



August 14, 2023

Ms. Lisa Strobridge  
Pennsylvania Department of Environmental Protection  
Southeast Regional Office  
2 East Main Street  
Norristown, PA 19401

sent via electronic mail: [lstrobridge@pa.gov](mailto:lstrobridge@pa.gov)

**Subject: Philadelphia Energy Solutions Refining and Marketing, LLC  
Tank Group 06 Site Characterization Report Addendum  
PADEP Facility ID #51-33624 – Girard Point Refinery  
Incident No. 58434  
3144 W. Passyunk Avenue, Philadelphia, PA 19141**

Dear Lisa:

Terraphase Engineering Inc. (Terraphase) has prepared this *Tank Group 06 Site Characterization Report Addendum* (Addendum), on behalf of Philadelphia Energy Solutions Refining and Marketing LLC (PESRM). This letter serves as an addendum to the *Tank Group 06 Site Characterization Report* (SCR) submitted to the Pennsylvania Department of Environmental Protection (PADEP) on June 30, 2023. This Addendum presents the results from additional soil samples collected at Tank Group 06 (the Site) which is located within the Former Philadelphia Energy Solutions refinery facility (the "Facility"). The Facility, which is undergoing closure activities in preparation for redevelopment, is located at 3144 West Passyunk Avenue, Philadelphia, Pennsylvania (**Figure 1**). The sampling results summarized in this Addendum were received after the submittal of the SCR on June 30, 2023.

As described in the SCR, the initial identification of concentrations of contaminants in soil above applicable Medium Specific Concentrations (MSCs) in Tank Group 06 resulted in notifying PADEP of a release to the environment on January 4, 2023. The PADEP assigned the releases in Tank Group 06 to Incident No. 58434.

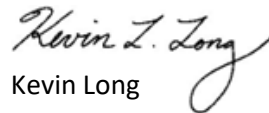
On June 15, 16, and 20, 2023, additional Site Assessment samples were collected from tanks GP R 272, GP R 273, GP R 1038, and GP R 1039. Sampling beneath these tanks could not be completed previously because the tanks had not yet been demolished. Site Assessment sampling at GP R 273 and GP R 1038 identified chemical concentrations in soil at levels above applicable Statewide Health MSCs for naphthalene and lead. A telephone notification occurred on July 18, 2023 to notify PADEP Southeast Regional office that additional Site Assessment sampling performed in Tank Group 06 identified constituents in soil at concentrations greater than the applicable MSCs. A Notification of Release Form was submitted to PADEP on July 31, 2023. Pursuant to discussions with our PADEP case team, this Addendum is being submitted to include these two tanks with the existing incident (#58434). A summary of the analytical results and figures depicting sampling locations are provided in Attachment A.


As discussed in the TG06 SCR, the Site Assessment sampling results generated by PESRM and the Site Characterization sampling results and fate and transport analysis produced by Evergreen have been used in combination to complete the SCR for Tank Group 06. The new sampling results summarized in this Addendum do not change the conclusions of the SCR.

Please contact me at [kevin.long@terraphase.com](mailto:kevin.long@terraphase.com) / 609-236-8171 x93 or Nick Scala at [nick.scala@terraphase.com](mailto:nick.scala@terraphase.com) / 609-236-8171 x92 with any questions.

Sincerely,

for Terraphase Engineering Inc.

  
Kevin Long  
Principal Consultant

  
Nicholas Scala, PG, LSRP  
Principal Geologist

KL/NS:cs

Attachments (3):

- Figure 1 – Facility Location
- Attachment A – Analytical Results
- Attachment B – Laboratory Data Package

cc: Joseph Jeray ([jjeray@hilcoglobal.com](mailto:jjeray@hilcoglobal.com))  
Amy Piccone ([apiccone@hilcoglobal.com](mailto:apiccone@hilcoglobal.com))  
Rich Staron ([rstaron@pa.gov](mailto:rstaron@pa.gov))

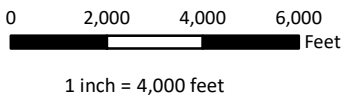
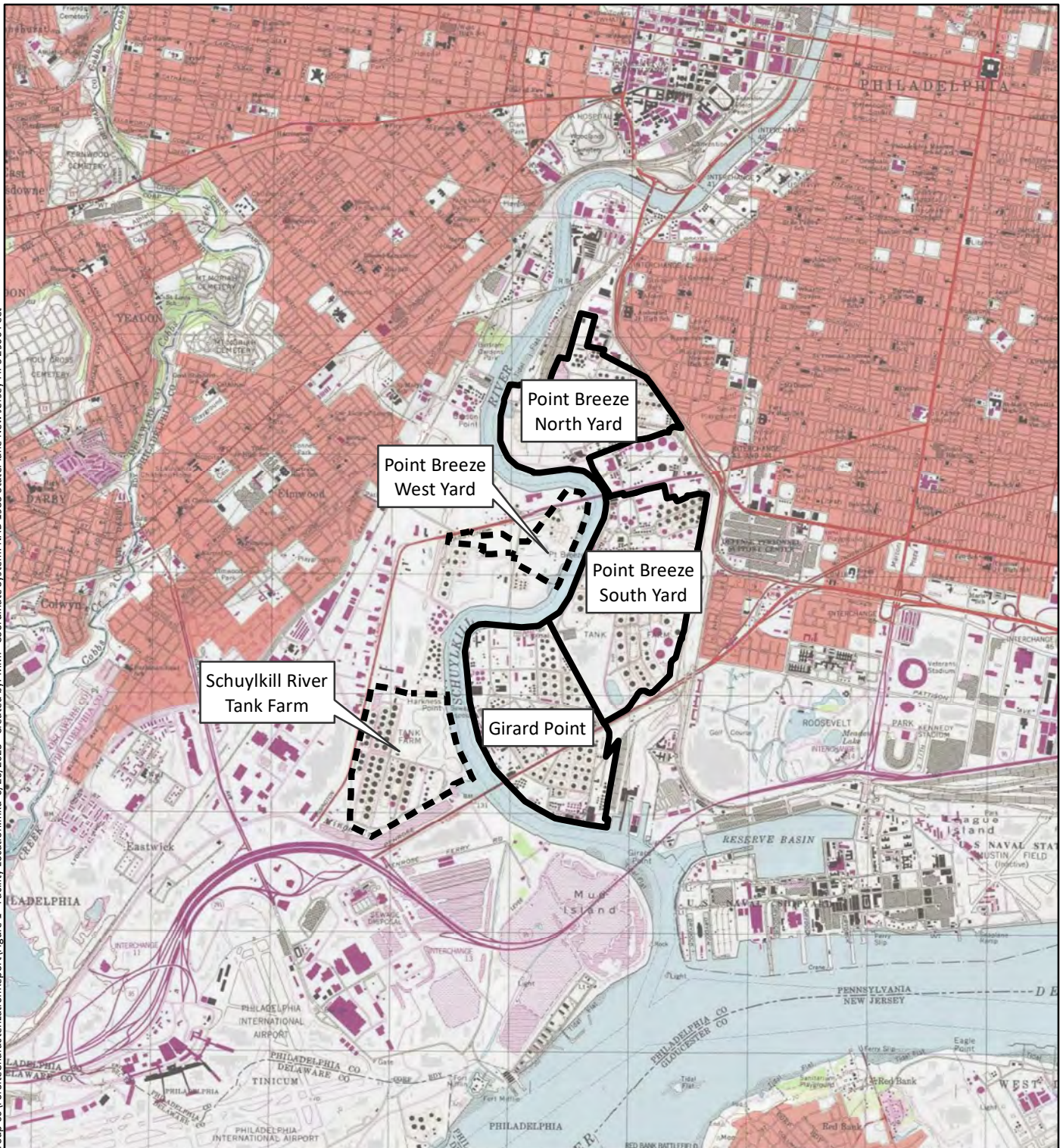
# Figures

## 1 Facility Location






File: N:\GIS\Prj\044.001\_PESRM-PE\Work\AST\Work\Tank Group 06\FacilityCharacterizationReport\Figure 1 - Facility Location.mxd 6/26/2023 Created by: MMJ Coordinate System: NAD 1983 StatePlane New Jersey FIPS 2900 Feet



**Legend**

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

Base Map: USGS Philadelphia 1994 7.5 Minute Quadrangle.

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

# Attachment A

## Analytical Results





File: N:\GIS\PI\044\_001\_PESRM-PES\WXS\AST\Work\Tank Group 06\ForSCRA\addendum\Attachment A-1 - Soil Sampling Results - GP R 272.mxd 7/28/2023 Created by: MMI Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



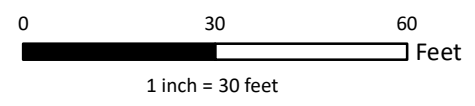
**Legend**

- Property Boundary
- Tank Group 06 Boundary
- Previously Closed AST
- Associated Piping

**Soil Sample Location**

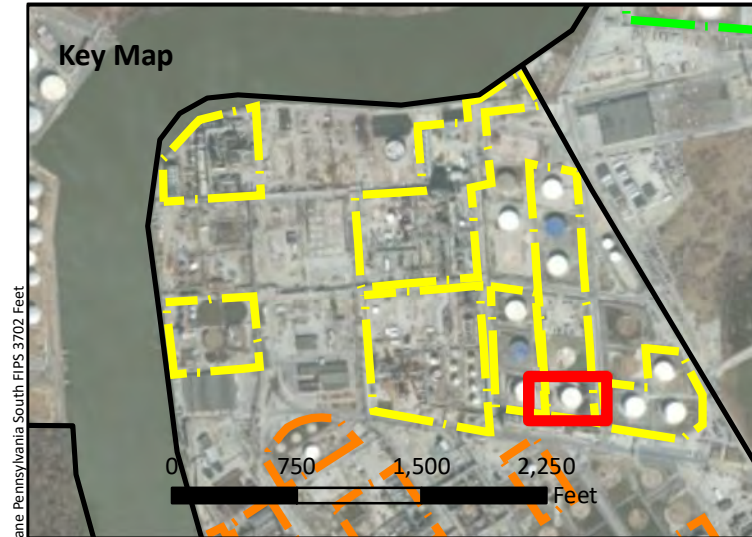
- No Exceedances
- Still Needs to be Sampled

**Note:**  
Aerial imagery source: Nearmap 10/14/2021



	CLIENT:	Philadelphia Energy Solutions Refining and Marketing LLC	<b>Soil Sampling Results (AST GP R 272)</b>
	PROJECT:	Aboveground Storage Tank Closure	
PROJECT NUMBER:	P044.001.002	<b>Attachment A-1</b>	





GP R 270

File: N:\GIS\PI\044\_001\_PESRM-PES\WXS\AST\Work\Tank Group 06\ForSCRA\addendum\Attachment A-2 - Soil Sampling Results - GP R 273.mxd 7/28/2023 Created by: Mia Coordinates System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



**Legend**

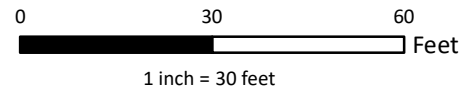
- Property Boundary
- Tank Group 06 Boundary
- Previously Closed AST
- Associated Piping

**Soil Sample Location**

- No Exceedances
- Exceeds S-GW MSC Only
- Still Needs to be Sampled

**Abbreviations:**  
 MSC -- Medium Specific Concentrations  
 S-GW -- Soil-to-Groundwater

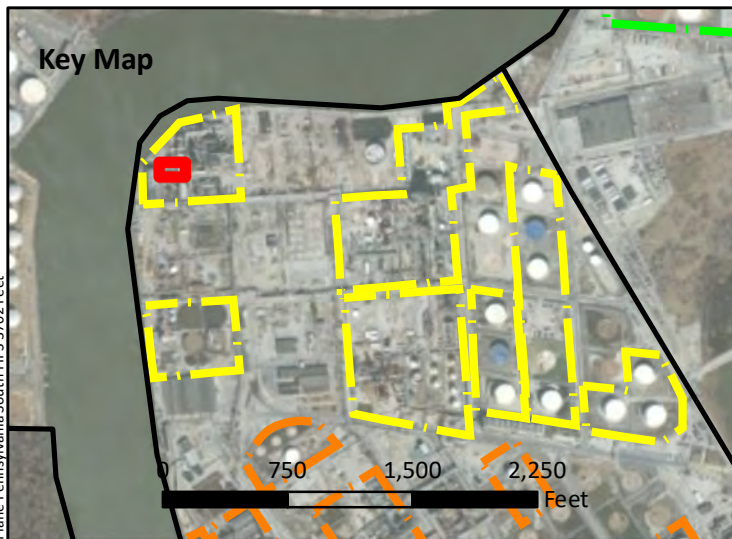
**Note:**  
Aerial imagery source: Nearmap 10/14/2021



	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	<b>Soil Sampling Results (AST GP R 273)</b>
	PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002	<b>Attachment A-2</b>	



File: N:\GIS\PI\044\_001\_PESRM-PES\WXS\AST\Work\Tank Group 06\ForSCRA\addendum\Attachment A-3 - Soil Sampling Results - GP R 1038.mxd 7/28/2023 Created by: MML Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



**Legend**

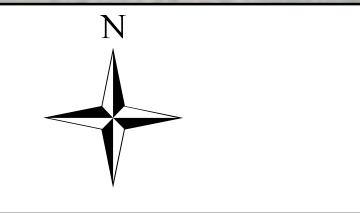
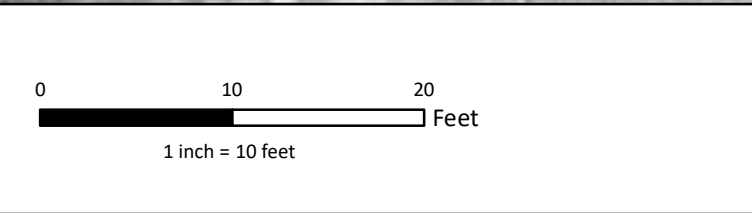
- Property Boundary
- Tank Group 06 Boundary
- Previously Closed AST
- Associated Piping

**Soil Sample Location**

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

**Abbreviations:**  
 DC -- Direct Contact  
 MSC -- Medium Specific Concentrations  
 S-GW -- Soil-to-Groundwater

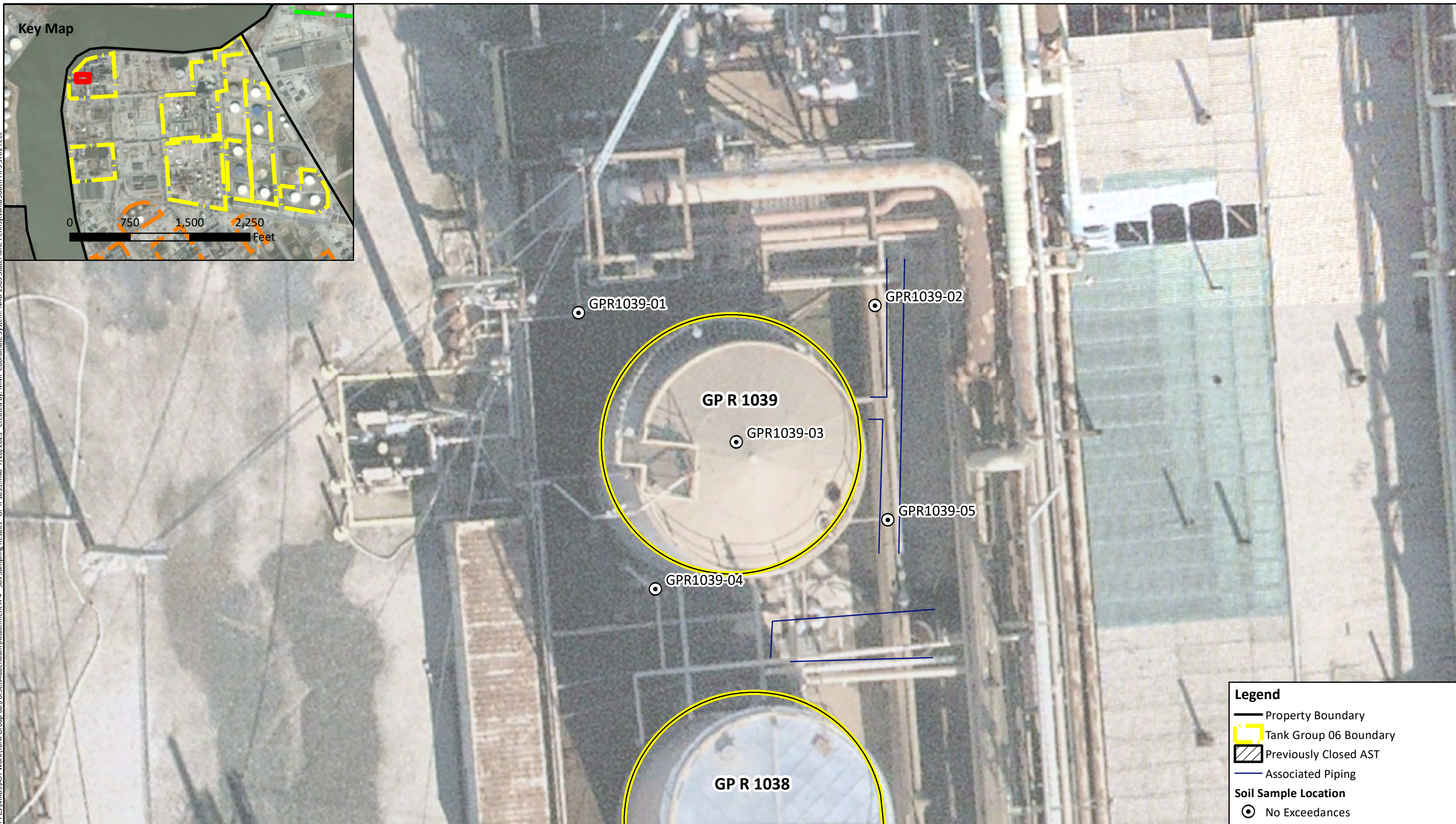
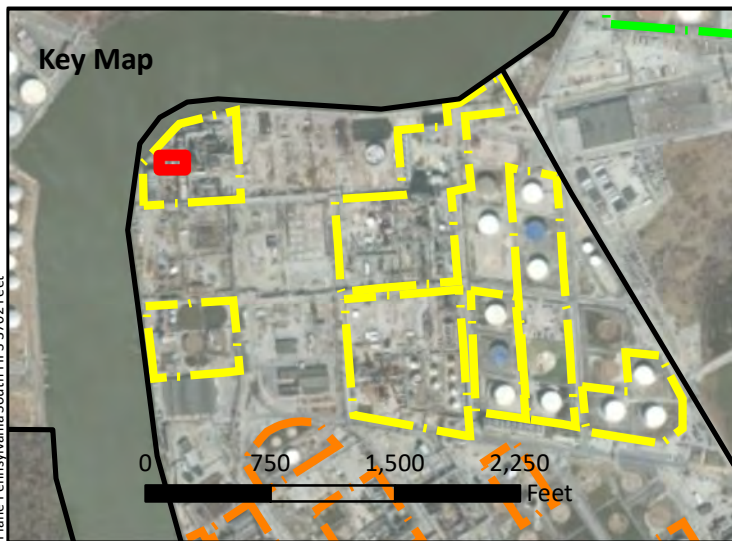
**Note:**  
 Aerial imagery source: Nearmap 2/20/2020



	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	<b>Soil Sampling Results (AST GP R 1038)</b>
	PROJECT: Aboveground Storage Tank Closure	
PROJECT NUMBER: P044.001.002	Attachment A-3	

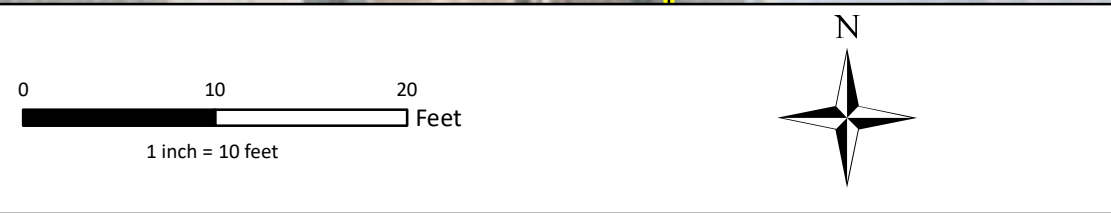


File: N:\GIS\PI\044.001\_PESRM-PES\WXS\AST\Work\Tank\_Group\_06\ForSCRA\addendum\Attachment\_A-4 - Soil Sampling Results - GPR 1039.mxd Created by: MIMI Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Legend	
	Property Boundary
	Tank Group 06 Boundary
	Previously Closed AST
	Associated Piping
Soil Sample Location	
	No Exceedances

**Note:**  
Aerial imagery source: Nearmap 2/20/2020



**SAFETY FIRST**

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

**Soil Sampling Results  
(AST GP R 1039)**

**Attachment A-4**



Attachment A

Table A-1

Summary of GP R 272 Soil Analytical Results

Tank Group 06

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

Location			GPR272-01	GPR272-02	GPR272-03	GPR272-04	GPR272-05	GPR272-06	GPR272-07	GPR272-09	GPR272-10	GPR272-10	GPR272-11
Field Sample ID	Non-Res Direct	Non-Res Used	GPR-272-1-SS01	GPR-272-2-SS01	GPR-272-3-SS01	GPR-272-4-SS01	GPR-272-5-SS01	GPR272-06-SS01	GPR272-07-SS01	GPR-272-9-SS01	DUP55	GPR272-10-SS01	GPR272-11-SS01
Collection Depth (ft bgs)	Contact with Soil	Aquifer	1.0 - 1.5	3.5 - 4.0	1.5 - 2.0	0.5 - 1.0	0.5 - 1.0	0.5 - 1.0	4.0 - 4.5	2.0 - 2.5	3.0 - 3.5	3.0 - 3.5	1.0 - 1.5
Sample Method	MSC	(TDS ≤ 2500)	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab
Sample Date		Soil-to-GW MSC	6/20/2023	6/20/2023	6/20/2023	6/20/2023	6/20/2023	6/20/2023	6/16/2023	6/16/2023	6/16/2023	6/16/2023	6/16/2023
Comments											Field Duplicate		
<b>Volatile Organic Compounds</b>													
Benzene	280	0.5	0.00025 J (0.0007)	0.00029 J (0.0007)	0.0014 (0.00095)	ND (0.00075)	ND (0.00064)	ND (0.00068)	ND (0.00086)	ND (0.00069)	ND (0.00078)	ND (0.0008)	ND (0.00093)
Cumene	10000	2500	0.05 (0.0014)	ND (0.0014)	0.00042 J (0.0019)	0.00023 J (0.0015)	ND (0.0013)	ND (0.0014)	ND (0.0017)	0.00076 J (0.0014)	ND (0.0016)	ND (0.0016)	0.001 J (0.0019)
1,2-Dibromoethane	3.7	0.005	ND (0.0007)	ND (0.0007)	ND (0.00095)	ND (0.00075)	ND (0.00064)	ND (0.00068)	ND (0.00086)	ND (0.00069)	ND (0.00078)	ND (0.0008)	ND (0.00093)
1,2-Dichloroethane	85	0.5	ND (0.0014)	ND (0.0014)	ND (0.0019)	ND (0.0015)	ND (0.0013)	ND (0.0014)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0016)	ND (0.0019)
Ethyl Benzene	880	70	ND (0.0014)	ND (0.0014)	0.00036 J (0.0019)	ND (0.0015)	ND (0.0013)	ND (0.0014)	ND (0.0017)	0.00025 J (0.0014)	ND (0.0016)	ND (0.0016)	ND (0.0019)
Methyl tert-butyl ether	8500	2	ND (0.0028)	ND (0.0028)	ND (0.0038)	ND (0.003)	ND (0.0026)	ND (0.0027)	ND (0.0034)	ND (0.0028)	ND (0.0031)	ND (0.0032)	ND (0.0037)
Toluene	10000	100	0.0019 (0.0014)	ND (0.0014)	0.0013 J (0.0019)	ND (0.0015)	ND (0.0013)	ND (0.0014)	ND (0.0017)	0.00089 J (0.0014)	ND (0.0016)	ND (0.0016)	ND (0.0019)
1,2,4-Trimethylbenzene	4700	300	0.0033 (0.0028)	0.00046 J (0.0028)	0.0014 J (0.0038)	ND (0.003)	ND (0.0026)	ND (0.0027)	ND (0.0034)	0.0016 J (0.0028)	ND (0.0031)	ND (0.0032)	ND (0.0037)
1,3,5-Trimethylbenzene	4700	93	0.0008 J (0.0028)	ND (0.0028)	0.00068 J (0.0038)	ND (0.003)	ND (0.0026)	ND (0.0027)	ND (0.0034)	0.0011 J (0.0028)	ND (0.0031)	ND (0.0032)	ND (0.0037)
Xylenes (total)	7900	1000	0.0069 (0.0014)	ND (0.0014)	0.0025 J (0.0019)	ND (0.0015)	ND (0.0013)	ND (0.0014)	ND (0.0017)	0.00094 J (0.0014)	ND (0.0016)	ND (0.0016)	ND (0.0019)
<b>Semivolatile Organic Compounds</b>													
Anthracene	190000	350	ND (0.43)	0.54 (0.39)	0.47 (0.43)	0.24 J (0.39)	ND (0.38)	0.081 J (0.14)	0.15 (0.15)	0.23 J (0.39)	ND (0.16)	0.19 (0.16)	0.61 (0.18)
Benzo(a)anthracene	130	340	0.22 J (0.43)	0.86 (0.39)	3.4 (0.43)	0.44 (0.39)	0.12 J (0.38)	0.28 (0.14)	0.23 (0.15)	0.61 (0.39)	0.064 J (0.16)	0.44 (0.16)	0.66 (0.18)
Benzo(a)pyrene	91	46	0.3 J (0.57)	1.3 (0.52)	4.1 (0.57)	0.57 (0.52)	ND (0.5)	0.46 (0.19)	0.27 (0.2)	0.86 (0.52)	ND (0.21)	0.83 (0.21)	0.93 (0.24)
Benzo(b)fluoranthene	76	170	0.35 J (0.43)	1.2 (0.39)	4.8 (0.43)	0.66 (0.39)	0.15 J (0.38)	0.49 (0.14)	0.28 (0.15)	0.87 (0.39)	0.065 J (0.16)	0.75 (0.16)	0.94 (0.18)
Benzo(g,h,i)perylene	190000	180	0.22 J (0.57)	0.77 (0.52)	2.3 (0.57)	0.38 J (0.52)	0.12 J (0.5)	0.32 (0.19)	0.16 J (0.2)	0.58 (0.52)	0.034 J (0.21)	0.6 (0.21)	0.68 (0.24)
Chrysene	760	230	0.24 J (0.43)	0.93 (0.39)	3.2 (0.43)	0.53 (0.39)	0.15 J (0.38)	0.33 (0.14)	0.29 (0.15)	0.72 (0.39)	0.089 J (0.16)	0.48 (0.16)	0.81 (0.18)
Fluorene	130000	3800	0.074 J (0.71)	0.3 J (0.65)	0.28 J (0.71)	0.26 J (0.66)	0.066 J (0.63)	0.041 J (0.24)	0.22 J (0.25)	0.23 J (0.65)	0.069 J (0.27)	0.16 J (0.26)	0.47 (0.29)
Indeno(1,2,3-cd)pyrene	76	18000	0.24 J (0.57)	0.82 (0.52)	2.8 (0.57)	0.43 J (0.52)	0.11 J (0.5)	0.37 (0.19)	0.18 J (0.2)	0.62 (0.52)	ND (0.21)	0.5 (0.21)	0.49 (0.24)
Naphthalene	66	25	1.3 (0.14)	3 (0.13)	3.8 (0.14)	2.6 (0.13)	1 (0.12)	0.64 (0.048)	1.1 (0.051)	1.8 (0.13)	0.31 (0.054)	2.7 (0.052)	5.3 (0.059)
Phenanthrene	190000	10000	0.28 J (0.43)	1 (0.39)	1.2 (0.43)	0.61 (0.39)	0.3 J (0.38)	0.14 (0.14)	0.3 (0.15)	0.73 (0.39)	0.23 (0.16)	0.48 (0.16)	1.2 (0.18)
Pyrene	96000	2200	0.3 J (0.43)	1.2 (0.39)	3.5 (0.43)	0.74 (0.39)	0.16 J (0.38)	0.25 (0.14)	0.5 (0.15)	1 (0.39)	0.22 (0.16)	0.51 (0.16)	1.6 (0.18)
<b>Metals</b>													
Lead	1000	450	164 (2.86)	145 (2.64)	273 (3.01)	275 (2.66)	438 (2.51)	136 (2.77)	238 (2.99)	101 (2.69)	320 (3.15)	139 (3.01)	368 (3.36)

Notes:

- All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- No concentrations exceed the Non-Res Direct Contact with Soil MSC.
- No concentrations exceed the Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC.

Abbreviations:

- ND - Not Detected
- J - Estimated Concentration



Attachment A

Table A-1

Summary of GP R 272 Soil Analytical Results

Tank Group 06

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

Location				GPR272-12	GPR272-13	GPR272-14	GPR272-15
Field Sample ID	Non-Res Direct	Non-Res Used	GPR-272-12-SS01	GPR-272-13-SS01	GPR-272-14-SS01	GPR-272-15-SS01	
Collection Depth (ft bgs)	Contact with Soil	Aquifer	0.5 - 1.0	2.0 - 2.5	0.5 - 1.0	4.0 - 4.5	
Sample Method	MSC	(TDS ≤ 2500)	Grab	Grab	Grab	Grab	
Sample Date		Soil-to-GW MSC	6/20/2023	6/20/2023	6/20/2023	6/20/2023	
Comments							
<b>Volatile Organic Compounds</b>							
Benzene	280	0.5	ND (0.00082)	0.00025 J (0.00064)	ND (0.0006)	ND (0.00076)	
Cumene	10000	2500	ND (0.0016)	ND (0.0013)	ND (0.0012)	0.0015 (0.0015)	
1,2-Dibromoethane	3.7	0.005	ND (0.00082)	ND (0.00064)	ND (0.0006)	ND (0.00076)	
1,2-Dichloroethane	85	0.5	ND (0.0016)	ND (0.0013)	ND (0.0012)	ND (0.0015)	
Ethyl Benzene	880	70	ND (0.0016)	ND (0.0013)	ND (0.0012)	ND (0.0015)	
Methyl tert-butyl ether	8500	2	ND (0.0033)	ND (0.0026)	ND (0.0024)	ND (0.003)	
Toluene	10000	100	ND (0.0016)	ND (0.0013)	ND (0.0012)	ND (0.0015)	
1,2,4-Trimethylbenzene	4700	300	ND (0.0033)	ND (0.0026)	ND (0.0024)	0.0025 J (0.003)	
1,3,5-Trimethylbenzene	4700	93	ND (0.0033)	ND (0.0026)	ND (0.0024)	0.0011 J (0.003)	
Xylenes (total)	7900	1000	ND (0.0016)	ND (0.0013)	ND (0.0012)	0.0024 (0.0015)	
<b>Semivolatile Organic Compounds</b>							
Anthracene	190000	350	0.33 J (0.51)	ND (0.42)	0.052 J (0.12)	1.6 (0.14)	
Benzo(a)anthracene	130	340	0.63 (0.51)	0.1 J (0.42)	0.21 (0.12)	2.5 (0.14)	
Benzo(a)pyrene	91	46	1.1 (0.68)	ND (0.56)	0.27 (0.16)	4.2 (0.19)	
Benzo(b)fluoranthene	76	170	1.2 (0.51)	ND (0.42)	0.32 (0.12)	4.3 (0.14)	
Benzo(g,h,i)perylene	190000	180	0.89 (0.68)	ND (0.56)	0.18 (0.16)	2.5 (0.19)	
Chrysene	760	230	0.63 (0.51)	0.1 J (0.42)	0.22 (0.12)	3.2 (0.14)	
Fluorene	130000	3800	0.24 J (0.85)	ND (0.7)	0.027 J (0.2)	1.6 (0.24)	
Indeno(1,2,3-cd)pyrene	76	18000	0.89 (0.68)	ND (0.56)	0.2 (0.16)	2.6 (0.19)	
Naphthalene	66	25	4.9 (0.17)	0.29 (0.14)	0.48 (0.041)	13 (0.24)	
Phenanthrene	190000	10000	0.75 (0.51)	0.13 J (0.42)	0.17 (0.12)	5.2 (0.14)	
Pyrene	96000	2200	0.62 (0.51)	0.18 J (0.42)	0.21 (0.12)	5 (0.14)	
<b>Metals</b>							
Lead	1000	450	393 (3.31)	210 (2.85)	271 (2.39)	235 (2.93)	

Notes:

- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- 2 No concentrations exceed the Non-Res Direct Contact with Soil MSC.
- 3 No concentrations exceed the Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC.

