Immediate Response Action Completion Report

Release Tracking Number: 2-22322

925 Massachusetts Avenue
Lunenburg, Massachusetts

April 23, 2024

Prepared for:

Ms. Heather Lemieux
Town Manager
Town of Lunenburg
17 Main Street
Lunenburg, Massachusetts 01462

Prepared by:

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701 George Washington Hwy
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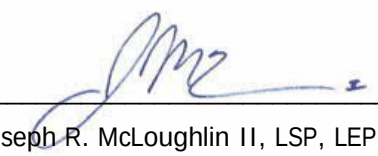
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Joseph R. McLoughlin II, LSP, LEP
Vice President

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TABLE OF CONTENTS

1.0 INTRODUCTION **1**

2.0 DESCRIPTION OF RELEASE AND POTENTIAL RECEPTORS **1**

2.1 Description of Release 1
2.2 Potential Receptors 1

3.0 PERFORMING PARTY FOR RELEASE **2**

4.0 IRA COMPLETION **2**

4.1 Previous Response Actions 2
4.2 Completed Response Actions 3

5.0 REMEDIATION WASTE **4**

6.0 CONCLUSION **4**

FIGURES

Figure 1 Site Locus Map
Figure 2 Nobis Sampling Plan

TABLES

Table 1 Nobis Soil Analytical Results
Table 2 Nobis Groundwater Analytical Results

APPENDICES

Appendix A BWSC Transmittal Form
Appendix B Tax Lien Judgement Documentation
Appendix C Nobis Report
Appendix D Bill of Lading Documentation and Disposal Manifests

1.0 Introduction

BETA Group, Inc. (BETA) has prepared this Immediate Response Action (IRA) Completion Report on behalf of the Town of Lunenburg to address response actions taken due to a release from underground storage tanks (USTs) at the property at 925 Massachusetts Avenue in Lunenburg, Massachusetts (the Site). Figure 1 shows the location of the Site.

On May 23, 2023, during excavation to facilitate removal of two gasoline USTs at the Site, Nobis Group (Nobis) identified photoionization detector (PID) readings greater than 100 part per million by volume (ppm_v) in soil samples greater than 2 feet below grade and within 10 feet of the USTs. Pursuant to 310 CMR 40.0313(2), this condition required reporting to the Massachusetts Department of Environmental Protection (MassDEP). On May 24, 2023, on behalf of the Town and within the 72-hour reporting requirement, BETA provided notification to MassDEP and gained oral approval for further assessment of the Site. MassDEP assigned Release Tracking Number (RTN) 2-22322 to the release.

This IRA Completion Report has been prepared to meet MassDEP's IRA requirements pursuant to 310 CMR 40.0427 of the Massachusetts Contingency Plan (MCP). A copy of the IRA Transmittal Form (BWSC-106) is attached as Appendix A.

2.0 Description of Release and Potential Receptors

The Site is located at 925 Massachusetts Avenue in Lunenburg, Massachusetts. The approximate Universal Transverse Mercator (UTM) coordinates for the Site are 4,719,441 meters North and 276,282 meters East. The Site property is located at approximate latitude and longitude coordinates 42° 35' 41" and 71° 43' 36", respectively. A Site Locus Map, developed using the Lunenburg, Massachusetts quadrangle of the United States Geologic Survey (USGS) topographic map, is provided as Figure 1.

The Town of Lunenburg Assessor's Office identifies the property as Lot 94 on Map 71 which totals of 0.19 acres. BETA has identified the disposal site to consist of the former L&M Services Center property. Access to the Site is currently unrestricted. The Site topography slopes down to the south and southwest.

2.1 Description of Release

As described above, the release was initially identified as PID readings greater than 100 ppmv in proximity to existing USTs during removal of the USTs.

2.2 Potential Receptors

Potential receptors at the Site include visitors to the Site. The Site is currently vacant and abandoned.

3.0 Performing Party for Release

The performing party for this release is:

Town of Lunenburg
Heather Lemieux, Town Manager
17 Main Street
Lunenburg, Massachusetts 01462

The Town of Lunenburg is a Municipality with Exempt Status as defined in Massachusetts General Law Chapter 21E Section 2. The Town received judgement in their tax lien case against the former owner on July 18, 2022. Appendix B contains documentation of this judgement.

As allowed, the Town is voluntarily conducting the IRA Plan described in this report. Future response actions at the Site will be conducted under RTN 2-16390.

4.0 IRA Completion

This IRA Completion report outlines response actions taken to address a release from USTs at the Site in accordance with the MCP and associated guidance.

4.1 Previous Response Actions

On May 23, 2023, during excavation to remove two gasoline USTs at the Site, Nobis identified PID readings greater than 100 ppm_v in soil samples greater than 2 feet below grade and within 10 feet of the USTs. On May 24, 2023, on behalf of the Town and within the 72-hour reporting requirement, BETA provided notification to MassDEP who assigned RTN 2-22322 to the release.

On August 28, 2023, MassDEP issued a Notice of Responsibility that included the following required IRA activities:

- "Immediately screen nearby underground structures and nearby DPW building with a LEL/PID meter to assess for an IH condition associated with this release;
- Within 60 days, excavate up to 300 cubic yards of contaminated soil associated this release and properly dispose of the contaminated soil within 120 days of removal pursuant to 310 CMR 40.0030;
- Sample all private drinking water wells located within 500 feet of the Site for laboratory analysis of contaminants of concern associated with this release; and
- Continually assess for conditions of substantial release migration (SRM) and critical exposure pathways (CEPs)."

From May 22 to May 30, 2023, as part of a Targeted Brownfield Assessment (TBA) for EPA, KGSNE JV, LLC (KGSNE) oversaw the removal of two 10,000 gallon gasoline USTs, one 4,000 gallon diesel UST and one 500 gallon heating oil UST. The removal of the tanks was completed by Strategic Environmental Services (SES) of Sutton, Massachusetts. As part of the TBA, Nobis conducted the following at the Site:

- On May 23, 2023, SES began excavating around the USTs to facilitate their removal. At that time, Nobis identified PID readings greater than 100 ppm_v.

- On May 24, 2023, Nobis, at BETA's request to meet MassDEP's request, screened two nearby storm drains (one on each side of Massachusetts Avenue) with a PID and Lower Explosive Level (LEL) meter. Neither instrument identified the presence of VOCs or an explosive condition.
- On May 25, SES removed the two 10,000 gallon gasoline USTs and the 4,000 gallon diesel tank. A Lunenburg Fire Department representative was on site to observe the removal. Nobis stated, "The UST were in decent condition with only surface rust and minor pitting noted upon removal."
- On May 30, SES removed the 500 gallon heating oil tank. Nobis stated, "The heating oil UST was observed to be in poor condition with extensive corrosion and pitting. Two approximate 1-inch holes were noted in the bottom of the UST."
- Prior to backfilling each UST excavation SES placed a layer of poly sheeting in the bottom of each excavation to serve as a marker for future investigations/remedial efforts. Excavations were first backfilled with existing site materials over which additional poly was placed and then the remainder of the excavation was backfilled with clean imported sand and gravel.
- Nobis collected post removal composite soil samples from each UST excavation consisting of soil from each side wall and the bottom of the excavation. Nobis also collected a composite soil sample from beneath the former pump island and feed lines going to the USTs. Table 1, attached, summarizes Nobis' soil analytical results. As can be seen in Table 1, the only exceedance of a Method 1 S-1 cleanup standard is for arsenic in two of the soil samples. Figure 2, attached, shows Nobis' sampling locations.
- Nobis collected grab groundwater samples from the open excavations using a bailer. Table 2, attached, summarizes Nobis' groundwater analytical results. As can be seen in Table 2, the concentrations of two fractions of volatile petroleum hydrocarbons (VPH) exceed the Method 1 GW-2 cleanup standards.

On September 5, 2023, BETA visited the Town of Luneburg Board of Health (BOH) Department to review their records for potential private drinking water wells within 500 feet of the Site. The BOH did not have any records of private wells within 500 feet of the Site. BETA also conducted a reconnaissance of properties within 500 feet of the Site from the roads and sidewalks. During this reconnaissance, we did not observe any visible wellheads or evidence of private wells. As such, sampling of private wells will not be required.

4.2 Completed Response Actions

On October 12, KGSNE advanced three borings and installed monitoring wells in each (one in each UST excavation and one in the diesel fuel excavation) with the goal of assessing soil and groundwater conditions below the former USTs and diesel fuel excavation. Soil samples collected by the advancement of borings B-MW-106, B-MW-107, and B-MW-108 were field screeded with a PID. Samples were collected at 10-15, 10-15, and 15-18 ft bgs and results from the screenings yielded a maximum PID measurement of 486.8, 44.4, and 0.0 ppmv respectively.

On the same day, groundwater samples were collected from each existing monitoring well and the three new monitoring wells. KGSNE conducted a survey of the wells to determine groundwater flow direction. The analysis found groundwater flow direction to be the north towards a wetland approximately 250 feet away from the site.

From October 30 to November 3, 2023, KGSNE oversaw the removal of the hydraulic lift and floor drain holding tank and closure of two floor drains performed by SES. KGSNE collected one composite soil sample from the sidewalls and bottom of the excavation.

Soil Samples collected from the borings and hydraulic lift were analyzed for EPH, VPH, and Metals. The only sample tested for PCBs was the hydraulic lift sample HYDLIFT. Table 1 summarizes the detected

compounds from the analyses of the October 2023 soil samples and Appendix C contains the laboratory certificates of analysis.

Exceedances for soil are summarized below:

- VPH was detected above Method 1 S-1 Cleanup standards in the B-MW-106 sample and field duplicate for the C_5-C_8 and C_9-C_{10} hydrocarbon fractions. However, the concentrations do not exceed the Method 1 S-2 or S-3 soil standards.
- EPH was detected above Method 1 S-1 Cleanup standards in the HYDLIFT sample. However, the concentrations do not exceed the Method 1 S-2 or S-3 soil standards.
- For metals, arsenic was detected above Method 1 S-1 and S-2 Cleanup standards in B-MW-107 and B-MW-108. However, the detected concentrations do not exceed the Method 1 S-3 soil standards.

Exceedances for groundwater are summarized below:

- VPH was detected above Method 1 GW-2 standards in the B-MW-106 sample for the C_9-C_{10} and C_9-C_{12} aromatic hydrocarbon fractions. However, the concentrations do not exceed the Method 1 GW-3 standards.
- EPH was not detected in above the MCP Method 1 GW-2 or GW-3 standards. Low concentrations of EPH compounds were detected in B-MW-106 and B-MW-107.
- For metals, lead was detected above MCP Method 1 GW-3 standards in B-MW-106, MW-101, and MW-103.

BETA did not identified any conditions of SRM or CEPs. Based on completed IRA activities, BETA determined additional IRA activities are not required at this time. Future response actions will be conducted under RTN 2-16390.

5.0 Remediation Waste

On July 28, 2023, SES shipped 117.69 tons of contaminated soil in four loads to Ondrick Materials and Recycling in Chicopee, Massachusetts. Appendix D contains the completed Bill of Lading documentation.

On August 4, 2023, SES shipped one tote containing 125 gallons of oil and water to Tradebe in Bridgeport, Connecticut and two totes containing 400 gallons of gasoline to Norlite in Cohoes, New York. Appendix D contains the waste manifests for these shipments.

6.0 Conclusion

It is the opinion of the Licensed Site Professional (LSP) employed by BETA that the conditions that resulted in the notification of release have been addressed by the implementation of the IRA Plan and that the IRA is now considered complete. Please note that although this report closes out the IRA it is not a Permanent Solution as residual contamination does exist at the Site that requires additional assessment and possibly remediation. As previously stated, future response actions will be conducted under RTN 2-16390.

