0.309		1
Tetrahydrofuran	ND	0.500	0.057	ND	1.47	0.168		1
2,2-Dichloropropane	ND	0.200	0.046	ND	0.924	0.212		1
1,2-Dichloroethane	ND	0.200	0.060	ND	0.809	0.244		1
n-Hexane	ND	0.200	0.036	ND	0.705	0.128		1
Diisopropyl ether	ND	0.200	0.062	ND	0.836	0.260		1
tert-Butyl Ethyl Ether	ND	0.200	0.042	ND	0.836	0.176		1
1,2-Dichloroethene (total)	ND	1.00	0.064	ND	1.00	0.255		1
1,1,1-Trichloroethane	ND	0.200	0.050	ND	1.09	0.273		1
1,1-Dichloropropene	ND	0.200	0.046	ND	0.908	0.207		1
Benzene	ND	0.200	0.049	ND	0.639	0.156		1
Carbon tetrachloride	ND	0.200	0.050	ND	1.26	0.314		1
Cyclohexane	ND	0.200	0.037	ND	0.688	0.127		1
tert-Amyl Methyl Ether	ND	0.200	0.048	ND	0.836	0.199		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2272622
Report Date: 10/19/23

Air Canister Certification Results

Lab ID: L2272622-01
Client ID: CAN 207 SHELF 1
Sample Location:

Date Collected: 12/27/22 18:00
Date Received: 12/28/22
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	0.056	ND	1.42	0.400		1
1,2-Dichloropropane	ND	0.200	0.061	ND	0.924	0.282		1
Bromodichloromethane	ND	0.200	0.050	ND	1.34	0.338		1
1,4-Dioxane	ND	0.200	0.081	ND	0.721	0.290		1
Trichloroethene	ND	0.200	0.051	ND	1.07	0.271		1
2,2,4-Trimethylpentane	ND	0.200	0.036	ND	0.934	0.169		1
Methyl Methacrylate	ND	0.500	0.070	ND	2.05	0.285		1
Heptane	ND	0.200	0.047	ND	0.820	0.193		1
cis-1,3-Dichloropropene	ND	0.200	0.041	ND	0.908	0.186		1
4-Methyl-2-pentanone	ND	0.500	0.042	ND	2.05	0.173		1
trans-1,3-Dichloropropene	ND	0.200	0.044	ND	0.908	0.198		1
1,1,2-Trichloroethane	ND	0.200	0.067	ND	1.09	0.366		1
Toluene	ND	0.200	0.052	ND	0.754	0.196		1
1,3-Dichloropropane	ND	0.200	0.106	ND	0.924	0.490		1
2-Hexanone	ND	0.200	0.065	ND	0.820	0.266		1
Dibromochloromethane	ND	0.200	0.061	ND	1.70	0.523		1
1,2-Dibromoethane	ND	0.200	0.056	ND	1.54	0.431		1
Butyl acetate	ND	0.500	0.126	ND	2.38	0.599		1
Octane	ND	0.200	0.045	ND	0.934	0.208		1
Tetrachloroethene	ND	0.200	0.066	ND	1.36	0.444		1
1,1,1,2-Tetrachloroethane	ND	0.200	0.056	ND	1.37	0.385		1
Chlorobenzene	ND	0.200	0.062	ND	0.921	0.287		1
Ethylbenzene	ND	0.200	0.043	ND	0.869	0.188		1
p/m-Xylene	ND	0.400	0.091	ND	1.74	0.395		1
Bromoform	ND	0.200	0.064	ND	2.07	0.663		1
Styrene	ND	0.200	0.043	ND	0.852	0.185		1
1,1,2,2-Tetrachloroethane	ND	0.200	0.061	ND	1.37	0.422		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2272622
Report Date: 10/19/23

Air Canister Certification Results

Lab ID: L2272622-01
Client ID: CAN 207 SHELF 1
Sample Location:

Date Collected: 12/27/22 18:00
Date Received: 12/28/22
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	0.045	ND	0.869	0.197		1
1,2,3-Trichloropropane	ND	0.200	0.061	ND	1.21	0.368		1
Nonane	ND	0.200	0.046	ND	1.05	0.243		1
Isopropylbenzene	ND	0.200	0.049	ND	0.983	0.241		1
Bromobenzene	ND	0.200	0.061	ND	0.793	0.243		1
2-Chlorotoluene	ND	0.200	0.049	ND	1.04	0.252		1
n-Propylbenzene	ND	0.200	0.042	ND	0.983	0.206		1
4-Chlorotoluene	ND	0.200	0.056	ND	1.04	0.290		1
4-Ethyltoluene	ND	0.200	0.037	ND	0.983	0.182		1
1,3,5-Trimethylbenzene	ND	0.200	0.068	ND	0.983	0.332		1
tert-Butylbenzene	ND	0.200	0.042	ND	1.10	0.231		1
1,2,4-Trimethylbenzene	ND	0.200	0.037	ND	0.983	0.181		1
Decane	ND	0.200	0.040	ND	1.16	0.235		1
Benzyl chloride	ND	0.200	0.048	ND	1.04	0.250		1
1,3-Dichlorobenzene	ND	0.200	0.063	ND	1.20	0.377		1
1,4-Dichlorobenzene	ND	0.200	0.064	ND	1.20	0.382		1
sec-Butylbenzene	ND	0.200	0.043	ND	1.10	0.235		1
p-Isopropyltoluene	ND	0.200	0.052	ND	1.10	0.285		1
1,2-Dichlorobenzene	ND	0.200	0.063	ND	1.20	0.378		1
n-Butylbenzene	ND	0.200	0.044	ND	1.10	0.242		1
1,2-Dibromo-3-chloropropane	ND	0.200	0.050	ND	1.93	0.478		1
Undecane	ND	0.200	0.043	ND	1.28	0.273		1
Dodecane	ND	0.200	0.066	ND	1.39	0.458		1
1,2,4-Trichlorobenzene	ND	0.200	0.067	ND	1.48	0.500		1
Naphthalene	ND	0.200	0.089	ND	1.05	0.464		1
1,2,3-Trichlorobenzene	ND	0.200	0.072	ND	1.48	0.531		1
Hexachlorobutadiene	ND	0.200	0.053	ND	2.13	0.564		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2272622
Report Date: 10/19/23

Air Canister Certification Results

Lab ID: L2272622-01
Client ID: CAN 207 SHELF 1
Sample Location:

Date Collected: 12/27/22 18:00
Date Received: 12/28/22
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	98		60-140
Bromochloromethane	97		60-140
chlorobenzene-d5	97		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2272622
Report Date: 10/19/23

Air Canister Certification Results

Lab ID: L2272622-01
Client ID: CAN 207 SHELF 1
Sample Location:

Date Collected: 12/27/22 18:00
Date Received: 12/28/22
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 12/28/22 17:55
Analyst: TJS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	0.018	ND	0.989	0.089		1
Chloromethane	ND	0.200	0.024	ND	0.413	0.050		1
Freon-114	ND	0.050	0.007	ND	0.349	0.050		1
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
1,3-Butadiene	ND	0.020	0.010	ND	0.044	0.022		1
Bromomethane	ND	0.020	0.009	ND	0.078	0.033		1
Chloroethane	ND	0.100	0.014	ND	0.264	0.036		1
Acrolein	ND	0.050	0.039	ND	0.115	0.089		1
Acetone	ND	1.00	0.299	ND	2.38	0.710		1
Trichlorofluoromethane	ND	0.050	0.010	ND	0.281	0.053		1
Acrylonitrile	ND	0.500	0.025	ND	1.09	0.053		1
1,1-Dichloroethene	ND	0.020	0.008	ND	0.079	0.033		1
Methylene chloride	ND	0.500	0.013	ND	1.74	0.046		1
Freon-113	ND	0.050	0.009	ND	0.383	0.067		1
trans-1,2-Dichloroethene	ND	0.020	0.008	ND	0.079	0.030		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.030		1
Methyl tert butyl ether	ND	0.200	0.008	ND	0.721	0.030		1
2-Butanone	ND	0.500	0.027	ND	1.47	0.080		1
cis-1,2-Dichloroethene	ND	0.020	0.010	ND	0.079	0.038		1
Chloroform	ND	0.020	0.009	ND	0.098	0.044		1
1,2-Dichloroethane	ND	0.020	0.010	ND	0.081	0.039		1
1,1,1-Trichloroethane	ND	0.020	0.008	ND	0.109	0.045		1
Benzene	ND	0.100	0.005	ND	0.319	0.016		1
Carbon tetrachloride	ND	0.020	0.010	ND	0.126	0.063		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2272622
Report Date: 10/19/23

Air Canister Certification Results

Lab ID: L2272622-01
Client ID: CAN 207 SHELF 1
Sample Location:

Date Collected: 12/27/22 18:00
Date Received: 12/28/22
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
1,2-Dichloropropane	ND	0.020	0.005	ND	0.092	0.025		1
Bromodichloromethane	ND	0.020	0.007	ND	0.134	0.045		1
1,4-Dioxane	ND	0.100	0.032	ND	0.360	0.115		1
Trichloroethene	ND	0.020	0.006	ND	0.107	0.033		1
cis-1,3-Dichloropropene	ND	0.020	0.007	ND	0.091	0.032		1
4-Methyl-2-pentanone	ND	0.500	0.012	ND	2.05	0.049		1
trans-1,3-Dichloropropene	ND	0.020	0.007	ND	0.091	0.032		1
1,1,2-Trichloroethane	ND	0.020	0.006	ND	0.109	0.032		1
Toluene	ND	0.100	0.014	ND	0.377	0.053		1
Dibromochloromethane	ND	0.020	0.009	ND	0.170	0.073		1
1,2-Dibromoethane	ND	0.020	0.008	ND	0.154	0.062		1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.053		1
1,1,1,2-Tetrachloroethane	ND	0.020	0.005	ND	0.137	0.036		1
Chlorobenzene	ND	0.100	0.006	ND	0.461	0.030		1
Ethylbenzene	ND	0.020	0.005	ND	0.087	0.021		1
p/m-Xylene	ND	0.040	0.019	ND	0.174	0.083		1
Bromoform	ND	0.020	0.007	ND	0.207	0.067		1
Styrene	ND	0.020	0.005	ND	0.085	0.021		1
1,1,2,2-Tetrachloroethane	ND	0.020	0.006	ND	0.137	0.039		1
o-Xylene	ND	0.020	0.007	ND	0.087	0.029		1
Isopropylbenzene	ND	0.200	0.005	ND	0.983	0.026		1
4-Ethyltoluene	ND	0.020	0.004	ND	0.098	0.021		1
1,3,5-Trimethybenzene	ND	0.020	0.006	ND	0.098	0.028		1
1,2,4-Trimethylbenzene	ND	0.020	0.004	ND	0.098	0.021		1
Benzyl chloride	ND	0.100	0.007	ND	0.518	0.037		1
1,3-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.034		1
1,4-Dichlorobenzene	ND	0.020	0.005	ND	0.120	0.032		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2272622
Report Date: 10/19/23

Air Canister Certification Results

Lab ID: L2272622-01
Client ID: CAN 207 SHELF 1
Sample Location:

Date Collected: 12/27/22 18:00
Date Received: 12/28/22
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
sec-Butylbenzene	ND	0.200	0.003	ND	1.10	0.018		1
p-Isopropyltoluene	ND	0.200	0.005	ND	1.10	0.025		1
1,2-Dichlorobenzene	ND	0.020	0.010	ND	0.120	0.059		1
n-Butylbenzene	ND	0.200	0.005	ND	1.10	0.026		1
1,2,4-Trichlorobenzene	ND	0.050	0.030	ND	0.371	0.223		1
Naphthalene	ND	0.050	0.035	ND	0.262	0.184		1
1,2,3-Trichlorobenzene	ND	0.050	0.013	ND	0.371	0.100		1
Hexachlorobutadiene	ND	0.050	0.017	ND	0.533	0.181		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	96		60-140
bromochloromethane	96		60-140
chlorobenzene-d5	97		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2328111
Report Date: 10/19/23

Air Canister Certification Results

Lab ID: L2328111-01
Client ID: CAN 3024 SHELF 1
Sample Location:

Date Collected: 05/18/23 18:00
Date Received: 05/19/23
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 05/20/23 22:24
Analyst: RAY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	0.046	ND	0.707	0.164		1
Propylene	ND	0.500	0.135	ND	0.861	0.232		1
Propane	ND	0.500	0.152	ND	0.902	0.274		1
Dichlorodifluoromethane	ND	0.200	0.076	ND	0.989	0.374		1
Chloromethane	ND	0.200	0.058	ND	0.413	0.119		1
Freon-114	ND	0.200	0.050	ND	1.40	0.352		1
Methanol	ND	5.00	3.03	ND	6.55	3.97		1
Vinyl chloride	ND	0.200	0.058	ND	0.511	0.149		1
1,3-Butadiene	ND	0.200	0.062	ND	0.442	0.137		1
Butane	ND	0.200	0.080	ND	0.475	0.190		1
Bromomethane	ND	0.200	0.055	ND	0.777	0.212		1
Chloroethane	ND	0.200	0.065	ND	0.528	0.171		1
Ethanol	ND	5.00	1.74	ND	9.42	3.28		1
Dichlorofluoromethane	ND	0.200	0.112	ND	0.842	0.471		1
Vinyl bromide	ND	0.200	0.072	ND	0.874	0.316		1
Acrolein	ND	0.500	0.149	ND	1.15	0.342		1
Acetone	ND	1.00	0.515	ND	2.38	1.22		1
Acetonitrile	ND	0.200	0.101	ND	0.336	0.170		1
Trichlorofluoromethane	ND	0.200	0.079	ND	1.12	0.442		1
Isopropanol	ND	0.500	0.272	ND	1.23	0.669		1
Acrylonitrile	ND	0.500	0.089	ND	1.09	0.194		1
Pentane	ND	0.200	0.113	ND	0.590	0.333		1
Ethyl ether	ND	0.200	0.085	ND	0.606	0.259		1
1,1-Dichloroethene	ND	0.200	0.057	ND	0.793	0.225		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2328111
Report Date: 10/19/23

Air Canister Certification Results

Lab ID: L2328111-01
Client ID: CAN 3024 SHELF 1
Sample Location:

Date Collected: 05/18/23 18:00
Date Received: 05/19/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	0.132	ND	1.52	0.400		1
Methylene chloride	ND	0.500	0.125	ND	1.74	0.434		1
3-Chloropropene	ND	0.200	0.086	ND	0.626	0.269		1
Carbon disulfide	ND	0.200	0.047	ND	0.623	0.145		1
Freon-113	ND	0.200	0.051	ND	1.53	0.388		1
trans-1,2-Dichloroethene	ND	0.200	0.076	ND	0.793	0.299		1
1,1-Dichloroethane	ND	0.200	0.057	ND	0.809	0.230		1
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
Vinyl acetate	ND	1.00	0.323	ND	3.52	1.14		1
2-Butanone	ND	0.500	0.099	ND	1.47	0.292		1
Xylenes, total	ND	0.600	0.062	ND	0.869	0.270		1
cis-1,2-Dichloroethene	ND	0.200	0.060	ND	0.793	0.236		1
Ethyl Acetate	ND	0.500	0.297	ND	1.80	1.07		1
Chloroform	ND	0.200	0.055	ND	0.977	0.270		1
Tetrahydrofuran	ND	0.500	0.117	ND	1.47	0.345		1
2,2-Dichloropropane	ND	0.200	0.043	ND	0.924	0.198		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
n-Hexane	ND	0.200	0.074	ND	0.705	0.262		1
Diisopropyl ether	ND	0.200	0.063	ND	0.836	0.264		1
tert-Butyl Ethyl Ether	ND	0.200	0.073	ND	0.836	0.306		1
1,2-Dichloroethene (total)	ND	1.00	0.060	ND	1.00	0.236		1
1,1,1-Trichloroethane	ND	0.200	0.061	ND	1.09	0.335		1
1,1-Dichloropropene	ND	0.200	0.059	ND	0.908	0.269		1
Benzene	ND	0.200	0.064	ND	0.639	0.205		1
Carbon tetrachloride	ND	0.200	0.069	ND	1.26	0.432		1
Cyclohexane	ND	0.200	0.073	ND	0.688	0.251		1
tert-Amyl Methyl Ether	ND	0.200	0.067	ND	0.836	0.281		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L2328111
Report Date: 10/19/23

Air Canister Certification Results

Lab ID: L2328111-01
Client ID: CAN 3024 SHELF 1
Sample Location:

Date Collected: 05/18/23 18:00
Date Received: 05/19/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	0.060	ND	1.42	0.425		1
1,2-Dichloropropane	ND	0.200	0.063	ND	0.924	0.292		1
Bromodichloromethane	ND	0.200	0.069	ND	1.34	0.462		1
1,4-Dioxane	ND	0.200	0.054	ND	0.721	0.194		1
Trichloroethene	ND	0.200	0.055	ND	1.07	0.295		1
2,2,4-Trimethylpentane	ND	0.200	0.069	ND	0.934	0.323		1
Methyl Methacrylate	ND	0.500	0.226	ND	2.05	0.925		1
Heptane	ND	0.200	0.083	ND	0.820	0.339		1
cis-1,3-Dichloropropene	ND	0.200	0.067	ND	0.908	0.306		1
4-Methyl-2-pentanone	ND	0.500	0.190	ND	2.05	0.779		1
trans-1,3-Dichloropropene	ND	0.200	0.078	ND	0.908	0.355		1
1,1,2-Trichloroethane	ND	0.200	0.058	ND	1.09	0.318		1
Toluene	ND	0.200	0.087	ND	0.754	0.327		1
1,3-Dichloropropane	ND	0.200	0.054	ND	0.924	0.248		1
2-Hexanone	ND	0.200	0.091	ND	0.820	0.374		1
Dibromochloromethane	ND	0.200	0.057	ND	1.70	0.482		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Butyl acetate	ND	0.500	0.208	ND	2.38	0.989		1
Octane	ND	0.200	0.068	ND	0.934	0.316		1
Tetrachloroethene	ND	0.200	0.063	ND	1.36	0.425		1
1,1,1,2-Tetrachloroethane	ND	0.200	0.051	ND	1.37	0.349		1
Chlorobenzene	ND	0.200	0.052	ND	0.921	0.238		1
Ethylbenzene	ND	0.200	0.058	ND	0.869	0.250		1
p/m-Xylene	ND	0.400	0.125	ND	1.74	0.543		1
Bromoform	ND	0.200	0.060	ND	2.07	0.616		1
Styrene	ND	0.200	0.060	ND	0.852	0.254		1
1,1,2,2-Tetrachloroethane	ND	0.200	0.052	ND	1.37	0.357		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2328111
Report Date: 10/19/23

Air Canister Certification Results

Lab ID: L2328111-01
Client ID: CAN 3024 SHELF 1
Sample Location:

Date Collected: 05/18/23 18:00
Date Received: 05/19/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	0.062	ND	0.869	0.270		1
1,2,3-Trichloropropane	ND	0.200	0.058	ND	1.21	0.347		1
Nonane	ND	0.200	0.074	ND	1.05	0.387		1
Isopropylbenzene	ND	0.200	0.062	ND	0.983	0.305		1
Bromobenzene	ND	0.200	0.058	ND	0.793	0.230		1
2-Chlorotoluene	ND	0.200	0.076	ND	1.04	0.394		1
n-Propylbenzene	ND	0.200	0.063	ND	0.983	0.311		1
4-Chlorotoluene	ND	0.200	0.077	ND	1.04	0.396		1
4-Ethyltoluene	ND	0.200	0.055	ND	0.983	0.272		1
1,3,5-Trimethylbenzene	ND	0.200	0.060	ND	0.983	0.295		1
tert-Butylbenzene	ND	0.200	0.055	ND	1.10	0.302		1
1,2,4-Trimethylbenzene	ND	0.200	0.058	ND	0.983	0.284		1
Decane	ND	0.200	0.070	ND	1.16	0.406		1
Benzyl chloride	ND	0.200	0.094	ND	1.04	0.486		1
1,3-Dichlorobenzene	ND	0.200	0.078	ND	1.20	0.467		1
1,4-Dichlorobenzene	ND	0.200	0.083	ND	1.20	0.497		1
sec-Butylbenzene	ND	0.200	0.055	ND	1.10	0.300		1
p-Isopropyltoluene	ND	0.200	0.057	ND	1.10	0.311		1
1,2-Dichlorobenzene	ND	0.200	0.062	ND	1.20	0.372		1
n-Butylbenzene	ND	0.200	0.054	ND	1.10	0.294		1
1,2-Dibromo-3-chloropropane	ND	0.200	0.062	ND	1.93	0.603		1
Undecane	ND	0.200	0.071	ND	1.28	0.453		1
Dodecane	ND	0.200	0.089	ND	1.39	0.621		1
1,2,4-Trichlorobenzene	ND	0.200	0.100	ND	1.48	0.742		1
Naphthalene	ND	0.200	0.078	ND	1.05	0.409		1
1,2,3-Trichlorobenzene	ND	0.200	0.074	ND	1.48	0.548		1
Hexachlorobutadiene	ND	0.200	0.061	ND	2.13	0.647		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2328111
Report Date: 10/19/23

Air Canister Certification Results

Lab ID: L2328111-01
Client ID: CAN 3024 SHELF 1
Sample Location:

Date Collected: 05/18/23 18:00
Date Received: 05/19/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	92		60-140
Bromochloromethane	93		60-140
chlorobenzene-d5	93		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2328111
Report Date: 10/19/23

Air Canister Certification Results

Lab ID: L2328111-01
Client ID: CAN 3024 SHELF 1
Sample Location:

Date Collected: 05/18/23 18:00
Date Received: 05/19/23
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 05/20/23 22:24
Analyst: RAY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	0.050	ND	0.989	0.247		1
Chloromethane	ND	0.200	0.076	ND	0.413	0.156		1
Freon-114	ND	0.050	0.006	ND	0.349	0.045		1
Vinyl chloride	ND	0.020	0.009	ND	0.051	0.023		1
1,3-Butadiene	ND	0.020	0.011	ND	0.044	0.024		1
Bromomethane	ND	0.020	0.009	ND	0.078	0.037		1
Chloroethane	ND	0.100	0.040	ND	0.264	0.104		1
Acrolein	ND	0.050	0.039	ND	0.115	0.089		1
Acetone	ND	1.00	0.539	ND	2.38	1.28		1
Trichlorofluoromethane	ND	0.050	0.009	ND	0.281	0.052		1
Acrylonitrile	ND	0.500	0.162	ND	1.09	0.352		1
1,1-Dichloroethene	ND	0.020	0.008	ND	0.079	0.031		1
Methylene chloride	ND	0.500	0.110	ND	1.74	0.382		1
Freon-113	ND	0.050	0.008	ND	0.383	0.064		1
trans-1,2-Dichloroethene	ND	0.020	0.009	ND	0.079	0.036		1
1,1-Dichloroethane	ND	0.020	0.009	ND	0.081	0.035		1
Methyl tert butyl ether	ND	0.200	0.026	ND	0.721	0.094		1
2-Butanone	ND	0.500	0.132	ND	1.47	0.389		1
cis-1,2-Dichloroethene	ND	0.020	0.010	ND	0.079	0.040		1
Chloroform	ND	0.020	0.007	ND	0.098	0.035		1
1,2-Dichloroethane	ND	0.020	0.008	ND	0.081	0.034		1
1,1,1-Trichloroethane	ND	0.020	0.006	ND	0.109	0.032		1
Benzene	ND	0.100	0.030	ND	0.319	0.095		1
Carbon tetrachloride	ND	0.020	0.011	ND	0.126	0.069		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2328111
Report Date: 10/19/23

Air Canister Certification Results

Lab ID: L2328111-01
Client ID: CAN 3024 SHELF 1
Sample Location:

Date Collected: 05/18/23 18:00
Date Received: 05/19/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.038		1
Bromodichloromethane	ND	0.020	0.007	ND	0.134	0.050		1
1,4-Dioxane	ND	0.100	0.034	ND	0.360	0.124		1
Trichloroethene	ND	0.020	0.006	ND	0.107	0.032		1
cis-1,3-Dichloropropene	ND	0.020	0.012	ND	0.091	0.054		1
4-Methyl-2-pentanone	ND	0.500	0.191	ND	2.05	0.783		1
trans-1,3-Dichloropropene	ND	0.020	0.012	ND	0.091	0.052		1
1,1,2-Trichloroethane	ND	0.020	0.010	ND	0.109	0.053		1
Toluene	ND	0.100	0.017	ND	0.377	0.063		1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068		1
1,2-Dibromoethane	ND	0.020	0.009	ND	0.154	0.070		1
Tetrachloroethene	ND	0.020	0.007	ND	0.136	0.050		1
1,1,1,2-Tetrachloroethane	ND	0.020	0.010	ND	0.137	0.069		1
Chlorobenzene	ND	0.100	0.026	ND	0.461	0.119		1
Ethylbenzene	ND	0.020	0.009	ND	0.087	0.037		1
p/m-Xylene	ND	0.040	0.018	ND	0.174	0.078		1
Bromoform	ND	0.020	0.011	ND	0.207	0.115		1
Styrene	ND	0.020	0.008	ND	0.085	0.034		1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.046		1
o-Xylene	ND	0.020	0.009	ND	0.087	0.038		1
Isopropylbenzene	ND	0.200	0.030	ND	0.983	0.147		1
4-Ethyltoluene	ND	0.020	0.010	ND	0.098	0.049		1
1,3,5-Trimethybenzene	ND	0.020	0.010	ND	0.098	0.047		1
1,2,4-Trimethylbenzene	ND	0.020	0.008	ND	0.098	0.037		1
Benzyl chloride	ND	0.100	0.033	ND	0.518	0.172		1
1,3-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.046		1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.045		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2328111
Report Date: 10/19/23

Air Canister Certification Results

Lab ID: L2328111-01
Client ID: CAN 3024 SHELF 1
Sample Location:

Date Collected: 05/18/23 18:00
Date Received: 05/19/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
sec-Butylbenzene	ND	0.200	0.027	ND	1.10	0.146		1
p-Isopropyltoluene	ND	0.200	0.037	ND	1.10	0.201		1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.037		1
n-Butylbenzene	ND	0.200	0.032	ND	1.10	0.175		1
1,2,4-Trichlorobenzene	ND	0.050	0.015	ND	0.371	0.108		1
Naphthalene	ND	0.050	0.021	ND	0.262	0.110		1
1,2,3-Trichlorobenzene	ND	0.050	0.022	ND	0.371	0.166		1
Hexachlorobutadiene	ND	0.050	0.011	ND	0.533	0.117		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	94		60-140
bromochloromethane	94		60-140
chlorobenzene-d5	94		60-140

Project Name: PESRM SOIL GAS
Project Number: 220181807

Lab Number: L2355579
Report Date: 10/19/23

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
NA	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2355579-01A	Canister - 2.7 Liter	NA	NA			Y	Absent		CANCELLED()
L2355579-02A	Canister - 2.7 Liter	NA	NA			Y	Absent		A2-SUB-AIR(),TO15-LL(30)

*Values in parentheses indicate holding time in days

Project Name:	PESRM SOIL GAS	**Lab Number:**	L2355579
Project Number:	220181807	**Report Date:**	10/19/23

GLOSSARY

Acronyms

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

Report Format: DU Report with 'J' Qualifiers

Project Name:	PESRM SOIL GAS	**Lab Number:**	L2355579
Project Number:	220181807	**Report Date:**	10/19/23

Footnotes

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

Terms

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

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

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

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

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

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

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

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

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

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

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers

Project Name:	PESRM SOIL GAS	**Lab Number:**	L2355579
Project Number:	220181807	**Report Date:**	10/19/23

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 SOIL GAS	**Lab Number:**	L2355579
Project Number:	220181807	**Report Date:**	10/19/23

REFERENCES

48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

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, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 524.2: THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables).
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

AIR ANALYSIS

ALPHA ANALYTICAL — CHAIN OF CUSTODY

PAGE 1 OF 1

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 9/22/23

ALPHA Job #: L2355579

Client Information

Client: Langan Engineering + Environmental
Address: ~~2 Logan Square 18th & Cherry St~~ 1818 Market St Ste 3300
Philadephia, PA
Phone: (215) 845-8900
Fax: (215) 845-8901
Email: astatkiewicz@langan.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: PESRM Soil Gas
Project Location: 3144 W Passyunk Ave, Philadelphia, PA
Project #: 220181807
Project Manager: A. Statkiewicz
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX
☐ ADEx
Criteria Checker:
(Default based on Regulatory Criteria Indicated)
Other Formats:
☐ EMAIL (standard pdf report)
☐ Additional Deliverables:

Report to: (if different than Project Manager)

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed	Program	Res / Comm

astatkiewicz@langan.com
abarr@langan.com
agoldberg@langan.com

Other Project Specific Requirements/Comments:

Project-Specific Target Compound List: ☐

ANALYSIS

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	COLLECTION End Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	ID Can	ID - Flow Controller	TO-15	TO-15 SIM	APH Subset Non-petroleum HCs	Fixed Gases	☐ Sulfides & Mercaptans by TO-15	Methane	Sample Comments (i.e. PID)
SS579-01	SG-A11_10.5_092423	9/21/23	11:38	14:20	-29.29	-27.16	SV	RH	2.7	30	01636	X					X	
02	SG-B12_11.5_092123	9/21/23	11:23	11:33	-30.24	-18.37	SV	RH	2.7	207	0217	X					X	

*SAMPLE MATRIX CODES

AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type

Relinquished By:	Date/Time	Received By:	Date/Time:
9/22/23 0700			
9/22/23 0700			
Rebekah Hanlahan	9/21/23 1501e		
	9/21/23 1600 1900	Anthony Green	9/21/23 15:07 1600 2100
Anthony Green	9/22/23 0200		9/22/23 0700

SEP 21 2023

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.

ANALYTICAL REPORT

October 19, 2023

Pace Analytical (Alpha) - Westborough,MA

Sample Delivery Group:	L1666328
Samples Received:	10/13/2023
Project Number:	L2355579
Description:	PESRM SOIL GAS

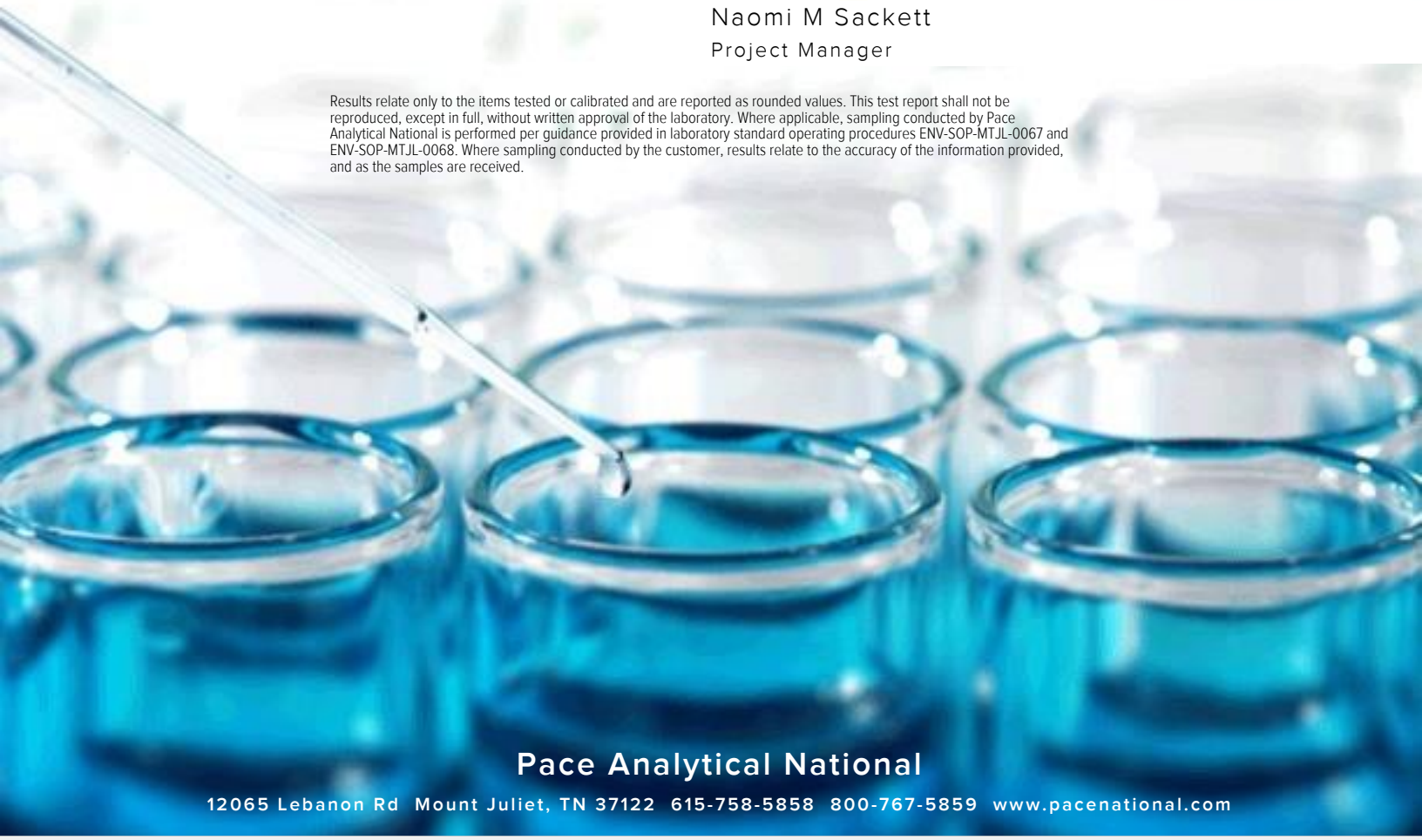
Report To: Chris Anderson
8 Walkup Drive
Westborough, MA 01581

Entire Report Reviewed By:



Naomi M Sackett
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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	Collected by	Collected date/time	Received date/time
L2355579 L1666328-01 Air		09/21/23 14:20	10/13/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Organic Compounds (GC) by Method D1946	WG2153378	1	10/18/23 10:10	10/18/23 10:10	BAW	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Naomi M Sackett
Project Manager

Organic Compounds (GC) by Method D1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Methane	74-82-8	16	0.400	0.675		1	WG2153378

Method Blank (MB)

(MB) R3987708-3 10/18/23 10:01

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Methane	U		0.0584	0.400

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3987708-1 10/18/23 09:53 • (LCSD) R3987708-2 10/18/23 09:58

Analyte	Spike Amount %	LCS Result %	LCSD Result %	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Methane	2.00	2.20	2.30	110	115	70.0-130			4.44	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

AIR ANALYSIS

PAGE 1 OF 1

CHAIN OF CUSTODY

ALPHA ANALYTICAL

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab:

ALPHA Job #:

Client Information

Client: Alpha Analytial
Address: 320 Forbes Blvd
Mansfield, MA
Phone:
Fax:
Email: canderson@alphalab.com

Project Information

Project Name: PESRM SOIL GAS
Project Location: 3144 W PASSYUNK AVE. PHILA, PA
Project #: 220181807
Project Manager: Chris Anderson
ALPHA Quote #:

Report/Data Deliverables Information

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: ~~L2355579~~

Regulatory Requirements/Report Limits

State/Fed	Program	Residential/Commercial

Turn-Around-Time

☐ Standard ☒ Rush (only confirmed if pre-approved)

Date Due: 10/16 Time:

Analysis

G033

L1666328

☐ These samples have been Previously analyzed by Alpha

Other Project Specific Requirements/Comments:

☐ Project-Specific Target Compound List

METHANE

Sample Receipt Checklist

COC Seal Present/Intact:	Y N	If Applicable	
COC Signed/Accurate:	Y N	VOA Zero Headspace:	Y N
Bottles arrive intact:	Y N	Pres. Correct/Check:	Y N
Correct bottles used:	Y N	TRK # 7737 2033 8317	
Sufficient volume sent:	Y N		
RA Screen <0.5 mR/hr:	Y N		

All Columns Below Must Be Filled Out

Alpha Lab Use Only	Sample ID	Collection: End Date	Collection: Start Time	Collection: End Time	Collection: Initial Vac	Collection: Final Vac	Sample Matrix*	Sampler Initials	Can Size	ID Can	ID Flow Controller	TO-15	TO-15 SIM	Subtract non-petroleum HCs	FIXED GASES	Sulfides & Mercaptans by TO-15			Sample Specific Comments (i.e. PID)
	L2355579	9/21/23		14:20		-23.2			2.7L	207		☐	☐	☐	☐	☐	☐	☐	Methane only -01
												☐	☐	☐	☐	☐	☐	☐	
												☐	☐	☐	☐	☐	☐	☐	
												☐	☐	☐	☐	☐	☐	☐	
												☐	☐	☐	☐	☐	☐	☐	
												☐	☐	☐	☐	☐	☐	☐	
Container Type												-	-	-	-	-		-	

***SAMPLE MATRIX CODES:**

AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Relinquished By	Date/Time	Received By:	Date/Time
		Brooke Lyncook	10/13/23 2000

Please print clearly & legil
logged in and turn aroun
ambiguities are resolve
to Alpha's Payment Term

OK

ANALYTICAL REPORT

Lab Number:	L2354279
Client:	Langan Engineering & Environmental 6000 Lombardo Center Suite 210 Cleveland, OH 44131
ATTN:	Anna Statkiewicz
Phone:	(216) 328-3354
Project Name:	PESRM SOIL GAS
Project Number:	220181807
Report Date:	10/10/23

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Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0825), DoD (L2474), FL (E87814), IL (200081), IN (C-MA-04), KY (KY98046), LA (85084), ME (MA00030), MD (350), MI (99110) , NJ (MA015), NY (11627), NC (685), OH (CL106), OR (MA-0262), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #525-23-107-88708), USFWS (Permit #206964).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: PESRM SOIL GAS
Project Number: 220181807

Lab Number: L2354279
Report Date: 10/10/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2354279-01	SG-A14_10.5_091423	SOIL_VAPOR	3144 W PASSYUNK AVE. PHILA, PA	09/14/23 13:51	09/15/23
L2354279-02	SG-B7_11.5_091423	SOIL_VAPOR	3144 W PASSYUNK AVE. PHILA, PA	09/14/23 14:56	09/15/23
L2354279-03	SG-B13_11.5_091423	SOIL_VAPOR	3144 W PASSYUNK AVE. PHILA, PA	09/14/23 16:35	09/15/23
L2354279-04	SG-D14_9.5_091423	SOIL_VAPOR	3144 W PASSYUNK AVE. PHILA, PA	09/14/23 11:47	09/15/23
L2354279-05	SG-E5_9.5_091423	SOIL_VAPOR	3144 W PASSYUNK AVE. PHILA, PA	09/14/23 14:26	09/15/23

Project Name:	PESRM SOIL GAS	**Lab Number:**	L2354279
Project Number:	220181807	**Report Date:**	10/10/23

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	PESRM SOIL GAS	**Lab Number:**	L2354279
Project Number:	220181807	**Report Date:**	10/10/23

Case Narrative (continued)

Report Submission

October 10, 2023: This final report includes the results of all requested analyses. The subcontracted methane analysis is included as an addendem to the report.

Report Submission

September 21, 2023: This is a preliminary report. A final report will be issued as soon as the fixed gas analysis is completed.

Volatile Organics in Air

Canisters were released from the laboratory on September 13, 2023. The canister certification results are provided as an addendum.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

L2354279-01D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2354279-02 through -04D: The samples have elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

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

Authorized Signature: Christopher J. Anderson

Title: Technical Director/Representative Date: 10/10/23

AIR

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2354279
Report Date: 10/10/23

SAMPLE RESULTS

Lab ID: L2354279-01 D
Client ID: SG-A14_10.5_091423
Sample Location: 3144 W PASSYUNK AVE. PHILA, PA

Date Collected: 09/14/23 13:51
Date Received: 09/15/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 09/21/23 04:29
Analyst: JMB

	ppbV			ug/m3				
Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	ND	25000	9460	ND	124000	46800		125000
Chloromethane	ND	25000	7200	ND	51600	14900		125000
Vinyl chloride	ND	25000	7280	ND	63900	18600		125000
1,3-Butadiene	ND	25000	7740	ND	55300	17100		125000
Bromomethane	ND	25000	6840	ND	97100	26600		125000
Chloroethane	ND	25000	8110	ND	66000	21400		125000
Vinyl bromide	ND	25000	9020	ND	109000	39400		125000
Acrolein	ND	62500	18600	ND	143000	42600		125000
Acetone	ND	125000	64400	ND	297000	153000		125000
Trichlorofluoromethane	ND	25000	9840	ND	140000	55300		125000
Isopropanol	ND	62500	34000	ND	154000	83600		125000
Acrylonitrile	ND	62500	11200	ND	136000	24300		125000
1,1-Dichloroethene	ND	25000	7100	ND	99100	28200		125000
Methylene chloride	ND	62500	15600	ND	217000	54200		125000
3-Chloropropene	ND	25000	10800	ND	78300	33800		125000
Carbon disulfide	ND	25000	5810	ND	77900	18100		125000
Freon-113	ND	25000	6320	ND	192000	48400		125000
trans-1,2-Dichloroethene	ND	25000	9440	ND	99100	37400		125000
1,1-Dichloroethane	ND	25000	7100	ND	101000	28700		125000
Methyl tert butyl ether	ND	25000	5620	ND	90100	20300		125000
Chloroform	ND	25000	6900	ND	122000	33700		125000
Tetrahydrofuran	ND	62500	14600	ND	184000	43100		125000
1,2-Dichloroethane	ND	25000	9840	ND	101000	39800		125000

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2354279
Report Date: 10/10/23

SAMPLE RESULTS

Lab ID: L2354279-01 D
Client ID: SG-A14_10.5_091423
Sample Location: 3144 W PASSYUNK AVE. PHILA, PA

Date Collected: 09/14/23 13:51
Date Received: 09/15/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
n-Hexane	ND	25000	9290	ND	88100	32700		125000
1,1,1-Trichloroethane	ND	25000	7680	ND	136000	41900		125000
Benzene	ND	25000	8040	ND	79900	25700		125000
Carbon tetrachloride	ND	25000	8580	ND	157000	54000		125000
Cyclohexane	ND	25000	9100	ND	86100	31300		125000
1,2-Dichloropropane	ND	25000	7890	ND	116000	36500		125000
Bromodichloromethane	ND	25000	8610	ND	167000	57700		125000
1,4-Dioxane	ND	25000	6720	ND	90100	24200		125000
Trichloroethene	ND	25000	6850	ND	134000	36800		125000
Methyl Methacrylate	ND	62500	28200	ND	256000	115000		125000
Xylenes, Total	ND	25000	7760	ND	109000	33700		125000
4-Methyl-2-pentanone	ND	62500	23800	ND	256000	97500		125000
1,1,2-Trichloroethane	ND	25000	7280	ND	136000	39700		125000
Toluene	ND	25000	10800	ND	94200	40700		125000
1,3-Dichloropropane	ND	25000	6700	ND	116000	31000		125000
Dibromochloromethane	ND	25000	7080	ND	213000	60300		125000
1,2-Dibromoethane	ND	25000	6800	ND	192000	52300		125000
Tetrachloroethene	ND	25000	7840	ND	170000	53200		125000
Chlorobenzene	ND	25000	6450	ND	115000	29700		125000
Ethylbenzene	ND	25000	7190	ND	109000	31200		125000
p/m-Xylene	ND	50000	15600	ND	217000	67800		125000
Bromoform	ND	25000	7450	ND	258000	77000		125000
Styrene	ND	25000	7450	ND	106000	31700		125000
1,1,2,2-Tetrachloroethane	ND	25000	6500	ND	172000	44600		125000
o-Xylene	ND	25000	7760	ND	109000	33700		125000
Isopropylbenzene	ND	25000	7760	ND	123000	38100		125000

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2354279
Report Date: 10/10/23

SAMPLE RESULTS

Lab ID: L2354279-01 D
Client ID: SG-A14_10.5_091423
Sample Location: 3144 W PASSYUNK AVE. PHILA, PA

Date Collected: 09/14/23 13:51
Date Received: 09/15/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
1,3,5-Trimethylbenzene	ND	25000	7500	ND	123000	36900		125000
1,2,4-Trimethylbenzene	ND	25000	7210	ND	123000	35400		125000
Benzyl chloride	ND	25000	11700	ND	129000	60600		125000
1,4-Dichlorobenzene	ND	25000	10300	ND	150000	61900		125000
1,2-Dichlorobenzene	ND	25000	7740	ND	150000	46500		125000
1,2,4-Trichlorobenzene	ND	25000	12500	ND	186000	92800		125000
Naphthalene	ND	25000	9750	ND	131000	51100		125000

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	99		60-140
Bromochloromethane	103		60-140
chlorobenzene-d5	99		60-140

Project Name: PESRM SOIL GAS
Project Number: 220181807

Lab Number: L2354279
Report Date: 10/10/23

SAMPLE RESULTS

Lab ID: L2354279-02 D
Client ID: SG-B7_11.5_091423
Sample Location: 3144 W PASSYUNK AVE. PHILA, PA

Date Collected: 09/14/23 14:56
Date Received: 09/15/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 09/21/23 05:06
Analyst: JMB

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	ND	208.	78.9	ND	1030	390.		1042
Chloromethane	ND	208.	60.0	ND	430	124.		1042
Vinyl chloride	ND	208.	60.6	ND	532	155.		1042
1,3-Butadiene	ND	208.	64.5	ND	460	143.		1042
Bromomethane	ND	208.	57.0	ND	808	221.		1042
Chloroethane	ND	208.	67.6	ND	549	178.		1042
Vinyl bromide	ND	208.	75.2	ND	909	329.		1042
Acrolein	ND	521.	155.	ND	1190	355.		1042
Acetone	ND	1040	537.	ND	2470	1280		1042
Trichlorofluoromethane	ND	208.	82.0	ND	1170	461.		1042
Isopropanol	ND	521	283.	ND	1280	696.		1042
Acrylonitrile	ND	521.	93.2	ND	1130	202.		1042
1,1-Dichloroethene	ND	208.	59.2	ND	825	235.		1042
Methylene chloride	ND	521	130.	ND	1810	452.		1042
3-Chloropropene	ND	208.	89.6	ND	651	280.		1042
Carbon disulfide	ND	208.	48.4	ND	648	151.		1042
Freon-113	ND	208.	52.7	ND	1590	404.		1042
trans-1,2-Dichloroethene	ND	208.	78.7	ND	825	312.		1042
1,1-Dichloroethane	ND	208.	59.2	ND	842	240.		1042
Methyl tert butyl ether	ND	208.	46.9	ND	750	169.		1042
Chloroform	ND	208.	57.5	ND	1020	281.		1042
Tetrahydrofuran	ND	521.	122.	ND	1540	360.		1042
1,2-Dichloroethane	ND	208.	82.0	ND	842	332.		1042

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2354279
Report Date: 10/10/23

SAMPLE RESULTS

Lab ID: L2354279-02 D
Client ID: SG-B7_11.5_091423
Sample Location: 3144 W PASSYUNK AVE. PHILA, PA

Date Collected: 09/14/23 14:56
Date Received: 09/15/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
n-Hexane	963	208	77.4	3390	733	273.		1042
1,1,1-Trichloroethane	ND	208.	64.0	ND	1130	349.		1042
Benzene	406	208	67.0	1300	664	214.		1042
Carbon tetrachloride	ND	208.	71.5	ND	1310	450.		1042
Cyclohexane	1000	208	75.8	3440	716	261.		1042
1,2-Dichloropropane	ND	208.	65.8	ND	961	304.		1042
Bromodichloromethane	ND	208.	71.8	ND	1390	481.		1042
1,4-Dioxane	ND	208.	56.0	ND	750	202.		1042
Trichloroethene	ND	208.	57.1	ND	1120	307.		1042
Methyl Methacrylate	ND	521.	235.	ND	2130	962.		1042
Xylenes, Total	ND	208.	64.7	ND	903	281.		1042
4-Methyl-2-pentanone	ND	521.	198.	ND	2140	811.		1042
1,1,2-Trichloroethane	ND	208.	60.6	ND	1130	331.		1042
Toluene	ND	208	90.3	ND	784	340.		1042
1,3-Dichloropropane	ND	208.	55.8	ND	961	258.		1042
Dibromochloromethane	ND	208.	59.0	ND	1770	503.		1042
1,2-Dibromoethane	ND	208.	56.7	ND	1600	436.		1042
Tetrachloroethene	ND	208.	65.3	ND	1410	443.		1042
Chlorobenzene	ND	208.	53.8	ND	958	248.		1042
Ethylbenzene	ND	208.	59.9	ND	903	260.		1042
p/m-Xylene	ND	417	130.	ND	1810	565.		1042
Bromoform	ND	208.	62.1	ND	2150	642.		1042
Styrene	ND	208.	62.1	ND	886	264.		1042
1,1,2,2-Tetrachloroethane	ND	208.	54.2	ND	1430	372.		1042
o-Xylene	ND	208.	64.7	ND	903	281.		1042
Isopropylbenzene	ND	208.	64.7	ND	1020	318.		1042

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2354279
Report Date: 10/10/23

SAMPLE RESULTS

Lab ID: L2354279-02 D
Client ID: SG-B7_11.5_091423
Sample Location: 3144 W PASSYUNK AVE. PHILA, PA

Date Collected: 09/14/23 14:56
Date Received: 09/15/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
1,3,5-Trimethylbenzene	ND	208.	62.5	ND	1020	307.		1042
1,2,4-Trimethylbenzene	ND	208.	60.1	ND	1020	295.		1042
Benzyl chloride	ND	208.	97.8	ND	1080	506.		1042
1,4-Dichlorobenzene	ND	208.	86.1	ND	1250	518.		1042
1,2-Dichlorobenzene	ND	208.	64.5	ND	1250	388.		1042
1,2,4-Trichlorobenzene	ND	208.	104.	ND	1540	772.		1042
Naphthalene	ND	208.	81.3	ND	1090	426.		1042

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	98		60-140
Bromochloromethane	102		60-140
chlorobenzene-d5	103		60-140

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2354279
Report Date: 10/10/23

SAMPLE RESULTS

Lab ID: L2354279-03 D
Client ID: SG-B13_11.5_091423
Sample Location: 3144 W PASSYUNK AVE. PHILA, PA

Date Collected: 09/14/23 16:35
Date Received: 09/15/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 09/21/23 05:44
Analyst: JMB

	ppbV			ug/m3				
Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	ND	34.2	13.0	ND	169	64.3		171.2
Chloromethane	ND	34.2	9.86	ND	70.6	20.4		171.2
Vinyl chloride	ND	34.2	9.96	ND	87.4	25.5		171.2
1,3-Butadiene	ND	34.2	10.6	ND	75.7	23.5		171.2
Bromomethane	ND	34.2	9.36	ND	133	36.3		171.2
Chloroethane	ND	34.2	11.1	ND	90.2	29.3		171.2
Vinyl bromide	ND	34.2	12.4	ND	150	54.2		171.2
Acrolein	ND	85.6	25.5	ND	196	58.5		171.2
Acetone	ND	171.	88.2	ND	406	210.		171.2
Trichlorofluoromethane	ND	34.2	13.5	ND	192	75.9		171.2
Isopropanol	ND	85.6	46.6	ND	210	115.		171.2
Acrylonitrile	ND	85.6	15.3	ND	186	33.2		171.2
1,1-Dichloroethene	ND	34.2	9.72	ND	136	38.5		171.2
Methylene chloride	ND	85.6	21.4	ND	297	74.3		171.2
3-Chloropropene	ND	34.2	14.7	ND	107	46.0		171.2
Carbon disulfide	8.73	34.2	7.96	27.2	107	24.8	J	171.2
Freon-113	ND	34.2	8.66	ND	262	66.4		171.2
trans-1,2-Dichloroethene	ND	34.2	12.9	ND	136	51.1		171.2
1,1-Dichloroethane	ND	34.2	9.72	ND	138	39.3		171.2
Methyl tert butyl ether	ND	34.2	7.70	ND	123	27.8		171.2
Chloroform	ND	34.2	9.45	ND	167	46.1		171.2
Tetrahydrofuran	ND	85.6	20.0	ND	252	59.0		171.2
1,2-Dichloroethane	ND	34.2	13.5	ND	138	54.6		171.2

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2354279
Report Date: 10/10/23

SAMPLE RESULTS

Lab ID: L2354279-03 D
Client ID: SG-B13_11.5_091423
Sample Location: 3144 W PASSYUNK AVE. PHILA, PA

Date Collected: 09/14/23 16:35
Date Received: 09/15/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
n-Hexane	489	34.2	12.7	1720	121	44.8		171.2
1,1,1-Trichloroethane	ND	34.2	10.5	ND	187	57.3		171.2
Benzene	38.7	34.2	11.0	124	109	35.1		171.2
Carbon tetrachloride	ND	34.2	11.7	ND	215	73.6		171.2
Cyclohexane	2470	34.2	12.5	8500	118	43.0		171.2
1,2-Dichloropropane	ND	34.2	10.8	ND	158	49.9		171.2
Bromodichloromethane	ND	34.2	11.8	ND	229	79.1		171.2
1,4-Dioxane	ND	34.2	9.21	ND	123	33.2		171.2
Trichloroethene	ND	34.2	9.38	ND	184	50.4		171.2
Methyl Methacrylate	ND	85.6	38.7	ND	351	158.		171.2
Xylenes, Total	ND	34.2	10.6	ND	149	46.0		171.2
4-Methyl-2-pentanone	ND	85.6	32.5	ND	351	133.		171.2
1,1,2-Trichloroethane	ND	34.2	9.96	ND	187	54.3		171.2
Toluene	ND	34.2	14.8	ND	129	55.8		171.2
1,3-Dichloropropane	ND	34.2	9.18	ND	158	42.4		171.2
Dibromochloromethane	ND	34.2	9.69	ND	291	82.6		171.2
1,2-Dibromoethane	ND	34.2	9.31	ND	263	71.5		171.2
Tetrachloroethene	ND	34.2	10.7	ND	232	72.6		171.2
Chlorobenzene	ND	34.2	8.83	ND	158	40.7		171.2
Ethylbenzene	ND	34.2	9.84	ND	149	42.7		171.2
p/m-Xylene	ND	68.5	21.4	ND	298	93.0		171.2
Bromoform	ND	34.2	10.2	ND	354	105.		171.2
Styrene	ND	34.2	10.2	ND	146	43.4		171.2
1,1,2,2-Tetrachloroethane	ND	34.2	8.90	ND	235	61.1		171.2
o-Xylene	ND	34.2	10.6	ND	149	46.0		171.2
Isopropylbenzene	ND	34.2	10.6	ND	168	52.1		171.2

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2354279
Report Date: 10/10/23

SAMPLE RESULTS

Lab ID: L2354279-03 D
Client ID: SG-B13_11.5_091423
Sample Location: 3144 W PASSYUNK AVE. PHILA, PA

Date Collected: 09/14/23 16:35
Date Received: 09/15/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
1,3,5-Trimethylbenzene	ND	34.2	10.3	ND	168	50.6		171.2
1,2,4-Trimethylbenzene	ND	34.2	9.88	ND	168	48.6		171.2
Benzyl chloride	ND	34.2	16.1	ND	177	83.4		171.2
1,4-Dichlorobenzene	ND	34.2	14.1	ND	206	84.8		171.2
1,2-Dichlorobenzene	ND	34.2	10.6	ND	206	63.7		171.2
1,2,4-Trichlorobenzene	ND	34.2	17.1	ND	254	127.		171.2
Naphthalene	ND	34.2	13.4	ND	179	70.3		171.2

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	99		60-140
Bromochloromethane	103		60-140
chlorobenzene-d5	106		60-140

Project Name: PESRM SOIL GAS
Project Number: 220181807

Lab Number: L2354279
Report Date: 10/10/23

SAMPLE RESULTS

Lab ID: L2354279-04 D
Client ID: SG-D14_9.5_091423
Sample Location: 3144 W PASSYUNK AVE. PHILA, PA

Date Collected: 09/14/23 11:47
Date Received: 09/15/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 09/21/23 06:20
Analyst: JMB

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	ND	71.4	27.0	ND	353	134.		357.1
Chloromethane	ND	71.4	20.6	ND	147	42.5		357.1
Vinyl chloride	ND	71.4	20.8	ND	183	53.2		357.1
1,3-Butadiene	ND	71.4	22.1	ND	158	48.9		357.1
Bromomethane	ND	71.4	19.5	ND	277	75.7		357.1
Chloroethane	ND	71.4	23.2	ND	188	61.2		357.1
Vinyl bromide	ND	71.4	25.8	ND	312	113.		357.1
Acrolein	ND	178.	53.2	ND	408	122.		357.1
Acetone	ND	357.	184.	ND	848	437.		357.1
Trichlorofluoromethane	ND	71.4	28.1	ND	401	158.		357.1
Isopropanol	ND	178	97.1	ND	438	239.		357.1
Acrylonitrile	ND	178.	31.9	ND	386	69.2		357.1
1,1-Dichloroethene	ND	71.4	20.3	ND	283	80.5		357.1
Methylene chloride	ND	178	44.6	ND	618	155.		357.1
3-Chloropropene	ND	71.4	30.7	ND	223	96.1		357.1
Carbon disulfide	19.3	71.4	16.6	60.1	222	51.7	J	357.1
Freon-113	ND	71.4	18.1	ND	547	139.		357.1
trans-1,2-Dichloroethene	ND	71.4	27.0	ND	283	107.		357.1
1,1-Dichloroethane	ND	71.4	20.3	ND	289	82.2		357.1
Methyl tert butyl ether	ND	71.4	16.1	ND	257	58.0		357.1
Chloroform	ND	71.4	19.7	ND	349	96.2		357.1
Tetrahydrofuran	ND	178.	41.8	ND	525	123.		357.1
1,2-Dichloroethane	ND	71.4	28.1	ND	289	114.		357.1

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2354279
Report Date: 10/10/23

SAMPLE RESULTS

Lab ID: L2354279-04 D
Client ID: SG-D14_9.5_091423
Sample Location: 3144 W PASSYUNK AVE. PHILA, PA

Date Collected: 09/14/23 11:47
Date Received: 09/15/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
n-Hexane	13400	71.4	26.5	47200	252	93.4		357.1
1,1,1-Trichloroethane	ND	71.4	21.9	ND	390	119.		357.1
Benzene	226	71.4	23.0	722	228	73.5		357.1
Carbon tetrachloride	ND	71.4	24.5	ND	449	154.		357.1
Cyclohexane	3320	71.4	26.0	11400	246	89.5		357.1
1,2-Dichloropropane	ND	71.4	22.5	ND	330	104.		357.1
Bromodichloromethane	ND	71.4	24.6	ND	478	165.		357.1
1,4-Dioxane	ND	71.4	19.2	ND	257	69.2		357.1
Trichloroethene	ND	71.4	19.6	ND	384	105.		357.1
Methyl Methacrylate	ND	178.	80.7	ND	729	330.		357.1
Xylenes, Total	358	71.4	22.2	1550	310	96.4	J	357.1
4-Methyl-2-pentanone	ND	178.	67.8	ND	729	278.		357.1
1,1,2-Trichloroethane	ND	71.4	20.8	ND	390	113.		357.1
Toluene	ND	71.4	31.0	ND	269	117.		357.1
1,3-Dichloropropane	ND	71.4	19.1	ND	330	88.3		357.1
Dibromochloromethane	ND	71.4	20.2	ND	608	172.		357.1
1,2-Dibromoethane	ND	71.4	19.4	ND	549	149.		357.1
Tetrachloroethene	ND	71.4	22.4	ND	484	152.		357.1
Chlorobenzene	ND	71.4	18.4	ND	329	84.7		357.1
Ethylbenzene	165	71.4	20.5	717	310	89.0		357.1
p/m-Xylene	315	143	44.6	1370	621	194.		357.1
Bromoform	ND	71.4	21.3	ND	738	220.		357.1
Styrene	ND	71.4	21.3	ND	304	90.7		357.1
1,1,2,2-Tetrachloroethane	ND	71.4	18.6	ND	490	128.		357.1
o-Xylene	43.9	71.4	22.2	191	310	96.4	J	357.1
Isopropylbenzene	78.6	71.4	22.2	386	351	109.		357.1