Abbreviations:

- ND - Not Detected
- J - Estimated Concentration



Attachment A

Table A-2

Summary of GP R 273 Soil Analytical Results

Tank Group 06

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

Location			GPR273-01	GPR273-02	GPR273-03	GPR273-04	GPR273-05	GPR273-07	GPR273-08	GPR273-09	GPR273-09	GPR273-11
Field Sample ID	Non-Res Direct	Non-Res Used	GPR-273-1-SS01	GPR-273-2-SS01	GPR-273-3-SS01	GPR-273-4-SS01	GPR-273-5-SS01	GPR-273-7-SS01	GPR-273-8-SS01	GPR-273-9-SS01	DUP-56	GPR-273-11-SS01
Collection Depth (ft bgs)	Contact with Soil	Aquifer	2.0 - 2.5	3.0 - 3.5	4.0 - 4.5	4.0 - 4.5	1.5 - 2.0	4.0 - 4.5	2.0 - 2.5	1.0 - 1.5	1.0 - 1.5	1.5 - 2.0
Sample Method	MSC	(TDS ≤ 2500)	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab
Sample Date		Soil-to-GW MSC	6/20/2023	6/20/2023	6/20/2023	6/20/2023	6/20/2023	6/20/2023	6/20/2023	6/20/2023	6/20/2023	6/20/2023
Comments	Field Duplicate											
<b>Volatile Organic Compounds</b>												
Benzene	280	0.5	0.069 J (0.071)	0.00047 J (0.00098)	ND (0.00098)	ND (0.001)	0.0056 (0.00074)	ND (0.00068)	ND (0.00084)	ND (0.00064)	0.0019 (0.00083)	ND (0.00079)
Cumene	10000	2500	8.5 (0.14)	0.033 (0.002)	0.11 (0.002)	0.052 (0.0021)	0.031 (0.0015)	0.019 (0.0014)	0.012 (0.0017)	0.00043 J (0.0013)	6.9 (0.13)	0.0028 (0.0016)
1,2-Dibromoethane	3.7	0.005	ND (0.00094)	ND (0.00098)	ND (0.00098)	ND (0.001)	ND (0.00074)	ND (0.00068)	ND (0.00084)	ND (0.00064)	ND (0.00083)	ND (0.00079)
1,2-Dichloroethane	85	0.5	ND (0.0019)	ND (0.002)	ND (0.002)	ND (0.0021)	ND (0.0015)	ND (0.0014)	ND (0.0017)	ND (0.0013)	ND (0.0017)	ND (0.0016)
Ethyl Benzene	880	70	0.11 J (0.14)	ND (0.002)	0.00068 J (0.002)	ND (0.0021)	0.0024 (0.0015)	ND (0.0014)	ND (0.0017)	ND (0.0013)	0.086 J (0.13)	ND (0.0016)
Methyl tert-butyl ether	8500	2	0.00075 J (0.0038)	ND (0.0039)	ND (0.0039)	ND (0.0042)	0.00046 J (0.003)	ND (0.0027)	0.0029 J (0.0034)	ND (0.0025)	ND (0.0033)	ND (0.0032)
Toluene	10000	100	0.98 (0.14)	0.0018 J (0.002)	ND (0.002)	ND (0.0021)	0.0097 (0.0015)	0.0012 J (0.0014)	0.00096 J (0.0017)	ND (0.0013)	0.26 (0.13)	ND (0.0016)
1,2,4-Trimethylbenzene	4700	300	0.35 (0.0038)	0.013 (0.0039)	0.012 (0.0039)	0.006 (0.0042)	0.011 (0.003)	0.0048 (0.0027)	0.003 J (0.0034)	ND (0.0025)	0.31 (0.26)	ND (0.0032)
1,3,5-Trimethylbenzene	4700	93	0.12 (0.0038)	0.0059 (0.0039)	0.0086 (0.0039)	0.0022 J (0.0042)	0.0053 (0.003)	0.001 J (0.0027)	0.0011 J (0.0034)	ND (0.0025)	0.1 J (0.26)	0.00041 J (0.0032)
Xylenes (total)	7900	1000	0.75 (0.0019)	0.016 (0.002)	0.0095 (0.002)	0.005 J (0.0021)	0.018 (0.0015)	0.005 J (0.0014)	0.0044 J (0.0017)	ND (0.0013)	0.42 J (0.13)	ND (0.0016)
<b>Semivolatile Organic Compounds</b>												
Anthracene	190000	350	0.67 (0.52)	0.64 (0.53)	0.77 (0.5)	1.4 (0.53)	0.18 J (0.39)	0.22 J (0.38)	2 (0.49)	0.28 J (0.34)	0.35 (0.16)	ND (0.46)
Benzo(a)anthracene	130	340	1.4 (0.52)	0.7 (0.53)	1.1 (0.5)	0.94 (0.53)	0.12 J (0.39)	0.28 J (0.38)	1.5 (0.49)	0.53 (0.34)	0.36 (0.16)	0.35 J (0.46)
Benzo(a)pyrene	91	46	1.3 (0.7)	0.42 J (0.71)	0.9 (0.67)	0.77 (0.7)	ND (0.52)	0.19 J (0.5)	1.1 (0.66)	0.66 (0.46)	0.25 (0.21)	0.42 J (0.62)
Benzo(b)fluoranthene	76	170	1.3 (0.52)	0.47 J (0.53)	0.92 (0.5)	0.72 (0.53)	0.15 J (0.39)	0.22 J (0.38)	1.2 (0.49)	0.73 (0.34)	0.26 (0.16)	0.48 (0.46)
Benzo(g,h,i)perylene	190000	180	0.72 (0.7)	0.21 J (0.71)	0.42 J (0.67)	0.32 J (0.7)	0.22 J (0.52)	0.13 J (0.5)	0.51 J (0.66)	0.67 (0.46)	0.13 J (0.21)	0.28 J (0.62)
Chrysene	760	230	1.6 (0.52)	0.83 (0.53)	1 (0.5)	1.1 (0.53)	0.15 J (0.39)	0.33 J (0.38)	1.7 (0.49)	0.57 (0.34)	0.37 (0.16)	0.36 J (0.46)
Fluorene	130000	3800	0.79 J (0.87)	0.88 J (0.89)	0.9 (0.83)	1.4 (0.88)	0.15 J (0.65)	0.33 J (0.63)	2.3 (0.82)	0.11 J (0.58)	0.5 (0.27)	ND (0.77)
Naphthalene	66	25	2.5 (0.17)	2 (0.18)	1.2 (0.17)	2.4 (0.18)	1.7 (0.13)	0.7 (0.12)	5.1 (0.16)	1.7 (0.12)	0.76 (0.053)	0.75 (0.15)
Phenanthrene	190000	10000	3.3 (0.52)	1.9 (0.53)	3 (0.5)	4.8 (0.53)	0.45 (0.39)	1 (0.38)	8.2 (0.49)	0.57 (0.34)	1.5 (0.16)	0.23 J (0.46)
Pyrene	96000	2200	3.2 (0.52)	2.3 (0.53)	1.9 (0.5)	2.2 (0.53)	0.25 J (0.39)	0.78 (0.38)	4.3 (0.49)	0.62 (0.34)	0.81 (0.16)	0.35 J (0.46)
<b>Metals</b>												
Lead	1000	450	272 (3.53)	377 (3.49)	157 (3.45)	205 (3.73)	<u>480 (2.67)</u>	186 (2.54)	410 (3.2)	293 (2.32)	154 (3.18)	410 (2.99)

Notes:

- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- 2 No concentrations exceed the Non-Res Direct Contact with Soil MSC.
- 3 Underlined concentrations exceed the Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC.

Abbreviations:

ND - Not Detected  
J - Estimated Concentration



Attachment A

Table A-2

Summary of GP R 273 Soil Analytical Results

Tank Group 06

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

Location				GPR273-12	GPR273-13	GPR273-14
Field Sample ID	Non-Res Direct	Non-Res Used	GPR-273-12-SS01	GPR-273-13-SS01	GPR-273-14-SS01	
Collection Depth (ft bgs)	Contact with Soil	Aquifer	4.0 - 4.5	2.0 - 2.5	3.0 - 3.5	
Sample Method	MSC	(TDS ≤ 2500)	Grab	Grab	Grab	
Sample Date		Soil-to-GW MSC	6/20/2023	6/20/2023	6/20/2023	
Comments						
<b>Volatile Organic Compounds</b>						
Benzene	280	0.5	ND (0.00081)	ND (0.00078)	ND (0.00068)	
Cumene	10000	2500	0.0032 (0.0016)	0.0044 (0.0016)	0.00032 J (0.0014)	
1,2-Dibromoethane	3.7	0.005	ND (0.00081)	ND (0.00078)	ND (0.00068)	
1,2-Dichloroethane	85	0.5	ND (0.0016)	ND (0.0016)	ND (0.0014)	
Ethyl Benzene	880	70	ND (0.0016)	0.00022 J (0.0016)	ND (0.0014)	
Methyl tert-butyl ether	8500	2	ND (0.0032)	ND (0.0031)	ND (0.0027)	
Toluene	10000	100	ND (0.0016)	ND (0.0016)	ND (0.0014)	
1,2,4-Trimethylbenzene	4700	300	0.0015 J (0.0032)	0.0022 J (0.0031)	ND (0.0027)	
1,3,5-Trimethylbenzene	4700	93	0.0012 J (0.0032)	0.0011 J (0.0031)	ND (0.0027)	
Xylenes (total)	7900	1000	0.00062 J (0.0016)	0.0011 J (0.0016)	ND (0.0014)	
<b>Semivolatile Organic Compounds</b>						
Anthracene	190000	350	0.58 (0.46)	0.15 J (0.45)	0.2 J (0.39)	
Benzo(a)anthracene	130	340	0.66 (0.46)	0.23 J (0.45)	0.21 J (0.39)	
Benzo(a)pyrene	91	46	0.75 (0.61)	0.22 J (0.6)	0.22 J (0.52)	
Benzo(b)fluoranthene	76	170	0.76 (0.46)	0.22 J (0.45)	0.25 J (0.39)	
Benzo(g,h,i)perylene	190000	180	0.6 J (0.61)	0.18 J (0.6)	0.16 J (0.52)	
Chrysene	760	230	0.89 (0.46)	0.28 J (0.45)	0.27 J (0.39)	
Fluorene	130000	3800	0.57 J (0.76)	0.14 J (0.76)	0.17 J (0.65)	
Naphthalene	66	25	3.5 (0.15)	1.1 (0.15)	1.8 (0.13)	
Phenanthrene	190000	10000	1.9 (0.46)	0.35 J (0.45)	0.5 (0.39)	
Pyrene	96000	2200	2.1 (0.46)	0.44 J (0.45)	0.48 (0.39)	
<b>Metals</b>						
Lead	1000	450	429 (3.07)	401 (2.93)	329 (2.64)	

Notes:

- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- 2 No concentrations exceed the Non-Res Direct Contact with Soil MSC.
- 3 Underlined concentrations exceed the Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC.

Abbreviations:

- ND - Not Detected
- J - Estimated Concentration

Attachment A

Table A-3

Summary of GP R 1038 Soil Analytical Results

Tank Group 06

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

Location			GPR1038-01	GPR1038-02	GPR1038-03	GPR1038-04	GPR1038-05
Field Sample ID	Non-Res Direct	Non-Res Used	GPR1038-01-SS01	GPR1038-02-SS01	GPR1038-03-SS01	GPR1038-04-SS01	GPR1038-05-SS01
Collection Depth (ft bgs)	Contact with Soil	Aquifer	1.5 - 2.0	2.5 - 3.0	2.5 - 3.0	1.5 - 2.0	3.0 - 3.5
Sample Method	MSC	(TDS ≤ 2500)	Grab	Grab	Grab	Grab	Grab
Sample Date		Soil-to-GW MSC	6/16/2023	6/16/2023	6/16/2023	6/15/2023	6/16/2023
Comments							
<b>Volatile Organic Compounds</b>							
Benzene	280	0.5	0.0084 (0.00066)	ND (0.00063)	ND (0.0006)	0.04 J (0.041)	0.14 (0.047)
Cumene	10000	2500	0.026 (0.0013)	0.026 (0.0012)	0.00034 J (0.0012)	1.4 (0.082)	1.7 (0.094)
1,2-Dibromoethane	3.7	0.005	ND (0.00066)	ND (0.00063)	ND (0.0006)	ND (0.041)	ND (0.047)
1,2-Dichloroethane	85	0.5	ND (0.0013)	ND (0.0012)	ND (0.0012)	ND (0.082)	ND (0.094)
Ethyl Benzene	880	70	0.01 (0.0013)	ND (0.0012)	ND (0.0012)	1 (0.082)	0.091 J (0.094)
Methyl tert-butyl ether	8500	2	ND (0.0027)	ND (0.0025)	ND (0.0024)	ND (0.16)	ND (0.19)
Toluene	10000	100	0.022 (0.0013)	ND (0.0012)	ND (0.0012)	0.44 (0.082)	0.23 (0.094)
1,2,4-Trimethylbenzene	4700	300	0.078 (0.0027)	0.0016 J (0.0025)	0.00059 J (0.0024)	24 (0.16)	0.11 J (0.19)
1,3,5-Trimethylbenzene	4700	93	0.016 (0.0027)	0.00072 J (0.0025)	0.00025 J (0.0024)	17 (0.16)	ND (0.19)
Xylenes (total)	7900	1000	0.16 (0.0013)	0.0025 J (0.0012)	ND (0.0012)	20 (0.082)	0.37 J (0.094)
<b>Semivolatile Organic Compounds</b>							
Anthracene	190000	350	0.24 (0.14)	0.52 J (0.61)	0.055 J (0.13)	4.1 J (5.9)	0.44 J (0.66)
Benzo(a)anthracene	130	340	0.96 (0.14)	0.73 (0.61)	0.29 (0.13)	1.3 J (5.9)	ND (0.66)
Benzo(a)pyrene	91	46	1 (0.18)	0.72 J (0.81)	0.25 (0.18)	ND (7.8)	0.59 J (0.88)
Benzo(b)fluoranthene	76	170	1 (0.14)	0.68 (0.61)	0.29 (0.13)	ND (5.9)	0.44 J (0.66)
Benzo(g,h,i)perylene	190000	180	0.5 (0.18)	0.54 J (0.81)	0.12 J (0.18)	ND (7.8)	0.5 J (0.88)
Chrysene	760	230	0.98 (0.14)	0.9 (0.61)	0.28 (0.13)	1.7 J (5.9)	ND (0.66)
Fluorene	130000	3800	0.18 J (0.23)	0.88 J (1)	0.029 J (0.22)	11 (9.8)	ND (1.1)
Naphthalene	66	25	0.55 (0.045)	0.55 (0.2)	0.042 J (0.044)	<b>150 (2)</b>	0.83 (0.22)
Phenanthrene	190000	10000	0.62 (0.14)	1.4 (0.61)	0.18 (0.13)	24 (5.9)	1.6 (0.66)
Pyrene	96000	2200	1.2 (0.14)	1.1 (0.61)	0.35 (0.13)	4.9 J (5.9)	1.9 (0.66)
<b>Physical Properties</b>							
pH	--	--	8.62	7.18	8.13	7.73	7.28
<b>Metals</b>							
Lead	1000	450	255 (2.61)	<u>686 (2.41)</u>	232 (2.61)	427 (2.33)	256 (2.54)

Notes:

- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- 2 Boldfaced and gray shaded concentrations exceed the Non-Res Direct Contact with Soil MSC.
- 3 Underlined concentrations exceed the Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC.

Abbreviations:

- ND - Not Detected
- J - Estimated Concentration



Attachment A

Table A-4

Summary of GP R 1039 Soil Analytical Results

Tank Group 06

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

Location			GPR1039-01	GPR1039-02	GPR1039-03	GPR1039-04	GPR1039-05
Field Sample ID	Non-Res Direct	Non-Res Used	GPR1039-01-SS01	GPR1039-02-SS01	GPR1039-03-SS01	GPR1039-04-SS01	GPR1039-05-SS01
Collection Depth (ft bgs)	Contact with Soil	Aquifer	3.0 - 3.5	3.0 - 3.5	3.0 - 3.5	2.0 - 2.5	2.5 - 3.0
Sample Method	MSC	(TDS ≤ 2500)	Grab	Grab	Grab	Grab	Grab
Sample Date	Soil-to-GW MSC		6/16/2023	6/16/2023	6/16/2023	6/16/2023	6/16/2023
Comments							
<b>Volatile Organic Compounds</b>							
Benzene	280	0.5	0.0018 (0.00067)	0.00088 J (0.00094)	ND (0.00058)	ND (0.00063)	ND (0.00079)
<b>Semivolatile Organic Compounds</b>							
Anthracene	190000	350	0.46 J (1.3)	0.42 J (0.71)	0.15 (0.13)	1.7 (1.3)	1.2 (0.75)
Benzo(a)anthracene	130	340	0.37 J (1.3)	ND (0.71)	0.34 (0.13)	ND (1.3)	0.54 J (0.75)
Benzo(a)pyrene	91	46	ND (1.8)	0.64 J (0.95)	0.33 (0.18)	ND (1.7)	0.4 J (1)
Benzo(b)fluoranthene	76	170	ND (1.3)	0.68 J (0.71)	0.36 (0.13)	ND (1.3)	0.42 J (0.75)
Benzo(g,h,i)perylene	190000	180	0.26 J (1.8)	0.56 J (0.95)	0.25 (0.18)	ND (1.7)	0.27 J (1)
Chrysene	760	230	0.92 J (1.3)	ND (0.71)	0.48 (0.13)	ND (1.3)	0.73 J (0.75)
Fluorene	130000	3800	0.67 J (2.2)	0.38 J (1.2)	0.17 J (0.22)	1.6 J (2.2)	1.3 (1.2)
Naphthalene	66	25	0.36 J (0.44)	2 (0.24)	0.26 (0.044)	0.91 (0.43)	0.97 (0.25)
Phenanthrene	190000	10000	2.1 (1.3)	1.5 (0.71)	0.58 (0.13)	5.4 (1.3)	2.6 (0.75)
Pyrene	96000	2200	1.2 J (1.3)	1.5 (0.71)	0.86 (0.13)	2.6 (1.3)	2.5 (0.75)

Notes:

- 1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
- 2 No concentrations exceed the Non-Res Direct Contact with Soil MSC.
- 3 No concentrations exceed the Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC.

Abbreviations:

- ND - Not Detected
- J - Estimated Concentration

# Attachment B

## Laboratory Data Package







## ANALYTICAL REPORT

Lab Number:	L2334089
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	260.00135.014.03
Report Date:	06/22/23

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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).

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



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 260.00135.014.03

**Lab Number:** L2334089  
**Report Date:** 06/22/23

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Matrix</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>	<b>Receive Date</b>
L2334089-01	GPR1038-04-SS01	SOIL	PHILADELPHIA, PA	06/15/23 08:55	06/15/23



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 260.00135.014.03

**Lab Number:** L2334089  
**Report Date:** 06/22/23

### 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:** PHILADELPHIA REFINERY  
**Project Number:** 260.00135.014.03

**Lab Number:** L2334089  
**Report Date:** 06/22/23

### Case Narrative (continued)

#### Report Submission

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

#### Sample Receipt

The Client ID and the analyses performed were specified by the client.

#### Volatile Organics

L2334089-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (227%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

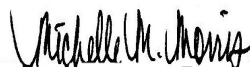
#### PAHs

L2334089-01D: The sample has elevated detection limits due to the dilution required by the matrix interferences encountered during the concentration of the sample and the analytical dilution required by the sample matrix.

L2334089-01D: The surrogate recoveries are below the acceptance criteria for nitrobenzene-d5 (0%), 2-fluorobiphenyl (0%), and 4-terphenyl-d14 (0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.

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

Authorized Signature:



Michelle M. Morris

Title: Technical Director/Representative

Date: 06/22/23

# ORGANICS



# VOLATILES

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 260.00135.014.03

**Lab Number:** L2334089  
**Report Date:** 06/22/23

**SAMPLE RESULTS**

Lab ID: L2334089-01  
 Client ID: GPR1038-04-SS01  
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/15/23 08:55  
 Date Received: 06/15/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/22/23 05:47  
 Analyst: JIC  
 Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 High - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.16	0.016	1
Benzene	0.040	J	mg/kg	0.041	0.014	1
1,2-Dichloroethane	ND		mg/kg	0.082	0.021	1
Toluene	0.44		mg/kg	0.082	0.045	1
1,2-Dibromoethane	ND		mg/kg	0.041	0.024	1
Ethylbenzene	1.0		mg/kg	0.082	0.012	1
p/m-Xylene	14.		mg/kg	0.16	0.046	1
o-Xylene	6.0		mg/kg	0.082	0.024	1
Xylenes, Total	20.		mg/kg	0.082	0.024	1
Isopropylbenzene	1.4		mg/kg	0.082	0.0090	1
1,3,5-Trimethylbenzene	17.		mg/kg	0.16	0.016	1
1,2,4-Trimethylbenzene	24.		mg/kg	0.16	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	129		70-130
4-Bromofluorobenzene	<b>227</b>	Q	70-130
Dibromofluoromethane	106		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 260.00135.014.03

**Lab Number:** L2334089  
**Report Date:** 06/22/23

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

Analytical Method: 1,8260D  
Analytical Date: 06/21/23 22:50  
Analyst: JIC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1794810-5					
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	115		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	104		70-130



## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 260.00135.014.03

**Lab Number:** L2334089  
**Report Date:** 06/22/23

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1794810-3 WG1794810-4								
Methyl tert butyl ether	91		88		66-130	3		30
Benzene	79		77		70-130	3		30
1,2-Dichloroethane	104		101		70-130	3		30
Toluene	76		74		70-130	3		30
1,2-Dibromoethane	82		80		70-130	2		30
Ethylbenzene	80		78		70-130	3		30
p/m-Xylene	84		82		70-130	2		30
o-Xylene	86		84		70-130	2		30
Isopropylbenzene	77		76		70-130	1		30
1,3,5-Trimethylbenzene	79		78		70-130	1		30
1,2,4-Trimethylbenzene	79		77		70-130	3		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	120		116		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	91		92		70-130
Dibromofluoromethane	108		107		70-130

# SEMIVOLATILES

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 260.00135.014.03

**Lab Number:** L2334089  
**Report Date:** 06/22/23

**SAMPLE RESULTS**

Lab ID: L2334089-01 D  
 Client ID: GPR1038-04-SS01  
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/15/23 08:55  
 Date Received: 06/15/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/22/23 12:31  
 Analyst: IM  
 Percent Solids: 85%

Extraction Method: EPA 3546  
 Extraction Date: 06/17/23 18:42

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	150		mg/kg	2.0	1.2	50
Fluorene	11.		mg/kg	9.8	0.95	50
Phenanthrene	24.		mg/kg	5.9	1.2	50
Anthracene	4.1	J	mg/kg	5.9	1.9	50
Pyrene	4.9	J	mg/kg	5.9	0.97	50
Benzo(a)anthracene	1.3	J	mg/kg	5.9	1.1	50
Chrysene	1.7	J	mg/kg	5.9	1.0	50
Benzo(b)fluoranthene	ND		mg/kg	5.9	1.6	50
Benzo(a)pyrene	ND		mg/kg	7.8	2.4	50
Benzo(ghi)perylene	ND		mg/kg	7.8	1.1	50

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



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 260.00135.014.03

**Lab Number:** L2334089  
**Report Date:** 06/22/23

**Method Blank Analysis  
 Batch Quality Control**

Analytical Method: 1,8270E  
 Analytical Date: 06/19/23 20:22  
 Analyst: CMM

Extraction Method: EPA 3546  
 Extraction Date: 06/17/23 18:42

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1792772-1					
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
2-Fluorophenol	74		25-120
Phenol-d6	71		10-120
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	66		30-120
2,4,6-Tribromophenol	75		10-136
4-Terphenyl-d14	69		18-120

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 260.00135.014.03

**Lab Number:** L2334089  
**Report Date:** 06/22/23

<b>Parameter</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>LCSD %Recovery</b>	<b>Qual</b>	<b>%Recovery Limits</b>	<b>RPD</b>	<b>Qual</b>	<b>RPD Limits</b>
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1792772-2 WG1792772-3								
Naphthalene	57		64		40-140	12		50
Fluorene	58		79		40-140	31		50
Phenanthrene	57		65		40-140	13		50
Anthracene	57		68		40-140	18		50
Pyrene	56		77		35-142	32		50
Benzo(a)anthracene	59		68		40-140	14		50
Chrysene	56		64		40-140	13		50
Benzo(b)fluoranthene	58		68		40-140	16		50
Benzo(a)pyrene	60		69		40-140	14		50
Benzo(ghi)perylene	57		66		40-140	15		50

<b>Surrogate</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>LCSD %Recovery</b>	<b>Qual</b>	<b>Acceptance Criteria</b>
2-Fluorophenol	63		73		25-120
Phenol-d6	65		70		10-120
Nitrobenzene-d5	65		69		23-120
2-Fluorobiphenyl	55		64		30-120
2,4,6-Tribromophenol	71		82		10-136
4-Terphenyl-d14	52		69		18-120

## METALS



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 260.00135.014.03

**Lab Number:** L2334089  
**Report Date:** 06/22/23

**SAMPLE RESULTS**

Lab ID: L2334089-01  
 Client ID: GPR1038-04-SS01  
 Sample Location: PHILADELPHIA, PA

Date Collected: 06/15/23 08:55  
 Date Received: 06/15/23  
 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
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	427		mg/kg	2.33	0.125	1	06/19/23 12:42	06/21/23 09:33	EPA 3050B	1,6010D	DHL



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 260.00135.014.03

**Lab Number:** L2334089  
**Report Date:** 06/22/23

## 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): 01 Batch: WG1792660-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	06/19/23 12:42	06/19/23 21:57	1,6010D	DHL

### Prep Information

Digestion Method: EPA 3050B

## Lab Control Sample Analysis

Batch Quality Control

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 260.00135.014.03

**Lab Number:** L2334089  
**Report Date:** 06/22/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1792660-2 SRM Lot Number: D119-540								
Lead, Total	102		-		82-118	-		



**Matrix Spike Analysis**  
Batch Quality Control

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 260.00135.014.03

**Lab Number:** L2334089  
**Report Date:** 06/22/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1792660-3 WG1792660-4 QC Sample: L2334208-11 Client ID: MS Sample												
Lead, Total	42.9	46.3	88.7	99		92.3	105		75-125	4		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1792660-7 WG1792660-8 QC Sample: L2334208-12 Client ID: MS Sample												
Lead, Total	8.50	45.1	52.1	97		51.9	95		75-125	0		20

# **INORGANICS & MISCELLANEOUS**

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 260.00135.014.03

**Lab Number:** L2334089  
**Report Date:** 06/22/23

**SAMPLE RESULTS**

**Lab ID:** L2334089-01  
**Client ID:** GPR1038-04-SS01  
**Sample Location:** PHILADELPHIA, PA

**Date Collected:** 06/15/23 08:55  
**Date Received:** 06/15/23  
**Field Prep:** Not Specified

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

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	84.5		%	0.100	NA	1	-	06/16/23 13:23	121,2540G	ROI
pH (H)	7.73		SU	-	NA	1	-	06/20/23 20:34	1,9045D	AAS





### Lab Control Sample Analysis Batch Quality Control

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 260.00135.014.03

**Lab Number:** L2334089  
**Report Date:** 06/22/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1793917-1								
pH	99		-		99-101	-		

## Lab Duplicate Analysis

*Batch Quality Control*

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 260.00135.014.03

**Lab Number:** L2334089  
**Report Date:** 06/22/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1792199-2 QC Sample: L2334277-01 Client ID: DUP Sample						
Solids, Total	88.2	88.1	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1793917-2 QC Sample: L2331830-01 Client ID: DUP Sample						
pH	7.02	7.06	SU	1		5

**Project Name:** PHILADELPHIA REFINERY**Lab Number:** L2334089**Project Number:** 260.00135.014.03**Report Date:** 06/22/23**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

**Cooler Information**

<b>Cooler</b>	<b>Custody Seal</b>
A	Absent

**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2334089-01A	Vial MeOH preserved	A	NA		3.4	Y	Absent		PA-8260HLW(14)
L2334089-01B	Vial water preserved	A	NA		3.4	Y	Absent	16-JUN-23 13:07	PA-8260HLW(14)
L2334089-01C	Vial water preserved	A	NA		3.4	Y	Absent	16-JUN-23 13:07	PA-8260HLW(14)
L2334089-01D	Plastic 2oz unpreserved for TS	A	NA		3.4	Y	Absent		TS(7)
L2334089-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.4	Y	Absent		PB-TI(180)
L2334089-01F	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		PH-9045(1),PA-PAH(14)

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 260.00135.014.03

**Lab Number:** L2334089  
**Report Date:** 06/22/23

## 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:** PHILADELPHIA REFINERY  
**Project Number:** 260.00135.014.03

**Lab Number:** L2334089  
**Report Date:** 06/22/23

### 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:** PHILADELPHIA REFINERY  
**Project Number:** 260.00135.014.03

**Lab Number:** L2334089  
**Report Date:** 06/22/23

#### Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 260.00135.014.03

**Lab Number:** L2334089  
**Report Date:** 06/22/23

## 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

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

### Westborough Facility

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

**EPA 625.1:** alpha-Terpineol

**EPA 8260D:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, 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, NO<sub>2</sub>, NO<sub>3</sub>.

### Mansfield Facility

**SM 2540D:** TSS.

**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**Biological Tissue Matrix:** EPA 3050B

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The following analytes are included in our Massachusetts DEP Scope of Accreditation

### Westborough Facility:

#### Drinking Water

**EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

**EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**

**EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

**Microbiology: SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

#### Non-Potable Water

**SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

**SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.

**EPA 624.1:** Volatile Halocarbons & Aromatics,

**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables).

**Microbiology: SM9223B-Colilert-QT; Enterolert-QT, 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**

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For a complete listing of analytes and methods, please contact your Alpha Project Manager.



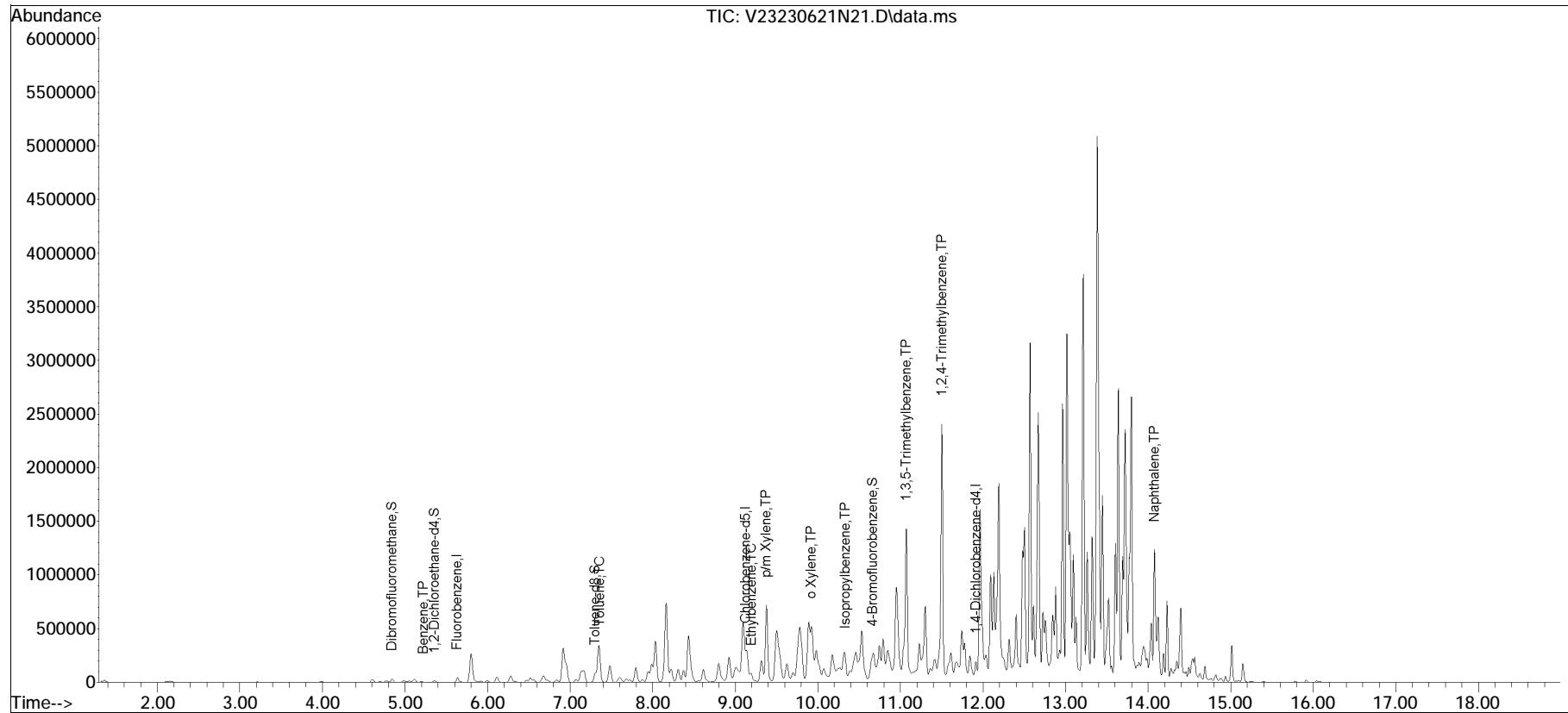


## Quantitation Report (QT Reviewed)

Data Path : K:\VOA123\2023\230621N\  
 Data File : V23230621N21.D  
 Acq On : 22 Jun 2023 05:47 am  
 Operator : VOA123:JIC  
 Sample : L2334089-01,31H,4.03,5,0.100,,A,R3E  
 Misc : WG1794810,ICAL20024  
 ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jun 22 06:59:05 2023  
 Quant Method : K:\VOA123\2023\230621N\V123\_230518A\_8260.m  
 Quant Title : VOLATILES BY GC/MS  
 QLast Update : Tue May 23 09:22:30 2023  
 Response via : Initial Calibration

Sub List : 8260-PA\_ShortList - PA Short list621N01.D•





## ANALYTICAL REPORT

Lab Number:	L2334803
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.014.03
Report Date:	07/13/23

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-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](http://www.alphalab.com)



Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.014.03

Lab Number: L2334803

Report Date: 07/13/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2334803-01	GPR1038-01-SS01	SOIL	PHILADELPHIA PA	06/16/23 08:55	06/16/23
L2334803-02	GPR1038-02-SS01	SOIL	PHILADELPHIA PA	06/16/23 08:35	06/16/23
L2334803-03	GPR1038-03-SS01	SOIL	PHILADELPHIA PA	06/16/23 08:30	06/16/23
L2334803-04	GPR1038-05-SS01	SOIL	PHILADELPHIA PA	06/16/23 08:40	06/16/23
L2334803-05	GPR1039-01-SS01	SOIL	PHILADELPHIA PA	06/16/23 10:05	06/16/23
L2334803-06	GPR1039-02-SS01	SOIL	PHILADELPHIA PA	06/16/23 09:30	06/16/23
L2334803-07	GPR1039-03-SS01	SOIL	PHILADELPHIA PA	06/16/23 09:40	06/16/23
L2334803-08	GPR1039-04-SS01	SOIL	PHILADELPHIA PA	06/16/23 09:50	06/16/23
L2334803-09	GPR1039-05-SS01	SOIL	PHILADELPHIA PA	06/16/23 09:20	06/16/23
L2334803-10	GPR272-06-SS01	SOIL	PHILADELPHIA PA	06/16/23 14:00	06/16/23
L2334803-11	GPR272-07-SS01	SOIL	PHILADELPHIA PA	06/16/23 13:20	06/16/23
L2334803-12	GPR272-10-SS01	SOIL	PHILADELPHIA PA	06/16/23 14:05	06/16/23
L2334803-13	GPR272-11-SS01	SOIL	PHILADELPHIA PA	06/16/23 14:00	06/16/23
L2334803-14	FB061623	WATER	PHILADELPHIA PA	06/16/23 13:14	06/16/23
L2334803-15	DUP55	SOIL	PHILADELPHIA PA	06/16/23 00:00	06/16/23

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

### Case Narrative

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

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

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

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

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

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

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**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

### Case Narrative (continued)

#### Report Revision

July 13, 2023: Total Lead is now reported on samples L2334803-01 through -04.