Figures

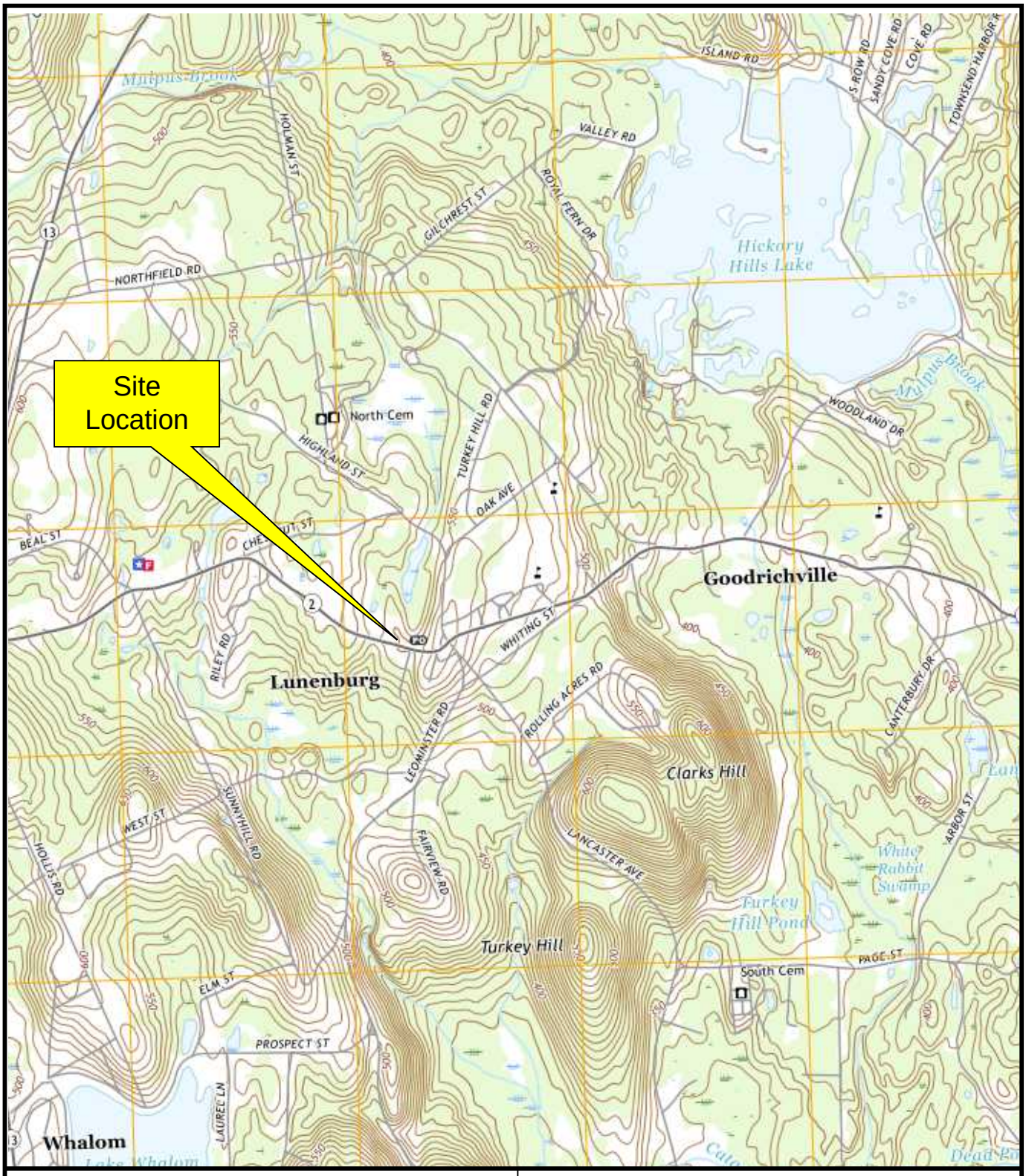


Figure 1: Site Locus

925 Massachusetts Avenue
Lunenburg, Massachusetts

www.BETA-Inc.com



Notes:

1. Locations of site features depicted hereon are approximate and given for illustrative purposes only.
2. USTs are numbered in the order they were removed.
3. Grab locations for UST samples are numbered in purple.

Legend

- Building
- Septic Tank
- Underground Storage Tank

Historic Sample Locations

- Monitoring Well
- Boring

0 7.5 15 30

Feet
1 inch = 15 feet

N

nobis
Nobis Group® - 585 Middlesex Street
Lowell, MA 01851 - (978) 683-0891
www.nobis-group.com

FIGURE 2

SITE PLAN
FORMER L & M
925 MASSACHUSETTS AVE
LUNENBERG, MA

PREPARED BY: TF	CHECKED BY: AR
PROJECT NO. S00001.005	DATE: MARCH 2023

J:\S00001.000-START 2022 Contract - TO 01 - TBAs\S00001.05_Former L&M\Technical_Data\GIS\Maps_Figures\Fig 2 - Site Plan Former L&M.mxd 3/20/2023 15:12 tfistori

MassDEP - Bureau of Waste Site Cleanup

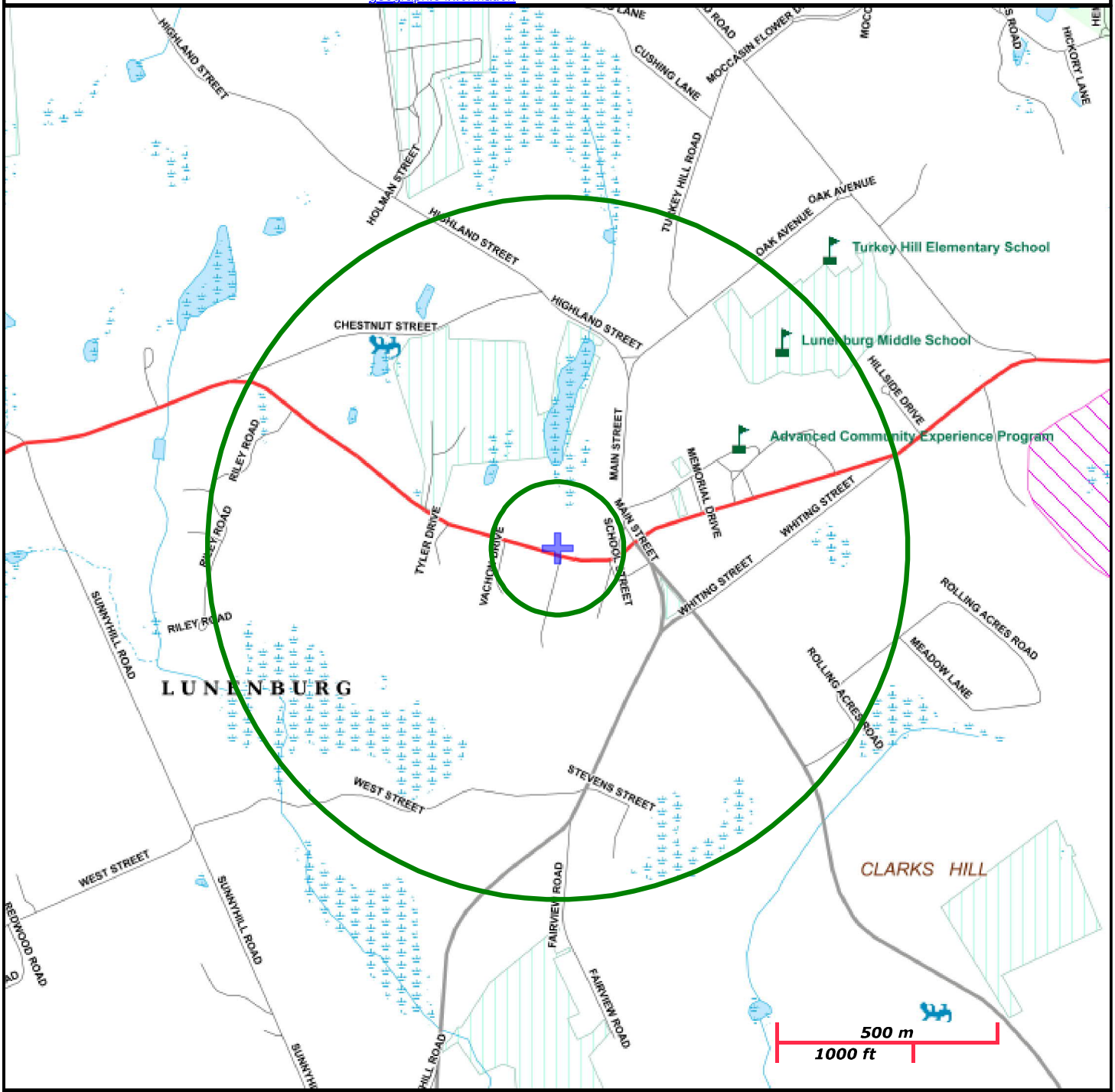
Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii

Site Information:
FORMER L&M
925 MASSACHUSETTS AVENUE LUNENBURG, MA
2-000022322

NAD83 UTM Meters:
4719441mN , 276284mE (Zone: 19)
September 28, 2023

The information shown is the best available at the date of printing. However, it may be incomplete. The responsible party and LSP are ultimately responsible for ascertaining the true conditions surrounding the site. Metadata for data layers shown on this map can be found at: https://www.mass.gov/orgs/massgis-bureau-of-geographic-information.

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection



Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail

Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct

Basins: Major, PWS; Streams: Perennial, Intermittent, Man Made Shore, Dam

Aquifers: Medium Yield, High Yield, EPA Sole Source

Non Potential Drinking Water Source Area: Medium, High (Yield)

PWS Protection Areas: Zone II, IWPA, Zone A

Hydrography: Open Water, PWS Reservoir, Tidal Flat

Wetlands: Freshwater, Saltwater, Cranberry Bog

FEMA 100yr Floodplain; Protected Open Space; ACEC

NHESP Pri-Hab of Rare Species; Vernal Pool: Cert., Potential

Solid Waste Landfill; PWS: Com.GW,SW, Emerg., Non-Com.

Tables

Table 3-1
Summary of Soil Sample Analytical Results
Former L and M Service Station
Lunenburg, MA