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2354279
Report Date: 10/10/23

SAMPLE RESULTS

Lab ID: L2354279-04 D
Client ID: SG-D14_9.5_091423
Sample Location: 3144 W PASSYUNK AVE. PHILA, PA

Date Collected: 09/14/23 11:47
Date Received: 09/15/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
1,3,5-Trimethylbenzene	76.1	71.4	21.4	374	351	105.		357.1
1,2,4-Trimethylbenzene	204	71.4	20.6	1000	351	101.		357.1
Benzyl chloride	ND	71.4	33.5	ND	370	173.		357.1
1,4-Dichlorobenzene	ND	71.4	29.5	ND	429	177.		357.1
1,2-Dichlorobenzene	ND	71.4	22.1	ND	429	133.		357.1
1,2,4-Trichlorobenzene	ND	71.4	35.7	ND	530	265.		357.1
Naphthalene	ND	71.4	27.8	ND	374	146.		357.1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	98		60-140
Bromochloromethane	102		60-140
chlorobenzene-d5	102		60-140

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2354279
Report Date: 10/10/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 09/20/23 18:46

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-04 Batch: WG1829931-4								
Dichlorodifluoromethane	ND	0.200	0.076	ND	0.989	0.374		1
Chloromethane	ND	0.200	0.058	ND	0.413	0.119		1
Vinyl chloride	ND	0.200	0.058	ND	0.511	0.149		1
1,3-Butadiene	ND	0.200	0.062	ND	0.442	0.137		1
Bromomethane	ND	0.200	0.055	ND	0.777	0.212		1
Chloroethane	ND	0.200	0.065	ND	0.528	0.171		1
Vinyl bromide	ND	0.200	0.072	ND	0.874	0.316		1
Acrolein	ND	0.500	0.149	ND	1.15	0.342		1
Acetone	ND	1.00	0.515	ND	2.38	1.22		1
Trichlorofluoromethane	ND	0.200	0.079	ND	1.12	0.442		1
Isopropanol	ND	0.500	0.272	ND	1.23	0.669		1
Acrylonitrile	ND	0.500	0.089	ND	1.09	0.194		1
1,1-Dichloroethene	ND	0.200	0.057	ND	0.793	0.225		1
Methylene chloride	ND	0.500	0.125	ND	1.74	0.434		1
3-Chloropropene	ND	0.200	0.086	ND	0.626	0.269		1
Carbon disulfide	ND	0.200	0.047	ND	0.623	0.145		1
Freon-113	ND	0.200	0.051	ND	1.53	0.388		1
trans-1,2-Dichloroethene	ND	0.200	0.076	ND	0.793	0.299		1
1,1-Dichloroethane	ND	0.200	0.057	ND	0.809	0.230		1
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
Xylenes, Total	ND	0.200	0.062	ND	0.869	0.270		1
Chloroform	ND	0.200	0.055	ND	0.977	0.270		1
Tetrahydrofuran	ND	0.500	0.117	ND	1.47	0.345		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
n-Hexane	ND	0.200	0.074	ND	0.705	0.262		1

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2354279
Report Date: 10/10/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 09/20/23 18:46

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-04 Batch: WG1829931-4								
1,1,1-Trichloroethane	ND	0.200	0.061	ND	1.09	0.335		1
Benzene	ND	0.200	0.064	ND	0.639	0.205		1
Carbon tetrachloride	ND	0.200	0.069	ND	1.26	0.432		1
Cyclohexane	ND	0.200	0.073	ND	0.688	0.251		1
1,2-Dichloropropane	ND	0.200	0.063	ND	0.924	0.292		1
Bromodichloromethane	ND	0.200	0.069	ND	1.34	0.462		1
1,4-Dioxane	ND	0.200	0.054	ND	0.721	0.194		1
Trichloroethene	ND	0.200	0.055	ND	1.07	0.295		1
Methyl Methacrylate	ND	0.500	0.226	ND	2.05	0.925		1
4-Methyl-2-pentanone	ND	0.500	0.190	ND	2.05	0.779		1
1,1,2-Trichloroethane	ND	0.200	0.058	ND	1.09	0.318		1
Toluene	ND	0.200	0.087	ND	0.754	0.327		1
1,3-Dichloropropane	ND	0.200	0.054	ND	0.924	0.248		1
Dibromochloromethane	ND	0.200	0.057	ND	1.70	0.482		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Tetrachloroethene	ND	0.200	0.063	ND	1.36	0.425		1
Chlorobenzene	ND	0.200	0.052	ND	0.921	0.238		1
Ethylbenzene	ND	0.200	0.058	ND	0.869	0.250		1
p/m-Xylene	ND	0.400	0.125	ND	1.74	0.543		1
Bromoform	ND	0.200	0.060	ND	2.07	0.616		1
Styrene	ND	0.200	0.060	ND	0.852	0.254		1
1,1,2,2-Tetrachloroethane	ND	0.200	0.052	ND	1.37	0.357		1
o-Xylene	ND	0.200	0.062	ND	0.869	0.270		1
Isopropylbenzene	ND	0.200	0.062	ND	0.983	0.305		1
1,3,5-Trimethylbenzene	ND	0.200	0.060	ND	0.983	0.295		1

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2354279
Report Date: 10/10/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 09/20/23 18:46

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-04 Batch: WG1829931-4								
1,2,4-Trimethylbenzene	ND	0.200	0.058	ND	0.983	0.284		1
Benzyl chloride	ND	0.200	0.094	ND	1.04	0.486		1
1,4-Dichlorobenzene	ND	0.200	0.083	ND	1.20	0.497		1
1,2-Dichlorobenzene	ND	0.200	0.062	ND	1.20	0.372		1
1,2,4-Trichlorobenzene	ND	0.200	0.100	ND	1.48	0.742		1
Naphthalene	ND	0.200	0.078	ND	1.05	0.409		1

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM SOIL GAS

Project Number: 220181807

Lab Number: L2354279

Report Date: 10/10/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-04 Batch: WG1829931-3								
Dichlorodifluoromethane	88		-		70-130	-		
Chloromethane	91		-		70-130	-		
Vinyl chloride	101		-		70-130	-		
1,3-Butadiene	101		-		70-130	-		
Bromomethane	103		-		70-130	-		
Chloroethane	104		-		70-130	-		
Vinyl bromide	91		-		70-130	-		
Acrolein	95		-		60-113	-		
Acetone	94		-		40-160	-		
Trichlorofluoromethane	98		-		70-130	-		
Isopropanol	86		-		40-160	-		
Acrylonitrile	101		-		70-130	-		
1,1-Dichloroethene	102		-		70-130	-		
Methylene chloride	100		-		70-130	-		
3-Chloropropene	97		-		70-130	-		
Carbon disulfide	90		-		70-130	-		
Freon-113	102		-		70-130	-		
trans-1,2-Dichloroethene	94		-		70-130	-		
1,1-Dichloroethane	98		-		70-130	-		
Methyl tert butyl ether	92		-		70-130	-		
Chloroform	98		-		70-130	-		
Tetrahydrofuran	86		-		70-130	-		
1,2-Dichloroethane	90		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM SOIL GAS

Project Number: 220181807

Lab Number: L2354279

Report Date: 10/10/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-04 Batch: WG1829931-3								
n-Hexane	104		-		70-130	-		
1,1,1-Trichloroethane	99		-		70-130	-		
Benzene	94		-		70-130	-		
Carbon tetrachloride	100		-		70-130	-		
Cyclohexane	103		-		70-130	-		
1,2-Dichloropropane	103		-		70-130	-		
Bromodichloromethane	103		-		70-130	-		
1,4-Dioxane	102		-		70-130	-		
Trichloroethene	104		-		70-130	-		
Methyl Methacrylate	106		-		40-160	-		
4-Methyl-2-pentanone	97		-		70-130	-		
1,1,2-Trichloroethane	103		-		70-130	-		
Toluene	100		-		70-130	-		
1,3-Dichloropropane	94		-		70-130	-		
Dibromochloromethane	107		-		70-130	-		
1,2-Dibromoethane	98		-		70-130	-		
Tetrachloroethene	98		-		70-130	-		
Chlorobenzene	98		-		70-130	-		
Ethylbenzene	99		-		70-130	-		
p/m-Xylene	100		-		70-130	-		
Bromoform	112		-		70-130	-		
Styrene	98		-		70-130	-		
1,1,2,2-Tetrachloroethane	102		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM SOIL GAS

Project Number: 220181807

Lab Number: L2354279

Report Date: 10/10/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-04 Batch: WG1829931-3								
o-Xylene	102		-		70-130	-		
Isopropylbenzene	98		-		70-130	-		
1,3,5-Trimethylbenzene	99		-		70-130	-		
1,2,4-Trimethylbenzene	101		-		70-130	-		
Benzyl chloride	108		-		70-130	-		
1,4-Dichlorobenzene	100		-		70-130	-		
1,2-Dichlorobenzene	99		-		70-130	-		
1,2,4-Trichlorobenzene	100		-		70-130	-		
Naphthalene	103		-		70-130	-		

Project Name: PESRM SOIL GAS

Project Number: 220181807

Lab Number: L2354279

Report Date: 10/10/23

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controler Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L2354279-01	SG-A14_10.5_091423	0366	Flow 1	09/13/23	436736		-	-	-	Pass	100	104	4
L2354279-01	SG-A14_10.5_091423	506	2.7L Can	09/13/23	436736	L2352537-01	Pass	-29.7	-5.1	-	-	-	-
L2354279-02	SG-B7_11.5_091423	01291	Flow 2	09/13/23	436736		-	-	-	Pass	100	98	2
L2354279-02	SG-B7_11.5_091423	2212	2.7L Can	09/13/23	436736	L2324380-01	Pass	-29.7	-3.5	-	-	-	-
L2354279-03	SG-B13_11.5_091423	0049	Flow 2	09/13/23	436736		-	-	-	Pass	100	102	2
L2354279-03	SG-B13_11.5_091423	2428	2.7L Can	09/13/23	436736	L2352537-01	Pass	-29.7	-5.0	-	-	-	-
L2354279-04	SG-D14_9.5_091423	01085	Flow 2	09/13/23	436736		-	-	-	Pass	95	88	8
L2354279-04	SG-D14_9.5_091423	2738	2.7L Can	09/13/23	436736	L2352537-01	Pass	-29.7	-6.2	-	-	-	-
L2354279-05	SG-E5_9.5_091423	01528	Flow 2	09/13/23	436736		-	-	-	Pass	94	0.0	200
L2354279-05	SG-E5_9.5_091423	3411	2.7L Can	09/13/23	436736	L2352537-01	Pass	-29.4	-26.9	-	-	-	-

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2324380
Report Date: 10/10/23

Air Canister Certification Results

Lab ID: L2324380-01
Client ID: CAN 2212 SHELF 3
Sample Location:

Date Collected: 05/03/23 18:00
Date Received: 05/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 05/04/23 18:44
Analyst: RAY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	0.046	ND	0.707	0.164		1
Propylene	ND	0.500	0.135	ND	0.861	0.232		1
Propane	ND	0.500	0.152	ND	0.902	0.274		1
Dichlorodifluoromethane	ND	0.200	0.076	ND	0.989	0.374		1
Chloromethane	ND	0.200	0.058	ND	0.413	0.119		1
Freon-114	ND	0.200	0.050	ND	1.40	0.352		1
Methanol	ND	5.00	3.03	ND	6.55	3.97		1
Vinyl chloride	ND	0.200	0.058	ND	0.511	0.149		1
1,3-Butadiene	ND	0.200	0.062	ND	0.442	0.137		1
Butane	ND	0.200	0.080	ND	0.475	0.190		1
Bromomethane	ND	0.200	0.055	ND	0.777	0.212		1
Chloroethane	ND	0.200	0.065	ND	0.528	0.171		1
Ethanol	ND	5.00	1.74	ND	9.42	3.28		1
Dichlorofluoromethane	ND	0.200	0.112	ND	0.842	0.471		1
Vinyl bromide	ND	0.200	0.072	ND	0.874	0.316		1
Acrolein	ND	0.500	0.149	ND	1.15	0.342		1
Acetone	ND	1.00	0.515	ND	2.38	1.22		1
Acetonitrile	ND	0.200	0.101	ND	0.336	0.170		1
Trichlorofluoromethane	ND	0.200	0.079	ND	1.12	0.442		1
Isopropanol	ND	0.500	0.272	ND	1.23	0.669		1
Acrylonitrile	ND	0.500	0.089	ND	1.09	0.194		1
Pentane	ND	0.200	0.113	ND	0.590	0.333		1
Ethyl ether	ND	0.200	0.085	ND	0.606	0.259		1
1,1-Dichloroethene	ND	0.200	0.057	ND	0.793	0.225		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2324380
Report Date: 10/10/23

Air Canister Certification Results

Lab ID: L2324380-01
Client ID: CAN 2212 SHELF 3
Sample Location:

Date Collected: 05/03/23 18:00
Date Received: 05/04/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	0.132	ND	1.52	0.400		1
Methylene chloride	ND	0.500	0.125	ND	1.74	0.434		1
3-Chloropropene	ND	0.200	0.086	ND	0.626	0.269		1
Carbon disulfide	ND	0.200	0.047	ND	0.623	0.145		1
Freon-113	ND	0.200	0.051	ND	1.53	0.388		1
trans-1,2-Dichloroethene	ND	0.200	0.076	ND	0.793	0.299		1
1,1-Dichloroethane	ND	0.200	0.057	ND	0.809	0.230		1
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
Vinyl acetate	ND	1.00	0.323	ND	3.52	1.14		1
2-Butanone	ND	0.500	0.099	ND	1.47	0.292		1
Xylenes, total	ND	0.600	0.062	ND	0.869	0.270		1
cis-1,2-Dichloroethene	ND	0.200	0.060	ND	0.793	0.236		1
Ethyl Acetate	ND	0.500	0.297	ND	1.80	1.07		1
Chloroform	ND	0.200	0.055	ND	0.977	0.270		1
Tetrahydrofuran	ND	0.500	0.117	ND	1.47	0.345		1
2,2-Dichloropropane	ND	0.200	0.043	ND	0.924	0.198		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
n-Hexane	ND	0.200	0.074	ND	0.705	0.262		1
Diisopropyl ether	ND	0.200	0.063	ND	0.836	0.264		1
tert-Butyl Ethyl Ether	ND	0.200	0.073	ND	0.836	0.306		1
1,2-Dichloroethene (total)	ND	1.00	0.060	ND	1.00	0.236		1
1,1,1-Trichloroethane	ND	0.200	0.061	ND	1.09	0.335		1
1,1-Dichloropropene	ND	0.200	0.059	ND	0.908	0.269		1
Benzene	ND	0.200	0.064	ND	0.639	0.205		1
Carbon tetrachloride	ND	0.200	0.069	ND	1.26	0.432		1
Cyclohexane	ND	0.200	0.073	ND	0.688	0.251		1
tert-Amyl Methyl Ether	ND	0.200	0.067	ND	0.836	0.281		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2324380
Report Date: 10/10/23

Air Canister Certification Results

Lab ID: L2324380-01
Client ID: CAN 2212 SHELF 3
Sample Location:

Date Collected: 05/03/23 18:00
Date Received: 05/04/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	0.060	ND	1.42	0.425		1
1,2-Dichloropropane	ND	0.200	0.063	ND	0.924	0.292		1
Bromodichloromethane	ND	0.200	0.069	ND	1.34	0.462		1
1,4-Dioxane	ND	0.200	0.054	ND	0.721	0.194		1
Trichloroethene	ND	0.200	0.055	ND	1.07	0.295		1
2,2,4-Trimethylpentane	ND	0.200	0.069	ND	0.934	0.323		1
Methyl Methacrylate	ND	0.500	0.226	ND	2.05	0.925		1
Heptane	ND	0.200	0.083	ND	0.820	0.339		1
cis-1,3-Dichloropropene	ND	0.200	0.067	ND	0.908	0.306		1
4-Methyl-2-pentanone	ND	0.500	0.190	ND	2.05	0.779		1
trans-1,3-Dichloropropene	ND	0.200	0.078	ND	0.908	0.355		1
1,1,2-Trichloroethane	ND	0.200	0.058	ND	1.09	0.318		1
Toluene	ND	0.200	0.087	ND	0.754	0.327		1
1,3-Dichloropropane	ND	0.200	0.054	ND	0.924	0.248		1
2-Hexanone	ND	0.200	0.091	ND	0.820	0.374		1
Dibromochloromethane	ND	0.200	0.057	ND	1.70	0.482		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Butyl acetate	ND	0.500	0.208	ND	2.38	0.989		1
Octane	ND	0.200	0.068	ND	0.934	0.316		1
Tetrachloroethene	ND	0.200	0.063	ND	1.36	0.425		1
1,1,1,2-Tetrachloroethane	ND	0.200	0.051	ND	1.37	0.349		1
Chlorobenzene	ND	0.200	0.052	ND	0.921	0.238		1
Ethylbenzene	ND	0.200	0.058	ND	0.869	0.250		1
p/m-Xylene	ND	0.400	0.125	ND	1.74	0.543		1
Bromoform	ND	0.200	0.060	ND	2.07	0.616		1
Styrene	ND	0.200	0.060	ND	0.852	0.254		1
1,1,2,2-Tetrachloroethane	ND	0.200	0.052	ND	1.37	0.357		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L2324380

Project Number: CANISTER QC BAT **Report Date:** 10/10/23

Air Canister Certification Results

Lab ID: L2324380-01
Client ID: CAN 2212 SHELF 3
Sample Location:

Date Collected: 05/03/23 18:00
Date Received: 05/04/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	0.062	ND	0.869	0.270		1
1,2,3-Trichloropropane	ND	0.200	0.058	ND	1.21	0.347		1
Nonane	ND	0.200	0.074	ND	1.05	0.387		1
Isopropylbenzene	ND	0.200	0.062	ND	0.983	0.305		1
Bromobenzene	ND	0.200	0.058	ND	0.793	0.230		1
2-Chlorotoluene	ND	0.200	0.076	ND	1.04	0.394		1
n-Propylbenzene	ND	0.200	0.063	ND	0.983	0.311		1
4-Chlorotoluene	ND	0.200	0.077	ND	1.04	0.396		1
4-Ethyltoluene	ND	0.200	0.055	ND	0.983	0.272		1
1,3,5-Trimethylbenzene	ND	0.200	0.060	ND	0.983	0.295		1
tert-Butylbenzene	ND	0.200	0.055	ND	1.10	0.302		1
1,2,4-Trimethylbenzene	ND	0.200	0.058	ND	0.983	0.284		1
Decane	ND	0.200	0.070	ND	1.16	0.406		1
Benzyl chloride	ND	0.200	0.094	ND	1.04	0.486		1
1,3-Dichlorobenzene	ND	0.200	0.078	ND	1.20	0.467		1
1,4-Dichlorobenzene	ND	0.200	0.083	ND	1.20	0.497		1
sec-Butylbenzene	ND	0.200	0.055	ND	1.10	0.300		1
p-Isopropyltoluene	ND	0.200	0.057	ND	1.10	0.311		1
1,2-Dichlorobenzene	ND	0.200	0.062	ND	1.20	0.372		1
n-Butylbenzene	ND	0.200	0.054	ND	1.10	0.294		1
1,2-Dibromo-3-chloropropane	ND	0.200	0.062	ND	1.93	0.603		1
Undecane	ND	0.200	0.071	ND	1.28	0.453		1
Dodecane	ND	0.200	0.089	ND	1.39	0.621		1
1,2,4-Trichlorobenzene	ND	0.200	0.100	ND	1.48	0.742		1
Naphthalene	ND	0.200	0.078	ND	1.05	0.409		1
1,2,3-Trichlorobenzene	ND	0.200	0.074	ND	1.48	0.548		1
Hexachlorobutadiene	ND	0.200	0.061	ND	2.13	0.647		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2324380
Report Date: 10/10/23

Air Canister Certification Results

Lab ID: L2324380-01
Client ID: CAN 2212 SHELF 3
Sample Location:

Date Collected: 05/03/23 18:00
Date Received: 05/04/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	87		60-140
Bromochloromethane	90		60-140
chlorobenzene-d5	86		60-140

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L2324380

Project Number: CANISTER QC BAT **Report Date:** 10/10/23

Air Canister Certification Results

Lab ID: L2324380-01
Client ID: CAN 2212 SHELF 3
Sample Location:

Date Collected: 05/03/23 18:00
Date Received: 05/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 05/04/23 18:44
Analyst: RAY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	0.050	ND	0.989	0.247		1
Chloromethane	ND	0.200	0.076	ND	0.413	0.156		1
Freon-114	ND	0.050	0.006	ND	0.349	0.045		1
Vinyl chloride	ND	0.020	0.009	ND	0.051	0.023		1
1,3-Butadiene	ND	0.020	0.011	ND	0.044	0.024		1
Bromomethane	ND	0.020	0.009	ND	0.078	0.037		1
Chloroethane	ND	0.100	0.040	ND	0.264	0.104		1
Acrolein	ND	0.050	0.039	ND	0.115	0.089		1
Acetone	ND	1.00	0.539	ND	2.38	1.28		1
Trichlorofluoromethane	ND	0.050	0.009	ND	0.281	0.052		1
Acrylonitrile	ND	0.500	0.162	ND	1.09	0.352		1
1,1-Dichloroethene	ND	0.020	0.008	ND	0.079	0.031		1
Methylene chloride	ND	0.500	0.110	ND	1.74	0.382		1
Freon-113	ND	0.050	0.008	ND	0.383	0.064		1
trans-1,2-Dichloroethene	ND	0.020	0.009	ND	0.079	0.036		1
1,1-Dichloroethane	ND	0.020	0.009	ND	0.081	0.035		1
Methyl tert butyl ether	ND	0.200	0.026	ND	0.721	0.094		1
2-Butanone	ND	0.500	0.132	ND	1.47	0.389		1
cis-1,2-Dichloroethene	ND	0.020	0.010	ND	0.079	0.040		1
Chloroform	ND	0.020	0.007	ND	0.098	0.035		1
1,2-Dichloroethane	ND	0.020	0.008	ND	0.081	0.034		1
1,1,1-Trichloroethane	ND	0.020	0.006	ND	0.109	0.032		1
Benzene	ND	0.100	0.030	ND	0.319	0.095		1
Carbon tetrachloride	ND	0.020	0.011	ND	0.126	0.069		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L2324380

Project Number: CANISTER QC BAT **Report Date:** 10/10/23

Air Canister Certification Results

Lab ID: L2324380-01
Client ID: CAN 2212 SHELF 3
Sample Location:

Date Collected: 05/03/23 18:00
Date Received: 05/04/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.038		1
Bromodichloromethane	ND	0.020	0.007	ND	0.134	0.050		1
1,4-Dioxane	ND	0.100	0.034	ND	0.360	0.124		1
Trichloroethene	ND	0.020	0.006	ND	0.107	0.032		1
cis-1,3-Dichloropropene	ND	0.020	0.012	ND	0.091	0.054		1
4-Methyl-2-pentanone	ND	0.500	0.191	ND	2.05	0.783		1
trans-1,3-Dichloropropene	ND	0.020	0.012	ND	0.091	0.052		1
1,1,2-Trichloroethane	ND	0.020	0.010	ND	0.109	0.053		1
Toluene	ND	0.100	0.017	ND	0.377	0.063		1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068		1
1,2-Dibromoethane	ND	0.020	0.009	ND	0.154	0.070		1
Tetrachloroethene	ND	0.020	0.007	ND	0.136	0.050		1
1,1,1,2-Tetrachloroethane	ND	0.020	0.010	ND	0.137	0.069		1
Chlorobenzene	ND	0.100	0.026	ND	0.461	0.119		1
Ethylbenzene	ND	0.020	0.009	ND	0.087	0.037		1
p/m-Xylene	ND	0.040	0.018	ND	0.174	0.078		1
Bromoform	ND	0.020	0.011	ND	0.207	0.115		1
Styrene	ND	0.020	0.008	ND	0.085	0.034		1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.046		1
o-Xylene	ND	0.020	0.009	ND	0.087	0.038		1
Isopropylbenzene	ND	0.200	0.030	ND	0.983	0.147		1
4-Ethyltoluene	ND	0.020	0.010	ND	0.098	0.049		1
1,3,5-Trimethybenzene	ND	0.020	0.010	ND	0.098	0.047		1
1,2,4-Trimethylbenzene	ND	0.020	0.008	ND	0.098	0.037		1
Benzyl chloride	ND	0.100	0.033	ND	0.518	0.172		1
1,3-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.046		1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.045		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2324380
Report Date: 10/10/23

Air Canister Certification Results

Lab ID: L2324380-01
Client ID: CAN 2212 SHELF 3
Sample Location:

Date Collected: 05/03/23 18:00
Date Received: 05/04/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
sec-Butylbenzene	ND	0.200	0.027	ND	1.10	0.146		1
p-Isopropyltoluene	ND	0.200	0.037	ND	1.10	0.201		1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.037		1
n-Butylbenzene	ND	0.200	0.032	ND	1.10	0.175		1
1,2,4-Trichlorobenzene	ND	0.050	0.015	ND	0.371	0.108		1
Naphthalene	ND	0.050	0.021	ND	0.262	0.110		1
1,2,3-Trichlorobenzene	ND	0.050	0.022	ND	0.371	0.166		1
Hexachlorobutadiene	ND	0.050	0.011	ND	0.533	0.117		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	85		60-140
bromochloromethane	88		60-140
chlorobenzene-d5	85		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2352537
Report Date: 10/10/23

Air Canister Certification Results

Lab ID: L2352537-01
Client ID: CAN 3404 SHELF 3
Sample Location:

Date Collected: 09/08/23 18:00
Date Received: 09/11/23
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 09/12/23 01:43
Analyst: RAY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	0.046	ND	0.707	0.164		1
Propylene	ND	0.500	0.135	ND	0.861	0.232		1
Propane	ND	0.500	0.152	ND	0.902	0.274		1
Dichlorodifluoromethane	ND	0.200	0.076	ND	0.989	0.374		1
Chloromethane	ND	0.200	0.058	ND	0.413	0.119		1
Freon-114	ND	0.200	0.050	ND	1.40	0.352		1
Methanol	ND	5.00	3.03	ND	6.55	3.97		1
Vinyl chloride	ND	0.200	0.058	ND	0.511	0.149		1
1,3-Butadiene	ND	0.200	0.062	ND	0.442	0.137		1
Butane	ND	0.200	0.080	ND	0.475	0.190		1
Bromomethane	ND	0.200	0.055	ND	0.777	0.212		1
Chloroethane	ND	0.200	0.065	ND	0.528	0.171		1
Ethanol	ND	5.00	1.74	ND	9.42	3.28		1
Dichlorofluoromethane	ND	0.200	0.112	ND	0.842	0.471		1
Vinyl bromide	ND	0.200	0.072	ND	0.874	0.316		1
Acrolein	ND	0.500	0.149	ND	1.15	0.342		1
Acetone	ND	1.00	0.515	ND	2.38	1.22		1
Acetonitrile	ND	0.200	0.101	ND	0.336	0.170		1
Trichlorofluoromethane	ND	0.200	0.079	ND	1.12	0.442		1
Isopropanol	ND	0.500	0.272	ND	1.23	0.669		1
Acrylonitrile	ND	0.500	0.089	ND	1.09	0.194		1
Pentane	ND	0.200	0.113	ND	0.590	0.333		1
Ethyl ether	ND	0.200	0.085	ND	0.606	0.259		1
1,1-Dichloroethene	ND	0.200	0.057	ND	0.793	0.225		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2352537
Report Date: 10/10/23

Air Canister Certification Results

Lab ID: L2352537-01
Client ID: CAN 3404 SHELF 3
Sample Location:

Date Collected: 09/08/23 18:00
Date Received: 09/11/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	0.132	ND	1.52	0.400		1
Methylene chloride	ND	0.500	0.125	ND	1.74	0.434		1
3-Chloropropene	ND	0.200	0.086	ND	0.626	0.269		1
Carbon disulfide	ND	0.200	0.047	ND	0.623	0.145		1
Freon-113	ND	0.200	0.051	ND	1.53	0.388		1
trans-1,2-Dichloroethene	ND	0.200	0.076	ND	0.793	0.299		1
1,1-Dichloroethane	ND	0.200	0.057	ND	0.809	0.230		1
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
Vinyl acetate	ND	1.00	0.323	ND	3.52	1.14		1
Xylenes, total	ND	0.600	0.062	ND	0.869	0.270		1
2-Butanone	ND	0.500	0.099	ND	1.47	0.292		1
cis-1,2-Dichloroethene	ND	0.200	0.060	ND	0.793	0.236		1
Ethyl Acetate	ND	0.500	0.297	ND	1.80	1.07		1
Chloroform	ND	0.200	0.055	ND	0.977	0.270		1
Tetrahydrofuran	ND	0.500	0.117	ND	1.47	0.345		1
2,2-Dichloropropane	ND	0.200	0.043	ND	0.924	0.198		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
n-Hexane	ND	0.200	0.074	ND	0.705	0.262		1
Diisopropyl ether	ND	0.200	0.063	ND	0.836	0.264		1
tert-Butyl Ethyl Ether	ND	0.200	0.073	ND	0.836	0.306		1
1,2-Dichloroethene (total)	ND	1.00	0.060	ND	1.00	0.236		1
1,1,1-Trichloroethane	ND	0.200	0.061	ND	1.09	0.335		1
1,1-Dichloropropene	ND	0.200	0.059	ND	0.908	0.269		1
Benzene	ND	0.200	0.064	ND	0.639	0.205		1
Carbon tetrachloride	ND	0.200	0.069	ND	1.26	0.432		1
Cyclohexane	ND	0.200	0.073	ND	0.688	0.251		1
tert-Amyl Methyl Ether	ND	0.200	0.067	ND	0.836	0.281		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2352537
Report Date: 10/10/23

Air Canister Certification Results

Lab ID: L2352537-01
Client ID: CAN 3404 SHELF 3
Sample Location:

Date Collected: 09/08/23 18:00
Date Received: 09/11/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	0.060	ND	1.42	0.425		1
1,2-Dichloropropane	ND	0.200	0.063	ND	0.924	0.292		1
Bromodichloromethane	ND	0.200	0.069	ND	1.34	0.462		1
1,4-Dioxane	ND	0.200	0.054	ND	0.721	0.194		1
Trichloroethene	ND	0.200	0.055	ND	1.07	0.295		1
2,2,4-Trimethylpentane	ND	0.200	0.069	ND	0.934	0.323		1
Methyl Methacrylate	ND	0.500	0.226	ND	2.05	0.925		1
Heptane	ND	0.200	0.083	ND	0.820	0.339		1
cis-1,3-Dichloropropene	ND	0.200	0.067	ND	0.908	0.306		1
4-Methyl-2-pentanone	ND	0.500	0.190	ND	2.05	0.779		1
trans-1,3-Dichloropropene	ND	0.200	0.078	ND	0.908	0.355		1
1,1,2-Trichloroethane	ND	0.200	0.058	ND	1.09	0.318		1
Toluene	ND	0.200	0.087	ND	0.754	0.327		1
1,3-Dichloropropane	ND	0.200	0.054	ND	0.924	0.248		1
2-Hexanone	ND	0.200	0.091	ND	0.820	0.374		1
Dibromochloromethane	ND	0.200	0.057	ND	1.70	0.482		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Butyl acetate	ND	0.500	0.208	ND	2.38	0.989		1
Octane	ND	0.200	0.068	ND	0.934	0.316		1
Tetrachloroethene	ND	0.200	0.063	ND	1.36	0.425		1
1,1,1,2-Tetrachloroethane	ND	0.200	0.051	ND	1.37	0.349		1
Chlorobenzene	ND	0.200	0.052	ND	0.921	0.238		1
Ethylbenzene	ND	0.200	0.058	ND	0.869	0.250		1
p/m-Xylene	ND	0.400	0.125	ND	1.74	0.543		1
Bromoform	ND	0.200	0.060	ND	2.07	0.616		1
Styrene	ND	0.200	0.060	ND	0.852	0.254		1
1,1,2,2-Tetrachloroethane	ND	0.200	0.052	ND	1.37	0.357		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2352537
Report Date: 10/10/23

Air Canister Certification Results

Lab ID: L2352537-01
Client ID: CAN 3404 SHELF 3
Sample Location:

Date Collected: 09/08/23 18:00
Date Received: 09/11/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	0.062	ND	0.869	0.270		1
1,2,3-Trichloropropane	ND	0.200	0.058	ND	1.21	0.347		1
Nonane	ND	0.200	0.074	ND	1.05	0.387		1
Isopropylbenzene	ND	0.200	0.062	ND	0.983	0.305		1
Bromobenzene	ND	0.200	0.058	ND	0.793	0.230		1
2-Chlorotoluene	ND	0.200	0.076	ND	1.04	0.394		1
n-Propylbenzene	ND	0.200	0.063	ND	0.983	0.311		1
4-Chlorotoluene	ND	0.200	0.077	ND	1.04	0.396		1
4-Ethyltoluene	ND	0.200	0.055	ND	0.983	0.272		1
1,3,5-Trimethylbenzene	ND	0.200	0.060	ND	0.983	0.295		1
tert-Butylbenzene	ND	0.200	0.055	ND	1.10	0.302		1
1,2,4-Trimethylbenzene	ND	0.200	0.058	ND	0.983	0.284		1
Decane	ND	0.200	0.070	ND	1.16	0.406		1
Benzyl chloride	ND	0.200	0.094	ND	1.04	0.486		1
1,3-Dichlorobenzene	ND	0.200	0.078	ND	1.20	0.467		1
1,4-Dichlorobenzene	ND	0.200	0.083	ND	1.20	0.497		1
sec-Butylbenzene	ND	0.200	0.055	ND	1.10	0.300		1
p-Isopropyltoluene	ND	0.200	0.057	ND	1.10	0.311		1
1,2-Dichlorobenzene	ND	0.200	0.062	ND	1.20	0.372		1
n-Butylbenzene	ND	0.200	0.054	ND	1.10	0.294		1
1,2-Dibromo-3-chloropropane	ND	0.200	0.062	ND	1.93	0.603		1
Undecane	ND	0.200	0.071	ND	1.28	0.453		1
Dodecane	ND	0.200	0.089	ND	1.39	0.621		1
1,2,4-Trichlorobenzene	ND	0.200	0.100	ND	1.48	0.742		1
Naphthalene	ND	0.200	0.078	ND	1.05	0.409		1
1,2,3-Trichlorobenzene	ND	0.200	0.074	ND	1.48	0.548		1
Hexachlorobutadiene	ND	0.200	0.061	ND	2.13	0.647		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2352537
Report Date: 10/10/23

Air Canister Certification Results

Lab ID: L2352537-01
Client ID: CAN 3404 SHELF 3
Sample Location:

Date Collected: 09/08/23 18:00
Date Received: 09/11/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	91		60-140
Bromochloromethane	94		60-140
chlorobenzene-d5	92		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2352537
Report Date: 10/10/23

Air Canister Certification Results

Lab ID: L2352537-01
Client ID: CAN 3404 SHELF 3
Sample Location:

Date Collected: 09/08/23 18:00
Date Received: 09/11/23
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 09/12/23 01:43
Analyst: RAY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	0.050	ND	0.989	0.247		1
Chloromethane	ND	0.200	0.076	ND	0.413	0.156		1
Freon-114	ND	0.050	0.006	ND	0.349	0.045		1
Vinyl chloride	ND	0.020	0.009	ND	0.051	0.023		1
1,3-Butadiene	ND	0.020	0.011	ND	0.044	0.024		1
Bromomethane	ND	0.020	0.009	ND	0.078	0.037		1
Chloroethane	ND	0.100	0.040	ND	0.264	0.104		1
Acrolein	ND	0.050	0.039	ND	0.115	0.089		1
Acetone	ND	1.00	0.539	ND	2.38	1.28		1
Trichlorofluoromethane	ND	0.050	0.009	ND	0.281	0.052		1
Acrylonitrile	ND	0.500	0.162	ND	1.09	0.352		1
1,1-Dichloroethene	ND	0.020	0.008	ND	0.079	0.031		1
Methylene chloride	ND	0.500	0.110	ND	1.74	0.382		1
Freon-113	ND	0.050	0.008	ND	0.383	0.064		1
trans-1,2-Dichloroethene	ND	0.020	0.009	ND	0.079	0.036		1
1,1-Dichloroethane	ND	0.020	0.009	ND	0.081	0.035		1
Methyl tert butyl ether	ND	0.200	0.026	ND	0.721	0.094		1
2-Butanone	ND	0.500	0.132	ND	1.47	0.389		1
cis-1,2-Dichloroethene	ND	0.020	0.010	ND	0.079	0.040		1
Chloroform	ND	0.020	0.007	ND	0.098	0.035		1
1,2-Dichloroethane	ND	0.020	0.008	ND	0.081	0.034		1
1,1,1-Trichloroethane	ND	0.020	0.006	ND	0.109	0.032		1
Benzene	ND	0.100	0.030	ND	0.319	0.095		1
Carbon tetrachloride	ND	0.020	0.011	ND	0.126	0.069		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2352537
Report Date: 10/10/23

Air Canister Certification Results

Lab ID: L2352537-01
Client ID: CAN 3404 SHELF 3
Sample Location:

Date Collected: 09/08/23 18:00
Date Received: 09/11/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.038		1
Bromodichloromethane	ND	0.020	0.007	ND	0.134	0.050		1
1,4-Dioxane	ND	0.100	0.034	ND	0.360	0.124		1
Trichloroethene	ND	0.020	0.006	ND	0.107	0.032		1
cis-1,3-Dichloropropene	ND	0.020	0.012	ND	0.091	0.054		1
4-Methyl-2-pentanone	ND	0.500	0.191	ND	2.05	0.783		1
trans-1,3-Dichloropropene	ND	0.020	0.012	ND	0.091	0.052		1
1,1,2-Trichloroethane	ND	0.020	0.010	ND	0.109	0.053		1
Toluene	ND	0.100	0.017	ND	0.377	0.063		1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068		1
1,2-Dibromoethane	ND	0.020	0.009	ND	0.154	0.070		1
Tetrachloroethene	ND	0.020	0.007	ND	0.136	0.050		1
1,1,1,2-Tetrachloroethane	ND	0.020	0.010	ND	0.137	0.069		1
Chlorobenzene	ND	0.100	0.026	ND	0.461	0.119		1
Ethylbenzene	ND	0.020	0.009	ND	0.087	0.037		1
p/m-Xylene	ND	0.040	0.018	ND	0.174	0.078		1
Bromoform	ND	0.020	0.011	ND	0.207	0.115		1
Styrene	ND	0.020	0.008	ND	0.085	0.034		1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.046		1
o-Xylene	ND	0.020	0.009	ND	0.087	0.038		1
Isopropylbenzene	ND	0.200	0.030	ND	0.983	0.147		1
4-Ethyltoluene	ND	0.020	0.010	ND	0.098	0.049		1
1,3,5-Trimethybenzene	ND	0.020	0.010	ND	0.098	0.047		1
1,2,4-Trimethylbenzene	ND	0.020	0.008	ND	0.098	0.037		1
Benzyl chloride	ND	0.100	0.033	ND	0.518	0.172		1
1,3-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.046		1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.045		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2352537
Report Date: 10/10/23

Air Canister Certification Results

Lab ID: L2352537-01
Client ID: CAN 3404 SHELF 3
Sample Location:

Date Collected: 09/08/23 18:00
Date Received: 09/11/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
sec-Butylbenzene	ND	0.200	0.027	ND	1.10	0.146		1
p-Isopropyltoluene	ND	0.200	0.037	ND	1.10	0.201		1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.037		1
n-Butylbenzene	ND	0.200	0.032	ND	1.10	0.175		1
1,2,4-Trichlorobenzene	ND	0.050	0.015	ND	0.371	0.108		1
Naphthalene	ND	0.050	0.021	ND	0.262	0.110		1
1,2,3-Trichlorobenzene	ND	0.050	0.022	ND	0.371	0.166		1
Hexachlorobutadiene	ND	0.050	0.011	ND	0.533	0.117		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	94		60-140
bromochloromethane	97		60-140
chlorobenzene-d5	94		60-140

Project Name: PESRM SOIL GAS
Project Number: 220181807

Lab Number: L2354279
Report Date: 10/10/23

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
NA	Present/Intact

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2354279-01A	Canister - 2.7 Liter	NA	NA			Y	Absent		A2-SUB-AIR(),TO15-LL(30)
L2354279-02A	Canister - 2.7 Liter	NA	NA			Y	Absent		A2-SUB-AIR(),TO15-LL(30)
L2354279-03A	Canister - 2.7 Liter	NA	NA			Y	Absent		A2-SUB-AIR(),TO15-LL(30)
L2354279-04A	Canister - 2.7 Liter	NA	NA			Y	Absent		A2-SUB-AIR(),TO15-LL(30)
L2354279-05A	Canister - 2.7 Liter	NA	NA			Y	Absent		CANCELLED()

*Values in parentheses indicate holding time in days

Project Name:	PESRM SOIL GAS	**Lab Number:**	L2354279
Project Number:	220181807	**Report Date:**	10/10/23

GLOSSARY

Acronyms

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

Report Format: DU Report with 'J' Qualifiers

Project Name:	PESRM SOIL GAS	**Lab Number:**	L2354279
Project Number:	220181807	**Report Date:**	10/10/23

Footnotes

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

Terms

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

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

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

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

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

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

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

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

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

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

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers

Project Name:	PESRM SOIL GAS	**Lab Number:**	L2354279
Project Number:	220181807	**Report Date:**	10/10/23

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.)

REFERENCES

48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

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, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 524.2: THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables).
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

AIR ANALYSIS

PAGE 1 OF 1

ALPHA ANALYTICAL

CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 9/16/23

ALPHA Job #: L2354279

Client Information

Client: Langan Engineering + Environmental
Address: 1818 Market St. Ste 3300
Philadelphia, PA
Phone: (215) 845-8900
Fax: (215) 845-8901
Email: astakiewicz@langan.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: PESRM Soil Gas
Project Location: 3144 W Passyunk Ave. Phila, PA
Project #: 220181807
Project Manager: Anna Stakiewicz
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Std 5 Day
Date Due: Time:

Report Information - Data Deliverables

☐ FAX
☒ ADEx
Criteria Checker:
(Default based on Regulatory Criteria Indicated)
Other Formats:
☒ EMAIL (standard pdf report)
☐ Additional Deliverables:
Report to: (if different than Project Manager)
~~abarr@langan.com~~

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed	Program	Res / Comm

Include on email correspondence:
AGoldberg@Langan.com
SChubb@langan.com
ABarr@langan.com

Other Project Specific Requirements/Comments:

Project-Specific Target Compound List: ☐

ANALYSIS

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	COLLECTION End Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	ID Can	ID - Flow Controller	TO-15	TO-15 SIM	APH Subtract Non-petroleum HCs	Fixed Gases ☐	Sulfides & Mercaptans by TO-15	Methane	Sample Comments (i.e. PID)
54279-01	SG-A14_10.5_091423	9/14/23	13:31	13:51	-29.92	-5.02	SV	SC	2.7	506	0366	X					X	
02	SG-B7_11.5_091423	9/14/23	1437	1456	-29.7	-5.00	SV	AB	2.7	2212	01291	X					X	
03	SG-B13_11.5_091423	9/14/23	1623	1635	-29.95	-4.90	SV	AB	2.7	2428	0049	X					X	
04	SG-D14_9.5_091523	9/15/23	1125	1147	-29.75	-7.42	SV	SC	2.7	2738	01085	X					X	
05	SG-E5_9.5_091523	9/15/23	1411	1426	-29.6	-28.07	SV	SC	2.7	2192	01528	X					X	

*SAMPLE MATRIX CODES

AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type							
	X						X
	CS						CS

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:	Date/Time	Received By:	Date/Time:
Rel: 9/16/23 0600			
9/16/23 0600			
Rebekah Hanrahan	9/15/23 4:52	AAL	9.15.23 4:52
AAL	9.15.23 18:00		9:15 18:00
Anthony Green	9.15	Anthony Green	SEP 15 2023 2130
	9/16/23 0630		

Form No: 101-02 Rev: (25-Sep-15)

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

September 26, 2023

Chris Anderson
Alpha Analytical Laboratory
8 Walkup Drive
Westborough, MA 01581

Project Location: 3144 W PASSYUNK AVE. PHILA, PA
Client Job Number:
Project Number: 220181807
Laboratory Work Order Number: 23I3248

Enclosed are results of analyses for samples as received by the laboratory on September 23, 2023. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Theresa L. Ferrentino
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Alpha Analytical Laboratory
8 Walkup Drive
Westborough, MA 01581
ATTN: Chris Anderson

REPORT DATE: 9/26/2023

PURCHASE ORDER NUMBER: L2354279

PROJECT NUMBER: 220181807

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 23I3248

The results of analyses performed on the following samples submitted to CON-TEST, a Pace Analytical Laboratory, are found in this report.

PROJECT LOCATION: 3144 W PASSYUNK AVE. PHILA, PA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
SG-A14_10.5_091423	23I3248-01	Soil Gas		Modified EPA 3C	
SG-B7_11.5_091423	23I3248-02	Soil Gas		Modified EPA 3C	
SG-B13_11.5_091423	23I3248-03	Soil Gas		Modified EPA 3C	
SG-D14_9.5_091423	23I3248-04	Soil Gas		Modified EPA 3C	

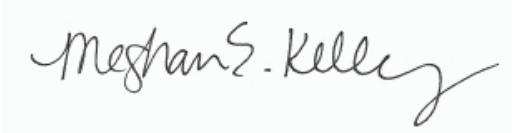
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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Meghan E. Kelley
Reporting Specialist

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

ANALYTICAL RESULTS

Project Location: 3144 W PASSYUNK AVE. PHIL
Date Received: 9/23/2023
Field Sample #: SG-A14_10.5_091423
Sample ID: 23I3248-01
Sample Matrix: Soil Gas
Sampled: 9/14/2023 13:51

Sample Description/Location:
Sub Description/Location:
Canister ID: 506
Canister Size: 3 liter
Flow Controller ID: -
Sample Type:

Work Order: 23I3248
Initial Vacuum(in Hg): -29.7
Final Vacuum(in Hg): -5.1
Receipt Vacuum(in Hg): 13
Flow Controller Type:
Flow Controller Calibration
RPD Pre and Post-Sampling:

Modified EPA 3C

	ppmv			mg/m3			Date/Time	
Analyte	**Results**	**RL**	**Flag/Qual**	**Results**	**RL**	**Dilution**	**Analyzed**	**Analyst**
Methane	7800	120		5100	82	2.5	9/26/23 12:56	TPH

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ANALYTICAL RESULTS

Project Location: 3144 W PASSYUNK AVE. PHIL
Date Received: 9/23/2023
Field Sample #: SG-B7_11.5_091423
Sample ID: 23I3248-02
Sample Matrix: Soil Gas
Sampled: 9/14/2023 14:56

Sample Description/Location:
Sub Description/Location:
Canister ID: 2212
Canister Size: 3 liter
Flow Controller ID: -
Sample Type:

Work Order: 23I3248
Initial Vacuum(in Hg): -29.7
Final Vacuum(in Hg): -3.5
Receipt Vacuum(in Hg): 10
Flow Controller Type:
Flow Controller Calibration
RPD Pre and Post-Sampling:

Modified EPA 3C

	ppmv			mg/m3			Date/Time	
Analyte	**Results**	**RL**	**Flag/Qual**	**Results**	**RL**	**Dilution**	**Analyzed**	**Analyst**
Methane	12000	120		7700	75	2.3	9/26/23 13:29	TPH

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ANALYTICAL RESULTS

Project Location: 3144 W PASSYUNK AVE. PHIL
Date Received: 9/23/2023
Field Sample #: SG-B13_11.5_091423
Sample ID: 23I3248-03
Sample Matrix: Soil Gas
Sampled: 9/14/2023 16:35

Sample Description/Location:
Sub Description/Location:
Canister ID: 2428
Canister Size: 3 liter
Flow Controller ID: -
Sample Type:

Work Order: 23I3248
Initial Vacuum(in Hg): -29.7
Final Vacuum(in Hg): -5.0
Receipt Vacuum(in Hg): 12
Flow Controller Type:
Flow Controller Calibration
RPD Pre and Post-Sampling:

Modified EPA 3C

	ppmv			mg/m3			Date/Time	
Analyte	**Results**	**RL**	**Flag/Qual**	**Results**	**RL**	**Dilution**	**Analyzed**	**Analyst**
Methane	62000	120		41000	82	2.5	9/26/23 13:59	TPH

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ANALYTICAL RESULTS

Project Location: 3144 W PASSYUNK AVE. PHIL
Date Received: 9/23/2023
Field Sample #: SG-D14_9.5_091423
Sample ID: 23I3248-04
Sample Matrix: Soil Gas
Sampled: 9/14/2023 11:47

Sample Description/Location:
Sub Description/Location:
Canister ID: 2738
Canister Size: 3 liter
Flow Controller ID: -
Sample Type:

Work Order: 23I3248
Initial Vacuum(in Hg): -29.7
Final Vacuum(in Hg): -6.2
Receipt Vacuum(in Hg): 11
Flow Controller Type:
Flow Controller Calibration
RPD Pre and Post-Sampling:

Modified EPA 3C

	ppmv			mg/m3			Date/Time	
Analyte	**Results**	**RL**	**Flag/Qual**	**Results**	**RL**	**Dilution**	**Analyzed**	**Analyst**
Methane	5400	100		3500	66	2	9/26/23 14:19	TPH

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Sample Extraction Data

Prep Method:RSK175 **Analytical Method:Modified EPA 3C**

Lab Number [Field ID]	Batch	Pressure Dilution	Pre Dilution	Pre-Dil Initial mL	Pre-Dil Final mL	Default Injection mL	Actual Injection mL	Date
23I3248-01 [SG-A14_10.5_091423]	B353133	2.5	1	N/A	1000	0.2	0.2	09/26/23
23I3248-02 [SG-B7_11.5_091423]	B353133	2.3	1	N/A	1000	0.2	0.2	09/26/23
23I3248-03 [SG-B13_11.5_091423]	B353133	2.5	1	N/A	1000	0.2	0.2	09/26/23
23I3248-04 [SG-D14_9.5_091423]	B353133	2.0	1	N/A	1000	0.2	0.2	09/26/23

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QUALITY CONTROL

Miscellaneous Air Analyses - Quality Control

Analyte	ppmv Results	ppmv RL	ug/m3 Results	ug/m3 RL	Spike Level ppmv	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag/Qual
Batch B353133 - RSK175											
Blank (B353133-BLK1)					Prepared & Analyzed: 09/26/23						
Methane	ND	50									
LCS (B353133-BS1)					Prepared & Analyzed: 09/26/23						
Methane	4790				5000		95.7	80-120			
Duplicate (B353133-DUP3)			**Source: 23I3248-01**		Prepared & Analyzed: 09/26/23						
Methane	7700	120	5100	82		7800			1.23	10	
Duplicate (B353133-DUP4)			**Source: 23I3248-02**		Prepared & Analyzed: 09/26/23						
Methane	13000	120	8400	75		12000			8.39	10	
Duplicate (B353133-DUP5)			**Source: 23I3248-03**		Prepared & Analyzed: 09/26/23						
Methane	60000	120	39000	82		62000			3.03	10	
Duplicate (B353133-DUP6)			**Source: 23I3248-04**		Prepared & Analyzed: 09/26/23						
Methane	5300	100	3400	66		5400			2.50	10	

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level

Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.

No results have been blank subtracted unless specified in the case narrative section.

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications

No certified Analyses included in this Report

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires

AIR ANALYSIS

CHAIN OF CUSTODY 231 3248

PAGE 1 OF 1

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab:

ALPHA Job #:

Client Information

Client: Alpha Analytial
Address: 320 Forbes Blvd
Mansfield, MA
Phone:
Fax:
Email: canderson@alphalab.com

Project Information

Project Name: PESRM SOIL GAS
Project Location: 3144 W PASSYUNK AVE. PHILA, PA
Project #: 220181807
Project Manager: Chris Anderson
ALPHA Quote #:

Turn-Around-Time

☐ Standard ☒ Rush (only confirmed if pre-approved)

Date Due: 9/25 Time:

Report/Data Deliverables Information

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: ~~L2354279~~

Regulatory Requirements/Report Limits

State/Fed	Program	Residential/Commercial

Analysis

☐ These samples have been Previously analyzed by Alpha

Other Project Specific Requirements/Comments:

☐ Project-Specific Target Compound List
METHANE only

All Columns Below Must Be Filled Out

Alpha Lab Use Only	Sample ID	Collection: End Date	Collection: Start Time	Collection: End Time	Collection: Initial Vac	Collection: Final Vac	Sample Matrix*	Sampler Initials	Can Size	ID Can	ID Flow Controller	TO-15	TO-15 SIM	☐ Subtract non-petroleum HCs	FIXED GASES	Sulfides & Mercaptans by TO-15			Sample Specific Comments (i.e. PID)
01	SG-A14_10.5_091423	14-SEP-23		13:51		-5.1	SV		2.7	506		☐	☐	☐	☐	☐	☐	☐	Methane only +13
02	SG-B7_11.5_091423	14-SEP-23		14:56		-3.5	SV		2.7	2212		☐	☐	☐	☒	☐	☐	☐	Methane only +10
03	SG-B13_11.5_091423	14-SEP-23		16:35		-5.0	SV		2.7	2428		☐	☐	☐	☒	☐	☐	☐	Methane only +12
04	SG-D14_9.5_091423	14-SEP-23		11:47		-6.2	SV		2.7	2738		☐	☐	☐	☒	☐	☐	☐	Methane only +11
												☐	☐	☐	☐	☐	☐	☐	
												☐	☐	☐	☐	☐	☐	☐	
Container Type												-	-	-	-	-		-	

*SAMPLE MATRIX CODES:
AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Relinquished By	Date/Time	Received By:	Date/Time
	9/22/23 1744	H. Rosi AAL	9.22.23 1630
H. Rosi AAL	9.22.23	AAL	9/23/23 09:35
AAL	9/23/23 0725		9/23/23 935

Please print clearly & logged in and turn a ambiguities are res to Alpha's Payment T

Serial No:10102313:16 Table of Contents

Pace ANALYTICAL SERVICES	DC#_Title: ENV-FRM-ELON-0009 v04_Air Sample Receiving Checklist
	Effective Date: 07/13/2023

Log In Back-Sheet

Client Alpha Analytical

Project PESRM Soil Gas

MCP/RCP Required

Deliverable Package Requirement

Location 3144 W Passyunk Ave. Phila, PA

PWSID# (When Applicable)

Arrival Method Courier

Received By / Date / Time EGR 9/23/23 0935

Back-Sheet By / Date / Time KMC 9/25/23 0955

Temperature Method # ☐

Temp ≤ 6° C Actual Temperature

Rush Samples: (Yes) / No Notify

Short Hold: Yes / (No) Notify

Notes regarding Samples/COC outside of SOP:

Alpha cans

Login Sample Receipt Checklist – (Rejection Criteria Listing – Using Acceptance Policy)
Any False statement will be brought to the attention of the Client – True or False

	True	False
Received on Ice	☐	☒
Received in Cooler	☐	☒
Custody Seal: DATE TIME	☐	☒
COC Relinquished	☒	☐
COC/Samples Labels Agree	☒	☐
All Samples in Good Condition	☒	☐
Samples Received within Holding Time	☒	☐
Is there enough Volume	☒	☐
Proper Media/Container Used	☒	☐
Individually Certified Cans	☐	☒
Trip Blanks	☐	☒
COC Legible	☒	☐

COC Included: (Check all included)

Client ☒ Analysis ☒ Sampler Name ☐

Project ☒ IDs ☒ Collection Date/Time ☐

Container	#	Size	Regulator	Duration
Summa Cans	4	2.7L		
Tedlar Bags				
TO-17 Tubes				
Radiello				
Pufs/ TO-11				

Accessories			
Nut/Ferrule		IC Train	
Tubing			
T-Connector		Shipping Charges	
Syringe			
Tedlar			

Can #'s														
1	506	6		11		16		Regs #'s	5		10		15	
2	2212	7		12		17		1	6		11		16	
3	2428	8		13		18		2	7		12		17	
4	2738	9		14		19		3	8		13		18	
Unused Media		4		9		14		4	9		14		19	
1		5		10		15		Pufs/TO-17's	5		10		15	
2		6		11		16		1	6		11		16	
3		7		12		17		2	7		12		17	
4		8		13		18		3	8		13		18	
								4	9		14		19	

Qualtrax ID: 127034

Page 1 of 1

ANALYTICAL REPORT

Lab Number:	L2355230
Client:	Langan Engineering & Environmental 6000 Lombardo Center Suite 210 Cleveland, OH 44131
ATTN:	Anna Statkiewicz
Phone:	(216) 328-3354
Project Name:	PESRM SOIL GAS
Project Number:	220181807
Report Date:	09/29/23

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0825), DoD (L2474), FL (E87814), IL (200081), IN (C-MA-04), KY (KY98046), LA (85084), ME (MA00030), MD (350), MI (99110) , NJ (MA015), NY (11627), NC (685), OH (CL106), OR (MA-0262), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #525-23-107-88708), USFWS (Permit #206964).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: PESRM SOIL GAS
Project Number: 220181807

Lab Number: L2355230
Report Date: 09/29/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2355230-01	SG-D6_11.5_092023	SOIL_VAPOR	3144 W PASSYUNK AVE. PHILADELPHIA, PA	09/20/23 11:14	09/20/23
L2355230-02	SG-E7_10.5_092023	SOIL_VAPOR	3144 W PASSYUNK AVE. PHILADELPHIA, PA	09/20/23 10:16	09/20/23
L2355230-03	SG-C13-10.5_092023	SOIL_VAPOR	3144 W PASSYUNK AVE. PHILADELPHIA, PA	09/20/23 13:45	09/20/23

Project Name:	PESRM SOIL GAS	**Lab Number:**	L2355230
Project Number:	220181807	**Report Date:**	09/29/23

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	PESRM SOIL GAS	**Lab Number:**	L2355230
Project Number:	220181807	**Report Date:**	09/29/23

Case Narrative (continued)

Volatile Organics in Air

Canisters were released from the laboratory on September 11 and 13, 2023. The canister certification results are provided as an addendum.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

L2355230-01D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2355230-02D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L2355230-03D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

Sample Receipt

The client requested that the lab change the sample ID for L2355230-03. A revised CoC was not provided.