June 27, 2023: The Microextractables analyte list has been amended on L2334803-14 and the Client IDs for L2334803-10 through -13 have been updated.

#### Report Submission

June 26, 2023: This final report includes the results of all requested analyses.

June 23, 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.

#### Sample Receipt

L2334803-01 through -14: The Client IDs were changed at the client's request.

L2334803-14: Sample containers for PAHs and Total Metals were received for the "FB061623" sample, but were not listed on the chain of custody. At the client's request, the analyses were performed.

L2334803-15: Sample container for PAHs and Total Metals were received for the "DUP55" sample, but were not listed on the chain of custody. At the client's request, the analyses were performed.

#### Volatile Organics

L2334803-01: The surrogate recovery is outside the acceptance criteria for toluene-d8 (136%) and 4-bromofluorobenzene (377%); 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.

L2334803-02: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (283%); 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.

L2334803-04: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

### Case Narrative (continued)

due to the elevated concentrations of non-target compounds in the sample.

L2334803-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (151%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2334803-09: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (512%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

#### Microextractables

The WG1795302-2 LCS recovery for 1,2-dibromoethane (125%), associated with L2334803-14, is outside Alpha's acceptance criteria, but within the acceptance criteria specified in the method.

#### Semivolatile Organics by SIM

L2334803-02D, -04D, -05D, -06D, -08D, and -09D: The sample has elevated detection limits due to the dilution required by the sample matrix.

The WG1794557-1 Method Blank, associated with L2334803-14, has a concentration above the reporting limit for Naphthalene. Since the associated sample concentrations are either greater than 10x the blank concentration or non-detect to the RL for this target analyte, no corrective action is required. Any results detected below the reporting limit are qualified with a "B".

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:

 Lisa Westerlind

Title: Technical Director/Representative

Date: 07/13/23

# ORGANICS

# VOLATILES

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-01  
 Client ID: GPR1038-01-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 08:55  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 02:52  
 Analyst: MKS  
 Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0027	0.00027	1
Benzene	0.0084		mg/kg	0.00066	0.00022	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00034	1
Toluene	0.022		mg/kg	0.0013	0.00072	1
1,2-Dibromoethane	ND		mg/kg	0.00066	0.00039	1
Ethylbenzene	0.010		mg/kg	0.0013	0.00019	1
p/m-Xylene	0.077		mg/kg	0.0027	0.00074	1
o-Xylene	0.087		mg/kg	0.0013	0.00039	1
Xylenes, Total	0.16		mg/kg	0.0013	0.00039	1
Isopropylbenzene	0.026		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	0.016		mg/kg	0.0027	0.00026	1
1,2,4-Trimethylbenzene	0.078		mg/kg	0.0027	0.00044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	130		70-130
Toluene-d8	136	Q	70-130
4-Bromofluorobenzene	377	Q	70-130
Dibromofluoromethane	84		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-02  
 Client ID: GPR1038-02-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 08:35  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 03:18  
 Analyst: MKS  
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	ND		mg/kg	0.00063	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00032	1
Toluene	ND		mg/kg	0.0012	0.00068	1
1,2-Dibromoethane	ND		mg/kg	0.00063	0.00037	1
Ethylbenzene	ND		mg/kg	0.0012	0.00018	1
p/m-Xylene	0.0012	J	mg/kg	0.0025	0.00070	1
o-Xylene	0.0013		mg/kg	0.0012	0.00036	1
Xylenes, Total	0.0025	J	mg/kg	0.0012	0.00036	1
Isopropylbenzene	0.026		mg/kg	0.0012	0.00014	1
1,3,5-Trimethylbenzene	0.00072	J	mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	0.0016	J	mg/kg	0.0025	0.00042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	119		70-130
4-Bromofluorobenzene	<b>283</b>	Q	70-130
Dibromofluoromethane	103		70-130



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-03  
 Client ID: GPR1038-03-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 08:30  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/22/23 22:32  
 Analyst: MKS  
 Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00060	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00031	1
Toluene	ND		mg/kg	0.0012	0.00066	1
1,2-Dibromoethane	ND		mg/kg	0.00060	0.00035	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
p/m-Xylene	ND		mg/kg	0.0024	0.00068	1
o-Xylene	ND		mg/kg	0.0012	0.00035	1
Xylenes, Total	ND		mg/kg	0.0012	0.00035	1
Isopropylbenzene	0.00034	J	mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.00025	J	mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	0.00059	J	mg/kg	0.0024	0.00040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	107		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-04  
 Client ID: GPR1038-05-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 08:40  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 04:10  
 Analyst: MKS  
 Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 High - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.19	0.019	1
Benzene	0.14		mg/kg	0.047	0.016	1
1,2-Dichloroethane	ND		mg/kg	0.094	0.024	1
Toluene	0.23		mg/kg	0.094	0.051	1
1,2-Dibromoethane	ND		mg/kg	0.047	0.028	1
Ethylbenzene	0.091	J	mg/kg	0.094	0.013	1
p/m-Xylene	0.31		mg/kg	0.19	0.053	1
o-Xylene	0.062	J	mg/kg	0.094	0.027	1
Xylenes, Total	0.37	J	mg/kg	0.094	0.027	1
Isopropylbenzene	1.7		mg/kg	0.094	0.010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.19	0.018	1
1,2,4-Trimethylbenzene	0.11	J	mg/kg	0.19	0.031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	151	Q	70-130
Dibromofluoromethane	98		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-05  
 Client ID: GPR1039-01-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 10:05  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/22/23 22:58  
 Analyst: MKS  
 Percent Solids: 75%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
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Benzene	0.0018		mg/kg	0.00067	0.00022	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	105		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-06  
 Client ID: GPR1039-02-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 09:30  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/22/23 23:24  
 Analyst: MKS  
 Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.00088	J	mg/kg	0.00094	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	119		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	104		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-07  
 Client ID: GPR1039-03-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 09:40  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/22/23 23:50  
 Analyst: MKS  
 Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	ND		mg/kg	0.00058	0.00019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	102		70-130



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-08  
 Client ID: GPR1039-04-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 09:50  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 00:16  
 Analyst: MKS  
 Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	ND		mg/kg	0.00063	0.00021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	102		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-09  
 Client ID: GPR1039-05-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 09:20  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 00:42  
 Analyst: MKS  
 Percent Solids: 66%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	ND		mg/kg	0.00079	0.00026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	128		70-130
4-Bromofluorobenzene	512	Q	70-130
Dibromofluoromethane	105		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-10  
 Client ID: GPR272-06-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 14:00  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 01:08  
 Analyst: MKS  
 Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0027	0.00027	1
Benzene	ND		mg/kg	0.00068	0.00022	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00035	1
Toluene	ND		mg/kg	0.0014	0.00073	1
1,2-Dibromoethane	ND		mg/kg	0.00068	0.00040	1
Ethylbenzene	ND		mg/kg	0.0014	0.00019	1
p/m-Xylene	ND		mg/kg	0.0027	0.00076	1
o-Xylene	ND		mg/kg	0.0014	0.00039	1
Xylenes, Total	ND		mg/kg	0.0014	0.00039	1
Isopropylbenzene	ND		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0027	0.00026	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0027	0.00045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	104		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-11  
 Client ID: GPR272-07-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 13:20  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 01:34  
 Analyst: MKS  
 Percent Solids: 64%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatiles Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0034	0.00034	1
Benzene	ND		mg/kg	0.00086	0.00028	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00044	1
Toluene	ND		mg/kg	0.0017	0.00093	1
1,2-Dibromoethane	ND		mg/kg	0.00086	0.00050	1
Ethylbenzene	ND		mg/kg	0.0017	0.00024	1
p/m-Xylene	ND		mg/kg	0.0034	0.00096	1
o-Xylene	ND		mg/kg	0.0017	0.00050	1
Xylenes, Total	ND		mg/kg	0.0017	0.00050	1
Isopropylbenzene	ND		mg/kg	0.0017	0.00019	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0034	0.00033	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0034	0.00057	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	103		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-12  
 Client ID: GPR272-10-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 14:05  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 02:00  
 Analyst: MKS  
 Percent Solids: 61%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0031	0.00031	1
Benzene	ND		mg/kg	0.00078	0.00026	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00040	1
Toluene	ND		mg/kg	0.0016	0.00085	1
1,2-Dibromoethane	ND		mg/kg	0.00078	0.00046	1
Ethylbenzene	ND		mg/kg	0.0016	0.00022	1
p/m-Xylene	ND		mg/kg	0.0031	0.00087	1
o-Xylene	ND		mg/kg	0.0016	0.00045	1
Xylenes, Total	ND		mg/kg	0.0016	0.00045	1
Isopropylbenzene	ND		mg/kg	0.0016	0.00017	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0031	0.00030	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0031	0.00052	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	135	Q	70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	111		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-13  
 Client ID: GPR272-11-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 14:00  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 03:44  
 Analyst: MKS  
 Percent Solids: 57%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0037	0.00038	1
Benzene	ND		mg/kg	0.00093	0.00031	1
1,2-Dichloroethane	ND		mg/kg	0.0019	0.00048	1
Toluene	ND		mg/kg	0.0019	0.0010	1
1,2-Dibromoethane	ND		mg/kg	0.00093	0.00055	1
Ethylbenzene	ND		mg/kg	0.0019	0.00026	1
p/m-Xylene	ND		mg/kg	0.0037	0.0010	1
o-Xylene	ND		mg/kg	0.0019	0.00054	1
Xylenes, Total	ND		mg/kg	0.0019	0.00054	1
Isopropylbenzene	0.0010	J	mg/kg	0.0019	0.00020	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0037	0.00036	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0037	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	182	Q	70-130
Dibromofluoromethane	102		70-130



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-14  
 Client ID: FB061623  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 13:14  
 Date Received: 06/16/23  
 Field Prep: Not Specified

## Sample Depth:

Matrix: Water  
 Analytical Method: 1,8011  
 Analytical Date: 06/23/23 14:17  
 Analyst: AMM

Extraction Method: EPA 8011  
 Extraction Date: 06/23/23 10:52

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

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-14  
 Client ID: FB061623  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 13:14  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Water  
 Analytical Method: 1,8260D  
 Analytical Date: 06/18/23 23:40  
 Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by GC/MS - Westborough Lab</b>						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
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	121		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	106		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-15  
 Client ID: DUP55  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 00:00  
 Date Received: 06/16/23  
 Field Prep: Refer to COC

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 02:26  
 Analyst: MKS  
 Percent Solids: 63%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0032	0.00032	1
Benzene	ND		mg/kg	0.00080	0.00026	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00041	1
Toluene	ND		mg/kg	0.0016	0.00087	1
1,2-Dibromoethane	ND		mg/kg	0.00080	0.00047	1
Ethylbenzene	ND		mg/kg	0.0016	0.00022	1
p/m-Xylene	ND		mg/kg	0.0032	0.00090	1
o-Xylene	ND		mg/kg	0.0016	0.00046	1
Xylenes, Total	ND		mg/kg	0.0016	0.00046	1
Isopropylbenzene	ND		mg/kg	0.0016	0.00017	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0032	0.00031	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0032	0.00053	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	105		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**Method Blank Analysis  
 Batch Quality Control**

Analytical Method: 1,8260D  
 Analytical Date: 06/18/23 17:53  
 Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 14 Batch: WG1793522-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	82		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	104		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

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

Analytical Method: 1,8011  
Analytical Date: 06/23/23 13:24  
Analyst: AMM

Extraction Method: EPA 8011  
Extraction Date: 06/23/23 10:52

<b>Parameter</b>	<b>Result</b>	<b>Qualifier</b>	<b>Units</b>	<b>RL</b>	<b>MDL</b>	
Microextractables by GC - Westborough Lab for sample(s): 14 Batch: WG1795302-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

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

Analytical Method: 1,8260D  
Analytical Date: 06/22/23 22:06  
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-03,05-13,15 Batch: WG1795319-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	106		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 06/22/23 22:06  
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04 Batch: WG1795320-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	106		70-130



### Lab Control Sample Analysis Batch Quality Control

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 14 Batch: WG1793522-3 WG1793522-4								
Methyl tert butyl ether	90		98		63-130	9		20
Benzene	110		110		70-130	0		20
1,2-Dichloroethane	110		120		70-130	9		20
Toluene	95		100		70-130	5		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	100		100		70-130	0		20
o-Xylene	100		100		70-130	0		20
Isopropylbenzene	100		93		70-130	7		20
1,3,5-Trimethylbenzene	96		85		64-130	12		20
1,2,4-Trimethylbenzene	94		96		70-130	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	107		109		70-130
Toluene-d8	96		100		70-130
4-Bromofluorobenzene	106		91		70-130
Dibromofluoromethane	105		103		70-130

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** PHILADELPHIA REFINERY

**Project Number:** 200.00135.014.03

**Lab Number:** L2334803

**Report Date:** 07/13/23

<b>Parameter</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>LCSD %Recovery</b>	<b>Qual</b>	<b>%Recovery Limits</b>	<b>RPD</b>	<b>Qual</b>	<b>RPD Limits</b>	<b>Column</b>
Microextractables by GC - Westborough Lab Associated sample(s): 14 Batch: WG1795302-2									
1,2-Dibromoethane	125	Q	-		80-120	-		20	A

## Lab Control Sample Analysis

### Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2334803

Project Number: 200.00135.014.03

Report Date: 07/13/23

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-03,05-13,15 Batch: WG1795319-3 WG1795319-4								
Methyl tert butyl ether	87		83		66-130	5		30
Benzene	79		76		70-130	4		30
1,2-Dichloroethane	99		94		70-130	5		30
Toluene	76		74		70-130	3		30
1,2-Dibromoethane	77		76		70-130	1		30
Ethylbenzene	80		79		70-130	1		30
p/m-Xylene	84		82		70-130	2		30
o-Xylene	85		83		70-130	2		30
Isopropylbenzene	77		76		70-130	1		30
1,3,5-Trimethylbenzene	80		78		70-130	3		30
1,2,4-Trimethylbenzene	79		77		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	118		114		70-130
Toluene-d8	97		97		70-130
4-Bromofluorobenzene	94		94		70-130
Dibromofluoromethane	107		104		70-130

### Lab Control Sample Analysis Batch Quality Control

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04 Batch: WG1795320-3 WG1795320-4								
Methyl tert butyl ether	87		83		66-130	5		30
Benzene	79		76		70-130	4		30
1,2-Dichloroethane	99		94		70-130	5		30
Toluene	76		74		70-130	3		30
1,2-Dibromoethane	77		76		70-130	1		30
Ethylbenzene	80		79		70-130	1		30
p/m-Xylene	84		82		70-130	2		30
o-Xylene	85		83		70-130	2		30
Isopropylbenzene	77		76		70-130	1		30
1,3,5-Trimethylbenzene	80		78		70-130	3		30
1,2,4-Trimethylbenzene	79		77		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	118		114		70-130
Toluene-d8	97		97		70-130
4-Bromofluorobenzene	94		94		70-130
Dibromofluoromethane	107		104		70-130



# SEMIVOLATILES

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-01  
 Client ID: GPR1038-01-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 08:55  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 20:32  
 Analyst: CMM  
 Percent Solids: 73%

Extraction Method: EPA 3546  
 Extraction Date: 06/18/23 23:29

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	0.55		mg/kg	0.045	0.028	1
Fluorene	0.18	J	mg/kg	0.23	0.022	1
Phenanthrene	0.62		mg/kg	0.14	0.028	1
Anthracene	0.24		mg/kg	0.14	0.044	1
Pyrene	1.2		mg/kg	0.14	0.022	1
Benzo(a)anthracene	0.96		mg/kg	0.14	0.026	1
Chrysene	0.98		mg/kg	0.14	0.024	1
Benzo(b)fluoranthene	1.0		mg/kg	0.14	0.038	1
Benzo(a)pyrene	1.0		mg/kg	0.18	0.055	1
Benzo(ghi)perylene	0.50		mg/kg	0.18	0.027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	84		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	71		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-02 D  
 Client ID: GPR1038-02-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 08:35  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/25/23 00:12  
 Analyst: CMM  
 Percent Solids: 81%

Extraction Method: EPA 3546  
 Extraction Date: 06/18/23 23:29

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	0.55		mg/kg	0.20	0.12	5
Fluorene	0.88	J	mg/kg	1.0	0.099	5
Phenanthrene	1.4		mg/kg	0.61	0.12	5
Anthracene	0.52	J	mg/kg	0.61	0.20	5
Pyrene	1.1		mg/kg	0.61	0.10	5
Benzo(a)anthracene	0.73		mg/kg	0.61	0.11	5
Chrysene	0.90		mg/kg	0.61	0.10	5
Benzo(b)fluoranthene	0.68		mg/kg	0.61	0.17	5
Benzo(a)pyrene	0.72	J	mg/kg	0.81	0.25	5
Benzo(ghi)perylene	0.54	J	mg/kg	0.81	0.12	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	53		30-120
4-Terphenyl-d14	39		18-120



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-03  
 Client ID: GPR1038-03-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 08:30  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 21:22  
 Analyst: CMM  
 Percent Solids: 74%

Extraction Method: EPA 3546  
 Extraction Date: 06/18/23 23:29

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	0.042	J	mg/kg	0.044	0.027	1
Fluorene	0.029	J	mg/kg	0.22	0.021	1
Phenanthrene	0.18		mg/kg	0.13	0.027	1
Anthracene	0.055	J	mg/kg	0.13	0.043	1
Pyrene	0.35		mg/kg	0.13	0.022	1
Benzo(a)anthracene	0.29		mg/kg	0.13	0.025	1
Chrysene	0.28		mg/kg	0.13	0.023	1
Benzo(b)fluoranthene	0.29		mg/kg	0.13	0.037	1
Benzo(a)pyrene	0.25		mg/kg	0.18	0.053	1
Benzo(ghi)perylene	0.12	J	mg/kg	0.18	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	72		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-04 D  
 Client ID: GPR1038-05-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 08:40  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/25/23 18:15  
 Analyst: IM  
 Percent Solids: 76%

Extraction Method: EPA 3546  
 Extraction Date: 06/18/23 23:29

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	0.83		mg/kg	0.22	0.13	5
Fluorene	ND		mg/kg	1.1	0.11	5
Phenanthrene	1.6		mg/kg	0.66	0.13	5
Anthracene	0.44	J	mg/kg	0.66	0.21	5
Pyrene	1.9		mg/kg	0.66	0.11	5
Benzo(a)anthracene	ND		mg/kg	0.66	0.12	5
Chrysene	ND		mg/kg	0.66	0.11	5
Benzo(b)fluoranthene	0.44	J	mg/kg	0.66	0.18	5
Benzo(a)pyrene	0.59	J	mg/kg	0.88	0.27	5
Benzo(ghi)perylene	0.50	J	mg/kg	0.88	0.13	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	86		23-120
2-Fluorobiphenyl	60		30-120
4-Terphenyl-d14	56		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-05 D  
 Client ID: GPR1039-01-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 10:05  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/24/23 00:41  
 Analyst: CMM  
 Percent Solids: 75%

Extraction Method: EPA 3546  
 Extraction Date: 06/18/23 23:29

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	0.36	J	mg/kg	0.44	0.27	10
Fluorene	0.67	J	mg/kg	2.2	0.22	10
Phenanthrene	2.1		mg/kg	1.3	0.27	10
Anthracene	0.46	J	mg/kg	1.3	0.43	10
Pyrene	1.2	J	mg/kg	1.3	0.22	10
Benzo(a)anthracene	0.37	J	mg/kg	1.3	0.25	10
Chrysene	0.92	J	mg/kg	1.3	0.23	10
Benzo(b)fluoranthene	ND		mg/kg	1.3	0.37	10
Benzo(a)pyrene	ND		mg/kg	1.8	0.54	10
Benzo(ghi)perylene	0.26	J	mg/kg	1.8	0.26	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	32		23-120
2-Fluorobiphenyl	26	Q	30-120
4-Terphenyl-d14	20		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-06 D  
 Client ID: GPR1039-02-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 09:30  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/25/23 18:33  
 Analyst: IM  
 Percent Solids: 69%

Extraction Method: EPA 3546  
 Extraction Date: 06/18/23 23:29

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	2.0		mg/kg	0.24	0.14	5
Fluorene	0.38	J	mg/kg	1.2	0.12	5
Phenanthrene	1.5		mg/kg	0.71	0.14	5
Anthracene	0.42	J	mg/kg	0.71	0.23	5
Pyrene	1.5		mg/kg	0.71	0.12	5
Benzo(a)anthracene	ND		mg/kg	0.71	0.13	5
Chrysene	ND		mg/kg	0.71	0.12	5
Benzo(b)fluoranthene	0.68	J	mg/kg	0.71	0.20	5
Benzo(a)pyrene	0.64	J	mg/kg	0.95	0.29	5
Benzo(ghi)perylene	0.56	J	mg/kg	0.95	0.14	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	57		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-07  
 Client ID: GPR1039-03-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 09:40  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 22:36  
 Analyst: CMM  
 Percent Solids: 74%

Extraction Method: EPA 3546  
 Extraction Date: 06/18/23 23:29

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	0.26		mg/kg	0.044	0.027	1
Fluorene	0.17	J	mg/kg	0.22	0.021	1
Phenanthrene	0.58		mg/kg	0.13	0.027	1
Anthracene	0.15		mg/kg	0.13	0.043	1
Pyrene	0.86		mg/kg	0.13	0.022	1
Benzo(a)anthracene	0.34		mg/kg	0.13	0.025	1
Chrysene	0.48		mg/kg	0.13	0.023	1
Benzo(b)fluoranthene	0.36		mg/kg	0.13	0.037	1
Benzo(a)pyrene	0.33		mg/kg	0.18	0.054	1
Benzo(ghi)perylene	0.25		mg/kg	0.18	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	60		30-120
4-Terphenyl-d14	57		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-08 D  
 Client ID: GPR1039-04-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 09:50  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/25/23 16:33  
 Analyst: CMM  
 Percent Solids: 76%

Extraction Method: EPA 3546  
 Extraction Date: 06/18/23 23:29

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	0.91		mg/kg	0.43	0.26	10
Fluorene	1.6	J	mg/kg	2.2	0.21	10
Phenanthrene	5.4		mg/kg	1.3	0.26	10
Anthracene	1.7		mg/kg	1.3	0.42	10
Pyrene	2.6		mg/kg	1.3	0.21	10
Benzo(a)anthracene	ND		mg/kg	1.3	0.24	10
Chrysene	ND		mg/kg	1.3	0.22	10
Benzo(b)fluoranthene	ND		mg/kg	1.3	0.36	10
Benzo(a)pyrene	ND		mg/kg	1.7	0.53	10
Benzo(ghi)perylene	ND		mg/kg	1.7	0.25	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	118		23-120
2-Fluorobiphenyl	36		30-120
4-Terphenyl-d14	28		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-09 D  
 Client ID: GPR1039-05-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 09:20  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/24/23 23:47  
 Analyst: CMM  
 Percent Solids: 66%

Extraction Method: EPA 3546  
 Extraction Date: 06/18/23 23:29

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	0.97		mg/kg	0.25	0.15	5
Fluorene	1.3		mg/kg	1.2	0.12	5
Phenanthrene	2.6		mg/kg	0.75	0.15	5
Anthracene	1.2		mg/kg	0.75	0.24	5
Pyrene	2.5		mg/kg	0.75	0.12	5
Benzo(a)anthracene	0.54	J	mg/kg	0.75	0.14	5
Chrysene	0.73	J	mg/kg	0.75	0.13	5
Benzo(b)fluoranthene	0.42	J	mg/kg	0.75	0.21	5
Benzo(a)pyrene	0.40	J	mg/kg	1.0	0.30	5
Benzo(ghi)perylene	0.27	J	mg/kg	1.0	0.15	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	47		30-120
4-Terphenyl-d14	39		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-10  
 Client ID: GPR272-06-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 14:00  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 23:26  
 Analyst: CMM  
 Percent Solids: 69%

Extraction Method: EPA 3546  
 Extraction Date: 06/18/23 23:29

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	0.64		mg/kg	0.048	0.029	1
Fluorene	0.041	J	mg/kg	0.24	0.023	1
Phenanthrene	0.14		mg/kg	0.14	0.029	1
Anthracene	0.081	J	mg/kg	0.14	0.047	1
Pyrene	0.25		mg/kg	0.14	0.024	1
Benzo(a)anthracene	0.28		mg/kg	0.14	0.027	1
Chrysene	0.33		mg/kg	0.14	0.025	1
Benzo(b)fluoranthene	0.49		mg/kg	0.14	0.040	1
Benzo(a)pyrene	0.46		mg/kg	0.19	0.059	1
Indeno(1,2,3-cd)pyrene	0.37		mg/kg	0.19	0.033	1
Benzo(ghi)perylene	0.32		mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	44		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	59		18-120



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-11  
 Client ID: GPR272-07-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 13:20  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 23:51  
 Analyst: CMM  
 Percent Solids: 64%

Extraction Method: EPA 3546  
 Extraction Date: 06/18/23 23:29

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	1.1		mg/kg	0.051	0.031	1
Fluorene	0.22	J	mg/kg	0.25	0.025	1
Phenanthrene	0.30		mg/kg	0.15	0.031	1
Anthracene	0.15		mg/kg	0.15	0.050	1
Pyrene	0.50		mg/kg	0.15	0.025	1
Benzo(a)anthracene	0.23		mg/kg	0.15	0.028	1
Chrysene	0.29		mg/kg	0.15	0.026	1
Benzo(b)fluoranthene	0.28		mg/kg	0.15	0.043	1
Benzo(a)pyrene	0.27		mg/kg	0.20	0.062	1
Indeno(1,2,3-cd)pyrene	0.18	J	mg/kg	0.20	0.035	1
Benzo(ghi)perylene	0.16	J	mg/kg	0.20	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	64		23-120
2-Fluorobiphenyl	80		30-120
4-Terphenyl-d14	70		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-12  
 Client ID: GPR272-10-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 14:05  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/24/23 00:16  
 Analyst: CMM  
 Percent Solids: 61%

Extraction Method: EPA 3546  
 Extraction Date: 06/18/23 23:29

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	0.31		mg/kg	0.054	0.033	1
Fluorene	0.069	J	mg/kg	0.27	0.026	1
Phenanthrene	0.23		mg/kg	0.16	0.033	1
Anthracene	ND		mg/kg	0.16	0.052	1
Pyrene	0.22		mg/kg	0.16	0.027	1
Benzo(a)anthracene	0.064	J	mg/kg	0.16	0.030	1
Chrysene	0.089	J	mg/kg	0.16	0.028	1
Benzo(b)fluoranthene	0.065	J	mg/kg	0.16	0.045	1
Benzo(a)pyrene	ND		mg/kg	0.21	0.066	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.21	0.037	1
Benzo(ghi)perylene	0.034	J	mg/kg	0.21	0.032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	49		23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	59		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-13  
 Client ID: GPR272-11-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 14:00  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 14:45  
 Analyst: JG  
 Percent Solids: 57%

Extraction Method: EPA 3546  
 Extraction Date: 06/21/23 08:48

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	5.3		mg/kg	0.059	0.036	1
Fluorene	0.47		mg/kg	0.29	0.028	1
Phenanthrene	1.2		mg/kg	0.18	0.036	1
Anthracene	0.61		mg/kg	0.18	0.057	1
Pyrene	1.6		mg/kg	0.18	0.029	1
Benzo(a)anthracene	0.66		mg/kg	0.18	0.033	1
Chrysene	0.81		mg/kg	0.18	0.030	1
Benzo(b)fluoranthene	0.94		mg/kg	0.18	0.050	1
Benzo(a)pyrene	0.93		mg/kg	0.24	0.072	1
Indeno(1,2,3-cd)pyrene	0.49		mg/kg	0.24	0.041	1
Benzo(ghi)perylene	0.68		mg/kg	0.24	0.034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	75		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	62		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-14  
 Client ID: FB061623  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 13:14  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Water  
 Analytical Method: 1,8270E-SIM  
 Analytical Date: 06/23/23 10:11  
 Analyst: RP

Extraction Method: EPA 3510C  
 Extraction Date: 06/22/23 00:46

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS-SIM - Westborough Lab</b>						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	83		23-120
2-Fluorobiphenyl	61		15-120
4-Terphenyl-d14	48		41-149

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-15  
 Client ID: DUP55  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 00:00  
 Date Received: 06/16/23  
 Field Prep: Refer to COC

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 19:24  
 Analyst: IM  
 Percent Solids: 63%

Extraction Method: EPA 3546  
 Extraction Date: 06/20/23 23:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	2.7		mg/kg	0.052	0.032	1
Fluorene	0.16	J	mg/kg	0.26	0.025	1
Phenanthrene	0.48		mg/kg	0.16	0.032	1
Anthracene	0.19		mg/kg	0.16	0.051	1
Pyrene	0.51		mg/kg	0.16	0.026	1
Benzo(a)anthracene	0.44		mg/kg	0.16	0.029	1
Chrysene	0.48		mg/kg	0.16	0.027	1
Benzo(b)fluoranthene	0.75		mg/kg	0.16	0.044	1
Benzo(a)pyrene	0.83		mg/kg	0.21	0.064	1
Indeno(1,2,3-cd)pyrene	0.50		mg/kg	0.21	0.036	1
Benzo(ghi)perylene	0.60		mg/kg	0.21	0.031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	50		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8270E  
Analytical Date: 06/23/23 15:56  
Analyst: CMM

Extraction Method: EPA 3546  
Extraction Date: 06/18/23 10:01

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-12 Batch: WG1792823-1					
Naphthalene	ND		mg/kg	0.033	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.099	0.020
Anthracene	ND		mg/kg	0.099	0.032
Pyrene	ND		mg/kg	0.099	0.016
Benzo(a)anthracene	ND		mg/kg	0.099	0.018
Chrysene	ND		mg/kg	0.099	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.099	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.13	0.023
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	89		25-120
Phenol-d6	88		10-120
Nitrobenzene-d5	94		23-120
2-Fluorobiphenyl	84		30-120
2,4,6-Tribromophenol	102		10-136
4-Terphenyl-d14	91		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8270E  
Analytical Date: 06/24/23 16:35  
Analyst: IM

Extraction Method: EPA 3546  
Extraction Date: 06/20/23 17:35

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 13,15 Batch: WG1793907-1					
Naphthalene	ND		mg/kg	0.033	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.099	0.020
Anthracene	ND		mg/kg	0.099	0.032
Pyrene	ND		mg/kg	0.099	0.016
Benzo(a)anthracene	ND		mg/kg	0.099	0.018
Chrysene	ND		mg/kg	0.099	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.099	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.13	0.023
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	81		25-120
Phenol-d6	78		10-120
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	78		30-120
2,4,6-Tribromophenol	70		10-136
4-Terphenyl-d14	83		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8270E-SIM  
Analytical Date: 06/23/23 15:11  
Analyst: RP

Extraction Method: EPA 3510C  
Extraction Date: 06/22/23 00:46

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 14 Batch: WG1794557-1					
Naphthalene	0.16		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	43		15-120
4-Terphenyl-d14	37	Q	41-149



## Lab Control Sample Analysis

### Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2334803

Project Number: 200.00135.014.03

Report Date: 07/13/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-12 Batch: WG1792823-2 WG1792823-3								
Naphthalene	74		77		40-140	4		50
Fluorene	78		82		40-140	5		50
Phenanthrene	76		80		40-140	5		50
Anthracene	77		82		40-140	6		50
Pyrene	79		84		35-142	6		50
Benzo(a)anthracene	75		80		40-140	6		50
Chrysene	76		82		40-140	8		50
Benzo(b)fluoranthene	76		86		40-140	12		50
Benzo(a)pyrene	78		82		40-140	5		50
Indeno(1,2,3-cd)pyrene	87		94		40-140	8		50
Benzo(ghi)perylene	80		84		40-140	5		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	85		91		25-120
Phenol-d6	82		87		10-120
Nitrobenzene-d5	81		86		23-120
2-Fluorobiphenyl	73		78		30-120
2,4,6-Tribromophenol	91		97		10-136
4-Terphenyl-d14	80		85		18-120

### Lab Control Sample Analysis Batch Quality Control

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 13,15 Batch: WG1793907-2 WG1793907-3								
Naphthalene	84		87		40-140	4		50
Fluorene	83		82		40-140	1		50
Phenanthrene	87		87		40-140	0		50
Anthracene	88		89		40-140	1		50
Pyrene	83		82		35-142	1		50
Benzo(a)anthracene	82		81		40-140	1		50
Chrysene	82		80		40-140	2		50
Benzo(b)fluoranthene	86		84		40-140	2		50
Benzo(a)pyrene	87		86		40-140	1		50
Indeno(1,2,3-cd)pyrene	85		85		40-140	0		50
Benzo(ghi)perylene	82		81		40-140	1		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	92		93		25-120
Phenol-d6	87		87		10-120
Nitrobenzene-d5	69		72		23-120
2-Fluorobiphenyl	86		86		30-120
2,4,6-Tribromophenol	96		97		10-136
4-Terphenyl-d14	83		82		18-120