Location								LM-SO-UST02	HOLDTANK	HYDLIFT	LM-SO-PI	LM-SO-UST01	LM-SO-UST02	LM-SO-UST03	LM-SO-UST04	MW-106		MW-107	MW-108
Depth Interval								9 - 12 ft	4 - 10 ft	6 - 8 ft	2 - 6 ft	9 - 12 ft	9 - 12 ft	5 - 8 ft	6 - 9 ft	10-15 ft	10 - 15 ft	10-15 ft	15-18 ft
Sample Date								05/25/2023	11/01/2023	10/31/2023	05/25/2023	05/25/2023	05/25/2023	05/25/2023	05/30/2023	10/12/2023	10/12/2023	10/12/2023	10/12/2023
Sample Type								FD	N	N	N	N	N	N	N	N	FD	N	N
Chemical/Sample ID	**Units**	**MA S-1/GW-2**	**MA S-1/GW-3**	**MA S-2/GW-2**	**MA S-2/GW-3**	**MA S-3/GW-2**	**MA S-3/GW-3**	**SO-FD-01**	**HOLDTANK-0410**	**HYDLIFT-0608**	**LM-SO-PI-052523**	**LM-SO-UST01-052523**	**LM-SO-UST02-052523**	**LM-SO-UST03-052523**	**LM-SO-UST04-053023**	**SO-B/MW-106-1015**	**SO-FD01-101223**	**SO-B/MW-107-1015**	**SO-B/MW-108-1518**
Pesticides/PCBs																			
Aroclor 1016	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	NA	NA	21 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1221	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	NA	NA	21 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	NA	NA	21 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	NA	NA	21 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	NA	NA	21 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	NA	NA	21 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	NA	NA	21 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1262	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	NA	NA	21 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1268	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	NA	NA	21 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																			
Antimony	mg/kg	20	20	30	30	30	30	**1.7 J**	**1.6 J**	**0.54 J**	**0.94 J**	**1.3 J**	**1.5 J**	**0.81 J**	8.6 UJ	**1 J**	**0.95 J**	**0.93 J**	**1.2 J**
Arsenic	mg/kg	20	20	20	20	50	50	**53**	**4.6**	**4.1**	**16**	**21**	**52**	**12**	**4.5**	**8.9**	**3.7**	**23**	**27**
Barium	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	**57 J**	**49**	**19**	**44**	**50 J**	**54 J**	**66 J**	**35**	**54**	**56**	**29**	**34**
Beryllium	mg/kg	90	90	200	200	200	200	**0.3 J**	0.52 U	0.52 U	**0.24 J**	**0.33 J**	**0.26 J**	**0.42 J**	0.86 U	0.46 U	0.49 U	0.46 U	0.56 U
Cadmium	mg/kg	70	70	100	100	100	100	0.54 U	**0.073 J**	0.52 U	**0.034 J**	0.54 U	0.62 U	0.51 U	0.86 UJ	0.46 U	0.49 U	**0.027 J**	**0.035 J**
Chromium	mg/kg	100	100	200	200	200	200	**34**	**16**	**9.5**	**20**	**27**	**34**	**27**	**10**	**20**	**17**	**18**	**21**
Lead	mg/kg	200	200	600	600	600	600	**47**	**14**	**7**	**60**	**28**	**29**	**32**	**56**	**7.2**	**2.9**	**12**	**17**
Mercury	mg/kg	20	20	30	30	30	30	**0.012 J**	**0.013 J**	0.066 U	**0.062**	**0.025 J**	0.054 U	**0.069**	**0.04 J**	0.04 U	**0.03 J**	**0.023 J**	0.032 U
Nickel	mg/kg	600	600	1,000	1,000	1,000	1,000	**24**	**9.6**	**7.4**	**16**	**20**	**23**	**19**	**8.2 J-**	**14**	**13**	**12**	**14**
Selenium	mg/kg	400	400	700	700	700	700	1.6 U	1.6 U	1.6 U	1.4 U	1.6 U	1.8 U	1.5 U	2.6 UJ	1.4 U	1.5 U	1.4 U	1.7 U
Silver	mg/kg	100	100	200	200	200	200	1.6 U	1.6 U	1.6 U	1.4 U	1.6 U	1.8 U	1.5 U	2.6 U	1.4 U	1.5 U	1.4 U	1.7 U
Thallium	mg/kg	8	8	60	60	80	80	3.2 U	3.1 U	3.1 U	2.8 U	3.2 U	3.7 U	3.1 U	5.2 U	2.8 U	2.9 U	2.8 U	3.4 U
Vanadium	mg/kg	400	400	700	700	700	700	**27**	**25**	**7.5**	**17**	**21**	**25**	**22**	**11**	**18**	**13**	**14**	**17**
Zinc	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	**86 J**	**31**	**33**	**150**	**64 J**	**150 J**	**47 J**	**36 J-**	**22**	**14**	**56**	**79**
EPH																			
2-Methylnaphthalene	mg/kg	80	300	80	500	80	500	0.4 U	**3.5**	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	**4.8**	**1.8**	**6.3**	0.39 U	0.38 U
Acenaphthene	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	0.36 U	1 U	1.1 U	0.39 U	0.38 U
Acenaphthylene	mg/kg	600	10	600	10	600	10	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	0.36 U	1 U	1.1 U	0.39 U	0.38 U
Anthracene	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	0.36 U	1 U	1.1 U	0.39 U	0.38 U
Benzo(a)anthracene	mg/kg	7	7	40	40	300	300	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	0.36 U	1 U	1.1 U	0.39 U	0.38 U
Benzo(a)pyrene	mg/kg	2	2	7	7	30	30	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	0.36 U	1 U	**2**	0.39 U	0.38 U
Benzo(b)fluoranthene	mg/kg	7	7	40	40	300	300	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	0.36 U	1 U	1.1 U	0.39 U	0.38 U
Benzo(g,h,i)perylene	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	0.36 U	1 U	1.1 U	0.39 U	0.38 U
Benzo(k)fluoranthene	mg/kg	70	70	400	400	3,000	3,000	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	0.36 U	1 U	1.1 U	0.39 U	0.38 U
C11-C22 Aromatics	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	8 U	**310**	**1,500**	**33**	**12**	8 U	**12**	**250**	**47**	**140**	**11**	7.6 U
C11-C22 Aromatics (adjusted)	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	8 U	**310**	**1,500**	**32**	**11**	8 U	**11**	**240**	**44**	**130**	**11**	7.6 U
C19-C36 Aliphatics	mg/kg	3,000	3,000	5,000	5,000	5,000	5,000	8 UJ	**380**	**880**	**58**	**16 J**	8 UJ	**19 J**	**96**	**130**	**360**	**32**	**12**
C9-C18 Aliphatics	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	8 U	**51**	**52**	7.1 U	7.2 U	8 U	6.9 U	**240**	**60**	**93**	7.7 U	7.6 U
Chrysene	mg/kg	70	70	400	400	3,000	3,000	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	0.36 U	1 U	1.1 U	0.39 U	0.38 U
Dibenz(a,h)anthracene	mg/kg	0.7	0.7	4	4	30	30	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	0.36 U	1 U	1.1 U	0.39 U	0.38 U
Fluoranthene	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	**0.45**	0.36 U	0.35 U	**0.44**	**0.63**	**0.44**	**0.64**	**0.54**	1 U	1.1 U	0.39 U	0.38 U
Fluorene	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	**0.69**	1 U	1.1 U	0.39 U	0.38 U
Indeno(1,2,3-cd)pyrene	mg/kg	7	7	40	40	300	300	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	0.36 U	1 U	1.1 U	0.39 U	0.38 U
Naphthalene	mg/kg	20	500	20	1,000	20	3,000	0.4 U	**1.3**	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	**0.48**	**1.7**	**5.2**	0.39 U	0.38 U
Phenanthrene	mg/kg	500	500	1,000	1,000	3,000	3,000	0.4 U	**0.53**	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	**0.46**	1 U	1.1 U	0.39 U	0.38 U
Pyrene	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	0.36 U	1 U	1.1 U	0.39 U	0.38 U
VPH																			
Benzene	mg/kg	40	40	200	200	400	1,000	0.016 U	0.26 U	0.33 U	**0.013 J**	0.013 U	0.018 U	0.015 U	0.08 U	**0.59**	1.5 U	0.15 U	0.13 U
C5-C8 Aliphatics (adjusted)	mg/kg	100	100	500	500	500	500	0.079 U	**15**	6.6 U	**0.34**	**0.2**	0.091 U	0.073 U	1.6 U	**340**	**500**	**3.6**	**4.3**
C9-C10 Aromatics	mg/kg	100	100	500	500	500	500	**0.019 J**	**76**	6.6 U	**0.17**	**0.3**	**0.034 J**	**0.024 J**	1.6 U	**210**	**460**	**16**	**18**
C9-C12 Aliphatics (adjusted)	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	0.079 U	**78**	6.6 U	**0.11**	**0.29**	0.091 U	0.073 U	1.6 U	**150**	300 U	**9.8**	**8.6**
Ethylbenzene	mg/kg	500	500	1,000	1,000	1,000	3,000	0.016 U	**0.45**	0.33 U	**0.013 J**	**0.0069 J**	**0.0049 J**	0.015 U	0.08 U	**12**	**14**	0.15 U	**0.18**
m,p-Xylene	mg/kg	100	500	100	1,000	100	3,000	**0.01 J**	**1.2**	0.66 U	**0.051**	**0.02 J**	**0.016 J**	**0.0066 J**	0.16 U	**51**	**60**	0.29 U	**0.54**
Methyl tert-butyl ether	mg/kg	100	100	100	500	100	500	**0.053 J+**	0.053 U	0.066 U	**0.088 J+**	0.013 U	**0.057 J+**	0.015 U	0.016 U	**0.23**	0.3 U	**0.31**	**0.34**
Naphthalene	mg/kg	20	500	20	1,000	20	3,000	0.016 U	**6.4**	1.3 U	0.014 U	**0.012 J**	0.018 U	0.015 U	0.32 U	**3.6**	**6.9**	0.58 U	0.52 U
o-Xylene	mg/kg	100	500	100	1,000	100	3,000	**0.0066 J**	**1.2**	0.33 U	**0.032**	**0.0048 J**	**0.0091 J**	**0.0043 J**	0.08 U	**4.6**	**4.7**	**0.17**	**0.24**
Toluene	mg/kg	500	500	1,000	1,000	2,000	3,000	**0.011 J**	**0.28**	0.33 U	**0.04**	**0.0082 J**	**0.016 J**	**0.0056 J**	0.08 U	**1.3**	1.5 U	0.15 U	0.13 U
Xylene (total)	mg/kg	100	500	100	1,000	100	3,000	NA	**2.4**	0.99 U	NA	NA	NA	NA	0.24 U	**55**	**65**	0.44 U	**0.78**

Notes:
Color= PAL Exceeded
Bold=Detected
NA=Not Analyzed
=-- PAL not established for this chemica

From Nobis

Table 3-2
Summary of Groundwater Analytical Results
Former L and M Service Station
Lunenburg, MA

Location					LM-GW-UST01	LM-GW-UST02	MW-101	MW-102		MW-103	MW-104	MW-105	MW-106	MW-107		MW-108
Sample Date					05/25/2023	05/25/2023	05/17/2023	05/17/2023		06/02/2023	05/17/2023	05/17/2023	10/26/2023	10/26/2023		10/26/2023
Sample Type					N	N	N	N	FD	N	N	N	N	N	FD	N
Chemical/Sample ID	**CAS Number**	**Units**	**MCP Method 1 GW-2**	**MCP Method 1 GW-3**	**LM-GW-UST01-052523**	**LM-GW-UST02-052523**	**LM-GW-B/MW101-051723**	**LM-GW-B/MW102-051723**	**LM-FD-051723**	**LM-GW-MW103-060223**	**LM-GW-B/MW104-051723**	**LM-GW-B/MW105-051723**	**LM-MW106-102623**	**LM-MW107-102623**	**LM-FD01-102623**	**LM-MW108-102623**
Metals																
Antimony	7440-36-0	mg/L	--	8	NA	NA	NA	NA	NA	**0.005**	NA	NA	NA	NA	NA	NA
Arsenic	7440-38-2	mg/L	--	0.9	NA	NA	NA	NA	NA	**0.0035**	NA	NA	NA	NA	NA	NA
Barium	7440-39-3	mg/L	--	50	NA	NA	NA	NA	NA	**0.24**	NA	NA	NA	NA	NA	NA
Beryllium	7440-41-7	mg/L	--	0.2	NA	NA	NA	NA	NA	0.002 U	NA	NA	NA	NA	NA	NA
Cadmium	7440-43-9	mg/L	--	0.004	NA	NA	NA	NA	NA	**0.0012**	NA	NA	NA	NA	NA	NA
Chromium	7440-47-3	mg/L	--	0.3	NA	NA	NA	NA	NA	**0.024**	NA	NA	NA	NA	NA	NA
Lead	7439-92-1	mg/L	--	0.01	NA	NA	NA	NA	NA	**0.041**	NA	NA	NA	NA	NA	NA
Mercury	7439-97-6	mg/L	--	0.02	NA	NA	NA	NA	NA	0.0002 U	NA	NA	NA	NA	NA	NA
Nickel	7440-02-0	mg/L	--	0.2	NA	NA	NA	NA	NA	**0.02**	NA	NA	NA	NA	NA	NA
Selenium	7782-49-2	mg/L	--	0.1	NA	NA	NA	NA	NA	0.015 U	NA	NA	NA	NA	NA	NA
Silver	7440-22-4	mg/L	--	0.007	NA	NA	NA	NA	NA	0.005 U	NA	NA	NA	NA	NA	NA
Thallium	7440-28-0	mg/L	--	3	NA	NA	NA	NA	NA	0.005 U	NA	NA	NA	NA	NA	NA
Vanadium	7440-62-2	mg/L	--	4	NA	NA	NA	NA	NA	**0.019**	NA	NA	NA	NA	NA	NA
Zinc	7440-66-6	mg/L	--	0.9	NA	NA	NA	NA	NA	**0.48**	NA	NA	NA	NA	NA	NA
Dissolved Metals																
Antimony	7440-36-0	mg/L	--	8	**0.0051 J**	**0.0039 J**	**0.0028**	**0.0049**	**0.0051**	NA	**0.0053**	**0.0045**	0.006 U	0.006 U	0.006 U	**0.0019 J**
Arsenic	7440-38-2	mg/L	--	0.9	**0.032**	**0.011**	0.004 U	**0.025**	**0.026**	NA	**0.0081**	0.004 U	**0.044**	**0.065**	**0.066**	0.004 U
Barium	7440-39-3	mg/L	--	50	**0.056**	**0.049**	**0.28**	**0.12**	**0.12**	NA	**0.069**	**0.23**	**0.054**	**0.05**	**0.05**	**0.14**
Beryllium	7440-41-7	mg/L	--	0.2	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	NA	0.002 U	0.002 U	0.002 U	0.002 U	**0.00039 J**	0.002 U
Cadmium	7440-43-9	mg/L	--	0.004	0.0025 U	**0.00045 J**	**0.0011**	0.0025 U	0.0025 U	NA	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U
Chromium	7440-47-3	mg/L	--	0.3	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	NA	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Lead	7439-92-1	mg/L	--	0.01	**0.013**	**0.0085**	**0.06**	0.0075 U	0.0075 U	NA	0.0075 U	0.0075 U	0.0075 U	0.0075 U	0.0075 U	0.0075 U
Mercury	7439-97-6	mg/L	--	0.02	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	NA	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	7440-02-0	mg/L	--	0.2	**0.011**	**0.01**	**0.0069**	**0.0024**	**0.0027**	NA	**0.015**	**0.0009**	0.005 U	**0.0026 J**	**0.0031 J**	**0.0045 J**
Selenium	7782-49-2	mg/L	--	0.1	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	NA	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
Silver	7440-22-4	mg/L	--	0.007	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	NA	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	**0.0012 J**
Thallium	7440-28-0	mg/L	--	3	**0.0022 J**	0.005 U	0.005 U	0.005 U	0.005 U	NA	**0.0027**	0.005 U	0.005 U	0.005 U	0.005 U	**0.0026 J**
Vanadium	7440-62-2	mg/L	--	4	**0.0037 J**	**0.0022 J**	0.005 U	0.005 U	0.005 U	NA	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Zinc	7440-66-6	mg/L	--	0.9	**0.033 J+**	**0.042 J+**	**0.2**	**0.0021**	**0.0035**	NA	**0.14**	**0.0026**	**0.0027 J**	**0.0033 J**	**0.0034 J**	**0.002 J**
EPH																
2-Methylnaphthalene	91-57-6	ug/L	2,000	20,000	**46**	**5.9**	1 UJ	**2.3 J**	**2.8 J**	1.1 U	1 UJ	0.95 UJ	**54**	**1.2**	**1.4**	1 U
Acenaphthene	83-32-9	ug/L	--	10,000	1.1 U	1.1 U	1 UJ	1 UJ	1 UJ	1.1 U	1 UJ	0.95 UJ	**0.2 J**	1 U	1 U	1 U
Acenaphthylene	208-96-8	ug/L	10,000	40	1.1 U	1.1 U	1 UJ	1 UJ	1 UJ	1.1 U	1 UJ	0.95 UJ	1 U	1 U	1 U	1 U
Anthracene	120-12-7	ug/L	--	30	1.1 U	1.1 U	1 U	1 U	1 U	1.1 U	1 U	0.95 U	1 U	1 U	1 U	1 U
Benzo(a)anthracene	56-55-3	ug/L	--	1,000	**0.15 J**	1.1 U	1 U	1 U	1 U	1.1 U	1 U	0.95 U	1 U	1 U	1 U	1 U
Benzo(a)pyrene	50-32-8	ug/L	--	500	**0.17 J**	0.22 U	0.2 U	0.2 U	0.2 U	0.21 U	0.2 U	0.19 U	0.2 U	0.2 U	0.2 U	0.2 U
Benzo(b)fluoranthene	205-99-2	ug/L	--	400	**0.19 J**	1.1 U	1 U	1 U	1 U	1.1 U	1 U	0.95 U	1 U	1 U	1 U	1 U
Benzo(g,h,i)perylene	191-24-2	ug/L	--	20	**0.3 J**	1.1 U	1 U	1 U	1 U	1.1 U	1 U	0.95 U	1 U	1 U	1 U	1 U
Benzo(k)fluoranthene	207-08-9	ug/L	--	100	1.1 U	1.1 U	1 U	1 U	1 U	1.1 U	1 U	0.95 U	1 U	1 U	1 U	1 U
C11-C22 Aromatics (adjusted)	STL00203	ug/L	50,000	5,000	**180**	110 U	100 U	100 U	100 U	110 U	100 U	95 U	**230**	**110**	**120**	100 U
C19-C36 Aliphatics	C19-C36-AL	ug/L	--	50,000	**110 J-**	110 U	100 U	100 U	100 U	110 UJ	100 U	95 U	100 U	100 U	100 U	100 U
C9-C18 Aliphatics	C9-C18-AL	ug/L	5,000	50,000	**230 J-**	110 U	100 U	100 U	100 U	110 UJ	100 U	95 U	**290**	100 U	100 U	100 U
Chrysene	218-01-9	ug/L	--	70	**0.19 J**	1.1 U	1 U	1 U	1 U	1.1 U	1 U	0.95 U	1 U	1 U	1 U	1 U
Dibenz(a,h)anthracene	53-70-3	ug/L	--	40	0.53 U	0.56 U	0.5 U	0.5 U	0.5 U	0.53 U	0.5 U	0.48 U	0.5 U	0.5 U	0.5 U	0.5 U
Fluoranthene	206-44-0	ug/L	--	200	**0.27 J**	1.1 U	1 U	1 U	1 U	1.1 U	1 U	0.95 U	**0.16 J**	1 U	1 U	1 U
Fluorene	86-73-7	ug/L	--	40	1.1 U	1.1 U	1 U	1 U	1 U	1.1 U	1 U	0.95 U	1 U	1 U	1 U	1 U
Indeno(1,2,3-cd)pyrene	193-39-5	ug/L	--	100	0.53 U	0.56 U	0.5 U	0.5 U	0.5 U	0.53 U	0.5 U	0.48 U	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene	91-20-3	ug/L	700	20,000	**60**	**17**	1 UJ	**28 J**	**33 J**	1.1 U	1 UJ	0.95 UJ	**90**	**8.1**	**9.1**	1 U
Phenanthrene	85-01-8	ug/L	--	10,000	1.1 U	1.1 U	1 U	1 U	1 U	1.1 U	1 U	0.95 U	**0.43 J**	1 U	1 U	1 U
Pyrene	129-00-0	ug/L	--	20	**0.23 J**	1.1 U	1 U	1 U	1 U	1.1 U	1 U	0.95 U	1 U	1 U	1 U	1 U
VPH																
Benzene	71-43-2	ug/L	1,000	10,000	**13**	**76**	5 U	**12**	**12**	5 U	5 U	5 U	**61**	5 U	5 U	5 U
C5-C8 Aliphatics (adjusted)	STL00041	ug/L	3,000	50,000	1,000 U	2,000 U	100 U	**560**	**600**	100 U	100 U	100 U	2,500 U	100 U	100 U	100 U
C9-C10 Aromatics	C9-C10-AR	ug/L	4,000	50,000	**4,400**	**890**	100 UJ	**2,000 J**	**2,000 J**	100 U	100 UJ	100 UJ	**9,100**	**210**	**230**	100 U
C9-C12 Aliphatics (adjusted)	STL00106	ug/L	5,000	50,000	**3,600**	2,000 U	100 U	**3,000**	**3,000**	100 U	100 U	100 U	**11,000**	**500**	500 U	100 U
Ethylbenzene	100-41-4	ug/L	20,000	5,000	**120**	**170**	5 U	**490**	**500**	5 U	5 U	5 U	**650**	**61**	**64**	5 U
m,p-Xylene	179601-23-1	ug/L	--	--	**720**	**570**	10 U	**1,400**	**1,500**	10 U	10 U	10 U	**1,600**	**110**	**110**	10 U
Methyl tert-butyl ether	1634-04-4	ug/L	50,000	50,000	**810**	**2,300**	5 U	5 U	5 U	5 U	5 U	5 U	**2,300**	**790**	**570**	5 U
Naphthalene	91-20-3	ug/L	700	20,000	**120**	**62**	5 U	**77**	**76**	5 U	5 U	5 U	**210**	**14**	**17**	5 U
o-Xylene	95-47-6	ug/L	--	--	**87**	**280**	5 U	5 U	5 U	5 U	5 U	5 U	**18**	**46**	**42**	5 U
Toluene	108-88-3	ug/L	50,000	40,000	**170**	**680**	5 U	5 U	5 U	5 U	5 U	5 U	5 U	**79**	**67**	5 U
Xylene (total)	1330-20-7	ug/L	3,000	5,000	**880**	**850**	15 U	**1,400**	**1,500**	15 U	15 U	15 U	**1,600**	**160**	**150**	15 U