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: Christopher J. Anderson

Title: Technical Director/Representative Date: 09/29/23

AIR

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2355230
Report Date: 09/29/23

SAMPLE RESULTS

Lab ID: L2355230-01 D
Client ID: SG-D6_11.5_092023
Sample Location: 3144 W PASSYUNK AVE. PHILADELPHIA, PA
Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 09/29/23 04:26
Analyst: JMB

Date Collected: 09/20/23 11:14
Date Received: 09/20/23
Field Prep: Not Specified

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	ND	132.	49.8	ND	653	246.		657.9
Chloromethane	ND	132.	37.9	ND	273	78.3		657.9
Vinyl chloride	ND	132.	38.3	ND	337	97.9		657.9
1,3-Butadiene	ND	132.	40.7	ND	292	90.0		657.9
Bromomethane	ND	132.	36.0	ND	513	140.		657.9
Chloroethane	ND	132.	42.7	ND	348	113.		657.9
Vinyl bromide	ND	132.	47.5	ND	577	208.		657.9
Acrolein	ND	329.	98.0	ND	754	225.		657.9
Acetone	ND	658.	339.	ND	1560	805.		657.9
Trichlorofluoromethane	ND	132.	51.8	ND	742	291.		657.9
Isopropanol	ND	329.	179.	ND	809	440.		657.9
Acrylonitrile	ND	329.	58.8	ND	714	128.		657.9
1,1-Dichloroethene	ND	132.	37.4	ND	523	148.		657.9
Methylene chloride	ND	329	82.2	ND	1140	286.		657.9
3-Chloropropene	ND	132.	56.6	ND	413	177.		657.9
Carbon disulfide	ND	132	30.6	ND	411	95.3		657.9
Freon-113	ND	132.	33.3	ND	1010	255.		657.9
trans-1,2-Dichloroethene	ND	132.	49.7	ND	523	197.		657.9
1,1-Dichloroethane	52.6	132	37.4	213	534	151.	J	657.9
Methyl tert butyl ether	ND	132.	29.6	ND	476	107.		657.9
Chloroform	ND	132.	36.3	ND	645	177.		657.9
Tetrahydrofuran	ND	329.	77.0	ND	970	227.		657.9
1,2-Dichloroethane	ND	132.	51.8	ND	534	210.		657.9

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2355230
Report Date: 09/29/23

SAMPLE RESULTS

Lab ID: L2355230-01 D
Client ID: SG-D6_11.5_092023
Sample Location: 3144 W PASSYUNK AVE. PHILADELPHIA, PA
Sample Depth:

Date Collected: 09/20/23 11:14
Date Received: 09/20/23
Field Prep: Not Specified

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
n-Hexane	1680	132	48.9	5920	465	172.		657.9
1,1,1-Trichloroethane	ND	132.	40.4	ND	720	220.		657.9
Benzene	1010	132	42.3	3230	422	135.		657.9
Carbon tetrachloride	ND	132.	45.1	ND	830	284.		657.9
Cyclohexane	2810	132	47.9	9670	454	165.		657.9
1,2-Dichloropropane	ND	132.	41.5	ND	610	192.		657.9
Bromodichloromethane	ND	132.	45.3	ND	884	303.		657.9
1,4-Dioxane	ND	132.	35.4	ND	476	128.		657.9
Trichloroethene	ND	132.	36.0	ND	709	193.		657.9
Methyl Methacrylate	ND	329.	149.	ND	1350	610.		657.9
Xylenes, Total	1370	132	40.8	5950	573	177.		657.9
4-Methyl-2-pentanone	ND	329.	125.	ND	1350	512.		657.9
1,1,2-Trichloroethane	ND	132.	38.3	ND	720	209.		657.9
Toluene	69.1	132	57.0	260	497	215.	J	657.9
1,3-Dichloropropane	ND	132.	35.3	ND	610	163.		657.9
Dibromochloromethane	ND	132.	37.2	ND	1120	317.		657.9
1,2-Dibromoethane	ND	132.	35.8	ND	1010	275.		657.9
Tetrachloroethene	ND	132.	41.2	ND	895	279.		657.9
Chlorobenzene	ND	132.	33.9	ND	608	156.		657.9
Ethylbenzene	1080	132	37.8	4690	573	164.		657.9
p/m-Xylene	744	263	82.2	3230	1140	357.		657.9
Bromoform	ND	132.	39.2	ND	1360	405.		657.9
Styrene	ND	132	39.2	ND	562	167.		657.9
1,1,2,2-Tetrachloroethane	ND	132.	34.2	ND	906	235.		657.9
o-Xylene	624	132	40.8	2710	573	177.		657.9
Isopropylbenzene	199	132	40.8	978	649	201.		657.9

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2355230
Report Date: 09/29/23

SAMPLE RESULTS

Lab ID: L2355230-01 D
Client ID: SG-D6_11.5_092023
Sample Location: 3144 W PASSYUNK AVE. PHILADELPHIA, PA
Sample Depth:

Date Collected: 09/20/23 11:14
Date Received: 09/20/23
Field Prep: Not Specified

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
1,3,5-Trimethylbenzene	250	132	39.5	1230	649	194.		657.9
1,2,4-Trimethylbenzene	241	132	38.0	1180	649	187.		657.9
Benzyl chloride	ND	132.	61.8	ND	683	320.		657.9
1,4-Dichlorobenzene	ND	132.	54.3	ND	794	326.		657.9
1,2-Dichlorobenzene	ND	132.	40.7	ND	794	245.		657.9
1,2,4-Trichlorobenzene	ND	132.	65.8	ND	980	488.		657.9
Naphthalene	ND	132.	51.3	ND	692	269.		657.9

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	97		60-140
Bromochloromethane	98		60-140
chlorobenzene-d5	112		60-140

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2355230
Report Date: 09/29/23

SAMPLE RESULTS

Lab ID: L2355230-02 D
Client ID: SG-E7_10.5_092023
Sample Location: 3144 W PASSYUNK AVE. PHILADELPHIA, PA
Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 09/29/23 05:04
Analyst: JMB

Date Collected: 09/20/23 10:16
Date Received: 09/20/23
Field Prep: Not Specified

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	ND	200.	75.7	ND	989	374.		1000
Chloromethane	ND	200.	57.6	ND	413	119.		1000
Vinyl chloride	ND	200.	58.2	ND	511	149.		1000
1,3-Butadiene	ND	200.	61.9	ND	442	137.		1000
Bromomethane	ND	200.	54.7	ND	777	212.		1000
Chloroethane	ND	200.	64.9	ND	528	171.		1000
Vinyl bromide	ND	200.	72.2	ND	874	316.		1000
Acrolein	ND	500.	149.	ND	1150	342.		1000
Acetone	ND	1000	515.	ND	2380	1220		1000
Trichlorofluoromethane	ND	200	78.7	ND	1120	442.		1000
Isopropanol	ND	500.	272.	ND	1230	669.		1000
Acrylonitrile	ND	500.	89.4	ND	1090	194.		1000
1,1-Dichloroethene	ND	200.	56.8	ND	793	225.		1000
Methylene chloride	ND	500	125.	ND	1740	434.		1000
3-Chloropropene	ND	200.	86.0	ND	626	269.		1000
Carbon disulfide	91.0	200	46.5	283	623	145.	J	1000
Freon-113	ND	200.	50.6	ND	1530	388.		1000
trans-1,2-Dichloroethene	ND	200.	75.5	ND	793	299.		1000
1,1-Dichloroethane	ND	200.	56.8	ND	809	230.		1000
Methyl tert butyl ether	ND	200.	45.0	ND	721	162.		1000
Chloroform	ND	200.	55.2	ND	977	270.		1000
Tetrahydrofuran	ND	500.	117.	ND	1470	345.		1000
1,2-Dichloroethane	ND	200.	78.7	ND	809	319.		1000

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2355230
Report Date: 09/29/23

SAMPLE RESULTS

Lab ID: L2355230-02 D
Client ID: SG-E7_10.5_092023
Sample Location: 3144 W PASSYUNK AVE. PHILADELPHIA, PA
Sample Depth:

Date Collected: 09/20/23 10:16
Date Received: 09/20/23
Field Prep: Not Specified

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
n-Hexane	52000	200	74.3	183000	705	262.		1000
1,1,1-Trichloroethane	ND	200.	61.4	ND	1090	335.		1000
Benzene	3750	200	64.3	12000	639	205.		1000
Carbon tetrachloride	ND	200.	68.6	ND	1260	432.		1000
Cyclohexane	30300	200	72.8	104000	688	251.		1000
1,2-Dichloropropane	ND	200.	63.1	ND	924	292.		1000
Bromodichloromethane	ND	200.	68.9	ND	1340	462.		1000
1,4-Dioxane	ND	200.	53.8	ND	721	194.		1000
Trichloroethene	ND	200.	54.8	ND	1070	295.		1000
Methyl Methacrylate	ND	500.	226.	ND	2050	925.		1000
Xylenes, Total	1180	200	62.1	5130	869	270.		1000
4-Methyl-2-pentanone	ND	500.	190.	ND	2050	779.		1000
1,1,2-Trichloroethane	ND	200.	58.2	ND	1090	318.		1000
Toluene	258	200	86.7	972	754	327.		1000
1,3-Dichloropropane	ND	200.	53.6	ND	924	248.		1000
Dibromochloromethane	ND	200.	56.6	ND	1700	482.		1000
1,2-Dibromoethane	ND	200.	54.4	ND	1540	418.		1000
Tetrachloroethene	ND	200.	62.7	ND	1360	425.		1000
Chlorobenzene	ND	200.	51.6	ND	921	238.		1000
Ethylbenzene	537	200	57.5	2330	869	250.		1000
p/m-Xylene	943	400	125.	4100	1740	543.		1000
Bromoform	ND	200.	59.6	ND	2070	616.		1000
Styrene	ND	200.	59.6	ND	852	254.		1000
1,1,2,2-Tetrachloroethane	ND	200.	52.0	ND	1370	357.		1000
o-Xylene	234	200	62.1	1020	869	270.		1000
Isopropylbenzene	368	200	62.1	1810	983	305.		1000

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2355230
Report Date: 09/29/23

SAMPLE RESULTS

Lab ID: L2355230-02 D
Client ID: SG-E7_10.5_092023
Sample Location: 3144 W PASSYUNK AVE. PHILADELPHIA, PA
Sample Depth:

Date Collected: 09/20/23 10:16
Date Received: 09/20/23
Field Prep: Not Specified

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
1,3,5-Trimethylbenzene	147	200	60.0	723	983	295.	J	1000
1,2,4-Trimethylbenzene	815	200	57.7	4010	983	284.		1000
Benzyl chloride	ND	200.	93.9	ND	1040	486.		1000
1,4-Dichlorobenzene	ND	200.	82.6	ND	1200	497.		1000
1,2-Dichlorobenzene	ND	200.	61.9	ND	1200	372.		1000
1,2,4-Trichlorobenzene	ND	200.	100.	ND	1480	742.		1000
Naphthalene	ND	200.	78.0	ND	1050	409.		1000

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	99		60-140
Bromochloromethane	99		60-140
chlorobenzene-d5	106		60-140

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2355230
Report Date: 09/29/23

SAMPLE RESULTS

Lab ID: L2355230-03 D
Client ID: SG-C13-10.5_092023
Sample Location: 3144 W PASSYUNK AVE. PHILADELPHIA, PA
Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 09/29/23 07:11
Analyst: JMB

Date Collected: 09/20/23 13:45
Date Received: 09/20/23
Field Prep: Not Specified

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	ND	27.2	10.3	ND	134	50.9		135.9
Chloromethane	ND	27.2	7.83	ND	56.2	16.2		135.9
Vinyl chloride	ND	27.2	7.91	ND	69.5	20.2		135.9
1,3-Butadiene	ND	27.2	8.41	ND	60.2	18.6		135.9
Bromomethane	ND	27.2	7.43	ND	106	28.9		135.9
Chloroethane	ND	27.2	8.82	ND	71.8	23.3		135.9
Vinyl bromide	ND	27.2	9.81	ND	119	42.9		135.9
Acrolein	ND	68.0	20.2	ND	156	46.3		135.9
Acetone	ND	136.	70.0	ND	323	166.		135.9
Trichlorofluoromethane	ND	27.2	10.7	ND	153	60.1		135.9
Isopropanol	ND	68.0	37.0	ND	167	90.9		135.9
Acrylonitrile	ND	68.0	12.1	ND	148	26.3		135.9
1,1-Dichloroethene	ND	27.2	7.72	ND	108	30.6		135.9
Methylene chloride	ND	68.0	17.0	ND	236	59.1		135.9
3-Chloropropene	ND	27.2	11.7	ND	85.1	36.6		135.9
Carbon disulfide	166	27.2	6.32	517	84.7	19.7		135.9
Freon-113	ND	27.2	6.88	ND	208	52.7		135.9
trans-1,2-Dichloroethene	ND	27.2	10.3	ND	108	40.8		135.9
1,1-Dichloroethane	ND	27.2	7.72	ND	110	31.2		135.9
Methyl tert butyl ether	ND	27.2	6.12	ND	98.1	22.1		135.9
Chloroform	ND	27.2	7.50	ND	133	36.6		135.9
Tetrahydrofuran	ND	68.0	15.9	ND	201	46.9		135.9
1,2-Dichloroethane	ND	27.2	10.7	ND	110	43.3		135.9

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2355230
Report Date: 09/29/23

SAMPLE RESULTS

Lab ID: L2355230-03 D
Client ID: SG-C13-10.5_092023
Sample Location: 3144 W PASSYUNK AVE. PHILADELPHIA, PA
Sample Depth:

Date Collected: 09/20/23 13:45
Date Received: 09/20/23
Field Prep: Not Specified

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
n-Hexane	8180	27.2	10.1	28800	95.9	35.6		135.9
1,1,1-Trichloroethane	ND	27.2	8.34	ND	148	45.5		135.9
Benzene	3460	27.2	8.74	11100	86.9	27.9		135.9
Carbon tetrachloride	ND	27.2	9.32	ND	171	58.6		135.9
Cyclohexane	7340	27.2	9.89	25300	93.6	34.0		135.9
1,2-Dichloropropane	ND	27.2	8.58	ND	126	39.7		135.9
Bromodichloromethane	ND	27.2	9.36	ND	182	62.7		135.9
1,4-Dioxane	ND	27.2	7.31	ND	98.0	26.3		135.9
Trichloroethene	ND	27.2	7.45	ND	146	40.0		135.9
Methyl Methacrylate	ND	68.0	30.7	ND	278	126.		135.9
Xylenes, Total	8880	27.2	8.44	38600	118	36.7		135.9
4-Methyl-2-pentanone	ND	68.0	25.8	ND	279	106.		135.9
1,1,2-Trichloroethane	ND	27.2	7.91	ND	148	43.2		135.9
Toluene	2810	27.2	11.8	10600	103	44.5		135.9
1,3-Dichloropropane	ND	27.2	7.28	ND	126	33.6		135.9
Dibromochloromethane	ND	27.2	7.69	ND	232	65.5		135.9
1,2-Dibromoethane	ND	27.2	7.39	ND	209	56.8		135.9
Tetrachloroethene	8.83	27.2	8.52	59.9	184	57.8	J	135.9
Chlorobenzene	ND	27.2	7.01	ND	125	32.3		135.9
Ethylbenzene	2180	27.2	7.81	9470	118	33.9		135.9
p/m-Xylene	6470	54.4	17.0	28100	236	73.8		135.9
Bromoform	ND	27.2	8.10	ND	281	83.7		135.9
Styrene	ND	27.2	8.10	ND	116	34.5		135.9
1,1,2,2-Tetrachloroethane	ND	27.2	7.07	ND	187	48.6		135.9
o-Xylene	2410	27.2	8.44	10500	118	36.7		135.9
Isopropylbenzene	506	27.2	8.44	2490	134	41.5		135.9

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2355230
Report Date: 09/29/23

SAMPLE RESULTS

Lab ID: L2355230-03 D
Client ID: SG-C13-10.5_092023
Sample Location: 3144 W PASSYUNK AVE. PHILADELPHIA, PA
Sample Depth:

Date Collected: 09/20/23 13:45
Date Received: 09/20/23
Field Prep: Not Specified

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
1,3,5-Trimethylbenzene	759	27.2	8.15	3730	134	40.1		135.9
1,2,4-Trimethylbenzene	1660	27.2	7.84	8160	134	38.5		135.9
Benzyl chloride	ND	27.2	12.8	ND	141	66.3		135.9
1,4-Dichlorobenzene	ND	27.2	11.2	ND	164	67.3		135.9
1,2-Dichlorobenzene	ND	27.2	8.41	ND	164	50.6		135.9
1,2,4-Trichlorobenzene	ND	27.2	13.6	ND	202	101.		135.9
Naphthalene	ND	27.2	10.6	ND	143	55.6		135.9

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	99		60-140
Bromochloromethane	97		60-140
chlorobenzene-d5	102		60-140

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2355230
Report Date: 09/29/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 09/28/23 18:30

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-03 Batch: WG1833368-4								
Dichlorodifluoromethane	ND	0.200	0.076	ND	0.989	0.374		1
Chloromethane	ND	0.200	0.058	ND	0.413	0.119		1
Vinyl chloride	ND	0.200	0.058	ND	0.511	0.149		1
1,3-Butadiene	ND	0.200	0.062	ND	0.442	0.137		1
Bromomethane	ND	0.200	0.055	ND	0.777	0.212		1
Chloroethane	ND	0.200	0.065	ND	0.528	0.171		1
Vinyl bromide	ND	0.200	0.072	ND	0.874	0.316		1
Acrolein	ND	0.500	0.149	ND	1.15	0.342		1
Acetone	ND	1.00	0.515	ND	2.38	1.22		1
Trichlorofluoromethane	ND	0.200	0.079	ND	1.12	0.442		1
Isopropanol	ND	0.500	0.272	ND	1.23	0.669		1
Acrylonitrile	ND	0.500	0.089	ND	1.09	0.194		1
1,1-Dichloroethene	ND	0.200	0.057	ND	0.793	0.225		1
Methylene chloride	ND	0.500	0.125	ND	1.74	0.434		1
3-Chloropropene	ND	0.200	0.086	ND	0.626	0.269		1
Carbon disulfide	ND	0.200	0.047	ND	0.623	0.145		1
Freon-113	ND	0.200	0.051	ND	1.53	0.388		1
trans-1,2-Dichloroethene	ND	0.200	0.076	ND	0.793	0.299		1
1,1-Dichloroethane	ND	0.200	0.057	ND	0.809	0.230		1
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
Xylenes, Total	ND	0.200	0.062	ND	0.869	0.270		1
Chloroform	ND	0.200	0.055	ND	0.977	0.270		1
Tetrahydrofuran	ND	0.500	0.117	ND	1.47	0.345		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
n-Hexane	ND	0.200	0.074	ND	0.705	0.262		1

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2355230
Report Date: 09/29/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 09/28/23 18:30

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-03 Batch: WG1833368-4								
1,1,1-Trichloroethane	ND	0.200	0.061	ND	1.09	0.335		1
Benzene	ND	0.200	0.064	ND	0.639	0.205		1
Carbon tetrachloride	ND	0.200	0.069	ND	1.26	0.432		1
Cyclohexane	ND	0.200	0.073	ND	0.688	0.251		1
1,2-Dichloropropane	ND	0.200	0.063	ND	0.924	0.292		1
Bromodichloromethane	ND	0.200	0.069	ND	1.34	0.462		1
1,4-Dioxane	ND	0.200	0.054	ND	0.721	0.194		1
Trichloroethene	ND	0.200	0.055	ND	1.07	0.295		1
Methyl Methacrylate	ND	0.500	0.226	ND	2.05	0.925		1
4-Methyl-2-pentanone	ND	0.500	0.190	ND	2.05	0.779		1
1,1,2-Trichloroethane	ND	0.200	0.058	ND	1.09	0.318		1
Toluene	ND	0.200	0.087	ND	0.754	0.327		1
1,3-Dichloropropane	ND	0.200	0.054	ND	0.924	0.248		1
Dibromochloromethane	ND	0.200	0.057	ND	1.70	0.482		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Tetrachloroethene	ND	0.200	0.063	ND	1.36	0.425		1
Chlorobenzene	ND	0.200	0.052	ND	0.921	0.238		1
Ethylbenzene	ND	0.200	0.058	ND	0.869	0.250		1
p/m-Xylene	ND	0.400	0.125	ND	1.74	0.543		1
Bromoform	ND	0.200	0.060	ND	2.07	0.616		1
Styrene	ND	0.200	0.060	ND	0.852	0.254		1
1,1,2,2-Tetrachloroethane	ND	0.200	0.052	ND	1.37	0.357		1
o-Xylene	ND	0.200	0.062	ND	0.869	0.270		1
Isopropylbenzene	ND	0.200	0.062	ND	0.983	0.305		1
1,3,5-Trimethylbenzene	ND	0.200	0.060	ND	0.983	0.295		1

Project Name: PESRM SOIL GAS
Project Number: 220181807
Lab Number: L2355230
Report Date: 09/29/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 09/28/23 18:30

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-03 Batch: WG1833368-4								
1,2,4-Trimethylbenzene	ND	0.200	0.058	ND	0.983	0.284		1
Benzyl chloride	ND	0.200	0.094	ND	1.04	0.486		1
1,4-Dichlorobenzene	ND	0.200	0.083	ND	1.20	0.497		1
1,2-Dichlorobenzene	ND	0.200	0.062	ND	1.20	0.372		1
1,2,4-Trichlorobenzene	ND	0.200	0.100	ND	1.48	0.742		1
Naphthalene	ND	0.200	0.078	ND	1.05	0.409		1

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM SOIL GAS

Project Number: 220181807

Lab Number: L2355230

Report Date: 09/29/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-03 Batch: WG1833368-3								
Dichlorodifluoromethane	80		-		70-130	-		
Chloromethane	89		-		70-130	-		
Vinyl chloride	100		-		70-130	-		
1,3-Butadiene	99		-		70-130	-		
Bromomethane	100		-		70-130	-		
Chloroethane	103		-		70-130	-		
Vinyl bromide	87		-		70-130	-		
Acrolein	75		-		60-113	-		
Acetone	84		-		40-160	-		
Trichlorofluoromethane	83		-		70-130	-		
Isopropanol	82		-		40-160	-		
Acrylonitrile	100		-		70-130	-		
1,1-Dichloroethene	95		-		70-130	-		
Methylene chloride	98		-		70-130	-		
3-Chloropropene	91		-		70-130	-		
Carbon disulfide	87		-		70-130	-		
Freon-113	96		-		70-130	-		
trans-1,2-Dichloroethene	90		-		70-130	-		
1,1-Dichloroethane	92		-		70-130	-		
Methyl tert butyl ether	82		-		70-130	-		
Chloroform	91		-		70-130	-		
Tetrahydrofuran	82		-		70-130	-		
1,2-Dichloroethane	78		-		70-130	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: PESRM SOIL GAS
Project Number: 220181807

Lab Number: L2355230
Report Date: 09/29/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-03 Batch: WG1833368-3								
n-Hexane	106		-		70-130	-		
1,1,1-Trichloroethane	90		-		70-130	-		
Benzene	94		-		70-130	-		
Carbon tetrachloride	90		-		70-130	-		
Cyclohexane	105		-		70-130	-		
1,2-Dichloropropane	102		-		70-130	-		
Bromodichloromethane	99		-		70-130	-		
1,4-Dioxane	103		-		70-130	-		
Trichloroethene	105		-		70-130	-		
Methyl Methacrylate	101		-		40-160	-		
4-Methyl-2-pentanone	95		-		70-130	-		
1,1,2-Trichloroethane	102		-		70-130	-		
Toluene	102		-		70-130	-		
1,3-Dichloropropane	90		-		70-130	-		
Dibromochloromethane	105		-		70-130	-		
1,2-Dibromoethane	96		-		70-130	-		
Tetrachloroethene	97		-		70-130	-		
Chlorobenzene	96		-		70-130	-		
Ethylbenzene	98		-		70-130	-		
p/m-Xylene	98		-		70-130	-		
Bromoform	108		-		70-130	-		
Styrene	96		-		70-130	-		
1,1,2,2-Tetrachloroethane	103		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM SOIL GAS

Project Number: 220181807

Lab Number: L2355230

Report Date: 09/29/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-03 Batch: WG1833368-3								
o-Xylene	101		-		70-130	-		
Isopropylbenzene	95		-		70-130	-		
1,3,5-Trimethylbenzene	96		-		70-130	-		
1,2,4-Trimethylbenzene	98		-		70-130	-		
Benzyl chloride	102		-		70-130	-		
1,4-Dichlorobenzene	97		-		70-130	-		
1,2-Dichlorobenzene	96		-		70-130	-		
1,2,4-Trichlorobenzene	98		-		70-130	-		
Naphthalene	104		-		70-130	-		

Project Name: PESRM SOIL GAS

Project Number: 220181807

Lab Number: L2355230

Report Date: 09/29/23

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controler Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L2355230-01	SG-D6_11.5_092023	01132	Flow 2	09/13/23	436736		-	-	-	Pass	99	98	1
L2355230-01	SG-D6_11.5_092023	2451	2.7L Can	09/11/23	436545	L2328906-02	Pass	-29.3	-5.6	-	-	-	-
L2355230-02	SG-E7_10.5_092023	01590	Flow 1	09/11/23	436545		-	-	-	Pass	100	104	4
L2355230-02	SG-E7_10.5_092023	3741	2.7L Can	09/13/23	436736	L2352537-01	Pass	-29.7	-5.6	-	-	-	-
L2355230-03	SG-C13-10.5_092023	01604	Flow 2	09/13/23	436736		-	-	-	Pass	100	108	8
L2355230-03	SG-C13-10.5_092023	3193	2.7L Can	09/13/23	436736	L2352537-01	Pass	-29.7	-5.5	-	-	-	-

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2328906
Report Date: 09/29/23

Air Canister Certification Results

Lab ID: L2328906-02
Client ID: CAN 2451 SHELF 16
Sample Location:

Date Collected: 05/23/23 18:00
Date Received: 05/24/23
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 05/24/23 22:35
Analyst: RAY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	0.046	ND	0.707	0.164		1
Propylene	ND	0.500	0.135	ND	0.861	0.232		1
Propane	ND	0.500	0.152	ND	0.902	0.274		1
Dichlorodifluoromethane	ND	0.200	0.076	ND	0.989	0.374		1
Chloromethane	ND	0.200	0.058	ND	0.413	0.119		1
Freon-114	ND	0.200	0.050	ND	1.40	0.352		1
Methanol	ND	5.00	3.03	ND	6.55	3.97		1
Vinyl chloride	ND	0.200	0.058	ND	0.511	0.149		1
1,3-Butadiene	ND	0.200	0.062	ND	0.442	0.137		1
Butane	ND	0.200	0.080	ND	0.475	0.190		1
Bromomethane	ND	0.200	0.055	ND	0.777	0.212		1
Chloroethane	ND	0.200	0.065	ND	0.528	0.171		1
Ethanol	ND	5.00	1.74	ND	9.42	3.28		1
Dichlorofluoromethane	ND	0.200	0.112	ND	0.842	0.471		1
Vinyl bromide	ND	0.200	0.072	ND	0.874	0.316		1
Acrolein	ND	0.500	0.149	ND	1.15	0.342		1
Acetone	ND	1.00	0.515	ND	2.38	1.22		1
Acetonitrile	ND	0.200	0.101	ND	0.336	0.170		1
Trichlorofluoromethane	ND	0.200	0.079	ND	1.12	0.442		1
Isopropanol	ND	0.500	0.272	ND	1.23	0.669		1
Acrylonitrile	ND	0.500	0.089	ND	1.09	0.194		1
Pentane	ND	0.200	0.113	ND	0.590	0.333		1
Ethyl ether	ND	0.200	0.085	ND	0.606	0.259		1
1,1-Dichloroethene	ND	0.200	0.057	ND	0.793	0.225		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2328906
Report Date: 09/29/23

Air Canister Certification Results

Lab ID: L2328906-02
Client ID: CAN 2451 SHELF 16
Sample Location:

Date Collected: 05/23/23 18:00
Date Received: 05/24/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	0.132	ND	1.52	0.400		1
Methylene chloride	ND	0.500	0.125	ND	1.74	0.434		1
3-Chloropropene	ND	0.200	0.086	ND	0.626	0.269		1
Carbon disulfide	ND	0.200	0.047	ND	0.623	0.145		1
Freon-113	ND	0.200	0.051	ND	1.53	0.388		1
trans-1,2-Dichloroethene	ND	0.200	0.076	ND	0.793	0.299		1
1,1-Dichloroethane	ND	0.200	0.057	ND	0.809	0.230		1
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
Vinyl acetate	ND	1.00	0.323	ND	3.52	1.14		1
Xylenes, total	ND	0.600	0.062	ND	0.869	0.270		1
2-Butanone	ND	0.500	0.099	ND	1.47	0.292		1
cis-1,2-Dichloroethene	ND	0.200	0.060	ND	0.793	0.236		1
Ethyl Acetate	ND	0.500	0.297	ND	1.80	1.07		1
Chloroform	ND	0.200	0.055	ND	0.977	0.270		1
Tetrahydrofuran	ND	0.500	0.117	ND	1.47	0.345		1
2,2-Dichloropropane	ND	0.200	0.043	ND	0.924	0.198		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
n-Hexane	ND	0.200	0.074	ND	0.705	0.262		1
Diisopropyl ether	ND	0.200	0.063	ND	0.836	0.264		1
tert-Butyl Ethyl Ether	ND	0.200	0.073	ND	0.836	0.306		1
1,2-Dichloroethene (total)	ND	1.00	0.060	ND	1.00	0.236		1
1,1,1-Trichloroethane	ND	0.200	0.061	ND	1.09	0.335		1
1,1-Dichloropropene	ND	0.200	0.059	ND	0.908	0.269		1
Benzene	ND	0.200	0.064	ND	0.639	0.205		1
Carbon tetrachloride	ND	0.200	0.069	ND	1.26	0.432		1
Cyclohexane	ND	0.200	0.073	ND	0.688	0.251		1
tert-Amyl Methyl Ether	ND	0.200	0.067	ND	0.836	0.281		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L2328906
Report Date: 09/29/23

Air Canister Certification Results

Lab ID: L2328906-02
Client ID: CAN 2451 SHELF 16
Sample Location:

Date Collected: 05/23/23 18:00
Date Received: 05/24/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	0.060	ND	1.42	0.425		1
1,2-Dichloropropane	ND	0.200	0.063	ND	0.924	0.292		1
Bromodichloromethane	ND	0.200	0.069	ND	1.34	0.462		1
1,4-Dioxane	ND	0.200	0.054	ND	0.721	0.194		1
Trichloroethene	ND	0.200	0.055	ND	1.07	0.295		1
2,2,4-Trimethylpentane	ND	0.200	0.069	ND	0.934	0.323		1
Methyl Methacrylate	ND	0.500	0.226	ND	2.05	0.925		1
Heptane	ND	0.200	0.083	ND	0.820	0.339		1
cis-1,3-Dichloropropene	ND	0.200	0.067	ND	0.908	0.306		1
4-Methyl-2-pentanone	ND	0.500	0.190	ND	2.05	0.779		1
trans-1,3-Dichloropropene	ND	0.200	0.078	ND	0.908	0.355		1
1,1,2-Trichloroethane	ND	0.200	0.058	ND	1.09	0.318		1
Toluene	ND	0.200	0.087	ND	0.754	0.327		1
1,3-Dichloropropane	ND	0.200	0.054	ND	0.924	0.248		1
2-Hexanone	ND	0.200	0.091	ND	0.820	0.374		1
Dibromochloromethane	ND	0.200	0.057	ND	1.70	0.482		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Butyl acetate	ND	0.500	0.208	ND	2.38	0.989		1
Octane	ND	0.200	0.068	ND	0.934	0.316		1
Tetrachloroethene	ND	0.200	0.063	ND	1.36	0.425		1
1,1,1,2-Tetrachloroethane	ND	0.200	0.051	ND	1.37	0.349		1
Chlorobenzene	ND	0.200	0.052	ND	0.921	0.238		1
Ethylbenzene	ND	0.200	0.058	ND	0.869	0.250		1
p/m-Xylene	ND	0.400	0.125	ND	1.74	0.543		1
Bromoform	ND	0.200	0.060	ND	2.07	0.616		1
Styrene	ND	0.200	0.060	ND	0.852	0.254		1
1,1,2,2-Tetrachloroethane	ND	0.200	0.052	ND	1.37	0.357		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2328906
Report Date: 09/29/23

Air Canister Certification Results

Lab ID: L2328906-02
Client ID: CAN 2451 SHELF 16
Sample Location:

Date Collected: 05/23/23 18:00
Date Received: 05/24/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	0.062	ND	0.869	0.270		1
1,2,3-Trichloropropane	ND	0.200	0.058	ND	1.21	0.347		1
Nonane	ND	0.200	0.074	ND	1.05	0.387		1
Isopropylbenzene	ND	0.200	0.062	ND	0.983	0.305		1
Bromobenzene	ND	0.200	0.058	ND	0.793	0.230		1
2-Chlorotoluene	ND	0.200	0.076	ND	1.04	0.394		1
n-Propylbenzene	ND	0.200	0.063	ND	0.983	0.311		1
4-Chlorotoluene	ND	0.200	0.077	ND	1.04	0.396		1
4-Ethyltoluene	ND	0.200	0.055	ND	0.983	0.272		1
1,3,5-Trimethylbenzene	ND	0.200	0.060	ND	0.983	0.295		1
tert-Butylbenzene	ND	0.200	0.055	ND	1.10	0.302		1
1,2,4-Trimethylbenzene	ND	0.200	0.058	ND	0.983	0.284		1
Decane	ND	0.200	0.070	ND	1.16	0.406		1
Benzyl chloride	ND	0.200	0.094	ND	1.04	0.486		1
1,3-Dichlorobenzene	ND	0.200	0.078	ND	1.20	0.467		1
1,4-Dichlorobenzene	ND	0.200	0.083	ND	1.20	0.497		1
sec-Butylbenzene	ND	0.200	0.055	ND	1.10	0.300		1
p-Isopropyltoluene	ND	0.200	0.057	ND	1.10	0.311		1
1,2-Dichlorobenzene	ND	0.200	0.062	ND	1.20	0.372		1
n-Butylbenzene	ND	0.200	0.054	ND	1.10	0.294		1
1,2-Dibromo-3-chloropropane	ND	0.200	0.062	ND	1.93	0.603		1
Undecane	ND	0.200	0.071	ND	1.28	0.453		1
Dodecane	ND	0.200	0.089	ND	1.39	0.621		1
1,2,4-Trichlorobenzene	ND	0.200	0.100	ND	1.48	0.742		1
Naphthalene	ND	0.200	0.078	ND	1.05	0.409		1
1,2,3-Trichlorobenzene	ND	0.200	0.074	ND	1.48	0.548		1
Hexachlorobutadiene	ND	0.200	0.061	ND	2.13	0.647		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L2328906
Report Date: 09/29/23

Air Canister Certification Results

Lab ID: L2328906-02
Client ID: CAN 2451 SHELF 16
Sample Location:

Date Collected: 05/23/23 18:00
Date Received: 05/24/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	94		60-140
Bromochloromethane	96		60-140
chlorobenzene-d5	94		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2328906
Report Date: 09/29/23

Air Canister Certification Results

Lab ID: L2328906-02
Client ID: CAN 2451 SHELF 16
Sample Location:

Date Collected: 05/23/23 18:00
Date Received: 05/24/23
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 05/24/23 22:35
Analyst: RAY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	0.050	ND	0.989	0.247		1
Chloromethane	ND	0.200	0.076	ND	0.413	0.156		1
Freon-114	ND	0.050	0.006	ND	0.349	0.045		1
Vinyl chloride	ND	0.020	0.009	ND	0.051	0.023		1
1,3-Butadiene	ND	0.020	0.011	ND	0.044	0.024		1
Bromomethane	ND	0.020	0.009	ND	0.078	0.037		1
Chloroethane	ND	0.100	0.040	ND	0.264	0.104		1
Acrolein	ND	0.050	0.039	ND	0.115	0.089		1
Acetone	ND	1.00	0.539	ND	2.38	1.28		1
Trichlorofluoromethane	ND	0.050	0.009	ND	0.281	0.052		1
Acrylonitrile	ND	0.500	0.162	ND	1.09	0.352		1
1,1-Dichloroethene	ND	0.020	0.008	ND	0.079	0.031		1
Methylene chloride	ND	0.500	0.110	ND	1.74	0.382		1
Freon-113	ND	0.050	0.008	ND	0.383	0.064		1
trans-1,2-Dichloroethene	ND	0.020	0.009	ND	0.079	0.036		1
1,1-Dichloroethane	ND	0.020	0.009	ND	0.081	0.035		1
Methyl tert butyl ether	ND	0.200	0.026	ND	0.721	0.094		1
2-Butanone	ND	0.500	0.132	ND	1.47	0.389		1
cis-1,2-Dichloroethene	ND	0.020	0.010	ND	0.079	0.040		1
Chloroform	ND	0.020	0.007	ND	0.098	0.035		1
1,2-Dichloroethane	ND	0.020	0.008	ND	0.081	0.034		1
1,1,1-Trichloroethane	ND	0.020	0.006	ND	0.109	0.032		1
Benzene	ND	0.100	0.030	ND	0.319	0.095		1
Carbon tetrachloride	ND	0.020	0.011	ND	0.126	0.069		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2328906
Report Date: 09/29/23

Air Canister Certification Results

Lab ID: L2328906-02
Client ID: CAN 2451 SHELF 16
Sample Location:

Date Collected: 05/23/23 18:00
Date Received: 05/24/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.038		1
Bromodichloromethane	ND	0.020	0.007	ND	0.134	0.050		1
1,4-Dioxane	ND	0.100	0.034	ND	0.360	0.124		1
Trichloroethene	ND	0.020	0.006	ND	0.107	0.032		1
cis-1,3-Dichloropropene	ND	0.020	0.012	ND	0.091	0.054		1
4-Methyl-2-pentanone	ND	0.500	0.191	ND	2.05	0.783		1
trans-1,3-Dichloropropene	ND	0.020	0.012	ND	0.091	0.052		1
1,1,2-Trichloroethane	ND	0.020	0.010	ND	0.109	0.053		1
Toluene	ND	0.100	0.017	ND	0.377	0.063		1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068		1
1,2-Dibromoethane	ND	0.020	0.009	ND	0.154	0.070		1
Tetrachloroethene	ND	0.020	0.007	ND	0.136	0.050		1
1,1,1,2-Tetrachloroethane	ND	0.020	0.010	ND	0.137	0.069		1
Chlorobenzene	ND	0.100	0.026	ND	0.461	0.119		1
Ethylbenzene	ND	0.020	0.009	ND	0.087	0.037		1
p/m-Xylene	ND	0.040	0.018	ND	0.174	0.078		1
Bromoform	ND	0.020	0.011	ND	0.207	0.115		1
Styrene	ND	0.020	0.008	ND	0.085	0.034		1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.046		1
o-Xylene	ND	0.020	0.009	ND	0.087	0.038		1
Isopropylbenzene	ND	0.200	0.030	ND	0.983	0.147		1
4-Ethyltoluene	ND	0.020	0.010	ND	0.098	0.049		1
1,3,5-Trimethybenzene	ND	0.020	0.010	ND	0.098	0.047		1
1,2,4-Trimethylbenzene	ND	0.020	0.008	ND	0.098	0.037		1
Benzyl chloride	ND	0.100	0.033	ND	0.518	0.172		1
1,3-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.046		1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.045		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2328906
Report Date: 09/29/23

Air Canister Certification Results

Lab ID: L2328906-02
Client ID: CAN 2451 SHELF 16
Sample Location:

Date Collected: 05/23/23 18:00
Date Received: 05/24/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
sec-Butylbenzene	ND	0.200	0.027	ND	1.10	0.146		1
p-Isopropyltoluene	ND	0.200	0.037	ND	1.10	0.201		1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.037		1
n-Butylbenzene	ND	0.200	0.032	ND	1.10	0.175		1
1,2,4-Trichlorobenzene	ND	0.050	0.015	ND	0.371	0.108		1
Naphthalene	ND	0.050	0.021	ND	0.262	0.110		1
1,2,3-Trichlorobenzene	ND	0.050	0.022	ND	0.371	0.166		1
Hexachlorobutadiene	ND	0.050	0.011	ND	0.533	0.117		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	94		60-140
bromochloromethane	94		60-140
chlorobenzene-d5	94		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2352537
Report Date: 09/29/23

Air Canister Certification Results

Lab ID: L2352537-01
Client ID: CAN 3404 SHELF 3
Sample Location:

Date Collected: 09/08/23 18:00
Date Received: 09/11/23
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 09/12/23 01:43
Analyst: RAY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	0.046	ND	0.707	0.164		1
Propylene	ND	0.500	0.135	ND	0.861	0.232		1
Propane	ND	0.500	0.152	ND	0.902	0.274		1
Dichlorodifluoromethane	ND	0.200	0.076	ND	0.989	0.374		1
Chloromethane	ND	0.200	0.058	ND	0.413	0.119		1
Freon-114	ND	0.200	0.050	ND	1.40	0.352		1
Methanol	ND	5.00	3.03	ND	6.55	3.97		1
Vinyl chloride	ND	0.200	0.058	ND	0.511	0.149		1
1,3-Butadiene	ND	0.200	0.062	ND	0.442	0.137		1
Butane	ND	0.200	0.080	ND	0.475	0.190		1
Bromomethane	ND	0.200	0.055	ND	0.777	0.212		1
Chloroethane	ND	0.200	0.065	ND	0.528	0.171		1
Ethanol	ND	5.00	1.74	ND	9.42	3.28		1
Dichlorofluoromethane	ND	0.200	0.112	ND	0.842	0.471		1
Vinyl bromide	ND	0.200	0.072	ND	0.874	0.316		1
Acrolein	ND	0.500	0.149	ND	1.15	0.342		1
Acetone	ND	1.00	0.515	ND	2.38	1.22		1
Acetonitrile	ND	0.200	0.101	ND	0.336	0.170		1
Trichlorofluoromethane	ND	0.200	0.079	ND	1.12	0.442		1
Isopropanol	ND	0.500	0.272	ND	1.23	0.669		1
Acrylonitrile	ND	0.500	0.089	ND	1.09	0.194		1
Pentane	ND	0.200	0.113	ND	0.590	0.333		1
Ethyl ether	ND	0.200	0.085	ND	0.606	0.259		1
1,1-Dichloroethene	ND	0.200	0.057	ND	0.793	0.225		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2352537
Report Date: 09/29/23

Air Canister Certification Results

Lab ID: L2352537-01
Client ID: CAN 3404 SHELF 3
Sample Location:

Date Collected: 09/08/23 18:00
Date Received: 09/11/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	0.132	ND	1.52	0.400		1
Methylene chloride	ND	0.500	0.125	ND	1.74	0.434		1
3-Chloropropene	ND	0.200	0.086	ND	0.626	0.269		1
Carbon disulfide	ND	0.200	0.047	ND	0.623	0.145		1
Freon-113	ND	0.200	0.051	ND	1.53	0.388		1
trans-1,2-Dichloroethene	ND	0.200	0.076	ND	0.793	0.299		1
1,1-Dichloroethane	ND	0.200	0.057	ND	0.809	0.230		1
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
Vinyl acetate	ND	1.00	0.323	ND	3.52	1.14		1
2-Butanone	ND	0.500	0.099	ND	1.47	0.292		1
Xylenes, total	ND	0.600	0.062	ND	0.869	0.270		1
cis-1,2-Dichloroethene	ND	0.200	0.060	ND	0.793	0.236		1
Ethyl Acetate	ND	0.500	0.297	ND	1.80	1.07		1
Chloroform	ND	0.200	0.055	ND	0.977	0.270		1
Tetrahydrofuran	ND	0.500	0.117	ND	1.47	0.345		1
2,2-Dichloropropane	ND	0.200	0.043	ND	0.924	0.198		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
n-Hexane	ND	0.200	0.074	ND	0.705	0.262		1
Diisopropyl ether	ND	0.200	0.063	ND	0.836	0.264		1
tert-Butyl Ethyl Ether	ND	0.200	0.073	ND	0.836	0.306		1
1,2-Dichloroethene (total)	ND	1.00	0.060	ND	1.00	0.236		1
1,1,1-Trichloroethane	ND	0.200	0.061	ND	1.09	0.335		1
1,1-Dichloropropene	ND	0.200	0.059	ND	0.908	0.269		1
Benzene	ND	0.200	0.064	ND	0.639	0.205		1
Carbon tetrachloride	ND	0.200	0.069	ND	1.26	0.432		1
Cyclohexane	ND	0.200	0.073	ND	0.688	0.251		1
tert-Amyl Methyl Ether	ND	0.200	0.067	ND	0.836	0.281		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2352537
Report Date: 09/29/23

Air Canister Certification Results

Lab ID: L2352537-01
Client ID: CAN 3404 SHELF 3
Sample Location:

Date Collected: 09/08/23 18:00
Date Received: 09/11/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	0.060	ND	1.42	0.425		1
1,2-Dichloropropane	ND	0.200	0.063	ND	0.924	0.292		1
Bromodichloromethane	ND	0.200	0.069	ND	1.34	0.462		1
1,4-Dioxane	ND	0.200	0.054	ND	0.721	0.194		1
Trichloroethene	ND	0.200	0.055	ND	1.07	0.295		1
2,2,4-Trimethylpentane	ND	0.200	0.069	ND	0.934	0.323		1
Methyl Methacrylate	ND	0.500	0.226	ND	2.05	0.925		1
Heptane	ND	0.200	0.083	ND	0.820	0.339		1
cis-1,3-Dichloropropene	ND	0.200	0.067	ND	0.908	0.306		1
4-Methyl-2-pentanone	ND	0.500	0.190	ND	2.05	0.779		1
trans-1,3-Dichloropropene	ND	0.200	0.078	ND	0.908	0.355		1
1,1,2-Trichloroethane	ND	0.200	0.058	ND	1.09	0.318		1
Toluene	ND	0.200	0.087	ND	0.754	0.327		1
1,3-Dichloropropane	ND	0.200	0.054	ND	0.924	0.248		1
2-Hexanone	ND	0.200	0.091	ND	0.820	0.374		1
Dibromochloromethane	ND	0.200	0.057	ND	1.70	0.482		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Butyl acetate	ND	0.500	0.208	ND	2.38	0.989		1
Octane	ND	0.200	0.068	ND	0.934	0.316		1
Tetrachloroethene	ND	0.200	0.063	ND	1.36	0.425		1
1,1,1,2-Tetrachloroethane	ND	0.200	0.051	ND	1.37	0.349		1
Chlorobenzene	ND	0.200	0.052	ND	0.921	0.238		1
Ethylbenzene	ND	0.200	0.058	ND	0.869	0.250		1
p/m-Xylene	ND	0.400	0.125	ND	1.74	0.543		1
Bromoform	ND	0.200	0.060	ND	2.07	0.616		1
Styrene	ND	0.200	0.060	ND	0.852	0.254		1
1,1,2,2-Tetrachloroethane	ND	0.200	0.052	ND	1.37	0.357		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2352537
Report Date: 09/29/23

Air Canister Certification Results

Lab ID: L2352537-01
Client ID: CAN 3404 SHELF 3
Sample Location:

Date Collected: 09/08/23 18:00
Date Received: 09/11/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	0.062	ND	0.869	0.270		1
1,2,3-Trichloropropane	ND	0.200	0.058	ND	1.21	0.347		1
Nonane	ND	0.200	0.074	ND	1.05	0.387		1
Isopropylbenzene	ND	0.200	0.062	ND	0.983	0.305		1
Bromobenzene	ND	0.200	0.058	ND	0.793	0.230		1
2-Chlorotoluene	ND	0.200	0.076	ND	1.04	0.394		1
n-Propylbenzene	ND	0.200	0.063	ND	0.983	0.311		1
4-Chlorotoluene	ND	0.200	0.077	ND	1.04	0.396		1
4-Ethyltoluene	ND	0.200	0.055	ND	0.983	0.272		1
1,3,5-Trimethylbenzene	ND	0.200	0.060	ND	0.983	0.295		1
tert-Butylbenzene	ND	0.200	0.055	ND	1.10	0.302		1
1,2,4-Trimethylbenzene	ND	0.200	0.058	ND	0.983	0.284		1
Decane	ND	0.200	0.070	ND	1.16	0.406		1
Benzyl chloride	ND	0.200	0.094	ND	1.04	0.486		1
1,3-Dichlorobenzene	ND	0.200	0.078	ND	1.20	0.467		1
1,4-Dichlorobenzene	ND	0.200	0.083	ND	1.20	0.497		1
sec-Butylbenzene	ND	0.200	0.055	ND	1.10	0.300		1
p-Isopropyltoluene	ND	0.200	0.057	ND	1.10	0.311		1
1,2-Dichlorobenzene	ND	0.200	0.062	ND	1.20	0.372		1
n-Butylbenzene	ND	0.200	0.054	ND	1.10	0.294		1
1,2-Dibromo-3-chloropropane	ND	0.200	0.062	ND	1.93	0.603		1
Undecane	ND	0.200	0.071	ND	1.28	0.453		1
Dodecane	ND	0.200	0.089	ND	1.39	0.621		1
1,2,4-Trichlorobenzene	ND	0.200	0.100	ND	1.48	0.742		1
Naphthalene	ND	0.200	0.078	ND	1.05	0.409		1
1,2,3-Trichlorobenzene	ND	0.200	0.074	ND	1.48	0.548		1
Hexachlorobutadiene	ND	0.200	0.061	ND	2.13	0.647		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2352537
Report Date: 09/29/23

Air Canister Certification Results

Lab ID: L2352537-01
Client ID: CAN 3404 SHELF 3
Sample Location:

Date Collected: 09/08/23 18:00
Date Received: 09/11/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	91		60-140
Bromochloromethane	94		60-140
chlorobenzene-d5	92		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L2352537
Report Date: 09/29/23

Air Canister Certification Results

Lab ID: L2352537-01
Client ID: CAN 3404 SHELF 3
Sample Location:

Date Collected: 09/08/23 18:00
Date Received: 09/11/23
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 09/12/23 01:43
Analyst: RAY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	0.050	ND	0.989	0.247		1
Chloromethane	ND	0.200	0.076	ND	0.413	0.156		1
Freon-114	ND	0.050	0.006	ND	0.349	0.045		1
Vinyl chloride	ND	0.020	0.009	ND	0.051	0.023		1
1,3-Butadiene	ND	0.020	0.011	ND	0.044	0.024		1
Bromomethane	ND	0.020	0.009	ND	0.078	0.037		1
Chloroethane	ND	0.100	0.040	ND	0.264	0.104		1
Acrolein	ND	0.050	0.039	ND	0.115	0.089		1
Acetone	ND	1.00	0.539	ND	2.38	1.28		1
Trichlorofluoromethane	ND	0.050	0.009	ND	0.281	0.052		1
Acrylonitrile	ND	0.500	0.162	ND	1.09	0.352		1
1,1-Dichloroethene	ND	0.020	0.008	ND	0.079	0.031		1
Methylene chloride	ND	0.500	0.110	ND	1.74	0.382		1
Freon-113	ND	0.050	0.008	ND	0.383	0.064		1
trans-1,2-Dichloroethene	ND	0.020	0.009	ND	0.079	0.036		1
1,1-Dichloroethane	ND	0.020	0.009	ND	0.081	0.035		1
Methyl tert butyl ether	ND	0.200	0.026	ND	0.721	0.094		1
2-Butanone	ND	0.500	0.132	ND	1.47	0.389		1
cis-1,2-Dichloroethene	ND	0.020	0.010	ND	0.079	0.040		1
Chloroform	ND	0.020	0.007	ND	0.098	0.035		1
1,2-Dichloroethane	ND	0.020	0.008	ND	0.081	0.034		1
1,1,1-Trichloroethane	ND	0.020	0.006	ND	0.109	0.032		1
Benzene	ND	0.100	0.030	ND	0.319	0.095		1
Carbon tetrachloride	ND	0.020	0.011	ND	0.126	0.069		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2352537
Report Date: 09/29/23

Air Canister Certification Results

Lab ID: L2352537-01
Client ID: CAN 3404 SHELF 3
Sample Location:

Date Collected: 09/08/23 18:00
Date Received: 09/11/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.038		1
Bromodichloromethane	ND	0.020	0.007	ND	0.134	0.050		1
1,4-Dioxane	ND	0.100	0.034	ND	0.360	0.124		1
Trichloroethene	ND	0.020	0.006	ND	0.107	0.032		1
cis-1,3-Dichloropropene	ND	0.020	0.012	ND	0.091	0.054		1
4-Methyl-2-pentanone	ND	0.500	0.191	ND	2.05	0.783		1
trans-1,3-Dichloropropene	ND	0.020	0.012	ND	0.091	0.052		1
1,1,2-Trichloroethane	ND	0.020	0.010	ND	0.109	0.053		1
Toluene	ND	0.100	0.017	ND	0.377	0.063		1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068		1
1,2-Dibromoethane	ND	0.020	0.009	ND	0.154	0.070		1
Tetrachloroethene	ND	0.020	0.007	ND	0.136	0.050		1
1,1,1,2-Tetrachloroethane	ND	0.020	0.010	ND	0.137	0.069		1
Chlorobenzene	ND	0.100	0.026	ND	0.461	0.119		1
Ethylbenzene	ND	0.020	0.009	ND	0.087	0.037		1
p/m-Xylene	ND	0.040	0.018	ND	0.174	0.078		1
Bromoform	ND	0.020	0.011	ND	0.207	0.115		1
Styrene	ND	0.020	0.008	ND	0.085	0.034		1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.046		1
o-Xylene	ND	0.020	0.009	ND	0.087	0.038		1
Isopropylbenzene	ND	0.200	0.030	ND	0.983	0.147		1
4-Ethyltoluene	ND	0.020	0.010	ND	0.098	0.049		1
1,3,5-Trimethybenzene	ND	0.020	0.010	ND	0.098	0.047		1
1,2,4-Trimethylbenzene	ND	0.020	0.008	ND	0.098	0.037		1
Benzyl chloride	ND	0.100	0.033	ND	0.518	0.172		1
1,3-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.046		1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.045		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2352537
Report Date: 09/29/23

Air Canister Certification Results

Lab ID: L2352537-01
Client ID: CAN 3404 SHELF 3
Sample Location:

Date Collected: 09/08/23 18:00
Date Received: 09/11/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
sec-Butylbenzene	ND	0.200	0.027	ND	1.10	0.146		1
p-Isopropyltoluene	ND	0.200	0.037	ND	1.10	0.201		1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.037		1
n-Butylbenzene	ND	0.200	0.032	ND	1.10	0.175		1
1,2,4-Trichlorobenzene	ND	0.050	0.015	ND	0.371	0.108		1
Naphthalene	ND	0.050	0.021	ND	0.262	0.110		1
1,2,3-Trichlorobenzene	ND	0.050	0.022	ND	0.371	0.166		1
Hexachlorobutadiene	ND	0.050	0.011	ND	0.533	0.117		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	94		60-140
bromochloromethane	97		60-140
chlorobenzene-d5	94		60-140

Project Name: PESRM SOIL GAS
Project Number: 220181807

Lab Number: L2355230
Report Date: 09/29/23

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
NA	Present/Intact

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2355230-01A	Canister - 2.7 Liter	NA	NA			Y	Absent		TO15-LL(30)
L2355230-02A	Canister - 2.7 Liter	NA	NA			Y	Absent		TO15-LL(30)
L2355230-03A	Canister - 2.7 Liter	NA	NA			Y	Absent		TO15-LL(30)

*Values in parentheses indicate holding time in days

Project Name:	PESRM SOIL GAS	**Lab Number:**	L2355230
Project Number:	220181807	**Report Date:**	09/29/23

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name:	PESRM SOIL GAS	**Lab Number:**	L2355230
Project Number:	220181807	**Report Date:**	09/29/23

Footnotes

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

Terms

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

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

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

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

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

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

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

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

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

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

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers

Project Name:	PESRM SOIL GAS	**Lab Number:**	L2355230
Project Number:	220181807	**Report Date:**	09/29/23

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.)

REFERENCES

48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

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, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 524.2: THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables).
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

AIR ANALYSIS

ALPHA ANALYTICAL — CHAIN OF CUSTODY

PAGE 1 OF 1

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 9/21/23

ALPHA Job #: L2355230

Client Information

Client: Langan Engineering + Environmental
Address: 1818 Market St Ste:3300
Philadelphia, PA
Phone: (215) 845-8900
Fax: (215) 845-8901
Email: astatkiewicz@langan.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: PESRM Soil Gas
Project Location: 3144 W Passyunk Ave. Philadelphia, PA
Project #: 220181807
Project Manager: Anna Statkiewicz
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX
☐ ADEx
Criteria Checker:
(Default based on Regulatory Criteria Indicated)
Other Formats:
☒ EMAIL (standard pdf report)
☐ Additional Deliverables:

Report to: (if different than Project Manager)

cc'd astatkiewicz@langan.com
agoldberg@langan.com
abarr@langan.com

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed	Program	Res / Comm

Other Project Specific Requirements/Comments:

Project-Specific Target Compound List: ☐

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	COLLECTION End Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	TO-15	TO-15 SIM	APH (Subtract Non-petroleum HCs)	Fixed Gases	Sulfides & Mercaptans by TO-15	☐	Sample Comments (i.e. PID)
55230-01	SG-D6-11.5-092023	9/20/23	10:52	1114	-29.48	-4.93	SV	RH	2.7	2451	01132	X						
02	SG-E7-10.5-092023	9/20/23	0954	1016	-29.67	-4.98	SV	RH	2.7	374	01590	X						
03	SG-E9-10.5-092023	9/20/23	1320	1345	-30.46	-4.87	SV	RH	2.7	319	01604	X						

*SAMPLE MATRIX CODES

AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type

Relinquished By:	Date/Time	Received By:	Date/Time:
9/21/23 0530			
9/21/23 0530			
Ryan Hanrahan MHF A&L	9/20/23 1510	MHF A&L	09/20/2023 15:10
	9/20/2023 16:0		9-20-23 16:41
	9/20 16:30	Anthony Green	SEP 20 2023 2052
Anthony Green	9/21/23 0100		9/21/23 0100

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Form No: 101-02 Rev: (25-Sep-15)

JOB: L2354997 REPORT STYLE: Data Usability Report
0010: Alpha Analytical Report Cover Page - OK
0015: Sample Cross Reference Summary - OK
0060: Case Narrative - OK
2000: Air VOA Sample Results - OK
2010: Air VOA Method Blank Report - OK
2020: Air VOA LCS Report - OK
4900: Air Canister & Flow Controller Information - OK
5000: Air Canister Certification Report - OK
5100: Sample Receipt & Container Information Report - OK
5200: Glossary - OK
5400: References - OK

ANALYTICAL REPORT

Lab Number:	L2354997
Client:	Langan Engineering & Environmental 6000 Lombardo Center Suite 210 Cleveland, OH 44131
ATTN:	Anna Statkiewicz
Phone:	(216) 328-3354
Project Name:	PESRM-SOIL GAS
Project Number:	220181807
Report Date:	09/26/23

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0825), DoD (L2474), FL (E87814), IL (200081), IN (C-MA-04), KY (KY98046), LA (85084), ME (MA00030), MD (350), MI (99110) , NJ (MA015), NY (11627), NC (685), OH (CL106), OR (MA-0262), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #525-23-107-88708), USFWS (Permit #206964).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: PESRM-SOIL GAS
Project Number: 220181807

Lab Number: L2354997
Report Date: 09/26/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2354997-01	SG-A1_10.5_091923	SOIL_VAPOR	3144 PASSYUNK AVE, PHILADELPHIA, PA	09/19/23 11:34	09/19/23
L2354997-02	SG-B4_11.5_091923	SOIL_VAPOR	3144 PASSYUNK AVE, PHILADELPHIA, PA	09/19/23 14:52	09/19/23
L2354997-03	SG-E4_10.5_091923	SOIL_VAPOR	3144 PASSYUNK AVE, PHILADELPHIA, PA	09/19/23 13:38	09/19/23

Project Name:	PESRM-SOIL GAS	**Lab Number:**	L2354997
Project Number:	220181807	**Report Date:**	09/26/23

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PESRM-SOIL GAS **Lab Number:** L2354997
Project Number: 220181807 **Report Date:** 09/26/23

Case Narrative (continued)

Report Submission

September 26, 2023: This is a preliminary report. A final report will be issued as soon as the fixed gas analysis is completed.