### Lab Control Sample Analysis Batch Quality Control

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 14 Batch: WG1794557-2 WG1794557-3								
Naphthalene	55		60		40-140	9		40
Fluorene	60		69		40-140	14		40
Phenanthrene	57		66		40-140	15		40
Anthracene	63		73		40-140	15		40
Pyrene	60		67		26-127	11		40
Benzo(a)anthracene	68		78		40-140	14		40
Chrysene	64		73		40-140	13		40
Benzo(b)fluoranthene	66		74		40-140	11		40
Benzo(a)pyrene	72		83		40-140	14		40
Indeno(1,2,3-cd)pyrene	65		78		40-140	18		40
Benzo(ghi)perylene	64		78		40-140	20		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	73		80		23-120
2-Fluorobiphenyl	53		59		15-120
4-Terphenyl-d14	45		49		41-149



## METALS

**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2334803

**Project Number:** 200.00135.014.03

**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-01

Date Collected: 06/16/23 08:55

Client ID: GPR1038-01-SS01

Date Received: 06/16/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	255		mg/kg	2.61	0.140	1	06/30/23 11:07	07/12/23 19:19	EPA 3050B	1,6010D	AMW



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2334803

**Project Number:** 200.00135.014.03

**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-02

Date Collected: 06/16/23 08:35

Client ID: GPR1038-02-SS01

Date Received: 06/16/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	686		mg/kg	2.41	0.129	1	06/30/23 11:07	07/12/23 19:22	EPA 3050B	1,6010D	AMW



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2334803

**Project Number:** 200.00135.014.03

**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-03

Date Collected: 06/16/23 08:30

Client ID: GPR1038-03-SS01

Date Received: 06/16/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	232		mg/kg	2.61	0.140	1	06/30/23 11:07	07/12/23 19:25	EPA 3050B	1,6010D	AMW



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2334803

**Project Number:** 200.00135.014.03

**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-04

Date Collected: 06/16/23 08:40

Client ID: GPR1038-05-SS01

Date Received: 06/16/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	256		mg/kg	2.54	0.136	1	06/30/23 11:07	07/12/23 19:28	EPA 3050B	1,6010D	AMW





**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2334803

**Project Number:** 200.00135.014.03

**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-10

Date Collected: 06/16/23 14:00

Client ID: GPR272-06-SS01

Date Received: 06/16/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	136		mg/kg	2.77	0.148	1	06/21/23 03:55	06/22/23 18:02	EPA 3050B	1,6010D	TAA



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2334803

**Project Number:** 200.00135.014.03

**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-11

Date Collected: 06/16/23 13:20

Client ID: GPR272-07-SS01

Date Received: 06/16/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 64%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	238		mg/kg	2.99	0.160	1	06/21/23 03:55	06/22/23 18:05	EPA 3050B	1,6010D	TAA



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2334803

**Project Number:** 200.00135.014.03

**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-12

Date Collected: 06/16/23 14:05

Client ID: GPR272-10-SS01

Date Received: 06/16/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 61%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	320		mg/kg	3.15	0.169	1	06/21/23 03:55	06/22/23 18:08	EPA 3050B	1,6010D	TAA



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-13  
 Client ID: GPR272-11-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/16/23 14:00  
 Date Received: 06/16/23  
 Field Prep: Not Specified

Sample Depth:  
 Matrix: Soil  
 Percent Solids: 57%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	368		mg/kg	3.36	0.180	1	06/21/23 03:55	06/22/23 18:10	EPA 3050B	1,6010D	TAA



**Project Name:** PHILADELPHIA REFINERY**Lab Number:** L2334803**Project Number:** 200.00135.014.03**Report Date:** 07/13/23**SAMPLE RESULTS**

Lab ID: L2334803-14

Date Collected: 06/16/23 13:14

Client ID: FB061623

Date Received: 06/16/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/21/23 21:00	06/23/23 08:46	EPA 3005A	1,6020B	SMV



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2334803

**Project Number:** 200.00135.014.03

**Report Date:** 07/13/23

**SAMPLE RESULTS**

Lab ID: L2334803-15

Date Collected: 06/16/23 00:00

Client ID: DUP55

Date Received: 06/16/23

Sample Location: PHILADELPHIA PA

Field Prep: Refer to COC

Sample Depth:

Matrix: Soil

Percent Solids: 63%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	139		mg/kg	3.01	0.162	1	06/21/23 03:55	06/22/23 18:13	EPA 3050B	1,6010D	TAA



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

## Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 14 Batch: WG1793342-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	06/21/23 21:00	06/22/23 09:01	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): 10-13,15 Batch: WG1793732-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	06/21/23 03:55	06/21/23 18:11	1,6010D	TAA

### Prep Information

Digestion Method: EPA 3050B

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-04 Batch: WG1798004-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	06/30/23 11:07	07/05/23 07:58	1,6010D	JMF

### Prep Information

Digestion Method: EPA 3050B

## Lab Control Sample Analysis

Batch Quality Control

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 14 Batch: WG1793342-2								
Lead, Total	106		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 10-13,15 Batch: WG1793732-2 SRM Lot Number: D119-540								
Lead, Total	96		-		82-118	-		
Total Metals - Mansfield Lab Associated sample(s): 01-04 Batch: WG1798004-2 SRM Lot Number: D119-540								
Lead, Total	105		-		82-118	-		





### Matrix Spike Analysis Batch Quality Control

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 14    QC Batch ID: WG1793342-3    QC Sample: L2334213-01    Client ID: MS Sample												
Lead, Total	3.889	530	550.6	103	-	-	-	-	75-125	-	-	20
Total Metals - Mansfield Lab Associated sample(s): 10-13,15    QC Batch ID: WG1793732-3    QC Sample: L2334915-01    Client ID: MS Sample												
Lead, Total	46.1	47.3	87.3	87	-	-	-	-	75-125	-	-	20
Total Metals - Mansfield Lab Associated sample(s): 01-04    QC Batch ID: WG1798004-3    QC Sample: L2337178-12    Client ID: MS Sample												
Lead, Total	6.45	44.9	52.3	102	-	-	-	-	75-125	-	-	20

### Lab Duplicate Analysis *Batch Quality Control*

**Project Name:** PHILADELPHIA REFINERY

**Project Number:** 200.00135.014.03

**Lab Number:** L2334803

**Report Date:** 07/13/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 14 QC Batch ID: WG1793342-4 QC Sample: L2334213-01 Client ID: DUP Sample						
Lead, Total	3.889	3.149	ug/l	21	Q	20
Total Metals - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1798004-4 QC Sample: L2337178-12 Client ID: DUP Sample						
Lead, Total	6.45	10.1	mg/kg	44	Q	20



# **INORGANICS & MISCELLANEOUS**

**Project Name:** PHILADELPHIA REFINERY**Lab Number:** L2334803**Project Number:** 200.00135.014.03**Report Date:** 07/13/23**SAMPLE RESULTS**

Lab ID: L2334803-01

Date Collected: 06/16/23 08:55

Client ID: GPR1038-01-SS01

Date Received: 06/16/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	72.8		%	0.100	NA	1	-	06/20/23 10:44	121,2540G	ROI
pH (H)	8.62		SU	-	NA	1	-	06/22/23 03:30	1,9045D	OCF



**Project Name:** PHILADELPHIA REFINERY**Lab Number:** L2334803**Project Number:** 200.00135.014.03**Report Date:** 07/13/23**SAMPLE RESULTS**

Lab ID: L2334803-02

Date Collected: 06/16/23 08:35

Client ID: GPR1038-02-SS01

Date Received: 06/16/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	81.0		%	0.100	NA	1	-	06/20/23 10:44	121,2540G	ROI
pH (H)	7.18		SU	-	NA	1	-	06/22/23 03:30	1,9045D	OCF



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

**Lab ID:** L2334803-03  
**Client ID:** GPR1038-03-SS01  
**Sample Location:** PHILADELPHIA PA

**Date Collected:** 06/16/23 08:30  
**Date Received:** 06/16/23  
**Field Prep:** Not Specified

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

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	74.1		%	0.100	NA	1	-	06/20/23 10:44	121,2540G	ROI
pH (H)	8.13		SU	-	NA	1	-	06/22/23 03:30	1,9045D	OCF



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

**Lab ID:** L2334803-04  
**Client ID:** GPR1038-05-SS01  
**Sample Location:** PHILADELPHIA PA

**Date Collected:** 06/16/23 08:40  
**Date Received:** 06/16/23  
**Field Prep:** Not Specified

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

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	75.7		%	0.100	NA	1	-	06/20/23 10:44	121,2540G	ROI
pH (H)	7.28		SU	-	NA	1	-	06/22/23 03:30	1,9045D	OCF



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

**Lab ID:** L2334803-05  
**Client ID:** GPR1039-01-SS01  
**Sample Location:** PHILADELPHIA PA

**Date Collected:** 06/16/23 10:05  
**Date Received:** 06/16/23  
**Field Prep:** Not Specified

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

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	74.5		%	0.100	NA	1	-	06/20/23 10:44	121,2540G	ROI





Project Name: PHILADELPHIA REFINERY

Lab Number: L2334803

Project Number: 200.00135.014.03

Report Date: 07/13/23

## SAMPLE RESULTS

Lab ID: L2334803-06

Date Collected: 06/16/23 09:30

Client ID: GPR1039-02-SS01

Date Received: 06/16/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	68.9		%	0.100	NA	1	-	06/20/23 10:44	121,2540G	ROI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2334803

Project Number: 200.00135.014.03

Report Date: 07/13/23

## SAMPLE RESULTS

Lab ID: L2334803-07

Date Collected: 06/16/23 09:40

Client ID: GPR1039-03-SS01

Date Received: 06/16/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	74.0		%	0.100	NA	1	-	06/20/23 10:44	121,2540G	ROI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2334803

Project Number: 200.00135.014.03

Report Date: 07/13/23

## SAMPLE RESULTS

Lab ID: L2334803-08

Date Collected: 06/16/23 09:50

Client ID: GPR1039-04-SS01

Date Received: 06/16/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.1		%	0.100	NA	1	-	06/20/23 10:44	121,2540G	ROI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2334803

Project Number: 200.00135.014.03

Report Date: 07/13/23

## SAMPLE RESULTS

Lab ID: L2334803-09

Date Collected: 06/16/23 09:20

Client ID: GPR1039-05-SS01

Date Received: 06/16/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	66.0		%	0.100	NA	1	-	06/20/23 10:44	121,2540G	ROI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2334803

Project Number: 200.00135.014.03

Report Date: 07/13/23

## SAMPLE RESULTS

Lab ID: L2334803-10

Date Collected: 06/16/23 14:00

Client ID: GPR272-06-SS01

Date Received: 06/16/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	69.1		%	0.100	NA	1	-	06/20/23 10:44	121,2540G	ROI



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

**Lab ID:** L2334803-11  
**Client ID:** GPR272-07-SS01  
**Sample Location:** PHILADELPHIA PA

**Date Collected:** 06/16/23 13:20  
**Date Received:** 06/16/23  
**Field Prep:** Not Specified

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

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	63.6		%	0.100	NA	1	-	06/20/23 10:44	121,2540G	ROI



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

**Lab ID:** L2334803-12  
**Client ID:** GPR272-10-SS01  
**Sample Location:** PHILADELPHIA PA

**Date Collected:** 06/16/23 14:05  
**Date Received:** 06/16/23  
**Field Prep:** Not Specified

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

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	60.7		%	0.100	NA	1	-	06/20/23 10:44	121,2540G	ROI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2334803

Project Number: 200.00135.014.03

Report Date: 07/13/23

## SAMPLE RESULTS

Lab ID: L2334803-13

Date Collected: 06/16/23 14:00

Client ID: GPR272-11-SS01

Date Received: 06/16/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	56.6		%	0.100	NA	1	-	06/20/23 10:44	121,2540G	ROI





**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

**SAMPLE RESULTS**

**Lab ID:** L2334803-15  
**Client ID:** DUP55  
**Sample Location:** PHILADELPHIA PA

**Date Collected:** 06/16/23 00:00  
**Date Received:** 06/16/23  
**Field Prep:** Refer to COC

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

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	63.3		%	0.100	NA	1	-	06/20/23 10:44	121,2540G	ROI



**Lab Control Sample Analysis****Batch Quality Control****Project Name:** PHILADELPHIA REFINERY**Lab Number:** L2334803**Project Number:** 200.00135.014.03**Report Date:** 07/13/23

<b>Parameter</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>LCSD %Recovery</b>	<b>Qual</b>	<b>%Recovery Limits</b>	<b>RPD</b>	<b>Qual</b>	<b>RPD Limits</b>
General Chemistry - Westborough Lab Associated sample(s): 01-04 Batch: WG1794584-1								
pH	100		-		99-101	-		

## Lab Duplicate Analysis

*Batch Quality Control*

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.014.03

Lab Number: L2334803

Report Date: 07/13/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-13,15 QC Batch ID: WG1793567-1 QC Sample: L2334803-01 Client ID: GPR1038-01-SS01						
Solids, Total	72.8	72.6	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 01-04 QC Batch ID: WG1794584-2 QC Sample: L2332536-01 Client ID: DUP Sample						
pH	7.58	7.28	SU	4		5

**Project Name:** PHILADELPHIA REFINERY**Lab Number:** L2334803**Project Number:** 200.00135.014.03**Report Date:** 07/13/23**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

**Cooler Information**

<b>Cooler</b>	<b>Custody Seal</b>
A	Absent
B	Absent

**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2334803-01A	Vial MeOH preserved	A	NA		3.4	Y	Absent		PA-8260HLW(14)
L2334803-01B	Vial water preserved	A	NA		3.4	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-01C	Vial water preserved	A	NA		3.4	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-01D	Plastic 2oz unpreserved for TS	A	NA		3.4	Y	Absent		TS(7)
L2334803-01E	Glass 60mL/2oz unpreserved	A	NA		3.4	Y	Absent		PH-9045(1),PA-PAH(14)
L2334803-01F	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		PB-TI(180),PH-9045(1),PA-PAH(14)
L2334803-02A	Vial MeOH preserved	A	NA		3.4	Y	Absent		PA-8260HLW(14)
L2334803-02B	Vial water preserved	A	NA		3.4	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-02C	Vial water preserved	A	NA		3.4	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-02D	Plastic 2oz unpreserved for TS	A	NA		3.4	Y	Absent		TS(7)
L2334803-02E	Glass 60mL/2oz unpreserved	A	NA		3.4	Y	Absent		PH-9045(1),PA-PAH(14)
L2334803-02F	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		PH-9045(1),PB-TI(180),PA-PAH(14)
L2334803-03A	Vial MeOH preserved	A	NA		3.4	Y	Absent		PA-8260HLW(14)
L2334803-03B	Vial water preserved	A	NA		3.4	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-03C	Vial water preserved	A	NA		3.4	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-03D	Plastic 2oz unpreserved for TS	A	NA		3.4	Y	Absent		TS(7)
L2334803-03E	Glass 60mL/2oz unpreserved	A	NA		3.4	Y	Absent		PH-9045(1),PA-PAH(14)
L2334803-03F	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		PB-TI(180),PH-9045(1),PA-PAH(14)
L2334803-04A	Vial MeOH preserved	A	NA		3.4	Y	Absent		PA-8260HLW(14)
L2334803-04B	Vial water preserved	A	NA		3.4	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-04C	Vial water preserved	A	NA		3.4	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-04D	Plastic 2oz unpreserved for TS	A	NA		3.4	Y	Absent		TS(7)

**Project Name:** PHILADELPHIA REFINERY**Lab Number:** L2334803**Project Number:** 200.00135.014.03**Report Date:** 07/13/23**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2334803-04E	Glass 60mL/2oz unpreserved	A	NA		3.4	Y	Absent		PH-9045(1),PA-PAH(14)
L2334803-04F	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		PB-TI(180),PH-9045(1),PA-PAH(14)
L2334803-05A	Vial MeOH preserved	A	NA		3.4	Y	Absent		PA-8260HLW(14)
L2334803-05B	Vial water preserved	A	NA		3.4	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-05C	Vial water preserved	A	NA		3.4	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-05D	Plastic 2oz unpreserved for TS	A	NA		3.4	Y	Absent		TS(7)
L2334803-05E	Glass 60mL/2oz unpreserved	A	NA		3.4	Y	Absent		PA-PAH(14)
L2334803-05F	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		PA-PAH(14)
L2334803-06A	Vial MeOH preserved	B	NA		4.6	Y	Absent		PA-8260HLW(14)
L2334803-06B	Vial water preserved	B	NA		4.6	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-06C	Vial water preserved	B	NA		4.6	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-06D	Plastic 2oz unpreserved for TS	B	NA		4.6	Y	Absent		TS(7)
L2334803-06E	Glass 60mL/2oz unpreserved	B	NA		4.6	Y	Absent		PA-PAH(14)
L2334803-06F	Glass 120ml/4oz unpreserved	B	NA		4.6	Y	Absent		PA-PAH(14)
L2334803-07A	Vial MeOH preserved	B	NA		4.6	Y	Absent		PA-8260HLW(14)
L2334803-07B	Vial water preserved	B	NA		4.6	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-07C	Vial water preserved	B	NA		4.6	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-07D	Plastic 2oz unpreserved for TS	B	NA		4.6	Y	Absent		TS(7)
L2334803-07E	Glass 60mL/2oz unpreserved	B	NA		4.6	Y	Absent		PA-PAH(14)
L2334803-07F	Glass 120ml/4oz unpreserved	B	NA		4.6	Y	Absent		PA-PAH(14)
L2334803-08A	Vial MeOH preserved	B	NA		4.6	Y	Absent		PA-8260HLW(14)
L2334803-08B	Vial water preserved	B	NA		4.6	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-08C	Vial water preserved	B	NA		4.6	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-08D	Plastic 2oz unpreserved for TS	B	NA		4.6	Y	Absent		TS(7)
L2334803-08E	Glass 60mL/2oz unpreserved	B	NA		4.6	Y	Absent		PA-PAH(14)
L2334803-08F	Glass 120ml/4oz unpreserved	B	NA		4.6	Y	Absent		PA-PAH(14)
L2334803-09A	Vial MeOH preserved	A	NA		3.4	Y	Absent		PA-8260HLW(14)
L2334803-09B	Vial water preserved	A	NA		3.4	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)

**Project Name:** PHILADELPHIA REFINERY**Lab Number:** L2334803**Project Number:** 200.00135.014.03**Report Date:** 07/13/23**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2334803-09C	Vial water preserved	A	NA		3.4	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-09D	Plastic 2oz unpreserved for TS	A	NA		3.4	Y	Absent		TS(7)
L2334803-09E	Glass 250ml/8oz unpreserved	A	NA		3.4	Y	Absent		PA-PAH(14)
L2334803-09F	Glass 250ml/8oz unpreserved	A	NA		3.4	Y	Absent		PA-PAH(14)
L2334803-10A	Vial MeOH preserved	A	NA		3.4	Y	Absent		PA-8260HLW(14)
L2334803-10B	Vial water preserved	A	NA		3.4	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-10C	Vial water preserved	A	NA		3.4	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-10D	Plastic 2oz unpreserved for TS	A	NA		3.4	Y	Absent		TS(7)
L2334803-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.4	Y	Absent		PB-TI(180)
L2334803-10F	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		PA-PAH(14)
L2334803-11A	Vial MeOH preserved	B	NA		4.6	Y	Absent		PA-8260HLW(14)
L2334803-11B	Vial water preserved	B	NA		4.6	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-11C	Vial water preserved	B	NA		4.6	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-11D	Plastic 2oz unpreserved for TS	B	NA		4.6	Y	Absent		TS(7)
L2334803-11E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.6	Y	Absent		PB-TI(180)
L2334803-11F	Glass 120ml/4oz unpreserved	B	NA		4.6	Y	Absent		PA-PAH(14)
L2334803-12A	Vial MeOH preserved	A	NA		3.4	Y	Absent		PA-8260HLW(14)
L2334803-12B	Vial water preserved	A	NA		3.4	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-12C	Vial water preserved	A	NA		3.4	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-12D	Plastic 2oz unpreserved for TS	A	NA		3.4	Y	Absent		TS(7)
L2334803-12E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.4	Y	Absent		PB-TI(180)
L2334803-12F	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		PA-PAH(14)
L2334803-13A	Vial MeOH preserved	A	NA		3.4	Y	Absent		PA-8260HLW(14)
L2334803-13B	Vial water preserved	A	NA		3.4	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-13C	Vial water preserved	A	NA		3.4	Y	Absent	17-JUN-23 15:30	PA-8260HLW(14)
L2334803-13D	Plastic 2oz unpreserved for TS	A	NA		3.4	Y	Absent		TS(7)
L2334803-13E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.4	Y	Absent		PB-TI(180)
L2334803-13F	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		PA-PAH(14)

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

Serial\_No:07132315:26  
**Lab Number:** L2334803  
**Report Date:** 07/13/23

**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2334803-14A	Vial HCl preserved	B	NA		4.6	Y	Absent		PA-8260(14)
L2334803-14B	Vial HCl preserved	B	NA		4.6	Y	Absent		PA-8260(14)
L2334803-14C	Vial HCl preserved	B	NA		4.6	Y	Absent		PA-8260(14)
L2334803-14D	Vial Na2S2O3 preserved	B	NA		4.6	Y	Absent		8011(14)
L2334803-14E	Vial Na2S2O3 preserved	B	NA		4.6	Y	Absent		8011(14)
L2334803-14G	Plastic 250ml HNO3 preserved	B	<2	<2	4.6	Y	Absent		PB-6020T-PPB(180)
L2334803-14H	Amber 250ml unpreserved	B	7	7	4.6	Y	Absent		PA-PAHSIM-LVI(7)
L2334803-14I	Amber 250ml unpreserved	B	7	7	4.6	Y	Absent		PA-PAHSIM-LVI(7)
L2334803-15A	Vial MeOH preserved	B	NA		4.6	Y	Absent		PA-8260HLW(14)
L2334803-15B	Vial water preserved	B	NA		4.6	Y	Absent	17-JUN-23 15:33	PA-8260HLW(14)
L2334803-15C	Vial water preserved	B	NA		4.6	Y	Absent	17-JUN-23 15:33	PA-8260HLW(14)
L2334803-15D	Plastic 2oz unpreserved for TS	B	NA		4.6	Y	Absent		TS(7)
L2334803-15E	Glass 60mL/2oz unpreserved	B	NA		4.6	Y	Absent		PB-TI(180)
L2334803-15F	Glass 120ml/4oz unpreserved	B	NA		4.6	Y	Absent		PA-PAH(14)

\*Values in parentheses indicate holding time in days



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

## 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:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

### 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:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2334803  
**Report Date:** 07/13/23

#### **Data Qualifiers**

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2334803

**Project Number:** 200.00135.014.03

**Report Date:** 07/13/23

## 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, NO<sub>2</sub>, NO<sub>3</sub>.

### Mansfield Facility

**SM 2540D:** TSS.

**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**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: 6/16/23

ALPHA Job #: L2334803

WESTBORO, MA  
TEL: 508-898-9220  
FAX: 508-898-9193

MANSFIELD, MA  
TEL: 508-822-9300  
FAX: 508-822-3268

### Project Information

Project Name: Philadelphia Refinery  
Project Location: Philadelphia PA  
Project #: 200.0035.014.05  
Project Manager: William Schmidt  
ALPHA Quote #:

### Report Information - Data Deliverables

FAX  EMAIL  
 ADEx  Add'l Deliverables

### Billing Information

Same as Client info PO #:

### Client Information

Client: Ransom Consulting LLC  
Address: 2124 Hamilton Ave  
Hamilton NJ  
Phone: 215 901 4979  
Fax:  
Email: William.Schmidt@ransom-an.com  
 These samples have been previously analyzed by Alpha

### Turn-Around Time

Standard  RUSH (only confirmed if pre-approved)  
Date Due: Time:

### Regulatory Requirements/Report Limits

State / Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:  
Report only project-specific analyte list\*\* of PA DEP loaded/unloaded  
Groundline + WQ 2, 4, 5 + 6 Fuel oil short list for nonhazardous using  
Method 8170 Only email results to add@terraphase.com, William.Schmidt@ransom.com & Jerry.Gibbs@global.com

ANALYSIS	SAMPLE HANDLING										TOTAL # BOTTLES	
	Filtration	Done	Not needed	Lab to do	Preservation	Lab to do	(Please specify below)					
<u>PA DEP Short list 1-5</u>												
<u>Site specific SVOC (8170c)</u>												
<u>PA DEP load</u>												

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS										Sample Specific Comments	TOTAL # BOTTLES	
		Date	Time			PA DEP Short list 1-5	Site specific SVOC (8170c)	PA DEP load										
<u>34803 01</u>	<u>GPR1038-01</u>	<u>6/16/23</u>	<u>8:55</u>	<u>S</u>	<u>CO</u>	✓	✓	✓										
<u>02</u>	<u>GPR1038-02</u>		<u>8:35</u>			✓	✓	✓										<u>6</u>
<u>03</u>	<u>GPR1038-03</u>		<u>8:30</u>			✓	✓	✓										<u>6</u>
<u>04</u>	<u>GPR1038-04</u>		<u>8:40</u>			✓	✓	✓										<u>6</u>
<u>05</u>	<u>GPR1039-01</u>		<u>10:05</u>			✓	✓											<u>6</u>
<u>06</u>	<u>GPR1039-02</u>		<u>9:30</u>			✓	✓											<u>6</u>
<u>07</u>	<u>GPR1039-03</u>		<u>9:40</u>			✓	✓											<u>6</u>
<u>08</u>	<u>GPR1039-04</u>		<u>9:50</u>			✓	✓											<u>6</u>
<u>09</u>	<u>GPR1039-05</u>		<u>9:20</u>			✓	✓											<u>6</u>
<u>10</u>	<u>GPR272-6</u>		<u>19:00</u>			✓	✓	✓										<u>6</u>

SR 6117230315  
6/17/23 0315

Container Type	<u>G</u>	<u>G</u>	<u>G</u>	<u>G</u>	<u>G</u>
Preservative	<u>F</u>	<u>d</u>	<u>.</u>	<u>A</u>	<u>A</u>

Relinquished By:	Date/Time	Received By:	Date/Time
<u>[Signature]</u>	<u>6/16/23 15:45</u>	<u>[Signature]</u>	<u>6/16/23 15:45</u>
<u>[Signature]</u>	<u>6/16/23 18:05</u>	<u>[Signature]</u>	<u>6/16/23 00:05</u>
<u>[Signature]</u>	<u>6/16/23</u>	<u>[Signature]</u>	<u>6/16/23</u>

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



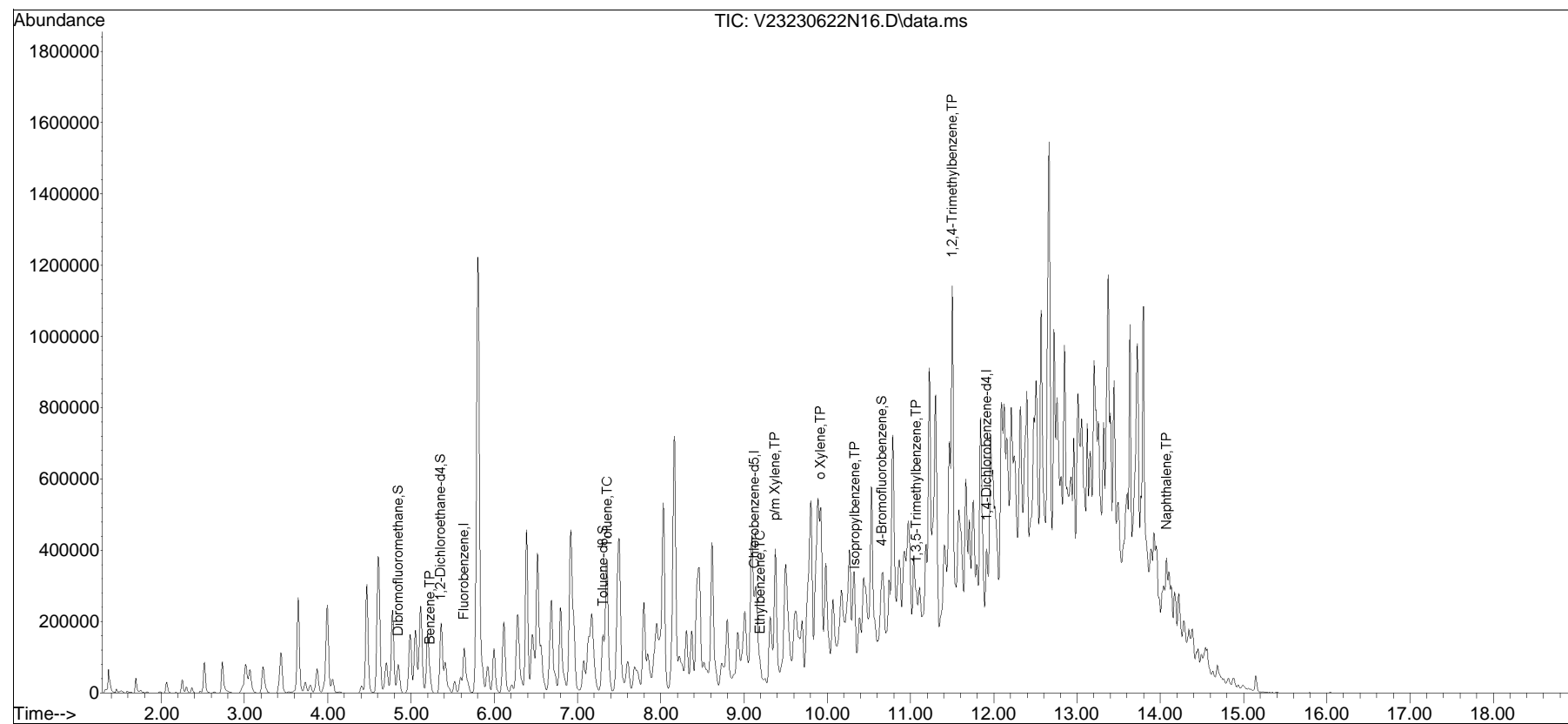


## Quantitation Report (QT Reviewed)

Data Path : K:\VOA123\2023\230622N\  
Data File : V23230622N16.D  
Acq On : 23 Jun 2023 02:52 am  
Operator : VOA123:MKS  
Sample : L2334803-01,31,5.16,5,,B  
Misc : WG1795319,ICAL20024  
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jun 23 08:51:09 2023  
Quant Method : K:\VOA123\2023\230621N\V123\_230518A\_8260.m  
Quant Title : VOLATILES BY GC/MS  
QLast Update : Tue May 23 09:22:30 2023  
Response via : Initial Calibration

Sub List : 8260-PA\_ShortList - PA Short list622N01.D•

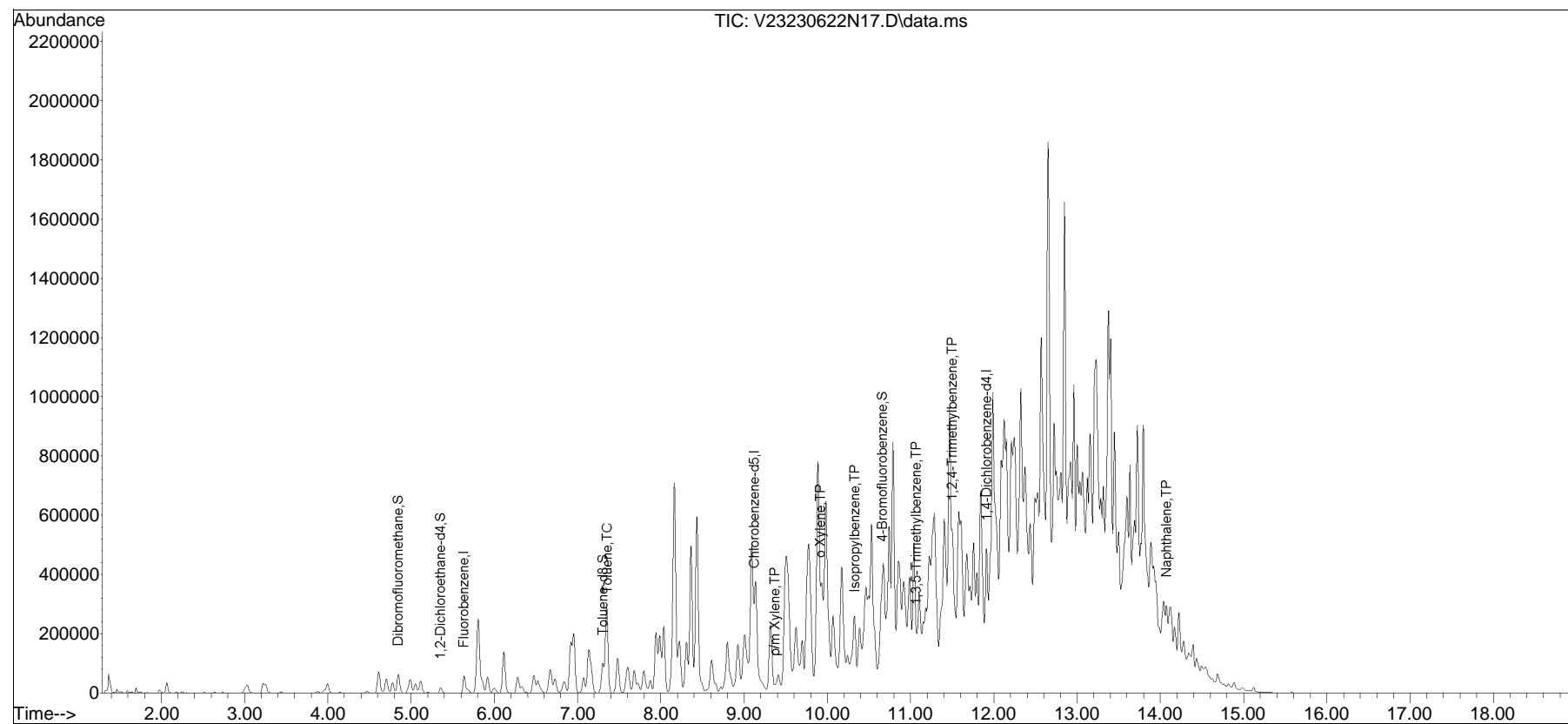


## Quantitation Report (QT Reviewed)

Data Path : K:\VOA123\2023\230622N\  
Data File : V23230622N17.D  
Acq On : 23 Jun 2023 03:18 am  
Operator : VOA123:MKS  
Sample : L2334803-02,31,4.93,5,,B  
Misc : WG1795319,ICAL20024  
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jun 23 08:51:35 2023  
Quant Method : K:\VOA123\2023\230621N\V123\_230518A\_8260.m  
Quant Title : VOLATILES BY GC/MS  
QLast Update : Tue May 23 09:22:30 2023  
Response via : Initial Calibration