Notes:
Color = PAL Exceeded
Bold = Detected
NA = Not Analyzed
-- PAL not established for this chemical

From Nobis

Table 6-1
Summary of Historical Soil Sample Results
Former L and M Service Station
Lunenburg, MA

Sub-Unit or Sub-Area									Not Specified							
Location									B-101	B-102	B-103	B-104	B-105	B-106	B-107	B-108
Depth Interval									15 - 18 ft	13 - 15 ft	13 - 15 ft	10 - 12 ft	12.5 - 17.5 ft	12.5 - 15 ft	8 - 10 ft	15 - 17.5 ft
Sample Date									08/06/2020	08/06/2020	08/06/2020	08/06/2020	08/06/2020	08/06/2020	08/06/2020	08/06/2020
Sample Type									N	N	N	N	N	N	N	N
Chemical/Sample ID	CAS Number	Units	MA S-1/GW-2	MA S-1/GW-3	MA S-2/GW-2	MA S-2/GW-3	MA S-3/GW-2	MA S-3/GW-3	B-101 15-18	B-102 13-15	B-103 13-15	B-104 10-12	B-105 12.5-17.5	B-106 12.5-15	B-107 8-10	B-108 15-17.5
Volatiles																
1,1,1,2-Tetrachloroethane	630-20-6	ug/kg	100	80,000	100	400,000	100	500,000	28 U	610 U	0.54 U	0.39 U	120 U	29 U	26 U	0.38 U
1,1,1-Trichloroethane	71-55-6	ug/kg	500,000	500,000	600,000	1,000,000	600,000	3,000,000	28 U	610 U	0.54 U	0.39 U	120 U	29 U	26 U	0.38 U
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	20	10,000	20	50,000	20	400,000	28 U	610 U	0.54 U	0.39 U	120 U	29 U	26 U	0.38 U
1,1,2-Trichloroethane	79-00-5	ug/kg	2,000	40,000	2,000	200,000	2,000	500,000	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
1,1-Dichloroethane	75-34-3	ug/kg	9,000	500,000	9,000	1,000,000	9,000	1,000,000	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
1,1-Dichloroethene	75-35-4	ug/kg	40,000	500,000	40,000	1,000,000	40,000	3,000,000	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
1,1-Dichloropropene	563-58-6	ug/kg	--	--	--	--	--	--	28 U	610 U	0.54 U	0.39 U	120 U	29 U	26 U	0.38 U
1,2,3-Trichlorobenzene	87-61-6	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
1,2,3-Trichloropropane	96-18-4	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
1,2,4-Trichlorobenzene	120-82-1	ug/kg	6,000	700,000	6,000	3,000,000	6,000	5,000,000	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
1,2,4-Trimethylbenzene	95-63-6	ug/kg	--	--	--	--	--	--	**1,200**	**350,000**	**11**	1.6 U	**92,000**	**14,000**	**2,200**	1.5 U
1,2-Dibromo-3-chloropropane	96-12-8	ug/kg	--	--	--	--	--	--	170 U	3,600 U	3.2 U	2.4 U	720 U	170 U	160 U	2.2 U
1,2-Dibromoethane	106-93-4	ug/kg	100	1,000	100	5,000	100	40,000	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
1,2-Dichlorobenzene	95-50-1	ug/kg	100,000	300,000	100,000	300,000	100,000	300,000	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
1,2-Dichloroethane	107-06-2	ug/kg	100	20,000	100	100,000	100	300,000	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
1,2-Dichloroethene (total)	540-59-0	ug/kg	--	--	--	--	--	--	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
1,2-Dichloropropane	78-87-5	ug/kg	100	30,000	100	100,000	100	1,000,000	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
1,3,5-Trimethylbenzene	108-67-8	ug/kg	--	--	--	--	--	--	**430**	**72,000**	2.2 U	1.6 U	**29,000**	**2,000**	**1,100**	1.5 U
1,3-Dichlorobenzene	541-73-1	ug/kg	100,000	100,000	200,000	500,000	200,000	500,000	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
1,3-Dichloropropane	142-28-9	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
1,3-Dichloropropene	542-75-6	ug/kg	400	20,000	400	90,000	400	100,000	28 U	610 U	0.54 U	0.39 U	120 U	29 U	26 U	0.38 U
1,4-Dichlorobenzene	106-46-7	ug/kg	1,000	80,000	1,000	400,000	1,000	2,000,000	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
1,4-Dioxane	123-91-1	ug/kg	6,000	20,000	6,000	90,000	6,000	500,000	4,600 U	97,000 U	86 U	63 U	19,000 U	4,600 U	4,200 U	60 U
2,2-Dichloropropane	594-20-7	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
2-Butanone	78-93-3	ug/kg	50,000	400,000	50,000	400,000	50,000	400,000	570 U	12,000 U	**40**	7.9 U	2,400 U	570 U	530 U	7.5 U
2-Chlorotoluene	95-49-8	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
2-Hexanone	591-78-6	ug/kg	--	--	--	--	--	--	570 U	12,000 U	11 U	7.9 U	2,400 U	570 U	530 U	7.5 U
4-Chlorotoluene	106-43-4	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
4-Isopropyltoluene	99-87-6	ug/kg	--	--	--	--	--	--	**70**	**5,700**	1.1 U	0.79 U	**940**	**120**	**150**	0.75 U
4-Methyl-2-pentanone	108-10-1	ug/kg	50,000	400,000	50,000	400,000	50,000	400,000	570 U	12,000 U	11 U	7.9 U	2,400 U	570 U	530 U	7.5 U
Acetone	67-64-1	ug/kg	50,000	400,000	50,000	400,000	50,000	400,000	570 U	12,000 U	**180**	**31**	2,400 U	570 U	**770**	19 U
Benzene	71-43-2	ug/kg	40,000	40,000	200,000	200,000	400,000	1,000,000	28 U	610 U	**5.2**	0.39 U	120 U	**320**	**550**	0.38 U
Bromobenzene	108-86-1	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
Bromochloromethane	74-97-5	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
Bromodichloromethane	75-27-4	ug/kg	100	30,000	100	100,000	100	500,000	28 U	610 U	0.54 U	0.39 U	120 U	29 U	26 U	0.38 U
Bromoform	75-25-2	ug/kg	1,000	300,000	1,000	800,000	1,000	800,000	230 U	4,900 U	4.3 U	3.2 U	960 U	230 U	210 U	3 U
Bromomethane	74-83-9	ug/kg	500	30,000	500	30,000	500	30,000	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
Carbon disulfide	75-15-0	ug/kg	--	--	--	--	--	--	570 U	12,000 U	11 U	7.9 U	2,400 U	570 U	530 U	7.5 U
Carbon tetrachloride	56-23-5	ug/kg	5,000	30,000	5,000	100,000	5,000	1,000,000	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
Chlorobenzene	108-90-7	ug/kg	3,000	100,000	3,000	100,000	3,000	100,000	28 U	610 U	0.54 U	0.39 U	120 U	29 U	26 U	0.38 U
Chloroethane	75-00-3	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
Chloroform	67-66-3	ug/kg	200	500,000	200	1,000,000	200	1,000,000	86 U	1,800 U	1.6 U	1.2 U	360 U	86 U	79 U	1.1 U
Chloromethane	74-87-3	ug/kg	--	--	--	--	--	--	230 U	4,900 U	4.3 U	3.2 U	960 U	230 U	210 U	3 U