Volatile Organics in Air

Canisters were released from the laboratory on September 13, 2023. The canister certification results are provided as an addendum.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

L2354997-01D and -03D2: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L2354997-02D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2354997-03D: The sample was re-analyzed on dilution in order to quantitate the results within the calibration range. The result(s) should be considered estimated, and are qualified with an E flag, for any compound(s) that exceeded the calibration range in the initial analysis. The re-analysis was performed only for the compound(s) that exceeded the calibration range.

Sample Receipt

L2354997-02: The canister ID number for the sample is listed on the CoC as 3411 but should be 2192.

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: Christopher J. Anderson

Title: Technical Director/Representative Date: 09/26/23

AIR

Project Name: PESRM-SOIL GAS
Project Number: 220181807
Lab Number: L2354997
Report Date: 09/26/23

SAMPLE RESULTS

Lab ID: L2354997-01 D
Client ID: SG-A1_10.5_091923
Sample Location: 3144 PASSYUNK AVE, PHILADELPHIA, PA

Date Collected: 09/19/23 11:34
Date Received: 09/19/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 09/25/23 23:09
Analyst: JMB

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	ND	8.04	3.04	ND	39.8	15.0		40.19
Chloromethane	ND	8.04	2.31	ND	16.6	4.77		40.19
Vinyl chloride	ND	8.04	2.34	ND	20.6	5.98		40.19
1,3-Butadiene	14.6	8.04	2.49	32.3	17.8	5.51		40.19
Bromomethane	ND	8.04	2.20	ND	31.2	8.54		40.19
Chloroethane	ND	8.04	2.61	ND	21.2	6.89		40.19
Vinyl bromide	ND	8.04	2.90	ND	35.2	12.7		40.19
Acrolein	ND	20.1	5.99	ND	46.1	13.7		40.19
Acetone	ND	40.2	20.7	ND	95.5	49.2		40.19
Trichlorofluoromethane	ND	8.04	3.16	ND	45.2	17.8		40.19
Isopropanol	ND	20.1	10.9	ND	49.4	26.8		40.19
Acrylonitrile	ND	20.1	3.59	ND	43.6	7.79		40.19
1,1-Dichloroethene	ND	8.04	2.28	ND	31.9	9.04		40.19
Methylene chloride	ND	20.1	5.02	ND	69.8	17.4		40.19
3-Chloropropene	ND	8.04	3.46	ND	25.2	10.8		40.19
Carbon disulfide	118	8.04	1.87	367	25.0	5.82		40.19
Freon-113	ND	8.04	2.03	ND	61.6	15.6		40.19
trans-1,2-Dichloroethene	ND	8.04	3.03	ND	31.9	12.0		40.19
1,1-Dichloroethane	ND	8.04	2.28	ND	32.5	9.23		40.19
Methyl tert butyl ether	ND	8.04	1.81	ND	29.0	6.53		40.19
Chloroform	9.04	8.04	2.22	44.1	39.3	10.8		40.19
Tetrahydrofuran	ND	20.1	4.70	ND	59.3	13.9		40.19
1,2-Dichloroethane	ND	8.04	3.16	ND	32.5	12.8		40.19

Project Name: PESRM-SOIL GAS
Project Number: 220181807
Lab Number: L2354997
Report Date: 09/26/23

SAMPLE RESULTS

Lab ID: L2354997-01 D
Client ID: SG-A1_10.5_091923
Sample Location: 3144 PASSYUNK AVE, PHILADELPHIA, PA

Date Collected: 09/19/23 11:34
Date Received: 09/19/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
n-Hexane	1820	8.04	2.99	6410	28.3	10.5		40.19
1,1,1-Trichloroethane	ND	8.04	2.47	ND	43.9	13.5		40.19
Benzene	44.5	8.04	2.58	142	25.7	8.24		40.19
Carbon tetrachloride	ND	8.04	2.76	ND	50.6	17.4		40.19
Cyclohexane	1860	8.04	2.92	6400	27.7	10.1		40.19
1,2-Dichloropropane	ND	8.04	2.54	ND	37.2	11.7		40.19
Bromodichloromethane	ND	8.04	2.77	ND	53.9	18.6		40.19
1,4-Dioxane	ND	8.04	2.16	ND	29.0	7.78		40.19
Trichloroethene	ND	8.04	2.20	ND	43.2	11.8		40.19
Methyl Methacrylate	ND	20.1	9.08	ND	82.3	37.2		40.19
Xylenes, Total	49.2	8.04	2.50	214	34.9	10.9		40.19
4-Methyl-2-pentanone	ND	20.1	7.64	ND	82.4	31.3		40.19
1,1,2-Trichloroethane	ND	8.04	2.34	ND	43.9	12.8		40.19
Toluene	22.2	8.04	3.48	83.7	30.3	13.1		40.19
1,3-Dichloropropane	ND	8.04	2.15	ND	37.2	9.94		40.19
Dibromochloromethane	ND	8.04	2.27	ND	68.5	19.3		40.19
1,2-Dibromoethane	ND	8.04	2.19	ND	61.8	16.8		40.19
Tetrachloroethene	ND	8.04	2.52	ND	54.5	17.1		40.19
Chlorobenzene	ND	8.04	2.07	ND	37.0	9.53		40.19
Ethylbenzene	13.9	8.04	2.31	60.4	34.9	10.0		40.19
p/m-Xylene	36.9	16.1	5.02	160	69.9	21.8		40.19
Bromoform	ND	8.04	2.40	ND	83.1	24.8		40.19
Styrene	ND	8.04	2.40	ND	34.2	10.2		40.19
1,1,2,2-Tetrachloroethane	ND	8.04	2.09	ND	55.2	14.4		40.19
o-Xylene	12.3	8.04	2.50	53.4	34.9	10.9		40.19
Isopropylbenzene	9.81	8.04	2.50	48.2	39.5	12.3		40.19

Project Name: PESRM-SOIL GAS
Project Number: 220181807
Lab Number: L2354997
Report Date: 09/26/23

SAMPLE RESULTS

Lab ID: L2354997-01 D
Client ID: SG-A1_10.5_091923
Sample Location: 3144 PASSYUNK AVE, PHILADELPHIA, PA

Date Collected: 09/19/23 11:34
Date Received: 09/19/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
1,3,5-Trimethylbenzene	8.48	8.04	2.41	41.7	39.5	11.8		40.19
1,2,4-Trimethylbenzene	18.6	8.04	2.32	91.4	39.5	11.4		40.19
Benzyl chloride	ND	8.04	3.77	ND	41.6	19.5		40.19
1,4-Dichlorobenzene	ND	8.04	3.32	ND	48.3	20.0		40.19
1,2-Dichlorobenzene	ND	8.04	2.49	ND	48.3	15.0		40.19
1,2,4-Trichlorobenzene	ND	8.04	4.02	ND	59.7	29.8		40.19
Naphthalene	4.66	8.04	3.13	24.4	42.2	16.4	J	40.19

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	95		60-140
Bromochloromethane	98		60-140
chlorobenzene-d5	93		60-140

Project Name: PESRM-SOIL GAS
Project Number: 220181807
Lab Number: L2354997
Report Date: 09/26/23

SAMPLE RESULTS

Lab ID: L2354997-02 D
Client ID: SG-B4_11.5_091923
Sample Location: 3144 PASSYUNK AVE, PHILADELPHIA, PA

Date Collected: 09/19/23 14:52
Date Received: 09/19/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 09/25/23 23:45
Analyst: JMB

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	ND	4.79	1.81	ND	23.7	8.95		23.95
Chloromethane	ND	4.79	1.38	ND	9.89	2.85		23.95
Vinyl chloride	ND	4.79	1.39	ND	12.2	3.55		23.95
1,3-Butadiene	2.20	4.79	1.48	4.87	10.6	3.27	J	23.95
Bromomethane	ND	4.79	1.31	ND	18.6	5.09		23.95
Chloroethane	ND	4.79	1.55	ND	12.6	4.09		23.95
Vinyl bromide	ND	4.79	1.73	ND	20.9	7.56		23.95
Acrolein	ND	12.0	3.57	ND	27.5	8.19		23.95
Acetone	ND	24.0	12.3	ND	57.0	29.2		23.95
Trichlorofluoromethane	ND	4.79	1.88	ND	26.9	10.6		23.95
Isopropanol	ND	12.0	6.51	ND	29.5	16.0		23.95
Acrylonitrile	ND	12.0	2.14	ND	26.0	4.64		23.95
1,1-Dichloroethene	ND	4.79	1.36	ND	19.0	5.39		23.95
Methylene chloride	ND	12.0	2.99	ND	41.7	10.4		23.95
3-Chloropropene	ND	4.79	2.06	ND	15.0	6.45		23.95
Carbon disulfide	27.8	4.79	1.11	86.6	14.9	3.46		23.95
Freon-113	ND	4.79	1.21	ND	36.7	9.27		23.95
trans-1,2-Dichloroethene	ND	4.79	1.81	ND	19.0	7.18		23.95
1,1-Dichloroethane	ND	4.79	1.36	ND	19.4	5.50		23.95
Methyl tert butyl ether	ND	4.79	1.08	ND	17.3	3.89		23.95
Chloroform	ND	4.79	1.32	ND	23.4	6.45		23.95
Tetrahydrofuran	ND	12.0	2.80	ND	35.4	8.26		23.95
1,2-Dichloroethane	ND	4.79	1.88	ND	19.4	7.61		23.95

Project Name: PESRM-SOIL GAS
Project Number: 220181807
Lab Number: L2354997
Report Date: 09/26/23

SAMPLE RESULTS

Lab ID: L2354997-02 D
Client ID: SG-B4_11.5_091923
Sample Location: 3144 PASSYUNK AVE, PHILADELPHIA, PA

Date Collected: 09/19/23 14:52
Date Received: 09/19/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
n-Hexane	560	4.79	1.78	1970	16.9	6.27		23.95
1,1,1-Trichloroethane	ND	4.79	1.47	ND	26.1	8.02		23.95
Benzene	19.8	4.79	1.54	63.3	15.3	4.92		23.95
Carbon tetrachloride	ND	4.79	1.64	ND	30.1	10.3		23.95
Cyclohexane	666	4.79	1.74	2290	16.5	5.99		23.95
1,2-Dichloropropane	ND	4.79	1.51	ND	22.1	6.98		23.95
Bromodichloromethane	ND	4.79	1.65	ND	32.1	11.1		23.95
1,4-Dioxane	ND	4.79	1.29	ND	17.3	4.65		23.95
Trichloroethene	ND	4.79	1.31	ND	25.7	7.04		23.95
Methyl Methacrylate	ND	12.0	5.41	ND	49.1	22.2		23.95
Xylenes, Total	61.3	4.79	1.49	266	20.8	6.47		23.95
4-Methyl-2-pentanone	ND	12.0	4.55	ND	49.2	18.6		23.95
1,1,2-Trichloroethane	ND	4.79	1.39	ND	26.1	7.58		23.95
Toluene	22.2	4.79	2.08	83.7	18.1	7.84		23.95
1,3-Dichloropropane	ND	4.79	1.28	ND	22.1	5.92		23.95
Dibromochloromethane	ND	4.79	1.36	ND	40.8	11.6		23.95
1,2-Dibromoethane	ND	4.79	1.30	ND	36.8	9.99		23.95
Tetrachloroethene	ND	4.79	1.50	ND	32.5	10.2		23.95
Chlorobenzene	ND	4.79	1.24	ND	22.1	5.71		23.95
Ethylbenzene	12.6	4.79	1.38	54.7	20.8	5.99		23.95
p/m-Xylene	46.8	9.58	2.99	203	41.6	13.0		23.95
Bromoform	ND	4.79	1.43	ND	49.5	14.8		23.95
Styrene	ND	4.79	1.43	ND	20.4	6.09		23.95
1,1,2,2-Tetrachloroethane	ND	4.79	1.24	ND	32.9	8.52		23.95
o-Xylene	14.6	4.79	1.49	63.4	20.8	6.47		23.95
Isopropylbenzene	2.32	4.79	1.49	11.4	23.5	7.33	J	23.95

Project Name: PESRM-SOIL GAS
Project Number: 220181807
Lab Number: L2354997
Report Date: 09/26/23

SAMPLE RESULTS

Lab ID: L2354997-02 D
Client ID: SG-B4_11.5_091923
Sample Location: 3144 PASSYUNK AVE, PHILADELPHIA, PA

Date Collected: 09/19/23 14:52
Date Received: 09/19/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
1,3,5-Trimethylbenzene	3.93	4.79	1.44	19.3	23.5	7.08	J	23.95
1,2,4-Trimethylbenzene	10.9	4.79	1.38	53.6	23.5	6.78		23.95
Benzyl chloride	ND	4.79	2.25	ND	24.8	11.7		23.95
1,4-Dichlorobenzene	ND	4.79	1.98	ND	28.8	11.9		23.95
1,2-Dichlorobenzene	ND	4.79	1.48	ND	28.8	8.90		23.95
1,2,4-Trichlorobenzene	ND	4.79	2.40	ND	35.6	17.8		23.95
Naphthalene	ND	4.79	1.87	ND	25.1	9.81		23.95

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	94		60-140
Bromochloromethane	97		60-140
chlorobenzene-d5	112		60-140

Project Name: PESRM-SOIL GAS
Project Number: 220181807
Lab Number: L2354997
Report Date: 09/26/23

SAMPLE RESULTS

Lab ID: L2354997-03 D
Client ID: SG-E4_10.5_091923
Sample Location: 3144 PASSYUNK AVE, PHILADELPHIA, PA

Date Collected: 09/19/23 13:38
Date Received: 09/19/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 09/26/23 00:21
Analyst: JMB

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	ND	106.	40.3	ND	524	199.		531.9
Chloromethane	ND	106.	30.6	ND	219	63.2		531.9
Vinyl chloride	ND	106.	31.0	ND	271	79.2		531.9
1,3-Butadiene	ND	106.	32.9	ND	235	72.8		531.9
Bromomethane	ND	106.	29.1	ND	412	113.		531.9
Chloroethane	ND	106.	34.5	ND	280	91.0		531.9
Vinyl bromide	ND	106.	38.4	ND	463	168.		531.9
Acrolein	ND	266.	79.2	ND	610	182.		531.9
Acetone	ND	532.	274.	ND	1260	651.		531.9
Trichlorofluoromethane	ND	106.	41.9	ND	596	235.		531.9
Isopropanol	156	266	145.	383	654	356.	J	531.9
Acrylonitrile	ND	266.	47.6	ND	577	103.		531.9
1,1-Dichloroethene	ND	106.	30.2	ND	420	120.		531.9
Methylene chloride	ND	266	66.5	ND	924	231.		531.9
3-Chloropropene	ND	106.	45.7	ND	332	143.		531.9
Carbon disulfide	72.3	106	24.7	225	330	76.9	J	531.9
Freon-113	ND	106.	26.9	ND	812	206.		531.9
trans-1,2-Dichloroethene	ND	106.	40.2	ND	420	159.		531.9
1,1-Dichloroethane	ND	106.	30.2	ND	429	122.		531.9
Methyl tert butyl ether	ND	106.	23.9	ND	382	86.2		531.9
Chloroform	ND	106.	29.4	ND	518	144.		531.9
Tetrahydrofuran	ND	266.	62.2	ND	785	183.		531.9
1,2-Dichloroethane	ND	106.	41.9	ND	429	170.		531.9

Project Name: PESRM-SOIL GAS
Project Number: 220181807
Lab Number: L2354997
Report Date: 09/26/23

SAMPLE RESULTS

Lab ID: L2354997-03 D
Client ID: SG-E4_10.5_091923
Sample Location: 3144 PASSYUNK AVE, PHILADELPHIA, PA

Date Collected: 09/19/23 13:38
Date Received: 09/19/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
n-Hexane	107000	106	39.5	377000	374	139.	E	531.9
1,1,1-Trichloroethane	ND	106.	32.6	ND	578	178.		531.9
Benzene	13200	106	34.2	42200	339	109.		531.9
Carbon tetrachloride	ND	106.	36.5	ND	667	230.		531.9
Cyclohexane	50500	106	38.7	174000	365	133.		531.9
1,2-Dichloropropane	ND	106.	33.6	ND	490	155.		531.9
Bromodichloromethane	ND	106.	36.6	ND	710	245.		531.9
1,4-Dioxane	ND	106.	28.6	ND	382	103.		531.9
Trichloroethene	ND	106.	29.1	ND	570	156.		531.9
Methyl Methacrylate	ND	266.	120.	ND	1090	491.		531.9
Xylenes, Total	103000	106	33.0	447000	460	143.		531.9
4-Methyl-2-pentanone	ND	266.	101.	ND	1090	414.		531.9
1,1,2-Trichloroethane	ND	106.	31.0	ND	578	169.		531.9
Toluene	252	106	46.1	950	399	174.		531.9
1,3-Dichloropropane	ND	106.	28.5	ND	490	132.		531.9
Dibromochloromethane	ND	106.	30.1	ND	903	256.		531.9
1,2-Dibromoethane	ND	106.	28.9	ND	815	222.		531.9
Tetrachloroethene	ND	106.	33.4	ND	719	226.		531.9
Chlorobenzene	ND	106.	27.4	ND	488	126.		531.9
Ethylbenzene	28600	106	30.6	124000	460	133.		531.9
p/m-Xylene	99700	213	66.5	433000	925	289.		531.9
Bromoform	ND	106.	31.7	ND	1100	328.		531.9
Styrene	ND	106.	31.7	ND	451	135.		531.9
1,1,2,2-Tetrachloroethane	ND	106.	27.6	ND	728	190.		531.9
o-Xylene	3470	106	33.0	15100	460	143.		531.9
Isopropylbenzene	5360	106	33.0	26400	521	162.		531.9

Project Name: PESRM-SOIL GAS
Project Number: 220181807
Lab Number: L2354997
Report Date: 09/26/23

SAMPLE RESULTS

Lab ID: L2354997-03 D
Client ID: SG-E4_10.5_091923
Sample Location: 3144 PASSYUNK AVE, PHILADELPHIA, PA

Date Collected: 09/19/23 13:38
Date Received: 09/19/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
1,3,5-Trimethylbenzene	8610	106	31.9	42300	521	157.		531.9
1,2,4-Trimethylbenzene	18600	106	30.7	91400	521	151.		531.9
Benzyl chloride	ND	106.	49.9	ND	549	258.		531.9
1,4-Dichlorobenzene	ND	106.	43.9	ND	637	264.		531.9
1,2-Dichlorobenzene	ND	106.	32.9	ND	637	198.		531.9
1,2,4-Trichlorobenzene	ND	106.	53.2	ND	787	395.		531.9
Naphthalene	ND	106.	41.5	ND	556	218.		531.9

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	97		60-140
Bromochloromethane	100		60-140
chlorobenzene-d5	113		60-140

Project Name: PESRM-SOIL GAS
Project Number: 220181807
Lab Number: L2354997
Report Date: 09/26/23

SAMPLE RESULTS

Lab ID: L2354997-03 D2
Client ID: SG-E4_10.5_091923
Sample Location: 3144 PASSYUNK AVE, PHILADELPHIA, PA

Date Collected: 09/19/23 13:38
Date Received: 09/19/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 09/26/23 08:39
Analyst: JMB

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
n-Hexane	153000	357	133.	539000	1260	469.		1786

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-Difluorobenzene	93		60-140
Bromochloromethane	96		60-140
chlorobenzene-d5	93		60-140

Project Name: PESRM-SOIL GAS
Project Number: 220181807
Lab Number: L2354997
Report Date: 09/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 09/25/23 15:28

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-03 Batch: WG1831744-4								
Dichlorodifluoromethane	ND	0.200	0.076	ND	0.989	0.374		1
Chloromethane	ND	0.200	0.058	ND	0.413	0.119		1
Vinyl chloride	ND	0.200	0.058	ND	0.511	0.149		1
1,3-Butadiene	ND	0.200	0.062	ND	0.442	0.137		1
Bromomethane	ND	0.200	0.055	ND	0.777	0.212		1
Chloroethane	ND	0.200	0.065	ND	0.528	0.171		1
Vinyl bromide	ND	0.200	0.072	ND	0.874	0.316		1
Acrolein	ND	0.500	0.149	ND	1.15	0.342		1
Acetone	ND	1.00	0.515	ND	2.38	1.22		1
Trichlorofluoromethane	ND	0.200	0.079	ND	1.12	0.442		1
Isopropanol	ND	0.500	0.272	ND	1.23	0.669		1
Acrylonitrile	ND	0.500	0.089	ND	1.09	0.194		1
1,1-Dichloroethene	ND	0.200	0.057	ND	0.793	0.225		1
Methylene chloride	ND	0.500	0.125	ND	1.74	0.434		1
3-Chloropropene	ND	0.200	0.086	ND	0.626	0.269		1
Carbon disulfide	ND	0.200	0.047	ND	0.623	0.145		1
Freon-113	ND	0.200	0.051	ND	1.53	0.388		1
trans-1,2-Dichloroethene	ND	0.200	0.076	ND	0.793	0.299		1
1,1-Dichloroethane	ND	0.200	0.057	ND	0.809	0.230		1
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
Xylenes, Total	ND	0.200	0.062	ND	0.869	0.270		1
Chloroform	ND	0.200	0.055	ND	0.977	0.270		1
Tetrahydrofuran	ND	0.500	0.117	ND	1.47	0.345		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
n-Hexane	ND	0.200	0.074	ND	0.705	0.262		1

Project Name: PESRM-SOIL GAS
Project Number: 220181807
Lab Number: L2354997
Report Date: 09/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 09/25/23 15:28

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-03 Batch: WG1831744-4								
1,1,1-Trichloroethane	ND	0.200	0.061	ND	1.09	0.335		1
Benzene	ND	0.200	0.064	ND	0.639	0.205		1
Carbon tetrachloride	ND	0.200	0.069	ND	1.26	0.432		1
Cyclohexane	ND	0.200	0.073	ND	0.688	0.251		1
1,2-Dichloropropane	ND	0.200	0.063	ND	0.924	0.292		1
Bromodichloromethane	ND	0.200	0.069	ND	1.34	0.462		1
1,4-Dioxane	ND	0.200	0.054	ND	0.721	0.194		1
Trichloroethene	ND	0.200	0.055	ND	1.07	0.295		1
Methyl Methacrylate	ND	0.500	0.226	ND	2.05	0.925		1
4-Methyl-2-pentanone	ND	0.500	0.190	ND	2.05	0.779		1
1,1,2-Trichloroethane	ND	0.200	0.058	ND	1.09	0.318		1
Toluene	ND	0.200	0.087	ND	0.754	0.327		1
1,3-Dichloropropane	ND	0.200	0.054	ND	0.924	0.248		1
Dibromochloromethane	ND	0.200	0.057	ND	1.70	0.482		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Tetrachloroethene	ND	0.200	0.063	ND	1.36	0.425		1
Chlorobenzene	ND	0.200	0.052	ND	0.921	0.238		1
Ethylbenzene	ND	0.200	0.058	ND	0.869	0.250		1
p/m-Xylene	ND	0.400	0.125	ND	1.74	0.543		1
Bromoform	ND	0.200	0.060	ND	2.07	0.616		1
Styrene	ND	0.200	0.060	ND	0.852	0.254		1
1,1,2,2-Tetrachloroethane	ND	0.200	0.052	ND	1.37	0.357		1
o-Xylene	ND	0.200	0.062	ND	0.869	0.270		1
Isopropylbenzene	ND	0.200	0.062	ND	0.983	0.305		1
1,3,5-Trimethylbenzene	ND	0.200	0.060	ND	0.983	0.295		1

Project Name: PESRM-SOIL GAS
Project Number: 220181807
Lab Number: L2354997
Report Date: 09/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 09/25/23 15:28

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-03 Batch: WG1831744-4								
1,2,4-Trimethylbenzene	ND	0.200	0.058	ND	0.983	0.284		1
Benzyl chloride	ND	0.200	0.094	ND	1.04	0.486		1
1,4-Dichlorobenzene	ND	0.200	0.083	ND	1.20	0.497		1
1,2-Dichlorobenzene	ND	0.200	0.062	ND	1.20	0.372		1
1,2,4-Trichlorobenzene	ND	0.200	0.100	ND	1.48	0.742		1
Naphthalene	ND	0.200	0.078	ND	1.05	0.409		1

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM-SOIL GAS

Project Number: 220181807

Lab Number: L2354997

Report Date: 09/26/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-03 Batch: WG1831744-3								
Dichlorodifluoromethane	95		-		70-130	-		
Chloromethane	93		-		70-130	-		
Vinyl chloride	100		-		70-130	-		
1,3-Butadiene	89		-		70-130	-		
Bromomethane	103		-		70-130	-		
Chloroethane	106		-		70-130	-		
Vinyl bromide	100		-		70-130	-		
Acrolein	78		-		60-113	-		
Acetone	102		-		40-160	-		
Trichlorofluoromethane	102		-		70-130	-		
Isopropanol	88		-		40-160	-		
Acrylonitrile	80		-		70-130	-		
1,1-Dichloroethene	97		-		70-130	-		
Methylene chloride	99		-		70-130	-		
3-Chloropropene	117		-		70-130	-		
Carbon disulfide	95		-		70-130	-		
Freon-113	115		-		70-130	-		
trans-1,2-Dichloroethene	109		-		70-130	-		
1,1-Dichloroethane	114		-		70-130	-		
Methyl tert butyl ether	86		-		70-130	-		
Chloroform	101		-		70-130	-		
Tetrahydrofuran	111		-		70-130	-		
1,2-Dichloroethane	94		-		70-130	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: PESRM-SOIL GAS
Project Number: 220181807

Lab Number: L2354997
Report Date: 09/26/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-03 Batch: WG1831744-3								
n-Hexane	98		-		70-130	-		
1,1,1-Trichloroethane	86		-		70-130	-		
Benzene	90		-		70-130	-		
Carbon tetrachloride	87		-		70-130	-		
Cyclohexane	98		-		70-130	-		
1,2-Dichloropropane	107		-		70-130	-		
Bromodichloromethane	94		-		70-130	-		
1,4-Dioxane	103		-		70-130	-		
Trichloroethene	104		-		70-130	-		
Methyl Methacrylate	108		-		40-160	-		
4-Methyl-2-pentanone	103		-		70-130	-		
1,1,2-Trichloroethane	108		-		70-130	-		
Toluene	110		-		70-130	-		
1,3-Dichloropropane	88		-		70-130	-		
Dibromochloromethane	118		-		70-130	-		
1,2-Dibromoethane	104		-		70-130	-		
Tetrachloroethene	107		-		70-130	-		
Chlorobenzene	106		-		70-130	-		
Ethylbenzene	114		-		70-130	-		
p/m-Xylene	114		-		70-130	-		
Bromoform	124		-		70-130	-		
Styrene	109		-		70-130	-		
1,1,2,2-Tetrachloroethane	116		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: PESRM-SOIL GAS

Project Number: 220181807

Lab Number: L2354997

Report Date: 09/26/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-03 Batch: WG1831744-3								
o-Xylene	115		-		70-130	-		
Isopropylbenzene	104		-		70-130	-		
1,3,5-Trimethylbenzene	108		-		70-130	-		
1,2,4-Trimethylbenzene	107		-		70-130	-		
Benzyl chloride	122		-		70-130	-		
1,4-Dichlorobenzene	106		-		70-130	-		
1,2-Dichlorobenzene	107		-		70-130	-		
1,2,4-Trichlorobenzene	99		-		70-130	-		
Naphthalene	104		-		70-130	-		

Project Name: PESRM-SOIL GAS

Project Number: 220181807

Lab Number: L2354997

Report Date: 09/26/23

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controler Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L2354997-01	SG-A1_10.5_091923	0780	Flow 1	09/11/23	436545		-	-	-	Pass	100	0.5	198
L2354997-01	SG-A1_10.5_091923	474	2.7L Can	09/11/23	436545	L2329587-04	Pass	-29.5	-14.8	-	-	-	-
L2354997-02	SG-B4_11.5_091923	01810	Flow 2	09/13/23	436736		-	-	-	Pass	100	99	1
L2354997-02	SG-B4_11.5_091923	2192	2.7L Can	09/13/23	436736	L2352537-01	Pass	-29.6	-4.9	-	-	-	-
L2354997-03	SG-E4_10.5_091923	01673	Flow 1	09/11/23	436545		-	-	-	Pass	100	102	2
L2354997-03	SG-E4_10.5_091923	2358	2.7L Can	09/13/23	436736	L2352537-01	Pass	-29.7	-4.9	-	-	-	-

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2329587
Report Date: 09/26/23

Air Canister Certification Results

Lab ID: L2329587-04
Client ID: CAN 474 SHELF 14
Sample Location:

Date Collected: 05/25/23 18:00
Date Received: 05/26/23
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 05/27/23 20:06
Analyst: RAY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	0.046	ND	0.707	0.164		1
Propylene	ND	0.500	0.135	ND	0.861	0.232		1
Propane	ND	0.500	0.152	ND	0.902	0.274		1
Dichlorodifluoromethane	ND	0.200	0.076	ND	0.989	0.374		1
Chloromethane	ND	0.200	0.058	ND	0.413	0.119		1
Freon-114	ND	0.200	0.050	ND	1.40	0.352		1
Methanol	ND	5.00	3.03	ND	6.55	3.97		1
Vinyl chloride	ND	0.200	0.058	ND	0.511	0.149		1
1,3-Butadiene	ND	0.200	0.062	ND	0.442	0.137		1
Butane	ND	0.200	0.080	ND	0.475	0.190		1
Bromomethane	ND	0.200	0.055	ND	0.777	0.212		1
Chloroethane	ND	0.200	0.065	ND	0.528	0.171		1
Ethanol	ND	5.00	1.74	ND	9.42	3.28		1
Dichlorofluoromethane	ND	0.200	0.112	ND	0.842	0.471		1
Vinyl bromide	ND	0.200	0.072	ND	0.874	0.316		1
Acrolein	ND	0.500	0.149	ND	1.15	0.342		1
Acetone	ND	1.00	0.515	ND	2.38	1.22		1
Acetonitrile	18.1	0.200	0.101	30.4	0.336	0.170		1
Trichlorofluoromethane	ND	0.200	0.079	ND	1.12	0.442		1
Isopropanol	ND	0.500	0.272	ND	1.23	0.669		1
Acrylonitrile	ND	0.500	0.089	ND	1.09	0.194		1
Pentane	ND	0.200	0.113	ND	0.590	0.333		1
Ethyl ether	ND	0.200	0.085	ND	0.606	0.259		1
1,1-Dichloroethene	ND	0.200	0.057	ND	0.793	0.225		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L2329587
Report Date: 09/26/23

Air Canister Certification Results

Lab ID: L2329587-04
Client ID: CAN 474 SHELF 14
Sample Location:

Date Collected: 05/25/23 18:00
Date Received: 05/26/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	0.132	ND	1.52	0.400		1
Methylene chloride	ND	0.500	0.125	ND	1.74	0.434		1
3-Chloropropene	ND	0.200	0.086	ND	0.626	0.269		1
Carbon disulfide	ND	0.200	0.047	ND	0.623	0.145		1
Freon-113	ND	0.200	0.051	ND	1.53	0.388		1
trans-1,2-Dichloroethene	ND	0.200	0.076	ND	0.793	0.299		1
1,1-Dichloroethane	ND	0.200	0.057	ND	0.809	0.230		1
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
Vinyl acetate	ND	1.00	0.323	ND	3.52	1.14		1
2-Butanone	ND	0.500	0.099	ND	1.47	0.292		1
Xylenes, total	ND	0.600	0.062	ND	0.869	0.270		1
cis-1,2-Dichloroethene	ND	0.200	0.060	ND	0.793	0.236		1
Ethyl Acetate	ND	0.500	0.297	ND	1.80	1.07		1
Chloroform	ND	0.200	0.055	ND	0.977	0.270		1
Tetrahydrofuran	ND	0.500	0.117	ND	1.47	0.345		1
2,2-Dichloropropane	ND	0.200	0.043	ND	0.924	0.198		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
n-Hexane	ND	0.200	0.074	ND	0.705	0.262		1
Diisopropyl ether	ND	0.200	0.063	ND	0.836	0.264		1
tert-Butyl Ethyl Ether	ND	0.200	0.073	ND	0.836	0.306		1
1,2-Dichloroethene (total)	ND	1.00	0.060	ND	1.00	0.236		1
1,1,1-Trichloroethane	ND	0.200	0.061	ND	1.09	0.335		1
1,1-Dichloropropene	ND	0.200	0.059	ND	0.908	0.269		1
Benzene	ND	0.200	0.064	ND	0.639	0.205		1
Carbon tetrachloride	ND	0.200	0.069	ND	1.26	0.432		1
Cyclohexane	ND	0.200	0.073	ND	0.688	0.251		1
tert-Amyl Methyl Ether	ND	0.200	0.067	ND	0.836	0.281		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L2329587
Report Date: 09/26/23

Air Canister Certification Results

Lab ID: L2329587-04
Client ID: CAN 474 SHELF 14
Sample Location:

Date Collected: 05/25/23 18:00
Date Received: 05/26/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	0.060	ND	1.42	0.425		1
1,2-Dichloropropane	ND	0.200	0.063	ND	0.924	0.292		1
Bromodichloromethane	ND	0.200	0.069	ND	1.34	0.462		1
1,4-Dioxane	ND	0.200	0.054	ND	0.721	0.194		1
Trichloroethene	ND	0.200	0.055	ND	1.07	0.295		1
2,2,4-Trimethylpentane	ND	0.200	0.069	ND	0.934	0.323		1
Methyl Methacrylate	ND	0.500	0.226	ND	2.05	0.925		1
Heptane	ND	0.200	0.083	ND	0.820	0.339		1
cis-1,3-Dichloropropene	ND	0.200	0.067	ND	0.908	0.306		1
4-Methyl-2-pentanone	ND	0.500	0.190	ND	2.05	0.779		1
trans-1,3-Dichloropropene	ND	0.200	0.078	ND	0.908	0.355		1
1,1,2-Trichloroethane	ND	0.200	0.058	ND	1.09	0.318		1
Toluene	ND	0.200	0.087	ND	0.754	0.327		1
1,3-Dichloropropane	ND	0.200	0.054	ND	0.924	0.248		1
2-Hexanone	ND	0.200	0.091	ND	0.820	0.374		1
Dibromochloromethane	ND	0.200	0.057	ND	1.70	0.482		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Butyl acetate	ND	0.500	0.208	ND	2.38	0.989		1
Octane	ND	0.200	0.068	ND	0.934	0.316		1
Tetrachloroethene	ND	0.200	0.063	ND	1.36	0.425		1
1,1,1,2-Tetrachloroethane	ND	0.200	0.051	ND	1.37	0.349		1
Chlorobenzene	ND	0.200	0.052	ND	0.921	0.238		1
Ethylbenzene	ND	0.200	0.058	ND	0.869	0.250		1
p/m-Xylene	ND	0.400	0.125	ND	1.74	0.543		1
Bromoform	ND	0.200	0.060	ND	2.07	0.616		1
Styrene	ND	0.200	0.060	ND	0.852	0.254		1
1,1,2,2-Tetrachloroethane	ND	0.200	0.052	ND	1.37	0.357		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2329587
Report Date: 09/26/23

Air Canister Certification Results

Lab ID: L2329587-04
Client ID: CAN 474 SHELF 14
Sample Location:

Date Collected: 05/25/23 18:00
Date Received: 05/26/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	0.062	ND	0.869	0.270		1
1,2,3-Trichloropropane	ND	0.200	0.058	ND	1.21	0.347		1
Nonane	ND	0.200	0.074	ND	1.05	0.387		1
Isopropylbenzene	ND	0.200	0.062	ND	0.983	0.305		1
Bromobenzene	ND	0.200	0.058	ND	0.793	0.230		1
2-Chlorotoluene	ND	0.200	0.076	ND	1.04	0.394		1
n-Propylbenzene	ND	0.200	0.063	ND	0.983	0.311		1
4-Chlorotoluene	ND	0.200	0.077	ND	1.04	0.396		1
4-Ethyltoluene	ND	0.200	0.055	ND	0.983	0.272		1
1,3,5-Trimethylbenzene	ND	0.200	0.060	ND	0.983	0.295		1
tert-Butylbenzene	ND	0.200	0.055	ND	1.10	0.302		1
1,2,4-Trimethylbenzene	ND	0.200	0.058	ND	0.983	0.284		1
Decane	ND	0.200	0.070	ND	1.16	0.406		1
Benzyl chloride	ND	0.200	0.094	ND	1.04	0.486		1
1,3-Dichlorobenzene	ND	0.200	0.078	ND	1.20	0.467		1
1,4-Dichlorobenzene	ND	0.200	0.083	ND	1.20	0.497		1
sec-Butylbenzene	ND	0.200	0.055	ND	1.10	0.300		1
p-Isopropyltoluene	ND	0.200	0.057	ND	1.10	0.311		1
1,2-Dichlorobenzene	ND	0.200	0.062	ND	1.20	0.372		1
n-Butylbenzene	ND	0.200	0.054	ND	1.10	0.294		1
1,2-Dibromo-3-chloropropane	ND	0.200	0.062	ND	1.93	0.603		1
Undecane	ND	0.200	0.071	ND	1.28	0.453		1
Dodecane	ND	0.200	0.089	ND	1.39	0.621		1
1,2,4-Trichlorobenzene	ND	0.200	0.100	ND	1.48	0.742		1
Naphthalene	ND	0.200	0.078	ND	1.05	0.409		1
1,2,3-Trichlorobenzene	ND	0.200	0.074	ND	1.48	0.548		1
Hexachlorobutadiene	ND	0.200	0.061	ND	2.13	0.647		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2329587
Report Date: 09/26/23

Air Canister Certification Results

Lab ID: L2329587-04
Client ID: CAN 474 SHELF 14
Sample Location:

Date Collected: 05/25/23 18:00
Date Received: 05/26/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	90		60-140
Bromochloromethane	95		60-140
chlorobenzene-d5	98		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2329587
Report Date: 09/26/23

Air Canister Certification Results

Lab ID: L2329587-04
Client ID: CAN 474 SHELF 14
Sample Location:

Date Collected: 05/25/23 18:00
Date Received: 05/26/23
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 05/27/23 20:06
Analyst: RAY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	0.050	ND	0.989	0.247		1
Chloromethane	ND	0.200	0.076	ND	0.413	0.156		1
Freon-114	ND	0.050	0.006	ND	0.349	0.045		1
Vinyl chloride	ND	0.020	0.009	ND	0.051	0.023		1
1,3-Butadiene	ND	0.020	0.011	ND	0.044	0.024		1
Bromomethane	ND	0.020	0.009	ND	0.078	0.037		1
Chloroethane	ND	0.100	0.040	ND	0.264	0.104		1
Acrolein	ND	0.050	0.039	ND	0.115	0.089		1
Acetone	ND	1.00	0.539	ND	2.38	1.28		1
Trichlorofluoromethane	ND	0.050	0.009	ND	0.281	0.052		1
Acrylonitrile	ND	0.500	0.162	ND	1.09	0.352		1
1,1-Dichloroethene	ND	0.020	0.008	ND	0.079	0.031		1
Methylene chloride	ND	0.500	0.110	ND	1.74	0.382		1
Freon-113	ND	0.050	0.008	ND	0.383	0.064		1
trans-1,2-Dichloroethene	ND	0.020	0.009	ND	0.079	0.036		1
1,1-Dichloroethane	ND	0.020	0.009	ND	0.081	0.035		1
Methyl tert butyl ether	ND	0.200	0.026	ND	0.721	0.094		1
2-Butanone	ND	0.500	0.132	ND	1.47	0.389		1
cis-1,2-Dichloroethene	ND	0.020	0.010	ND	0.079	0.040		1
Chloroform	ND	0.020	0.007	ND	0.098	0.035		1
1,2-Dichloroethane	ND	0.020	0.008	ND	0.081	0.034		1
1,1,1-Trichloroethane	ND	0.020	0.006	ND	0.109	0.032		1
Benzene	ND	0.100	0.030	ND	0.319	0.095		1
Carbon tetrachloride	ND	0.020	0.011	ND	0.126	0.069		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L2329587

Project Number: CANISTER QC BAT **Report Date:** 09/26/23

Air Canister Certification Results

Lab ID: L2329587-04
Client ID: CAN 474 SHELF 14
Sample Location:

Date Collected: 05/25/23 18:00
Date Received: 05/26/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.038		1
Bromodichloromethane	ND	0.020	0.007	ND	0.134	0.050		1
1,4-Dioxane	ND	0.100	0.034	ND	0.360	0.124		1
Trichloroethene	ND	0.020	0.006	ND	0.107	0.032		1
cis-1,3-Dichloropropene	ND	0.020	0.012	ND	0.091	0.054		1
4-Methyl-2-pentanone	ND	0.500	0.191	ND	2.05	0.783		1
trans-1,3-Dichloropropene	ND	0.020	0.012	ND	0.091	0.052		1
1,1,2-Trichloroethane	ND	0.020	0.010	ND	0.109	0.053		1
Toluene	ND	0.100	0.017	ND	0.377	0.063		1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068		1
1,2-Dibromoethane	ND	0.020	0.009	ND	0.154	0.070		1
Tetrachloroethene	ND	0.020	0.007	ND	0.136	0.050		1
1,1,1,2-Tetrachloroethane	ND	0.020	0.010	ND	0.137	0.069		1
Chlorobenzene	ND	0.100	0.026	ND	0.461	0.119		1
Ethylbenzene	ND	0.020	0.009	ND	0.087	0.037		1
p/m-Xylene	ND	0.040	0.018	ND	0.174	0.078		1
Bromoform	ND	0.020	0.011	ND	0.207	0.115		1
Styrene	ND	0.020	0.008	ND	0.085	0.034		1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.046		1
o-Xylene	ND	0.020	0.009	ND	0.087	0.038		1
Isopropylbenzene	ND	0.200	0.030	ND	0.983	0.147		1
4-Ethyltoluene	ND	0.020	0.010	ND	0.098	0.049		1
1,3,5-Trimethybenzene	ND	0.020	0.010	ND	0.098	0.047		1
1,2,4-Trimethylbenzene	ND	0.020	0.008	ND	0.098	0.037		1
Benzyl chloride	ND	0.100	0.033	ND	0.518	0.172		1
1,3-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.046		1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.045		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2329587
Report Date: 09/26/23

Air Canister Certification Results

Lab ID: L2329587-04
Client ID: CAN 474 SHELF 14
Sample Location:

Date Collected: 05/25/23 18:00
Date Received: 05/26/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
sec-Butylbenzene	ND	0.200	0.027	ND	1.10	0.146		1
p-Isopropyltoluene	ND	0.200	0.037	ND	1.10	0.201		1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.037		1
n-Butylbenzene	ND	0.200	0.032	ND	1.10	0.175		1
1,2,4-Trichlorobenzene	ND	0.050	0.015	ND	0.371	0.108		1
Naphthalene	ND	0.050	0.021	ND	0.262	0.110		1
1,2,3-Trichlorobenzene	ND	0.050	0.022	ND	0.371	0.166		1
Hexachlorobutadiene	ND	0.050	0.011	ND	0.533	0.117		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	90		60-140
bromochloromethane	93		60-140
chlorobenzene-d5	97		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2352537
Report Date: 09/26/23

Air Canister Certification Results

Lab ID: L2352537-01
Client ID: CAN 3404 SHELF 3
Sample Location:

Date Collected: 09/08/23 18:00
Date Received: 09/11/23
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 09/12/23 01:43
Analyst: RAY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	0.046	ND	0.707	0.164		1
Propylene	ND	0.500	0.135	ND	0.861	0.232		1
Propane	ND	0.500	0.152	ND	0.902	0.274		1
Dichlorodifluoromethane	ND	0.200	0.076	ND	0.989	0.374		1
Chloromethane	ND	0.200	0.058	ND	0.413	0.119		1
Freon-114	ND	0.200	0.050	ND	1.40	0.352		1
Methanol	ND	5.00	3.03	ND	6.55	3.97		1
Vinyl chloride	ND	0.200	0.058	ND	0.511	0.149		1
1,3-Butadiene	ND	0.200	0.062	ND	0.442	0.137		1
Butane	ND	0.200	0.080	ND	0.475	0.190		1
Bromomethane	ND	0.200	0.055	ND	0.777	0.212		1
Chloroethane	ND	0.200	0.065	ND	0.528	0.171		1
Ethanol	ND	5.00	1.74	ND	9.42	3.28		1
Dichlorofluoromethane	ND	0.200	0.112	ND	0.842	0.471		1
Vinyl bromide	ND	0.200	0.072	ND	0.874	0.316		1
Acrolein	ND	0.500	0.149	ND	1.15	0.342		1
Acetone	ND	1.00	0.515	ND	2.38	1.22		1
Acetonitrile	ND	0.200	0.101	ND	0.336	0.170		1
Trichlorofluoromethane	ND	0.200	0.079	ND	1.12	0.442		1
Isopropanol	ND	0.500	0.272	ND	1.23	0.669		1
Acrylonitrile	ND	0.500	0.089	ND	1.09	0.194		1
Pentane	ND	0.200	0.113	ND	0.590	0.333		1
Ethyl ether	ND	0.200	0.085	ND	0.606	0.259		1
1,1-Dichloroethene	ND	0.200	0.057	ND	0.793	0.225		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2352537
Report Date: 09/26/23

Air Canister Certification Results

Lab ID: L2352537-01
Client ID: CAN 3404 SHELF 3
Sample Location:

Date Collected: 09/08/23 18:00
Date Received: 09/11/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	0.132	ND	1.52	0.400		1
Methylene chloride	ND	0.500	0.125	ND	1.74	0.434		1
3-Chloropropene	ND	0.200	0.086	ND	0.626	0.269		1
Carbon disulfide	ND	0.200	0.047	ND	0.623	0.145		1
Freon-113	ND	0.200	0.051	ND	1.53	0.388		1
trans-1,2-Dichloroethene	ND	0.200	0.076	ND	0.793	0.299		1
1,1-Dichloroethane	ND	0.200	0.057	ND	0.809	0.230		1
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
Vinyl acetate	ND	1.00	0.323	ND	3.52	1.14		1
Xylenes, total	ND	0.600	0.062	ND	0.869	0.270		1
2-Butanone	ND	0.500	0.099	ND	1.47	0.292		1
cis-1,2-Dichloroethene	ND	0.200	0.060	ND	0.793	0.236		1
Ethyl Acetate	ND	0.500	0.297	ND	1.80	1.07		1
Chloroform	ND	0.200	0.055	ND	0.977	0.270		1
Tetrahydrofuran	ND	0.500	0.117	ND	1.47	0.345		1
2,2-Dichloropropane	ND	0.200	0.043	ND	0.924	0.198		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
n-Hexane	ND	0.200	0.074	ND	0.705	0.262		1
Diisopropyl ether	ND	0.200	0.063	ND	0.836	0.264		1
tert-Butyl Ethyl Ether	ND	0.200	0.073	ND	0.836	0.306		1
1,2-Dichloroethene (total)	ND	1.00	0.060	ND	1.00	0.236		1
1,1,1-Trichloroethane	ND	0.200	0.061	ND	1.09	0.335		1
1,1-Dichloropropene	ND	0.200	0.059	ND	0.908	0.269		1
Benzene	ND	0.200	0.064	ND	0.639	0.205		1
Carbon tetrachloride	ND	0.200	0.069	ND	1.26	0.432		1
Cyclohexane	ND	0.200	0.073	ND	0.688	0.251		1
tert-Amyl Methyl Ether	ND	0.200	0.067	ND	0.836	0.281		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2352537
Report Date: 09/26/23

Air Canister Certification Results

Lab ID: L2352537-01
Client ID: CAN 3404 SHELF 3
Sample Location:

Date Collected: 09/08/23 18:00
Date Received: 09/11/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	0.060	ND	1.42	0.425		1
1,2-Dichloropropane	ND	0.200	0.063	ND	0.924	0.292		1
Bromodichloromethane	ND	0.200	0.069	ND	1.34	0.462		1
1,4-Dioxane	ND	0.200	0.054	ND	0.721	0.194		1
Trichloroethene	ND	0.200	0.055	ND	1.07	0.295		1
2,2,4-Trimethylpentane	ND	0.200	0.069	ND	0.934	0.323		1
Methyl Methacrylate	ND	0.500	0.226	ND	2.05	0.925		1
Heptane	ND	0.200	0.083	ND	0.820	0.339		1
cis-1,3-Dichloropropene	ND	0.200	0.067	ND	0.908	0.306		1
4-Methyl-2-pentanone	ND	0.500	0.190	ND	2.05	0.779		1
trans-1,3-Dichloropropene	ND	0.200	0.078	ND	0.908	0.355		1
1,1,2-Trichloroethane	ND	0.200	0.058	ND	1.09	0.318		1
Toluene	ND	0.200	0.087	ND	0.754	0.327		1
1,3-Dichloropropane	ND	0.200	0.054	ND	0.924	0.248		1
2-Hexanone	ND	0.200	0.091	ND	0.820	0.374		1
Dibromochloromethane	ND	0.200	0.057	ND	1.70	0.482		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Butyl acetate	ND	0.500	0.208	ND	2.38	0.989		1
Octane	ND	0.200	0.068	ND	0.934	0.316		1
Tetrachloroethene	ND	0.200	0.063	ND	1.36	0.425		1
1,1,1,2-Tetrachloroethane	ND	0.200	0.051	ND	1.37	0.349		1
Chlorobenzene	ND	0.200	0.052	ND	0.921	0.238		1
Ethylbenzene	ND	0.200	0.058	ND	0.869	0.250		1
p/m-Xylene	ND	0.400	0.125	ND	1.74	0.543		1
Bromoform	ND	0.200	0.060	ND	2.07	0.616		1
Styrene	ND	0.200	0.060	ND	0.852	0.254		1
1,1,2,2-Tetrachloroethane	ND	0.200	0.052	ND	1.37	0.357		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2352537
Report Date: 09/26/23

Air Canister Certification Results

Lab ID: L2352537-01
Client ID: CAN 3404 SHELF 3
Sample Location:

Date Collected: 09/08/23 18:00
Date Received: 09/11/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	0.062	ND	0.869	0.270		1
1,2,3-Trichloropropane	ND	0.200	0.058	ND	1.21	0.347		1
Nonane	ND	0.200	0.074	ND	1.05	0.387		1
Isopropylbenzene	ND	0.200	0.062	ND	0.983	0.305		1
Bromobenzene	ND	0.200	0.058	ND	0.793	0.230		1
2-Chlorotoluene	ND	0.200	0.076	ND	1.04	0.394		1
n-Propylbenzene	ND	0.200	0.063	ND	0.983	0.311		1
4-Chlorotoluene	ND	0.200	0.077	ND	1.04	0.396		1
4-Ethyltoluene	ND	0.200	0.055	ND	0.983	0.272		1
1,3,5-Trimethylbenzene	ND	0.200	0.060	ND	0.983	0.295		1
tert-Butylbenzene	ND	0.200	0.055	ND	1.10	0.302		1
1,2,4-Trimethylbenzene	ND	0.200	0.058	ND	0.983	0.284		1
Decane	ND	0.200	0.070	ND	1.16	0.406		1
Benzyl chloride	ND	0.200	0.094	ND	1.04	0.486		1
1,3-Dichlorobenzene	ND	0.200	0.078	ND	1.20	0.467		1
1,4-Dichlorobenzene	ND	0.200	0.083	ND	1.20	0.497		1
sec-Butylbenzene	ND	0.200	0.055	ND	1.10	0.300		1
p-Isopropyltoluene	ND	0.200	0.057	ND	1.10	0.311		1
1,2-Dichlorobenzene	ND	0.200	0.062	ND	1.20	0.372		1
n-Butylbenzene	ND	0.200	0.054	ND	1.10	0.294		1
1,2-Dibromo-3-chloropropane	ND	0.200	0.062	ND	1.93	0.603		1
Undecane	ND	0.200	0.071	ND	1.28	0.453		1
Dodecane	ND	0.200	0.089	ND	1.39	0.621		1
1,2,4-Trichlorobenzene	ND	0.200	0.100	ND	1.48	0.742		1
Naphthalene	ND	0.200	0.078	ND	1.05	0.409		1
1,2,3-Trichlorobenzene	ND	0.200	0.074	ND	1.48	0.548		1
Hexachlorobutadiene	ND	0.200	0.061	ND	2.13	0.647		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2352537
Report Date: 09/26/23

Air Canister Certification Results

Lab ID: L2352537-01
Client ID: CAN 3404 SHELF 3
Sample Location:

Date Collected: 09/08/23 18:00
Date Received: 09/11/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	91		60-140
Bromochloromethane	94		60-140
chlorobenzene-d5	92		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2352537
Report Date: 09/26/23

Air Canister Certification Results

Lab ID: L2352537-01
Client ID: CAN 3404 SHELF 3
Sample Location:

Date Collected: 09/08/23 18:00
Date Received: 09/11/23
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 09/12/23 01:43
Analyst: RAY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	0.050	ND	0.989	0.247		1
Chloromethane	ND	0.200	0.076	ND	0.413	0.156		1
Freon-114	ND	0.050	0.006	ND	0.349	0.045		1
Vinyl chloride	ND	0.020	0.009	ND	0.051	0.023		1
1,3-Butadiene	ND	0.020	0.011	ND	0.044	0.024		1
Bromomethane	ND	0.020	0.009	ND	0.078	0.037		1
Chloroethane	ND	0.100	0.040	ND	0.264	0.104		1
Acrolein	ND	0.050	0.039	ND	0.115	0.089		1
Acetone	ND	1.00	0.539	ND	2.38	1.28		1
Trichlorofluoromethane	ND	0.050	0.009	ND	0.281	0.052		1
Acrylonitrile	ND	0.500	0.162	ND	1.09	0.352		1
1,1-Dichloroethene	ND	0.020	0.008	ND	0.079	0.031		1
Methylene chloride	ND	0.500	0.110	ND	1.74	0.382		1
Freon-113	ND	0.050	0.008	ND	0.383	0.064		1
trans-1,2-Dichloroethene	ND	0.020	0.009	ND	0.079	0.036		1
1,1-Dichloroethane	ND	0.020	0.009	ND	0.081	0.035		1
Methyl tert butyl ether	ND	0.200	0.026	ND	0.721	0.094		1
2-Butanone	ND	0.500	0.132	ND	1.47	0.389		1
cis-1,2-Dichloroethene	ND	0.020	0.010	ND	0.079	0.040		1
Chloroform	ND	0.020	0.007	ND	0.098	0.035		1
1,2-Dichloroethane	ND	0.020	0.008	ND	0.081	0.034		1
1,1,1-Trichloroethane	ND	0.020	0.006	ND	0.109	0.032		1
Benzene	ND	0.100	0.030	ND	0.319	0.095		1
Carbon tetrachloride	ND	0.020	0.011	ND	0.126	0.069		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L2352537

Project Number: CANISTER QC BAT **Report Date:** 09/26/23

Air Canister Certification Results

Lab ID: L2352537-01
Client ID: CAN 3404 SHELF 3
Sample Location:

Date Collected: 09/08/23 18:00
Date Received: 09/11/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.038		1
Bromodichloromethane	ND	0.020	0.007	ND	0.134	0.050		1
1,4-Dioxane	ND	0.100	0.034	ND	0.360	0.124		1
Trichloroethene	ND	0.020	0.006	ND	0.107	0.032		1
cis-1,3-Dichloropropene	ND	0.020	0.012	ND	0.091	0.054		1
4-Methyl-2-pentanone	ND	0.500	0.191	ND	2.05	0.783		1
trans-1,3-Dichloropropene	ND	0.020	0.012	ND	0.091	0.052		1
1,1,2-Trichloroethane	ND	0.020	0.010	ND	0.109	0.053		1
Toluene	ND	0.100	0.017	ND	0.377	0.063		1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068		1
1,2-Dibromoethane	ND	0.020	0.009	ND	0.154	0.070		1
Tetrachloroethene	ND	0.020	0.007	ND	0.136	0.050		1
1,1,1,2-Tetrachloroethane	ND	0.020	0.010	ND	0.137	0.069		1
Chlorobenzene	ND	0.100	0.026	ND	0.461	0.119		1
Ethylbenzene	ND	0.020	0.009	ND	0.087	0.037		1
p/m-Xylene	ND	0.040	0.018	ND	0.174	0.078		1
Bromoform	ND	0.020	0.011	ND	0.207	0.115		1
Styrene	ND	0.020	0.008	ND	0.085	0.034		1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.046		1
o-Xylene	ND	0.020	0.009	ND	0.087	0.038		1
Isopropylbenzene	ND	0.200	0.030	ND	0.983	0.147		1
4-Ethyltoluene	ND	0.020	0.010	ND	0.098	0.049		1
1,3,5-Trimethybenzene	ND	0.020	0.010	ND	0.098	0.047		1
1,2,4-Trimethylbenzene	ND	0.020	0.008	ND	0.098	0.037		1
Benzyl chloride	ND	0.100	0.033	ND	0.518	0.172		1
1,3-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.046		1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.045		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2352537
Report Date: 09/26/23

Air Canister Certification Results

Lab ID: L2352537-01
Client ID: CAN 3404 SHELF 3
Sample Location:

Date Collected: 09/08/23 18:00
Date Received: 09/11/23
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
sec-Butylbenzene	ND	0.200	0.027	ND	1.10	0.146		1
p-Isopropyltoluene	ND	0.200	0.037	ND	1.10	0.201		1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.037		1
n-Butylbenzene	ND	0.200	0.032	ND	1.10	0.175		1
1,2,4-Trichlorobenzene	ND	0.050	0.015	ND	0.371	0.108		1
Naphthalene	ND	0.050	0.021	ND	0.262	0.110		1
1,2,3-Trichlorobenzene	ND	0.050	0.022	ND	0.371	0.166		1
Hexachlorobutadiene	ND	0.050	0.011	ND	0.533	0.117		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	94		60-140
bromochloromethane	97		60-140
chlorobenzene-d5	94		60-140

Project Name: PESRM-SOIL GAS
Project Number: 220181807

Lab Number: L2354997
Report Date: 09/26/23

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
NA	Present/Intact

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2354997-01A	Canister - 2.7 Liter	NA	NA			Y	Absent		A2-SUB-AIR(),TO15-LL(30)
L2354997-02A	Canister - 2.7 Liter	NA	NA			Y	Absent		A2-SUB-AIR(),TO15-LL(30)
L2354997-03A	Canister - 2.7 Liter	NA	NA			Y	Absent		A2-SUB-AIR(),TO15-LL(30)

*Values in parentheses indicate holding time in days

Project Name:	PESRM-SOIL GAS	**Lab Number:**	L2354997
Project Number:	220181807	**Report Date:**	09/26/23

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name:	PESRM-SOIL GAS	**Lab Number:**	L2354997
Project Number:	220181807	**Report Date:**	09/26/23

Footnotes

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

Terms

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

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

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

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

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

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

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

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

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

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

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers

Project Name:	PESRM-SOIL GAS	**Lab Number:**	L2354997
Project Number:	220181807	**Report Date:**	09/26/23

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.)