Sub List : 8260-PA\_ShortList - PA Short list622N01.D•



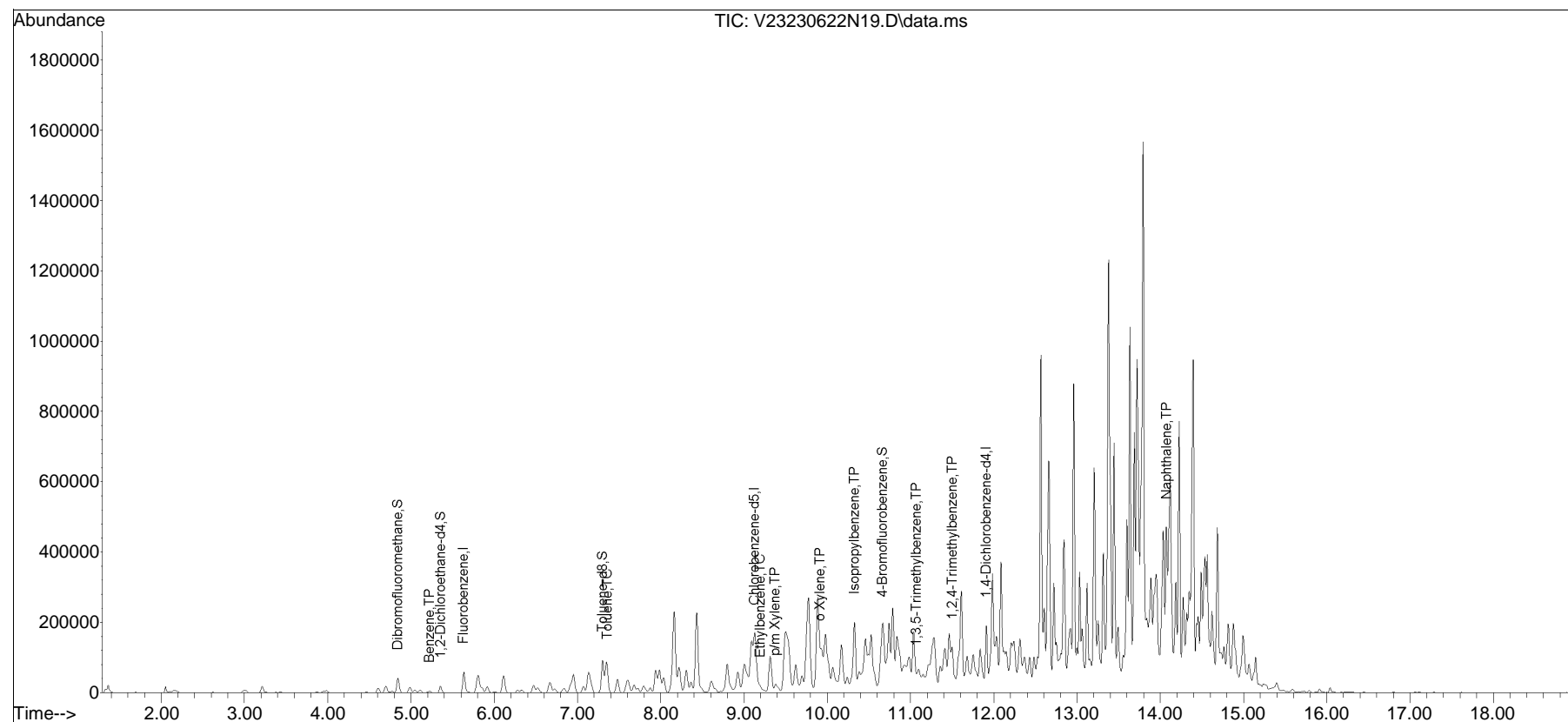


## Quantitation Report (QT Reviewed)

Data Path : K:\VOA123\2023\230622N\  
 Data File : V23230622N19.D  
 Acq On : 23 Jun 2023 04:10 am  
 Operator : VOA123:MKS  
 Sample : L2334803-04,31H,4.23,5,0.100,,A  
 Misc : WG1795320,ICAL20024  
 ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jun 23 07:51:40 2023  
 Quant Method : K:\VOA123\2023\230621N\V123\_230518A\_8260.m  
 Quant Title : VOLATILES BY GC/MS  
 QLast Update : Tue May 23 09:22:30 2023  
 Response via : Initial Calibration

Sub List : 8260-PA\_ShortList - PA Short list622N01.D•

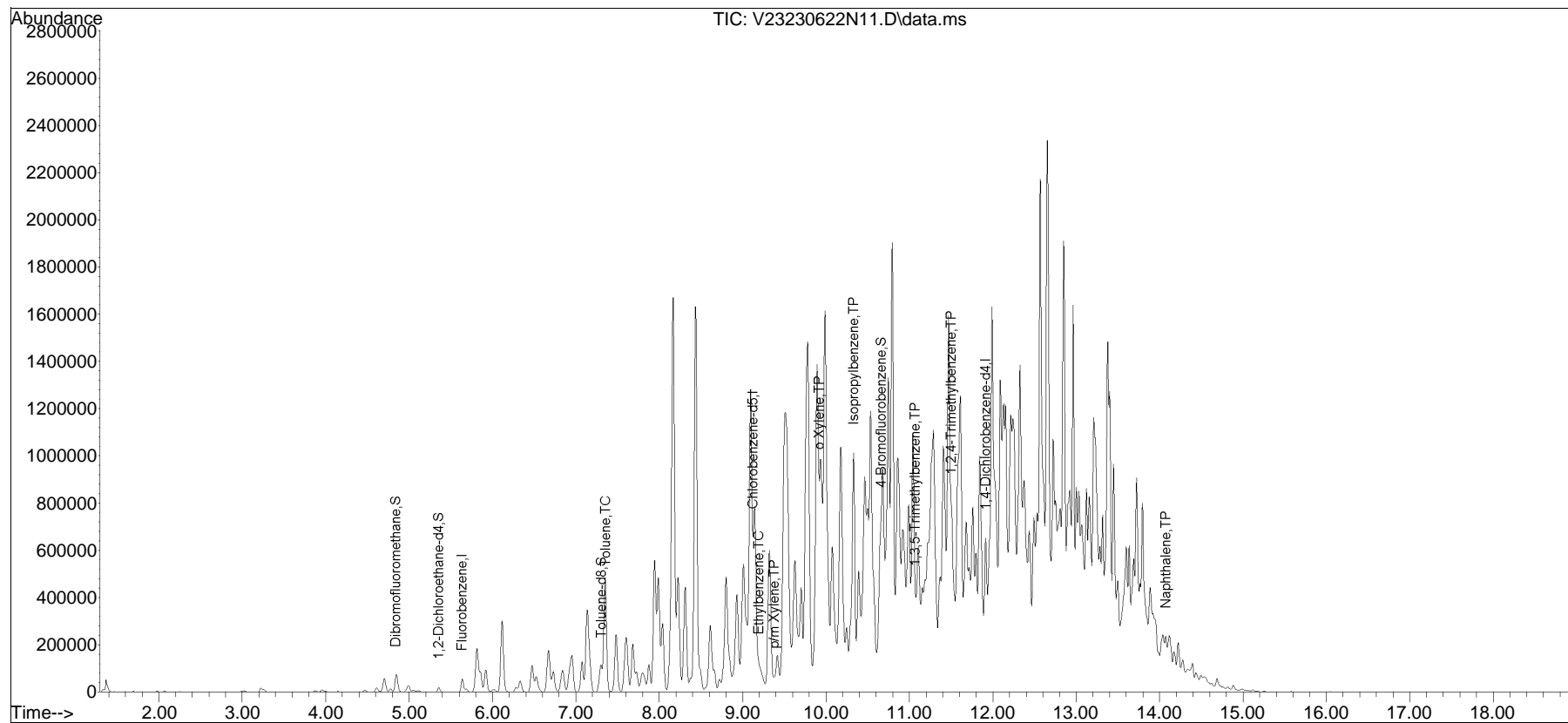


## Quantitation Report (QT Reviewed)

Data Path : K:\VOA123\2023\230622N\  
Data File : V23230622N11.D  
Acq On : 23 Jun 2023 12:42 am  
Operator : VOA123:MKS  
Sample : L2334803-09,31,4.77,5,,B  
Misc : WG1795319,ICAL20024  
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jun 23 08:48:43 2023  
Quant Method : K:\VOA123\2023\230621N\V123\_230518A\_8260.m  
Quant Title : VOLATILES BY GC/MS  
QLast Update : Tue May 23 09:22:30 2023  
Response via : Initial Calibration

Sub List : 8260-PA\_ShortList - PA Short list622N01.D•





## ANALYTICAL REPORT

Lab Number:	L2335425
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.014.03
Report Date:	07/07/23

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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](http://www.alphalab.com)



Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.014.03

Lab Number: L2335425

Report Date: 07/07/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2335425-01	GPR-272-15-SS01	SOIL	PHILADELPHIA PA	06/20/23 07:55	06/21/23
L2335425-02	GPR-272-14-SS01	SOIL	PHILADELPHIA PA	06/20/23 08:05	06/21/23
L2335425-03	GPR-272-13-SS01	SOIL	PHILADELPHIA PA	06/20/23 08:15	06/21/23
L2335425-04	GPR-272-12-SS01	SOIL	PHILADELPHIA PA	06/20/23 08:25	06/21/23
L2335425-05	GPR-272-5-SS01	SOIL	PHILADELPHIA PA	06/20/23 08:35	06/21/23
L2335425-06	GPR-272-4-SS01	SOIL	PHILADELPHIA PA	06/20/23 08:45	06/21/23
L2335425-07	GPR-272-9-SS01	SOIL	PHILADELPHIA PA	06/20/23 08:55	06/21/23
L2335425-08	GPR-272-3-SS01	SOIL	PHILADELPHIA PA	06/20/23 12:10	06/21/23
L2335425-09	GPR-272-2-SS01	SOIL	PHILADELPHIA PA	06/20/23 12:15	06/21/23
L2335425-10	GPR-272-1-SS01	SOIL	PHILADELPHIA PA	06/20/23 12:30	06/21/23
L2335425-11	GPR-273-8-SS01	SOIL	PHILADELPHIA PA	06/20/23 13:10	06/21/23
L2335425-12	GPR-273-7-SS01	SOIL	PHILADELPHIA PA	06/20/23 13:25	06/21/23
L2335425-13	GPR-273-3-SS01	SOIL	PHILADELPHIA PA	06/20/23 13:40	06/21/23
L2335425-14	GPR-273-2-SS01	SOIL	PHILADELPHIA PA	06/20/23 13:50	06/21/23
L2335425-15	GPR-273-4-SS01	SOIL	PHILADELPHIA PA	06/20/23 14:00	06/21/23
L2335425-16	GPR-273-1-SS01	SOIL	PHILADELPHIA PA	06/20/23 14:10	06/21/23
L2335425-17	GPR-273-5-SS01	SOIL	PHILADELPHIA PA	06/20/23 14:15	06/21/23
L2335425-18	GPR-273-12-SS01	SOIL	PHILADELPHIA PA	06/20/23 14:25	06/21/23
L2335425-19	GPR-273-13-SS01	SOIL	PHILADELPHIA PA	06/20/23 14:35	06/21/23
L2335425-20	GPR-273-11-SS01	SOIL	PHILADELPHIA PA	06/20/23 14:40	06/21/23
L2335425-21	GPR-273-14-SS01	SOIL	PHILADELPHIA PA	06/20/23 15:00	06/21/23
L2335425-22	GPR-273-9-SS01	SOIL	PHILADELPHIA PA	06/20/23 15:10	06/21/23
L2335425-23	DUP-56	SOIL	PHILADELPHIA PA	06/20/23 15:20	06/21/23
L2335425-24	FB062023	WATER	PHILADELPHIA PA	06/20/23 12:50	06/21/23

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

### 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.

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**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

### Case Narrative (continued)

#### Report Revision

July 07, 2023: At the client's request, the Semivolatile Organics reporting list has been amended to include Indeno(1,2,3)pyrene on L2335425-01 through -10. Additionally, the Microextractables reporting list has been corrected on L2335425-24.

#### Report Submission

July 06, 2023: This final report includes the results of all requested analyses.

June 28, 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.

#### Sample Receipt

L2335425-01 through -22: The Client ID was specified by the client.

L2335425-24: A sample container for Total Lead was received for the "FB062023" sample, but was not listed on the chain of custody. At the client's request, the analysis was performed.

#### Volatile Organics

L2335425-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (172%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2335425-07: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (206%); 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.

L2335425-10: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (138%) and 4-bromofluorobenzene (386%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

### Case Narrative (continued)

L2335425-11: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (299%); 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.

L2335425-12: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (371%); 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.

L2335425-13: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (166%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2335425-14: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (431%); 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.

L2335425-15: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (150%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2335425-16 and -23: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.

L2335425-19: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (142%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

#### Microextractables

The WG1797164-2 LCS recovery for 1,2-dibromoethane (125%), associated with L2335425-24, is outside Alpha's acceptance criteria, but within the acceptance criteria specified in the method.

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

### Case Narrative (continued)

#### Semivolatile Organics

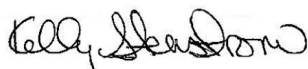
L2335425-03 through -22: The sample has elevated detection limits due to the limited sample volume utilized during extraction, as required by the sample matrix.

#### Total Metals

The WG1796981-3 MS recovery, performed on L2335425-01, is outside the acceptance criteria for lead (25%). A post digestion spike was performed and yielded an unacceptable recovery for lead (32%). The serial dilution recovery was acceptable; therefore, the matrix test passed for 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:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 07/07/23



# ORGANICS

# VOLATILES

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-01  
 Client ID: GPR-272-15-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 07:55  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 17:08  
 Analyst: AJK  
 Percent Solids: 67%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0030	0.00031	1
Benzene	ND		mg/kg	0.00076	0.00025	1
1,2-Dichloroethane	ND		mg/kg	0.0015	0.00039	1
Toluene	ND		mg/kg	0.0015	0.00083	1
1,2-Dibromoethane	ND		mg/kg	0.00076	0.00045	1
Ethylbenzene	ND		mg/kg	0.0015	0.00022	1
p/m-Xylene	ND		mg/kg	0.0030	0.00086	1
o-Xylene	0.0024		mg/kg	0.0015	0.00044	1
Xylenes, Total	0.0024		mg/kg	0.0015	0.00044	1
Isopropylbenzene	0.0015		mg/kg	0.0015	0.00017	1
1,3,5-Trimethylbenzene	0.0011	J	mg/kg	0.0030	0.00029	1
1,2,4-Trimethylbenzene	0.0025	J	mg/kg	0.0030	0.00051	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	172	Q	70-130
Dibromofluoromethane	98		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-02  
 Client ID: GPR-272-14-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 08:05  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 14:42  
 Analyst: AJK  
 Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00060	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00031	1
Toluene	ND		mg/kg	0.0012	0.00065	1
1,2-Dibromoethane	ND		mg/kg	0.00060	0.00035	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
p/m-Xylene	ND		mg/kg	0.0024	0.00067	1
o-Xylene	ND		mg/kg	0.0012	0.00035	1
Xylenes, Total	ND		mg/kg	0.0012	0.00035	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	99		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-03  
 Client ID: GPR-272-13-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 08:15  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 17:28  
 Analyst: AJK  
 Percent Solids: 68%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	0.00025	J	mg/kg	0.00064	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00033	1
Toluene	ND		mg/kg	0.0013	0.00070	1
1,2-Dibromoethane	ND		mg/kg	0.00064	0.00038	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	ND		mg/kg	0.0026	0.00072	1
o-Xylene	ND		mg/kg	0.0013	0.00038	1
Xylenes, Total	ND		mg/kg	0.0013	0.00038	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0026	0.00043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	102		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-04  
 Client ID: GPR-272-12-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 08:25  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 15:03  
 Analyst: AJK  
 Percent Solids: 58%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0033	0.00033	1
Benzene	ND		mg/kg	0.00082	0.00027	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00042	1
Toluene	ND		mg/kg	0.0016	0.00090	1
1,2-Dibromoethane	ND		mg/kg	0.00082	0.00048	1
Ethylbenzene	ND		mg/kg	0.0016	0.00023	1
p/m-Xylene	ND		mg/kg	0.0033	0.00092	1
o-Xylene	ND		mg/kg	0.0016	0.00048	1
Xylenes, Total	ND		mg/kg	0.0016	0.00048	1
Isopropylbenzene	ND		mg/kg	0.0016	0.00018	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0033	0.00032	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0033	0.00055	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	98		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-05  
 Client ID: GPR-272-5-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 08:35  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 17:49  
 Analyst: AJK  
 Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00064	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00033	1
Toluene	ND		mg/kg	0.0013	0.00069	1
1,2-Dibromoethane	ND		mg/kg	0.00064	0.00037	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	ND		mg/kg	0.0026	0.00071	1
o-Xylene	ND		mg/kg	0.0013	0.00037	1
Xylenes, Total	ND		mg/kg	0.0013	0.00037	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0026	0.00043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	97		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-06  
 Client ID: GPR-272-4-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 08:45  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 15:24  
 Analyst: AJK  
 Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0030	0.00030	1
Benzene	ND		mg/kg	0.00075	0.00025	1
1,2-Dichloroethane	ND		mg/kg	0.0015	0.00038	1
Toluene	ND		mg/kg	0.0015	0.00081	1
1,2-Dibromoethane	ND		mg/kg	0.00075	0.00044	1
Ethylbenzene	ND		mg/kg	0.0015	0.00021	1
p/m-Xylene	ND		mg/kg	0.0030	0.00084	1
o-Xylene	ND		mg/kg	0.0015	0.00044	1
Xylenes, Total	ND		mg/kg	0.0015	0.00044	1
Isopropylbenzene	0.00023	J	mg/kg	0.0015	0.00016	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0030	0.00029	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0030	0.00050	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	99		70-130



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-07  
 Client ID: GPR-272-9-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 08:55  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 18:10  
 Analyst: AJK  
 Percent Solids: 71%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0028	0.00028	1
Benzene	ND		mg/kg	0.00069	0.00023	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00036	1
Toluene	0.00089	J	mg/kg	0.0014	0.00075	1
1,2-Dibromoethane	ND		mg/kg	0.00069	0.00041	1
Ethylbenzene	0.00025	J	mg/kg	0.0014	0.00020	1
p/m-Xylene	ND		mg/kg	0.0028	0.00078	1
o-Xylene	0.00094	J	mg/kg	0.0014	0.00040	1
Xylenes, Total	0.00094	J	mg/kg	0.0014	0.00040	1
Isopropylbenzene	0.00076	J	mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	0.0011	J	mg/kg	0.0028	0.00027	1
1,2,4-Trimethylbenzene	0.0016	J	mg/kg	0.0028	0.00046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	121		70-130
4-Bromofluorobenzene	206	Q	70-130
Dibromofluoromethane	93		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-08  
 Client ID: GPR-272-3-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 12:10  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 15:44  
 Analyst: AJK  
 Percent Solids: 64%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0038	0.00038	1
Benzene	0.0014		mg/kg	0.00095	0.00032	1
1,2-Dichloroethane	ND		mg/kg	0.0019	0.00049	1
Toluene	0.0013	J	mg/kg	0.0019	0.0010	1
1,2-Dibromoethane	ND		mg/kg	0.00095	0.00056	1
Ethylbenzene	0.00036	J	mg/kg	0.0019	0.00027	1
p/m-Xylene	0.0015	J	mg/kg	0.0038	0.0011	1
o-Xylene	0.00099	J	mg/kg	0.0019	0.00056	1
Xylenes, Total	0.0025	J	mg/kg	0.0019	0.00056	1
Isopropylbenzene	0.00042	J	mg/kg	0.0019	0.00021	1
1,3,5-Trimethylbenzene	0.00068	J	mg/kg	0.0038	0.00037	1
1,2,4-Trimethylbenzene	0.0014	J	mg/kg	0.0038	0.00064	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	129		70-130
Dibromofluoromethane	94		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-09  
 Client ID: GPR-272-2-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 12:15  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 18:31  
 Analyst: AJK  
 Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0028	0.00028	1
Benzene	0.00029	J	mg/kg	0.00070	0.00023	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00036	1
Toluene	ND		mg/kg	0.0014	0.00076	1
1,2-Dibromoethane	ND		mg/kg	0.00070	0.00041	1
Ethylbenzene	ND		mg/kg	0.0014	0.00020	1
p/m-Xylene	ND		mg/kg	0.0028	0.00078	1
o-Xylene	ND		mg/kg	0.0014	0.00040	1
Xylenes, Total	ND		mg/kg	0.0014	0.00040	1
Isopropylbenzene	ND		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0028	0.00027	1
1,2,4-Trimethylbenzene	0.00046	J	mg/kg	0.0028	0.00046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	98		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-10  
 Client ID: GPR-272-1-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 12:30  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 16:05  
 Analyst: AJK  
 Percent Solids: 68%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0028	0.00028	1
Benzene	0.00025	J	mg/kg	0.00070	0.00023	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00036	1
Toluene	0.0019		mg/kg	0.0014	0.00076	1
1,2-Dibromoethane	ND		mg/kg	0.00070	0.00041	1
Ethylbenzene	ND		mg/kg	0.0014	0.00020	1
p/m-Xylene	0.0039		mg/kg	0.0028	0.00079	1
o-Xylene	0.0030		mg/kg	0.0014	0.00041	1
Xylenes, Total	0.0069		mg/kg	0.0014	0.00041	1
Isopropylbenzene	0.050		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	0.00080	J	mg/kg	0.0028	0.00027	1
1,2,4-Trimethylbenzene	0.0033		mg/kg	0.0028	0.00047	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	138	Q	70-130
4-Bromofluorobenzene	386	Q	70-130
Dibromofluoromethane	82		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-11  
 Client ID: GPR-273-8-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 13:10  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 18:51  
 Analyst: AJK  
 Percent Solids: 60%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	0.0029	J	mg/kg	0.0034	0.00034	1
Benzene	ND		mg/kg	0.00084	0.00028	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00043	1
Toluene	0.00096	J	mg/kg	0.0017	0.00091	1
1,2-Dibromoethane	ND		mg/kg	0.00084	0.00049	1
Ethylbenzene	ND		mg/kg	0.0017	0.00024	1
p/m-Xylene	0.0012	J	mg/kg	0.0034	0.00094	1
o-Xylene	0.0032		mg/kg	0.0017	0.00049	1
Xylenes, Total	0.0044	J	mg/kg	0.0017	0.00049	1
Isopropylbenzene	0.012		mg/kg	0.0017	0.00018	1
1,3,5-Trimethylbenzene	0.0011	J	mg/kg	0.0034	0.00032	1
1,2,4-Trimethylbenzene	0.0030	J	mg/kg	0.0034	0.00056	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	122		70-130
4-Bromofluorobenzene	<b>299</b>	Q	70-130
Dibromofluoromethane	97		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-12  
 Client ID: GPR-273-7-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 13:25  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 16:26  
 Analyst: AJK  
 Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0027	0.00028	1
Benzene	ND		mg/kg	0.00068	0.00023	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00035	1
Toluene	0.0012	J	mg/kg	0.0014	0.00074	1
1,2-Dibromoethane	ND		mg/kg	0.00068	0.00040	1
Ethylbenzene	ND		mg/kg	0.0014	0.00019	1
p/m-Xylene	0.0020	J	mg/kg	0.0027	0.00077	1
o-Xylene	0.0030		mg/kg	0.0014	0.00040	1
Xylenes, Total	0.0050	J	mg/kg	0.0014	0.00040	1
Isopropylbenzene	0.019		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	0.0010	J	mg/kg	0.0027	0.00026	1
1,2,4-Trimethylbenzene	0.0048		mg/kg	0.0027	0.00046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	122		70-130
4-Bromofluorobenzene	371	Q	70-130
Dibromofluoromethane	99		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-13  
 Client ID: GPR-273-3-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 13:40  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 19:12  
 Analyst: AJK  
 Percent Solids: 57%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0039	0.00040	1
Benzene	ND		mg/kg	0.00098	0.00033	1
1,2-Dichloroethane	ND		mg/kg	0.0020	0.00050	1
Toluene	ND		mg/kg	0.0020	0.0011	1
1,2-Dibromoethane	ND		mg/kg	0.00098	0.00058	1
Ethylbenzene	0.00068	J	mg/kg	0.0020	0.00028	1
p/m-Xylene	0.0055		mg/kg	0.0039	0.0011	1
o-Xylene	0.0040		mg/kg	0.0020	0.00057	1
Xylenes, Total	0.0095		mg/kg	0.0020	0.00057	1
Isopropylbenzene	0.11		mg/kg	0.0020	0.00021	1
1,3,5-Trimethylbenzene	0.0086		mg/kg	0.0039	0.00038	1
1,2,4-Trimethylbenzene	0.012		mg/kg	0.0039	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	116		70-130
4-Bromofluorobenzene	166	Q	70-130
Dibromofluoromethane	97		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-14  
 Client ID: GPR-273-2-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 13:50  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 16:47  
 Analyst: AJK  
 Percent Solids: 56%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0039	0.00040	1
Benzene	0.00047	J	mg/kg	0.00098	0.00033	1
1,2-Dichloroethane	ND		mg/kg	0.0020	0.00050	1
Toluene	0.0018	J	mg/kg	0.0020	0.0011	1
1,2-Dibromoethane	ND		mg/kg	0.00098	0.00058	1
Ethylbenzene	ND		mg/kg	0.0020	0.00028	1
p/m-Xylene	0.0092		mg/kg	0.0039	0.0011	1
o-Xylene	0.0068		mg/kg	0.0020	0.00057	1
Xylenes, Total	0.016		mg/kg	0.0020	0.00057	1
Isopropylbenzene	0.033		mg/kg	0.0020	0.00021	1
1,3,5-Trimethylbenzene	0.0059		mg/kg	0.0039	0.00038	1
1,2,4-Trimethylbenzene	0.013		mg/kg	0.0039	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	128		70-130
4-Bromofluorobenzene	431	Q	70-130
Dibromofluoromethane	96		70-130



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-15  
 Client ID: GPR-273-4-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 14:00  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 19:33  
 Analyst: AJK  
 Percent Solids: 53%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0042	0.00042	1
Benzene	ND		mg/kg	0.0010	0.00035	1
1,2-Dichloroethane	ND		mg/kg	0.0021	0.00054	1
Toluene	ND		mg/kg	0.0021	0.0011	1
1,2-Dibromoethane	ND		mg/kg	0.0010	0.00062	1
Ethylbenzene	ND		mg/kg	0.0021	0.00030	1
p/m-Xylene	0.0024	J	mg/kg	0.0042	0.0012	1
o-Xylene	0.0026		mg/kg	0.0021	0.00061	1
Xylenes, Total	0.0050	J	mg/kg	0.0021	0.00061	1
Isopropylbenzene	0.052		mg/kg	0.0021	0.00023	1
1,3,5-Trimethylbenzene	0.0022	J	mg/kg	0.0042	0.00040	1
1,2,4-Trimethylbenzene	0.0060		mg/kg	0.0042	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	150	Q	70-130
Dibromofluoromethane	95		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-16  
 Client ID: GPR-273-1-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 14:10  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 19:54  
 Analyst: AJK  
 Percent Solids: 55%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	0.00075	J	mg/kg	0.0038	0.00038	1
Benzene	0.044		mg/kg	0.00094	0.00031	1
1,2-Dichloroethane	ND		mg/kg	0.0019	0.00048	1
Toluene	0.29		mg/kg	0.0019	0.0010	1
1,2-Dibromoethane	ND		mg/kg	0.00094	0.00055	1
Ethylbenzene	0.061		mg/kg	0.0019	0.00026	1
p/m-Xylene	0.54		mg/kg	0.0038	0.0010	1
o-Xylene	0.21		mg/kg	0.0019	0.00055	1
Xylenes, Total	0.75		mg/kg	0.0019	0.00055	1
Isopropylbenzene	2.6	E	mg/kg	0.0019	0.00020	1
1,3,5-Trimethylbenzene	0.12		mg/kg	0.0038	0.00036	1
1,2,4-Trimethylbenzene	0.35		mg/kg	0.0038	0.00063	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	130		70-130
Dibromofluoromethane	96		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-16  
 Client ID: GPR-273-1-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 14:10  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/28/23 07:09  
 Analyst: MKS  
 Percent Solids: 55%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 High - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.28	0.028	1
Benzene	0.069	J	mg/kg	0.071	0.024	1
1,2-Dichloroethane	ND		mg/kg	0.14	0.036	1
Toluene	0.98		mg/kg	0.14	0.077	1
1,2-Dibromoethane	ND		mg/kg	0.071	0.042	1
Ethylbenzene	0.11	J	mg/kg	0.14	0.020	1
p/m-Xylene	0.44		mg/kg	0.28	0.080	1
o-Xylene	0.17		mg/kg	0.14	0.041	1
Xylenes, Total	0.61		mg/kg	0.14	0.041	1
Isopropylbenzene	8.5		mg/kg	0.14	0.015	1
1,3,5-Trimethylbenzene	0.090	J	mg/kg	0.28	0.027	1
1,2,4-Trimethylbenzene	0.30		mg/kg	0.28	0.047	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	92		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-17  
 Client ID: GPR-273-5-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 14:15  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 20:14  
 Analyst: AJK  
 Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	0.00046	J	mg/kg	0.0030	0.00030	1
Benzene	0.0056		mg/kg	0.00074	0.00024	1
1,2-Dichloroethane	ND		mg/kg	0.0015	0.00038	1
Toluene	0.0097		mg/kg	0.0015	0.00080	1
1,2-Dibromoethane	ND		mg/kg	0.00074	0.00043	1
Ethylbenzene	0.0024		mg/kg	0.0015	0.00021	1
p/m-Xylene	0.011		mg/kg	0.0030	0.00083	1
o-Xylene	0.0072		mg/kg	0.0015	0.00043	1
Xylenes, Total	0.018		mg/kg	0.0015	0.00043	1
Isopropylbenzene	0.031		mg/kg	0.0015	0.00016	1
1,3,5-Trimethylbenzene	0.0053		mg/kg	0.0030	0.00028	1
1,2,4-Trimethylbenzene	0.011		mg/kg	0.0030	0.00049	1

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

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-18  
 Client ID: GPR-273-12-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 14:25  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 20:35  
 Analyst: AJK  
 Percent Solids: 63%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatiles Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0032	0.00033	1
Benzene	ND		mg/kg	0.00081	0.00027	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00042	1
Toluene	ND		mg/kg	0.0016	0.00088	1
1,2-Dibromoethane	ND		mg/kg	0.00081	0.00048	1
Ethylbenzene	ND		mg/kg	0.0016	0.00023	1
p/m-Xylene	ND		mg/kg	0.0032	0.00091	1
o-Xylene	0.00062	J	mg/kg	0.0016	0.00047	1
Xylenes, Total	0.00062	J	mg/kg	0.0016	0.00047	1
Isopropylbenzene	0.0032		mg/kg	0.0016	0.00018	1
1,3,5-Trimethylbenzene	0.0012	J	mg/kg	0.0032	0.00031	1
1,2,4-Trimethylbenzene	0.0015	J	mg/kg	0.0032	0.00054	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	101		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-19  
 Client ID: GPR-273-13-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 14:35  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 21:17  
 Analyst: AJK  
 Percent Solids: 66%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0031	0.00032	1
Benzene	ND		mg/kg	0.00078	0.00026	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00040	1
Toluene	ND		mg/kg	0.0016	0.00085	1
1,2-Dibromoethane	ND		mg/kg	0.00078	0.00046	1
Ethylbenzene	0.00022	J	mg/kg	0.0016	0.00022	1
p/m-Xylene	ND		mg/kg	0.0031	0.00088	1
o-Xylene	0.0011	J	mg/kg	0.0016	0.00046	1
Xylenes, Total	0.0011	J	mg/kg	0.0016	0.00046	1
Isopropylbenzene	0.0044		mg/kg	0.0016	0.00017	1
1,3,5-Trimethylbenzene	0.0011	J	mg/kg	0.0031	0.00030	1
1,2,4-Trimethylbenzene	0.0022	J	mg/kg	0.0031	0.00052	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	142	Q	70-130
Dibromofluoromethane	99		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-20  
 Client ID: GPR-273-11-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 14:40  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/23/23 20:56  
 Analyst: AJK  
 Percent Solids: 64%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatiles Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0032	0.00032	1
Benzene	ND		mg/kg	0.00079	0.00026	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00041	1
Toluene	ND		mg/kg	0.0016	0.00086	1
1,2-Dibromoethane	ND		mg/kg	0.00079	0.00046	1
Ethylbenzene	ND		mg/kg	0.0016	0.00022	1
p/m-Xylene	ND		mg/kg	0.0032	0.00089	1
o-Xylene	ND		mg/kg	0.0016	0.00046	1
Xylenes, Total	ND		mg/kg	0.0016	0.00046	1
Isopropylbenzene	0.0028		mg/kg	0.0016	0.00017	1
1,3,5-Trimethylbenzene	0.00041	J	mg/kg	0.0032	0.00030	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0032	0.00053	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	99		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-21  
 Client ID: GPR-273-14-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 15:00  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/27/23 15:46  
 Analyst: JIC  
 Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatiles Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0027	0.00028	1
Benzene	ND		mg/kg	0.00068	0.00023	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00035	1
Toluene	ND		mg/kg	0.0014	0.00074	1
1,2-Dibromoethane	ND		mg/kg	0.00068	0.00040	1
Ethylbenzene	ND		mg/kg	0.0014	0.00019	1
p/m-Xylene	ND		mg/kg	0.0027	0.00077	1
o-Xylene	ND		mg/kg	0.0014	0.00040	1
Xylenes, Total	ND		mg/kg	0.0014	0.00040	1
Isopropylbenzene	0.00032	J	mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0027	0.00026	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0027	0.00046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	127		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	108		70-130