From Nobis

Table 6-1
Summary of Historical Soil Sample Results
Former L and M Service Station
Lunenburg, MA

Sub-Unit or Sub-Area									Not Specified							
Location									B-101	B-102	B-103	B-104	B-105	B-106	B-107	B-108
Depth Interval									15 - 18 ft	13 - 15 ft	13 - 15 ft	10 - 12 ft	12.5 - 17.5 ft	12.5 - 15 ft	8 - 10 ft	15 - 17.5 ft
Sample Date									08/06/2020	08/06/2020	08/06/2020	08/06/2020	08/06/2020	08/06/2020	08/06/2020	08/06/2020
Sample Type									N	N	N	N	N	N	N	N
Chemical/Sample ID	CAS Number	Units	MA S-1/GW-2	MA S-1/GW-3	MA S-2/GW-2	MA S-2/GW-3	MA S-3/GW-2	MA S-3/GW-3	B-101 15-18	B-102 13-15	B-103 13-15	B-104 10-12	B-105 12.5-17.5	B-106 12.5-15	B-107 8-10	B-108 15-17.5
cis-1,2-Dichloroethene	156-59-2	ug/kg	100	100,000	100	500,000	100	500,000	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
cis-1,3-Dichloropropene	10061-01-5	ug/kg	--	--	--	--	--	--	28 U	610 U	0.54 U	0.39 U	120 U	29 U	26 U	0.38 U
Dibromochloromethane	124-48-1	ug/kg	30	20,000	30	100,000	30	500,000	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
Dibromomethane	74-95-3	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
Dichlorodifluoromethane	75-71-8	ug/kg	--	--	--	--	--	--	570 U	12,000 U	11 U	7.9 U	2,400 U	570 U	530 U	7.5 U
Diethyl ether	60-29-7	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
Diisopropyl Ether	108-20-3	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
Ethylbenzene	100-41-4	ug/kg	500,000	500,000	1,000,000	1,000,000	1,000,000	3,000,000	57 U	**3,700**	**1.5**	0.79 U	**10,000**	**110**	**700**	0.75 U
Hexachlorobutadiene	87-68-3	ug/kg	30,000	30,000	100,000	100,000	100,000	100,000	230 U	4,900 U	4.3 U	3.2 U	960 U	230 U	210 U	3 U
Isopropylbenzene	98-82-8	ug/kg	--	--	--	--	--	--	**62**	**10,000**	1.1 U	0.79 U	**3,300**	**790**	**110**	0.75 U
m,p-Xylene	179601-23-1	ug/kg	100,000	500,000	100,000	1,000,000	100,000	3,000,000	**170**	**61,000**	**19**	1.6 U	**67,000**	**12,000**	**2,600**	1.5 U
Methyl tert-butyl ether	1634-04-4	ug/kg	100,000	100,000	100,000	500,000	100,000	500,000	110 U	2,400 U	**34**	1.6 U	480 U	**140**	100 U	1.5 U
Methylene chloride	75-09-2	ug/kg	4,000	400,000	4,000	700,000	4,000	700,000	280 U	6,100 U	5.4 U	3.9 U	1,200 U	290 U	260 U	3.8 U
Naphthalene	91-20-3	ug/kg	20,000	500,000	20,000	1,000,000	20,000	3,000,000	230 U	**63,000**	4.3 U	3.2 U	**19,000**	**1,400**	**880**	3 U
n-Butylbenzene	104-51-8	ug/kg	--	--	--	--	--	--	**170**	**21,000**	1.1 U	0.79 U	**4,400**	**170**	**98**	0.75 U
n-Propylbenzene	103-65-1	ug/kg	--	--	--	--	--	--	**190**	**38,000**	1.1 U	0.79 U	**11,000**	**1,900**	**220**	0.75 U
o-Xylene	95-47-6	ug/kg	100,000	500,000	100,000	1,000,000	100,000	3,000,000	**150**	1,200 U	**2.3**	0.79 U	**12,000**	**68**	**1,000**	0.75 U
sec-Butylbenzene	135-98-8	ug/kg	--	--	--	--	--	--	**66**	**8,200**	1.1 U	0.79 U	**1,500**	**140**	**89**	0.75 U
Styrene	100-42-5	ug/kg	4,000	70,000	4,000	300,000	4,000	2,000,000	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
tert-Amyl methyl ether	994-05-8	ug/kg	--	--	--	--	--	--	110 U	2,400 U	**3.8**	1.6 U	480 U	110 U	100 U	1.5 U
Tert-Butyl Ethyl Ether	637-92-3	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
tert-Butylbenzene	98-06-6	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
Tetrachloroethene	127-18-4	ug/kg	10,000	30,000	10,000	200,000	10,000	1,000,000	28 U	610 U	0.54 U	0.39 U	120 U	29 U	26 U	0.38 U
Tetrahydrofuran	109-99-9	ug/kg	--	--	--	--	--	--	230 U	4,900 U	4.3 U	3.2 U	960 U	230 U	210 U	3 U
Toluene	108-88-3	ug/kg	500,000	500,000	1,000,000	1,000,000	2,000,000	3,000,000	57 U	1,200 U	**19**	0.79 U	240 U	57 U	**520**	0.75 U
trans-1,2-Dichloroethene	156-60-5	ug/kg	1,000	500,000	1,000	1,000,000	1,000	3,000,000	86 U	1,800 U	1.6 U	1.2 U	360 U	86 U	79 U	1.1 U
trans-1,3-Dichloropropene	10061-02-6	ug/kg	--	--	--	--	--	--	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
Trichloroethene	79-01-6	ug/kg	300	30,000	300	60,000	300	60,000	28 U	610 U	0.54 U	0.39 U	120 U	29 U	26 U	0.38 U
Trichlorofluoromethane	75-69-4	ug/kg	--	--	--	--	--	--	230 U	4,900 U	4.3 U	3.2 U	960 U	230 U	210 U	3 U
Vinyl chloride	75-01-4	ug/kg	700	1,000	700	7,000	700	60,000	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
Xylene (total)	1330-20-7	ug/kg	100,000	500,000	100,000	1,000,000	100,000	3,000,000	**320**	**61,000**	**21**	0.79 U	**79,000**	**12,000**	**3,600**	0.75 U
Pesticides/PCBs																
Aroclor 1016	12674-11-2	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	189 U	38.3 U	802 U	37.6 U	36.2 U	41.5 U	730 U	35.8 U
Aroclor 1221	11104-28-2	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	189 U	38.3 U	802 U	37.6 U	36.2 U	41.5 U	730 U	35.8 U
Aroclor 1232	11141-16-5	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	189 U	38.3 U	802 U	37.6 U	36.2 U	41.5 U	730 U	35.8 U
Aroclor 1242	53469-21-9	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	189 U	38.3 U	802 U	37.6 U	36.2 U	41.5 U	730 U	35.8 U
Aroclor 1248	12672-29-6	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	189 U	**200**	802 U	37.6 U	36.2 U	41.5 U	730 U	35.8 U
Aroclor 1254	11097-69-1	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	189 U	**105**	802 U	37.6 U	36.2 U	41.5 U	730 U	35.8 U
Aroclor 1260	11096-82-5	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	189 U	**132**	**3,980**	37.6 U	36.2 U	**155**	730 U	35.8 U
Aroclor 1262	37324-23-5	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	189 U	38.3 U	802 U	37.6 U	36.2 U	41.5 U	730 U	35.8 U
Aroclor 1268	11100-14-4	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	189 U	38.3 U	802 U	37.6 U	36.2 U	41.5 U	730 U	35.8 U
Aroclor, Total	AROCLORTOT	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	189 U	**437**	**3,980**	37.6 U	36.2 U	**155**	730 U	35.8 U
Metals																
Antimony	7440-36-0	mg/kg	20	20	30	30	30	30	2.28 U	2.26 U	2.43 U	2.24 U	2.22 U	2.43 U	**9.01**	2.13 U
Arsenic	7440-38-2	mg/kg	20	20	20	20	50	50	**11.3**	**6.26**	**10.8**	**7.91**	**6.19**	**14.5**	**49.6**	**7.08**
Beryllium	7440-41-7	mg/kg	90	90	200	200	200	200	**0.511**	**0.602**	**0.394**	**0.986**	**0.484**	**0.573**	**0.364**	**0.634**
Cadmium	7440-43-9	mg/kg	70	70	100	100	100	100	0.456 U	0.453 U	**2**	0.448 U	0.444 U	0.485 U	**1.57**	0.426 U
Chromium	7440-47-3	mg/kg	100	100	200	200	200	200	**26.3**	**31.5**	**26.1**	**47.8**	**35.1**	**31.1**	**20.8**	**22.7**

From Nobis

Table 6-1
Summary of Historical Soil Sample Results
Former L and M Service Station
Lunenburg, MA

Sub-Unit or Sub-Area									Not Specified							
Location									**B-101**	**B-102**	**B-103**	**B-104**	**B-105**	**B-106**	**B-107**	**B-108**
Depth Interval									**15 - 18 ft**	**13 - 15 ft**	**13 - 15 ft**	**10 - 12 ft**	**12.5 - 17.5 ft**	**12.5 - 15 ft**	**8 - 10 ft**	**15 - 17.5 ft**
Sample Date									**08/06/2020**	**08/06/2020**	**08/06/2020**	**08/06/2020**	**08/06/2020**	**08/06/2020**	**08/06/2020**	**08/06/2020**
Sample Type									**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical/Sample ID	**CAS Number**	**Units**	**MA S-1/GW-2**	**MA S-1/GW-3**	**MA S-2/GW-2**	**MA S-2/GW-3**	**MA S-3/GW-2**	**MA S-3/GW-3**	**B-101 15-18**	**B-102 13-15**	**B-103 13-15**	**B-104 10-12**	**B-105 12.5-17.5**	**B-106 12.5-15**	**B-107 8-10**	**B-108 15-17.5**
Copper	7440-50-8	mg/kg	--	--	--	--	--	--	**8.32**	**7.6**	**23.8**	**14.8**	**9.45**	**5.8**	**982**	**7.94**
Lead	7439-92-1	mg/kg	200	200	600	600	600	600	**31.1**	**40.4**	**169**	**5.68**	**12.9**	**108**	**477**	**3.66**
Mercury	7439-97-6	mg/kg	20	20	30	30	30	30	0.085 U	0.087 U	0.089 U	0.083 U	0.082 U	0.092 U	**2.92**	0.08 U
Nickel	7440-02-0	mg/kg	600	600	1,000	1,000	1,000	1,000	**15.8**	**17.4**	**15.1**	**31.4**	**22.6**	**14.1**	**17.4**	**15.8**
Selenium	7782-49-2	mg/kg	400	400	700	700	700	700	2.28 U	2.26 U	2.43 U	2.24 U	2.22 U	2.43 U	**11.5**	2.13 U
Silver	7440-22-4	mg/kg	100	100	200	200	200	200	0.456 U	0.453 U	0.487 U	0.448 U	0.444 U	0.485 U	0.428 U	0.426 U
Thallium	7440-28-0	mg/kg	8	8	60	60	80	80	2.28 U	2.26 U	2.43 U	2.24 U	2.22 U	2.43 U	2.14 U	2.13 U
Zinc	7440-66-6	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	**48.1**	**39.6**	**60.9**	**38.5**	**48.2**	**34.6**	**501**	**21.6**
General Chemistry																
Total Solids	TSOLIDS	%	--	--	--	--	--	--	**85.5**	**85.3**	**81.3**	**87.7**	**88.8**	**79.3**	**90.6**	**90.9**
EPH																
2-Methylnaphthalene	91-57-6	mg/kg	80	300	80	500	80	500	1.93 U	**15.6**	2.04 U	0.375 U	**0.54**	**0.972**	7.18 U	0.352 U
Acenaphthene	83-32-9	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Acenaphthylene	208-96-8	mg/kg	600	10	600	10	600	10	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Anthracene	120-12-7	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Benzo(a)anthracene	56-55-3	mg/kg	7	7	40	40	300	300	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Benzo(a)pyrene	50-32-8	mg/kg	2	2	7	7	30	30	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Benzo(b)fluoranthene	205-99-2	mg/kg	7	7	40	40	300	300	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Benzo(g,h,i)perylene	191-24-2	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Benzo(k)fluoranthene	207-08-9	mg/kg	70	70	400	400	3,000	3,000	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
C11-C22 Aromatics	C11-C22-AR	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	**570**	**382**	**1,060**	7.51 U	**20.8**	**294**	**6,620**	7.05 U
C11-C22 Aromatics (adjusted)	STL00203	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	**568**	**366**	**1,060**	7.51 U	**18.7**	**292**	**6,620**	7.05 U
C19-C36 Aliphatics	C19-C36-AL	mg/kg	3,000	3,000	5,000	5,000	5,000	5,000	**5,540**	**1,740**	**3,130**	7.51 U	**23**	**2,320**	**21,200**	7.05 U
C9-C18 Aliphatics	C9-C18-AL	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	**160**	**606**	**70.4**	7.51 U	**15.8**	**118**	**672**	7.05 U
Chrysene	218-01-9	mg/kg	70	70	400	400	3,000	3,000	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Dibenz(a,h)anthracene	53-70-3	mg/kg	0.7	0.7	4	4	30	30	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Fluoranthene	206-44-0	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Fluorene	86-73-7	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	7	7	40	40	300	300	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Naphthalene	91-20-3	mg/kg	20	500	20	1,000	20	3,000	**2.06**	0.752 U	2.04 U	0.375 U	**1.5**	**1.41**	7.18 U	0.352 U
Phenanthrene	85-01-8	mg/kg	500	500	1,000	1,000	3,000	3,000	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Pyrene	129-00-0	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	**7.26**	0.352 U
VPH																
Benzene	71-43-2	mg/kg	40	40	200	200	400	1,000	0.114 U	1.22 U	**0.171**	0.094 U	**0.745**	**0.414**	**0.643**	0.088 U
C5-C8 Aliphatics	C5-C8-AL	mg/kg	100	100	500	500	500	500	**7.32**	**467**	7.22 U	4.68 U	**208**	**16.8**	**37.2**	4.4 U
C5-C8 Aliphatics (adjusted)	STL00041	mg/kg	100	100	500	500	500	500	**7.32**	**467**	7.22 U	4.68 U	**207**	**16.2**	**35.7**	4.4 U
C9-C10 Aromatics	C9-C10-AR	mg/kg	100	100	500	500	500	500	**45.8**	**1,220**	**9.13**	4.68 U	**416**	**36.9**	**35.8**	4.4 U
C9-C12 Aliphatics	C9-C12-AL	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	**52.4**	**1,570**	**10.5**	4.68 U	**608**	**47.3**	**51.6**	4.4 U
C9-C12 Aliphatics (adjusted)	STL00106	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	**6.19**	**290**	7.22 U	4.68 U	**109**	5.74 U	**11.1**	4.4 U
Ethylbenzene	100-41-4	mg/kg	500	500	1,000	1,000	1,000	3,000	0.114 U	1.22 U	0.144 U	0.094 U	**14.1**	0.115 U	**0.862**	0.088 U
m,p-Xylene	179601-23-1	mg/kg	100	500	100	1,000	100	3,000	**0.149**	**51.4**	**1.34**	0.094 U	**57.7**	**10.8**	**2.7**	0.088 U
Methyl tert-butyl ether	1634-04-4	mg/kg	100	100	100	500	100	500	0.057 U	0.608 U	**0.144**	0.047 U	0.239 U	**0.203**	**0.288**	0.044 U
Naphthalene	91-20-3	mg/kg	20	500	20	1,000	20	3,000	**0.366**	**47.8**	**0.386**	0.187 U	**17.2**	**1.28**	**0.71**	0.176 U
o-Xylene	95-47-6	mg/kg	100	500	100	1,000	100	3,000	**0.225**	**9.07**	**0.148**	0.094 U	**11.3**	0.115 U	**1.05**	0.088 U
Toluene	108-88-3	mg/kg	500	500	1,000	1,000	2,000	3,000	0.114 U	1.22 U	**1.03**	0.094 U	0.478 U	0.115 U	**0.572**	0.088 U