REFERENCES

48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

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, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 524.2: THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables).
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

AIR ANALYSIS

ALPHA ANALYTICAL — CHAIN OF CUSTODY

PAGE 1 OF 1

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 9/20/23

ALPHA Job #: L2354997

Client Information

Client: Langan Engineering + Envir
Address: 1818 Market St. Ste3300
Philadelphia, PA
Phone: 215 845 8900
Fax: 2168458901
Email: astatkiewicz@langan.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: PESRM-Soil Gas
Project Location: 3144 Passyunk Ave, Philadelphia, PA
Project #: 22018107
Project Manager: Anna Statkiewicz
ALPHA Quote #: [redacted]

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved)

Date Due: [redacted] Time:

Report Information - Data Deliverables

☐ FAX
☐ ADEx
Criteria Checker:
(Default based on Regulatory Criteria Indicated)
Other Formats:
☒ EMAIL (standard pdf report)
☐ Additional Deliverables:
Report to: (if different than Project Manager)

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed	Program	Res / Comm

Other Project Specific Requirements/Comments:

Project-Specific Target Compound List: ☐

cc'd astatkiewicz@langan.com
abarr@langan.com
agoldberg@langan.com

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	COLLECTION End Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	ID Can	ID - Flow Controller	ANALYSIS TO-15	TO-15 SIM	APH Ballard Non-petroleum HCs ☐	Fixed Gases	Sulfides & Mercaptans by TO-15	Sample Comments (i.e. PID)
54997-01	SG-A1-10.5-091923	9/19/23	1123	1134	-29.16	-15.45	SV	RH	2.7	474	0780	X					
02	SG-B4-11.5-091923	9/19/23	1430	1452	-29.87	-4.91	SV	RH	2.7	3411	01810	X					
03	SG-E4-10.5-091923	9/19/23	1317	1338	-30.0	-4.97	SV	RH	2.7	2358	01673	X					

*SAMPLE MATRIX CODES
AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type

Relinquished By:	Date/Time	Received By:	Date/Time:
9/20/23 0530			
9/20/23 0530			
Rebekah Hanrahan	9/19/23 1552	JNelAH	9.19. 15:52
JNelAH	9/19 1800		9/19/23 1800
Anthony Green	9/20 2100	Anthony Green	SEP 19 2023 2100
Anthony Green	9/20/23 0105		9/20/23 0105

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.

Form No: 101-02 Rev: (25-Sep-15)

1. Purpose

The purpose of this standard operating procedure (SOP) is to describe the collection of soil vapor samples. The goal of this soil vapor sampling procedure is to collect soil vapor samples that reflect ambient conditions of contaminants (e.g., volatile organic compounds [VOCs], radon, methane) in the subsurface. This SOP for collecting soil vapor samples will help ensure that the project's data quality objectives (DQOs) are met. This SOP is only for soil vapor sampling; refer to the Soil Vapor Probe Installation SOP for guidance prior to sampling activities.

2. Limitations

The procedures described herein shall be followed to assure compliance with Langan's Quality Management System and Quality Management Plan ("QMS/QMP"). Note, however, that regulatory, client-specific, health & safety, or field conditions ("overriding conditions") may necessitate deviations from the procedures in this SOP to address such overriding conditions. Any proposed deviation shall be consistent with the Langan QMS/QMP and the professional standard of care, and shall be reviewed and approved by the project manager and the principal-in-charge before being implemented. All approved deviations shall be documented in the final report for the associated phase of the project.

3. Health & Safety

When working on-site, comply with the site's health/safety procedures, Langan's Corporate Health and Safety Plan, and Langan's Injury and Illness Prevention Program. All proper personal protection clothing and equipment (PPE) are to be worn. Permanent soil vapor sampling points may contain biological hazards, and some samples may contain chemical hazards. These samples must be handled with suitable protection to skin, eyes, etc. Care should also be taken to mitigate any situational hazards (i.e., traffic, equipment operation, public interaction) during sampling.

4. Methods

The methodology for soil vapor sampling includes equipment preparation, sample manifold assembly, shut-in testing, and leak-check testing. This methodology assumes that the soil vapor sampling point has been previously installed and the point is prepared with a closed valve (sample port valve) able to connect to 1/4-inch outside diameter (OD) High Density Polyethylene (HDPE) or Teflon tubing. Refer to **Section 4 Resources** for a list of the required field supplies and procedures.

Pre-Sample Collection: Construct the Helium Shroud and Sample Manifold

1. Cut three equal lengths of tubing approximately 18 inches long. Insert two of the sections of tubing through the predrilled holes on the side of a 5-gallon bucket or other appropriate plastic bucket (helium shroud), and one through the predrilled hole through the top of the helium shroud. The tubing on the sides of the helium shroud will be used to introduce and monitor helium inside the shroud. The tubing through the top of the shroud will connect to the **sample manifold**.
2. Connect a length of 1/4-inch OD tubing to the sample port valve and then to the silicone tubing through the top of the helium shroud.
3. Connect a length of 1/4-inch OD Teflon tubing to the silicone tubing outside the top of the helium shroud. Connect the other end of the tubing to a closed four-way valve. Ensure that the tubing is connected to the inlet side of the four-way valve.
4. Connect a purge pump and vacuum gauge to the perpendicular end of the four-way valve via 1/4-inch OD Teflon tubing.
5. Place the helium shroud on the ground surface and seal with modeling clay or hydrated bentonite, as necessary. Refer to Figure 1 below.

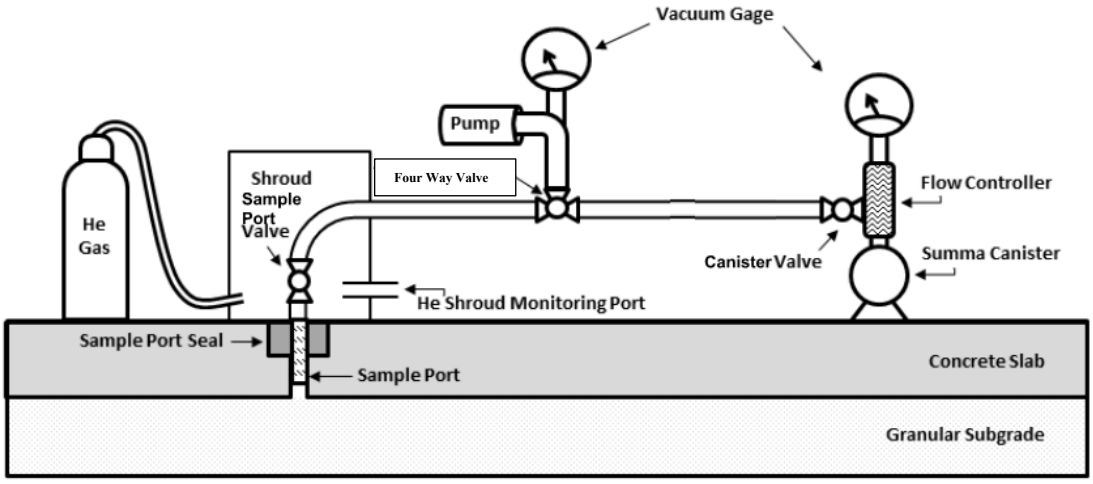


Figure 1 – Generalized Helium Shroud and Sample Manifold Diagram, Source: Wisconsin Department of Natural Resources, Sub-Slab Vapor Sampling Procedures (July 2014)

Sample Manifold Purge and Shut-In Test

1. Open the sample port valve and open the four-way valve to the purge pump. Turn the purge pump on and ensure the flow meter on the purge pump is reading 200 milliliters per minute (mL/min). Let the pump run for one minute to allow purging of potential contaminants from the sample manifold.
2. The shut-in test will involve isolating the tubing between the hand pump or purge pump and the Summa® canister. This can be achieved one of the two following ways:

a. Close the sample port valve while running the purge pump to achieve a vacuum gauge reading between 10 and 15 inches of mercury (" Hg). Close the four-way valve and shut the pump off. If the vacuum in the manifold has not changed after one minute the manifold is considered leak free. If not, repair any leaks and recheck the manifold.
b. Alternatively, use a handheld vacuum pump to induce a vacuum of between 10 and 15" Hg. If the vacuum in the manifold has not changed after one minute the manifold is considered leak free. If not, repair any leaks and recheck the manifold.

3. If the manifold is leak free, proceed to Step 4 below. If the vacuum decreases more than 10% from steps 2a and 2b above, repeat the test after taking the following steps:
    a. Inspect the sample point tubing couplings and close all valves. Check that they are snug and that there are no apparent defects in the tubing (i.e., tears or holes).
    b. Run test again with no four-way valve (only tubing between the hand pump and Summa® canister) to determine if the flow regulator is faulty and should be replaced.
    c. Run test with the valve closed toward the hand pump to check the valve itself has a tight seal.
4. Record the shut-in test data on the Soil Vapor Sampling Log.

Sample Port Purge and Leak Check (Helium Detection Method)

1. Following completion of the shut-in test, turn the sample port valve so flow is open between the installed sample probe and the purge pump. Connect either a piece of silicone tubing or a Tedlar® bag (whichever is appropriate for the type of pump) to the purge pump exhaust.
2. Assemble the MGD-2002 Helium Detector as shown in the following photograph. The tool is sensitive to vibrations so try not to move it after turning it on. After the helium detector self-calibrates to zero, insert the helium probe into the silicone tubing on the side of the shroud.



3. Attach a helium tank to the silicone tubing on one side of the helium shroud. Open the helium tank regulator and allow the shroud to fill with helium. Once the concentration reaches between 10% and 20%, turn off the helium, and

either seal the open hole with clay or fold over the tubing and secure it with a binder clip.

4. Three air volumes of soil vapor need to be purged prior to sampling. The purge time is 5-15 minutes at a flow rate of 200 mL/min. Turn the purge pump and start timing for the purge volume. Place the helium detector at the purge exhaust during the purge to observe for indications of sample port leakage (e.g. infiltration of helium-rich shroud air into the point). If a reading of greater than 10% of the concentration inside the shroud is observed, then the leak check has failed, and corrective action is required.
5. Periodically monitor the helium concentration inside the shroud with the helium gas detector and add helium, as necessary, to maintain a concentration of 10 to 20%
6. At the end of the purge, record the photoionization detector (PID) reading and maximum helium concentration of the pump exhaust on the Soil Vapor Sampling Log.
7. Optional (depending on project/client): Attach a Tedlar® bag to the exhaust of the purge pump and fill. When the Tedlar® bag is full, turn the pump off, close the four-way valve. Attach the helium detector to the Tedlar® bag to check helium concentration. If the helium detector reads less than 10% of the helium concentration in the shroud then the system is leak free and ready for sampling. Turn off the helium tank and remove.
8. If helium is detected in the pump exhaust at a concentration greater than 10% of the concentration in the helium shroud, repeat the purge after taking the following steps:
    a. Upend the helium shroud and inspect the sample point tubing couplings. Check that they are snug and there is hydrated bentonite/clay sealing any penetrations of the helium shroud.
    b. Apply a thin coat of modeling clay to the helium shroud footprint to seal the ground surface, then reseal the shroud above the sample point.
    c. If after the repeat purge, there is still helium in the sample tube, contact the project manager (PM) for further instructions.

Alternative Leak Test (Water Dam Method)

If choosing the Water Dam Method for leak detection, be sure to check that the state in which the work is being performed allows the Water Dam Method. For example, New York and Michigan do not allow this method. Additionally, note that the Water Dam Method can only be used on an impervious surface.

1. After installing the Vapor Pin®, clean a 3-inch radius around the Vapor Pin® to remove dust. Avoid wetting the concrete or wait until it is dry before proceeding.
2. Roll a 1-inch diameter ball of clay to form an approximately 7-inch long log and press it against one end of the Water Dam (PVC fitting). Press the Water Dam (end with clay) against the floor around the Vapor Pin®. Smooth out the clay as

necessary to form a tight seal against the concrete.
3. Attach the Teflon sample tubing to the top of the Vapor Pin® with silicone tubing.
4. Connect the sample tubing to a four-way valve with a small piece of silicone, and attach the other end of the valve with another piece of silicone and Teflon sampling tubing to the sample canister.
5. Carefully pour enough distilled/deionized water into the Water Dam to immerse the base of the Vapor Pin®. Make note of the height of the water column inside of the Water Dam. Some of the water may be initially absorbed by the concrete.
6. If water is lost to the sub-slab abandon the location and reinstall a new borehole and repeat test.

5. Sample Collection

1. Following successful shut-in test and leak check, the sample may be collected. To collect the sample, open the four-way valve to the sample canister and then slowly open the canister valve approximately one full turn. Record the start time on the Soil Vapor Sampling Log.
2. The sample duration is determined by the volume of the Summa® canister, the setting of the flow controller, and the underlying geology. Be aware of the anticipated sample duration and monitor the vacuum gauge closely. End the sampling by closing the canister valve when the gauge indicates the vacuum is between 2-5" Hg. This prevents any loss of vacuum in the canister and maintains the integrity of the sample during shipping. Record the sample end time and final pressure of the canister on the Soil Vapor Sampling Log. Disconnect the canister from the sampling system.
3. Remove the gauge and flow controller from the canister and tighten the canister cap on with a wrench.
4. Record the sampling date, time, canister ID, flow controller ID, and any other pertinent observations on the Soil Vapor Sampling Log.
5. Fill out the appropriate sample documentation (chain of custody, sample tracking form, etc.).
6. Disconnect the sample manifold and helium shroud from the sample port. Close the cap to the sample port (if permanent) or remove temporary ports and restore, as necessary.

6. Resources

Field resources are provided below:

Paperwork/Field Files:

- Site-specific HASP
- Project-dedicated Field Book, if one exists, or personal field book
- Sample Location Map/Collector App Loaded with Sample Locations
- Sample port construction data
- Field data from last sampling event (if applicable)

Personal Protection Equipment

- Hard hat
- Safety glasses
- Safety shoes
- Reflective vest
- Latex/Nitrile gloves
- Hearing protection

Hand Tools:

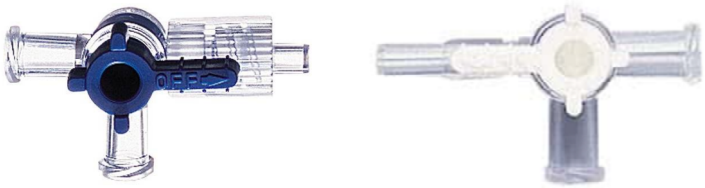
- 9/16th ratchet for removing bolts from flush-mounted road boxes (if sampling permanent vapor points)
- Field equipment:
    - Small hammer/dead blow hammer
    - Small hand brush for clearing loose material from around the soil vapor sample location
    - Leatherman® type multitool, or
        - Sharp Knife
        - Flat Head Screwdriver
        - Phillips Head Screwdriver
        - Pliers
- Adjustable wrench
- Hand pump

Sample Supplies

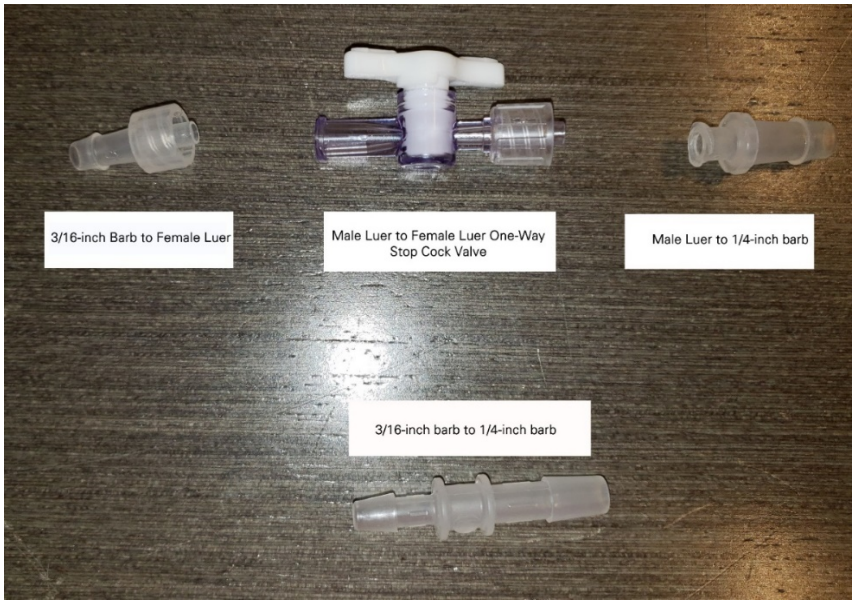
- Laboratory-provided Summa® canisters and flow controllers
- Calibrated PID
- Gillian Air Pump Plus or similar (**purge pump**). The pump must be set to 200 mL/min
- Water dam (if not using helium detection test)
- MGD-2002 Helium Detector or similar
- 99% Ultra-Pure Helium tank (103L or equivalent) *with* appropriate regulator

- **Helium Shroud**: 5-gallon bucket/6-inch PVC cap with barb fittings installed or other appropriate plastic container with three (3) precut holes or fittings:
    a. One on the side for introducing helium gas into the shroud,
    b. One on the opposite side of shroud for measuring helium concentrations with the helium detector, and
    c. One through the bottom of the bucket/PVC cap (top of shroud when inverted into the sample position).

  Depending on office location, shrouds may be available for use. Sampling kits and can also be rented through environmental rental companies. If needed, the shrouds can also be constructed.
- Tubing apparatus
    a. HDPE or Teflon tubing (1/4-inch OD, 3/16-inch inside diameter [ID])
    b. Silicone tubing (3/8-inch OD, 3/16-inch ID – small piece to make connections as necessary).
    c. Cole-Palmer **Four-Way valves** (one per sample). *Note these are called four-way valves because the valve operates in four positions, the valve actually has only three connection points.* See photo. These are one-time use only and should be discarded following use.



    d. Additional fittings which may be used include: **female and male luer fittings**, **barb fittings** and **one-way stop cock valves**:



Miscellaneous Items:
Please check with in-house supply prior to purchasing any of the following:

- No-VOC Modeling Clay (can be purchased at Walmart or a craft store) OR granulated bentonite and water for hydration
- Several 2-gallon zip lock bags
- Several garbage bags
- Tedlar® bag, optional
- Binder Clips

7. Documentation

Record field data on Soil Vapor Sampling Log Sheet, attached for reference.

8. Troubleshooting and Considerations

[Reserved]

9. Related Documents

[Reserved]

10. Version/Revision History

Version 1.0 – 4 May 2023. J. Flagg, J. Francis, J. Barger

11. Reference

USEPA Region 4. 7 February 2020. Operating Procedure – Soil Gas Sampling. Document ID LSASDPROC-307-R4.

USEPA Office of Solid Waste and Emergency Response. June 2015. OSWER Technical Guidance for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air. OSWER Publication 9200.2-154.

Wisconsin Department of Natural Resources. July 2014. Sub-Slab Vapor Sampling Procedures. Document RR-986.

1. Purpose

The purpose of this Standard Operating Procedure (SOP) is to describe the procedures for installation of sub-slab and exterior soil vapor probes for temporary or permanent use prior to soil vapor sampling. These are standard (i.e., typically applicable) operating procedures which may be varied or changed as warranted, dependent on site location and project type. In all instances, the procedures employed should be documented.

2. Limitations

The procedures described herein shall be followed to assure compliance with Langan's Quality Management System and Quality Management Plan ("QMS/QMP"). Note, however, that regulatory, client-specific, health & safety, or field conditions ("overriding conditions") may necessitate deviations from the procedures in this SOP to address such overriding conditions. Any proposed deviation shall be consistent with the Langan QMS/QMP and the professional standard of care, and shall be reviewed and approved by the project manager and the principal-in-charge before being implemented. All approved deviations shall be documented in the final report for the associated phase of the project.

3. Health & Safety

When working on-site, comply with the site's health and safety procedures, Langan's Corporate Health and Safety Plan (HASP), and Langan's Injury and Illness Prevention Program. All proper personal protection clothing and equipment (PPE) are to be worn. A job safety analysis (JSA) should be performed to review the specifics of the activities and equipment and materials used that may pose additional specific health and safety concerns and could require certain other protective actions to be implemented. In addition, Langan's utility clearance procedures must be adhered to at all times.

4. Methods

The methods for soil vapor probe installation will depend on the site and scope of the project. In general, soil vapor points will be installed sub-slab by Langan personnel or outdoors by contracted drillers. Permanent and temporary points will vary in installation as outlined in this SOP. Be aware that Langan may be subject to confidentiality or nondisclosure agreements, which can prohibit discussing activities with occupants; confirm with the project manager (PM) if these conditions apply.

Field Preparation Activities:

Prior to performing field activities, utility clearance must be conducted at the planned installation points. Langan's Underground Utility Clearance Guidelines are located on the company intranet website under the Health and Safety Business Operations. Prior to the installation of soil vapor probes, complete the following steps:

1. Obtain proposed sample points and all required planning documentation from the PM. The field sampling team is responsible for verifying sample locations in the field and adherence to project planning documentation.
2. Prepare a plan for confirming utility clearance at proposed probe locations with PM, in accordance with Langan's Underground Utility Clearance Guidelines.
3. Coordinate equipment rentals and driller availability (including confirmation of driller equipment).
4. Obtain Langan-provided Equipment, dependent on type of installation (see next section)
    - Personal Protection Equipment
    - Project Dedicated Field Book, if one exists
    - Personal field book (if not using a project-dedicated field book)
5. Request utility drawings from the owner/client and operator, showing aboveground and underground utilities for the areas where subsurface work will be performed. Consider reviewing the proposed locations on-Site with a person knowledgeable of facility operations prior to point installation.
6. Confirm the proper One-Call system has been notified (either by Langan, or a drilling subcontractor, if using). Note: the One-Call should be placed with sufficient time for utility clearance (most One-Call systems require three business days). The One-Call ticket information should be retained for reference in the field and saved to the project folder.
7. If necessary, retain a geophysical subcontractor to clear each location of potential utilities and subsurface obstructions prior to intrusive work. Note, if performing sub-slab point installation, you must specify to the geophysical contractor that the locations are inside of a building and concrete scanning equipment must be used (traditional GPR often does not work on reinforced concrete slabs).

Methods for soil vapor probe installation will vary depending on the scope of work. Each method is described below. Prior to conducting field activities a tailgate safety meeting must be performed with all Langan employees and subcontractors and all applicable health and safety requirements for the site must be understood and agreed to by all parties.

<u>Permanent Sub-Slab Soil Vapor Probe Installation</u>

Equipment needed for Vapor Pin® installation:

- Assembled Vapor Pin® (Vapor Pin® and silicone sleeve)
- Hammer drill
- 5/8-inch (16 mm) diameter hammer drill bit
- 1 ½-inch (38 mm) diameter hammer drill bit
- ¾-inch (19 mm) diameter bottle brush
- Wet/dry vacuum (for example, Shop-Vac®) with HEPA filter (optional)
- Vapor Pin® installation/extraction tool
- Dead blow hammer
- Vapor Pin® flush mount/Secured Cover
- Vapor Pin® Spanner for Secured Cover

- Vapor Pin® protective cap or Cole-Palmer (or similar) Four-Way valve. Note, the selected cap or valve must fit under the Secured Cover
- Vapor Pin® drilling guide (optional)
- VOC-free hole patching material (hydraulic cement) and putty knife or trowel for repairing the hole.
- Circuit interrupter
- Calibrated photoionization detector (PID) or five-gas meter (dependent on site health and safety requirements)
- Extension cords, if necessary
- Generator and lanterns, if necessary. Note, if using a generator indoors, a five-gas meter with carbon monoxide and PID sensors to screen ambient air for health and safety purposes.

Method:

1. If the building does not have power, set up lanterns and start the generator. Use caution and ensure proper ventilation. It is advisable to set the generator up as far away from the sampling locations as possible. Preferably, the generator will be set up outside or in a doorway. Discuss ventilation requirements with the project manager prior to beginning field work.
2. Plug the hammer drill into the nearest outlet or generator using the circuit interrupter (and extension cord, if necessary).
3. Fit the 1.5-inch bit into the hammer drill. Drill a 1.5-inch diameter hole approximately 1.75-inch into the slab. Do not over-drill. Insert vapor pin drilling guide into the hole and fit the hammer drill with a 5/8-inch bit. Drill a 5/8-inch hole through the slab and approximately 1-inch into the underlying soil. Upon penetration of the slab, the pressure necessary to drive the hammer drill will dramatically decrease and there will most likely be soil on the drill bit when removing from the hole. These conditions are indicative of penetration into the soil beneath the slab. Remove the vapor pin drilling guide if using. Record the approximate slab thickness on the vapor sampling log.
    - Note: use caution when operating the hammer drill. ALWAYS WEAR SAFETY GLASSES. Make sure that the drill is set to the hammer and spin settings. Hold the drill firmly and upright to ensure the hole is drilled perpendicular to the slab. Do not put all your weight against the drill or it may slip and cause injury. Unplug the drill after use. A heavier drill can make vapor pin installation easier because the heavier drill does not require as much force to push the drill through the slab and the drill is less likely to become jammed in the slab.
4. Remove the drill bit and brush the hole with the bottle brush. Use the wet/dry vacuum to collect dust and debris from around and inside the vapor pin hole.
5. After the 5/8-inch hole has been drilled, fit a vapor pin with a silicon sleeve. Place the wider end into the drilled hole. Place the vapor pin installation/extraction tool over the vapor pin. The barbed fitting should fit inside the hollow end of the tool. Use the dead blow hammer to tap the solid end of the installation/extraction tool until nearly the entire silicon sleeve is below the slab. Make sure the installation/extraction tool is aligned

properly to avoid damaging the barbed fitting. The top of the sleeve protruding from the borehole should form a slight bulge between the slab and the Vapor Pin® threads. Place Vapor Pin® protective cap or four-way valve on the vapor pin to prevent vapor loss. If using four-way valve, ensure it is installed properly to seal the probe when not in use and fits below the flush mount cover.

6. Secure a flush mount cover by placing it over the vapor pin and/or screwing it onto the vapor pin using the spanner tool. **STOP, installation process is complete.**

Temporary Sub-Slab Soil Vapor Probe Installation

Equipment needed:

- Vapor Pin® materials, if using:
    a. Assembled Vapor Pin® (Vapor Pin® and silicone sleeve)
    b. Vapor Pin® installation/extraction tool
    c. Vapor Pin® drilling guide (optional)
- Hammer drill
- 5/8-inch (16 mm) diameter hammer drill bit
- ¾-inch (19 mm) diameter bottle brush
- Wet/dry vacuum (for example, Shop-Vac®) with HEPA filter (optional)
- Dead blow hammer
- Vapor Pin® protective cap or Cole-Palmer (or similar) Four-Way valve
- VOC-free modeling clay for temporary hole patching during sampling
- HDPE or Teflon tubing
- VOC-free hole patching material (hydraulic cement) and putty knife or trowel for repairing the hole following extraction of the vapor probe.
- Circuit interrupter
- Calibrated photoionization detector (PID) or five-gas meter (dependent on site health and safety requirements)
- Extension cords, if necessary
- Generator and lanterns, if necessary. Note, if using a generator indoors, a five-gas meter with carbon monoxide and PID sensors to screen ambient air for health and safety purposes.

Method:

1. If the building does not have power, set up lanterns and start the generator. Use caution and ensure proper ventilation. It is advisable to set the generator up as far away from the sampling locations as possible. Preferably, the generator will be set up outside or in a doorway. Discuss ventilation requirements with the project manager prior to beginning field work.
2. Install Plug the hammer drill into the nearest outlet or generator using the circuit interrupter (and extension cord, if necessary).
3. Fit the hammer drill with a 5/8-inch bit. Drill a 5/8-inch hole through the slab and approximately 1-inch into the underlying soil. Upon penetration of the slab, the pressure

necessary to drive the hammer drill will dramatically decrease and there will most likely be soil on the drill bit when removing from the hole. These conditions are indicative of penetration into the soil beneath the slab. Remove the vapor pin drilling guide if using. Record the approximate slab thickness on the vapor sampling log.

- Note: use caution when operating the hammer drill. ALWAYS WEAR SAFETY GLASSES. Make sure that the drill is set to the hammer and spin settings. Hold the drill firmly and upright to avoid installing a slanted hole. Do not put all your weight against the drill or it may slip and cause injury. Unplug the drill after use. A heavier drill can make vapor pin installation easier because the heavier drill does not require as much force to push the drill through the slab and the drill is less likely to become jammed in the slab.

4. Remove the drill bit and brush the hole with the bottle brush. Use the wet/dry vacuum to collect dust and debris from around and inside the vapor pin hole. **If installing a Vapor Pin®, proceed to step 5. If a vapor pin is not being installed, proceed to step 6.**
5. After the 5/8-inch hole has been drilled, fit a vapor pin with a silicon sleeve. Place the wider end into the drilled hole. Place the vapor pin installation/extraction tool over the vapor pin. The barbed fitting should fit inside the hollow end of the tool. Use the dead blow hammer to tap the solid end of the installation/extraction tool until nearly the entire silicon sleeve is below the slab. Make sure the installation/extraction tool is aligned properly to avoid damaging the barb fitting. The top of the sleeve protruding from the borehole should form a slight bulge between the slab and the Vapor Pin® threads. Place Vapor Pin® protective cap or four-way valve on the vapor pin to prevent vapor loss. If using four-way valve, ensure it is installed properly to seal the probe when not in use and fits below the flush mount cover. **STOP, installation process is complete.**
6. If not using a Vapor Pin®, cut a length of tubing which will penetrate beneath the slab while maintaining sufficient length above the slab to connect to the sampling apparatus. Place the tubing into the drilled hole, ensuring the tubing is located in the soil beneath the slab. Place modeling clay around annulus of drilled hole and tubing to ensure a complete seal from sub-slab vapor to ambient air. Place a cap or four-way valve on the tubing to prevent vapor loss. If using four-way valve, ensure it is installed properly to seal the probe when not in use and fits below the flush mount cover. **STOP, installation process is complete.**
7. Following sampling, use either the Vapor Pin® extraction tool to remove a Vapor Pin®, or remove tubing and modeling clay. Patch the drilled hole with VOC-free hole patching material (e.g. hydraulic cement or similar).

<u>Exterior Soil Vapor Probe Installation</u>

Equipment needed:

- HDPE or Teflon tubing
- Cole-Palmer (or similar) Four-Way valve
- Six-inch stainless steel vapor point
- Sand
- Granulated bentonite

- Road box (or similar) flush mount cover, if necessary
- Calibrated photoionization detector (PID) or five-gas meter (dependent on site health and safety requirements)

For exterior vapor probe installation, the equipment listed above should be inventoried with the contracted driller prior to mobilization to the site. Langan field personnel should have extra vapor probe equipment available in case the driller does not provide the necessary items. Discuss the targeted depth of vapor probe installation with project manager, as well as contingencies for encountering the ground water table in the vapor probe soil boring.

Method:

1. Direct the contracted driller to advance a borehole to the desired depth. Care should be taken during the planning stages to ensure vapor probes are not installed within the ground water table. If the desired depth cannot be reached or water is observed in the soil boring contact your project manager for further instruction.
2. Once the appropriate depth is reached, the driller will install a 6 inch stainless steel soil vapor point with ¼" tubing to the surface. The soil vapor screen will be surrounded with sand to 6 inches above the top of screen (approximately 1 foot of sand total). The remainder of the hole will be backfilled with granular bentonite to the surface. The bentonite should be hydrated at the surface to seal the point from the ambient air.
3. Upon completion, confirm that the soil vapor probe tubing is capped with a valve in the "off" direction.
4. Confirm and record the installation details of the vapor point with the driller (depth, seal, etc.)
5. If installing a permanent point, direct the driller to install a road box (flush mount cover) after verifying the soil vapor point has been installed correctly and soil vapor can be drawn from the point.
6. If the soil vapor probe is for temporary sampling, remove tubing following completion of sampling. Restore the ground surface flush to the existing grade with a material to match the surrounding surface (e.g. asphalt, concrete, bentonite).

5. Resources

Vapor Pin® Installation Video, https://vaporpin.coxcolvin.com/resources/

Vapor Pin® Installation SOP https://www.vaporpin.com/wp-content/uploads/2016/09/Vapor-Pin-SOP-09-2016-Web.pdf

United States Environmental Protection Agency Technical Guidance for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air: https://www.epa.gov/vaporintrusion/technical-guide-assessing-and-mitigating-vapor-intrusion-pathway-subsurface-vapor

6. Documentation

The probe borehole diameter, slab thickness, type of probe installed, and equipment used to install the probe should be recorded on the Vapor Intrusion Sampling form. In addition, any non-conformance or variations from standards or expectations should be documented.

Vapor Intrusion Sampling Form

7. Troubleshooting and Considerations

[Reserved]

8. Related Documents

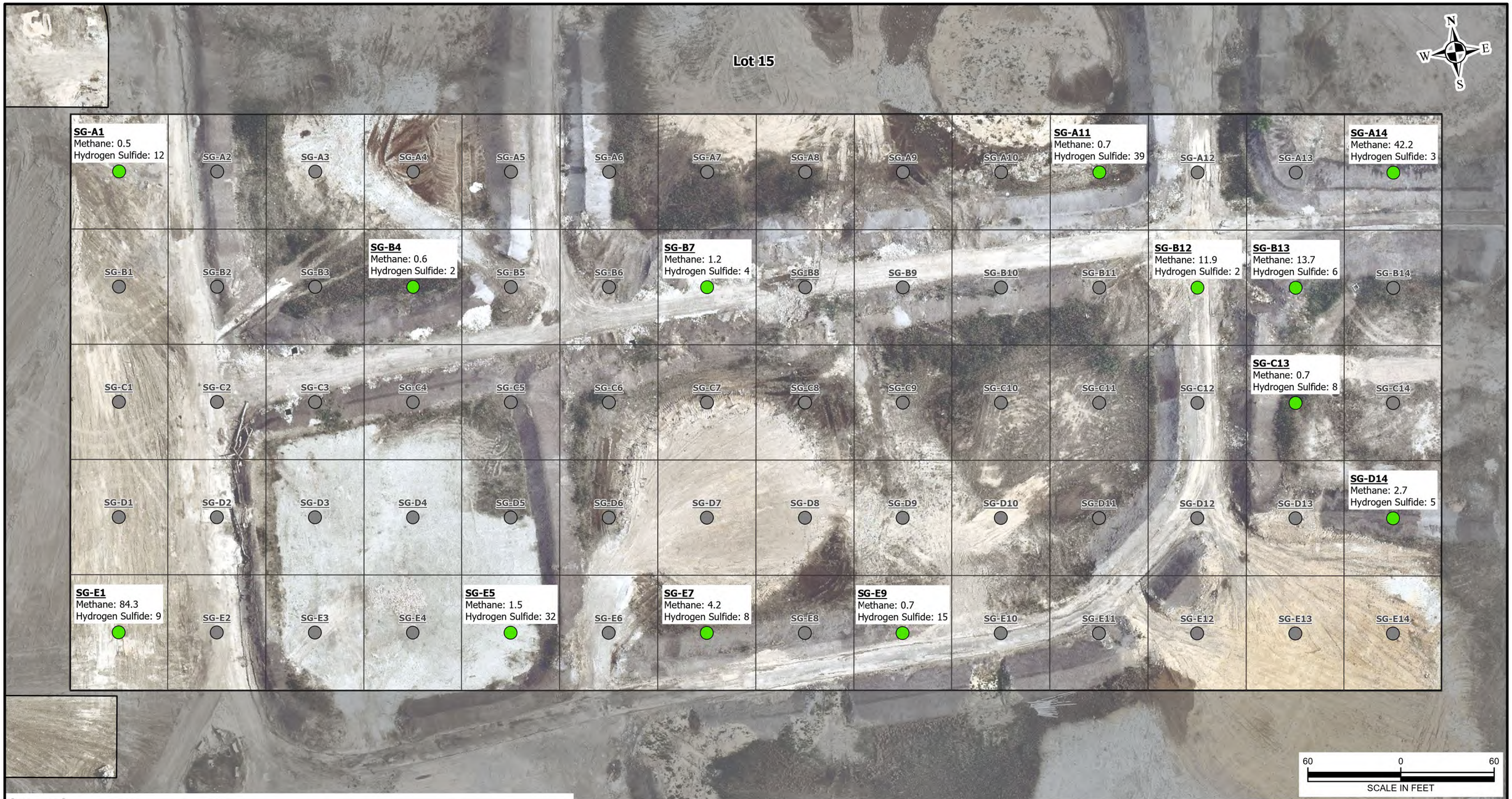
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9. Version/Revision History

Version 1.0 – 27 January 2023. J. Francis, J. Flagg. A. Statkiewicz.

10. References

https://teams.langan.com/sites/HS/Programs%20and%20Policies/Underground%20Utility%20Clearance%20Guidelines%20-%20FINAL%20Rev%2012-10-13.pdf#search=utility



Legend

- Soil Gas Sample Location – Field Screened
- Soil Gas Sample Location – Not Installed or Unable to be Field Screened
- Soil Gas Sampling Grid
- Parking and Truck Docks

Notes:
1. Imagery provided through Langan's subscription to Nearmap. Flown 5/14/2023.
2. All locations of Site reconnaissance observations are approximate.
3. L&I Area Features provided by Terraphase, 5/22/2023
4. Methane concentrations reported in percent by volume (% v/v).
5. Hydrogen sulfide concentrations reported in parts per million (ppm).

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PHILADELPHIA ENERGY SOLUTIONS REFINING AND MARKETING LLC
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PHILADELPHIA COUNTY PENNSYLVANIA

Drawing Title
SUMMARY OF METHANE AND HYDROGEN SULFIDE FIELD READINGS

Project No. 220181801	Figure 1
Date 9/25/2023	
Scale 1"=60'	
Drawn By SH	

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Path: \\langan.com\data\PHL\data8\220181801\Project Data\ArcGIS\APRX\220181801\220181801.aprx Date: 9/25/2023 User: shennessy Time: 8:32 AM

Table 1
Soil Gas Field Measurements
PESRM - 3144 W Passyunk Avenue
Philadelphia, Pennsylvania

Sample Type	Location	Date	Methane Field Screening (%v/v)	Methane Laboratory Data (%v/v)	Carbon Dioxide (%v/v)	Oxygen (%)	Hydrogen Sulfide (ppm)	VOC from Borehole (ppm)	VOC from Pump Exhaust (ppm)
Exterior Soil Gas	A1	9/19/2023	0.5	RP	0.1	14.5	12	3.8	3.8
	A9	9/21/2023	NR	RP	NR	NR	NR	113	10
	A11	9/21/2023	0.7	RP	2.2	12.7	39	88.9	237.5
	A14	9/14/2023	42.2	0.78	0.1	17.7	3	1598	2515
	B4	9/19/2023	0.6	RP	0.4	18.3	2	0.2	29.4
	B7	9/14/2023	1.2	1.2	0.1	5.0	4	0.7	0.3
	B12	9/21/2023	11.9	0.675	0.3	1.1	2	421	35
	B13	9/14/2023	13.7	6.2	0.2	0.7	6	77.6	10.2
	C13	9/20/2023	0.7	RP	0.6	13.7	8	247	220
	D14	9/15/2023	2.7	0.54	0.1	7.7	5	6.4	NR
	E1	9/19/2023	84.3	RP	0.3	12.6	9	52.4	92.1
	E5	9/15/2023	1.5	RP	0.9	11.5	32	8.7	0.7
	E7	9/20/2023	4.2	RP	0.0	6.8	8	308	44
	E9	9/20/2023	0.7	RP	0.6	8.2	15	790	169

Notes:

% v/v - percent by volume

ppm - parts per million

NR - not reported

RP - Results Pending

Table 2 - Soil Gas Analytical Results
PESRM
Lot 15 Soil Gas Investigation

Location	PADEP Sub-Slab Soil Gas Screening Values - Residential	PADEP Sub-Slab Soil Gas Screening Values - Nonresidential	A1	A14	B4	B7	B12	B13
Sample ID			**SG-A1_10.5_091923**	**SG-A14_10.5_091423**	**SG-B4_11.5_091923**	**SG-B7_11.5_091423**	**SG-B12_11.5_092123**	**SG-B13_11.5_091423**
Units	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3
1,3-Butadiene	31	520	**32.3**	ND	4.87	ND	ND	ND
Isopropanol	8,000	110,000	ND	ND	ND	ND	ND	ND
Carbon disulfide	28,000	390,000	367	ND	86.6	ND	49.2	27.2
1,1-Dichloroethane	590	9,800	ND	ND	ND	ND	ND	ND
Chloroform	41	680	**44.1**	ND	ND	ND	ND	ND
Hexane	28,000	390,000	6,410	ND	1,970	3,390	2,570	1,720
Benzene	120	2,000	**142**	ND	63.3	**1,300**	**767**	**124**
Cyclohexane	240,000	3,400,000	6,400	ND	2,290	3,440	7,160	8,500
Total xylenes	4,000	56,000	214	ND	266	ND	371	ND
Toluene	200,000	2,800,000	83.7	ND	83.7	ND	191	ND
Tetrachloroethene (PCE)	1,600	22,000	ND	ND	ND	ND	ND	ND
Ethylbenzene	370	6,300	60.4	ND	54.7	ND	151	ND
p/m-xylene	NS	NS	160	ND	203	ND	278	ND
o-xylene	NS	NS	53.4	ND	63.4	ND	93.4	ND
Isopropylbenzene	16,000	220,000	48.2	ND	11.4	ND	341	ND
1,3,5-trimethylbenzene	2,400	34,000	41.7	ND	19.3	ND	ND	ND
1,2,4-trimethylbenzene	2,400	34,000	91.4	ND	53.6	ND	ND	ND
Naphthalene	28	460	24.4	ND	ND	ND	ND	ND

Notes:

Soil gas results were compared to the PADEP Sub-Slab Soil Gas Statewide Health Standard VI Screening Values (September 2022)

PADEP - Pennsylvania Department of Environmental Protection

NS - No standard

ND - Non-detect

ug/m3 - Micrograms per cubic meter

Legend:

Exceeds Sub-Slab Residential

Exceeds Sub-Slab Nonresidential

Table 2 - Soil Gas Analytical Results
PESRM
Lot 15 Soil Gas Investigation

Location	PADEP Sub-Slab Soil Gas Screening Values - Residential	PADEP Sub-Slab Soil Gas Screening Values - Nonresidential	C13	D6	D14	E5	E7
Sample ID			SG-C13_10.5_092023	SG-D6_11.5_092023	SG-D14_9.5_091423	SG-E5_10.5_091923	SG-E7_10.5_092023
Units	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3
1,3-Butadiene	31	520	ND	ND	ND	ND	ND
Isopropanol	8,000	110,000	ND	ND	ND	383	ND
Carbon disulfide	28,000	390,000	517	ND	60.1	225	283
1,1-Dichloroethane	590	9,800	ND	213	ND	ND	ND
Chloroform	41	680	ND	ND	ND	ND	ND
Hexane	28,000	390,000	**28,800**	5,920	**47,200**	**377,000**	**183,000**
Benzene	120	2,000	**11,100**	**3,230**	**722**	**42,200**	**12,000**
Cyclohexane	240,000	3,400,000	25,300	9,670	11,400	174,000	104,000
Total xylenes	4,000	56,000	**38,600**	**5,950**	1,550	**447,000**	**5,130**
Toluene	200,000	2,800,000	10,600	260	ND	950	972
Tetrachloroethene (PCE)	1,600	22,000	59.9	ND	ND	ND	ND
Ethylbenzene	370	6,300	**9,470**	**4,690**	**717**	**124,000**	**2,330**
p/m-xylene	NS	NS	28,100	3,230	1,370	433,000	4,100
o-xylene	NS	NS	10,500	2,710	191	15,100	1,020
Isopropylbenzene	16,000	220,000	2,490	978	386	**26,400**	1,810
1,3,5-trimethylbenzene	2,400	34,000	**3,730**	1,230	374	**42,300**	723
1,2,4-trimethylbenzene	2,400	34,000	**8,160**	1,180	1,000	**91,400**	**4,010**
Naphthalene	28	460	ND	ND	ND	ND	ND

Notes:

Soil gas results were compared to the PADEP Sub-Slab Soil Gas Statewide Health Standard VI Screening Values (September 2022)

PADEP - Pennsylvania Department of Environmental Protection

NS - No standard

ND - Non-detect

ug/m3 - Micrograms per cubic meter

Legend:

Exceeds Sub-Slab Residential

Exceeds Sub-Slab Nonresidential

Table 3
Summary of Monitoring Well Construction Details and Groundwater Elevations
PESRM - Lot 15
Philadelphia, Pennsylvania

Well Identification	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	Total Well Depth (ft bgs)	Screened Interval	September 21, 2023 Depth to Groundwater (ft bgs)
TW-1	9	14	14	Fill/Surcharge/ Alluvium	8.1
TW-2	15	25	25	Gravelly sand and Trenton Gravel	20.95

Notes:
ft amsl - Feet Above Mean Sea Level
bgs - Below Ground Surface
TIC - Top of Inner Casing (i.e riser pipe)
All elevations are referenced to North American Vertical Datum 1988

LANGAN

Memorandum

1818 Market Street, Suite 3300 Philadelphia, PA 19103 T: 215.845.8900 F: 215.845.8901

To: Joe Jeray, Laura Hrabar – HRP Group

From: Andrea Berlinghof, Jason Hanna - Langan

Info: Adam Goldberg, Matt Ambrusch - Langan

Date: March 4, 2026

Re: Vapor Intrusion Assessment
2625 Frances Harper Drive, Philadelphia, Pennsylvania
The Bellwether District, Unit 1
Langan Project No.: 220181807

INTRODUCTION

Langan Engineering & Environmental Services, LLC (Langan) has prepared this memorandum to document the results of a sub-slab soil gas investigation Langan performed beneath the recently constructed building located at 2625 Frances Harper Drive, Philadelphia, Pennsylvania ("Unit 1" or "the Site"), which is located within the Former Philadelphia Energy Solutions refinery facility now known as The Bellwether District (the "Facility"). A Site Location Map is provided as Figure 1.

Remediation activities are being conducted at the Facility under the Pennsylvania Land Recycling and Environmental Remediation Standards Act (Act 2) by both Bellwether District Holdings, LLC (BDH) and Evergreen Resources Group, LLC (Evergreen) in accordance with the Consent Order and Agreement (CO&A) among Pennsylvania Department of Environmental Protection (PADEP), Sunoco, Inc. (R&M) n/k/a Energy Transfer (R&M), LLC, and BDH 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, and BDH is responsible for addressing contamination at the Facility resulting from release(s) which occurred after September 8, 2012. Further, in accordance with the Facility's Soil Management Plan which is an Attachment to the 2020 Amendment to the CO&A, BDH is responsible for installing vapor mitigation controls or, alternatively, demonstrating that such controls are not needed to mitigate potential vapor intrusion in accordance with PADEP guidance.

BDH prophylactically installed a vapor mitigation system beneath the Unit 1 building. The objective of the Unit 1 sub-slab soil gas sampling in September and November 2025 was to evaluate whether the mitigation system is needed to mitigate potential vapor intrusion (VI) in

accordance with PADEP Guidance. The sampling was completed via the existing sub-slab vapor monitoring points (VMPs) (Figure 2). Sub-slab soil gas was sampled for the PA Act 2 site-specific constituents of concern (COCs) and screened against PA Act 2 Site-Specific Standard (SSS) screening values to satisfy the sub-slab soil gas Alternative Assessment Option, as outlined in the PADEP Vapor Intrusion Guidance (PADEP VI Guidance) dated March 27, 2021, and 25 Pa. Code Chapter 250 SSS Requirements with respect to VI. The SSS screening values are equivalent to 10% of the PADEP Statewide Health Standard (SHS) non-residential vapor intrusion screening values. The sampling demonstrated that the mitigation system is not needed to mitigate potential vapor intrusion in accordance with PADEP Guidance.

SITE HISTORY AND VI PATHWAY EVALUATION

Historically the Site operated as an aboveground petroleum storage tank farm associated with former oil refinery operations. The 25.4-acre Site recently underwent redevelopment to construct an approximately 326,350 square foot (sf) building. The surrounding parking lots are paved and landscaped, and an aboveground stormwater detention basin was constructed in the western portion of Unit 1.

Environmental investigations conducted by Evergreen and BDH at the Site indicate the presence of volatile organic compounds (VOCs) in soil, groundwater, and/or soil vapor. The sources of VOCs in the environment are historical releases from refinery operations and have been mitigated. The conceptual site model for vapor intrusion is based on the potential for VOCs in the subsurface to volatilize and accumulate in soil vapor. Where buildings are present, the accumulated VOCs in soil gas beneath a building slab have the potential to migrate to indoor air based on pressure differentials and the exchange of air between the building and sub-slab. For this reason, BDH collected multiple rounds of soil gas samples before and after building construction to investigate the presence of VOCs in soil gas beneath the building.

Prior to construction of the Unit 1 building, a soil gas investigation was conducted, as outlined in the October 31, 2023, *Soil Vapor Sampling Results* memorandum (2023 SV Memo) prepared by Cooperstown Environmental LLC (Cooperstown). Thirteen soil gas sampling points were installed and sampled for volatile organic compounds (VOCs) via EPA Method Toxic Organics ("TO")-15, and methane via EPA Method 3C. The 2023 SV Memo identified VOCs (benzene, total xylenes, ethylbenzene, 1,3,5-trimethylbenzene, and 1,2,4-trimethylbenzene) at concentrations exceeding the PADEP Sub-Slab Non-residential Soil Gas Statewide Health Standard (SHS) Vapor Intrusion (VI) Screening Values. The highest

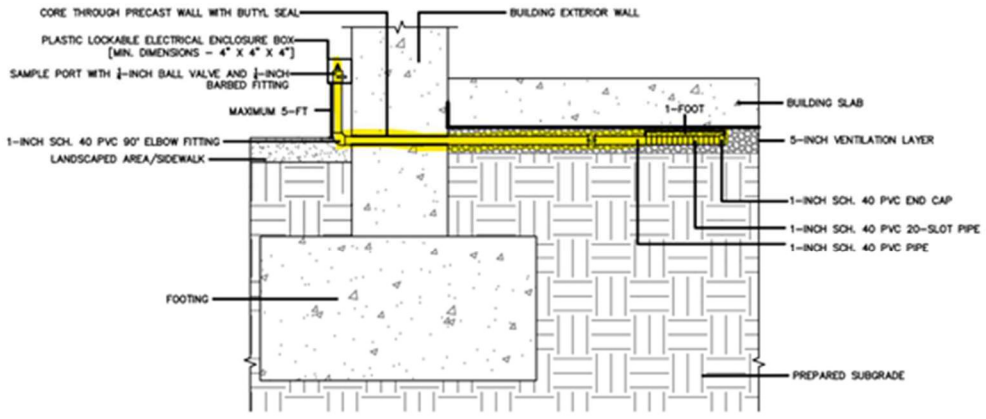
concentrations of VOCs were observed in the south-central portion of the building footprint. Methane was also identified in field screening results, and one laboratory sample exhibited a concentration between the lower explosive limit (LEL) and the upper explosive limit (UEL).

While the presence of VOCs and methane in soil gas does not on its own indicate a complete pathway for these constituents to enter indoor air, a passive vapor mitigation system (VMS) was designed and installed at the Unit 1 building to mitigate the potential for methane and VOCs in soil vapor to accumulate beneath or intrude into the subject building. Langan designed the VMS and observed its installation during its construction in 2024 and 2025.

SUB-SLAB SOIL GAS INVESTIGATION METHODS

As part of the VMS, VMPs were installed beneath the vapor barrier to facilitate sub-slab soil gas sampling without compromising the integrity of either the vapor barrier or the building slab. As illustrated in the construction diagram below, each VMP consists of a 1-inch-diameter PVC pipe with a 1-foot slotted screen at the terminal end.

VMP lengths range from approximately 30 to 400 feet. Given that this installation differs from conventional sub-slab soil gas probe configurations, Langan consulted with the PADEP to confirm acceptance of the proposed sampling procedures prior to initiating fieldwork. In an email dated August 7, 2025, the PADEP approved of the sampling procedures described below.



13 TYPICAL VAPOR MONITORING POINT
N.T.S.

The field investigations were conducted on September 4, 2025, and November 13, 2025. Langan sampled five locations (VMP2, VMP4, VMP5, VMP6, and VMP9), consistent with the PADEP recommendations of a minimum of two sample locations per building for

sub-slab soil gas from the PADEP VI Guidance. Per the PADEP VI Guidance, the proposed sampling locations are biased toward areas of the building with the greatest expected VI impact (southwest corner), based on the historical soil gas sampling conducted in 2023. Soil gas sample locations are depicted on Figure 2. Two rounds of sampling were conducted, at least 45 days apart, with the vent risers of the VMS closed (i.e., no passive mitigation) as a conservative measure.

Prior to sampling, a shut-in test was conducted to demonstrate the integrity of the sampling assembly, consistent with the PADEP guidance. With the sample port closed, a vacuum of at least 10 inches of mercury (" Hg) was applied to the sampling assembly and held for a minimum of one minute. Per the PADEP technical guidance, if the vacuum decreased more than 0.5'' Hg in a minute, the assembly was assessed, and the shut-in test was conducted again. The 1-inch diameter VMP pipe was then purged of approximately three pore volumes of air.

A leak check test was also conducted by constructing a shroud around the sample point that was filled with helium gas during VMP purging activities. A RKI GX-6000 Photoionization Detector (PID) and Forensic Detectors FD-311-He helium meter were utilized to measure concentrations of VOCs and helium (respectively) at the discharge port of the purge pump during purging activities. As approved by the PADEP, the purge flow rate was increased to 2,000 milliliters per minute (ml/min). The purge flow rate of 2,000 ml/min was selected based on the *USEPA Suggested Operating Procedure - Soil Gas Probe Purging and Sampling Collection* dated May 11, 2005. As noted in the 2015 California EPA Guidance, which is referenced in the PADEP Vapor Intrusion Guidance, elevated purge rates are permissible when standard purge times become excessive. At the default rate of 200 ml/min, purging three vapor point volumes at each of the five VMPs would require approximately 48 hours. By increasing the purge rate to 2,000 ml/min, the total purge time was reduced to approximately five hours.

Field documentation of the sub-slab soil gas sampling was recorded on Field Sampling Information Summary Sheets, included in Attachment A.

Following purging, soil gas samples were collected at a flow rate of 200 ml/min using laboratory-cleaned and certified evacuated 2.7-L stainless steel summa canisters with flow control regulators calibrated to a flow rate of 200 cubic centimeters per minute

(cc/min) supplied by the laboratory. A vacuum of between approximately 3 "Hg and 5 "Hg remained in the summa cannisters after sampling. Samples were transferred to the laboratory and stored below a maximum room temperature of 30° Celsius. Chain-of-custody forms were utilized to document custody for the acquisition, possession, and analysis of the samples. The soil gas samples were submitted to Pace Analytical Services, Inc. of Mansfield, MA (PADEP Certification # 65-02089) for analysis of the list of PA Act 2 site-specific COC VOCs via United States Environmental Protection Agency (USEPA) Method TO-15. Laboratory analytical reports are provided as Attachment B.

DATA USABILITY ASSESSMENT

Laboratory data was reviewed by a Langan Quality Assurance Manager (OAM). The data was found to be usable by the Langan OAM. Data validation forms are included in Attachment C. Some data anomalies are discussed below:

For the September 4, 2025 data, a *Data Usability Assessment* was conducted by Langan on September 23, 2025. No major deficiencies, minor deficiencies, or other deficiencies were identified. The field duplicate and parent sample (DUP01_09042025 and VMP2_09042025) exhibited an absolute difference above the reporting limit (RL) for 1,2,4-trimethylbenzene (1.24 micrograms per cubic meter [ug/m^3]). The associated results are qualified as J because of potential indeterminate bias.

For the November 13, 2025, data, a *Data Usability Assessment* was conducted by Langan on November 21, 2025. No major deficiencies or minor deficiencies were identified. Other deficiencies include anomalies that do not directly impact data quality and do not necessitate qualification. These deficiencies included the following:

- The laboratory control sample (LCS) for batch WG2143388 exhibited a percent recovery below the lower control limit (LCL) for naphthalene (58%). Naphthalene was reported by the SIM method. No qualification is necessary.
- The clean canister certification blank L2567104-09 exhibited detections of cis-1,2-dichloroethene (SIM) (0.095 ug/m^3) and 1,4-dioxane (SIM) (0.447 ug/m^3). These are non-target analytes from the SIM method. No qualification is necessary.

Based on this evaluation, the laboratory appears to have followed the specified analytical methods except for errors discussed above. The data are considered usable, as qualified.

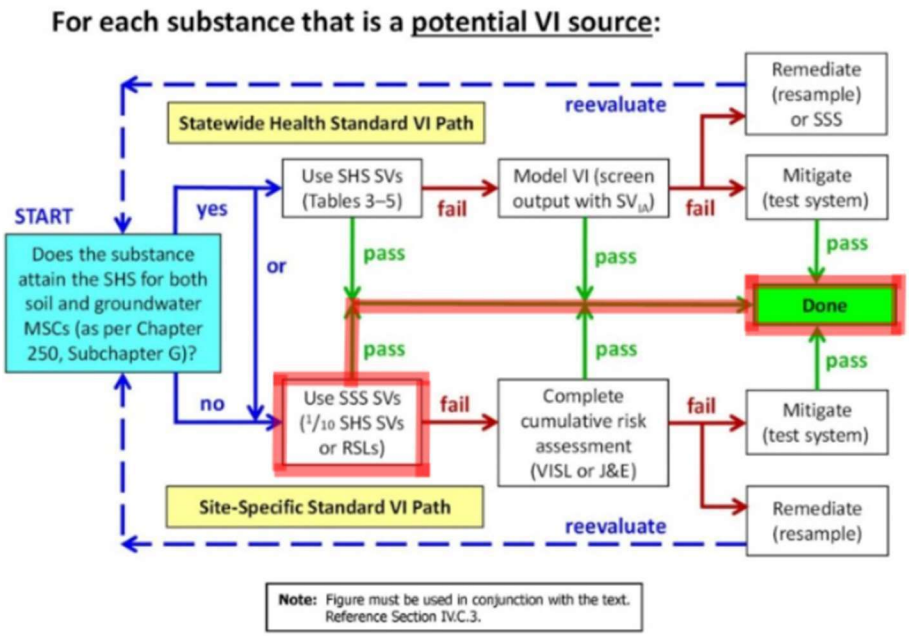
In addition, completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

RESULTS AND CONCLUSIONS

Soil gas samples were compared to the SSS screening values, which were calculated by reducing the SHS screening values by a factor of 10, in accordance with Section K.4 of the PADEP VI Guidance. The SSS screening values and the soil gas analytical results are summarized in Table 1. The soil gas sample locations are depicted on Figure 2. The sub-slab soil gas results from both rounds of sampling (September 4, 2025, and November 13, 2025) demonstrated the concentration of the site-specific COCs in soil gas were below the respective SSS VI Risk Screening Values.