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-22  
 Client ID: GPR-273-9-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 15:10  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/27/23 16:12  
 Analyst: JIC  
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00026	1
Benzene	ND		mg/kg	0.00064	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00033	1
Toluene	ND		mg/kg	0.0013	0.00069	1
1,2-Dibromoethane	ND		mg/kg	0.00064	0.00037	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	ND		mg/kg	0.0025	0.00071	1
o-Xylene	ND		mg/kg	0.0013	0.00037	1
Xylenes, Total	ND		mg/kg	0.0013	0.00037	1
Isopropylbenzene	0.00043	J	mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	122		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	108		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-23  
 Client ID: DUP-56  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 15:20  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/27/23 16:38  
 Analyst: JIC  
 Percent Solids: 62%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 Low - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.0033	0.00034	1
Benzene	0.0019		mg/kg	0.00083	0.00028	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00043	1
Toluene	0.019		mg/kg	0.0017	0.00090	1
1,2-Dibromoethane	ND		mg/kg	0.00083	0.00049	1
Ethylbenzene	0.0058		mg/kg	0.0017	0.00024	1
p/m-Xylene	0.046		mg/kg	0.0033	0.00093	1
o-Xylene	0.018		mg/kg	0.0017	0.00048	1
Xylenes, Total	0.064		mg/kg	0.0017	0.00048	1
Isopropylbenzene	0.89	E	mg/kg	0.0017	0.00018	1
1,3,5-Trimethylbenzene	0.010		mg/kg	0.0033	0.00032	1
1,2,4-Trimethylbenzene	0.029		mg/kg	0.0033	0.00056	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	104		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-23  
 Client ID: DUP-56  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 15:20  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8260D  
 Analytical Date: 06/28/23 09:54  
 Analyst: AJK  
 Percent Solids: 62%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by EPA 5035 High - Westborough Lab</b>						
Methyl tert butyl ether	ND		mg/kg	0.26	0.026	1
Benzene	ND		mg/kg	0.065	0.022	1
1,2-Dichloroethane	ND		mg/kg	0.13	0.033	1
Toluene	0.26		mg/kg	0.13	0.070	1
1,2-Dibromoethane	ND		mg/kg	0.065	0.038	1
Ethylbenzene	0.086	J	mg/kg	0.13	0.018	1
p/m-Xylene	0.30		mg/kg	0.26	0.073	1
o-Xylene	0.12	J	mg/kg	0.13	0.038	1
Xylenes, Total	0.42	J	mg/kg	0.13	0.038	1
Isopropylbenzene	6.9		mg/kg	0.13	0.014	1
1,3,5-Trimethylbenzene	0.10	J	mg/kg	0.26	0.025	1
1,2,4-Trimethylbenzene	0.31		mg/kg	0.26	0.043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	95		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-24  
 Client ID: FB062023  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 12:50  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Water  
 Analytical Method: 1,8011  
 Analytical Date: 06/28/23 15:31  
 Analyst: AMM

Extraction Method: EPA 8011  
 Extraction Date: 06/28/23 10:44

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

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-24  
 Client ID: FB062023  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 12:50  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Water  
 Analytical Method: 1,8260D  
 Analytical Date: 06/24/23 14:15  
 Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Volatile Organics by GC/MS - Westborough Lab</b>						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
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	85		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	91		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

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

Analytical Method: 1,8260D  
Analytical Date: 06/23/23 14:20  
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-20 Batch: WG1796127-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	101		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

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

Analytical Method: 1,8260D  
Analytical Date: 06/24/23 05:28  
Analyst: TMS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 24 Batch: WG1796757-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	96		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

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

Analytical Method: 1,8011  
Analytical Date: 06/28/23 13:47  
Analyst: AMM

Extraction Method: EPA 8011  
Extraction Date: 06/28/23 10:44

<b>Parameter</b>	<b>Result</b>	<b>Qualifier</b>	<b>Units</b>	<b>RL</b>	<b>MDL</b>	
Microextractables by GC - Westborough Lab for sample(s): 24 Batch: WG1797164-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	B



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

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

Analytical Method: 1,8260D  
Analytical Date: 06/27/23 22:05  
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 16 Batch: WG1797166-5					
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	102		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	95		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

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

Analytical Method: 1,8260D  
Analytical Date: 06/27/23 13:10  
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 21-23 Batch: WG1797293-5					
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	115		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	102		70-130

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8260D  
Analytical Date: 06/28/23 09:29  
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 23 Batch: WG1797324-5					
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	106		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	95		70-130

### Lab Control Sample Analysis Batch Quality Control

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-20 Batch: WG1796127-3 WG1796127-4								
Methyl tert butyl ether	94		98		66-130	4		30
Benzene	100		99		70-130	1		30
1,2-Dichloroethane	88		92		70-130	4		30
Toluene	92		92		70-130	0		30
1,2-Dibromoethane	88		90		70-130	2		30
Ethylbenzene	96		96		70-130	0		30
p/m-Xylene	95		94		70-130	1		30
o-Xylene	95		94		70-130	1		30
Isopropylbenzene	96		96		70-130	0		30
1,3,5-Trimethylbenzene	96		97		70-130	1		30
1,2,4-Trimethylbenzene	94		95		70-130	1		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	101		101		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	103		103		70-130
Dibromofluoromethane	99		98		70-130



### Lab Control Sample Analysis Batch Quality Control

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 24 Batch: WG1796757-3 WG1796757-4								
Methyl tert butyl ether	84		86		63-130	2		20
Benzene	91		94		70-130	3		20
1,2-Dichloroethane	85		86		70-130	1		20
Toluene	92		94		70-130	2		20
Ethylbenzene	91		94		70-130	3		20
p/m-Xylene	90		95		70-130	5		20
o-Xylene	90		95		70-130	5		20
Isopropylbenzene	91		92		70-130	1		20
1,3,5-Trimethylbenzene	89		92		64-130	3		20
1,2,4-Trimethylbenzene	90		91		70-130	1		20

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	89		87		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	97		96		70-130
Dibromofluoromethane	97		98		70-130



## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** PHILADELPHIA REFINERY

**Project Number:** 200.00135.014.03

**Lab Number:** L2335425

**Report Date:** 07/07/23

<b>Parameter</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>LCSD %Recovery</b>	<b>Qual</b>	<b>%Recovery Limits</b>	<b>RPD</b>	<b>Qual</b>	<b>RPD Limits</b>	<b>Column</b>
Microextractables by GC - Westborough Lab Associated sample(s): 24 Batch: WG1797164-2									
1,2-Dibromoethane	125	Q	-		80-120	-		20	B

### Lab Control Sample Analysis Batch Quality Control

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 16 Batch: WG1797166-3 WG1797166-4								
Methyl tert butyl ether	84		76		66-130	10		30
Benzene	92		81		70-130	13		30
1,2-Dichloroethane	88		79		70-130	11		30
Toluene	98		87		70-130	12		30
1,2-Dibromoethane	96		88		70-130	9		30
Ethylbenzene	100		86		70-130	15		30
p/m-Xylene	101		88		70-130	14		30
o-Xylene	99		89		70-130	11		30
Isopropylbenzene	102		88		70-130	15		30
1,3,5-Trimethylbenzene	101		88		70-130	14		30
1,2,4-Trimethylbenzene	102		89		70-130	14		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		92		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	99		100		70-130
Dibromofluoromethane	92		92		70-130



## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 21-23 Batch: WG1797293-3 WG1797293-4								
Methyl tert butyl ether	93		90		66-130	3		30
Benzene	80		76		70-130	5		30
1,2-Dichloroethane	97		93		70-130	4		30
Toluene	82		78		70-130	5		30
1,2-Dibromoethane	78		76		70-130	3		30
Ethylbenzene	87		83		70-130	5		30
p/m-Xylene	91		87		70-130	4		30
o-Xylene	90		87		70-130	3		30
Isopropylbenzene	86		81		70-130	6		30
1,3,5-Trimethylbenzene	87		83		70-130	5		30
1,2,4-Trimethylbenzene	85		81		70-130	5		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
1,2-Dichloroethane-d4	112		114		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	93		93		70-130
Dibromofluoromethane	100		102		70-130



### Lab Control Sample Analysis Batch Quality Control

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 23 Batch: WG1797324-3 WG1797324-4								
Methyl tert butyl ether	104		105		66-130	1		30
Benzene	88		88		70-130	0		30
1,2-Dichloroethane	105		105		70-130	0		30
Toluene	96		96		70-130	0		30
1,2-Dibromoethane	94		96		70-130	2		30
Ethylbenzene	100		100		70-130	0		30
p/m-Xylene	103		103		70-130	0		30
o-Xylene	104		105		70-130	1		30
Isopropylbenzene	100		100		70-130	0		30
1,3,5-Trimethylbenzene	106		105		70-130	1		30
1,2,4-Trimethylbenzene	107		105		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	107		107		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	102		100		70-130
Dibromofluoromethane	99		96		70-130



# SEMIVOLATILES

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-01  
 Client ID: GPR-272-15-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 07:55  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 15:19  
 Analyst: ALS  
 Percent Solids: 67%

Extraction Method: EPA 3546  
 Extraction Date: 06/22/23 21:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	13.	E	mg/kg	0.048	0.030	1
Fluorene	1.6		mg/kg	0.24	0.024	1
Phenanthrene	5.2		mg/kg	0.14	0.029	1
Anthracene	1.6		mg/kg	0.14	0.047	1
Pyrene	5.0		mg/kg	0.14	0.024	1
Benzo(a)anthracene	2.5		mg/kg	0.14	0.027	1
Chrysene	3.2		mg/kg	0.14	0.025	1
Benzo(b)fluoranthene	4.3		mg/kg	0.14	0.041	1
Benzo(a)pyrene	4.2		mg/kg	0.19	0.059	1
Indeno(1,2,3-cd)pyrene	2.6		mg/kg	0.19	0.034	1
Benzo(ghi)perylene	2.5		mg/kg	0.19	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	71		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-01 D  
 Client ID: GPR-272-15-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 07:55  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/28/23 06:09  
 Analyst: ALS  
 Percent Solids: 67%

Extraction Method: EPA 3546  
 Extraction Date: 06/22/23 21:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	13.		mg/kg	0.24	0.15	5

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-02  
 Client ID: GPR-272-14-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 08:05  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 15:44  
 Analyst: ALS  
 Percent Solids: 80%

Extraction Method: EPA 3546  
 Extraction Date: 06/22/23 21:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	0.48		mg/kg	0.041	0.025	1
Fluorene	0.027	J	mg/kg	0.20	0.020	1
Phenanthrene	0.17		mg/kg	0.12	0.025	1
Anthracene	0.052	J	mg/kg	0.12	0.040	1
Pyrene	0.21		mg/kg	0.12	0.020	1
Benzo(a)anthracene	0.21		mg/kg	0.12	0.023	1
Chrysene	0.22		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	0.32		mg/kg	0.12	0.034	1
Benzo(a)pyrene	0.27		mg/kg	0.16	0.050	1
Indeno(1,2,3-cd)pyrene	0.20		mg/kg	0.16	0.028	1
Benzo(ghi)perylene	0.18		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	53		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-03  
 Client ID: GPR-272-13-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 08:15  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 16:09  
 Analyst: ALS  
 Percent Solids: 68%

Extraction Method: EPA 3546  
 Extraction Date: 06/22/23 21:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	0.29		mg/kg	0.14	0.085	1
Fluorene	ND		mg/kg	0.70	0.068	1
Phenanthrene	0.13	J	mg/kg	0.42	0.085	1
Anthracene	ND		mg/kg	0.42	0.14	1
Pyrene	0.18	J	mg/kg	0.42	0.070	1
Benzo(a)anthracene	0.10	J	mg/kg	0.42	0.079	1
Chrysene	0.10	J	mg/kg	0.42	0.073	1
Benzo(b)fluoranthene	ND		mg/kg	0.42	0.12	1
Benzo(a)pyrene	ND		mg/kg	0.56	0.17	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.56	0.098	1
Benzo(ghi)perylene	ND		mg/kg	0.56	0.082	1

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

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-04  
 Client ID: GPR-272-12-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 08:25  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 16:34  
 Analyst: ALS  
 Percent Solids: 58%

Extraction Method: EPA 3546  
 Extraction Date: 06/22/23 21:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	4.9		mg/kg	0.17	0.10	1
Fluorene	0.24	J	mg/kg	0.85	0.082	1
Phenanthrene	0.75		mg/kg	0.51	0.10	1
Anthracene	0.33	J	mg/kg	0.51	0.16	1
Pyrene	0.62		mg/kg	0.51	0.084	1
Benzo(a)anthracene	0.63		mg/kg	0.51	0.096	1
Chrysene	0.63		mg/kg	0.51	0.088	1
Benzo(b)fluoranthene	1.2		mg/kg	0.51	0.14	1
Benzo(a)pyrene	1.1		mg/kg	0.68	0.21	1
Indeno(1,2,3-cd)pyrene	0.89		mg/kg	0.68	0.12	1
Benzo(ghi)perylene	0.89		mg/kg	0.68	0.10	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	83		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	85		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-05  
 Client ID: GPR-272-5-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 08:35  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 16:59  
 Analyst: ALS  
 Percent Solids: 77%

Extraction Method: EPA 3546  
 Extraction Date: 06/22/23 21:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	1.0		mg/kg	0.12	0.076	1
Fluorene	0.066	J	mg/kg	0.63	0.061	1
Phenanthrene	0.30	J	mg/kg	0.38	0.076	1
Anthracene	ND		mg/kg	0.38	0.12	1
Pyrene	0.16	J	mg/kg	0.38	0.062	1
Benzo(a)anthracene	0.12	J	mg/kg	0.38	0.071	1
Chrysene	0.15	J	mg/kg	0.38	0.065	1
Benzo(b)fluoranthene	0.15	J	mg/kg	0.38	0.10	1
Benzo(a)pyrene	ND		mg/kg	0.50	0.15	1
Indeno(1,2,3-cd)pyrene	0.11	J	mg/kg	0.50	0.087	1
Benzo(ghi)perylene	0.12	J	mg/kg	0.50	0.074	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	75		18-120



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-06  
 Client ID: GPR-272-4-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 08:45  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 17:24  
 Analyst: ALS  
 Percent Solids: 72%

Extraction Method: EPA 3546  
 Extraction Date: 06/22/23 21:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	2.6		mg/kg	0.13	0.080	1
Fluorene	0.26	J	mg/kg	0.66	0.064	1
Phenanthrene	0.61		mg/kg	0.39	0.080	1
Anthracene	0.24	J	mg/kg	0.39	0.13	1
Pyrene	0.74		mg/kg	0.39	0.065	1
Benzo(a)anthracene	0.44		mg/kg	0.39	0.074	1
Chrysene	0.53		mg/kg	0.39	0.068	1
Benzo(b)fluoranthene	0.66		mg/kg	0.39	0.11	1
Benzo(a)pyrene	0.57		mg/kg	0.52	0.16	1
Indeno(1,2,3-cd)pyrene	0.43	J	mg/kg	0.52	0.092	1
Benzo(ghi)perylene	0.38	J	mg/kg	0.52	0.077	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	87		23-120
2-Fluorobiphenyl	87		30-120
4-Terphenyl-d14	82		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-07  
 Client ID: GPR-272-9-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 08:55  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 17:49  
 Analyst: ALS  
 Percent Solids: 71%

Extraction Method: EPA 3546  
 Extraction Date: 06/22/23 21:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	1.8		mg/kg	0.13	0.080	1
Fluorene	0.23	J	mg/kg	0.65	0.064	1
Phenanthrene	0.73		mg/kg	0.39	0.080	1
Anthracene	0.23	J	mg/kg	0.39	0.13	1
Pyrene	1.0		mg/kg	0.39	0.065	1
Benzo(a)anthracene	0.61		mg/kg	0.39	0.074	1
Chrysene	0.72		mg/kg	0.39	0.068	1
Benzo(b)fluoranthene	0.87		mg/kg	0.39	0.11	1
Benzo(a)pyrene	0.86		mg/kg	0.52	0.16	1
Indeno(1,2,3-cd)pyrene	0.62		mg/kg	0.52	0.091	1
Benzo(ghi)perylene	0.58		mg/kg	0.52	0.077	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	77		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-08  
 Client ID: GPR-272-3-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 12:10  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 18:14  
 Analyst: ALS  
 Percent Solids: 64%

Extraction Method: EPA 3546  
 Extraction Date: 06/22/23 21:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	3.8		mg/kg	0.14	0.087	1
Fluorene	0.28	J	mg/kg	0.71	0.069	1
Phenanthrene	1.2		mg/kg	0.43	0.086	1
Anthracene	0.47		mg/kg	0.43	0.14	1
Pyrene	3.5		mg/kg	0.43	0.071	1
Benzo(a)anthracene	3.4		mg/kg	0.43	0.080	1
Chrysene	3.2		mg/kg	0.43	0.074	1
Benzo(b)fluoranthene	4.8		mg/kg	0.43	0.12	1
Benzo(a)pyrene	4.1		mg/kg	0.57	0.17	1
Indeno(1,2,3-cd)pyrene	2.8		mg/kg	0.57	0.099	1
Benzo(ghi)perylene	2.3		mg/kg	0.57	0.084	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	87		23-120
2-Fluorobiphenyl	82		30-120
4-Terphenyl-d14	75		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-09  
 Client ID: GPR-272-2-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 12:15  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/27/23 21:31  
 Analyst: ALS  
 Percent Solids: 73%

Extraction Method: EPA 3546  
 Extraction Date: 06/23/23 20:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	3.0		mg/kg	0.13	0.079	1
Fluorene	0.30	J	mg/kg	0.65	0.063	1
Phenanthrene	1.0		mg/kg	0.39	0.079	1
Anthracene	0.54		mg/kg	0.39	0.13	1
Pyrene	1.2		mg/kg	0.39	0.065	1
Benzo(a)anthracene	0.86		mg/kg	0.39	0.073	1
Chrysene	0.93		mg/kg	0.39	0.068	1
Benzo(b)fluoranthene	1.2		mg/kg	0.39	0.11	1
Benzo(a)pyrene	1.3		mg/kg	0.52	0.16	1
Indeno(1,2,3-cd)pyrene	0.82		mg/kg	0.52	0.091	1
Benzo(ghi)perylene	0.77		mg/kg	0.52	0.076	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	84		30-120
4-Terphenyl-d14	76		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-10  
 Client ID: GPR-272-1-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 12:30  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 18:39  
 Analyst: ALS  
 Percent Solids: 68%

Extraction Method: EPA 3546  
 Extraction Date: 06/22/23 21:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	1.3		mg/kg	0.14	0.087	1
Fluorene	0.074	J	mg/kg	0.71	0.069	1
Phenanthrene	0.28	J	mg/kg	0.43	0.086	1
Anthracene	ND		mg/kg	0.43	0.14	1
Pyrene	0.30	J	mg/kg	0.43	0.071	1
Benzo(a)anthracene	0.22	J	mg/kg	0.43	0.080	1
Chrysene	0.24	J	mg/kg	0.43	0.074	1
Benzo(b)fluoranthene	0.35	J	mg/kg	0.43	0.12	1
Benzo(a)pyrene	0.30	J	mg/kg	0.57	0.17	1
Indeno(1,2,3-cd)pyrene	0.24	J	mg/kg	0.57	0.099	1
Benzo(ghi)perylene	0.22	J	mg/kg	0.57	0.084	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	65		30-120
4-Terphenyl-d14	60		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-11  
 Client ID: GPR-273-8-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 13:10  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/27/23 21:54  
 Analyst: ALS  
 Percent Solids: 60%

Extraction Method: EPA 3546  
 Extraction Date: 06/23/23 20:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	5.1		mg/kg	0.16	0.10	1
Fluorene	2.3		mg/kg	0.82	0.080	1
Phenanthrene	8.2		mg/kg	0.49	0.10	1
Anthracene	2.0		mg/kg	0.49	0.16	1
Pyrene	4.3		mg/kg	0.49	0.082	1
Benzo(a)anthracene	1.5		mg/kg	0.49	0.093	1
Chrysene	1.7		mg/kg	0.49	0.086	1
Benzo(b)fluoranthene	1.2		mg/kg	0.49	0.14	1
Benzo(a)pyrene	1.1		mg/kg	0.66	0.20	1
Benzo(ghi)perylene	0.51	J	mg/kg	0.66	0.097	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	69		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-12  
 Client ID: GPR-273-7-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 13:25  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 19:04  
 Analyst: ALS  
 Percent Solids: 77%

Extraction Method: EPA 3546  
 Extraction Date: 06/22/23 21:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	0.70		mg/kg	0.12	0.076	1
Fluorene	0.33	J	mg/kg	0.63	0.061	1
Phenanthrene	1.0		mg/kg	0.38	0.076	1
Anthracene	0.22	J	mg/kg	0.38	0.12	1
Pyrene	0.78		mg/kg	0.38	0.062	1
Benzo(a)anthracene	0.28	J	mg/kg	0.38	0.071	1
Chrysene	0.33	J	mg/kg	0.38	0.065	1
Benzo(b)fluoranthene	0.22	J	mg/kg	0.38	0.10	1
Benzo(a)pyrene	0.19	J	mg/kg	0.50	0.15	1
Benzo(ghi)perylene	0.13	J	mg/kg	0.50	0.074	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	96		23-120
2-Fluorobiphenyl	95		30-120
4-Terphenyl-d14	91		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-13  
 Client ID: GPR-273-3-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 13:40  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 19:29  
 Analyst: ALS  
 Percent Solids: 57%

Extraction Method: EPA 3546  
 Extraction Date: 06/22/23 21:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	1.2		mg/kg	0.17	0.10	1
Fluorene	0.90		mg/kg	0.83	0.081	1
Phenanthrene	3.0		mg/kg	0.50	0.10	1
Anthracene	0.77		mg/kg	0.50	0.16	1
Pyrene	1.9		mg/kg	0.50	0.083	1
Benzo(a)anthracene	1.1		mg/kg	0.50	0.094	1
Chrysene	1.0		mg/kg	0.50	0.087	1
Benzo(b)fluoranthene	0.92		mg/kg	0.50	0.14	1
Benzo(a)pyrene	0.90		mg/kg	0.67	0.20	1
Benzo(ghi)perylene	0.42	J	mg/kg	0.67	0.098	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	54		18-120



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-14  
 Client ID: GPR-273-2-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 13:50  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 19:54  
 Analyst: ALS  
 Percent Solids: 56%

Extraction Method: EPA 3546  
 Extraction Date: 06/22/23 21:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	2.0		mg/kg	0.18	0.11	1
Fluorene	0.88	J	mg/kg	0.89	0.086	1
Phenanthrene	1.9		mg/kg	0.53	0.11	1
Anthracene	0.64		mg/kg	0.53	0.17	1
Pyrene	2.3		mg/kg	0.53	0.088	1
Benzo(a)anthracene	0.70		mg/kg	0.53	0.10	1
Chrysene	0.83		mg/kg	0.53	0.093	1
Benzo(b)fluoranthene	0.47	J	mg/kg	0.53	0.15	1
Benzo(a)pyrene	0.42	J	mg/kg	0.71	0.22	1
Benzo(ghi)perylene	0.21	J	mg/kg	0.71	0.10	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	88		30-120
4-Terphenyl-d14	88		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-15  
 Client ID: GPR-273-4-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 14:00  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/27/23 22:18  
 Analyst: ALS  
 Percent Solids: 53%

Extraction Method: EPA 3546  
 Extraction Date: 06/23/23 20:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	2.4		mg/kg	0.18	0.11	1
Fluorene	1.4		mg/kg	0.88	0.086	1
Phenanthrene	4.8		mg/kg	0.53	0.11	1
Anthracene	1.4		mg/kg	0.53	0.17	1
Pyrene	2.2		mg/kg	0.53	0.088	1
Benzo(a)anthracene	0.94		mg/kg	0.53	0.099	1
Chrysene	1.1		mg/kg	0.53	0.092	1
Benzo(b)fluoranthene	0.72		mg/kg	0.53	0.15	1
Benzo(a)pyrene	0.77		mg/kg	0.70	0.22	1
Benzo(ghi)perylene	0.32	J	mg/kg	0.70	0.10	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	51		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	71		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-16  
 Client ID: GPR-273-1-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 14:10  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 20:18  
 Analyst: ALS  
 Percent Solids: 55%

Extraction Method: EPA 3546  
 Extraction Date: 06/22/23 21:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	2.5		mg/kg	0.17	0.11	1
Fluorene	0.79	J	mg/kg	0.87	0.085	1
Phenanthrene	3.3		mg/kg	0.52	0.11	1
Anthracene	0.67		mg/kg	0.52	0.17	1
Pyrene	3.2		mg/kg	0.52	0.087	1
Benzo(a)anthracene	1.4		mg/kg	0.52	0.098	1
Chrysene	1.6		mg/kg	0.52	0.091	1
Benzo(b)fluoranthene	1.3		mg/kg	0.52	0.15	1
Benzo(a)pyrene	1.3		mg/kg	0.70	0.21	1
Benzo(ghi)perylene	0.72		mg/kg	0.70	0.10	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	83		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-17  
 Client ID: GPR-273-5-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 14:15  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 20:43  
 Analyst: ALS  
 Percent Solids: 72%

Extraction Method: EPA 3546  
 Extraction Date: 06/22/23 21:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	1.7		mg/kg	0.13	0.079	1
Fluorene	0.15	J	mg/kg	0.65	0.063	1
Phenanthrene	0.45		mg/kg	0.39	0.079	1
Anthracene	0.18	J	mg/kg	0.39	0.13	1
Pyrene	0.25	J	mg/kg	0.39	0.065	1
Benzo(a)anthracene	0.12	J	mg/kg	0.39	0.073	1
Chrysene	0.15	J	mg/kg	0.39	0.068	1
Benzo(b)fluoranthene	0.15	J	mg/kg	0.39	0.11	1
Benzo(a)pyrene	ND		mg/kg	0.52	0.16	1
Benzo(ghi)perylene	0.22	J	mg/kg	0.52	0.076	1

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

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-18  
 Client ID: GPR-273-12-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 14:25  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 21:08  
 Analyst: ALS  
 Percent Solids: 63%

Extraction Method: EPA 3546  
 Extraction Date: 06/22/23 21:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	3.5		mg/kg	0.15	0.093	1
Fluorene	0.57	J	mg/kg	0.76	0.074	1
Phenanthrene	1.9		mg/kg	0.46	0.093	1
Anthracene	0.58		mg/kg	0.46	0.15	1
Pyrene	2.1		mg/kg	0.46	0.076	1
Benzo(a)anthracene	0.66		mg/kg	0.46	0.086	1
Chrysene	0.89		mg/kg	0.46	0.079	1
Benzo(b)fluoranthene	0.76		mg/kg	0.46	0.13	1
Benzo(a)pyrene	0.75		mg/kg	0.61	0.18	1
Benzo(ghi)perylene	0.60	J	mg/kg	0.61	0.090	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	89		23-120
2-Fluorobiphenyl	88		30-120
4-Terphenyl-d14	86		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-19  
 Client ID: GPR-273-13-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 14:35  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 21:33  
 Analyst: ALS  
 Percent Solids: 66%

Extraction Method: EPA 3546  
 Extraction Date: 06/22/23 21:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	1.1		mg/kg	0.15	0.092	1
Fluorene	0.14	J	mg/kg	0.76	0.073	1
Phenanthrene	0.35	J	mg/kg	0.45	0.092	1
Anthracene	0.15	J	mg/kg	0.45	0.15	1
Pyrene	0.44	J	mg/kg	0.45	0.075	1
Benzo(a)anthracene	0.23	J	mg/kg	0.45	0.085	1
Chrysene	0.28	J	mg/kg	0.45	0.079	1
Benzo(b)fluoranthene	0.22	J	mg/kg	0.45	0.13	1
Benzo(a)pyrene	0.22	J	mg/kg	0.60	0.18	1
Benzo(ghi)perylene	0.18	J	mg/kg	0.60	0.089	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	72		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-20  
 Client ID: GPR-273-11-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 14:40  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 21:58  
 Analyst: ALS  
 Percent Solids: 64%

Extraction Method: EPA 3546  
 Extraction Date: 06/22/23 21:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	0.75		mg/kg	0.15	0.094	1
Fluorene	ND		mg/kg	0.77	0.075	1
Phenanthrene	0.23	J	mg/kg	0.46	0.094	1
Anthracene	ND		mg/kg	0.46	0.15	1
Pyrene	0.35	J	mg/kg	0.46	0.077	1
Benzo(a)anthracene	0.35	J	mg/kg	0.46	0.087	1
Chrysene	0.36	J	mg/kg	0.46	0.080	1
Benzo(b)fluoranthene	0.48		mg/kg	0.46	0.13	1
Benzo(a)pyrene	0.42	J	mg/kg	0.62	0.19	1
Benzo(ghi)perylene	0.28	J	mg/kg	0.62	0.091	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	94		23-120
2-Fluorobiphenyl	90		30-120
4-Terphenyl-d14	92		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-21  
 Client ID: GPR-273-14-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 15:00  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 22:22  
 Analyst: ALS  
 Percent Solids: 72%

Extraction Method: EPA 3546  
 Extraction Date: 06/22/23 21:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	1.8		mg/kg	0.13	0.079	1
Fluorene	0.17	J	mg/kg	0.65	0.063	1
Phenanthrene	0.50		mg/kg	0.39	0.078	1
Anthracene	0.20	J	mg/kg	0.39	0.12	1
Pyrene	0.48		mg/kg	0.39	0.064	1
Benzo(a)anthracene	0.21	J	mg/kg	0.39	0.073	1
Chrysene	0.27	J	mg/kg	0.39	0.067	1
Benzo(b)fluoranthene	0.25	J	mg/kg	0.39	0.11	1
Benzo(a)pyrene	0.22	J	mg/kg	0.52	0.16	1
Benzo(ghi)perylene	0.16	J	mg/kg	0.52	0.076	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	69		18-120



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-22  
 Client ID: GPR-273-9-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 15:10  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 22:47  
 Analyst: ALS  
 Percent Solids: 83%

Extraction Method: EPA 3546  
 Extraction Date: 06/22/23 21:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	1.7		mg/kg	0.12	0.070	1
Fluorene	0.11	J	mg/kg	0.58	0.056	1
Phenanthrene	0.57		mg/kg	0.34	0.070	1
Anthracene	0.28	J	mg/kg	0.34	0.11	1
Pyrene	0.62		mg/kg	0.34	0.057	1
Benzo(a)anthracene	0.53		mg/kg	0.34	0.065	1
Chrysene	0.57		mg/kg	0.34	0.060	1
Benzo(b)fluoranthene	0.73		mg/kg	0.34	0.097	1
Benzo(a)pyrene	0.66		mg/kg	0.46	0.14	1
Benzo(ghi)perylene	0.67		mg/kg	0.46	0.068	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	75		30-120
4-Terphenyl-d14	71		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-23  
 Client ID: DUP-56  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 15:20  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil  
 Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 23:12  
 Analyst: ALS  
 Percent Solids: 62%

Extraction Method: EPA 3546  
 Extraction Date: 06/22/23 21:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS - Westborough Lab</b>						
Naphthalene	0.76		mg/kg	0.053	0.032	1
Fluorene	0.50		mg/kg	0.27	0.026	1
Phenanthrene	1.5		mg/kg	0.16	0.032	1
Anthracene	0.35		mg/kg	0.16	0.052	1
Pyrene	0.81		mg/kg	0.16	0.026	1
Benzo(a)anthracene	0.36		mg/kg	0.16	0.030	1
Chrysene	0.37		mg/kg	0.16	0.028	1
Benzo(b)fluoranthene	0.26		mg/kg	0.16	0.045	1
Benzo(a)pyrene	0.25		mg/kg	0.21	0.065	1
Benzo(ghi)perylene	0.13	J	mg/kg	0.21	0.031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	73		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-24  
 Client ID: FB062023  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 12:50  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:

Matrix: Water  
 Analytical Method: 1,8270E-SIM  
 Analytical Date: 06/26/23 17:55  
 Analyst: JJW

Extraction Method: EPA 3510C  
 Extraction Date: 06/24/23 15:57

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Semivolatile Organics by GC/MS-SIM - Westborough Lab</b>						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	51		15-120
4-Terphenyl-d14	54		41-149

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**Method Blank Analysis  
 Batch Quality Control**

Analytical Method: 1,8270E  
 Analytical Date: 06/23/23 13:40  
 Analyst: ALS

Extraction Method: EPA 3546  
 Extraction Date: 06/22/23 21:32

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-08,10,12-14,16-23 Batch: WG1795081-1					
Naphthalene	ND		mg/kg	0.033	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.099	0.020
Anthracene	ND		mg/kg	0.099	0.032
Pyrene	ND		mg/kg	0.099	0.016
Benzo(a)anthracene	ND		mg/kg	0.099	0.019
Chrysene	ND		mg/kg	0.099	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.099	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.13	0.023
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	51		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	96		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8270E  
Analytical Date: 06/27/23 12:18  
Analyst: ALS

Extraction Method: EPA 3546  
Extraction Date: 06/23/23 18:21

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 09,11,15 Batch: WG1795528-1					
Naphthalene	ND		mg/kg	0.033	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.098	0.020
Anthracene	ND		mg/kg	0.098	0.032
Pyrene	ND		mg/kg	0.098	0.016
Benzo(a)anthracene	ND		mg/kg	0.098	0.018
Chrysene	ND		mg/kg	0.098	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.098	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.13	0.023
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	93		23-120
2-Fluorobiphenyl	82		30-120
4-Terphenyl-d14	93		18-120

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8270E-SIM  
Analytical Date: 06/26/23 17:38  
Analyst: JJW

Extraction Method: EPA 3510C  
Extraction Date: 06/24/23 15:57

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 24 Batch: WG1795773-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	57		15-120
4-Terphenyl-d14	56		41-149