Notes:
Color= PAL Exceeded
Bold=Detected
NA=Not Analyzed
=-- PAL not established for this chemica
Historical results from a Phase II Environmental Site Assessment prepared by Beta Group, Inc. dated November 19, 2002.

From Nobis

Appendix A
BWSC Transmittal Form

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

Immediate Response Action (IRA) Transmittal Form
Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

BWSC 105

Release Tracking Number
2 - 22322

A. SITE LOCATION:

1. Release Name/Location Aid: FORMER GAS STATION

2. Street Address: 925 MASSACHUSETTS AVE

3. City/Town: LUNENBURG 4. Zip Code: 014620000

☐ 5. Check here if this location is Adequately Regulated, pursuant to 310 CMR 40.0110-0114.

☐ a. CERCLA ☐ b. HSWA Corrective Action ☐ c. Solid Waste Management

☐ d. RCRA State Program (21C Facilities)

B. THIS FORM IS BEING USED TO: (check all that apply)

1. List Submittal Date of Initial IRA Written Plan (if previously submitted): _____

☐ 2. Submit an **Initial IRA Plan**.

☐ 3. Submit a **Modified IRA Plan** of a previously submitted written IRA Plan.

☐ 4. Submit an **Imminent Hazard Evaluation**. (check one)

☐ a. An Imminent Hazard exists in connection with this Release or Threat of Release.

☐ b. An Imminent Hazard does not exist in connection with this Release or Threat of Release.

☐ c. It is unknown whether an Imminent Hazard exists in connection with this Release or Threat of Release, and further assessment activities will be undertaken.

☐ d. It is unknown whether an Imminent Hazard exists in connection with this Release or Threat of Release. However, response actions will address those conditions that could pose an Imminent Hazard.

☐ 5. Submit a request to **Terminate an Active Remedial System or Response Action(s) Taken to Address an Imminent Hazard**.

☐ 6. Submit an **IRA Status Report**

☐ 7. Submit a **Remedial Monitoring Report**. (This report can only be submitted through eDEP.)

a. Type of Report: (check one) ☐ i. Initial Report ☐ ii. Interim Report ☐ iii. Final Report

b. Frequency of Submittal: (check all that apply)

☐ i. A Remedial Monitoring Report(s) submitted monthly to address an Imminent Hazard.

☐ ii. A Remedial Monitoring Report(s) submitted monthly to address a Condition of Substantial Release Migration.

☐ iii. A Remedial Monitoring Report(s) submitted every six months, concurrent with an IRA Status Report.

☐ iv. A Remedial Monitoring Report(s) submitted annually, concurrent with an IRA Status Report.

c. Number of Remedial Systems, Active Exposure Pathway Mitigation Measures and/or Monitoring Programs: _____

A separate BWSC105A, IRA Remedial Monitoring Report, must be filled out for each Remedial System and/or Monitoring Program addressed by this transmittal form.

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☑ 8. Submit an **IRA Completion Statement**.

☐ a. Check here if future response actions addressing this Release or Threat of Release notification condition will be conducted as part of the Response Actions planned or ongoing at a Site that has already been Tier Classified under a different Release Tracking Number (RTN)

b. Provide Release Tracking Number of Tier Classified Site (Primary RTN): _____ _____

These additional response actions must occur according to the deadlines applicable to the Primary RTN. Use the Primary RTN when making all future submittals for the site unless specifically relating to this Immediate Response Action.

☐ 9. Submit a **Revised IRA Completion Statement**.

☐ 10. Submit a **Plan for the Application of Remedial Additives** near a sensitive receptor, pursuant to 310 CMR 40.0046(3).

(All sections of this transmittal form must be filled out unless otherwise noted above)

C. RELEASE OR THREAT OF RELEASE (TOR) CONDITIONS THAT WARRANT IRA:

1. Media Impacted and Receptors Affected: (check all that apply)
☐ a. Paved Surface ☐ b. Basement ☐ c. School
☐ d. Public Water Supply ☐ e. Surface Water ☐ f. Zone 2 ☐ g. Private Well ☐ h. Residence ☑ i. Soil
☑ j. Groundwater ☐ k. Sediments ☐ l. Wetland ☐ m. Storm Drain ☐ n. Indoor Air ☐ o. Air
☐ p. Soil Gas ☐ q. Sub-Slab Soil Gas ☐ r. Critical Exposure Pathway ☐ s. NAPL ☐ t. Unknown
☐ r. Others Specify: _____

2. Sources of the Release or TOR: (check all that apply)
☐ a. Transformer ☐ b. Fuel Tank ☐ c. Pipe
☐ d. OHM Delivery ☐ e. AST ☐ f. Drums ☐ g. Tanker Truck ☐ h. Hose ☐ i. Line
☑ j. UST Describe: Tank ☐ k. Vehicle ☐ l. Boat/Vessel
☐ m. Unknown ☐ n. Other: _____

3. Type of Release or TOR: (check all that apply)
☐ a. Dumping ☐ b. Fire ☐ c. AST Removal ☐ d. Overfill
☐ e. Rupture ☐ f. Vehicle Accident ☐ g. Leak ☐ h. Spill ☐ i. Test failure ☐ j. TOR Only
☑ k. UST Removal Describe: Other UST Removal related event
☐ l. Unknown ☐ m. Other: _____

4. Identify Oils and Hazardous Materials Released: (check all that apply)
☑ a. Oils ☐ b. Chlorinated Solvents
☐ c. Heavy Metals ☐ d. Others Specify: _____

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D. DESCRIPTION OF RESPONSE ACTIONS: (check all that apply, for volumes list cumulative amounts)

☑ 1. Assessment and/or Monitoring Only
☐ 2. Temporary Covers or Caps
☐ 3. Deployment of Absorbent or Containment Materials
☐ 4. Temporary Water Supplies
☐ 5. Structure Venting System/HVAC Modification System
☐ 6. Temporary Evacuation or Relocation of Residents
☐ 7. Product or NAPL Recovery
☐ 8. Fencing and Sign Posting
☐ 9. Groundwater Treatment Systems
☐ 10. Soil Vapor Extraction
☐ 11. Remedial Additives
☐ 12. Air Sparging
☐ 13. Active Exposure Pathway Mitigation System
☐ 14. Passive Exposure Pathway Mitigation System

D. DESCRIPTION OF RESPONSE ACTIONS: (cont.)

☑ 15. Excavation of Contaminated Soils.

☑ a. Re-use, Recycling or Treatment ☐ i. On Site Estimated volume in cubic yards _____

☑ ii. Off Site Estimated volume in cubic yards 80

iia. Receiving Facility: ONDRICK MATERIALS AND RECYCLING Town: CHICOPEE State: MA

iib. Receiving Facility: _____ Town: _____ State: _____

iii. Describe: _____

☐ b. Store ☐ i. On Site Estimated volume in cubic yards _____

☐ ii. Off Site Estimated volume in cubic yards _____

iia. Receiving Facility: _____ Town: _____ State: _____

iib. Receiving Facility: _____ Town: _____ State: _____

☐ c. Landfill ☐ i. Cover Estimated volume in cubic yards _____

Receiving Facility: _____ Town: _____ State: _____

☐ ii. Disposal Estimated volume in cubic yards _____

Receiving Facility: _____ Town: _____ State: _____

☐ 16. Removal of Drums, Tanks, or Containers:

a. Describe Quantity and Amount: _____

b. Receiving Facility: _____ Town: _____ State: _____

c. Receiving Facility: _____ Town: _____ State: _____

☑ 17. Removal of Other Contaminated Media:

a. Specify Type and Volume: 125 GALLONS OF OIL FROM TANKS AND 200 GALLONS OF GASOLINE FORM TANKS

☐ 18. Other Response Actions:

Describe: _____

☐ 19. Use of Innovative Technologies:

Describe: _____

DRAFT COPY

E. LSP SIGNATURE AND STAMP:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this transmittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisionsof 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief,

> if Section B of this form indicates that an **Immediate Response Action Plan** is being submitted, the response action(s) that is(are) the subject of this submittal (i) has (have) been developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is(are) appropriate and reasonable to accomplish thepurposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) complies(y) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B of this form indicates that an **Imminent Hazard Evaluation** is being submitted, this Imminent Hazard Evaluation was developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and the assessment activity(ies) undertaken to support this Imminent Hazard Evaluation comply(ies) with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000;

> if Section B of this form indicates that an **Immediate Response Action Status Report** and/or a **Remedial Monitoring Report** is(are) being submitted, the response action(s) that is (are) the subject of this submittal (i) is (are) being implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000,(ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B of this form indicates that an **Immediate Response Action Completion Statement** or a request to **Terminate an Active Remedial System or Response Action(s) Taken to Address an Imminent Hazard** is being submitted, the response action(s) that is(are) the subject of this submittal (i) has (have) been developed and implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is(are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

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1. LSP #: 2039

2. First Name: JOSEPH R 3. Last Name: MCLOUGHLIN

4. Telephone: 401-434-5560 5. Ext: 6. Email: jmcloughlin@beta-inc.com

7. Signature:

8. Date: *(mm/dd/yyyy)* 9. LSP Stamp:

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

Immediate Response Action (IRA) Transmittal Form
Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

BWSC 105

Release Tracking Number
2 - 22322

F. PERSON UNDERTAKING IRA:

1. Check all that apply: ☐ a. change in contact name ☑ b. change of address ☐ c. change in the person undertaking response actions

2. Name of Organization: TOWN OF LUNENBURG

3. Contact First Name: HEATHER 4. Last Name: LEMIEUX

5. Street: 17 MAIN STREET 6. Title:

7. City/Town: LUNENBURG 8. State: MA 9. Zip Code: 014620000

10. Telephone: 978-582-4130 11. Ext: 12. Email: HLEMIEUX@LUNENBURGMA.GOV

G. RELATIONSHIP TO RELEASE OR THREAT OF RELEASE OF PERSON UNDERTAKING IRA:

☑ Check here to change relationship

☐ 1. RP or PRP ☐ a. Owner ☐ b. Operator ☐ c. Generator ☐ d. Transporter

☐ e. Other RP or PRP Specify Relationship:

☑ 2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)

☐ 3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))

☐ 4. Any Other Person Undertaking Response Actions: Specify Relationship:

H. REQUIRED ATTACHMENT AND SUBMITTALS:

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☐ 1. Check here if any Remediation Waste, generated as a result of this IRA, will be stored, treated, managed, recycled or reused at the site following submission of the IRA Completion Statement. If this box is checked, you must submit one of the following plans, along with the appropriate transmittal form:

☐ a. A Release Abatement Measure (RAM) Plan (BWSC106) ☐ b. Phase IV Remedy Implementation Plan (BWSC108)

☐ 2. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by MassDEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.