As depicted in the diagram below, which is an excerpt from the PADEP VI Guidance, the two rounds of sub-slab sampling with concentrations below SSS satisfy the 25 Pa. Code Chapter 250 requirements with respect to VI assessment for Unit 1. Results of the sub-slab soil gas samples indicate that no potential VI source is present, and, therefore, the mitigation system is not needed to mitigate potential vapor intrusion in accordance with PADEP Guidance.

Figure IV-2: Representative Process to Evaluate VI with a Combination of Standards



Enclosures

Figure 1	Site Location Map
Figure 2	Drawing No. ENV102 with Sub-Slab Soil Gas Sampling Locations
Table 1	Summary of Soil Gas Analytical Results
Attachment A	Field Sampling Information Summary Sheet
Attachment B	Laboratory Analytical Results
Attachment C	Data Usability Assessment Technical Memorandums

\\langan.com\data\PHL\dataS\220181801\Project Data_Discipline\Environmental\Field Records\2024-VMS Reports Lot 15\Final Reporting\Sub-Slab VMP Soil Vapor\2026.03.04_BDH Unit 1 VI Sub-Slab Memo_FINAL.docx

FIGURES



Notes:
1. Aerial Imagery provided by Langan's subscription to Nearmap. Flown on 2/25/2025.
2. Lot 15 site boundary provided by Terraphase, 5/22/2023.

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Project
BELLWETHER DISTRICT - UNIT 1

2626 FRANCES HARPER DR

PHILADELPHIA PENNSYLVANIA

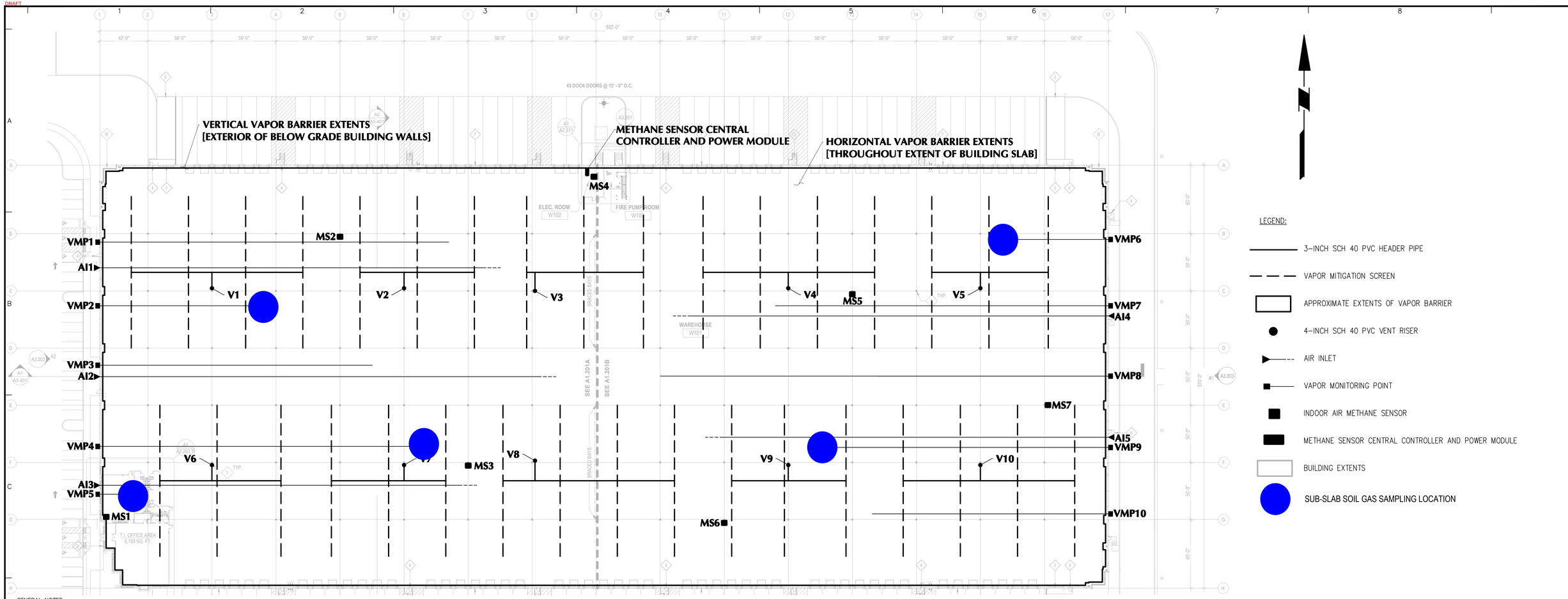
Figure Title
AERIAL MAP

Project No.	220181803
Date	6/12/2025
Scale	1"=2,000'
Drawn By	JF

Figure
1

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DRAFT



GENERAL NOTES:

1. THE COMPONENTS SHOWN ARE NOT TO SURVEYED COORDINATES. THE CONTRACTOR COORDINATED THE EXACT LOCATIONS AND LAYOUT OF THE VENTING SYSTEM COMPONENTS IN THE FIELD BASED ON ACTUAL SITE CONDITIONS AND OTHER PROPOSED WORK.
2. THE BUILDING PLAN REFERENCED WAS SHEET AP.01 FROM THE IFC DRAWING SET PREPARED BY CLAYCO DESIGN & ENGINEERING DATED 28 APRIL 2025. REFER TO THE STRUCTURAL DESIGN FOR STRUCTURAL DETAILS OF THE SLAB, REINFORCEMENT, WALL, FOUNDATION AND OTHER STRUCTURAL ELEMENTS. THE BUILDING INFORMATION SHOWN WAS FOR REFERENCE ONLY. THE PLAN DID NOT SHOW EACH AND EVERY CONDITION EXISTING OR PROPOSED AT THE SITE. THE CONTRACTOR CONFIRMED THE EXISTING AND PROPOSED SITE CONDITIONS, INCLUDING, BUT NOT LIMITED TO, MECHANICAL, ELECTRICAL, AND PLUMBING SYSTEMS; STRUCTURAL COMPONENTS; AND ARCHITECTURAL REQUIREMENTS PRIOR TO INITIATING INSTALLATION OF THE VENTING SYSTEM COMPONENTS.
3. INSTALLATION OF THE SUB-SLAB COLLECTION PIPING AND VERTICAL VENT RISERS WAS COORDINATED WITH CONSTRUCTION OF OTHER UTILITIES, STRUCTURAL ELEMENTS, AND ALL OTHER TRADES.
4. SPECIFICATIONS FOR ALL VAPOR MITIGATION SYSTEM [VMS] COMPONENTS WERE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL.
5. THE GENERAL CONTRACTOR INSPECTED THE FINISHED BUILDING SLAB FOR OPEN JOINTS AT WALLS, FOOTINGS, PIPING PENETRATIONS, DRAINS, ETC.
6. THE SUB-SLAB VMS IS A PASSIVE SYSTEM. A WIND DRIVEN TURBINE [MIN. 8-INCH DIAMETER] WAS AFFIXED TO THE TOP OF EACH VERTICAL VENT RISER. HOWEVER, THE SYSTEM WAS DESIGNED SUCH THAT, IF DETERMINED NECESSARY, IT COULD BE CONVERTED INTO AN ACTIVE OR HYBRID OPERATION VIA EXPLOSION-PROOF FAN(S) WITH A COMBINED CAPACITY OF APPROXIMATELY 1,100 STANDARD CUBIC FEET PER MINUTE [SCFM] AT 10 INCHES OF WATER COLUMN [IWC] VACUUM.
7. THE BUILDING IS EQUIPPED WITH AN INDOOR METHANE MONITORING SYSTEM, CONSISTING OF RKI M2A-XL TRANSMITTERS AND ASSOCIATED EQUIPMENT, INCLUDING THE RKI BEACON 3200 GAS MONITOR AND POWER SUPPLY MODULES.
8. ELECTRICAL REQUIREMENTS FOR ALL POWERED VMS EQUIPMENT WERE CONFIRMED BY THE ELECTRICAL CONTRACTOR PRIOR TO INSTALLATION.
9. ANY ELECTRICAL CONDUIT OR DRY UTILITY THAT PENETRATED THE SLAB WERE SEALED WITH SEAL-OFF FITTINGS TO PREVENT VAPOR MIGRATION INTO THE BUILDING.

VAPOR BARRIER NOTES:

1. THE VAPOR BARRIER SPANS THE EXTENTS OF THE ENCLOSED BUILDING SLAB AND CONSISTS OF MONOSHIELD BY LAND SCIENCE. THE VAPOR BARRIER CONSISTS OF A MATERIAL CHEMICALLY COMPATIBLE WITH VOLATILE ORGANIC COMPOUNDS AND METHANE, AND HAS A MINIMUM THICKNESS OF 30 MIL OR EQUIVALENT THICKNESS PROVIDING THE SAME PROTECTION. MATERIAL SPECIFICATIONS [I.E., COMPATIBILITY] WERE REVIEWED AND APPROVED BY THE ENGINEER OF RECORD.
2. THE VAPOR BARRIER DETAILS SHOWN ARE GENERALIZED IN NATURE AND WERE INTENDED TO INDICATE THE EXTENT AND LOCATIONS OF VAPOR BARRIER. ACTUAL INSTALLATION AND REPAIRS WERE IN ACCORDANCE WITH THE VAPOR BARRIER MANUFACTURER'S STANDARD DETAILS AND WRITTEN INSTALLATION INSTRUCTIONS.
3. CONTRACTOR SHOP DRAWINGS INDICATING VAPOR BARRIER INSTALLATION DETAILS AND METHODS WERE REVIEWED AND APPROVED BY THE MATERIAL MANUFACTURER PRIOR TO SUBMITTAL TO THE ENGINEER OF RECORD FOR REVIEW.
4. ALL VAPOR BARRIER ACCESSORY MATERIALS, INCLUDING BUT NOT LIMITED TO TAPE, SEALANT, LIQUID MEMBRANE, ETC. WERE COMPATIBLE WITH AND DESIGNED FOR USE WITH THE SELECTED VAPOR BARRIER.
5. INSTALLED VAPOR BARRIER MATERIALS AND INSTALLATION HAVE WARRANTIES PROVIDED BY THE INSTALLER AND MANUFACTURER.
6. CARE WAS TAKEN DURING THE PLACEMENT OF THE SLAB REINFORCING REBAR AND THE POURING OF THE BUILDING SLAB TO PREVENT ACTIVITIES [I.E., VEHICLE TRAFFIC DIRECTLY ON TOP OF VAPOR BARRIER] WHICH MAY DAMAGE THE VAPOR BARRIER PRIOR TO INSTALLING THE BUILDING SLAB. IF VEHICLE TRAFFIC OVER THE VAPOR BARRIER WAS REQUIRED, PROPER PRECAUTIONS WERE COORDINATED WITH THE ENGINEER OF RECORD PRIOR TO INITIATING SUCH WORK. IT WAS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE MEMBRANE WAS NOT PENETRATED OR DAMAGED.
7. THE VAPOR BARRIER WAS INSPECTED FOR HOLES, PUNCTURES AND GAPS. A SMOKE TEST WAS CONDUCTED BY THE VAPOR BARRIER INSTALLER AND OBSERVED BY AN AGENT OF THE ENGINEER OF RECORD, A MINIMUM OF EVERY 3,000 SQUARE FOOT INTERVAL, OR AS REQUIRED BY THE VAPOR BARRIER MANUFACTURER. ALL LEAKS WERE PATCHED PER THE MANUFACTURER'S INSTRUCTIONS AND RETESTED.

VAPOR MITIGATION PIPING NOTES:

1. THE SUB-SLAB VMS CONSISTS OF A SUB-SLAB VAPOR BARRIER AND SUB-GRADE HORIZONTAL VAPOR MITIGATION SCREENS, WHICH MANIFOLDS WITH HEADER LINES AND VENT THROUGH VERTICAL RISERS.
2. THE SUB-SLAB VAPOR MITIGATION HEADER PIPING WAS CONSTRUCTED OF 3-INCH SCHEDULE 40 POLYVINYL CHLORIDE [SCH. 40 PVC] PIPE. THE SUB-SLAB VAPOR MITIGATION SCREEN WAS CONSTRUCTED OF TERRAVENT™. ALL SUB-SLAB HEADER PIPING WAS INSTALLED LEVELED [E.G., LASER LEVEL OR EQUAL] TO PREVENT THE CREATION OF ANY LOW POINTS IN WHICH MOISTURE COULD POTENTIALLY ACCUMULATE. IN THE EVENT THAT LOW POINTS WERE IDENTIFIED, THE PIPING WAS EQUIPPED WITH CONDENSATE WEEPHOLES. ADDITIONALLY, WEEPHOLES WERE INSTALLED EVERY 15-FEET ON THE HEADER PIPING. WEEPHOLES CONSISTED OF A 1/4-INCH HOLE INSTALLED ON THE BOTTOM OF THE PIPE CENTERLINE. THE HEADER PIPING WAS EMBEDDED 1-INCH INTO PREPARED SUBGRADE SOILS TO MAINTAIN A MINIMUM 3-INCH STONE COVER. WHERE REQUIRED, SLEEVE(S) WAS INSTALLED THROUGH GRADE BEAM(S) AND/OR OTHER FOUNDATION ELEMENTS, AS APPLICABLE, TO ALLOW THE HEADER PIPING AND VAPOR MITIGATION SCREEN TO RUN UNIMPEDED.
3. CARE WAS TAKEN DURING THE PLACEMENT OF THE VENTILATION LAYER, SLAB REINFORCING REBAR, AND THE POURING OF THE BUILDING SLAB TO PREVENT ACTIVITIES [I.E., VEHICLE TRAFFIC DIRECTLY OVER THE SUB-SLAB HEADER PIPING] WHICH MIGHT DAMAGE THE SUB-SLAB PIPING PRIOR TO INSTALLING THE BUILDING SLAB. IF VEHICLE TRAFFIC OVER THE SUB-SLAB PIPING WAS REQUIRED, PROPER PRECAUTIONS WERE COORDINATED WITH THE ENGINEER OF RECORD PRIOR TO INITIATING SUCH WORK. IT WAS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE SUB-SLAB PIPING WAS NOT DAMAGED.
4. A VENTILATION LAYER, 5-INCHES THICK AND CONTINUOUS, WAS INSTALLED THROUGHOUT THE ENTIRE EXTENT OF THE BUILDING SLAB. PRIOR TO THE INSTALLATION OF THE VAPOR BARRIER, THE VENTILATION LAYER WAS PLATE TAMPED, AND SHARP AND POINTED AGGREGATE AND DEBRIS WERE REMOVED TO PREVENT DAMAGE TO THE VAPOR BARRIER. THE VENTILATION LAYER CONSISTS OF AASHTO #57 STONE.
5. CARE WAS TAKEN WHEN INSTALLING THE VENTILATION LAYER AROUND THE VENT RISER PIPING TO ENSURE NO DAMAGE/PUNCTURE TO THE PIPE. PRESSURE TESTING WAS COMPLETED AT EVERY VERTICAL VENT RISER PIPE TO CONFIRM NO DAMAGE TO THE ABOVE GRADE VMS PIPES. PRESSURE TESTING INVOLVED ISOLATING THE RISERS AND GENERALLY FOLLOWED THE TESTING PROCEDURES SET FORTH IN ASME B31.1. A MINIMUM OF 5 POUNDS PER SQUARE INCH [PSI] WAS APPLIED TO THE PIPE AND MAINTAINED FOR A MINIMUM OF 10 MINUTES. ANY DAMAGE OR DEFECT DETECTED WAS REPAIRED OR REPLACED.
6. THE VERTICAL VENT RISER PIPES WERE INSTALLED IN COORDINATION WITH THE ARCHITECTURAL, MECHANICAL, AND STRUCTURAL DRAWINGS. RISER PIPING WAS ROUTED AS DIRECTLY AS POSSIBLE TO THE ROOF, WITH FIELD ADJUSTMENTS AS NEEDED TO MAINTAIN REQUIRED SEPARATION FROM AIR INTAKES, MECHANICAL EQUIPMENT, AND STRUCTURAL ELEMENTS. ANY CONFLICTS WERE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER.
7. THE VERTICAL VENT RISER PIPES WERE CONSTRUCTED OF 4-INCH SCH. 40 PVC. RISER PIPES WERE LABELED AS "CAUTION-VAPOR VENT PIPE. POTENTIALLY EXPLOSIVE VAPORS. DO NOT ALTER IN ANY WAY. REPORT ANY DAMAGE IMMEDIATELY TO BUILDING MANAGEMENT" WITHIN THE FIRST 5 FEET OF THE SLAB. EXTERIOR RISER PIPES EXPOSED TO THE ELEMENTS WERE CONDITIONED WITH ULTRAVIOLET RADIATION-RESISTANT LATEX PAINT.
8. PER THE EPA TECHNICAL GUIDANCE FOR ACTIVE SOIL DEPRESSURIZATION SYSTEMS, THE SIZE OF ALL VMS SIGNAGE WAS SUCH THAT IT WAS LEGIBLE FROM A DISTANCE OF TWO FEET AWAY.
9. ELECTRICAL CONDUIT WAS INSTALLED SUCH THAT IT TERMINATED ABOVE THE ROOF DECK WITHIN THREE FEET OF EACH VERTICAL VENT RISER PIPE.
10. THE VENT RISER TERMINATIONS WERE LOCATED AS FOLLOWS:AT LEAST ONE FOOT ABOVE THE HIGHEST PARAPET OR EAVE WITHIN 10 FEET HORIZONTALLY OF THE VENT; AT LEAST 10 FEET HORIZONTALLY FROM, AND NOT DIRECTLY BELOW, ANY OPENING WINDOW, DOOR, AIR INTAKE, OR OTHER OPENING INTO THE BUILDING; AND AT LEAST 10 FEET AWAY FROM ANY ADJACENT BUILDING, SIDEWALK, OR AREA FREQUENTED BY PERSONS ONSITE.
11. AIR INLETS WERE PLACED AROUND THE BUILDING TO ALLOW ATMOSPHERIC AIR FLOW INTO THE VENTILATION LAYER DURING PERIODS OF BAROMETRIC HIGH PRESSURE. THE AIR INLETS WERE CONSTRUCTED OF SOLID 2-INCH SCH. 40 PVC AND 2-INCH SCH. 40 PVC 20-SLOT SCREEN. THE AIR INLETS WERE EQUIPPED WITH INVERTED BAROBALL™ VALVES [PART NO. TR-966], WHICH WILL PREVENT THE FLOW OF AIR [WHICH MAY CONTAIN POTENTIALLY EXPLOSIVE VAPORS] FROM BELOW THE SLAB TO THE ATMOSPHERE. THE INLETS WILL ALSO BE EQUIPPED WITH A BALL VALVE TO ALLOW FOR FLOW ADJUSTMENTS.
12. VAPOR MONITORING POINTS [VMPS] WERE INSTALLED FOR SUB-SLAB VAPOR AND VACUUM MONITORING. THE VMPS WERE CONSTRUCTED OF SOLID 1-INCH SCH. 40 PVC PIPE AND 1-INCH SCH. 40 PVC 20-SLOT SCREEN. ALL VMPS WERE CONSTRUCTED OF THREADED CONNECTIONS. NO VMP CONNECTIONS WERE GLUED.

40 0 10 20 40
SCALE IN FEET

Date	Description	No.
REVISIONS		

SIGNATURE DATE SIGNED
STEWART H. ABRAMS
PENNSYLVANIA LIC. No. PE054215E

LANGAN
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Project
BELLWETHER DISTRICT - UNIT 1 REDEVELOPMENT
2626 FRANCES HARPER DR
PHILADELPHIA PENNSYLVANIA

Drawing Title
AS-BUILT VAPOR MITIGATION SYSTEM LAYOUT [GROUND FLOOR PLAN]

Project No. 220181807
Date 06/10/2025
Drawn By AR
Checked By AB/MA

FIGURE 2
Drawing No. ENV102
Sheet 3 of 6

LANGAN
PROJECT NO. 220181807

Filename: C:\bms\langan-pw-01\d074659\220181801-0701-ND101-0101.dwg Date: 6/10/2025 Time: 15:29 User: spu Style Table: Langan.stb Layout: ENV102 -GROUND FLOOR LAYOUT

TABLES

Table 1
Summary of Soil Gas Analytical Results
The Bellwether District - Unit 1
2626 Frances Harper Drive, Philadelphia, PA
Langan Project No.: 220181807

Analyte	CAS Number	Site Specific Standard (SSS) VI Risk Screening Values	Location	VMP-2																				
			Sample ID	VMP2_09042025					DUP01_09042025					VMP2_11132025					DUP01_11132025				
			Sample Date	09/04/2025					09/04/2025					11/13/2025					11/13/2025				
			Unit	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF
Volatile Organic Compounds																								
1,2,4-Trimethylbenzene	95-63-6	3400	ug/m3	2.35	J	0.284	0.983	1	3.59	J	0.284	0.983	1	1.36		0.284	0.983	1	1.26		0.284	0.983	1
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	2.6	ug/m3	ND	U	0.418	1.54	1	ND	U	0.418	1.54	1	ND	U	0.418	1.54	1	ND	U	0.418	1.54	1
1,2-Dichloroethane	107-06-2	61	ug/m3	ND	U	0.319	0.809	1	ND	U	0.319	0.809	1	ND	U	0.319	0.809	1	ND	U	0.319	0.809	1
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	3400	ug/m3	1.64		0.295	0.983	1	2.49		0.295	0.983	1	0.506	J	0.295	0.983	1	0.482	J	0.295	0.983	1
Benzene	71-43-2	200	ug/m3	11.7		0.205	0.639	1	11.4		0.205	0.639	1	1.13		0.205	0.639	1	1.2		0.205	0.639	1
Ethylbenzene	100-41-4	630	ug/m3	1.71		0.25	0.869	1	2.1		0.25	0.869	1	0.738	J	0.25	0.869	1	0.738	J	0.25	0.869	1
Isopropylbenzene (Cumene)	98-82-8	22000	ug/m3	1.01		0.305	0.983	1	1.64		0.305	0.983	1	0.383	J	0.305	0.983	1	ND	U	0.305	0.983	1
Naphthalene	91-20-3	46	ug/m3	0.357	J	0.309	0.996	1	0.514	J	0.309	0.996	1	0.288		0.11	0.262	1	ND	U	0.11	0.262	1
Tert-Butyl Methyl Ether (MTBE)	1634-04-4	6100	ug/m3	ND	U	0.162	0.721	1	ND	U	0.162	0.721	1	ND	U	0.162	0.721	1	ND	U	0.162	0.721	1
Toluene	108-88-3	280000	ug/m3	2.22		0.327	0.754	1	2.71		0.327	0.754	1	2.25		0.327	0.754	1	2.39		0.327	0.754	1
Total Xylenes	1330-20-7	5600	ug/m3	8.3		0.27	0.869	1	10		0.27	0.869	1	4.04		0.27	0.869	1	3.95		0.27	0.869	1

Table 1
Summary of Soil Gas Analytical Results
The Bellwether District - Unit 1
2626 Frances Harper Drive, Philadelphia, PA
Langan Project No.: 220181807

Analyte	CAS Number	Site Specific Standard (SSS) VI Risk Screening Values	Location	VMP-4										VMP-5									
			Sample ID	VMP4_09042025					VMP4_11132025					VMP5_09042025					VMP5_11132025				
			Sample Date	09/04/2025					11/13/2025					09/04/2025					11/13/2025				
			Unit	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF
Volatile Organic Compounds																							
1,2,4-Trimethylbenzene	95-63-6	3400	ug/m3	2.93		0.284	0.983	1	0.968	J	0.284	0.983	1	3.54		0.284	0.983	1	ND	U	443	1,530	1563
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	2.6	ug/m3	ND	U	0.418	1.54	1	ND	U	0.418	1.54	1	ND	U	0.418	1.54	1	ND	U	*653*	*2,400*	1563
1,2-Dichloroethane	107-06-2	61	ug/m3	ND	U	0.319	0.809	1	ND	U	0.319	0.809	1	ND	U	0.319	0.809	1	ND	U	*498*	*1,260*	1563
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	3400	ug/m3	0.723	J	0.295	0.983	1	ND	U	0.295	0.983	1	0.757	J	0.295	0.983	1	ND	U	461	1,530	1563
Benzene	71-43-2	200	ug/m3	1.32		0.205	0.639	1	0.482	J	0.205	0.639	1	2.73		0.205	0.639	1	ND	U	*319*	*997*	1563
Ethylbenzene	100-41-4	630	ug/m3	1.65		0.25	0.869	1	0.539	J	0.25	0.869	1	1.43		0.25	0.869	1	ND	U	390	*1,360*	1563
Isopropylbenzene (Cumene)	98-82-8	22000	ug/m3	1.26		0.305	0.983	1	0.595	J	0.305	0.983	1	0.806	J	0.305	0.983	1	ND	U	477	1,530	1563
Naphthalene	91-20-3	46	ug/m3	0.456	J	0.309	0.996	1	0.236	J	0.11	0.262	1	1.41		0.309	0.996	1	ND	U	*172*	*410*	1563
Tert-Butyl Methyl Ether (MTBE)	1634-04-4	6100	ug/m3	ND	U	0.162	0.721	1	ND	U	0.162	0.721	1	ND	U	0.162	0.721	1	ND	U	253	1,120	1563
Toluene	108-88-3	280000	ug/m3	4.03		0.327	0.754	1	1.45		0.327	0.754	1	1.67		0.327	0.754	1	ND	U	509	1,180	1563
Total Xylenes	1330-20-7	5600	ug/m3	8.77		0.27	0.869	1	2.71	J	0.27	0.869	1	8.43		0.27	0.869	1	ND	U	421	1,360	1563

Table 1
Summary of Soil Gas Analytical Results
The Bellwether District - Unit 1
2626 Frances Harper Drive, Philadelphia, PA
Langan Project No.: 220181807

Analyte	CAS Number	Site Specific Standard (SSS) VI Risk Screening Values	Location	VMP-6										VMP-9									
			Sample ID	VMP6_09042025					VMP6_11132025					VMP9_09042025					VMP9_11132025				
			Sample Date	09/04/2025					11/13/2025					09/04/2025					11/13/2025				
			Unit	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF
Volatile Organic Compounds																							
1,2,4-Trimethylbenzene	95-63-6	3400	ug/m3	1.72		0.284	0.983	1	1.17		0.284	0.983	1	4.36		0.284	0.983	1	1.42		0.284	0.983	1
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	2.6	ug/m3	ND	U	0.418	1.54	1	ND	U	0.418	1.54	1	ND	U	0.418	1.54	1	ND	U	0.418	1.54	1
1,2-Dichloroethane	107-06-2	61	ug/m3	ND	U	0.319	0.809	1	ND	U	0.319	0.809	1	ND	U	0.319	0.809	1	1.91		0.319	0.809	1
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	3400	ug/m3	0.462	J	0.295	0.983	1	0.31	J	0.295	0.983	1	0.954	J	0.295	0.983	1	0.388	J	0.295	0.983	1
Benzene	71-43-2	200	ug/m3	10.2		0.205	0.639	1	0.764		0.205	0.639	1	0.936		0.205	0.639	1	1.2		0.205	0.639	1
Ethylbenzene	100-41-4	630	ug/m3	1.45		0.25	0.869	1	0.773	J	0.25	0.869	1	2.55		0.25	0.869	1	1.09		0.25	0.869	1
Isopropylbenzene (Cumene)	98-82-8	22000	ug/m3	0.438	J	0.305	0.983	1	ND	U	0.305	0.983	1	1.57		0.305	0.983	1	16.2		0.305	0.983	1
Naphthalene	91-20-3	46	ug/m3	ND	U	0.309	0.996	1	0.309		0.11	0.262	1	0.577	J	0.309	0.996	1	0.252	J	0.11	0.262	1
Tert-Butyl Methyl Ether (MTBE)	1634-04-4	6100	ug/m3	ND	U	0.162	0.721	1	ND	U	0.162	0.721	1	ND	U	0.162	0.721	1	ND	U	0.162	0.721	1
Toluene	108-88-3	280000	ug/m3	1.28		0.327	0.754	1	1.85		0.327	0.754	1	7.88		0.327	0.754	1	5.16		0.327	0.754	1
Total Xylenes	1330-20-7	5600	ug/m3	7.17		0.27	0.869	1	4.34		0.27	0.869	1	12.9		0.27	0.869	1	5.52		0.27	0.869	1

Table 1
Summary of Soil Gas Analytical Results
The Bellwether District - Unit 1
2626 Frances Harper Drive, Philadelphia, PA
Langan Project No.: 220181807

Notes:

Soil gas samples were compared to the Site Specific Standard (SSS) VI Risk Screening Values, which are calculated by reducing the PADEP sub-slab soil gas Statewide health standard (SHS) non-residential vapor intrusion screening values (SV_{SS}) by a factor of 10, in accordance with Section K.4 of the PADEP VI Guidance

SHS - Statewide Health Standards
CAS - Chemical Abstract Service
NS - No standard
ug/m3 - Micrograms per cubic meter
ND - Not detected
Q - Qualifier
MDL - Method detection limit
RL - Reporting Limit
DF - Dilution factor

Qualifiers:

J – The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.
U – The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the RL or the sample concentration for results impacted by blank contamination.

Exceedance Summary:

10 - Result exceeds Site Specific Soil Gas 1/10 SHS Sub-Slab
10 - MDL or RL greater than the applicable standard

Attachment A Field Sampling Information Summary Sheet

Field Sampling Information Summary Sheet
Vapor Intrusion Sampling

Site: BDH Unit 1 (Lot 15)/Philadelphia, PA

Sampling Address: 2626 Frances Harper Drive, Philadelphia, PA

Event: VMP Sampling for PA Act 2

Date: 09/04/2025 | Project Number: 220181807 | Location ID: VMP2

Field Personnel: Andrés Valenzuela | Project Manager: Andrea Berlinghof | Sample ID: **VMP2_09042025**

Building Information:

Building Use	Vacant Warehouse
Building Age	<1 year
Square Footage	± 326,000-sf footprint
Ventilation Type	HVAC

Ceiling Height	45’
Construction Type	Steel frame, concrete prefab walls slab-on-grade
Foundation Type	Slab-on-grade

Vapor Mitigation System Present?	☑ Yes	☐ No	☐ TBD/Unknown
Vapor Mitigation System Type:	☐ Active	☑ Passive	☐ Hybrid
Notes:			
Vapor Barrier Present?	☑ Yes	☐ No	☐ TBD/Unknown
Vapor Barrier Type:	☑ Polyethylene Plastic Sheeting	☐ Liquid Boot/Spray-On Applied	
Notes:			

Chemical Inventory (Indoor Air Sampling Only):

Chemical Inventory Check Completed?	☐ Yes	☐ No
Products with chlorinated solvents identified?	☐ Yes	☐ No

Field Sampling Information Summary Sheet
Vapor Intrusion Sampling

Site: BDH Unit 1 (Lot 15)/Philadelphia, PA

Sampling Address: 2626 Frances Harper Drive, Philadelphia, PA

Event: VMP Sampling for PA Act 2

Date: 09/04/2025 | Project Number: 220181807 | Location ID: VMP2

Field Personnel: Andrés Valenzuela | Project Manager: Andrea Berlinghof | Sample ID: **VMP2_09042025**

Sample ID: VMP2_09042025

Sample Type: ☑ Sub-Slab ☐ Exterior Soil Gas ☐ Indoor Air ☐ Ambient Air

Event Type: ☑ Sample Collected ☐ Field Readings Only ☐ No Sample or Field Readings Collected

Weather Conditions: Sunny | Temp (°F): 84

Other Weather Notes:

Ambient Air Pressure (in Hg): 29.78 | Indoor Air Pressure (in Hg): 29.78

Summa Can ID: 2865 | Summa Can Volume: 2.7 Liter

Flow Controller ID: 02035 | Flow Controller Timing: 200 ml/min

24 Hour Screening? ☐ Yes ☑ No

Setup Information:	Initial	After 24 h
Ambient air PID (ppm)	N/A	N/A
PID from sample borehole	N/A	N/A
PID from pump exhaust (ppm)	3.6	N/A

Shut-in Test Data:	Initial	After 24 h
Induced pressure in sampling train (“Hg)	8.68	N/A
Induced pressure after approx. 1 min (“Hg)	8.61	N/A

Purge Data:	Initial	After 24 h
Purge rate (ml/min)	2,000	N/A
Purge start time (24 hour clock)	13:30	N/A
Purge end time (24 hour clock)	14:25	N/A

Helium Tracer Test Data:	Initial	After 24 h
He in shroud (%)	38.5	N/A
He in pump exhaust (ppm)	0.0	N/A

Sampling Data:	
Sample start time (24 hour clock)	14:46
Start Pressure (in Hg)	-29.93
Sample end time (24 hour clock)	14:56
End Pressure (in Hg)	-5.42

Fixed Gas Readings: ☐ Yes ☑ No	Initial	After 24 h
Differential Pressure (inches water; pre-purge)	N/A	N/A
Methane Concentration (%; purge gas)	N/A	N/A
Carbon Dioxide Concentration (%; purge gas)	N/A	N/A
Oxygen Concentration (%; purge gas)	N/A	N/A
Hydrogen Sulfide Concentration (ppm; purge gas)	N/A	N/A
Any other gases collected?	N/A	N/A

Duplicate Sample: ☑ Yes ☐ No Duplicate ID: DUP01_09042025

Building observations during sampling:

Was the building open during sampling? ☑ Yes ☐ No ☐ TBD/Unknown

Notes:

Floor Cracks/Drains? ☐ Yes ☑ No ☐ TBD/Unknown

Notes:

Was HVAC running during sampling? ☐ Yes ☐ No ☑ TBD/Unknown

Description of sample location:

Exterior sampling port for sub-slab soil gas point, part of vapor mitigation system. Vent risers were closed prior to and during sampling.

Notes:

Duplicate Summa Can ID: 3206 / Flow Controller ID: 01856

Field Sampling Information Summary Sheet
Vapor Intrusion Sampling

Site: BDH Unit 1 (Lot 15)/Philadelphia, PA

Sampling Address: 2626 Frances Harper Drive, Philadelphia, PA

Event: VMP Sampling for PA Act 2

Date: 09/04/2025 | Project Number: 220181807 | Location ID: VMP4

Field Personnel: Andrés Valenzuela | Project Manager: Andrea Berlinghof | Sample ID: **VMP4_09042025**

Building Information:

Building Use	Vacant Warehouse
Building Age	<1 year
Square Footage	± 326,000-sf footprint
Ventilation Type	HVAC

Ceiling Height	45’
Construction Type	Steel frame, concrete prefab walls slab-on-grade
Foundation Type	Slab-on-grade

Vapor Mitigation System Present?	☑ Yes	☐ No	☐ TBD/Unknown
Vapor Mitigation System Type:	☐ Active	☑ Passive	☐ Hybrid
Notes:			
Vapor Barrier Present?	☑ Yes	☐ No	☐ TBD/Unknown
Vapor Barrier Type:	☑ Polyethylene Plastic Sheeting	☐ Liquid Boot/Spray-On Applied	
Notes:			

Chemical Inventory (Indoor Air Sampling Only):

Chemical Inventory Check Completed?	☐ Yes	☐ No
Products with chlorinated solvents identified?	☐ Yes	☐ No

Field Sampling Information Summary Sheet
Vapor Intrusion Sampling

Site: BDH Unit 1 (Lot 15)/Philadelphia, PA

Sampling Address: 2626 Frances Harper Drive, Philadelphia, PA

Event: VMP Sampling for PA Act 2

Date: 09/04/2025 | Project Number: 220181807 | Location ID: VMP4

Field Personnel: Andrés Valenzuela | Project Manager: Andrea Berlinghof | Sample ID: **VMP4_09042025**

Sample ID: VMP4_09042025

Sample Type: ☑ Sub-Slab ☐ Exterior Soil Gas ☐ Indoor Air ☐ Ambient Air

Event Type: ☑ Sample Collected ☐ Field Readings Only ☐ No Sample or Field Readings Collected

Weather Conditions: Sunny | Temp (°F): 82

Other Weather Notes:

Ambient Air Pressure (in Hg): 29.86 | Indoor Air Pressure (in Hg): 29.86

Summa Can ID: 188 | Summa Can Volume: 2.7 Liter

Flow Controller ID: 02020 | Flow Controller Timing: 200 ml/min

24 Hour Screening? ☐ Yes ☑ No

Setup Information:	Initial	After 24 h
Ambient air PID (ppm)	N/A	N/A
PID from sample borehole	N/A	N/A
PID from pump exhaust (ppm)	0.2	N/A

Shut-in Test Data:	Initial	After 24 h
Induced pressure in sampling train (“Hg)	13.54	N/A
Induced pressure after approx. 1 min (“Hg)	13.46	N/A

Purge Data:	Initial	After 24 h
Purge rate (ml/min)	2,000	N/A
Purge start time (24 hour clock)	10:03	N/A
Purge end time (24 hour clock)	11:10	N/A

Helium Tracer Test Data:	Initial	After 24 h
He in shroud (%)	78.3	N/A
He in pump exhaust (ppm)	0.0	N/A

Sampling Data:	
Sample start time (24 hour clock)	11:35
Start Pressure (in Hg)	-29.13
Sample end time (24 hour clock)	11:45
End Pressure (in Hg)	-5.79

Fixed Gas Readings: ☐ Yes ☑ No	Initial	After 24 h
Differential Pressure (inches water; pre-purge)	N/A	N/A
Methane Concentration (%; purge gas)	N/A	N/A
Carbon Dioxide Concentration (%; purge gas)	N/A	N/A
Oxygen Concentration (%; purge gas)	N/A	N/A
Hydrogen Sulfide Concentration (ppm; purge gas)	N/A	N/A
Any other gases collected?	N/A	N/A

Duplicate Sample: ☐ Yes ☑ No Duplicate ID:

Building observations during sampling:

Was the building open during sampling? ☑ Yes ☐ No ☐ TBD/Unknown

Notes:

Floor Cracks/Drains? ☐ Yes ☑ No ☐ TBD/Unknown

Notes:

Was HVAC running during sampling? ☐ Yes ☐ No ☑ TBD/Unknown

Description of sample location:

Exterior sampling port for sub-slab soil gas point, part of vapor mitigation system. Vent risers were closed prior to and during sampling.

Notes:

Field Sampling Information Summary Sheet
Vapor Intrusion Sampling

Site: BDH Unit 1 (Lot 15)/Philadelphia, PA

Sampling Address: 2626 Frances Harper Drive, Philadelphia, PA

Event: VMP Sampling for PA Act 2

Date: 09/04/2025 | Project Number: 220181807 | Location ID: VMP5

Field Personnel: Andrés Valenzuela | Project Manager: Andrea Berlinghof | Sample ID: **VMP5_09042025**

Building Information:

Building Use	Vacant Warehouse
Building Age	<1 year
Square Footage	± 326,000-sf footprint
Ventilation Type	HVAC

Ceiling Height	45’
Construction Type	Steel frame, concrete prefab walls slab-on-grade
Foundation Type	Slab-on-grade

Vapor Mitigation System Present?	☑ Yes	☐ No	☐ TBD/Unknown
Vapor Mitigation System Type:	☐ Active	☑ Passive	☐ Hybrid
Notes:			
Vapor Barrier Present?	☑ Yes	☐ No	☐ TBD/Unknown
Vapor Barrier Type:	☑ Polyethylene Plastic Sheeting	☐ Liquid Boot/Spray-On Applied	
Notes:			

Chemical Inventory (Indoor Air Sampling Only):

Chemical Inventory Check Completed?	☐ Yes	☐ No
Products with chlorinated solvents identified?	☐ Yes	☐ No

Field Sampling Information Summary Sheet
Vapor Intrusion Sampling

Site: BDH Unit 1 (Lot 15)/Philadelphia, PA

Sampling Address: 2626 Frances Harper Drive, Philadelphia, PA

Event: VMP Sampling for PA Act 2

Date: 09/04/2025 | Project Number: 220181807 | Location ID: VMP5

Field Personnel: Andrés Valenzuela | Project Manager: Andrea Berlinghof | Sample ID: **VMP5_09042025**

Sample ID: VMP5_09042025

Sample Type: ☑ Sub-Slab ☐ Exterior Soil Gas ☐ Indoor Air ☐ Ambient Air

Event Type: ☑ Sample Collected ☐ Field Readings Only ☐ No Sample or Field Readings Collected

Weather Conditions: Sunny | Temp (°F): 84

Other Weather Notes:

Ambient Air Pressure (in Hg): 29.77 | Indoor Air Pressure (in Hg): 29.77

Summa Can ID: 2766 | Summa Can Volume: 2.7 Liter

Flow Controller ID: 02570 | Flow Controller Timing: 200 ml/min

24 Hour Screening? ☐ Yes ☑ No

Setup Information:	Initial	After 24 h
Ambient air PID (ppm)	N/A	N/A
PID from sample borehole	N/A	N/A
PID from pump exhaust (ppm)	10.3	N/A

Shut-in Test Data:	Initial	After 24 h
Induced pressure in sampling train (“Hg)	8.76	N/A
Induced pressure after approx. 1 min (“Hg)	8.73	N/A

Purge Data:	Initial	After 24 h
Purge rate (ml/min)	2,000	N/A
Purge start time (24 hour clock)	15:40	N/A
Purge end time (24 hour clock)	15:50	N/A

Helium Tracer Test Data:	Initial	After 24 h
He in shroud (%)	42.5	N/A
He in pump exhaust (ppm)	0.0	N/A

Sampling Data:	
Sample start time (24 hour clock)	15:57
Start Pressure (in Hg)	-29.46
Sample end time (24 hour clock)	16:07
End Pressure (in Hg)	-5.76

Fixed Gas Readings: ☐ Yes ☑ No	Initial	After 24 h
Differential Pressure (inches water; pre-purge)	N/A	N/A
Methane Concentration (%; purge gas)	N/A	N/A
Carbon Dioxide Concentration (%; purge gas)	N/A	N/A
Oxygen Concentration (%; purge gas)	N/A	N/A
Hydrogen Sulfide Concentration (ppm; purge gas)	N/A	N/A
Any other gases collected?	N/A	N/A

Duplicate Sample: ☐ Yes ☑ No Duplicate ID:

Building observations during sampling:

Was the building open during sampling? ☑ Yes ☐ No ☐ TBD/Unknown

Notes:

Floor Cracks/Drains? ☐ Yes ☑ No ☐ TBD/Unknown

Notes:

Was HVAC running during sampling? ☐ Yes ☐ No ☑ TBD/Unknown

Description of sample location:

Exterior sampling port for sub-slab soil gas point, part of vapor mitigation system. Vent risers were closed prior to and during sampling.

Notes:

Field Sampling Information Summary Sheet
Vapor Intrusion Sampling

Site: BDH Unit 1 (Lot 15)/Philadelphia, PA

Sampling Address: 2626 Frances Harper Drive, Philadelphia, PA

Event: VMP Sampling for PA Act 2

Date: 09/04/2025 | Project Number: 220181807 | Location ID: VMP6

Field Personnel: Andrés Valenzuela | Project Manager: Andrea Berlinghof | Sample ID: **VMP6_09042025**

Building Information:

Building Use	Vacant Warehouse
Building Age	<1 year
Square Footage	± 326,000-sf footprint
Ventilation Type	HVAC

Ceiling Height	45’
Construction Type	Steel frame, concrete prefab walls slab-on-grade
Foundation Type	Slab-on-grade

Vapor Mitigation System Present?	☑ Yes	☐ No	☐ TBD/Unknown
Vapor Mitigation System Type:	☐ Active	☑ Passive	☐ Hybrid
Notes:			
Vapor Barrier Present?	☑ Yes	☐ No	☐ TBD/Unknown
Vapor Barrier Type:	☑ Polyethylene Plastic Sheeting	☐ Liquid Boot/Spray-On Applied	
Notes:			

Chemical Inventory (Indoor Air Sampling Only):

Chemical Inventory Check Completed?	☐ Yes	☐ No
Products with chlorinated solvents identified?	☐ Yes	☐ No

Field Sampling Information Summary Sheet
Vapor Intrusion Sampling

Site: BDH Unit 1 (Lot 15)/Philadelphia, PA

Sampling Address: 2626 Frances Harper Drive, Philadelphia, PA

Event: VMP Sampling for PA Act 2

Date: 09/04/2025 | Project Number: 220181807 | Location ID: VMP6

Field Personnel: Andrés Valenzuela | Project Manager: Andrea Berlinghof | Sample ID: **VMP6_09042025**

Sample ID: VMP6_09042025

Sample Type: ☑ Sub-Slab ☐ Exterior Soil Gas ☐ Indoor Air ☐ Ambient Air

Event Type: ☑ Sample Collected ☐ Field Readings Only ☐ No Sample or Field Readings Collected

Weather Conditions: Sunny | Temp (°F): 84

Other Weather Notes:

Ambient Air Pressure (in Hg): 29.78 | Indoor Air Pressure (in Hg): 29.78

Summa Can ID: 2237 | Summa Can Volume: 2.7 Liter

Flow Controller ID: 0692 | Flow Controller Timing: 200 ml/min

24 Hour Screening? ☐ Yes ☑ No

Setup Information:	Initial	After 24 h
Ambient air PID (ppm)	N/A	N/A
PID from sample borehole	N/A	N/A
PID from pump exhaust (ppm)	27.8	N/A

Shut-in Test Data:	Initial	After 24 h
Induced pressure in sampling train (“Hg)	8.34	N/A
Induced pressure after approx. 1 min (“Hg)	8.31	N/A

Purge Data:	Initial	After 24 h
Purge rate (ml/min)	2,000	N/A
Purge start time (24 hour clock)	12:54	N/A
Purge end time (24 hour clock)	13:46	N/A

Helium Tracer Test Data:	Initial	After 24 h
He in shroud (%)	27.5	N/A
He in pump exhaust (ppm)	0.0	N/A

Sampling Data:	
Sample start time (24 hour clock)	14:05
Start Pressure (in Hg)	-29.42
Sample end time (24 hour clock)	14:14
End Pressure (in Hg)	-5.34

Fixed Gas Readings: ☐ Yes ☑ No	Initial	After 24 h
Differential Pressure (inches water; pre-purge)	N/A	N/A
Methane Concentration (%; purge gas)	N/A	N/A
Carbon Dioxide Concentration (%; purge gas)	N/A	N/A
Oxygen Concentration (%; purge gas)	N/A	N/A
Hydrogen Sulfide Concentration (ppm; purge gas)	N/A	N/A
Any other gases collected?	N/A	N/A

Duplicate Sample: ☐ Yes ☑ No Duplicate ID:

Building observations during sampling:

Was the building open during sampling? ☑ Yes ☐ No ☐ TBD/Unknown

Notes:

Floor Cracks/Drains? ☐ Yes ☑ No ☐ TBD/Unknown

Notes:

Was HVAC running during sampling? ☐ Yes ☐ No ☑ TBD/Unknown

Description of sample location:

Exterior sampling port for sub-slab soil gas point, part of vapor mitigation system. Vent risers were closed prior to and during sampling.

Notes:

Field Sampling Information Summary Sheet
Vapor Intrusion Sampling

Site: BDH Unit 1 (Lot 15)/Philadelphia, PA

Sampling Address: 2626 Frances Harper Drive, Philadelphia, PA

Event: VMP Sampling for PA Act 2

Date: 09/04/2025 | Project Number: 220181807 | Location ID: VMP9

Field Personnel: Andrés Valenzuela | Project Manager: Andrea Berlinghof | Sample ID: **VMP9_09042025**

Building Information:

Building Use	Vacant Warehouse
Building Age	<1 year
Square Footage	± 326,000-sf footprint
Ventilation Type	HVAC

Ceiling Height	45’
Construction Type	Steel frame, concrete prefab walls slab-on-grade
Foundation Type	Slab-on-grade

Vapor Mitigation System Present?	☑ Yes	☐ No	☐ TBD/Unknown
Vapor Mitigation System Type:	☐ Active	☑ Passive	☐ Hybrid
Notes:			
Vapor Barrier Present?	☑ Yes	☐ No	☐ TBD/Unknown
Vapor Barrier Type:	☑ Polyethylene Plastic Sheeting	☐ Liquid Boot/Spray-On Applied	
Notes:			

Chemical Inventory (Indoor Air Sampling Only):

Chemical Inventory Check Completed?	☐ Yes	☐ No
Products with chlorinated solvents identified?	☐ Yes	☐ No

Field Sampling Information Summary Sheet
Vapor Intrusion Sampling

Site: BDH Unit 1 (Lot 15)/Philadelphia, PA

Sampling Address: 2626 Frances Harper Drive, Philadelphia, PA

Event: VMP Sampling for PA Act 2

Date: 09/04/2025 | Project Number: 220181807 | Location ID: VMP9

Field Personnel: Andrés Valenzuela | Project Manager: Andrea Berlinghof | Sample ID: **VMP9_09042025**

Sample ID: VMP9_09042025

Sample Type: ☑ Sub-Slab ☐ Exterior Soil Gas ☐ Indoor Air ☐ Ambient Air

Event Type: ☑ Sample Collected ☐ Field Readings Only ☐ No Sample or Field Readings Collected

Weather Conditions: Sunny | Temp (°F): 83

Other Weather Notes:

Ambient Air Pressure (in Hg): 29.76 | Indoor Air Pressure (in Hg): 29.76

Summa Can ID: 4365 | Summa Can Volume: 2.7 Liter

Flow Controller ID: 02286 | Flow Controller Timing: 200 ml/min

24 Hour Screening? ☐ Yes ☑ No

Setup Information:	Initial	After 24 h
Ambient air PID (ppm)	N/A	N/A
PID from sample borehole	N/A	N/A
PID from pump exhaust (ppm)	0.2	N/A

Shut-in Test Data:	Initial	After 24 h
Induced pressure in sampling train (“Hg)	7.79	N/A
Induced pressure after approx. 1 min (“Hg)	7.74	N/A

Purge Data:	Initial	After 24 h
Purge rate (ml/min)	2,000	N/A
Purge start time (24 hour clock)	10:03	N/A
Purge end time (24 hour clock)	11:56	N/A

Helium Tracer Test Data:	Initial	After 24 h
He in shroud (%)	88.6	N/A
He in pump exhaust (ppm)	0.0	N/A

Sampling Data:	
Sample start time (24 hour clock)	16:18
Start Pressure (in Hg)	-29.63
Sample end time (24 hour clock)	16:28
End Pressure (in Hg)	-5.72

Fixed Gas Readings: ☐ Yes ☑ No	Initial	After 24 h
Differential Pressure (inches water; pre-purge)	N/A	N/A
Methane Concentration (%; purge gas)	N/A	N/A
Carbon Dioxide Concentration (%; purge gas)	N/A	N/A
Oxygen Concentration (%; purge gas)	N/A	N/A
Hydrogen Sulfide Concentration (ppm; purge gas)	N/A	N/A
Any other gases collected?	N/A	N/A

Duplicate Sample: ☐ Yes ☑ No Duplicate ID:

Building observations during sampling:

Was the building open during sampling? ☑ Yes ☐ No ☐ TBD/Unknown

Notes:

Floor Cracks/Drains? ☐ Yes ☑ No ☐ TBD/Unknown

Notes:

Was HVAC running during sampling? ☐ Yes ☐ No ☑ TBD/Unknown

Description of sample location:

Exterior sampling port for sub-slab soil gas point, part of vapor mitigation system. Vent risers were closed prior to and during sampling.

Notes:

Field Sampling Information Summary Sheet
Vapor Intrusion Sampling

Site: BDH Unit 1 (Lot 15)/Philadelphia, PA

Sampling Address: 2626 Frances Harper Drive, Philadelphia, PA

Event: VMP Sampling for PA Act 2

Date: 11/13/2025 | Project Number: 220181807 | Location ID: VMP2

Field Personnel: Andrés Valenzuela | Project Manager: Andrea Berlinghof | Sample ID: **VMP2_11132025**

Building Information:

Building Use	Vacant Warehouse
Building Age	<1 year
Square Footage	± 326,000-sf footprint
Ventilation Type	HVAC

Ceiling Height	45’
Construction Type	Steel frame, concrete prefab walls slab-on-grade
Foundation Type	Slab-on-grade

Vapor Mitigation System Present?	☑ Yes	☐ No	☐ TBD/Unknown
Vapor Mitigation System Type:	☐ Active	☑ Passive	☐ Hybrid
Notes:			
Vapor Barrier Present?	☑ Yes	☐ No	☐ TBD/Unknown
Vapor Barrier Type:	☑ Polyethylene Plastic Sheeting	☐ Liquid Boot/Spray-On Applied	
Notes:			

Chemical Inventory (Indoor Air Sampling Only):

Chemical Inventory Check Completed?	☐ Yes	☐ No
Products with chlorinated solvents identified?	☐ Yes	☐ No

Field Sampling Information Summary Sheet
Vapor Intrusion Sampling

Site: BDH Unit 1 (Lot 15)/Philadelphia, PA

Sampling Address: 2626 Frances Harper Drive, Philadelphia, PA

Event: VMP Sampling for PA Act 2

Date: 11/13/2025 | Project Number: 220181807 | Location ID: VMP2

Field Personnel: Andrés Valenzuela | Project Manager: Andrea Berlinghof | Sample ID: **VMP2_11132025**

Sample ID: VMP2_11132025

Sample Type: ☑ Sub-Slab ☐ Exterior Soil Gas ☐ Indoor Air ☐ Ambient Air

Event Type: ☑ Sample Collected ☐ Field Readings Only ☐ No Sample or Field Readings Collected

Weather Conditions: Sunny | Temp (°F): 52

Other Weather Notes:

Ambient Air Pressure (in Hg): 29.9 | Indoor Air Pressure (in Hg): 29.9

Summa Can ID: 2218 | Summa Can Volume: 2.7 Liter

Flow Controller ID: 01896 | Flow Controller Timing: 200 ml/min

24 Hour Screening? ☐ Yes ☑ No

Setup Information:	Initial	After 24 h
Ambient air PID (ppm)	N/A	N/A
PID from sample borehole	N/A	N/A
PID from pump exhaust (ppm)	0.2	N/A

Shut-in Test Data:	Initial	After 24 h
Induced pressure in sampling train ("Hg)	12.63	N/A
Induced pressure after approx. 1 min ("Hg)	12.60	N/A

Purge Data:	Initial	After 24 h
Purge rate (ml/min)	2,000	N/A
Purge start time (24 hour clock)	12:39	N/A
Purge end time (24 hour clock)	13:21	N/A

Helium Tracer Test Data:	Initial	After 24 h
He in shroud (%)	90.9	N/A
He in pump exhaust (ppm)	0.0	N/A

Sampling Data:	
Sample start time (24 hour clock)	14:07
Start Pressure (in Hg)	-30.04
Sample end time (24 hour clock)	14:18
End Pressure (in Hg)	-5.51

Fixed Gas Readings: ☐ Yes ☑ No	Initial	After 24 h
Differential Pressure (inches water; pre-purge)	N/A	N/A
Methane Concentration (%; purge gas)	N/A	N/A
Carbon Dioxide Concentration (%; purge gas)	N/A	N/A
Oxygen Concentration (%; purge gas)	N/A	N/A
Hydrogen Sulfide Concentration (ppm; purge gas)	N/A	N/A
Any other gases collected?	N/A	N/A

Duplicate Sample: ☑ Yes ☐ No Duplicate ID: DUP01_11132025

Building observations during sampling:

Was the building open during sampling? ☑ Yes ☐ No ☐ TBD/Unknown

Notes:

Floor Cracks/Drains? ☐ Yes ☑ No ☐ TBD/Unknown

Notes:

Was HVAC running during sampling? ☐ Yes ☐ No ☑ TBD/Unknown

Description of sample location:

Exterior sampling port for sub-slab soil gas point, part of vapor mitigation system. Vent risers were closed prior to and during sampling.

Notes:

Duplicate Summa Can ID: 2224 / Flow Controller ID: 01328

Field Sampling Information Summary Sheet
Vapor Intrusion Sampling

Site: BDH Unit 1 (Lot 15)/Philadelphia, PA

Sampling Address: 2626 Frances Harper Drive, Philadelphia, PA

Event: VMP Sampling for PA Act 2

Date: 11/13/2025 | Project Number: 220181807 | Location ID: VMP4

Field Personnel: Andrés Valenzuela | Project Manager: Andrea Berlinghof | Sample ID: **VMP4_11132025**

Building Information:

Building Use	Vacant Warehouse
Building Age	<1 year
Square Footage	± 326,000-sf footprint
Ventilation Type	HVAC

Ceiling Height	45’
Construction Type	Steel frame, concrete prefab walls slab-on-grade
Foundation Type	Slab-on-grade

Vapor Mitigation System Present?	☑ Yes	☐ No	☐ TBD/Unknown
Vapor Mitigation System Type:	☐ Active	☑ Passive	☐ Hybrid
Notes:			
Vapor Barrier Present?	☑ Yes	☐ No	☐ TBD/Unknown
Vapor Barrier Type:	☑ Polyethylene Plastic Sheeting	☐ Liquid Boot/Spray-On Applied	
Notes:			

Chemical Inventory (Indoor Air Sampling Only):

Chemical Inventory Check Completed?	☐ Yes	☐ No
Products with chlorinated solvents identified?	☐ Yes	☐ No

Field Sampling Information Summary Sheet
Vapor Intrusion Sampling

Site: BDH Unit 1 (Lot 15)/Philadelphia, PA

Sampling Address: 2626 Frances Harper Drive, Philadelphia, PA

Event: VMP Sampling for PA Act 2

Date: 11/13/2025 | Project Number: 220181807 | Location ID: VMP4

Field Personnel: Andrés Valenzuela | Project Manager: Andrea Berlinghof | Sample ID: **VMP4_11132025**

Sample ID: VMP4_11132025

Sample Type: ☑ Sub-Slab ☐ Exterior Soil Gas ☐ Indoor Air ☐ Ambient Air

Event Type: ☑ Sample Collected ☐ Field Readings Only ☐ No Sample or Field Readings Collected

Weather Conditions: Sunny | Temp (°F): 54

Other Weather Notes:

Ambient Air Pressure (in Hg): 29.9 | Indoor Air Pressure (in Hg): 29.9

Summa Can ID: 2310 | Summa Can Volume: 2.7 Liter

Flow Controller ID: 0853 | Flow Controller Timing: 200 ml/min

24 Hour Screening? ☐ Yes ☑ No

Setup Information:	Initial	After 24 h
Ambient air PID (ppm)	N/A	N/A
PID from sample borehole	N/A	N/A
PID from pump exhaust (ppm)	0.3	N/A

Shut-in Test Data:	Initial	After 24 h
Induced pressure in sampling train (“Hg)	8.72	N/A
Induced pressure after approx. 1 min (“Hg)	8.71	N/A

Purge Data:	Initial	After 24 h
Purge rate (ml/min)	2,000	N/A
Purge start time (24 hour clock)	9:19	N/A
Purge end time (24 hour clock)	10:33	N/A

Helium Tracer Test Data:	Initial	After 24 h
He in shroud (%)	87.8	N/A
He in pump exhaust (ppm)	0.0	N/A

Sampling Data:	
Sample start time (24 hour clock)	10:58
Start Pressure (in Hg)	-28.8
Sample end time (24 hour clock)	11:08
End Pressure (in Hg)	-5.3

Fixed Gas Readings: ☐ Yes ☑ No	Initial	After 24 h
Differential Pressure (inches water; pre-purge)	N/A	N/A
Methane Concentration (%; purge gas)	N/A	N/A
Carbon Dioxide Concentration (%; purge gas)	N/A	N/A
Oxygen Concentration (%; purge gas)	N/A	N/A
Hydrogen Sulfide Concentration (ppm; purge gas)	N/A	N/A
Any other gases collected?	N/A	N/A

Duplicate Sample: ☐ Yes ☑ No Duplicate ID:

Building observations during sampling:

Was the building open during sampling? ☑ Yes ☐ No ☐ TBD/Unknown

Notes:

Floor Cracks/Drains? ☐ Yes ☑ No ☐ TBD/Unknown

Notes:

Was HVAC running during sampling? ☐ Yes ☐ No ☑ TBD/Unknown

Description of sample location:

Exterior sampling port for sub-slab soil gas point, part of vapor mitigation system. Vent risers were closed prior to and during sampling.