## Lab Control Sample Analysis

### Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2335425

Project Number: 200.00135.014.03

Report Date: 07/07/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-08,10,12-14,16-23 Batch: WG1795081-2 WG1795081-3								
Naphthalene	89		88		40-140	1		50
Fluorene	98		97		40-140	1		50
Phenanthrene	98		98		40-140	0		50
Anthracene	100		99		40-140	1		50
Pyrene	96		98		35-142	2		50
Benzo(a)anthracene	98		99		40-140	1		50
Chrysene	98		98		40-140	0		50
Benzo(b)fluoranthene	94		99		40-140	5		50
Benzo(a)pyrene	97		99		40-140	2		50
Indeno(1,2,3-cd)pyrene	106		109		40-140	3		50
Benzo(ghi)perylene	98		102		40-140	4		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	77		82		23-120
2-Fluorobiphenyl	95		93		30-120
4-Terphenyl-d14	96		96		18-120

## Lab Control Sample Analysis

### Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Lab Number: L2335425

Project Number: 200.00135.014.03

Report Date: 07/07/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 09,11,15 Batch: WG1795528-2 WG1795528-3								
Naphthalene	81		84		40-140	4		50
Fluorene	87		88		40-140	1		50
Phenanthrene	90		91		40-140	1		50
Anthracene	92		92		40-140	0		50
Pyrene	88		90		35-142	2		50
Benzo(a)anthracene	83		85		40-140	2		50
Chrysene	90		93		40-140	3		50
Benzo(b)fluoranthene	91		94		40-140	3		50
Benzo(a)pyrene	98		103		40-140	5		50
Indeno(1,2,3-cd)pyrene	90		93		40-140	3		50
Benzo(ghi)perylene	89		92		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	89		96		23-120
2-Fluorobiphenyl	81		86		30-120
4-Terphenyl-d14	89		94		18-120



## Lab Control Sample Analysis

### Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.014.03

Lab Number: L2335425

Report Date: 07/07/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 24 Batch: WG1795773-2 WG1795773-3								
Naphthalene	66		58		40-140	13		40
Fluorene	73		65		40-140	12		40
Phenanthrene	66		60		40-140	10		40
Anthracene	72		65		40-140	10		40
Pyrene	72		66		26-127	9		40
Benzo(a)anthracene	77		70		40-140	10		40
Chrysene	70		65		40-140	7		40
Benzo(b)fluoranthene	76		70		40-140	8		40
Benzo(a)pyrene	82		75		40-140	9		40
Benzo(ghi)perylene	80		72		40-140	11		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	89		81		23-120
2-Fluorobiphenyl	68		61		15-120
4-Terphenyl-d14	62		57		41-149

## METALS

**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2335425

**Project Number:** 200.00135.014.03

**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-01

Date Collected: 06/20/23 07:55

Client ID: GPR-272-15-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 67%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	235		mg/kg	2.93	0.157	1	06/28/23 11:23	07/06/23 10:03	EPA 3050B	1,6010D	JMF



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2335425

**Project Number:** 200.00135.014.03

**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-02

Date Collected: 06/20/23 08:05

Client ID: GPR-272-14-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	271		mg/kg	2.39	0.128	1	06/28/23 11:23	07/06/23 09:48	EPA 3050B	1,6010D	JMF



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2335425

**Project Number:** 200.00135.014.03

**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-03

Date Collected: 06/20/23 08:15

Client ID: GPR-272-13-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 68%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	210		mg/kg	2.85	0.153	1	06/28/23 11:23	07/06/23 09:53	EPA 3050B	1,6010D	JMF



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2335425

**Project Number:** 200.00135.014.03

**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-04

Date Collected: 06/20/23 08:25

Client ID: GPR-272-12-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 58%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	393		mg/kg	3.31	0.178	1	06/28/23 11:23	07/06/23 09:58	EPA 3050B	1,6010D	JMF



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2335425

**Project Number:** 200.00135.014.03

**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-05

Date Collected: 06/20/23 08:35

Client ID: GPR-272-5-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	438		mg/kg	2.51	0.134	1	06/28/23 11:23	07/06/23 10:37	EPA 3050B	1,6010D	JMF



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2335425

**Project Number:** 200.00135.014.03

**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-06

Date Collected: 06/20/23 08:45

Client ID: GPR-272-4-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	275		mg/kg	2.66	0.143	1	06/28/23 11:23	07/06/23 10:41	EPA 3050B	1,6010D	JMF





**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2335425

**Project Number:** 200.00135.014.03

**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-07

Date Collected: 06/20/23 08:55

Client ID: GPR-272-9-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 71%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	101		mg/kg	2.69	0.144	1	06/28/23 11:23	07/06/23 10:46	EPA 3050B	1,6010D	JMF



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2335425

**Project Number:** 200.00135.014.03

**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-08

Date Collected: 06/20/23 12:10

Client ID: GPR-272-3-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 64%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	273		mg/kg	3.01	0.161	1	06/28/23 11:23	07/06/23 10:51	EPA 3050B	1,6010D	JMF



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2335425

**Project Number:** 200.00135.014.03

**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-09

Date Collected: 06/20/23 12:15

Client ID: GPR-272-2-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	145		mg/kg	2.64	0.142	1	06/28/23 11:23	07/06/23 10:55	EPA 3050B	1,6010D	JMF



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2335425

**Project Number:** 200.00135.014.03

**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-10

Date Collected: 06/20/23 12:30

Client ID: GPR-272-1-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 68%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	164		mg/kg	2.86	0.154	1	06/28/23 11:23	07/06/23 11:00	EPA 3050B	1,6010D	JMF



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-11  
 Client ID: GPR-273-8-SS01  
 Sample Location: PHILADELPHIA PA

Date Collected: 06/20/23 13:10  
 Date Received: 06/21/23  
 Field Prep: Not Specified

Sample Depth:  
 Matrix: Soil  
 Percent Solids: 60%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	410		mg/kg	3.20	0.172	1	06/28/23 11:23	07/06/23 11:05	EPA 3050B	1,6010D	JMF



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2335425

**Project Number:** 200.00135.014.03

**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-12

Date Collected: 06/20/23 13:25

Client ID: GPR-273-7-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	186		mg/kg	2.54	0.136	1	06/28/23 11:23	07/06/23 11:10	EPA 3050B	1,6010D	JMF



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2335425

**Project Number:** 200.00135.014.03

**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-13

Date Collected: 06/20/23 13:40

Client ID: GPR-273-3-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 57%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	157		mg/kg	3.45	0.185	1	06/28/23 11:23	07/06/23 11:14	EPA 3050B	1,6010D	JMF



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2335425

**Project Number:** 200.00135.014.03

**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-14

Date Collected: 06/20/23 13:50

Client ID: GPR-273-2-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 56%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	377		mg/kg	3.49	0.187	1	06/28/23 11:23	07/06/23 11:19	EPA 3050B	1,6010D	JMF





**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2335425

**Project Number:** 200.00135.014.03

**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-15

Date Collected: 06/20/23 14:00

Client ID: GPR-273-4-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 53%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	205		mg/kg	3.73	0.200	1	06/28/23 11:23	07/06/23 12:21	EPA 3050B	1,6010D	JMF



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2335425

**Project Number:** 200.00135.014.03

**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-16

Date Collected: 06/20/23 14:10

Client ID: GPR-273-1-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 55%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	272		mg/kg	3.53	0.189	1	06/28/23 11:23	07/06/23 12:25	EPA 3050B	1,6010D	JMF



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2335425

**Project Number:** 200.00135.014.03

**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-17

Date Collected: 06/20/23 14:15

Client ID: GPR-273-5-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	480		mg/kg	2.67	0.143	1	06/28/23 11:23	07/06/23 12:30	EPA 3050B	1,6010D	JMF



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2335425

**Project Number:** 200.00135.014.03

**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-18

Date Collected: 06/20/23 14:25

Client ID: GPR-273-12-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 63%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	429		mg/kg	3.07	0.165	1	06/28/23 11:23	07/06/23 12:35	EPA 3050B	1,6010D	JMF



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2335425

**Project Number:** 200.00135.014.03

**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-19

Date Collected: 06/20/23 14:35

Client ID: GPR-273-13-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 66%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	401		mg/kg	2.93	0.157	1	06/28/23 11:23	07/06/23 12:40	EPA 3050B	1,6010D	JMF



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2335425

**Project Number:** 200.00135.014.03

**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-20

Date Collected: 06/20/23 14:40

Client ID: GPR-273-11-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 64%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	410		mg/kg	2.99	0.160	1	06/28/23 11:23	07/06/23 12:44	EPA 3050B	1,6010D	JMF



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2335425

**Project Number:** 200.00135.014.03

**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-21

Date Collected: 06/20/23 15:00

Client ID: GPR-273-14-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	329		mg/kg	2.64	0.141	1	06/28/23 06:30	07/05/23 13:31	EPA 3050B	1,6010D	MRC



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2335425

**Project Number:** 200.00135.014.03

**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-22

Date Collected: 06/20/23 15:10

Client ID: GPR-273-9-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	293		mg/kg	2.32	0.124	1	06/28/23 06:30	07/05/23 13:34	EPA 3050B	1,6010D	MRC





**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2335425

**Project Number:** 200.00135.014.03

**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-23

Date Collected: 06/20/23 15:20

Client ID: DUP-56

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 62%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	154		mg/kg	3.18	0.170	1	06/28/23 06:30	07/05/23 13:37	EPA 3050B	1,6010D	MRC



**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2335425

**Project Number:** 200.00135.014.03

**Report Date:** 07/07/23

**SAMPLE RESULTS**

Lab ID: L2335425-24

Date Collected: 06/20/23 12:50

Client ID: FB062023

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
<b>Total Metals - Mansfield Lab</b>											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/29/23 23:00	07/06/23 10:22	EPA 3005A	1,6020B	EJF



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

## Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-20 Batch: WG1796981-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	06/28/23 11:23	07/06/23 09:39	1,6010D	JMF

### Prep Information

Digestion Method: EPA 3050B

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 21-23 Batch: WG1796982-1									
Lead, Total	ND	mg/kg	2.00	0.107	1	06/28/23 06:30	06/29/23 10:28	1,6010D	DHL

### Prep Information

Digestion Method: EPA 3050B

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 24 Batch: WG1797354-1									
Lead, Total	ND	ug/l	1.000	0.3430	1	06/29/23 23:00	07/06/23 10:17	1,6020B	EJF

### Prep Information

Digestion Method: EPA 3005A

### Lab Control Sample Analysis Batch Quality Control

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Total Metals - Mansfield Lab Associated sample(s): 01-20 Batch: WG1796981-2 SRM Lot Number: D119-540								
Lead, Total	101		-		82-118	-		
Total Metals - Mansfield Lab Associated sample(s): 21-23 Batch: WG1796982-2 SRM Lot Number: D119-540								
Lead, Total	104		-		82-118	-		
Total Metals - Mansfield Lab Associated sample(s): 24 Batch: WG1797354-2								
Lead, Total	108		-		80-120	-		

### Matrix Spike Analysis Batch Quality Control

**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-20    QC Batch ID: WG1796981-3    QC Sample: L2335425-01    Client ID: GPR-272-15-SS01												
Lead, Total	235	60.2	250	25	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 21-23    QC Batch ID: WG1796982-3    QC Sample: L2334602-01    Client ID: MS Sample												
Lead, Total	2.76J	41.9	49.2	117		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 24    QC Batch ID: WG1797354-3    QC Sample: L2336639-01    Client ID: MS Sample												
Lead, Total	3.146	530	569.7	107		-	-		75-125	-		20

## Lab Duplicate Analysis

*Batch Quality Control*

**Project Name:** PHILADELPHIA REFINERY

**Project Number:** 200.00135.014.03

**Lab Number:** L2335425

**Report Date:** 07/07/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1796981-4 QC Sample: L2335425-01 Client ID: GPR-272-15-SS01						
Lead, Total	235	226	mg/kg	4		20
Total Metals - Mansfield Lab Associated sample(s): 21-23 QC Batch ID: WG1796982-4 QC Sample: L2334602-01 Client ID: DUP Sample						
Lead, Total	2.76J	3.20J	mg/kg	NC		20

# **INORGANICS & MISCELLANEOUS**

Project Name: PHILADELPHIA REFINERY

Lab Number: L2335425

Project Number: 200.00135.014.03

Report Date: 07/07/23

## SAMPLE RESULTS

Lab ID: L2335425-01

Date Collected: 06/20/23 07:55

Client ID: GPR-272-15-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	66.8		%	0.100	NA	1	-	06/22/23 10:13	121,2540G	ROI





Project Name: PHILADELPHIA REFINERY

Lab Number: L2335425

Project Number: 200.00135.014.03

Report Date: 07/07/23

## SAMPLE RESULTS

Lab ID: L2335425-02

Date Collected: 06/20/23 08:05

Client ID: GPR-272-14-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.7		%	0.100	NA	1	-	06/22/23 10:13	121,2540G	ROI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2335425

Project Number: 200.00135.014.03

Report Date: 07/07/23

## SAMPLE RESULTS

Lab ID: L2335425-03

Date Collected: 06/20/23 08:15

Client ID: GPR-272-13-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	68.2		%	0.100	NA	1	-	06/22/23 10:13	121,2540G	ROI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2335425

Project Number: 200.00135.014.03

Report Date: 07/07/23

## SAMPLE RESULTS

Lab ID: L2335425-04

Date Collected: 06/20/23 08:25

Client ID: GPR-272-12-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	58.1		%	0.100	NA	1	-	06/22/23 10:13	121,2540G	ROI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2335425

Project Number: 200.00135.014.03

Report Date: 07/07/23

## SAMPLE RESULTS

Lab ID: L2335425-05

Date Collected: 06/20/23 08:35

Client ID: GPR-272-5-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.0		%	0.100	NA	1	-	06/22/23 10:13	121,2540G	ROI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2335425

Project Number: 200.00135.014.03

Report Date: 07/07/23

## SAMPLE RESULTS

Lab ID: L2335425-06

Date Collected: 06/20/23 08:45

Client ID: GPR-272-4-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	72.3		%	0.100	NA	1	-	06/22/23 10:13	121,2540G	ROI



**Project Name:** PHILADELPHIA REFINERY**Lab Number:** L2335425**Project Number:** 200.00135.014.03**Report Date:** 07/07/23**SAMPLE RESULTS**

Lab ID: L2335425-07

Date Collected: 06/20/23 08:55

Client ID: GPR-272-9-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	71.3		%	0.100	NA	1	-	06/22/23 10:13	121,2540G	ROI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2335425

Project Number: 200.00135.014.03

Report Date: 07/07/23

## SAMPLE RESULTS

Lab ID: L2335425-08

Date Collected: 06/20/23 12:10

Client ID: GPR-272-3-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	64.4		%	0.100	NA	1	-	06/22/23 10:13	121,2540G	ROI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2335425

Project Number: 200.00135.014.03

Report Date: 07/07/23

## SAMPLE RESULTS

Lab ID: L2335425-09

Date Collected: 06/20/23 12:15

Client ID: GPR-272-2-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	72.7		%	0.100	NA	1	-	06/22/23 10:13	121,2540G	ROI





Project Name: PHILADELPHIA REFINERY

Lab Number: L2335425

Project Number: 200.00135.014.03

Report Date: 07/07/23

## SAMPLE RESULTS

Lab ID: L2335425-10

Date Collected: 06/20/23 12:30

Client ID: GPR-272-1-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	68.2		%	0.100	NA	1	-	06/22/23 10:13	121,2540G	ROI



**Project Name:** PHILADELPHIA REFINERY**Lab Number:** L2335425**Project Number:** 200.00135.014.03**Report Date:** 07/07/23**SAMPLE RESULTS**

Lab ID: L2335425-11

Date Collected: 06/20/23 13:10

Client ID: GPR-273-8-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	60.4		%	0.100	NA	1	-	06/22/23 10:13	121,2540G	ROI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2335425

Project Number: 200.00135.014.03

Report Date: 07/07/23

## SAMPLE RESULTS

Lab ID: L2335425-12

Date Collected: 06/20/23 13:25

Client ID: GPR-273-7-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.9		%	0.100	NA	1	-	06/22/23 10:13	121,2540G	ROI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2335425

Project Number: 200.00135.014.03

Report Date: 07/07/23

## SAMPLE RESULTS

Lab ID: L2335425-13

Date Collected: 06/20/23 13:40

Client ID: GPR-273-3-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	56.9		%	0.100	NA	1	-	06/22/23 10:13	121,2540G	ROI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2335425

Project Number: 200.00135.014.03

Report Date: 07/07/23

## SAMPLE RESULTS

Lab ID: L2335425-14

Date Collected: 06/20/23 13:50

Client ID: GPR-273-2-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	55.7		%	0.100	NA	1	-	06/22/23 10:13	121,2540G	ROI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2335425

Project Number: 200.00135.014.03

Report Date: 07/07/23

## SAMPLE RESULTS

Lab ID: L2335425-15

Date Collected: 06/20/23 14:00

Client ID: GPR-273-4-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	52.7		%	0.100	NA	1	-	06/22/23 10:13	121,2540G	ROI



**Project Name:** PHILADELPHIA REFINERY**Lab Number:** L2335425**Project Number:** 200.00135.014.03**Report Date:** 07/07/23**SAMPLE RESULTS**

Lab ID: L2335425-16

Date Collected: 06/20/23 14:10

Client ID: GPR-273-1-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	55.2		%	0.100	NA	1	-	06/22/23 10:13	121,2540G	ROI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2335425

Project Number: 200.00135.014.03

Report Date: 07/07/23

## SAMPLE RESULTS

Lab ID: L2335425-17

Date Collected: 06/20/23 14:15

Client ID: GPR-273-5-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	71.6		%	0.100	NA	1	-	06/22/23 10:13	121,2540G	ROI





**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**SAMPLE RESULTS**

**Lab ID:** L2335425-18  
**Client ID:** GPR-273-12-SS01  
**Sample Location:** PHILADELPHIA PA

**Date Collected:** 06/20/23 14:25  
**Date Received:** 06/21/23  
**Field Prep:** Not Specified

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

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	63.4		%	0.100	NA	1	-	06/22/23 10:13	121,2540G	ROI



**Project Name:** PHILADELPHIA REFINERY**Lab Number:** L2335425**Project Number:** 200.00135.014.03**Report Date:** 07/07/23**SAMPLE RESULTS**

Lab ID: L2335425-19

Date Collected: 06/20/23 14:35

Client ID: GPR-273-13-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	65.5		%	0.100	NA	1	-	06/22/23 10:13	121,2540G	ROI



**Project Name:** PHILADELPHIA REFINERY**Lab Number:** L2335425**Project Number:** 200.00135.014.03**Report Date:** 07/07/23**SAMPLE RESULTS**

Lab ID: L2335425-20

Date Collected: 06/20/23 14:40

Client ID: GPR-273-11-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	63.8		%	0.100	NA	1	-	06/22/23 10:13	121,2540G	ROI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2335425

Project Number: 200.00135.014.03

Report Date: 07/07/23

## SAMPLE RESULTS

Lab ID: L2335425-21

Date Collected: 06/20/23 15:00

Client ID: GPR-273-14-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	72.2		%	0.100	NA	1	-	06/22/23 10:27	121,2540G	ROI



Project Name: PHILADELPHIA REFINERY

Lab Number: L2335425

Project Number: 200.00135.014.03

Report Date: 07/07/23

## SAMPLE RESULTS

Lab ID: L2335425-22

Date Collected: 06/20/23 15:10

Client ID: GPR-273-9-SS01

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	06/22/23 10:27	121,2540G	ROI



**Project Name:** PHILADELPHIA REFINERY**Lab Number:** L2335425**Project Number:** 200.00135.014.03**Report Date:** 07/07/23**SAMPLE RESULTS**

Lab ID: L2335425-23

Date Collected: 06/20/23 15:20

Client ID: DUP-56

Date Received: 06/21/23

Sample Location: PHILADELPHIA PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Westborough Lab</b>										
Solids, Total	61.6		%	0.100	NA	1	-	06/22/23 10:27	121,2540G	ROI



## Lab Duplicate Analysis

*Batch Quality Control*

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.014.03

Lab Number: L2335425

Report Date: 07/07/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1794625-1 QC Sample: L2335425-01 Client ID: GPR-272-15-SS01						
Solids, Total	66.8	69.8	%	4		20
General Chemistry - Westborough Lab Associated sample(s): 21-23 QC Batch ID: WG1794626-1 QC Sample: L2335278-01 Client ID: DUP Sample						
Solids, Total	79.4	79.2	%	0		20

**Project Name:** PHILADELPHIA REFINERY**Lab Number:** L2335425**Project Number:** 200.00135.014.03**Report Date:** 07/07/23**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

**Cooler Information**

<b>Cooler</b>	<b>Custody Seal</b>
A	Absent
B	Absent
C	Absent

**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2335425-01A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2335425-01B	Vial water preserved	A	NA		3.2	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-01C	Vial water preserved	A	NA		3.2	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-01D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2335425-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2335425-01F	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2335425-02A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2335425-02B	Vial water preserved	C	NA		2.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-02C	Vial water preserved	C	NA		2.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-02D	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2335425-02E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		PB-TI(180)
L2335425-02F	Glass 120ml/4oz unpreserved	C	NA		2.5	Y	Absent		PA-PAH(14)
L2335425-03A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2335425-03B	Vial water preserved	C	NA		2.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-03C	Vial water preserved	C	NA		2.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-03D	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2335425-03E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		PB-TI(180)
L2335425-03F	Glass 120ml/4oz unpreserved	C	NA		2.5	Y	Absent		PA-PAH(14)
L2335425-04A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2335425-04B	Vial water preserved	B	NA		4.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-04C	Vial water preserved	B	NA		4.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)



**Project Name:** PHILADELPHIA REFINERY**Lab Number:** L2335425**Project Number:** 200.00135.014.03**Report Date:** 07/07/23**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2335425-04D	Plastic 120ml unpreserved	B	NA		4.5	Y	Absent		TS(7)
L2335425-04E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.5	Y	Absent		PB-TI(180)
L2335425-04F	Glass 120ml/4oz unpreserved	B	NA		4.5	Y	Absent		PA-PAH(14)
L2335425-05A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2335425-05B	Vial water preserved	C	NA		2.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-05C	Vial water preserved	C	NA		2.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-05D	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2335425-05E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		PB-TI(180)
L2335425-05F	Glass 120ml/4oz unpreserved	C	NA		2.5	Y	Absent		PA-PAH(14)
L2335425-06A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2335425-06B	Vial water preserved	A	NA		3.2	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-06C	Vial water preserved	A	NA		3.2	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-06D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2335425-06E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2335425-06F	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2335425-07A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2335425-07B	Vial water preserved	A	NA		3.2	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-07C	Vial water preserved	A	NA		3.2	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-07D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2335425-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2335425-07F	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2335425-08A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2335425-08B	Vial water preserved	A	NA		3.2	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-08C	Vial water preserved	A	NA		3.2	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-08D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2335425-08E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2335425-08F	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2335425-09A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)

**Project Name:** PHILADELPHIA REFINERY**Lab Number:** L2335425**Project Number:** 200.00135.014.03**Report Date:** 07/07/23**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2335425-09B	Vial water preserved	A	NA		3.2	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-09C	Vial water preserved	A	NA		3.2	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-09D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2335425-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2335425-09F	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2335425-10A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2335425-10B	Vial water preserved	A	NA		3.2	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-10C	Vial water preserved	A	NA		3.2	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-10D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2335425-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2335425-10F	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2335425-11A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2335425-11B	Vial water preserved	C	NA		2.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-11C	Vial water preserved	C	NA		2.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-11D	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2335425-11E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		PB-TI(180)
L2335425-11F	Glass 120ml/4oz unpreserved	C	NA		2.5	Y	Absent		PA-PAH(14)
L2335425-12A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2335425-12B	Vial water preserved	B	NA		4.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-12C	Vial water preserved	B	NA		4.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-12D	Plastic 120ml unpreserved	B	NA		4.5	Y	Absent		TS(7)
L2335425-12E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.5	Y	Absent		PB-TI(180)
L2335425-12F	Glass 120ml/4oz unpreserved	B	NA		4.5	Y	Absent		PA-PAH(14)
L2335425-13A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2335425-13B	Vial water preserved	C	NA		2.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-13C	Vial water preserved	C	NA		2.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-13D	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2335425-13E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		PB-TI(180)

**Project Name:** PHILADELPHIA REFINERY**Lab Number:** L2335425**Project Number:** 200.00135.014.03**Report Date:** 07/07/23**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2335425-13F	Glass 120ml/4oz unpreserved	C	NA		2.5	Y	Absent		PA-PAH(14)
L2335425-14A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2335425-14B	Vial water preserved	B	NA		4.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-14C	Vial water preserved	B	NA		4.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-14D	Plastic 120ml unpreserved	B	NA		4.5	Y	Absent		TS(7)
L2335425-14E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.5	Y	Absent		PB-TI(180)
L2335425-14F	Glass 120ml/4oz unpreserved	B	NA		4.5	Y	Absent		PA-PAH(14)
L2335425-15A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2335425-15B	Vial water preserved	B	NA		4.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-15C	Vial water preserved	B	NA		4.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-15D	Plastic 120ml unpreserved	B	NA		4.5	Y	Absent		TS(7)
L2335425-15E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.5	Y	Absent		PB-TI(180)
L2335425-15F	Glass 120ml/4oz unpreserved	B	NA		4.5	Y	Absent		PA-PAH(14)
L2335425-16A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2335425-16B	Vial water preserved	C	NA		2.5	Y	Absent	22-JUN-23 02:27	PA-8260H(14),PA-8260HLW(14)
L2335425-16C	Vial water preserved	C	NA		2.5	Y	Absent	22-JUN-23 02:27	PA-8260H(14),PA-8260HLW(14)
L2335425-16D	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2335425-16E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		PB-TI(180)
L2335425-16F	Glass 120ml/4oz unpreserved	C	NA		2.5	Y	Absent		PA-PAH(14)
L2335425-17A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2335425-17B	Vial water preserved	C	NA		2.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-17C	Vial water preserved	C	NA		2.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-17D	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2335425-17E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		PB-TI(180)
L2335425-17F	Glass 120ml/4oz unpreserved	C	NA		2.5	Y	Absent		PA-PAH(14)
L2335425-18A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2335425-18B	Vial water preserved	B	NA		4.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-18C	Vial water preserved	B	NA		4.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)

**Project Name:** PHILADELPHIA REFINERY**Lab Number:** L2335425**Project Number:** 200.00135.014.03**Report Date:** 07/07/23**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2335425-18D	Plastic 120ml unpreserved	B	NA		4.5	Y	Absent		TS(7)
L2335425-18E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.5	Y	Absent		PB-TI(180)
L2335425-18F	Glass 120ml/4oz unpreserved	B	NA		4.5	Y	Absent		PA-PAH(14)
L2335425-19A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2335425-19B	Vial water preserved	C	NA		2.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-19C	Vial water preserved	C	NA		2.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-19D	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2335425-19E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		PB-TI(180)
L2335425-19F	Glass 120ml/4oz unpreserved	C	NA		2.5	Y	Absent		PA-PAH(14)
L2335425-20A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2335425-20B	Vial water preserved	B	NA		4.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-20C	Vial water preserved	B	NA		4.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-20D	Plastic 120ml unpreserved	B	NA		4.5	Y	Absent		TS(7)
L2335425-20E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.5	Y	Absent		PB-TI(180)
L2335425-20F	Glass 120ml/4oz unpreserved	B	NA		4.5	Y	Absent		PA-PAH(14)
L2335425-21A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2335425-21B	Vial water preserved	B	NA		4.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-21C	Vial water preserved	B	NA		4.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-21D	Plastic 120ml unpreserved	B	NA		4.5	Y	Absent		TS(7)
L2335425-21E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.5	Y	Absent		PB-TI(180)
L2335425-21F	Glass 120ml/4oz unpreserved	B	NA		4.5	Y	Absent		PA-PAH(14)
L2335425-22A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2335425-22B	Vial water preserved	B	NA		4.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-22C	Vial water preserved	B	NA		4.5	Y	Absent	22-JUN-23 02:27	PA-8260HLW(14)
L2335425-22D	Plastic 120ml unpreserved	B	NA		4.5	Y	Absent		TS(7)
L2335425-22E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.5	Y	Absent		PB-TI(180)
L2335425-22F	Glass 120ml/4oz unpreserved	B	NA		4.5	Y	Absent		PA-PAH(14)
L2335425-23A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)

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**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2335425-23B	Vial water preserved	A	NA		3.2	Y	Absent	22-JUN-23 02:27	PA-8260H(14),PA-8260HLW(14)
L2335425-23C	Vial water preserved	A	NA		3.2	Y	Absent	22-JUN-23 02:27	PA-8260H(14),PA-8260HLW(14)
L2335425-23D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2335425-23E	Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		PB-TI(180),PA-PAH(14)
L2335425-23F	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2335425-24A	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2335425-24B	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2335425-24C	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2335425-24D	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		8011(14)
L2335425-24E	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		8011(14)
L2335425-24F	Amber 250ml unpreserved	A	7	7	3.2	Y	Absent		PA-PAHSIM-LVI(7)
L2335425-24G	Amber 250ml unpreserved	A	7	7	3.2	Y	Absent		PA-PAHSIM-LVI(7)
L2335425-24H	Plastic 250ml HNO3 preserved	A	<2	<2	3.2	Y	Absent		PB-6020T-PPB(180)

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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



**Project Name:** PHILADELPHIA REFINERY  
**Project Number:** 200.00135.014.03

**Lab Number:** L2335425  
**Report Date:** 07/07/23

**Data Qualifiers**

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers





**Project Name:** PHILADELPHIA REFINERY

**Lab Number:** L2335425

**Project Number:** 200.00135.014.03

**Report Date:** 07/07/23

## 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, NO<sub>2</sub>, NO<sub>3</sub>.

### Mansfield Facility

**SM 2540D:** TSS.

**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**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 2 OF 3

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: 6/21/23

ALPHA Job #: L2335425

**Client Information**

Client: Ransom Consulting LLC

Address: 2127 Hamilton Ave  
Hamilton MS 08619

Phone: 609-901-4979

Fax:

Email: william.schmidt@ransom.com

These samples have been previously analyzed by Alpha

**Project Information**

Project Name: Philadelphia, Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.014.03

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:**

See pg 105 of COC for project specific Requirements \* \* \*

**ANALYSIS**

PAPER strip list 1-5

Lead

**SAMPLE HANDLING**

Filtration \_\_\_\_\_

Done

Not needed

Lab to do Preservation

Lab to do

(Please specify below)

**Sample Specific Comments**

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS		Sample Specific Comments	TOTAL # BOTTLES
		Date	Time						
<u>35425-11</u>	<u>GPR-273-8</u>	<u>6/20/23</u>	<u>1310</u>	<u>S</u>	<u>CO</u>	<u>/</u>	<u>/</u>		
<u>-12</u>	<u>GPR-273-7</u>		<u>1325</u>			<u>/</u>	<u>/</u>		
<u>-13</u>	<u>GPR-273-3</u>		<u>1340</u>			<u>/</u>	<u>/</u>		
<u>-14</u>	<u>GPR-273-2</u>		<u>1350</u>			<u>/</u>	<u>/</u>		
<u>-15</u>	<u>GPR-273-4</u>		<u>1400</u>			<u>/</u>	<u>/</u>		
<u>-16</u>	<u>GPR-273-1</u>		<u>1410</u>			<u>/</u>	<u>/</u>		
<u>-17</u>	<u>GPR-273-5</u>		<u>1415</u>			<u>/</u>	<u>/</u>		
<u>-18</u>	<u>GPR-273-12</u>		<u>1425</u>			<u>/</u>	<u>/</u>		
<u>-19</u>	<u>GPR-273-13</u>		<u>1435</u>			<u>/</u>	<u>/</u>		
<u>-20</u>	<u>GPR-273-11</u>		<u>1440</u>			<u>/</u>	<u>/</u>		