☐ 3. Check here to certify that the Chief Municipal Officer and the Local Board of Health were notified of the implementation of an Immediate Response Action taken to control, prevent, abate or eliminate an Imminent Hazard.

☐ 4. Check here to certify that the Chief Municipal Officer and the Local Boardof Health were notified of the submittal of a Completion Statement for an Immediate Response Action taken to control, prevent, abate or eliminate an Imminent Hazard.

☐ 5. Check here if any non-updatable information provided on this form is incorrect, e.g. Release Address/Location Aid. Send corrections to BWSC.eDEP@Mass.Gov.

☑ 6. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

Immediate Response Action (IRA) Transmittal Form
Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

BWSC 105

Release Tracking Number
2 - 22322

I. CERTIFICATION OF PERSON UNDERTAKING IRA:

1. I, _____, attest under the pains and penalties of perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form; (ii) that, based on my inquiry of the/those individual(s) immediately responsible for obtaining the information, the material information contained herein is, to the best of my knowledge, information and belief, true, accurate and complete; (iii) that, to the best of my knowledge, information and belief, I/the person(s) or entity(ies) on whose behalf this submittal is made satisfy(ies) the criteria in 310 CMR 40.0183(2); (iv) that I/the person(s) or entity(ies) on whose behalf this submittal is made have provided notice in accordance with 310 CMR 40.0183(5); and (v) that I am fully authorized to make this attestation on behalf of the person(s) or entity(ies) legally responsible for this submittal. I/the person(s) or entity(ies) on whose behalf this submittal is made is/are aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: _____ 3. Title: _____

4. For: TOWN OF LUNENBURG 5. Date: _____ (mm/dd/yyyy)

☐ 6. Check here if the address of the person providing certification is different from address recorded in Section F.

7. Street: _____

8. City/Town: _____ 9. State: _____ 10. Zip Code: _____

11. Telephone: _____ 12. Ext: _____ 13. Email: _____

YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO $10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.

Date Stamp (DEP USE ONLY)

DRAFT COPY

Appendix B
Tax Lien Judgement Documentation

COPPOLA AND COPPOLA

ATTORNEYS AND COUNSELLORS-AT-LAW
40 SOUTH STREET, MARBLEHEAD, MA 01945

JAMES E. COPPOLA, JR.
DAVID J. COPPOLA
ELAINE A. BYRNE

PH (781) 639-0140
FAX (781) 639-4416

August 5, 2022



Ms. Myleen Mallari
Town Treasurer/Collector
17 Main Street
P.O. Box 135
Lunenburg, MA 01462

Dear Ms. Mallari:

Enclosed herewith please find the judgment in the Town's tax lien case No. 19 TL 000086, against L & M Service Center, Inc., as Trustee of the 925 Massachusetts Avenue Realty Trust, covering the property at 925 Mass. Ave. (bldgs.), Ass: 071-0094-00.

The judgment was recorded on July 18, 2022 in Book 10378, Page 47.

Very truly yours,

JEC:Jr.:ka
Enclosure

[SEAL]

Bk 10378 Pg47 #12889
07-18-2022 @ 10:31a
Bk 10378 Pg47

JUDGMENT IN TAX LIEN CASE

DOCKET NUMBER: 19 TL 0000[illegible]

Commonwealth of Massachusetts
Land Court
Department of the Trial Court

CASE NAME

Town of Lunenberg, Plaintiff(s)

v.

L&M Service Center, Inc., as Trustee of the 925 Massachusetts Avenue Realty Trust, Defendant(s)

After consideration by the Court, it is **ADJUDGED** and **ORDERED** that all rights of redemption are forever foreclosed and barred under the following instruments:

Land Type	Instrument Date	Book Number	Page Number	Document Number	Certificate of Title Number
Recorded	07/01/2005	5825	199		

This Judgment must be recorded and/or registered by the Plaintiff in the appropriate Registry of Deeds and/or Registration District pursuant to G. L. c. 60, § 75.

Property Address: 925 Mass Ave., Lunenburg, MA

By the Court: Deborah J. Patterson

Attest: A TRUE COPY
ATTEST:
Deborah J. Patterson
RECORDER

ATTEST NO. WORC. REGISTRY OF DEEDS
KATHLEEN REYNOLDS DAIGNEAULT, REGISTER

Deborah J. Patterson

DATE ENTERED: 07/06/2022 | **RECORDER:** Deborah J. Patterson

Appendix C
Nobis Report

TARGETED BROWNFIELDS ASSESSMENT REPORT

FORMER L&M SERVICE STATION
925 MASSACHUSETTS AVENUE
LUNENBURG, MASSACHUSETTS

Prepared For:
U.S. Environmental Protection Agency (EPA)
Region I
Land, Chemicals, and Redevelopment Division
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3912

EPA CONTRACT NO. 68HE0122D0001
TASK ORDER NO. 68HE0122F0044

Submitted By:
KGSNE JV II, LLC
293 Boston Post Road, West, Suite 100
Marlborough, MA 01752

Submittal Date: January 22, 2024

Region I START
Reviewed and Approved:

Stephanie Stone — 01/22/2024
Stephanie Stone, Staff Scientist — Date

Adam N. Roy — 01/22/2024
Adam N. Roy, LSP, CHMM, Senior Project Manager — Date

TABLE OF CONTENTS
TARGETED BROWNFIELDS ASSESSMENT
FORMER L&M SERVICE STATION
LUNENBURG, MASSACHUSETTS

SECTION **PAGE**

EXECUTIVE SUMMARY 1

1.0 INTRODUCTION 4
1.1 Work Assignment and Report Purpose 4
1.2 Report Organization 4
1.3 Site Background 5
1.3.1 Site Location and Description 5
1.3.2 Site History 5
1.4 Previous Investigations 6

2.0 TARGETED BROWNFIELDS ASSESSMENT INVESTIGATION 6
2.1 Field Investigations and Technical Approach 6
2.2 Groundwater Sampling 7
2.3 UST Removal 9
2.4 Soil Boring Advancement and Monitoring Well Installation 12
2.5 Monitoring Well Elevation and Groundwater Elevation Survey 13
2.6 Hydraulic Lift, Floor Drain Holding Tank Removal, and Floor Drain Closure 14

3.0 SUMMARY OF TBA SAMPLING RESULTS 15
3.1 Applicable MCP Soil and Groundwater Categories 15
3.2 Soil Sample Results 16
3.2.1 Summary of VPH Sample Results 17
3.2.2 Summary of EPH Sample Results 17
3.2.3 Summary of PCB Sample Results 17
3.2.4 Summary of Metals Sample Results 17
3.3 Groundwater Sample Results 18
3.3.1 Summary of VPH Sample Results 18
3.3.2 Summary of EPH Sample Results 18
3.3.3 Summary of Metals Sample Results 18
3.4 Data Validation 19

4.0 NATURE AND EXTENT OF CONTAMINATION 19
4.1 Nature and Extent of Soil Contamination 19
4.2 Nature and Extent of Groundwater Contamination 20

5.0 WASTE DISPOSAL SUMMARY 21

6.0 ANALYSIS OF BROWNFIELDS CLEANUP ALTERNATIVES 21
6.1 In Situ Remedial Alternatives 23
6.1.1 Monitored Natural Attenuation 23
6.1.2 Enhanced Aerobic Bioremediation 23
6.1.3 Chemical Oxidation 24
6.2 Evaluation of Remedial Alternatives 24

TABLE OF CONTENTS (cont.)
TARGETED BROWNFIELDS ASSESSMENT
FORMER L&M SERVICE STATION
LUNENBURG, MASSACHUSETTS

SECTION **PAGE**

6.2.1 Alternative 1: Monitored Natural Attenuation 25
6.2.2 Alternative 2: Enhanced Aerobic Bioremediation..... 26
6.2.3 Alternative 3: In Situ Chemical Oxidation 27
6.3 Remedial Alternative Recommendation 28

7.0 SUMMARY AND CONCLUSIONS 29

7.0 REFERENCES 32

TABLES

NUMBER

3-1 Soil Sample Analytical Results
3-2 Groundwater Sample Analytical Results
6-1 Summary of Historical Soil Sample Results
6-2 Summary of Exposure Point Concentrations and Contaminant of Concern Statistics
6-3 Analysis of Brownfields Cleanup Alternatives Screening Matrix
6-4 Cost Estimate – Remedial Alternative 1 Monitored Natural Attenuation
6-5 Cost Estimate – Remedial Alternative 2 Enhanced Aerobic Bioremediation
6-6 Cost Estimate – Remedial Alternative 3 In Situ Chemical Oxidation

FIGURES

NUMBER

1 Site Locus
2 Site Plan
3 Groundwater Elevation and Contours
4 MassDEP Priority Resource Map

APPENDICES

A Photograph Log
B Low Flow Groundwater Sampling Logs
C Laboratory Analytical Reports
D Soil Boring Logs
E Data Validation Memos
F Waste Disposal Documentation

EXECUTIVE SUMMARY

KGSNE JV II, LLC (KGSNE) completed a Targeted Brownfields Assessment (TBA) at Former L&M Service Station located in Lunenburg, Massachusetts (the Site). The Site consists of one parcel of land (0.191 acres) located at 925 Massachusetts Avenue, in Lunenburg, Massachusetts. The Site is occupied by one building that was formerly used as an automobile service station. The Town of Lunenburg (the Town) is the current owner of the property having completed a tax-taking foreclosure from the former owner of L&M Service Center, Inc. in August 2022. The Site has reportedly operated as a gasoline and automotive repair facility since approximately 1918.

KGSNE completed TBA investigation activities in May, June, and October 2023. The TBA investigations included the following:

- Removal of four underground storage tanks (USTs) that included two 10,000-gallon gasoline USTs, one 3,000-gallon diesel fuel UST, and one 500-gallon heating oil UST.
- Removal of a floor drain holding tank and closure of two floor drains.
- Removal of a hydraulic lift.
- Installation of three new groundwater monitoring wells and collection of groundwater samples from previously existing and newly installed wells.
- Collection of soil and groundwater samples from UST excavations.

The soil and groundwater samples collected during TBA investigations were analyzed for a combination of volatile organic compounds (VOCs), extractable petroleum hydrocarbons (EPH) (plus target polynuclear aromatic hydrocarbons [PAHs]), volatile petroleum hydrocarbons (VPH) (plus target VOCs), polychlorinated biphenyls (PCBs), and Massachusetts Contingency Plan (MCP)-14 metals analysis.

KGSNE performed groundwater sampling at the Site in May, June, and October 2023. Laboratory analysis of groundwater samples collected from location UST-01 detected concentrations of C9-C10 aromatic hydrocarbons above the MCP Method 1 GW-2 standard. Concentrations of C9-C10 and C9-C12 VPH exceeded the MCP Method 1 GW-2 standard in sample MW-106. Low concentrations of EPH compounds were detected in several groundwater samples; however, none of the concentrations exceeded the MCP Method 1 GW-2 and GW-3 standards. Concentrations of lead were detected above the MCP GW-3 standard in groundwater samples

collected from UST-01, MW-101, and MW-103. The sample collected from MW-103 could not be field filtered due to limited water volume in the well on the day of sampling. There were no other metals detected at concentrations that exceed the MCP Method 1 GW-3 groundwater standards.

Concentrations of C5-C8 and C9-C10 hydrocarbon fractions were detected above the MCP Method 1 S-1/GW-2 and S-1/GW-3 standards in the soil sample and corresponding field duplicate collected from MW-106 from 10 to 15 feet bgs. There were no other VPH compounds detected above MCP Method 1 standards in any soil sample collected during the TBA investigation.

Concentrations of EPH C11-C22 hydrocarbon fractions were detected above the MCP method 1 S-1/GW-2 and S-1/GW-3 standards in soil sample HYDLIFT which was collected from the hydraulic lift excavation. The remaining EPH concentrations detected in TBA soil samples did not exceed the applicable MCP Method 1 soil standards.

Arsenic was detected in soil samples UST-01, UST-02 (and corresponding field duplicate), MW-107, and MW-108 at concentrations that exceed the MCP Method 1 S-1 standard. There were no other concentrations of metals detected that exceed MCP Method 1 soil standards.