Notes:

Field Sampling Information Summary Sheet
Vapor Intrusion Sampling

Site: BDH Unit 1 (Lot 15)/Philadelphia, PA

Sampling Address: 2626 Frances Harper Drive, Philadelphia, PA

Event: VMP Sampling for PA Act 2

Date: 11/13/2025 | Project Number: 220181807 | Location ID: VMP5

Field Personnel: Andrés Valenzuela | Project Manager: Andrea Berlinghof | Sample ID: **VMP5_11132025**

Building Information:

Building Use	Vacant Warehouse
Building Age	<1 year
Square Footage	± 326,000-sf footprint
Ventilation Type	HVAC

Ceiling Height	45’
Construction Type	Steel frame, concrete prefab walls slab-on-grade
Foundation Type	Slab-on-grade

Vapor Mitigation System Present?	☑ Yes	☐ No	☐ TBD/Unknown
Vapor Mitigation System Type:	☐ Active	☑ Passive	☐ Hybrid
Notes:			
Vapor Barrier Present?	☑ Yes	☐ No	☐ TBD/Unknown
Vapor Barrier Type:	☑ Polyethylene Plastic Sheeting	☐ Liquid Boot/Spray-On Applied	
Notes:			

Chemical Inventory (Indoor Air Sampling Only):

Chemical Inventory Check Completed?	☐ Yes	☐ No
Products with chlorinated solvents identified?	☐ Yes	☐ No

Field Sampling Information Summary Sheet
Vapor Intrusion Sampling

Site: BDH Unit 1 (Lot 15)/Philadelphia, PA

Sampling Address: 2626 Frances Harper Drive, Philadelphia, PA

Event: VMP Sampling for PA Act 2

Date: 11/13/2025 | Project Number: 220181807 | Location ID: VMP5

Field Personnel: Andrés Valenzuela | Project Manager: Andrea Berlinghof | Sample ID: **VMP5_11132025**

Sample ID: VMP5_11132025

Sample Type: ☑ Sub-Slab ☐ Exterior Soil Gas ☐ Indoor Air ☐ Ambient Air

Event Type: ☑ Sample Collected ☐ Field Readings Only ☐ No Sample or Field Readings Collected

Weather Conditions: Sunny | Temp (°F): 50

Other Weather Notes:

Ambient Air Pressure (in Hg): 29.9 | Indoor Air Pressure (in Hg): 29.9

Summa Can ID: 3747 | Summa Can Volume: 2.7 Liter

Flow Controller ID: 01992 | Flow Controller Timing: 200 ml/min

24 Hour Screening? ☐ Yes ☑ No

Setup Information:	Initial	After 24 h
Ambient air PID (ppm)	N/A	N/A
PID from sample borehole	N/A	N/A
PID from pump exhaust (ppm)	135.0	N/A

Shut-in Test Data:	Initial	After 24 h
Induced pressure in sampling train (“Hg)	26.72	N/A
Induced pressure after approx. 1 min (“Hg)	26.68	N/A

Purge Data:	Initial	After 24 h
Purge rate (ml/min)	2,000	N/A
Purge start time (24 hour clock)	16:28	N/A
Purge end time (24 hour clock)	16:36	N/A

Helium Tracer Test Data:	Initial	After 24 h
He in shroud (%)	86.2	N/A
He in pump exhaust (ppm)	0.0	N/A

Sampling Data:	
Sample start time (24 hour clock)	16:45
Start Pressure (in Hg)	-30.04
Sample end time (24 hour clock)	16:55
End Pressure (in Hg)	-5.75

Fixed Gas Readings: ☐ Yes ☑ No	Initial	After 24 h
Differential Pressure (inches water; pre-purge)	N/A	N/A
Methane Concentration (%; purge gas)	N/A	N/A
Carbon Dioxide Concentration (%; purge gas)	N/A	N/A
Oxygen Concentration (%; purge gas)	N/A	N/A
Hydrogen Sulfide Concentration (ppm; purge gas)	N/A	N/A
Any other gases collected?	N/A	N/A

Duplicate Sample: ☐ Yes ☑ No Duplicate ID:

Building observations during sampling:

Was the building open during sampling? ☑ Yes ☐ No ☐ TBD/Unknown

Notes:

Floor Cracks/Drains? ☐ Yes ☑ No ☐ TBD/Unknown

Notes:

Was HVAC running during sampling? ☐ Yes ☐ No ☑ TBD/Unknown

Description of sample location:

Exterior sampling port for sub-slab soil gas point, part of vapor mitigation system. Vent risers were closed prior to and during sampling.

Notes:

Field Sampling Information Summary Sheet
Vapor Intrusion Sampling

Site: BDH Unit 1 (Lot 15)/Philadelphia, PA

Sampling Address: 2626 Frances Harper Drive, Philadelphia, PA

Event: VMP Sampling for PA Act 2

Date: 11/13/2025 | Project Number: 220181807 | Location ID: VMP6

Field Personnel: Andrés Valenzuela | Project Manager: Andrea Berlinghof | Sample ID: **VMP6_11132025**

Building Information:

Building Use	Vacant Warehouse
Building Age	<1 year
Square Footage	± 326,000-sf footprint
Ventilation Type	HVAC

Ceiling Height	45’
Construction Type	Steel frame, concrete prefab walls slab-on-grade
Foundation Type	Slab-on-grade

Vapor Mitigation System Present?	☑ Yes	☐ No	☐ TBD/Unknown
Vapor Mitigation System Type:	☐ Active	☑ Passive	☐ Hybrid
Notes:			
Vapor Barrier Present?	☑ Yes	☐ No	☐ TBD/Unknown
Vapor Barrier Type:	☑ Polyethylene Plastic Sheeting	☐ Liquid Boot/Spray-On Applied	
Notes:			

Chemical Inventory (Indoor Air Sampling Only):

Chemical Inventory Check Completed?	☐ Yes	☐ No
Products with chlorinated solvents identified?	☐ Yes	☐ No

Field Sampling Information Summary Sheet
Vapor Intrusion Sampling

Site: BDH Unit 1 (Lot 15)/Philadelphia, PA

Sampling Address: 2626 Frances Harper Drive, Philadelphia, PA

Event: VMP Sampling for PA Act 2

Date: 11/13/2025 | Project Number: 220181807 | Location ID: VMP6

Field Personnel: Andrés Valenzuela | Project Manager: Andrea Berlinghof | Sample ID: **VMP6_11132025**

Sample ID: VMP6_11132025

Sample Type: ☑ Sub-Slab ☐ Exterior Soil Gas ☐ Indoor Air ☐ Ambient Air

Event Type: ☑ Sample Collected ☐ Field Readings Only ☐ No Sample or Field Readings Collected

Weather Conditions: Sunny | Temp (°F): 50

Other Weather Notes:

Ambient Air Pressure (in Hg): 29.9 | Indoor Air Pressure (in Hg): 29.9

Summa Can ID: 2339 | Summa Can Volume: 2.7 Liter

Flow Controller ID: 02539 | Flow Controller Timing: 200 ml/min

24 Hour Screening? ☐ Yes ☑ No

Setup Information:	Initial	After 24 h
Ambient air PID (ppm)	N/A	N/A
PID from sample borehole	N/A	N/A
PID from pump exhaust (ppm)	0.1	N/A

Shut-in Test Data:	Initial	After 24 h
Induced pressure in sampling train (“Hg)	13.47	N/A
Induced pressure after approx. 1 min (“Hg)	13.46	N/A

Purge Data:	Initial	After 24 h
Purge rate (ml/min)	2,000	N/A
Purge start time (24 hour clock)	15:13	N/A
Purge end time (24 hour clock)	15:42	N/A

Helium Tracer Test Data:	Initial	After 24 h
He in shroud (%)	27.5	N/A
He in pump exhaust (ppm)	0.0	N/A

Sampling Data:	
Sample start time (24 hour clock)	15:52
Start Pressure (in Hg)	-29.92
Sample end time (24 hour clock)	16:02
End Pressure (in Hg)	-5.79

Fixed Gas Readings: ☐ Yes ☑ No	Initial	After 24 h
Differential Pressure (inches water; pre-purge)	N/A	N/A
Methane Concentration (%; purge gas)	N/A	N/A
Carbon Dioxide Concentration (%; purge gas)	N/A	N/A
Oxygen Concentration (%; purge gas)	N/A	N/A
Hydrogen Sulfide Concentration (ppm; purge gas)	N/A	N/A
Any other gases collected?	N/A	N/A

Duplicate Sample: ☐ Yes ☑ No Duplicate ID:

Building observations during sampling:

Was the building open during sampling? ☑ Yes ☐ No ☐ TBD/Unknown

Notes:

Floor Cracks/Drains? ☐ Yes ☑ No ☐ TBD/Unknown

Notes:

Was HVAC running during sampling? ☐ Yes ☐ No ☑ TBD/Unknown

Description of sample location:

Exterior sampling port for sub-slab soil gas point, part of vapor mitigation system. Vent risers were closed prior to and during sampling.

Notes:

Field Sampling Information Summary Sheet
Vapor Intrusion Sampling

Site: BDH Unit 1 (Lot 15)/Philadelphia, PA

Sampling Address: 2626 Frances Harper Drive, Philadelphia, PA

Event: VMP Sampling for PA Act 2

Date: 11/13/2025 | Project Number: 220181807 | Location ID: VMP9

Field Personnel: Andrés Valenzuela | Project Manager: Andrea Berlinghof | Sample ID: **VMP9_11132025**

Building Information:

Building Use	Vacant Warehouse
Building Age	<1 year
Square Footage	± 326,000-sf footprint
Ventilation Type	HVAC

Ceiling Height	45’
Construction Type	Steel frame, concrete prefab walls slab-on-grade
Foundation Type	Slab-on-grade

Vapor Mitigation System Present?	☑ Yes	☐ No	☐ TBD/Unknown
Vapor Mitigation System Type:	☐ Active	☑ Passive	☐ Hybrid
Notes:			
Vapor Barrier Present?	☑ Yes	☐ No	☐ TBD/Unknown
Vapor Barrier Type:	☑ Polyethylene Plastic Sheeting	☐ Liquid Boot/Spray-On Applied	
Notes:			

Chemical Inventory (Indoor Air Sampling Only):

Chemical Inventory Check Completed?	☐ Yes	☐ No
Products with chlorinated solvents identified?	☐ Yes	☐ No

Field Sampling Information Summary Sheet
Vapor Intrusion Sampling

Site: BDH Unit 1 (Lot 15)/Philadelphia, PA

Sampling Address: 2626 Frances Harper Drive, Philadelphia, PA

Event: VMP Sampling for PA Act 2

Date: 11/13/2025 | Project Number: 220181807 | Location ID: VMP9

Field Personnel: Andrés Valenzuela | Project Manager: Andrea Berlinghof | Sample ID: **VMP9_11132025**

Sample ID: VMP9_11132025

Sample Type: ☑ Sub-Slab ☐ Exterior Soil Gas ☐ Indoor Air ☐ Ambient Air

Event Type: ☑ Sample Collected ☐ Field Readings Only ☐ No Sample or Field Readings Collected

Weather Conditions: Sunny | Temp (°F): 53

Other Weather Notes:

Ambient Air Pressure (in Hg): 29.9 | Indoor Air Pressure (in Hg): 29.9

Summa Can ID: 4415 | Summa Can Volume: 2.7 Liter

Flow Controller ID: 02035 | Flow Controller Timing: 200 ml/min

24 Hour Screening? ☐ Yes ☑ No

Setup Information:	Initial	After 24 h
Ambient air PID (ppm)	N/A	N/A
PID from sample borehole	N/A	N/A
PID from pump exhaust (ppm)	0.2	N/A

Shut-in Test Data:	Initial	After 24 h
Induced pressure in sampling train (“Hg)	12.83	N/A
Induced pressure after approx. 1 min (“Hg)	12.78	N/A

Purge Data:	Initial	After 24 h
Purge rate (ml/min)	2,000	N/A
Purge start time (24 hour clock)	10:15	N/A
Purge end time (24 hour clock)	11:20	N/A

Helium Tracer Test Data:	Initial	After 24 h
He in shroud (%)	84.3	N/A
He in pump exhaust (ppm)	0.0	N/A

Sampling Data:	
Sample start time (24 hour clock)	11:36
Start Pressure (in Hg)	-30.24
Sample end time (24 hour clock)	11:47
End Pressure (in Hg)	-5.45

Fixed Gas Readings: ☐ Yes ☑ No	Initial	After 24 h
Differential Pressure (inches water; pre-purge)	N/A	N/A
Methane Concentration (%; purge gas)	N/A	N/A
Carbon Dioxide Concentration (%; purge gas)	N/A	N/A
Oxygen Concentration (%; purge gas)	N/A	N/A
Hydrogen Sulfide Concentration (ppm; purge gas)	N/A	N/A
Any other gases collected?	N/A	N/A

Duplicate Sample: ☐ Yes ☑ No Duplicate ID:

Building observations during sampling:

Was the building open during sampling? ☑ Yes ☐ No ☐ TBD/Unknown

Notes:

Floor Cracks/Drains? ☐ Yes ☑ No ☐ TBD/Unknown

Notes:

Was HVAC running during sampling? ☐ Yes ☐ No ☑ TBD/Unknown

Description of sample location:

Exterior sampling port for sub-slab soil gas point, part of vapor mitigation system. Vent risers were closed prior to and during sampling.

Notes:

Attachment B Laboratory Analytical Results

ANALYTICAL REPORT

Lab Number:	L2556096
Client:	Langan Engineering & Environmental 1818 Market Street Suite 3300 Philadelphia, PA 19103-3638
ATTN:	Andrea Berlinghof
Phone:	(215) 845-8900
Project Name:	BDH
Project Number:	220181807
Report Date:	09/11/25

The original project report/data package is held by Pace Analytical Services. This report/data package is paginated and should be reproduced only in its entirety. Pace Analytical Services holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: NH ELAP (2249).

120 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.pacelabs.com

Project Name: BDH
Project Number: 220181807

Lab Number: L2556096
Report Date: 09/11/25

Lab Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2556096-01	VMP2_09042025	SOIL_VAPOR	3144 W PASSYUNK, PHILADELPHIA	09/04/25 14:56	09/05/25
L2556096-02	VMP4_09042025	SOIL_VAPOR	3144 W PASSYUNK, PHILADELPHIA	09/04/25 11:45	09/05/25
L2556096-03	VMP5_09042025	SOIL_VAPOR	3144 W PASSYUNK, PHILADELPHIA	09/04/25 16:07	09/05/25
L2556096-04	VMP6_09042025	SOIL_VAPOR	3144 W PASSYUNK, PHILADELPHIA	09/04/25 14:14	09/05/25
L2556096-05	VMP9_09042025	SOIL_VAPOR	3144 W PASSYUNK, PHILADELPHIA	09/04/25 16:28	09/05/25
L2556096-06	DUP01_09042025	SOIL_VAPOR	3144 W PASSYUNK, PHILADELPHIA	09/04/25 00:00	09/05/25

Project Name:	BDH	**Lab Number:**	L2556096
Project Number:	220181807	**Report Date:**	09/11/25

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 Pace 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, Pace'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 Pace Project Manager and made arrangements for Pace to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: BDH
Project Number: 220181807
Lab Number: L2556096
Report Date: 09/11/25

Case Narrative (continued)

Volatile Organics in Air

Canisters were released from the laboratory on September 3, 2025. The canister certification data is provided as an addendum.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

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

Authorized Signature: Christopher J. Anderson

Title: Technical Director/Representative Date: 09/11/25

AIR

Project Name: BDH
Project Number: 220181807
Lab Number: L2556096
Report Date: 09/11/25

SAMPLE RESULTS

Lab ID: L2556096-01
Client ID: VMP2_09042025
Sample Location: 3144 W PASSYUNK, PHILADELPHIA

Date Collected: 09/04/25 14:56
Date Received: 09/05/25
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 09/11/25 03:31
Analyst: RAY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Air Lab								
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
Benzene	3.66	0.200	0.064	11.7	0.639	0.205		1
Toluene	0.588	0.200	0.087	2.22	0.754	0.327		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Ethylbenzene	0.394	0.200	0.058	1.71	0.869	0.250		1
p/m-Xylene	1.40	0.400	0.125	6.08	1.74	0.543		1
o-Xylene	0.516	0.200	0.062	2.24	0.869	0.270		1
Isopropylbenzene	0.205	0.200	0.062	1.01	0.983	0.305		1
1,3,5-Trimethylbenzene	0.333	0.200	0.060	1.64	0.983	0.295		1
1,2,4-Trimethylbenzene	0.477	0.200	0.058	2.35	0.983	0.284		1
Naphthalene	0.068	0.190	0.059	0.357	0.996	0.309	J	1
Xylenes, Total	1.91	0.200	0.062	8.30	0.869	0.270		1

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-Difluorobenzene	100		60-140
Bromochloromethane	101		60-140
chlorobenzene-d5	135		60-140

Project Name: BDH
Project Number: 220181807
Lab Number: L2556096
Report Date: 09/11/25

SAMPLE RESULTS

Lab ID: L2556096-02
Client ID: VMP4_09042025
Sample Location: 3144 W PASSYUNK, PHILADELPHIA

Date Collected: 09/04/25 11:45
Date Received: 09/05/25
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 09/11/25 04:13
Analyst: RAY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Air Lab								
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
Benzene	0.414	0.200	0.064	1.32	0.639	0.205		1
Toluene	1.07	0.200	0.087	4.03	0.754	0.327		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Ethylbenzene	0.380	0.200	0.058	1.65	0.869	0.250		1
p/m-Xylene	1.45	0.400	0.125	6.30	1.74	0.543		1
o-Xylene	0.574	0.200	0.062	2.49	0.869	0.270		1
Isopropylbenzene	0.257	0.200	0.062	1.26	0.983	0.305		1
1,3,5-Trimethylbenzene	0.147	0.200	0.060	0.723	0.983	0.295	J	1
1,2,4-Trimethylbenzene	0.596	0.200	0.058	2.93	0.983	0.284		1
Naphthalene	0.087	0.190	0.059	0.456	0.996	0.309	J	1
Xylenes, Total	2.02	0.200	0.062	8.77	0.869	0.270		1

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-Difluorobenzene	98		60-140
Bromochloromethane	86		60-140
chlorobenzene-d5	86		60-140

Project Name: BDH
Project Number: 220181807
Lab Number: L2556096
Report Date: 09/11/25

SAMPLE RESULTS

Lab ID: L2556096-03
Client ID: VMP5_09042025
Sample Location: 3144 W PASSYUNK, PHILADELPHIA

Date Collected: 09/04/25 16:07
Date Received: 09/05/25
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 09/11/25 09:47
Analyst: RAY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Air Lab								
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
Benzene	0.853	0.200	0.064	2.73	0.639	0.205		1
Toluene	0.443	0.200	0.087	1.67	0.754	0.327		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Ethylbenzene	0.329	0.200	0.058	1.43	0.869	0.250		1
p/m-Xylene	1.37	0.400	0.125	5.95	1.74	0.543		1
o-Xylene	0.570	0.200	0.062	2.48	0.869	0.270		1
Isopropylbenzene	0.164	0.200	0.062	0.806	0.983	0.305	J	1
1,3,5-Trimethylbenzene	0.154	0.200	0.060	0.757	0.983	0.295	J	1
1,2,4-Trimethylbenzene	0.721	0.200	0.058	3.54	0.983	0.284		1
Naphthalene	0.268	0.190	0.059	1.41	0.996	0.309		1
Xylenes, Total	1.94	0.200	0.062	8.43	0.869	0.270		1

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-Difluorobenzene	97		60-140
Bromochloromethane	73		60-140
chlorobenzene-d5	75		60-140

Project Name: BDH
Project Number: 220181807
Lab Number: L2556096
Report Date: 09/11/25

SAMPLE RESULTS

Lab ID: L2556096-04
Client ID: VMP6_09042025
Sample Location: 3144 W PASSYUNK, PHILADELPHIA

Date Collected: 09/04/25 14:14
Date Received: 09/05/25
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 09/11/25 07:01
Analyst: RAY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Air Lab								
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
Benzene	3.18	0.200	0.064	10.2	0.639	0.205		1
Toluene	0.340	0.200	0.087	1.28	0.754	0.327		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Ethylbenzene	0.333	0.200	0.058	1.45	0.869	0.250		1
p/m-Xylene	1.20	0.400	0.125	5.21	1.74	0.543		1
o-Xylene	0.447	0.200	0.062	1.94	0.869	0.270		1
Isopropylbenzene	0.089	0.200	0.062	0.438	0.983	0.305	J	1
1,3,5-Trimethylbenzene	0.094	0.200	0.060	0.462	0.983	0.295	J	1
1,2,4-Trimethylbenzene	0.350	0.200	0.058	1.72	0.983	0.284		1
Naphthalene	ND	0.190	0.059	ND	0.996	0.309		1
Xylenes, Total	1.65	0.200	0.062	7.17	0.869	0.270		1

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-Difluorobenzene	99		60-140
Bromochloromethane	74		60-140
chlorobenzene-d5	119		60-140

Project Name: BDH
Project Number: 220181807
Lab Number: L2556096
Report Date: 09/11/25

SAMPLE RESULTS

Lab ID: L2556096-05
Client ID: VMP9_09042025
Sample Location: 3144 W PASSYUNK, PHILADELPHIA

Date Collected: 09/04/25 16:28
Date Received: 09/05/25
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 09/11/25 06:18
Analyst: RAY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Air Lab								
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
Benzene	0.293	0.200	0.064	0.936	0.639	0.205		1
Toluene	2.09	0.200	0.087	7.88	0.754	0.327		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Ethylbenzene	0.587	0.200	0.058	2.55	0.869	0.250		1
p/m-Xylene	2.13	0.400	0.125	9.25	1.74	0.543		1
o-Xylene	0.832	0.200	0.062	3.61	0.869	0.270		1
Isopropylbenzene	0.320	0.200	0.062	1.57	0.983	0.305		1
1,3,5-Trimethylbenzene	0.194	0.200	0.060	0.954	0.983	0.295	J	1
1,2,4-Trimethylbenzene	0.886	0.200	0.058	4.36	0.983	0.284		1
Naphthalene	0.110	0.190	0.059	0.577	0.996	0.309	J	1
Xylenes, Total	2.96	0.200	0.062	12.9	0.869	0.270		1

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-Difluorobenzene	96		60-140
Bromochloromethane	74		60-140
chlorobenzene-d5	70		60-140

Project Name: BDH
Project Number: 220181807
Lab Number: L2556096
Report Date: 09/11/25

SAMPLE RESULTS

Lab ID: L2556096-06
Client ID: DUP01_09042025
Sample Location: 3144 W PASSYUNK, PHILADELPHIA

Date Collected: 09/04/25 00:00
Date Received: 09/05/25
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 09/11/25 07:43
Analyst: RAY

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Air Lab								
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
Benzene	3.58	0.200	0.064	11.4	0.639	0.205		1
Toluene	0.719	0.200	0.087	2.71	0.754	0.327		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Ethylbenzene	0.484	0.200	0.058	2.10	0.869	0.250		1
p/m-Xylene	1.68	0.400	0.125	7.30	1.74	0.543		1
o-Xylene	0.627	0.200	0.062	2.72	0.869	0.270		1
Isopropylbenzene	0.334	0.200	0.062	1.64	0.983	0.305		1
1,3,5-Trimethylbenzene	0.507	0.200	0.060	2.49	0.983	0.295		1
1,2,4-Trimethylbenzene	0.730	0.200	0.058	3.59	0.983	0.284		1
Naphthalene	0.098	0.190	0.059	0.514	0.996	0.309	J	1
Xylenes, Total	2.31	0.200	0.062	10.0	0.869	0.270		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	99		60-140
Bromochloromethane	74		60-140
chlorobenzene-d5	83		60-140

Project Name: BDH
Project Number: 220181807
Lab Number: L2556096
Report Date: 09/11/25

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 09/10/25 19:24

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Air Lab for sample(s): 01-06 Batch: WG2113163-4								
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
Xylenes, Total	ND	0.200	0.062	ND	0.869	0.270		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
Benzene	ND	0.200	0.064	ND	0.639	0.205		1
Toluene	ND	0.200	0.087	ND	0.754	0.327		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Ethylbenzene	ND	0.200	0.058	ND	0.869	0.250		1
p/m-Xylene	ND	0.400	0.125	ND	1.74	0.543		1
o-Xylene	ND	0.200	0.062	ND	0.869	0.270		1
Isopropylbenzene	ND	0.200	0.062	ND	0.983	0.305		1
1,3,5-Trimethylbenzene	ND	0.200	0.060	ND	0.983	0.295		1
1,2,4-Trimethylbenzene	ND	0.200	0.058	ND	0.983	0.284		1
Naphthalene	ND	0.190	0.059	ND	0.996	0.309		1

Lab Control Sample Analysis
Batch Quality Control

Project Name: BDH
Project Number: 220181807

Lab Number: L2556096
Report Date: 09/11/25

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Air Lab	Associated sample(s): 01-06		Batch: WG2113163-3					
Methyl tert butyl ether	91		-		70-130	-		
1,2-Dichloroethane	102		-		70-130	-		
Benzene	99		-		70-130	-		
Toluene	90		-		70-130	-		
1,2-Dibromoethane	86		-		70-130	-		
Ethylbenzene	91		-		70-130	-		
p/m-Xylene	94		-		70-130	-		
o-Xylene	95		-		70-130	-		
Isopropylbenzene	77		-		70-130	-		
1,3,5-Trimethylbenzene	91		-		70-130	-		
1,2,4-Trimethylbenzene	89		-		70-130	-		
Naphthalene	79		-		70-130	-		

Project Name: BDH

Project Number: 220181807

Lab Number: L2556096

Report Date: 09/11/25

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt	Flow Controler Leak Chk	Flow Out mL/min	Flow In	% RPD
L2556096-01	VMP2_09042025	02035	SV200	09/03/25	533934		-	-	-	Pass	221	222	0
L2556096-01	VMP2_09042025	2865	2.7L Can	09/03/25	533934	L2553012-06	Pass	-29.9	-6.4	-	-	-	-
L2556096-02	VMP4_09042025	02020	SV200	09/03/25	533934		-	-	-	Pass	223	221	1
L2556096-02	VMP4_09042025	188	2.7L Can	09/03/25	533934	L2553012-06	Pass	-29.9	-6.4	-	-	-	-
L2556096-03	VMP5_09042025	02570	SV200	09/03/25	533934		-	-	-	Pass	217	222	2
L2556096-03	VMP5_09042025	2766	2.7L Can	09/03/25	533934	L2553012-06	Pass	-29.8	-6.8	-	-	-	-
L2556096-04	VMP6_09042025	0692	SV200	09/03/25	533934		-	-	-	Pass	217	220	1
L2556096-04	VMP6_09042025	2237	2.7L Can	09/03/25	533934	L2553012-06	Pass	-29.7	-6.4	-	-	-	-
L2556096-05	VMP9_09042025	02286	SV200	09/03/25	533934		-	-	-	Pass	220	220	0
L2556096-05	VMP9_09042025	4365	2.7L Can	09/03/25	533934	L2553012-06	Pass	-29.8	-6.5	-	-	-	-
L2556096-06	DUP01_09042025	01856	SV200	09/03/25	533934		-	-	-	Pass	217	218	0
L2556096-06	DUP01_09042025	3206	2.7L Can	09/03/25	533934	L2553012-06	Pass	-29.9	-6.6	-	-	-	-

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2553012
Report Date: 09/11/25

Air Canister Certification Results

Lab ID: L2553012-06
Client ID: CAN 135 SHELF 27
Sample Location:

Date Collected: 08/22/25 10:00
Date Received: 08/22/25
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 08/23/25 02:53
Analyst: KMH

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Air Lab								
Chlorodifluoromethane	ND	0.200	0.046	ND	0.707	0.164		1
Propylene	ND	0.500	0.135	ND	0.861	0.232		1
Propane	ND	0.500	0.152	ND	0.902	0.274		1
Dichlorodifluoromethane	ND	0.200	0.076	ND	0.989	0.374		1
Chloromethane	ND	0.200	0.058	ND	0.413	0.119		1
Freon-114	ND	0.200	0.050	ND	1.40	0.352		1
Methanol	ND	5.00	3.03	ND	6.55	3.97		1
Vinyl chloride	ND	0.200	0.058	ND	0.511	0.149		1
1,3-Butadiene	ND	0.200	0.062	ND	0.442	0.137		1
Butane	ND	0.200	0.080	ND	0.475	0.190		1
Bromomethane	ND	0.200	0.055	ND	0.777	0.212		1
Chloroethane	ND	0.200	0.065	ND	0.528	0.171		1
Ethanol	ND	5.00	1.74	ND	9.42	3.28		1
Dichlorofluoromethane	ND	0.200	0.112	ND	0.842	0.471		1
Vinyl bromide	ND	0.200	0.072	ND	0.874	0.316		1
Acrolein	ND	0.500	0.149	ND	1.15	0.342		1
Acetone	ND	1.00	0.515	ND	2.38	1.22		1
Acetonitrile	ND	0.200	0.101	ND	0.336	0.170		1
Trichlorofluoromethane	ND	0.200	0.079	ND	1.12	0.442		1
Isopropanol	ND	1.00	0.272	ND	2.46	0.669		1
Acrylonitrile	ND	0.500	0.089	ND	1.09	0.194		1
Pentane	ND	0.200	0.113	ND	0.590	0.333		1
Ethyl ether	ND	0.200	0.085	ND	0.606	0.259		1
1,1-Dichloroethene	ND	0.200	0.057	ND	0.793	0.225		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2553012
Report Date: 09/11/25

Air Canister Certification Results

Lab ID: L2553012-06
Client ID: CAN 135 SHELF 27
Sample Location:

Date Collected: 08/22/25 10:00
Date Received: 08/22/25
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Air Lab								
Tertiary butyl Alcohol	ND	0.500	0.132	ND	1.52	0.400		1
Methylene chloride	ND	0.500	0.125	ND	1.74	0.434		1
3-Chloropropene	ND	0.200	0.086	ND	0.626	0.269		1
Carbon disulfide	ND	0.200	0.047	ND	0.623	0.145		1
Freon-113	ND	0.200	0.051	ND	1.53	0.388		1
trans-1,2-Dichloroethene	ND	0.200	0.076	ND	0.793	0.299		1
1,1-Dichloroethane	ND	0.200	0.057	ND	0.809	0.230		1
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
Vinyl acetate	ND	1.00	0.323	ND	3.52	1.14		1
Xylenes, total	ND	0.600	0.062	ND	0.869	0.270		1
2-Butanone	ND	0.500	0.099	ND	1.47	0.292		1
cis-1,2-Dichloroethene	ND	0.200	0.060	ND	0.793	0.236		1
Ethyl Acetate	ND	0.500	0.297	ND	1.80	1.07		1
Chloroform	ND	0.200	0.055	ND	0.977	0.270		1
Tetrahydrofuran	ND	0.500	0.117	ND	1.47	0.345		1
2,2-Dichloropropane	ND	0.200	0.043	ND	0.924	0.198		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
n-Hexane	ND	0.200	0.074	ND	0.705	0.262		1
Diisopropyl ether	ND	0.200	0.063	ND	0.836	0.264		1
tert-Butyl Ethyl Ether	ND	0.200	0.073	ND	0.836	0.306		1
1,2-Dichloroethene (total)	ND	1.00	0.060	ND	1.00	0.236		1
1,1,1-Trichloroethane	ND	0.200	0.061	ND	1.09	0.335		1
1,1-Dichloropropene	ND	0.200	0.059	ND	0.908	0.269		1
Benzene	ND	0.200	0.064	ND	0.639	0.205		1
Carbon tetrachloride	ND	0.200	0.069	ND	1.26	0.432		1
Cyclohexane	ND	0.200	0.073	ND	0.688	0.251		1
tert-Amyl Methyl Ether	ND	0.200	0.067	ND	0.836	0.281		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2553012
Report Date: 09/11/25

Air Canister Certification Results

Lab ID: L2553012-06
Client ID: CAN 135 SHELF 27
Sample Location:

Date Collected: 08/22/25 10:00
Date Received: 08/22/25
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Air Lab								
Dibromomethane	ND	0.200	0.060	ND	1.42	0.425		1
1,2-Dichloropropane	ND	0.200	0.063	ND	0.924	0.292		1
Bromodichloromethane	ND	0.200	0.069	ND	1.34	0.462		1
1,4-Dioxane	ND	0.200	0.054	ND	0.721	0.194		1
Trichloroethene	ND	0.200	0.055	ND	1.07	0.295		1
2,2,4-Trimethylpentane	ND	0.200	0.069	ND	0.934	0.323		1
Methyl Methacrylate	ND	0.500	0.226	ND	2.05	0.925		1
Heptane	ND	0.200	0.083	ND	0.820	0.339		1
cis-1,3-Dichloropropene	ND	0.200	0.067	ND	0.908	0.306		1
4-Methyl-2-pentanone	ND	0.500	0.190	ND	2.05	0.779		1
trans-1,3-Dichloropropene	ND	0.200	0.078	ND	0.908	0.355		1
1,1,2-Trichloroethane	ND	0.200	0.058	ND	1.09	0.318		1
Toluene	ND	0.200	0.087	ND	0.754	0.327		1
1,3-Dichloropropane	ND	0.200	0.054	ND	0.924	0.248		1
2-Hexanone	ND	0.200	0.091	ND	0.820	0.374		1
Dibromochloromethane	ND	0.200	0.057	ND	1.70	0.482		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Butyl acetate	ND	0.500	0.208	ND	2.38	0.989		1
Octane	ND	0.200	0.068	ND	0.934	0.316		1
Tetrachloroethene	ND	0.200	0.063	ND	1.36	0.425		1
1,1,1,2-Tetrachloroethane	ND	0.200	0.051	ND	1.37	0.349		1
Chlorobenzene	ND	0.200	0.052	ND	0.921	0.238		1
Ethylbenzene	ND	0.200	0.058	ND	0.869	0.250		1
p/m-Xylene	ND	0.400	0.125	ND	1.74	0.543		1
Bromoform	ND	0.200	0.060	ND	2.07	0.616		1
Styrene	ND	0.200	0.060	ND	0.852	0.254		1
1,1,2,2-Tetrachloroethane	ND	0.200	0.052	ND	1.37	0.357		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L2553012

Project Number: CANISTER QC BAT **Report Date:** 09/11/25

Air Canister Certification Results

Lab ID: L2553012-06
Client ID: CAN 135 SHELF 27
Sample Location:

Date Collected: 08/22/25 10:00
Date Received: 08/22/25
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Air Lab								
o-Xylene	ND	0.200	0.062	ND	0.869	0.270		1
1,2,3-Trichloropropane	ND	0.200	0.058	ND	1.21	0.347		1
Nonane	ND	0.200	0.074	ND	1.05	0.387		1
Isopropylbenzene	ND	0.200	0.062	ND	0.983	0.305		1
Bromobenzene	ND	0.200	0.058	ND	0.793	0.230		1
2-Chlorotoluene	ND	0.200	0.076	ND	1.04	0.394		1
n-Propylbenzene	ND	0.200	0.063	ND	0.983	0.311		1
4-Chlorotoluene	ND	0.200	0.077	ND	1.04	0.396		1
4-Ethyltoluene	ND	0.200	0.055	ND	0.983	0.272		1
1,3,5-Trimethylbenzene	ND	0.200	0.060	ND	0.983	0.295		1
tert-Butylbenzene	ND	0.200	0.055	ND	1.10	0.302		1
1,2,4-Trimethylbenzene	ND	0.200	0.058	ND	0.983	0.284		1
Decane	ND	0.200	0.070	ND	1.16	0.406		1
Benzyl chloride	ND	0.200	0.094	ND	1.04	0.486		1
1,3-Dichlorobenzene	ND	0.200	0.078	ND	1.20	0.467		1
1,4-Dichlorobenzene	ND	0.200	0.083	ND	1.20	0.497		1
sec-Butylbenzene	ND	0.200	0.055	ND	1.10	0.300		1
p-Isopropyltoluene	ND	0.200	0.057	ND	1.10	0.311		1
1,2-Dichlorobenzene	ND	0.200	0.062	ND	1.20	0.372		1
n-Butylbenzene	ND	0.200	0.054	ND	1.10	0.294		1
1,2-Dibromo-3-chloropropane	ND	0.200	0.062	ND	1.93	0.603		1
Undecane	ND	0.200	0.071	ND	1.28	0.453		1
Dodecane	ND	0.200	0.089	ND	1.39	0.621		1
1,2,4-Trichlorobenzene	ND	0.200	0.100	ND	1.48	0.742		1
Naphthalene	ND	0.200	0.059	ND	0.996	0.309		1
1,2,3-Trichlorobenzene	ND	0.200	0.074	ND	1.48	0.548		1
Hexachlorobutadiene	ND	0.200	0.061	ND	2.13	0.647		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L2553012

Project Number: CANISTER QC BAT **Report Date:** 09/11/25

Air Canister Certification Results

Lab ID: L2553012-06
Client ID: CAN 135 SHELF 27
Sample Location:

Date Collected: 08/22/25 10:00
Date Received: 08/22/25
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Air Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	101		60-140
Bromochloromethane	100		60-140
chlorobenzene-d5	101		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2553012
Report Date: 09/11/25

Air Canister Certification Results

Lab ID: L2553012-06
Client ID: CAN 135 SHELF 27
Sample Location:

Date Collected: 08/22/25 10:00
Date Received: 08/22/25
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 08/23/25 02:53
Analyst: KMH

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Air Lab								
Dichlorodifluoromethane	ND	0.200	0.050	ND	0.989	0.247		1
Chloromethane	ND	0.200	0.076	ND	0.413	0.156		1
Freon-114	ND	0.050	0.006	ND	0.349	0.045		1
Vinyl chloride	ND	0.020	0.009	ND	0.051	0.023		1
1,3-Butadiene	ND	0.020	0.011	ND	0.044	0.024		1
Bromomethane	ND	0.020	0.009	ND	0.078	0.037		1
Chloroethane	ND	0.100	0.040	ND	0.264	0.104		1
Acrolein	ND	0.050	0.039	ND	0.115	0.089		1
Acetone	ND	1.00	0.539	ND	2.38	1.28		1
Trichlorofluoromethane	ND	0.050	0.009	ND	0.281	0.052		1
Acrylonitrile	ND	0.500	0.162	ND	1.09	0.352		1
1,1-Dichloroethene	ND	0.020	0.008	ND	0.079	0.031		1
Methylene chloride	ND	0.500	0.110	ND	1.74	0.382		1
Freon-113	ND	0.050	0.008	ND	0.383	0.064		1
trans-1,2-Dichloroethene	ND	0.020	0.009	ND	0.079	0.036		1
1,1-Dichloroethane	ND	0.020	0.009	ND	0.081	0.035		1
Methyl tert butyl ether	ND	0.200	0.026	ND	0.721	0.094		1
2-Butanone	ND	0.500	0.132	ND	1.47	0.389		1
cis-1,2-Dichloroethene	ND	0.020	0.010	ND	0.079	0.040		1
Chloroform	ND	0.020	0.007	ND	0.098	0.035		1
1,2-Dichloroethane	ND	0.020	0.008	ND	0.081	0.034		1
1,1,1-Trichloroethane	ND	0.020	0.006	ND	0.109	0.032		1
Benzene	ND	0.100	0.030	ND	0.319	0.095		1
Carbon tetrachloride	ND	0.020	0.011	ND	0.126	0.069		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L2553012

Project Number: CANISTER QC BAT **Report Date:** 09/11/25

Air Canister Certification Results

Lab ID: L2553012-06
Client ID: CAN 135 SHELF 27
Sample Location:

Date Collected: 08/22/25 10:00
Date Received: 08/22/25
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Air Lab								
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.038		1
Bromodichloromethane	ND	0.020	0.007	ND	0.134	0.050		1
1,4-Dioxane	ND	0.100	0.034	ND	0.360	0.124		1
Trichloroethene	ND	0.020	0.006	ND	0.107	0.032		1
cis-1,3-Dichloropropene	ND	0.020	0.012	ND	0.091	0.054		1
4-Methyl-2-pentanone	ND	0.500	0.191	ND	2.05	0.783		1
trans-1,3-Dichloropropene	ND	0.020	0.012	ND	0.091	0.052		1
1,1,2-Trichloroethane	ND	0.020	0.010	ND	0.109	0.053		1
Toluene	ND	0.100	0.017	ND	0.377	0.063		1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068		1
1,2-Dibromoethane	ND	0.020	0.009	ND	0.154	0.070		1
Tetrachloroethene	ND	0.020	0.007	ND	0.136	0.050		1
1,1,1,2-Tetrachloroethane	ND	0.020	0.010	ND	0.137	0.069		1
Chlorobenzene	ND	0.100	0.026	ND	0.461	0.119		1
Ethylbenzene	ND	0.020	0.009	ND	0.087	0.037		1
p/m-Xylene	ND	0.040	0.018	ND	0.174	0.078		1
Bromoform	ND	0.020	0.011	ND	0.207	0.115		1
Styrene	ND	0.020	0.008	ND	0.085	0.034		1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.046		1
o-Xylene	ND	0.020	0.009	ND	0.087	0.038		1
Isopropylbenzene	ND	0.200	0.030	ND	0.983	0.147		1
4-Ethyltoluene	ND	0.020	0.010	ND	0.098	0.049		1
1,3,5-Trimethybenzene	ND	0.020	0.010	ND	0.098	0.047		1
1,2,4-Trimethylbenzene	ND	0.020	0.008	ND	0.098	0.037		1
Benzyl chloride	ND	0.100	0.033	ND	0.518	0.172		1
1,3-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.046		1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.045		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2553012
Report Date: 09/11/25

Air Canister Certification Results

Lab ID: L2553012-06
Client ID: CAN 135 SHELF 27
Sample Location:

Date Collected: 08/22/25 10:00
Date Received: 08/22/25
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Air Lab								
sec-Butylbenzene	ND	0.200	0.027	ND	1.10	0.146		1
p-Isopropyltoluene	ND	0.200	0.037	ND	1.10	0.201		1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.037		1
n-Butylbenzene	ND	0.200	0.032	ND	1.10	0.175		1
1,2,4-Trichlorobenzene	ND	0.050	0.015	ND	0.371	0.108		1
Naphthalene	ND	0.050	0.021	ND	0.262	0.110		1
1,2,3-Trichlorobenzene	ND	0.050	0.022	ND	0.371	0.166		1
Hexachlorobutadiene	ND	0.050	0.011	ND	0.533	0.117		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	93		60-140
bromochloromethane	98		60-140
chlorobenzene-d5	94		60-140

Project Name: BDH
Project Number: 220181807

Lab Number: L2556096
Report Date: 09/11/25

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
NA	Present/Intact

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2556096-01A	Canister - 2.7L (Batch Certified)	NA	NA			Y	Absent		TO15-LL(30)
L2556096-02A	Canister - 2.7L (Batch Certified)	NA	NA			Y	Absent		TO15-LL(30)
L2556096-03A	Canister - 2.7L (Batch Certified)	NA	NA			Y	Absent		TO15-LL(30)
L2556096-04A	Canister - 2.7L (Batch Certified)	NA	NA			Y	Absent		TO15-LL(30)
L2556096-05A	Canister - 2.7L (Batch Certified)	NA	NA			Y	Absent		TO15-LL(30)
L2556096-06A	Canister - 2.7L (Batch Certified)	NA	NA			Y	Absent		TO15-LL(30)

*Values in parentheses indicate holding time in days

Project Name:	BDH	**Lab Number:**	L2556096
Project Number:	220181807	**Report Date:**	09/11/25

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:	BDH	**Lab Number:**	L2556096
Project Number:	220181807	**Report Date:**	09/11/25

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 Identified Compounds (TICs). For calculated parameters, this represents that one or more values used in the calculation were

Report Format: DU Report with 'J' Qualifiers

Project Name:	BDH	**Lab Number:**	L2556096
Project Number:	220181807	**Report Date:**	09/11/25

Data Qualifiers

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: BDH
Project Number: 220181807
Lab Number: L2556096
Report Date: 09/11/25

REFERENCES

48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

LIMITATION OF LIABILITIES

Pace Analytical Services 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 Pace Analytical Services shall be to re-perform the work at it's own expense. In no event shall Pace Analytical Services 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 Pace Analytical Services.

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 – 8 Walkup Dr. Westborough, MA 01581
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, NO2, NO3.

Mansfield Facility – 320 Forbes Blvd. Mansfield, MA 02048
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.
MADEP-APH.
Nonpotable Water: EPA RSK-175 Dissolved Gases
Biological Tissue Matrix: EPA 3050B

Mansfield Facility – 120 Forbes Blvd. Mansfield, MA 02048
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

The following test method is not included in our New Jersey Secondary NELAP Scope of Accreditation:

Mansfield Facility – 320 Forbes Blvd. Mansfield, MA 02048
Determination of Selected Perfluorinated Alkyl Substances by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry Isotope Dilution (via Alpha SOP 23528)

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility – 8 Walkup Dr. Westborough, MA 01581

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, SM4500CL-G, 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.**

Mansfield Facility – 320 Forbes Blvd. Mansfield, MA 02048

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, Ca, Cr, Cu, Fe, Pb, Mg, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1: Hg. **EPA 245.7:** Hg.
SM2340B

Certification IDs:

Westborough Facility – 8 Walkup Dr. Westborough, MA 01581
CT PH-0826, IL 200077, IN C-MA-03, KY kY98045, ME MA00086, MD 348, MA M-MA086, NH 2064, NJ MA935, NY 11148, NC (DW) 25700, NC (NPW/SCM) 666, OR MA-1316, PA 68-03671, RI LAO00065, TX T104704476, VT VT-0935, VA 460195

Mansfield Facility – 320 Forbes Blvd. Mansfield, MA 02048
MA M-MA00030, CT PH-0825, ANAB/DoD L2474, IL 200081, IN C-MA-04, KY KY98046, LA 85084, ME MA00030, MI 9110, MN 025-999-495, NH 2062, NJ MA015, NY 11627, NC (NPW/SCM) 685, OR MA-0262, PA 68-02089, RI LAO00299, TX T-104704419, VT VT-0015, VA 460194, WA C954

Mansfield Facility – 120 Forbes Blvd. Mansfield, MA 02048
ANAB/DoD L2474, LA 245052, ME MA01156, MN 025-999-498, NH 2249, NJ MA025, NY 12191, OR 4203, TX T104704583, VA 460311, WA C1104.

For a complete listing of analytes and methods, please contact your Project Manager.

Serial_No:09112516:01

AIR ANALYSIS

PAGE 1 OF 1

Date Rec'd in Lab: 9/5/25

ALPHA Job #: L2556096

CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: LANGAN
Address: 1818 Market St STE 3300
Phone: 215-845-8900
Fax: 215-845-8901
Email: aberlinghof@Langan.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: BDA
Project Location: 3144 W Passyunk, Philadelphia
Project #: 220181807
Project Manager: Andrea Berlinghof
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX
☐ ADEx
Criteria Checker:
(Default based on Regulatory Criteria Indicated)
Other Formats:
☐ EMAIL (standard pdf report)
☐ Additional Deliverables:
Report to: (if different than Project Manager)

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed	Program	Res / Comm

Other Project Specific Requirements/Comments:

Project-Specific Target Compound List: ☐

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	COLLECTION End Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	ID Can	ID - Flow Controller	TO-15	TO-15 SIM	APH Subtract Non-petroleum HCs ☐	Fixed Gases	Sulfides & Mercaptans by TO-15	Methane	Sample Comments (i.e. PID)
56096-01	VMP2_09042025	9/4/25	14:46	14:56	-29.93	-5.42	SV	AV	2.7	2865	02035	X					X	
02	VMP4_09042025		11:35	11:45	-29.13	-5.79				188	02020	X					X	
03	VMP5_09042025		15:57	16:07	-29.46	-5.76				2766	02570	X					X	
04	VMP6_09042025		14:05	14:14	-29.42	-5.34				2237	0692	X					X	
05	VMP9_09042025		16:18	16:28	-29.63	-5.72				4365	02286	X					X	
06	DUP01_09042025		[redacted]	[redacted]	-29.35	-5.27				3206	01856	X					X	

*SAMPLE MATRIX CODES

AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type

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:	Date/Time	Received By:	Date/Time:
Andrés Valanzuela	9/5/25 955	Don D Pace	9/5/25 1155
Don D Pace	9/5/25 1420	NJSC	9/5/25 1420
Paul Mazzella	9/5/25	Paul Mazzella	9/5/25 1655

Sample Delivery Group Summary

Pace Job Number : L2556096

Account Name : Langan Engineering & Environmental
Project Number : 220181807
Project Name : BDH

Received : 05-SEP-2025
Reviewer : Christopher J Anderson

Delivery Information

Samples Delivered By : Pace Courier

Chain of Custody : Present

Cooler Information

Cooler	Seal/Seal#	Preservation	Temperature(°C)	Additional Information
NA	Present/Intact/NA			

Condition Information

1) All samples on COC received?	**YES**
2) Extra samples received?	**NO**
3) Are there any sample container discrepancies?	**NO**
4) Are there any discrepancies between COC & sample labels?	**NO**
5) Are samples in appropriate containers for requested analysis?	**YES**
6) Are samples properly preserved for requested analysis?	**YES**
7) Are samples within holding time for requested analysis?	**YES**
8) All sampling equipment returned?	**YES**

Volatile Organics/VPH

1) Reagent Water Vials Frozen by Client?	**NA**

ANALYTICAL REPORT

Lab Number:	L2572932
Client:	Langan Engineering & Environmental 1818 Market Street Suite 3300 Philadelphia, PA 19103-3638
ATTN:	Andrea Berlinghof
Phone:	(215) 845-8900
Project Name:	BDH
Project Number:	220181807
Report Date:	11/20/25

The original project report/data package is held by Pace Analytical Services. This report/data package is paginated and should be reproduced only in its entirety. Pace Analytical Services holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: NH ELAP (2249).

Project Name: BDH
Project Number: 220181807

Lab Number: L2572932
Report Date: 11/20/25

Lab Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2572932-01	VMP2_11132025	SOIL_VAPOR	3144 W PASSYUNK, PHILADELPHIA	11/13/25 14:18	11/14/25
L2572932-02	VMP4_11132025	SOIL_VAPOR	3144 W PASSYUNK, PHILADELPHIA	11/13/25 11:08	11/14/25
L2572932-03	VMP5_11132025	SOIL_VAPOR	3144 W PASSYUNK, PHILADELPHIA	11/13/25 16:55	11/14/25
L2572932-04	VMP6_11132025	SOIL_VAPOR	3144 W PASSYUNK, PHILADELPHIA	11/13/25 16:02	11/14/25
L2572932-05	VMP9_11132025	SOIL_VAPOR	3144 W PASSYUNK, PHILADELPHIA	11/13/25 11:47	11/14/25
L2572932-06	DUP01_11132025	SOIL_VAPOR	3144 W PASSYUNK, PHILADELPHIA	11/13/25 00:00	11/14/25

Project Name:	BDH	**Lab Number:**	L2572932
Project Number:	220181807	**Report Date:**	11/20/25

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 Pace 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, Pace'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 Pace Project Manager and made arrangements for Pace to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: BDH **Lab Number:** L2572932
Project Number: 220181807 **Report Date:** 11/20/25

Case Narrative (continued)

Volatile Organics in Air

Canisters were released from the laboratory on October 29, 2025. The canister certification data is provided as an addendum.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

L2572932-01 to -06: The [CCAL or LCS] associated with L2572932-01 did not meet the acceptance criteria for the full scan analysis. The associated compound(s) for those samples were reported from the SIM analysis.

L2572932-03D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

The WG2143388-3 LCS recoveries for naphthalene (58%) are outside the 70%-130% acceptance limit. The LCS was within overall method allowances, therefore the analysis proceeded. Naphthalene will be reported by SIM.