Container Type G G

Preservative F A

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

Relinquished By: [Signature] Date/Time: 6/21/23 1330

Received By: [Signature] Date/Time: 6/21/23 1600

Paul Maggella 6/21/23



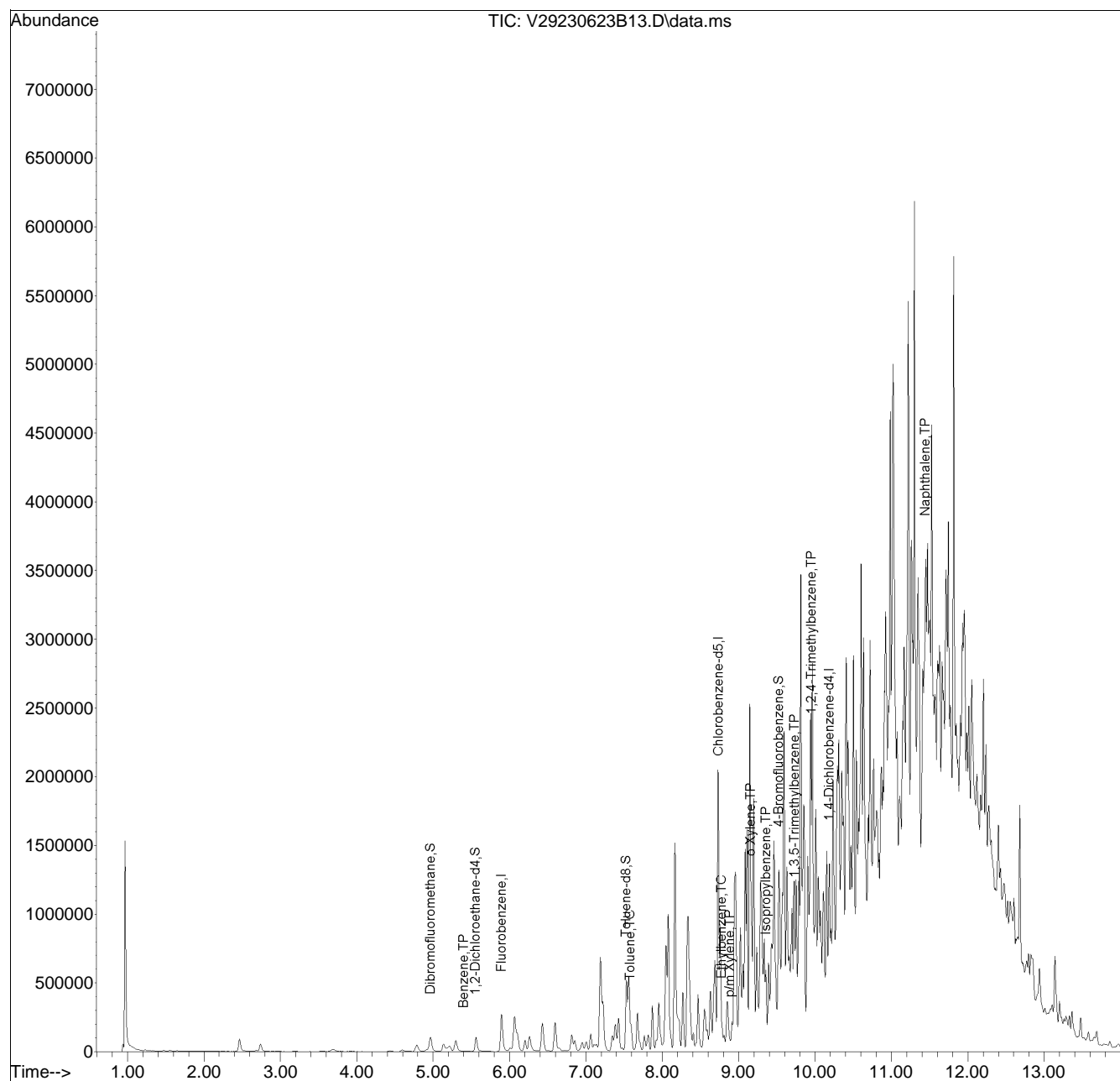


## Quantitation Report (QT Reviewed)

Data Path : K:\VOA129\2023\230623B\  
 Data File : V29230623B13.D  
 Acq On : 23 Jun 2023 05:08 pm  
 Operator : VOA129:AJK  
 Sample : L2335425-01,31,4.90,5,,B  
 Misc : WG1796127,ICAL19799  
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jun 26 10:04:10 2023  
 Quant Method : K:\VOA129\2023\230623B\V129\_230308N\_8260.m  
 Quant Title : VOLATILES BY GC/MS  
 QLast Update : Thu Mar 09 17:16:29 2023  
 Response via : Initial Calibration

Sub List : 8260-PA\_ShortList - PA Short list623B01.D•

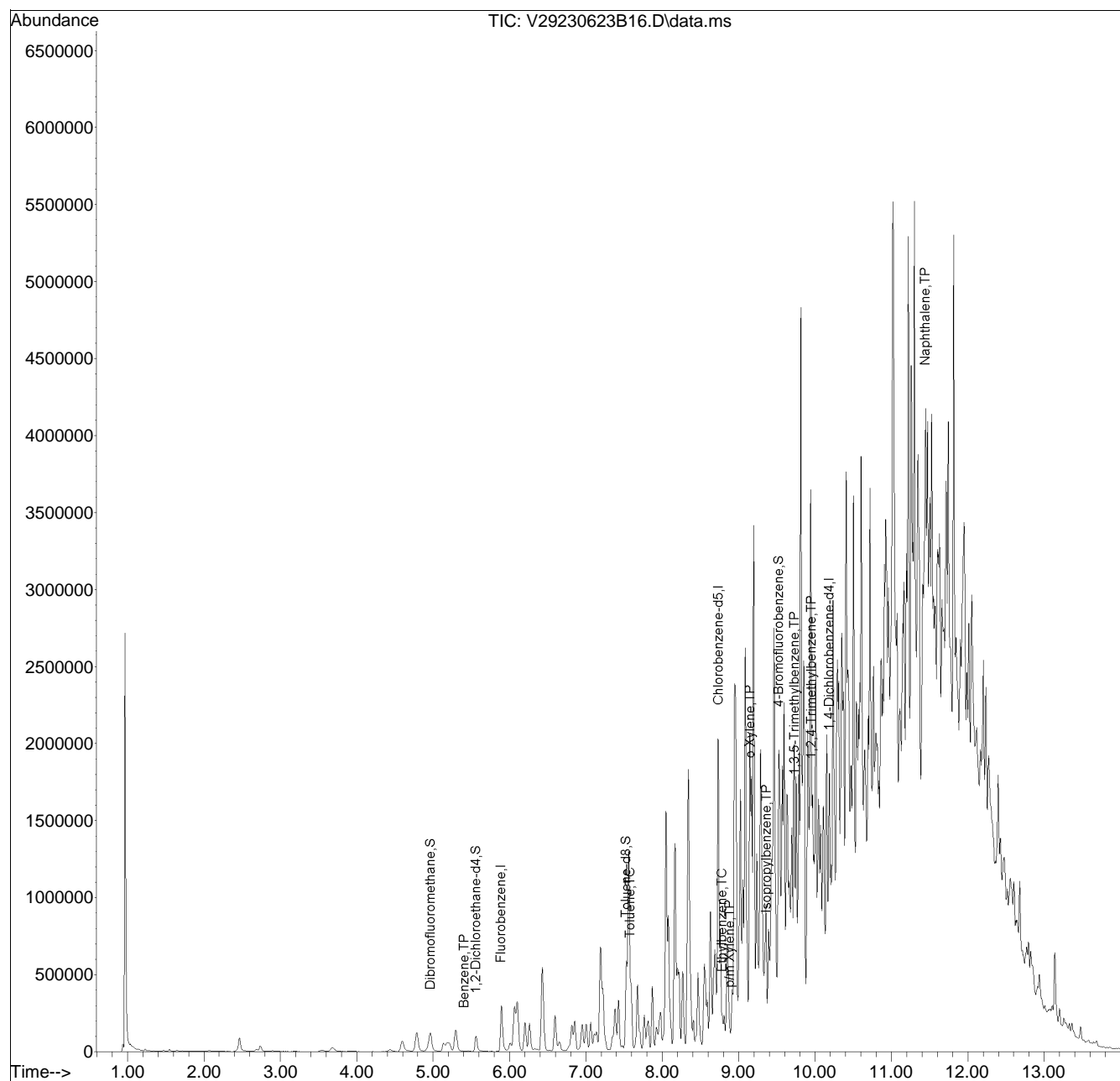


## Quantitation Report (QT Reviewed)

Data Path : K:\VOA129\2023\230623B\  
 Data File : V29230623B16.D  
 Acq On : 23 Jun 2023 06:10 pm  
 Operator : VOA129:AJK  
 Sample : L2335425-07,31,5.06,5,,B  
 Misc : WG1796127,ICAL19799  
 ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jun 26 08:06:28 2023  
 Quant Method : K:\VOA129\2023\230623B\V129\_230308N\_8260.m  
 Quant Title : VOLATILES BY GC/MS  
 QLast Update : Thu Mar 09 17:16:29 2023  
 Response via : Initial Calibration

Sub List : 8260-PA\_ShortList - PA Short list623B01.D•

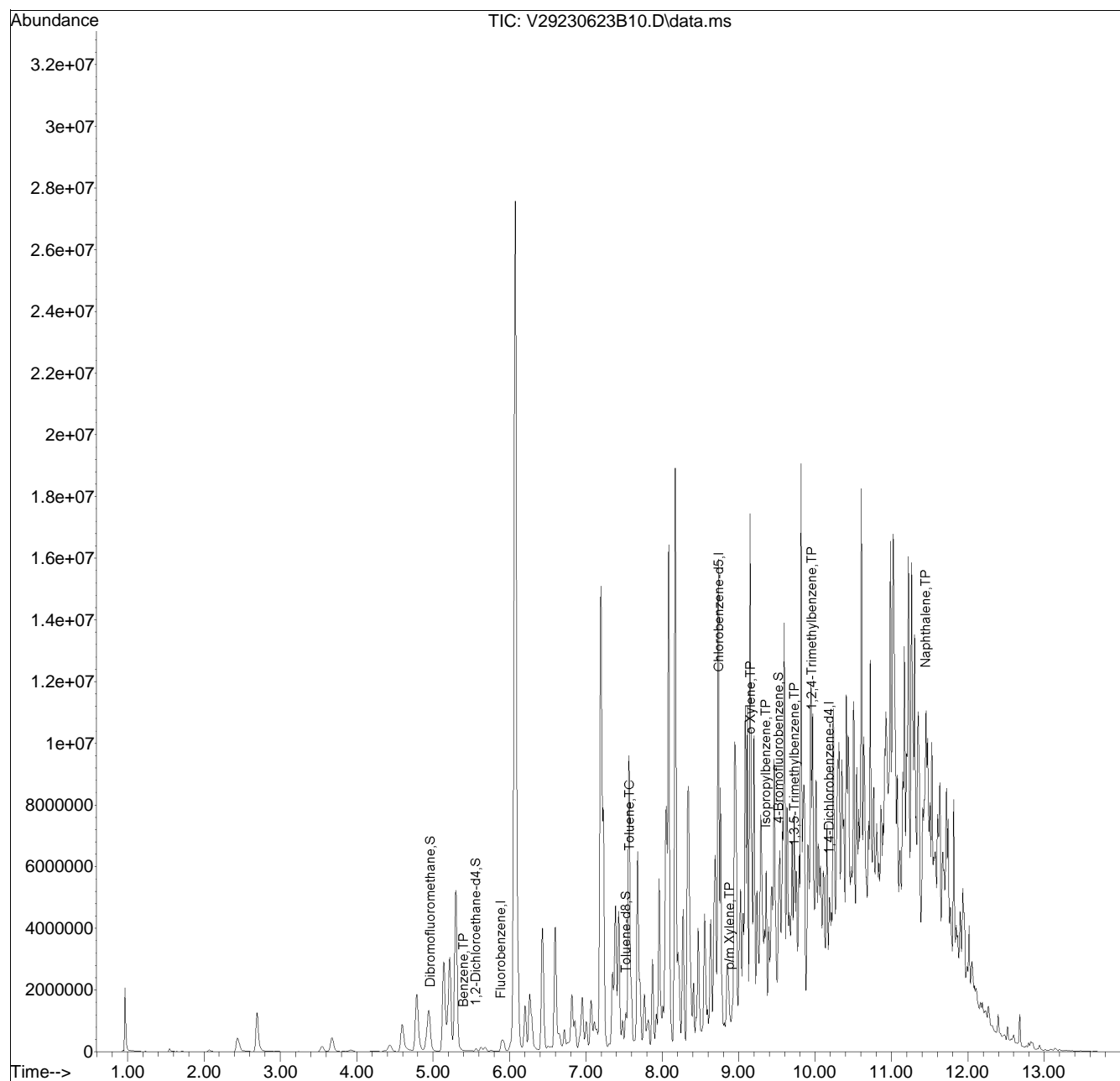


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Data File : V29230623B10.D  
Acq On : 23 Jun 2023 04:05 pm  
Operator : VOA129:AJK  
Sample : L2335425-10,31,5.20,5,,B  
Misc : WG1796127,ICAL19799  
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jun 26 10:03:04 2023  
Quant Method : K:\VOA129\2023\230623B\V129\_230308N\_8260.m  
Quant Title : VOLATILES BY GC/MS  
QLast Update : Thu Mar 09 17:16:29 2023  
Response via : Initial Calibration

Sub List : 8260-PA\_ShortList - PA Short list623B01.D•



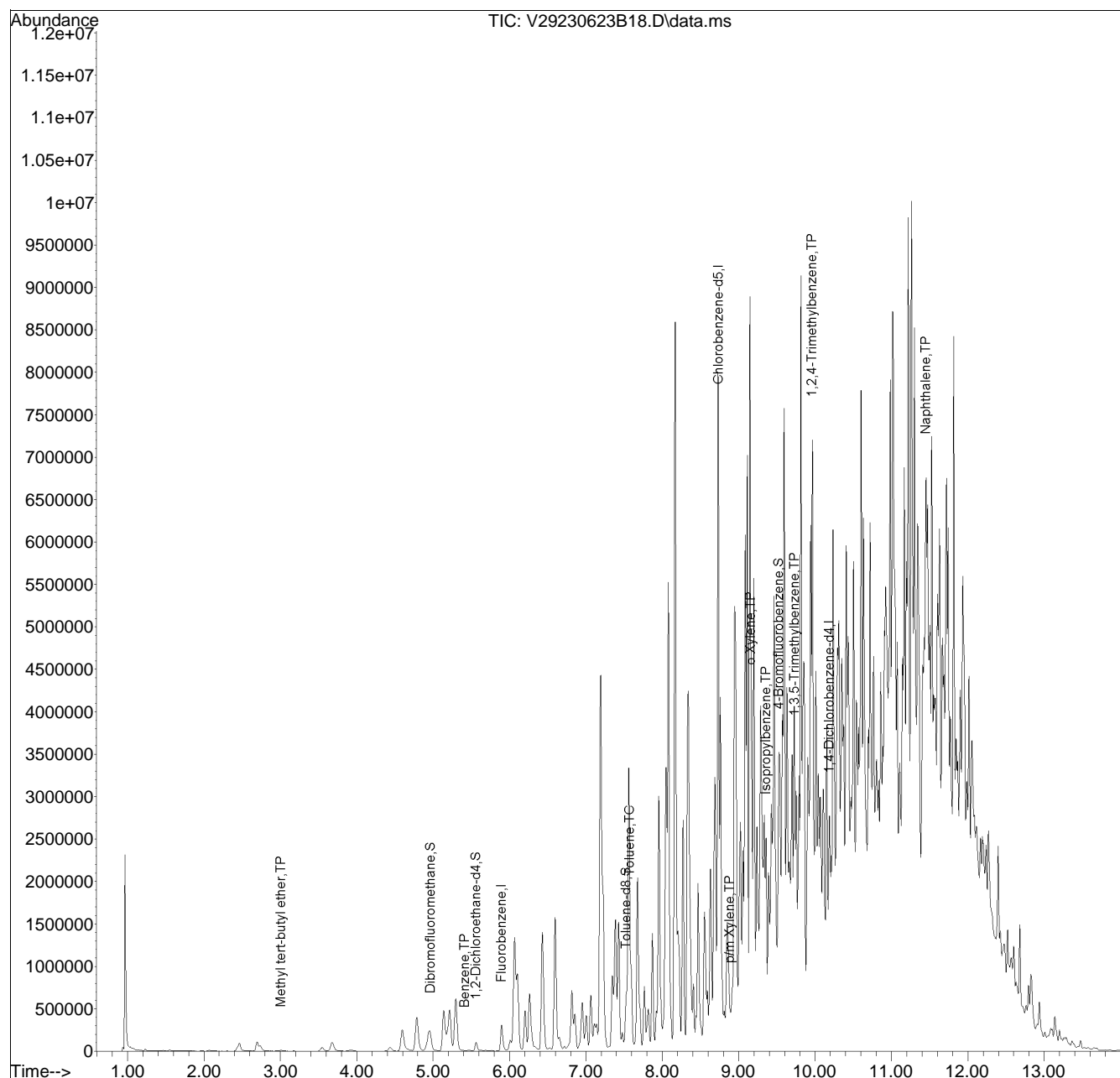


## Quantitation Report (QT Reviewed)

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 Data File : V29230623B18.D  
 Acq On : 23 Jun 2023 06:51 pm  
 Operator : VOA129:AJK  
 Sample : L2335425-11,31,4.94,5,,B  
 Misc : WG1796127,ICAL19799  
 ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jun 26 10:05:18 2023  
 Quant Method : K:\VOA129\2023\230623B\V129\_230308N\_8260.m  
 Quant Title : VOLATILES BY GC/MS  
 QLast Update : Thu Mar 09 17:16:29 2023  
 Response via : Initial Calibration

Sub List : 8260-PA\_ShortList - PA Short list623B01.D•

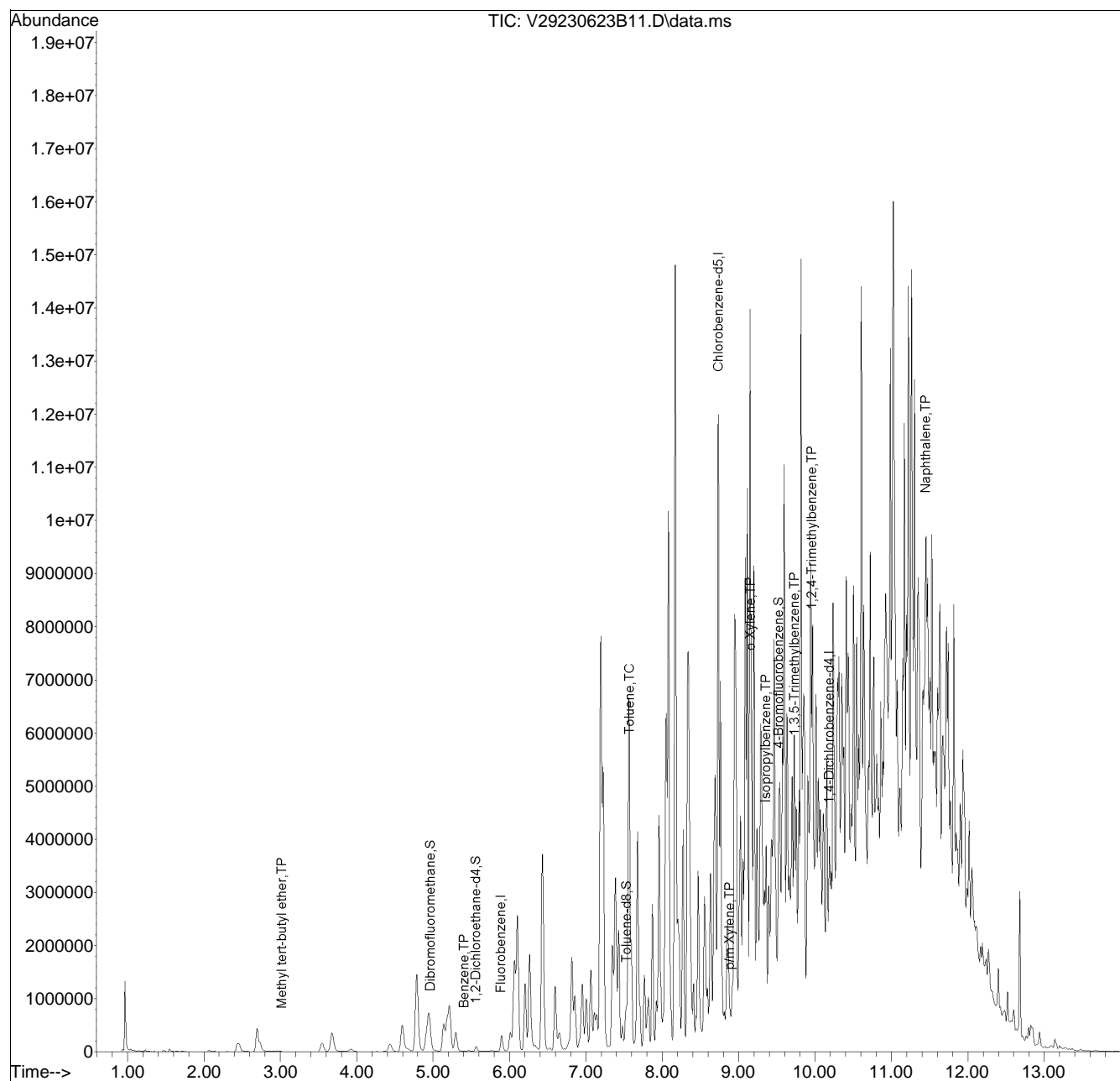


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Data File : V29230623B11.D  
Acq On : 23 Jun 2023 04:26 pm  
Operator : VOA129:AJK  
Sample : L2335425-12,31,4.75,5,,B  
Misc : WG1796127,ICAL19799  
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jun 26 10:03:28 2023  
Quant Method : K:\VOA129\2023\230623B\V129\_230308N\_8260.m  
Quant Title : VOLATILES BY GC/MS  
QLast Update : Thu Mar 09 17:16:29 2023  
Response via : Initial Calibration

Sub List : 8260-PA\_ShortList - PA Short list623B01.D•

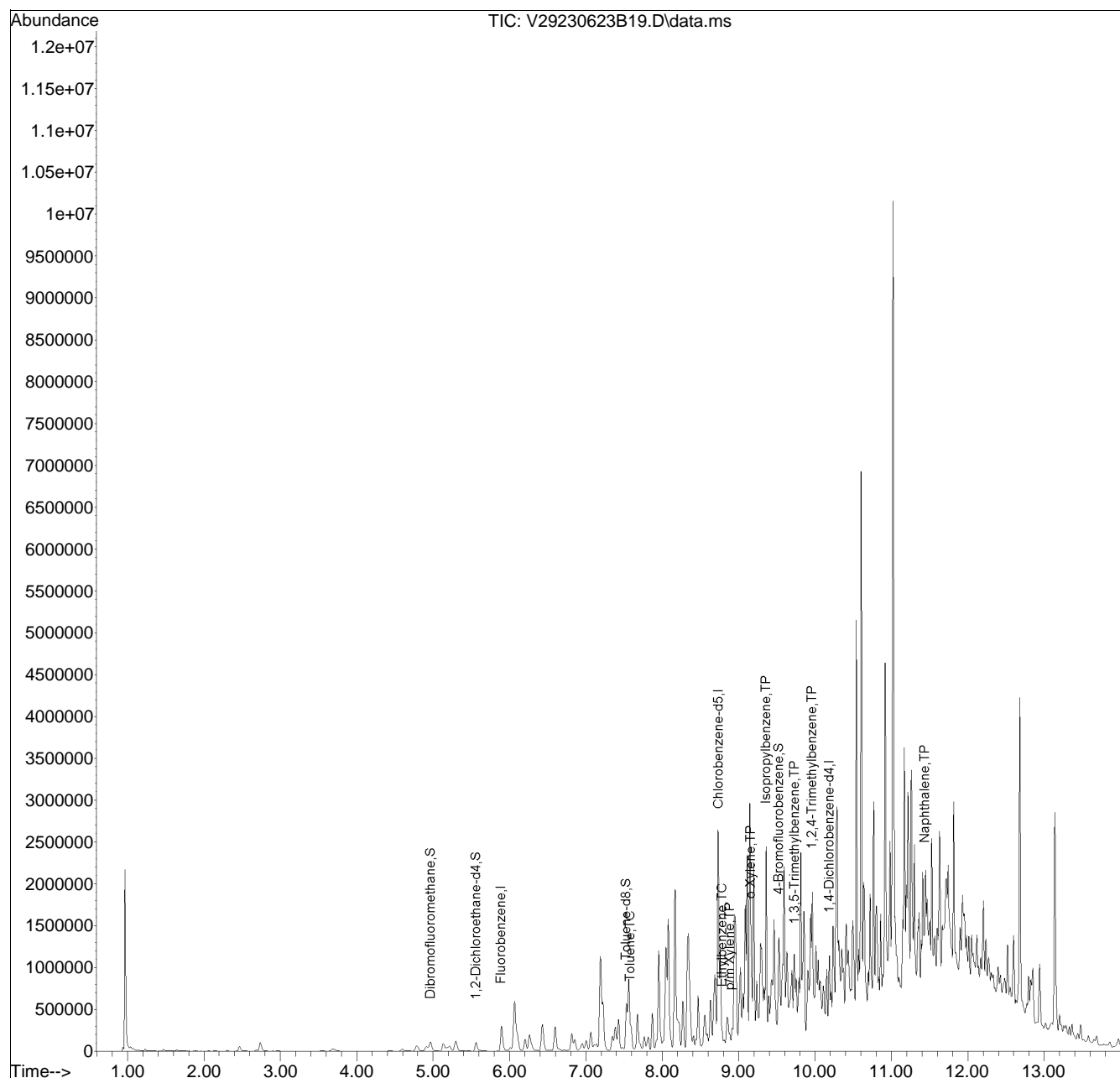


## Quantitation Report (QT Reviewed)

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Data File : V29230623B19.D  
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Operator : VOA129:AJK  
Sample : L2335425-13,31,4.47,5,,B  
Misc : WG1796127,ICAL19799  
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jun 26 08:06:44 2023  
Quant Method : K:\VOA129\2023\230623B\V129\_230308N\_8260.m  
Quant Title : VOLATILES BY GC/MS  
QLast Update : Thu Mar 09 17:16:29 2023  
Response via : Initial Calibration

Sub List : 8260-PA\_ShortList - PA Short list623B01.D•

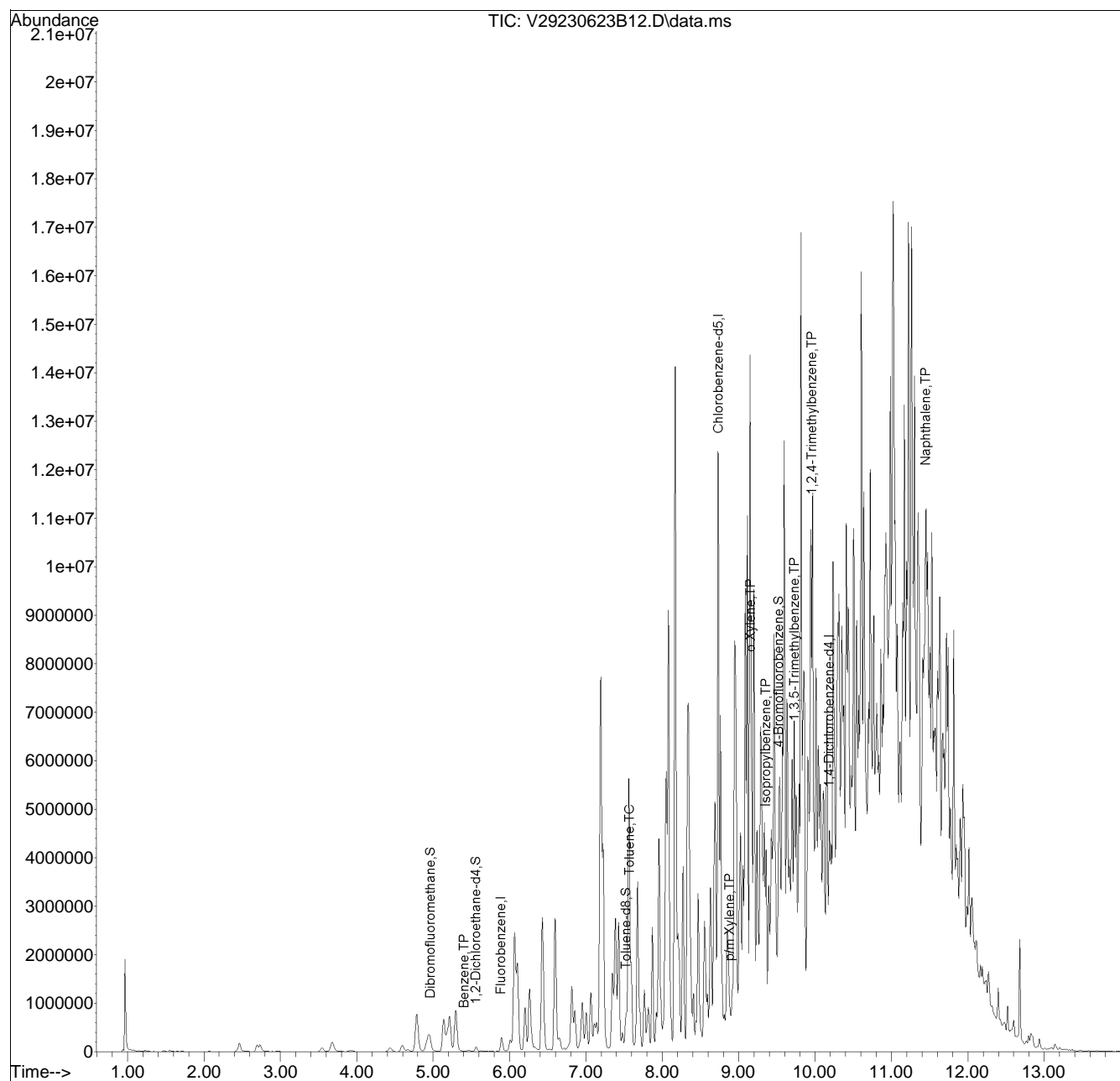


## Quantitation Report (QT Reviewed)

Data Path : K:\VOA129\2023\230623B\  
Data File : V29230623B12.D  
Acq On : 23 Jun 2023 04:47 pm  
Operator : VOA129:AJK  
Sample : L2335425-14,31,4.56,5,,B  
Misc : WG1796127,ICAL19799  
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jun 26 10:03:49 2023  
Quant Method : K:\VOA129\2023\230623B\V129\_230308N\_8260.m  
Quant Title : VOLATILES BY GC/MS  
QLast Update : Thu Mar 09 17:16:29 2023  
Response via : Initial Calibration

Sub List : 8260-PA\_ShortList - PA Short list623B01.D•

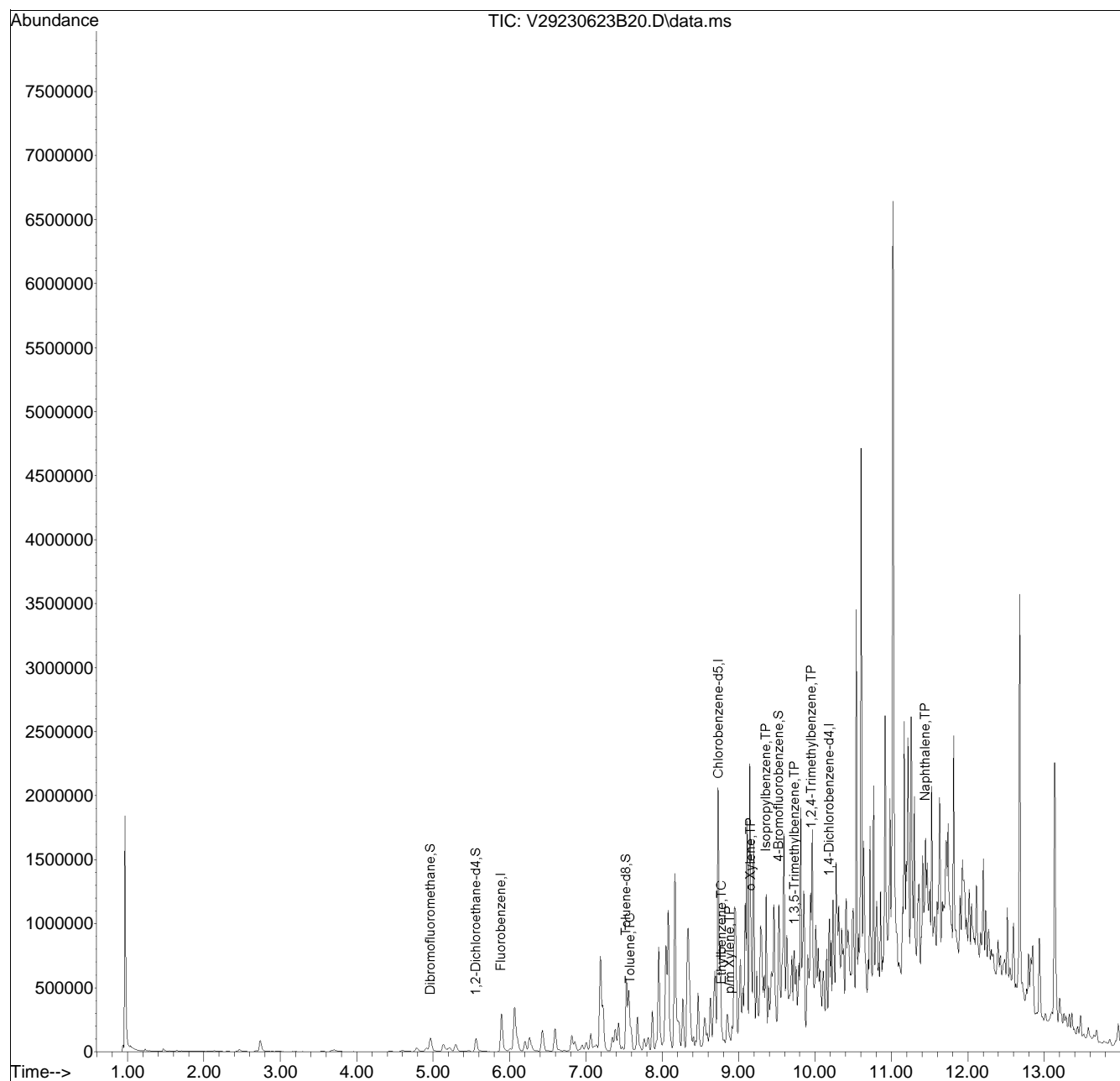


## Quantitation Report (QT Reviewed)

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Data File : V29230623B20.D  
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Operator : VOA129:AJK  
Sample : L2335425-15,31,4.52,5,,B  
Misc : WG1796127,ICAL19799  
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jun 26 08:06:49 2023  
Quant Method : K:\VOA129\2023\230623B\V129\_230308N\_8260.m  
Quant Title : VOLATILES BY GC/MS  
QLast Update : Thu Mar 09 17:16:29 2023  
Response via : Initial Calibration

Sub List : 8260-PA\_ShortList - PA Short list623B01.D•



## Quantitation Report (QT Reviewed)

Data Path : K:\VOA129\2023\230623B\  
 Data File : V29230623B25.D  
 Acq On : 23 Jun 2023 09:17 pm  
 Operator : VOA129:AJK  
 Sample : L2335425-19,31,4.87,5,,B  
 Misc : WG1796127,ICAL19799  
 ALS Vial : 25 Sample Multiplier: 1

Quant Time: Jun 26 08:07:14 2023  
 Quant Method : K:\VOA129\2023\230623B\V129\_230308N\_8260.m  
 Quant Title : VOLATILES BY GC/MS  
 QLast Update : Thu Mar 09 17:16:29 2023  
 Response via : Initial Calibration

Sub List : 8260-PA\_ShortList - PA Short list623B01.D•