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: Christopher J. Anderson

Title: Technical Director/Representative Date: 11/20/25

AIR

Project Name: BDH
Project Number: 220181807
Lab Number: L2572932
Report Date: 11/20/25

SAMPLE RESULTS

Lab ID: L2572932-01
Client ID: VMP2_11132025
Sample Location: 3144 W PASSYUNK, PHILADELPHIA

Date Collected: 11/13/25 14:18
Date Received: 11/14/25
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 11/19/25 02:54
Analyst: KJD

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Air Lab								
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
Benzene	0.354	0.200	0.064	1.13	0.639	0.205		1
Toluene	0.597	0.200	0.087	2.25	0.754	0.327		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Ethylbenzene	0.170	0.200	0.058	0.738	0.869	0.250	J	1
p/m-Xylene	0.658	0.400	0.125	2.86	1.74	0.543		1
o-Xylene	0.271	0.200	0.062	1.18	0.869	0.270		1
Isopropylbenzene	0.078	0.200	0.062	0.383	0.983	0.305	J	1
1,3,5-Trimethylbenzene	0.103	0.200	0.060	0.506	0.983	0.295	J	1
1,2,4-Trimethylbenzene	0.277	0.200	0.058	1.36	0.983	0.284		1
Xylenes, Total	0.929	0.200	0.062	4.04	0.869	0.270		1

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-Difluorobenzene	91		60-140
Bromochloromethane	97		60-140
chlorobenzene-d5	92		60-140

Project Name: BDH
Project Number: 220181807
Lab Number: L2572932
Report Date: 11/20/25

SAMPLE RESULTS

Lab ID: L2572932-01
Client ID: VMP2_11132025
Sample Location: 3144 W PASSYUNK, PHILADELPHIA

Date Collected: 11/13/25 14:18
Date Received: 11/14/25
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15-SIM
Analytical Date: 11/19/25 02:54
Analyst: KJD

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Air Lab								
Naphthalene	0.055	0.050	0.021	0.288	0.262	0.110		1

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-difluorobenzene	112		60-140
bromochloromethane	115		60-140
chlorobenzene-d5	113		60-140

Project Name: BDH
Project Number: 220181807
Lab Number: L2572932
Report Date: 11/20/25

SAMPLE RESULTS

Lab ID: L2572932-02
Client ID: VMP4_11132025
Sample Location: 3144 W PASSYUNK, PHILADELPHIA

Date Collected: 11/13/25 11:08
Date Received: 11/14/25
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 11/19/25 03:36
Analyst: KJD

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Air Lab								
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
Benzene	0.151	0.200	0.064	0.482	0.639	0.205	J	1
Toluene	0.385	0.200	0.087	1.45	0.754	0.327		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Ethylbenzene	0.124	0.200	0.058	0.539	0.869	0.250	J	1
p/m-Xylene	0.428	0.400	0.125	1.86	1.74	0.543		1
o-Xylene	0.195	0.200	0.062	0.847	0.869	0.270	J	1
Isopropylbenzene	0.121	0.200	0.062	0.595	0.983	0.305	J	1
1,3,5-Trimethylbenzene	ND	0.200	0.060	ND	0.983	0.295		1
1,2,4-Trimethylbenzene	0.197	0.200	0.058	0.968	0.983	0.284	J	1
Xylenes, Total	0.623	0.200	0.062	2.71	0.869	0.270	J	1

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-Difluorobenzene	89		60-140
Bromochloromethane	93		60-140
chlorobenzene-d5	88		60-140

Project Name: BDH
Project Number: 220181807

Lab Number: L2572932
Report Date: 11/20/25

SAMPLE RESULTS

Lab ID: L2572932-02
Client ID: VMP4_11132025
Sample Location: 3144 W PASSYUNK, PHILADELPHIA

Date Collected: 11/13/25 11:08
Date Received: 11/14/25
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15-SIM
Analytical Date: 11/19/25 03:36
Analyst: KJD

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Air Lab								
Naphthalene	0.045	0.050	0.021	0.236	0.262	0.110	J	1

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-difluorobenzene	110		60-140
bromochloromethane	113		60-140
chlorobenzene-d5	109		60-140

Project Name: BDH
Project Number: 220181807
Lab Number: L2572932
Report Date: 11/20/25

SAMPLE RESULTS

Lab ID: L2572932-03 D
Client ID: VMP5_11132025
Sample Location: 3144 W PASSYUNK, PHILADELPHIA

Date Collected: 11/13/25 16:55
Date Received: 11/14/25
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 11/19/25 04:13
Analyst: KJD

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Air Lab								
Methyl tert butyl ether	ND	312.	70.3	ND	1120	253.		1563
1,2-Dichloroethane	ND	312.	123.	ND	1260	498.		1563
Benzene	ND	312.	100.	ND	997	319.		1563
Toluene	ND	312.	135.	ND	1180	509.		1563
1,2-Dibromoethane	ND	312.	85.0	ND	2400	653.		1563
Ethylbenzene	ND	312.	89.8	ND	1360	390.		1563
p/m-Xylene	ND	625.	195.	ND	2710	847.		1563
o-Xylene	ND	312.	97.0	ND	1360	421.		1563
Isopropylbenzene	ND	312.	97.0	ND	1530	477.		1563
1,3,5-Trimethylbenzene	ND	312.	93.7	ND	1530	461.		1563
1,2,4-Trimethylbenzene	ND	312.	90.1	ND	1530	443.		1563
Xylenes, Total	ND	312.	97.0	ND	1360	421.		1563

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-Difluorobenzene	93		60-140
Bromochloromethane	98		60-140
chlorobenzene-d5	89		60-140

Project Name: BDH
Project Number: 220181807

Lab Number: L2572932
Report Date: 11/20/25

SAMPLE RESULTS

Lab ID: L2572932-03 D
Client ID: VMP5_11132025
Sample Location: 3144 W PASSYUNK, PHILADELPHIA

Date Collected: 11/13/25 16:55
Date Received: 11/14/25
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15-SIM
Analytical Date: 11/19/25 04:13
Analyst: KJD

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Air Lab								
Naphthalene	ND	78.1	32.8	ND	410	172.		1563

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-difluorobenzene	113		60-140
bromochloromethane	118		60-140
chlorobenzene-d5	110		60-140

Project Name: BDH
Project Number: 220181807

Lab Number: L2572932
Report Date: 11/20/25

SAMPLE RESULTS

Lab ID: L2572932-04
Client ID: VMP6_11132025
Sample Location: 3144 W PASSYUNK, PHILADELPHIA

Date Collected: 11/13/25 16:02
Date Received: 11/14/25
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 11/19/25 04:56
Analyst: KJD

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Air Lab								
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
Benzene	0.239	0.200	0.064	0.764	0.639	0.205		1
Toluene	0.491	0.200	0.087	1.85	0.754	0.327		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Ethylbenzene	0.178	0.200	0.058	0.773	0.869	0.250	J	1
p/m-Xylene	0.699	0.400	0.125	3.04	1.74	0.543		1
o-Xylene	0.303	0.200	0.062	1.32	0.869	0.270		1
Isopropylbenzene	ND	0.200	0.062	ND	0.983	0.305		1
1,3,5-Trimethylbenzene	0.063	0.200	0.060	0.310	0.983	0.295	J	1
1,2,4-Trimethylbenzene	0.238	0.200	0.058	1.17	0.983	0.284		1
Xylenes, Total	1.00	0.200	0.062	4.34	0.869	0.270		1

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-Difluorobenzene	78		60-140
Bromochloromethane	81		60-140
chlorobenzene-d5	77		60-140

Project Name: BDH
Project Number: 220181807
Lab Number: L2572932
Report Date: 11/20/25

SAMPLE RESULTS

Lab ID: L2572932-04
Client ID: VMP6_11132025
Sample Location: 3144 W PASSYUNK, PHILADELPHIA

Date Collected: 11/13/25 16:02
Date Received: 11/14/25
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15-SIM
Analytical Date: 11/19/25 04:56
Analyst: KJD

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Air Lab								
Naphthalene	0.059	0.050	0.021	0.309	0.262	0.110		1

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-difluorobenzene	94		60-140
bromochloromethane	98		60-140
chlorobenzene-d5	93		60-140

Project Name: BDH
Project Number: 220181807
Lab Number: L2572932
Report Date: 11/20/25

SAMPLE RESULTS

Lab ID: L2572932-05
Client ID: VMP9_11132025
Sample Location: 3144 W PASSYUNK, PHILADELPHIA

Date Collected: 11/13/25 11:47
Date Received: 11/14/25
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 11/19/25 05:40
Analyst: KJD

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Air Lab								
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
1,2-Dichloroethane	0.471	0.200	0.079	1.91	0.809	0.319		1
Benzene	0.377	0.200	0.064	1.20	0.639	0.205		1
Toluene	1.37	0.200	0.087	5.16	0.754	0.327		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Ethylbenzene	0.252	0.200	0.058	1.09	0.869	0.250		1
p/m-Xylene	0.925	0.400	0.125	4.02	1.74	0.543		1
o-Xylene	0.343	0.200	0.062	1.49	0.869	0.270		1
Isopropylbenzene	3.30	0.200	0.062	16.2	0.983	0.305		1
1,3,5-Trimethylbenzene	0.079	0.200	0.060	0.388	0.983	0.295	J	1
1,2,4-Trimethylbenzene	0.288	0.200	0.058	1.42	0.983	0.284		1
Xylenes, Total	1.27	0.200	0.062	5.52	0.869	0.270		1

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-Difluorobenzene	94		60-140
Bromochloromethane	100		60-140
chlorobenzene-d5	98		60-140

Project Name: BDH
Project Number: 220181807

Lab Number: L2572932
Report Date: 11/20/25

SAMPLE RESULTS

Lab ID: L2572932-05
Client ID: VMP9_11132025
Sample Location: 3144 W PASSYUNK, PHILADELPHIA

Date Collected: 11/13/25 11:47
Date Received: 11/14/25
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15-SIM
Analytical Date: 11/19/25 05:40
Analyst: KJD

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Air Lab								
Naphthalene	0.048	0.050	0.021	0.252	0.262	0.110	J	1

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-difluorobenzene	116		60-140
bromochloromethane	120		60-140
chlorobenzene-d5	119		60-140

Project Name: BDH
Project Number: 220181807
Lab Number: L2572932
Report Date: 11/20/25

SAMPLE RESULTS

Lab ID: L2572932-06
Client ID: DUP01_11132025
Sample Location: 3144 W PASSYUNK, PHILADELPHIA

Date Collected: 11/13/25 00:00
Date Received: 11/14/25
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 11/19/25 09:24
Analyst: KJD

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Air Lab								
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
Benzene	0.377	0.200	0.064	1.20	0.639	0.205		1
Toluene	0.634	0.200	0.087	2.39	0.754	0.327		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Ethylbenzene	0.170	0.200	0.058	0.738	0.869	0.250	J	1
p/m-Xylene	0.642	0.400	0.125	2.79	1.74	0.543		1
o-Xylene	0.268	0.200	0.062	1.16	0.869	0.270		1
Isopropylbenzene	ND	0.200	0.062	ND	0.983	0.305		1
1,3,5-Trimethylbenzene	0.098	0.200	0.060	0.482	0.983	0.295	J	1
1,2,4-Trimethylbenzene	0.256	0.200	0.058	1.26	0.983	0.284		1
Xylenes, Total	0.910	0.200	0.062	3.95	0.869	0.270		1

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-Difluorobenzene	87		60-140
Bromochloromethane	94		60-140
chlorobenzene-d5	83		60-140

Project Name: BDH
Project Number: 220181807

Lab Number: L2572932
Report Date: 11/20/25

SAMPLE RESULTS

Lab ID: L2572932-06
Client ID: DUP01_11132025
Sample Location: 3144 W PASSYUNK, PHILADELPHIA

Date Collected: 11/13/25 00:00
Date Received: 11/14/25
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15-SIM
Analytical Date: 11/19/25 09:24
Analyst: KJD

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Air Lab								
Naphthalene	ND	0.050	0.021	ND	0.262	0.110		1

Internal Standard	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,4-difluorobenzene	106		60-140
bromochloromethane	113		60-140
chlorobenzene-d5	99		60-140

Project Name: BDH
Project Number: 220181807
Lab Number: L2572932
Report Date: 11/20/25

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 11/18/25 17:33

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Air Lab for sample(s): 01-06 Batch: WG2143388-4								
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
Xylenes, Total	ND	0.200	0.062	ND	0.869	0.270		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
Benzene	ND	0.200	0.064	ND	0.639	0.205		1
Toluene	ND	0.200	0.087	ND	0.754	0.327		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Ethylbenzene	ND	0.200	0.058	ND	0.869	0.250		1
p/m-Xylene	ND	0.400	0.125	ND	1.74	0.543		1
o-Xylene	ND	0.200	0.062	ND	0.869	0.270		1
Isopropylbenzene	ND	0.200	0.062	ND	0.983	0.305		1
1,3,5-Trimethylbenzene	ND	0.200	0.060	ND	0.983	0.295		1
1,2,4-Trimethylbenzene	ND	0.200	0.058	ND	0.983	0.284		1
Naphthalene	ND	0.190	0.059	ND	0.996	0.309		1

Project Name: BDH
Project Number: 220181807
Lab Number: L2572932
Report Date: 11/20/25

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15-SIM
Analytical Date: 11/18/25 18:17

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Air Lab for sample(s): 01-06 Batch: WG2143389-4								
Naphthalene	ND	0.050	0.021	ND	0.262	0.110		1

Lab Control Sample Analysis
Batch Quality Control

Project Name: BDH
Project Number: 220181807

Lab Number: L2572932
Report Date: 11/20/25

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Air Lab	Associated sample(s): 01-06		Batch: WG2143388-3					
Methyl tert butyl ether	92		-		70-130	-		
1,2-Dichloroethane	112		-		70-130	-		
Benzene	92		-		70-130	-		
Toluene	94		-		70-130	-		
1,2-Dibromoethane	94		-		70-130	-		
Ethylbenzene	92		-		70-130	-		
p/m-Xylene	93		-		70-130	-		
o-Xylene	95		-		70-130	-		
Isopropylbenzene	87		-		70-130	-		
1,3,5-Trimethylbenzene	90		-		70-130	-		
1,2,4-Trimethylbenzene	87		-		70-130	-		
Naphthalene	**58**	Q	-		70-130	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: BDH
Project Number: 220181807

Lab Number: L2572932
Report Date: 11/20/25

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Air Lab Associated sample(s): 01-06 Batch: WG2143389-3								
Naphthalene	76		-		70-130	-		

Lab Duplicate Analysis
Batch Quality Control

Project Name: BDH
Project Number: 220181807

Lab Number: L2572932
Report Date: 11/20/25

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Air Lab Associated sample(s): 01-06 QC Batch ID: WG2143388-5 QC Sample: L2572932-03 Client ID: VMP5_11132025						
Methyl tert butyl ether	ND	ND	ppbV	NC		25
1,2-Dichloroethane	ND	ND	ppbV	NC		25
Benzene	ND	ND	ppbV	NC		25
Toluene	ND	ND	ppbV	NC		25
1,2-Dibromoethane	ND	ND	ppbV	NC		25
Ethylbenzene	ND	ND	ppbV	NC		25
p/m-Xylene	ND	ND	ppbV	NC		25
o-Xylene	ND	ND	ppbV	NC		25
Isopropylbenzene	ND	ND	ppbV	NC		25
1,3,5-Trimethylbenzene	ND	ND	ppbV	NC		25
1,2,4-Trimethylbenzene	ND	ND	ppbV	NC		25
Xylenes, Total	ND	ND	ppbV	NC		25
Volatile Organics in Air by SIM - Mansfield Air Lab Associated sample(s): 01-06 QC Batch ID: WG2143389-5 QC Sample: L2572932-03 Client ID: VMP5_11132025						
Naphthalene	ND	ND	ppbV	NC		25

Project Name: BDH

Project Number: 220181807

Lab Number: L2572932

Report Date: 11/20/25

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt	Flow Controler Leak Chk	Flow Out mL/min	Flow In	% RPD
L2572932-01	VMP2_11132025	01896	SV200	10/29/25	541722		-	-	-	Pass	216	214	1
L2572932-01	VMP2_11132025	2218	2.7L Can	10/29/25	541722	L2567104-09	Pass	-29.5	-4.2	-	-	-	-
L2572932-02	VMP4_11132025	0853	SV200	10/29/25	541722		-	-	-	Pass	224	216	4
L2572932-02	VMP4_11132025	2310	2.7L Can	10/29/25	541722	L2566100-07	Pass	-29.5	-3.7	-	-	-	-
L2572932-03	VMP5_11132025	01992	SV200	10/29/25	541722		-	-	-	Pass	227	222	2
L2572932-03	VMP5_11132025	3747	2.7L Can	10/29/25	541722	L2566100-07	Pass	-29.6	-3.7	-	-	-	-
L2572932-04	VMP6_11132025	02539	SV200	10/29/25	541722		-	-	-	Pass	224	222	1
L2572932-04	VMP6_11132025	2339	2.7L Can	10/29/25	541722	L2567104-09	Pass	-29.5	-3.8	-	-	-	-
L2572932-05	VMP9_11132025	02035	SV200	10/29/25	541722		-	-	-	Pass	226	223	1
L2572932-05	VMP9_11132025	4415	2.7L Can	10/29/25	541722	L2566100-07	Pass	-29.5	-4.1	-	-	-	-
L2572932-06	DUP01_11132025	01328	SV200	10/29/25	541722		-	-	-	Pass	222	220	1
L2572932-06	DUP01_11132025	2224	2.7L Can	10/29/25	541722	L2567104-09	Pass	-29.6	-3.2	-	-	-	-

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2566100
Report Date: 11/20/25

Air Canister Certification Results

Lab ID: L2566100-07
Client ID: CAN 3023 SHELF 8
Sample Location:

Date Collected: 10/18/25 15:00
Date Received: 10/18/25
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 10/20/25 20:41
Analyst: KMH

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Air Lab								
Chlorodifluoromethane	ND	0.200	0.046	ND	0.707	0.164		1
Propylene	ND	0.500	0.135	ND	0.861	0.232		1
Propane	ND	0.500	0.152	ND	0.902	0.274		1
Dichlorodifluoromethane	ND	0.200	0.076	ND	0.989	0.374		1
Chloromethane	ND	0.200	0.058	ND	0.413	0.119		1
Freon-114	ND	0.200	0.050	ND	1.40	0.352		1
Methanol	ND	5.00	3.03	ND	6.55	3.97		1
Vinyl chloride	ND	0.200	0.058	ND	0.511	0.149		1
1,3-Butadiene	ND	0.200	0.062	ND	0.442	0.137		1
Butane	ND	0.200	0.080	ND	0.475	0.190		1
Bromomethane	ND	0.200	0.055	ND	0.777	0.212		1
Chloroethane	ND	0.200	0.065	ND	0.528	0.171		1
Ethanol	ND	5.00	1.74	ND	9.42	3.28		1
Dichlorofluoromethane	ND	0.200	0.112	ND	0.842	0.471		1
Vinyl bromide	ND	0.200	0.072	ND	0.874	0.316		1
Acrolein	ND	0.500	0.149	ND	1.15	0.342		1
Acetone	ND	1.00	0.515	ND	2.38	1.22		1
Acetonitrile	ND	0.200	0.101	ND	0.336	0.170		1
Trichlorofluoromethane	ND	0.200	0.079	ND	1.12	0.442		1
Isopropanol	ND	1.00	0.272	ND	2.46	0.669		1
Acrylonitrile	ND	0.500	0.089	ND	1.09	0.194		1
Pentane	ND	0.200	0.113	ND	0.590	0.333		1
Ethyl ether	ND	0.200	0.085	ND	0.606	0.259		1
1,1-Dichloroethene	ND	0.200	0.057	ND	0.793	0.225		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2566100
Report Date: 11/20/25

Air Canister Certification Results

Lab ID: L2566100-07
Client ID: CAN 3023 SHELF 8
Sample Location:

Date Collected: 10/18/25 15:00
Date Received: 10/18/25
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Air Lab								
Tertiary butyl Alcohol	ND	0.500	0.132	ND	1.52	0.400		1
Methylene chloride	ND	0.500	0.125	ND	1.74	0.434		1
3-Chloropropene	ND	0.200	0.086	ND	0.626	0.269		1
Carbon disulfide	ND	0.200	0.047	ND	0.623	0.145		1
Freon-113	ND	0.200	0.051	ND	1.53	0.388		1
trans-1,2-Dichloroethene	ND	0.200	0.076	ND	0.793	0.299		1
1,1-Dichloroethane	ND	0.200	0.057	ND	0.809	0.230		1
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
Vinyl acetate	ND	1.00	0.323	ND	3.52	1.14		1
Xylenes, total	ND	0.600	0.062	ND	0.869	0.270		1
2-Butanone	ND	0.500	0.099	ND	1.47	0.292		1
cis-1,2-Dichloroethene	ND	0.200	0.060	ND	0.793	0.236		1
Ethyl Acetate	ND	0.500	0.297	ND	1.80	1.07		1
Chloroform	ND	0.200	0.055	ND	0.977	0.270		1
Tetrahydrofuran	ND	0.500	0.117	ND	1.47	0.345		1
2,2-Dichloropropane	ND	0.200	0.043	ND	0.924	0.198		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
n-Hexane	ND	0.200	0.074	ND	0.705	0.262		1
Diisopropyl ether	ND	0.200	0.063	ND	0.836	0.264		1
tert-Butyl Ethyl Ether	ND	0.200	0.073	ND	0.836	0.306		1
1,2-Dichloroethene (total)	ND	1.00	0.060	ND	1.00	0.236		1
1,1,1-Trichloroethane	ND	0.200	0.061	ND	1.09	0.335		1
1,1-Dichloropropene	ND	0.200	0.059	ND	0.908	0.269		1
Benzene	ND	0.200	0.064	ND	0.639	0.205		1
Carbon tetrachloride	ND	0.200	0.069	ND	1.26	0.432		1
Cyclohexane	ND	0.200	0.073	ND	0.688	0.251		1
tert-Amyl Methyl Ether	ND	0.200	0.067	ND	0.836	0.281		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2566100
Report Date: 11/20/25

Air Canister Certification Results

Lab ID: L2566100-07
Client ID: CAN 3023 SHELF 8
Sample Location:

Date Collected: 10/18/25 15:00
Date Received: 10/18/25
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Air Lab								
Dibromomethane	ND	0.200	0.060	ND	1.42	0.425		1
1,2-Dichloropropane	ND	0.200	0.063	ND	0.924	0.292		1
Bromodichloromethane	ND	0.200	0.069	ND	1.34	0.462		1
1,4-Dioxane	ND	0.200	0.054	ND	0.721	0.194		1
Trichloroethene	ND	0.200	0.055	ND	1.07	0.295		1
2,2,4-Trimethylpentane	ND	0.200	0.069	ND	0.934	0.323		1
Methyl Methacrylate	ND	0.500	0.226	ND	2.05	0.925		1
Heptane	ND	0.200	0.083	ND	0.820	0.339		1
cis-1,3-Dichloropropene	ND	0.200	0.067	ND	0.908	0.306		1
4-Methyl-2-pentanone	ND	0.500	0.190	ND	2.05	0.779		1
trans-1,3-Dichloropropene	ND	0.200	0.078	ND	0.908	0.355		1
1,1,2-Trichloroethane	ND	0.200	0.058	ND	1.09	0.318		1
Toluene	ND	0.200	0.087	ND	0.754	0.327		1
1,3-Dichloropropane	ND	0.200	0.054	ND	0.924	0.248		1
2-Hexanone	ND	0.200	0.091	ND	0.820	0.374		1
Dibromochloromethane	ND	0.200	0.057	ND	1.70	0.482		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Butyl acetate	ND	0.500	0.208	ND	2.38	0.989		1
Octane	ND	0.200	0.068	ND	0.934	0.316		1
Tetrachloroethene	ND	0.200	0.063	ND	1.36	0.425		1
1,1,1,2-Tetrachloroethane	ND	0.200	0.051	ND	1.37	0.349		1
Chlorobenzene	ND	0.200	0.052	ND	0.921	0.238		1
Ethylbenzene	ND	0.200	0.058	ND	0.869	0.250		1
p/m-Xylene	ND	0.400	0.125	ND	1.74	0.543		1
Bromoform	ND	0.200	0.060	ND	2.07	0.616		1
Styrene	ND	0.200	0.060	ND	0.852	0.254		1
1,1,2,2-Tetrachloroethane	ND	0.200	0.052	ND	1.37	0.357		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2566100
Report Date: 11/20/25

Air Canister Certification Results

Lab ID: L2566100-07
Client ID: CAN 3023 SHELF 8
Sample Location:

Date Collected: 10/18/25 15:00
Date Received: 10/18/25
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Air Lab								
o-Xylene	ND	0.200	0.062	ND	0.869	0.270		1
1,2,3-Trichloropropane	ND	0.200	0.058	ND	1.21	0.347		1
Nonane	ND	0.200	0.074	ND	1.05	0.387		1
Isopropylbenzene	ND	0.200	0.062	ND	0.983	0.305		1
Bromobenzene	ND	0.200	0.058	ND	0.793	0.230		1
2-Chlorotoluene	ND	0.200	0.076	ND	1.04	0.394		1
n-Propylbenzene	ND	0.200	0.063	ND	0.983	0.311		1
4-Chlorotoluene	ND	0.200	0.077	ND	1.04	0.396		1
4-Ethyltoluene	ND	0.200	0.055	ND	0.983	0.272		1
1,3,5-Trimethylbenzene	ND	0.200	0.060	ND	0.983	0.295		1
tert-Butylbenzene	ND	0.200	0.055	ND	1.10	0.302		1
1,2,4-Trimethylbenzene	ND	0.200	0.058	ND	0.983	0.284		1
Decane	ND	0.200	0.070	ND	1.16	0.406		1
Benzyl chloride	ND	0.200	0.094	ND	1.04	0.486		1
1,3-Dichlorobenzene	ND	0.200	0.078	ND	1.20	0.467		1
1,4-Dichlorobenzene	ND	0.200	0.083	ND	1.20	0.497		1
sec-Butylbenzene	ND	0.200	0.055	ND	1.10	0.300		1
p-Isopropyltoluene	ND	0.200	0.057	ND	1.10	0.311		1
1,2-Dichlorobenzene	ND	0.200	0.062	ND	1.20	0.372		1
n-Butylbenzene	ND	0.200	0.054	ND	1.10	0.294		1
1,2-Dibromo-3-chloropropane	ND	0.200	0.062	ND	1.93	0.603		1
Undecane	ND	0.200	0.071	ND	1.28	0.453		1
Dodecane	ND	0.200	0.089	ND	1.39	0.621		1
1,2,4-Trichlorobenzene	ND	0.200	0.100	ND	1.48	0.742		1
Naphthalene	ND	0.200	0.059	ND	0.996	0.309		1
1,2,3-Trichlorobenzene	ND	0.200	0.074	ND	1.48	0.548		1
Hexachlorobutadiene	ND	0.200	0.061	ND	2.13	0.647		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L2566100

Project Number: CANISTER QC BAT **Report Date:** 11/20/25

Air Canister Certification Results

Lab ID: L2566100-07
Client ID: CAN 3023 SHELF 8
Sample Location:

Date Collected: 10/18/25 15:00
Date Received: 10/18/25
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Air Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	84		60-140
Bromochloromethane	93		60-140
chlorobenzene-d5	84		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2566100
Report Date: 11/20/25

Air Canister Certification Results

Lab ID: L2566100-07
Client ID: CAN 3023 SHELF 8
Sample Location:

Date Collected: 10/18/25 15:00
Date Received: 10/18/25
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 10/20/25 20:41
Analyst: KMH

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Air Lab								
Dichlorodifluoromethane	ND	0.200	0.050	ND	0.989	0.247		1
Chloromethane	ND	0.200	0.076	ND	0.413	0.156		1
Freon-114	ND	0.050	0.006	ND	0.349	0.045		1
Vinyl chloride	ND	0.020	0.009	ND	0.051	0.023		1
1,3-Butadiene	ND	0.020	0.011	ND	0.044	0.024		1
Bromomethane	ND	0.020	0.009	ND	0.078	0.037		1
Chloroethane	ND	0.100	0.040	ND	0.264	0.104		1
Acrolein	ND	0.050	0.039	ND	0.115	0.089		1
Acetone	ND	1.00	0.539	ND	2.38	1.28		1
Trichlorofluoromethane	ND	0.050	0.009	ND	0.281	0.052		1
Acrylonitrile	ND	0.500	0.162	ND	1.09	0.352		1
1,1-Dichloroethene	ND	0.020	0.008	ND	0.079	0.031		1
Methylene chloride	ND	0.500	0.110	ND	1.74	0.382		1
Freon-113	ND	0.050	0.008	ND	0.383	0.064		1
trans-1,2-Dichloroethene	ND	0.020	0.009	ND	0.079	0.036		1
1,1-Dichloroethane	ND	0.020	0.009	ND	0.081	0.035		1
Methyl tert butyl ether	ND	0.200	0.026	ND	0.721	0.094		1
2-Butanone	ND	0.500	0.132	ND	1.47	0.389		1
cis-1,2-Dichloroethene	ND	0.020	0.010	ND	0.079	0.040		1
Chloroform	ND	0.020	0.007	ND	0.098	0.035		1
1,2-Dichloroethane	ND	0.020	0.008	ND	0.081	0.034		1
1,1,1-Trichloroethane	ND	0.020	0.006	ND	0.109	0.032		1
Benzene	ND	0.100	0.030	ND	0.319	0.095		1
Carbon tetrachloride	ND	0.020	0.011	ND	0.126	0.069		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L2566100

Project Number: CANISTER QC BAT **Report Date:** 11/20/25

Air Canister Certification Results

Lab ID: L2566100-07
Client ID: CAN 3023 SHELF 8
Sample Location:

Date Collected: 10/18/25 15:00
Date Received: 10/18/25
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Air Lab								
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.038		1
Bromodichloromethane	ND	0.020	0.007	ND	0.134	0.050		1
1,4-Dioxane	ND	0.100	0.034	ND	0.360	0.124		1
Trichloroethene	ND	0.020	0.006	ND	0.107	0.032		1
cis-1,3-Dichloropropene	ND	0.020	0.012	ND	0.091	0.054		1
4-Methyl-2-pentanone	ND	0.500	0.191	ND	2.05	0.783		1
trans-1,3-Dichloropropene	ND	0.020	0.012	ND	0.091	0.052		1
1,1,2-Trichloroethane	ND	0.020	0.010	ND	0.109	0.053		1
Toluene	ND	0.100	0.017	ND	0.377	0.063		1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068		1
1,2-Dibromoethane	ND	0.020	0.009	ND	0.154	0.070		1
Tetrachloroethene	ND	0.020	0.007	ND	0.136	0.050		1
1,1,1,2-Tetrachloroethane	ND	0.020	0.010	ND	0.137	0.069		1
Chlorobenzene	ND	0.100	0.026	ND	0.461	0.119		1
Ethylbenzene	ND	0.020	0.009	ND	0.087	0.037		1
p/m-Xylene	ND	0.040	0.018	ND	0.174	0.078		1
Bromoform	ND	0.020	0.011	ND	0.207	0.115		1
Styrene	ND	0.020	0.008	ND	0.085	0.034		1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.046		1
o-Xylene	ND	0.020	0.009	ND	0.087	0.038		1
Isopropylbenzene	ND	0.200	0.030	ND	0.983	0.147		1
4-Ethyltoluene	ND	0.020	0.010	ND	0.098	0.049		1
1,3,5-Trimethybenzene	ND	0.020	0.010	ND	0.098	0.047		1
1,2,4-Trimethylbenzene	ND	0.020	0.008	ND	0.098	0.037		1
Benzyl chloride	ND	0.100	0.033	ND	0.518	0.172		1
1,3-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.046		1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.045		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2566100
Report Date: 11/20/25

Air Canister Certification Results

Lab ID: L2566100-07
Client ID: CAN 3023 SHELF 8
Sample Location:

Date Collected: 10/18/25 15:00
Date Received: 10/18/25
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Air Lab								
sec-Butylbenzene	ND	0.200	0.027	ND	1.10	0.146		1
p-Isopropyltoluene	ND	0.200	0.037	ND	1.10	0.201		1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.037		1
n-Butylbenzene	ND	0.200	0.032	ND	1.10	0.175		1
1,2,4-Trichlorobenzene	ND	0.050	0.015	ND	0.371	0.108		1
Naphthalene	ND	0.050	0.021	ND	0.262	0.110		1
1,2,3-Trichlorobenzene	ND	0.050	0.022	ND	0.371	0.166		1
Hexachlorobutadiene	ND	0.050	0.011	ND	0.533	0.117		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	74		60-140
bromochloromethane	85		60-140
chlorobenzene-d5	76		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2567104
Report Date: 11/20/25

Air Canister Certification Results

Lab ID: L2567104-09
Client ID: CAN 3438 SHELF 2
Sample Location:

Date Collected: 10/23/25 13:00
Date Received: 10/23/25
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 10/25/25 05:41
Analyst: KMH

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Air Lab								
Chlorodifluoromethane	ND	0.200	0.046	ND	0.707	0.164		1
Propylene	ND	0.500	0.135	ND	0.861	0.232		1
Propane	ND	0.500	0.152	ND	0.902	0.274		1
Dichlorodifluoromethane	ND	0.200	0.076	ND	0.989	0.374		1
Chloromethane	ND	0.200	0.058	ND	0.413	0.119		1
Freon-114	ND	0.200	0.050	ND	1.40	0.352		1
Methanol	ND	5.00	3.03	ND	6.55	3.97		1
Vinyl chloride	ND	0.200	0.058	ND	0.511	0.149		1
1,3-Butadiene	ND	0.200	0.062	ND	0.442	0.137		1
Butane	ND	0.200	0.080	ND	0.475	0.190		1
Bromomethane	ND	0.200	0.055	ND	0.777	0.212		1
Chloroethane	ND	0.200	0.065	ND	0.528	0.171		1
Ethanol	ND	5.00	1.74	ND	9.42	3.28		1
Dichlorofluoromethane	ND	0.200	0.112	ND	0.842	0.471		1
Vinyl bromide	ND	0.200	0.072	ND	0.874	0.316		1
Acrolein	ND	0.500	0.149	ND	1.15	0.342		1
Acetone	ND	1.00	0.515	ND	2.38	1.22		1
Acetonitrile	ND	0.200	0.101	ND	0.336	0.170		1
Trichlorofluoromethane	ND	0.200	0.079	ND	1.12	0.442		1
Isopropanol	ND	1.00	0.272	ND	2.46	0.669		1
Acrylonitrile	ND	0.500	0.089	ND	1.09	0.194		1
Pentane	ND	0.200	0.113	ND	0.590	0.333		1
Ethyl ether	ND	0.200	0.085	ND	0.606	0.259		1
1,1-Dichloroethene	ND	0.200	0.057	ND	0.793	0.225		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2567104
Report Date: 11/20/25

Air Canister Certification Results

Lab ID: L2567104-09
Client ID: CAN 3438 SHELF 2
Sample Location:

Date Collected: 10/23/25 13:00
Date Received: 10/23/25
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Air Lab								
Tertiary butyl Alcohol	ND	0.500	0.132	ND	1.52	0.400		1
Methylene chloride	ND	0.500	0.125	ND	1.74	0.434		1
3-Chloropropene	ND	0.200	0.086	ND	0.626	0.269		1
Carbon disulfide	ND	0.200	0.047	ND	0.623	0.145		1
Freon-113	ND	0.200	0.051	ND	1.53	0.388		1
trans-1,2-Dichloroethene	ND	0.200	0.076	ND	0.793	0.299		1
1,1-Dichloroethane	ND	0.200	0.057	ND	0.809	0.230		1
Methyl tert butyl ether	ND	0.200	0.045	ND	0.721	0.162		1
Vinyl acetate	ND	1.00	0.323	ND	3.52	1.14		1
Xylenes, total	ND	0.600	0.062	ND	0.869	0.270		1
2-Butanone	ND	0.500	0.099	ND	1.47	0.292		1
cis-1,2-Dichloroethene	ND	0.200	0.060	ND	0.793	0.236		1
Ethyl Acetate	ND	0.500	0.297	ND	1.80	1.07		1
Chloroform	ND	0.200	0.055	ND	0.977	0.270		1
Tetrahydrofuran	ND	0.500	0.117	ND	1.47	0.345		1
2,2-Dichloropropane	ND	0.200	0.043	ND	0.924	0.198		1
1,2-Dichloroethane	ND	0.200	0.079	ND	0.809	0.319		1
n-Hexane	ND	0.200	0.074	ND	0.705	0.262		1
Diisopropyl ether	ND	0.200	0.063	ND	0.836	0.264		1
tert-Butyl Ethyl Ether	ND	0.200	0.073	ND	0.836	0.306		1
1,2-Dichloroethene (total)	ND	1.00	0.060	ND	1.00	0.236		1
1,1,1-Trichloroethane	ND	0.200	0.061	ND	1.09	0.335		1
1,1-Dichloropropene	ND	0.200	0.059	ND	0.908	0.269		1
Benzene	ND	0.200	0.064	ND	0.639	0.205		1
Carbon tetrachloride	ND	0.200	0.069	ND	1.26	0.432		1
Cyclohexane	ND	0.200	0.073	ND	0.688	0.251		1
tert-Amyl Methyl Ether	ND	0.200	0.067	ND	0.836	0.281		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2567104
Report Date: 11/20/25

Air Canister Certification Results

Lab ID: L2567104-09
Client ID: CAN 3438 SHELF 2
Sample Location:

Date Collected: 10/23/25 13:00
Date Received: 10/23/25
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Air Lab								
Dibromomethane	ND	0.200	0.060	ND	1.42	0.425		1
1,2-Dichloropropane	ND	0.200	0.063	ND	0.924	0.292		1
Bromodichloromethane	ND	0.200	0.069	ND	1.34	0.462		1
1,4-Dioxane	ND	0.200	0.054	ND	0.721	0.194		1
Trichloroethene	ND	0.200	0.055	ND	1.07	0.295		1
2,2,4-Trimethylpentane	ND	0.200	0.069	ND	0.934	0.323		1
Methyl Methacrylate	ND	0.500	0.226	ND	2.05	0.925		1
Heptane	ND	0.200	0.083	ND	0.820	0.339		1
cis-1,3-Dichloropropene	ND	0.200	0.067	ND	0.908	0.306		1
4-Methyl-2-pentanone	ND	0.500	0.190	ND	2.05	0.779		1
trans-1,3-Dichloropropene	ND	0.200	0.078	ND	0.908	0.355		1
1,1,2-Trichloroethane	ND	0.200	0.058	ND	1.09	0.318		1
Toluene	ND	0.200	0.087	ND	0.754	0.327		1
1,3-Dichloropropane	ND	0.200	0.054	ND	0.924	0.248		1
2-Hexanone	ND	0.200	0.091	ND	0.820	0.374		1
Dibromochloromethane	ND	0.200	0.057	ND	1.70	0.482		1
1,2-Dibromoethane	ND	0.200	0.054	ND	1.54	0.418		1
Butyl acetate	ND	0.500	0.208	ND	2.38	0.989		1
Octane	ND	0.200	0.068	ND	0.934	0.316		1
Tetrachloroethene	ND	0.200	0.063	ND	1.36	0.425		1
1,1,1,2-Tetrachloroethane	ND	0.200	0.051	ND	1.37	0.349		1
Chlorobenzene	ND	0.200	0.052	ND	0.921	0.238		1
Ethylbenzene	ND	0.200	0.058	ND	0.869	0.250		1
p/m-Xylene	ND	0.400	0.125	ND	1.74	0.543		1
Bromoform	ND	0.200	0.060	ND	2.07	0.616		1
Styrene	ND	0.200	0.060	ND	0.852	0.254		1
1,1,2,2-Tetrachloroethane	ND	0.200	0.052	ND	1.37	0.357		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2567104
Report Date: 11/20/25

Air Canister Certification Results

Lab ID: L2567104-09
Client ID: CAN 3438 SHELF 2
Sample Location:

Date Collected: 10/23/25 13:00
Date Received: 10/23/25
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Air Lab								
o-Xylene	ND	0.200	0.062	ND	0.869	0.270		1
1,2,3-Trichloropropane	ND	0.200	0.058	ND	1.21	0.347		1
Nonane	ND	0.200	0.074	ND	1.05	0.387		1
Isopropylbenzene	ND	0.200	0.062	ND	0.983	0.305		1
Bromobenzene	ND	0.200	0.058	ND	0.793	0.230		1
2-Chlorotoluene	ND	0.200	0.076	ND	1.04	0.394		1
n-Propylbenzene	ND	0.200	0.063	ND	0.983	0.311		1
4-Chlorotoluene	ND	0.200	0.077	ND	1.04	0.396		1
4-Ethyltoluene	ND	0.200	0.055	ND	0.983	0.272		1
1,3,5-Trimethylbenzene	ND	0.200	0.060	ND	0.983	0.295		1
tert-Butylbenzene	ND	0.200	0.055	ND	1.10	0.302		1
1,2,4-Trimethylbenzene	ND	0.200	0.058	ND	0.983	0.284		1
Decane	ND	0.200	0.070	ND	1.16	0.406		1
Benzyl chloride	ND	0.200	0.094	ND	1.04	0.486		1
1,3-Dichlorobenzene	ND	0.200	0.078	ND	1.20	0.467		1
1,4-Dichlorobenzene	ND	0.200	0.083	ND	1.20	0.497		1
sec-Butylbenzene	ND	0.200	0.055	ND	1.10	0.300		1
p-Isopropyltoluene	ND	0.200	0.057	ND	1.10	0.311		1
1,2-Dichlorobenzene	ND	0.200	0.062	ND	1.20	0.372		1
n-Butylbenzene	ND	0.200	0.054	ND	1.10	0.294		1
1,2-Dibromo-3-chloropropane	ND	0.200	0.062	ND	1.93	0.603		1
Undecane	ND	0.200	0.071	ND	1.28	0.453		1
Dodecane	ND	0.200	0.089	ND	1.39	0.621		1
1,2,4-Trichlorobenzene	ND	0.200	0.100	ND	1.48	0.742		1
Naphthalene	ND	0.200	0.059	ND	0.996	0.309		1
1,2,3-Trichlorobenzene	ND	0.200	0.074	ND	1.48	0.548		1
Hexachlorobutadiene	ND	0.200	0.061	ND	2.13	0.647		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L2567104

Project Number: CANISTER QC BAT **Report Date:** 11/20/25

Air Canister Certification Results

Lab ID: L2567104-09
Client ID: CAN 3438 SHELF 2
Sample Location:

Date Collected: 10/23/25 13:00
Date Received: 10/23/25
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Air Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	70		60-140
Bromochloromethane	82		60-140
chlorobenzene-d5	73		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2567104
Report Date: 11/20/25

Air Canister Certification Results

Lab ID: L2567104-09
Client ID: CAN 3438 SHELF 2
Sample Location:

Date Collected: 10/23/25 13:00
Date Received: 10/23/25
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 10/26/25 23:05
Analyst: KMH

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Air Lab								
Dichlorodifluoromethane	ND	0.200	0.050	ND	0.989	0.247		1
Chloromethane	ND	0.200	0.076	ND	0.413	0.156		1
Freon-114	ND	0.050	0.006	ND	0.349	0.045		1
Vinyl chloride	ND	0.020	0.009	ND	0.051	0.023		1
1,3-Butadiene	ND	0.020	0.011	ND	0.044	0.024		1
Bromomethane	ND	0.020	0.009	ND	0.078	0.037		1
Chloroethane	ND	0.100	0.040	ND	0.264	0.104		1
Acrolein	ND	0.050	0.039	ND	0.115	0.089		1
Acetone	ND	1.00	0.539	ND	2.38	1.28		1
Trichlorofluoromethane	ND	0.050	0.009	ND	0.281	0.052		1
Acrylonitrile	ND	0.500	0.162	ND	1.09	0.352		1
1,1-Dichloroethene	ND	0.020	0.008	ND	0.079	0.031		1
Methylene chloride	ND	0.500	0.110	ND	1.74	0.382		1
Freon-113	ND	0.050	0.008	ND	0.383	0.064		1
trans-1,2-Dichloroethene	ND	0.020	0.009	ND	0.079	0.036		1
1,1-Dichloroethane	ND	0.020	0.009	ND	0.081	0.035		1
Methyl tert butyl ether	ND	0.200	0.026	ND	0.721	0.094		1
2-Butanone	ND	0.500	0.132	ND	1.47	0.389		1
cis-1,2-Dichloroethene	0.024	0.020	0.010	0.095	0.079	0.040		1
Chloroform	ND	0.020	0.007	ND	0.098	0.035		1
1,2-Dichloroethane	ND	0.020	0.008	ND	0.081	0.034		1
1,1,1-Trichloroethane	ND	0.020	0.006	ND	0.109	0.032		1
Benzene	ND	0.100	0.030	ND	0.319	0.095		1
Carbon tetrachloride	ND	0.020	0.011	ND	0.126	0.069		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2567104
Report Date: 11/20/25

Air Canister Certification Results

Lab ID: L2567104-09
Client ID: CAN 3438 SHELF 2
Sample Location:

Date Collected: 10/23/25 13:00
Date Received: 10/23/25
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Air Lab								
1,2-Dichloropropane	ND	0.020	0.008	ND	0.092	0.038		1
Bromodichloromethane	ND	0.020	0.007	ND	0.134	0.050		1
1,4-Dioxane	0.124	0.100	0.034	0.447	0.360	0.124		1
Trichloroethene	ND	0.020	0.006	ND	0.107	0.032		1
cis-1,3-Dichloropropene	ND	0.020	0.012	ND	0.091	0.054		1
4-Methyl-2-pentanone	ND	0.500	0.191	ND	2.05	0.783		1
trans-1,3-Dichloropropene	ND	0.020	0.012	ND	0.091	0.052		1
1,1,2-Trichloroethane	ND	0.020	0.010	ND	0.109	0.053		1
Toluene	ND	0.100	0.017	ND	0.377	0.063		1
Dibromochloromethane	ND	0.020	0.008	ND	0.170	0.068		1
1,2-Dibromoethane	ND	0.020	0.009	ND	0.154	0.070		1
Tetrachloroethene	ND	0.020	0.007	ND	0.136	0.050		1
1,1,1,2-Tetrachloroethane	ND	0.020	0.010	ND	0.137	0.069		1
Chlorobenzene	ND	0.100	0.026	ND	0.461	0.119		1
Ethylbenzene	ND	0.020	0.009	ND	0.087	0.037		1
p/m-Xylene	ND	0.040	0.018	ND	0.174	0.078		1
Bromoform	ND	0.020	0.011	ND	0.207	0.115		1
Styrene	ND	0.020	0.008	ND	0.085	0.034		1
1,1,2,2-Tetrachloroethane	ND	0.020	0.007	ND	0.137	0.046		1
o-Xylene	ND	0.020	0.009	ND	0.087	0.038		1
Isopropylbenzene	ND	0.200	0.030	ND	0.983	0.147		1
4-Ethyltoluene	ND	0.020	0.010	ND	0.098	0.049		1
1,3,5-Trimethybenzene	ND	0.020	0.010	ND	0.098	0.047		1
1,2,4-Trimethylbenzene	ND	0.020	0.008	ND	0.098	0.037		1
Benzyl chloride	ND	0.100	0.033	ND	0.518	0.172		1
1,3-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.046		1
1,4-Dichlorobenzene	ND	0.020	0.008	ND	0.120	0.045		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L2567104
Report Date: 11/20/25

Air Canister Certification Results

Lab ID: L2567104-09
Client ID: CAN 3438 SHELF 2
Sample Location:

Date Collected: 10/23/25 13:00
Date Received: 10/23/25
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Air Lab								
sec-Butylbenzene	ND	0.200	0.027	ND	1.10	0.146		1
p-Isopropyltoluene	ND	0.200	0.037	ND	1.10	0.201		1
1,2-Dichlorobenzene	ND	0.020	0.006	ND	0.120	0.037		1
n-Butylbenzene	ND	0.200	0.032	ND	1.10	0.175		1
1,2,4-Trichlorobenzene	ND	0.050	0.015	ND	0.371	0.108		1
Naphthalene	ND	0.050	0.021	ND	0.262	0.110		1
1,2,3-Trichlorobenzene	ND	0.050	0.022	ND	0.371	0.166		1
Hexachlorobutadiene	ND	0.050	0.011	ND	0.533	0.117		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	99		60-140
bromochloromethane	101		60-140
chlorobenzene-d5	98		60-140

Project Name: BDH
Project Number: 220181807

Lab Number: L2572932
Report Date: 11/20/25

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
NA	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2572932-01A	Canister - 2.7L (Batch Certified)	NA	NA			Y	Absent		TO15-LL(30),TO15-SIM(30)
L2572932-02A	Canister - 2.7L (Batch Certified)	NA	NA			Y	Absent		TO15-SIM(30),TO15-LL(30)
L2572932-03A	Canister - 2.7L (Batch Certified)	NA	NA			Y	Absent		TO15-LL(30),TO15-SIM(30)
L2572932-04A	Canister - 2.7L (Batch Certified)	NA	NA			Y	Absent		TO15-LL(30),TO15-SIM(30)
L2572932-05A	Canister - 2.7L (Batch Certified)	NA	NA			Y	Absent		TO15-SIM(30),TO15-LL(30)
L2572932-06A	Canister - 2.7L (Batch Certified)	NA	NA			Y	Absent		TO15-SIM(30),TO15-LL(30)

*Values in parentheses indicate holding time in days

Project Name:	BDH	**Lab Number:**	L2572932
Project Number:	220181807	**Report Date:**	11/20/25

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:	BDH	**Lab Number:**	L2572932
Project Number:	220181807	**Report Date:**	11/20/25

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 Identified Compounds (TICs). For calculated parameters, this represents that one or more values used in the calculation were

Report Format: DU Report with 'J' Qualifiers

Project Name:	BDH	**Lab Number:**	L2572932
Project Number:	220181807	**Report Date:**	11/20/25

Data Qualifiers

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: BDH
Project Number: 220181807
Lab Number: L2572932
Report Date: 11/20/25

REFERENCES

48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

LIMITATION OF LIABILITIES

Pace Analytical Services 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 Pace Analytical Services shall be to re-perform the work at it's own expense. In no event shall Pace Analytical Services 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 Pace Analytical Services.

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 – 8 Walkup Dr. Westborough, MA 01581
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, NO2, NO3.

Mansfield Facility – 320 Forbes Blvd. Mansfield, MA 02048
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.
MADEP-APH.
Nonpotable Water: EPA RSK-175 Dissolved Gases
Biological Tissue Matrix: EPA 3050B

Mansfield Facility – 120 Forbes Blvd. Mansfield, MA 02048
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

The following test method is not included in our New Jersey Secondary NELAP Scope of Accreditation:

Mansfield Facility – 320 Forbes Blvd. Mansfield, MA 02048
Determination of Selected Perfluorinated Alkyl Substances by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry Isotope Dilution (via Alpha SOP 23528)

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility – 8 Walkup Dr. Westborough, MA 01581

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, SM4500CL-G, 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.**

Mansfield Facility – 320 Forbes Blvd. Mansfield, MA 02048

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, Ca, Cr, Cu, Fe, Pb, Mg, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1: Hg. **EPA 245.7:** Hg.
SM2340B

Certification IDs:

Westborough Facility – 8 Walkup Dr. Westborough, MA 01581
CT PH-0826, IL 200077, IN C-MA-03, KY kY98045, ME MA00086, MD 348, MA M-MA086, NH 2064, NJ MA935, NY 11148, NC (DW) 25700, NC (NPW/SCM) 666, OR MA-1316, PA 68-03671, RI LAO00065, TX T104704476, VT VT-0935, VA 460195

Mansfield Facility – 320 Forbes Blvd. Mansfield, MA 02048
MA M-MA00030, CT PH-0825, ANAB/DoD L2474, IL 200081, IN C-MA-04, KY KY98046, LA 85084, ME MA00030, MI 9110, MN 025-999-495, NH 2062, NJ MA015, NY 11627, NC (NPW/SCM) 685, OR MA-0262, PA 68-02089, RI LAO00299, TX T-104704419, VT VT-0015, VA 460194, WA C954

Mansfield Facility – 120 Forbes Blvd. Mansfield, MA 02048
ANAB/DoD L2474, LA 245052, ME MA01156, MN 025-999-498, NH 2249, NJ MA025, NY 12191, OR 4203, TX T104704583, VA 460311, WA C1104.

For a complete listing of analytes and methods, please contact your Project Manager.

AIR ANALYSIS

PAGE 1 OF 1

Pace ANALYTICAL SERVICES

CHAIN OF CUSTODY

120 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 11/15/25

Pace® Job #: L2572932

Client Information

Client: LANGAN

Address: 1818 Market St STE 3300

Phone: 215-845-8900

Fax: 215-845-8901

Email: aberlingof@Langan.com

☐ These samples have been previously analyzed by Pace

Project Information

Project Name: BDH

Project Location: 3144 W Passyunk, Philadelphia

Project #: 220188807

Project Manager: Andrea Berlingof

Pace® Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX
☐ ADEx
Criteria Checker:
(Default based on Regulatory Criteria Indicated)
Other Formats:
☐ EMAIL (standard pdf report)
☐ Additional Deliverables:

Report to: (if different than Project Manager)

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed	Program	Res / Comm

Other Project Specific Requirements/Comments:

Project-Specific Target Compound List: ☐

All Columns Below Must Be Filled Out

PACE Lab ID (Lab Use Only)	Sample ID	COLLECTION End Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	ID Can	ID - Flow Controller	ANALYSIS TO-15	TO-15 SIM	APH Subtract Non-petroleum HCs ☐	Fixed Gases	Sulfides & Mercaptans by TO-15	Sample Comments (i.e. PID)
72932-01	VMP2_11132025	11/13/25	1407	1418	-30.04	-5.51	SV	AV	2.7	2218	01896	X					
-02	VMP4_11132025		1058	1108	-28.8	-5.3		AV		2310	0853	X					
-03	VMP5_11132025		1645	1655	-30.04	-5.75		AV		3747	01292	X					
-04	VMP6_11132025		1552	1602	-29.92	-6.79		AV		2339	02539	X					
-05	VMP9_11132025		1136	1147	-30.04	-5.45		AV		4415	02035	X					
-06	DUP01_11132025		~~1407~~	~~1418~~	-30.03	-4.89		AV		2224	01328	X					

*SAMPLE MATRIX CODES

AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambi-guities are resolved. All samples submitted are subject to Pace's Terms and Conditions. See reverse side.

Relinquished By:	Date/Time	Received By:	Date/Time:
Andrés Valencuela	11/13/25 2030	DonD Pace	11/14/25 1155
DonD Pace	11/14/25 1450	NJSC SS	11/14/25 1450
Paul Mazzella	11/15/25 0006	Paul Mazzella	11/14/25 1730

Form No: 101-02 Rev: (25-Sep-15)

Sample Delivery Group Summary

Pace Job Number : L2572932

Account Name : Langan Engineering & Environmental
Project Number : 220181807
Project Name : BDH

Received : 14-NOV-2025
Reviewer : Christopher J Anderson

Delivery Information

Samples Delivered By : Pace Courier

Chain of Custody : Present

Cooler Information

Cooler	Seal/Seal#	Preservation	Temperature(°C)	Additional Information
NA	Absent/			

Condition Information

1) All samples on COC received?	**YES**
2) Extra samples received?	**NO**
3) Are there any sample container discrepancies?	**NO**
4) Are there any discrepancies between COC & sample labels?	**NO**
5) Are samples in appropriate containers for requested analysis?	**YES**
6) Are samples properly preserved for requested analysis?	**YES**
7) Are samples within holding time for requested analysis?	**YES**
8) All sampling equipment returned?	**YES**

Volatile Organics/VPH

1) Reagent Water Vials Frozen by Client?	**NA**

Attachment C Data Usability Assessment Technical Memorandums

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Technical Memorandum

368 Ninth Avenue, 8th Floor New York, NY 10001 T: 609.282.8000
Mailing Address: 368 Ninth Avenue, 8th Floor New York, NY 10001-2727

To: Andrea Berlinghof, Langan Senior Project Manager

From: Krzysztof Trafalski, Langan Senior Staff Chemist

Date: September 23, 2025

Re: Data Usability Assessment
For BDH
September 2025 Soil Vapor Samples
Langan Project No.: 220181807

This memorandum presents the findings of an analytical data validation from the analysis of soil vapor samples collected in September 2025 by Langan Engineering and Environmental Services at the BDH site. The samples were analyzed by Pace Analytical Services – Mansfield, MA (NYSDOH NELAP registration # 11148) for volatile organic compounds (VOCs) using the analytical method specified below.

- VOCs by USEPA Method TO-15

Table 1, attached, summarizes the laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review.

VALIDATION OVERVIEW

This data validation was performed in accordance with the following guidelines:

- USEPA Contract Laboratory Program "National Functional Guidelines for Organic Superfund Methods Data Review" (EPA 540- R-20-005, November 2020)
- USEPA Contract Laboratory Program "National Functional Guidelines for Inorganic Superfund Methods Data Review" (EPA 540- R-20-005, November 2020), and
- published analytical methodologies.

Tier 1 data validation is based on completeness and compliance checks of sample-related QC results including: sample receipt documentation; analytical holding times; sample preservation; blank results (method, field, and trip); surrogate recoveries; MS/MSD recoveries and RPDs values; field duplicate RPDs, laboratory duplicate RPDs, and LCS/LCSD recoveries and RPDs. One (1) Sample Delivery Groups (SDG) underwent Tier 1 validation review.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the USEPA guidelines and our best professional judgment:

R – The sample results are unusable. The results are rejected because of serious deficiencies in meeting quality control criteria in accordance with the applicable validation guidelines. The analyte may or may not be present in the sample.

J – The analyte was positively identified but the associated numerical value is approximate.

UJ – The analyte was not detected at or above the method detection limit. The method detection limit may be imprecise because of potential low or indeterminate bias.

U – The analyte was not detected above the method detection limit, or the analyte detection is impacted by blank contamination and qualified as non-detect in accordance with the applicable validation guidelines.

If any validation qualifiers are assigned, these qualifiers should supersede any laboratory-applied qualifiers. Data that is not qualified because of this data validation is considered acceptable based on the items specified for review. Data that is qualified as "R" are considered invalid and are not technically usable for data interpretation. Data that is otherwise qualified because of minor data-quality anomalies are usable, as qualified in Table 2 (attached).

The following acronyms may be used in the discussion of data-quality issues:

%D	Percent Difference	MB	Method Blank
CCV	Continuing Calibration Verification	MDL	Method Detection Limit
FB	Field Blank	MS	Matrix Spike
FD	Field Duplicate	MSD	Matrix Spike Duplicate
ICAL	Initial Calibration	RF	Response Factor
ICV	Initial Calibration Verification	RL	Reporting Limit
ISTD	Internal Standard	RPD	Relative Percent Difference
LCL	Lower Control Limit	RSD	Relative Standard Deviation
LCS	Laboratory Control Sample	TB	Trip Blank
LCSD	Laboratory Control Sample Duplicate	UCL	Upper Control Limit

MAJOR DEFICIENCIES:

Major deficiencies include those that grossly impact data quality and necessitate the rejection of results. No major deficiencies were identified.

MINOR DEFICIENCIES:

Minor deficiencies include anomalies that directly impact data quality and necessitate qualification, but do not result in unusable data. No minor deficiencies were identified.

OTHER DEFICIENCIES:

Other deficiencies include anomalies that do not directly impact data quality and do not necessitate qualification. No other deficiencies were identified.

FIELD DUPLICATE:

One field duplicate and parent sample pair was collected and analyzed for all parameters. For results less than 5X the RL, analytes meet the precision criteria if the absolute difference is less than ±X the RL. For results greater than 5X the RL, analytes meet the precision criteria if the RPD is less than or equal to 25% for soil vapor. The following field duplicate and parent sample pairs were compared to the precision criteria:

- DUP01_09042025 and VMP2_09042025

The field duplicate and parent sample (DUP01_09042025 and VMP2_09042025) exhibited an absolute difference above the RL for 1,2,4-trimethylbenzene (1.24 ug/m3). The associated results are qualified as J because of potential indeterminate bias.

CONCLUSION:

Based on this evaluation, the laboratory appears to have followed the specified analytical methods except for errors discussed above. If a given fraction is not mentioned above, that means that all specified criteria were met for that parameter.

All data are considered usable, as qualified. In addition, completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:



Krzysztof Trafalski
Senior Staff Chemist

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Technical Memorandum

1 University Square Drive Princeton, NJ 08540 T: 609.282.8000
Mailing Address: 1 University Square Drive Princeton, NJ 08540

To: Andrea Berlinghof, Langan Senior Project Manager

From: Joe Conboy, Langan Project Chemist

Date: November 21, 2025

Re: Data Usability Assessment
For BDH
November 2025 Soil Vapor Samples
Langan Project No.: 220181807

This memorandum presents the findings of an analytical data validation from the analysis of soil vapor samples collected in November 2025 by Langan Engineering and Environmental Services at the BDH site. The samples were analyzed by Pace Analytical Services – Mansfield, MA (NYSDOH NELAP registration # 11148) for volatile organic compounds (VOCs) using the analytical method specified below.

- VOCs by USEPA Method TO-15 and TO-15 SIM

Table 1, attached, summarizes the laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review.

VALIDATION OVERVIEW

This data validation was performed in accordance with the following guidelines:

- USEPA Contract Laboratory Program "National Functional Guidelines for Organic Superfund Methods Data Review" (EPA 540- R-20-005, November 2020)
- USEPA Contract Laboratory Program "National Functional Guidelines for Inorganic Superfund Methods Data Review" (EPA 540- R-20-005, November 2020), and
- published analytical methodologies.

Tier 1 data validation is based on completeness and compliance checks of sample-related QC results including: sample receipt documentation; analytical holding times; sample preservation; blank results (method, field, and trip); surrogate recoveries; MS/MSD recoveries and RPDs values; field duplicate RPDs, laboratory duplicate RPDs, and LCS/LCSD recoveries and RPDs. One (1) Sample Delivery Groups (SDG) underwent Tier 1 validation review.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the USEPA guidelines and our best professional judgment:

R – The sample results are unusable. The results are rejected because of serious deficiencies in meeting quality control criteria in accordance with the applicable validation guidelines. The analyte may or may not be present in the sample.

J – The analyte was positively identified but the associated numerical value is approximate.

UJ – The analyte was not detected at or above the method detection limit. The method detection limit may be imprecise because of potential low or indeterminate bias.

U – The analyte was not detected above the method detection limit, or the analyte detection is impacted by blank contamination and qualified as non-detect in accordance with the applicable validation guidelines.

If any validation qualifiers are assigned, these qualifiers should supersede any laboratory-applied qualifiers. Data that is not qualified because of this data validation is considered acceptable based on the items specified for review. Data that is qualified as "R" are considered invalid and are not technically usable for data interpretation. Data that is otherwise qualified because of minor data-quality anomalies are usable, as qualified in Table 2 (attached).

The following acronyms may be used in the discussion of data-quality issues:

%D	Percent Difference	MB	Method Blank
CCV	Continuing Calibration Verification	MDL	Method Detection Limit
FB	Field Blank	MS	Matrix Spike
FD	Field Duplicate	MSD	Matrix Spike Duplicate
ICAL	Initial Calibration	RF	Response Factor
ICV	Initial Calibration Verification	RL	Reporting Limit
ISTD	Internal Standard	RPD	Relative Percent Difference
LCL	Lower Control Limit	RSD	Relative Standard Deviation
LCS	Laboratory Control Sample	TB	Trip Blank
LCSD	Laboratory Control Sample Duplicate	UCL	Upper Control Limit

MAJOR DEFICIENCIES:

Major deficiencies include those that grossly impact data quality and necessitate the rejection of results. No major deficiencies were identified.

MINOR DEFICIENCIES:

Minor deficiencies include anomalies that directly impact data quality and necessitate qualification, but do not result in unusable data. No minor deficiencies were identified.

OTHER DEFICIENCIES:

Other deficiencies include anomalies that do not directly impact data quality and do not necessitate qualification. The section below describes the other deficiencies that were identified.

L2972532

The LCS for batch WG2143388 exhibited a percent recovery below the LCL for naphthalene (58%). Naphthalene was reported by the SIM method. No qualification is necessary.

The clean canister certification blank L2567104-09 exhibited detections of cis-1,2-dichloroethene (SIM) (0.095 ug/m3) and 1,4-dioxane (SIM) (0.447 ug/m3). These are non-target analytes from the SIM method. No qualification is necessary.

FIELD DUPLICATE:

One field duplicate and parent sample pair was collected and analyzed for all parameters. For results less than 5X the RL, analytes meet the precision criteria if the absolute difference is less than ±X the RL. For results greater than 5X the RL, analytes meet the precision criteria if the RPD is less than or equal to 25% for soil vapor. The following field duplicate and parent sample pairs were compared to and met the precision criteria:

- DUP01_11132025 and VMP2_11132025

CONCLUSION:

Based on this evaluation, the laboratory appears to have followed the specified analytical methods except for errors discussed above. If a given fraction is not mentioned above, that means that all specified criteria were met for that parameter.

All data are considered usable, as qualified. In addition, completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:



Joe Conboy
Project Chemist