The 2023 KGSNE TBA soil data and 2020 soil data collected by BETA Group, Inc. (BETA) were used to calculate exposure point concentrations (EPCs) for the Site related contaminants of concern (COCs). The EPCs are the mathematical average of COCs detected at the Site (1/2 detection limit values were used for COCs that were non-detect). All the EPCs for the Site COCs are less than their respective MCP Method 1 Risk Characterization standards. However, 30 percent of the samples in the data set contain arsenic at concentrations that exceed the MCP Method 1 Risk Characterization S-1 soil standard. The MCP states that to use the average concentration as an EPC, 75 percent of the data points must be equal to or less than the applicable standard or risk-based concentration limit [310 CMR 40.0926(3)(b)(1)]. Therefore, additional evaluations are required to determine if there is a site-specific source of arsenic, or if it is attributable to a natural background condition.

Concentrations of VPH that exceed the MCP Method 1 GW-2 standard were detected in the groundwater samples collected from the UST-01 excavation and monitoring well MW-106 and could pose significant risks to human health under future site redevelopment and future use activities at the Site.

KGSNE prepared an Analysis of Brownfields Cleanup Alternatives (ABCA) that describes potential remedial alternatives to achieve a condition of No Significant Risk and a Permanent Solution under the MCP (310 CMR 40.1000). The ABCA notes that there is limited temporal groundwater data available for the Site. Follow up groundwater sampling should be performed to evaluate if MNA is occurring at the site. Some petroleum source material was removed during the 2023 TBA UST removal activities which may result in reduced VPH concentrations in groundwater. If it is determined that Remedial Alternative 1 – Monitored Natural Attenuation (MNA) is not occurring, Remedial Alternative 2 – Enhanced Aerobic Bioremediation can be initiated to help accelerate the Site cleanup process.

1.0 INTRODUCTION

This Targeted Brownfields Assessment (TBA) Report was prepared by KGSNE JV II, LLC (KGSNE) for the U.S. Environmental Protection Agency (EPA) under Contract No. 68HE0122D0001, Task Order No. 68HE0122F0044. This report presents the findings from field investigations conducted at the Former L&M Service Station property located at 925 Massachusetts Avenue, Lunenburg, Massachusetts (the Site). A Site Locus Map is included as Figure 1. A Site Plan depicting pertinent site features is included as Figure 2.

1.1 Work Assignment and Report Purpose

This TBA report is based on environmental data collected by KGSNE during multiple field mobilizations completed in 2023. The overall objective of the TBA is to characterize the nature and extent of contamination in soil and groundwater at the Site; and estimate the potential human health risks posed by hazardous substances at the Site. Specific objectives of this TBA were to:

- Compile and evaluate available Site data and obtain soil and groundwater data required to characterize current Site conditions;
- Evaluate if soil and groundwater have been impacted by releases of petroleum hydrocarbons from underground storage tanks (USTs);
- Where possible, delineate the extent of contamination in Site soil and groundwater; and
- Evaluate risks posed by contamination using published state and federal risk-based regulatory standards.

1.2 Report Organization

This TBA report is organized as follows:

- Section 1 provides a description of the Site.
- Section 2 presents details of TBA investigations.
- Section 3 presents laboratory analytical results.
- Section 4 summarizes the current nature and extent of contamination.
- Section 5 summarizes the waste generated during the TBA investigation and summarizes the disposition of the generated waste.
- Section 6 presents cleanup options and approximate cost estimates.

- Section 7 presents conclusions and recommendations.

1.3 Site Background

This section describes the physical characteristics of the Site and surrounding area, as well as the operational history and environmental history of the Site.

1.3.1 Site Location and Description

The Site consists of one approximate 0.19-acre parcel of land located at 925 Massachusetts Avenue, in Lunenburg, Massachusetts. The Site is completed by a 1,792 square-foot, one-story building that was formerly used as an automobile service station.

Residences and commercial businesses are located in the general area of the Site. Residences abut the Site to the east and the Town post office abuts the Site to the west. A wetland area abuts the Site to the north. A residential neighborhood abuts the Site to the south across Massachusetts Ave.

1.3.2 Site History

The Site is currently owned by the Town after completing a tax foreclosure from the former owner L&M Service Center, Inc. in August 2022. The Site has reportedly operated as a gasoline and repair facility since approximately 1918. Available records indicated the presence of two 10,000-gallon gasoline underground storage tanks (USTs), one 4,000-gallon diesel fuel UST, and one 500-gallon heating oil UST at the Site. Additional historical USTs include three gasoline USTs and one waste oil UST that were reportedly removed from the Site in the 1980s. The Site is currently managed by the Massachusetts Department of Environmental Protection (MassDEP) under release tracking number (RTN) 2-16390. The Site is currently Tier Classified as a Tier 1D Site which indicates it is in default status and out of compliance with the Massachusetts Contingency Plan (MCP) (310 CMR 40.0000). Historical investigations have identified concentrations of petroleum hydrocarbons in soil and groundwater at concentrations that exceed applicable MCP standards.

1.4 Previous Investigations

According to a Phase II Environmental Site Assessment (ESA) prepared by BETA Group, Inc. (BETA) dated November 19, 2020 (BETA, 2020), laboratory analysis of soil and groundwater samples during previous investigations have detected concentrations of volatile organic compounds (VOCs), extractable petroleum hydrocarbons (EPH), volatile petroleum hydrocarbons (VPH), polychlorinated biphenyls (PCBs) and metals at concentrations that exceed applicable MCP reporting standards. Concentrations of VOCs, VPH, and EPH are associated with releases from historical USTs and are the contaminants of concern (COCs) for this TBA. Concentrations of PCBs detected in exceedance of MCP reporting standards were identified in soil samples collected B-103 from 12 to 15 feet below grade surface (bgs). The source of PCB contamination is currently unknown.

2.0 TARGETED BROWNFIELDS ASSESSMENT INVESTIGATION

This section describes the environmental investigations performed by KGSNE as part of the TBA. The TBA investigation included the collection of soil and groundwater samples for laboratory analysis. Descriptions of investigation methods and observations are presented in the sections that follow.

2.1 Field Investigations and Technical Approach

KGSNE performed TBA investigations in May, June, and October 2023 to evaluate the presence of contamination in soil and groundwater at the Site. The 2023 TBA investigation was performed in accordance with the EPA-approved Field Task Work Plan/Quality Assurance Project Plan Addendum (FWTP/QAPPA) prepared by KGSNE in May 2023 (KGSNE, 2023). Photographs from TBA field investigations are included in Appendix A.

Soil and groundwater samples were submitted to Eurofins Laboratory of North Kingstown, Rhode Island for laboratory analysis of VPH, EPH, MCP-14 metals, and PCBs. Soil characterization samples for waste disposal were analyzed for VOCs, semi-volatile organic compounds (SVOCs), PCBs, Pesticides, Resource Conservation and Recovery Act Metals, total petroleum hydrocarbons (TPH), specific conductivity, flashpoint, reactivity, corrosivity, and TCLP metals.

2.2 Groundwater Sampling

KGSNE performed groundwater sampling at the Site in May, June, and October 2023. Additional details discussing groundwater sampling activities are provided in the sections that follow.

Groundwater Sampling – May 2023

On May 17, 2023, KGSNE collected groundwater elevation data and groundwater samples from monitoring wells MW-101, MW-103, MW-104, and MW-105. However, KGSNE personnel were unable to locate monitoring well MW-103 due to heavy vegetative cover behind the building.

KGSNE employed the USEPA Region I Low Flow/Low Stress methods to collect groundwater samples from the monitoring wells. KGSNE installed dedicated polyethylene tubing with the intake located approximately two feet off the bottom of the well screen to collect groundwater samples from each well. KGSNE purged monitoring wells using a peristaltic pump. Well drawdown was gauged during purging with an electronic water level probe. Purging rates were maintained at 210 milliliters per minute (ml/min) or less.

KGSNE used a YSI Pro Quatro multi-parameter meter equipped with a flow-through cell and a Geotech turbidity meter to monitor purge water for stabilization of field indicator parameters while purging each well. Both the YSI and turbidity units were calibrated in accordance with manufacturer specifications prior to the start of groundwater sampling activities. Field parameters were monitored at 5-minute intervals until the following stabilization criteria were met for three consecutive readings:

- Temperature did not vary by more than 3 percent;
- Specific conductance did not vary by more than 3 percent;
- pH did not vary by more than 0.1;
- Oxidation-reduction potential (ORP) did not vary by greater than 10 millivolts;
- Dissolved oxygen did not vary by more than 10 percent or greater than 0.5 mg/L; and
- Turbidity measured less than five nephelometric turbidity units (NTUs) or did not vary by more than 10 percent.

Groundwater samples were submitted for laboratory analysis of VPH, EPH, and dissolved MCP metals.

Groundwater Sampling – June 2023

During the UST removal activities (Section 2.3) KGSNE was able to locate MW-103. On June 2, 2023, KGSNE returned to the Site to collect a groundwater sample. KGSNE initiated well purging using USEPA Region 1 Low Flow/Low Stress Methods; however, the well went dry before the first round of water quality readings could be completed. The well was allowed to recharge and then a groundwater sample was collected for laboratory analysis of VPH, EPH, and MCP metals. The well contained insufficient water volume to field filter the metal sample; therefore, the sample was submitted for total metals and not dissolved metals.

Groundwater Sampling – October 2023

On October 26, 2023, KGSNE mobilized to the site and collected Site wide groundwater elevation data and collected groundwater samples from the newly installed monitoring wells MW-106, MW-107, and MW-108. Monitoring well B/MW-102 was not measured during the synoptic round as it could not be located. It was likely covered during excavation of the USTs. KGSNE employed the USEPA Region I Low Flow/Low Stress methods to collect groundwater samples from the monitoring wells.

The following table summarizes the geochemical parameters measured at the time of sample collection.

Monitoring Well	pH (SU)	DO (mg/L)	Spec. Cond. (µS/cm)	ORP (mV)	Turbidity (NTU)
B/MW-101	5.85	0.22	2177	172.3	2.33
B/MW-102	6.47	0.05	1825	-68.3	2.81
B/MW-103	6.34	2.72	1646	133.7	--
B/MW-104	6.44	0.07	2399	11.9	24.8
B/MW-105	6.26	0.20	4053	11.0	7.25
B/MW-106	6.5	0.31	590	135	2.91
B/MW-107	6.56	0.12	502	-91.2	0.74
B/MW-108	6.34	0.79	2745	110.3	4.04

Notes: SU – standard pH units; mg/L – milligrams per liter; µS/cm – microSiemens per centimeter; mV – millivolts; NTU – Nephelometric turbidity units

KGSNE filled laboratory-supplied sample bottles directly from the pump discharge line (groundwater monitoring equipment and associated tubing was disconnected to collect samples). Samples were placed on ice in a cooler, logged on a chain-of-custody form, and delivered to the laboratory under chain-of-custody protocol via courier. Groundwater samples were submitted for

laboratory analysis of VPH, EPH, and MCP-14 Metals (dissolved). Low Flow groundwater sampling logs are included in Appendix B.

2.3 UST Removal

From May 22, through May 30, 2023, KGSNE oversaw the removal of two 10,000-gallon gasoline tanks (UST-01 and UST-02), one 4,000-gallon diesel tank (UST-03) and one 500-gallon heating oil tank (UST-04). Tank removal was completed by Strategic Environmental Services (SES) of Nottingham, New Hampshire. The approximate locations of the USTs are shown on Figure 2.

On May 23, 2023, SES excavated soil to the top of UST-01 and UST-02. A hole was cut into the top of each tank to remove the remaining gasoline product. Both gasoline USTs were observed to have a fiberglass lining. During the excavation for UST-01, broken feed lines that ran to the former pump island were discovered and contained a mixture of residual gasoline and water. The fuel/water mixture from the feed lines was transferred to a 55-gallon drum. Soil staining was noted beneath the former feed lines and a strong petroleum odor was noted. Soil samples were collected for soil headspace screening for total VOCs using a photoionization detector (PID). The PID headspace readings of soil samples collected from around the feed line ranted from 115 parts per million by volume (ppmv) to 1,054 ppmv. KGSNE observed a small crack one on of the joints in the feed line while uncovering UST-02. Soil underlying the cracked joint was slightly discolored and a strong petroleum odor was noted. Residual fuel existed in one of the feed lines connected to UST-02 and approximately 1 gallon of fluid was transferred to a 55-gallon drum after the lines were removed. The PID readings greater than 100 ppmv detected within 10 feet of the UST and greater than 2 feet in depth triggered a 72-hour MCP reporting condition [310 CMR 40.0313(2)]. KGSNE notified the Town's Licensed Site Professional (LSP) who in turn notified the MassDEP. On May 24, 2023, Dino Dellechiaie from MassDEP approved the following Immediate Response Actions (IRA):

- Excavation of up to 300 cubic yards of soil;
- Evaluation of nearby utilities and evaluate lower explosive limit (LEL) conditions; and
- Determine if any private wells are located within 500 feet of the Site.

KGSNE screened nearby storm drains and catch basins with a PID for the presence of petroleum vapors. There were no PID readings detected above 0.0 noted at any location. Town of Lunenberg personnel confirmed that there are no private wells located within 500 feet of the Site. Additional IRA reporting will be performed by the Town's LSP and submitted to MassDEP separate from this TBA.

On May 24, 2023, SES removed a combined 400 gallons of gasoline and water mixture from the two 10,000-gallon tanks and transferred the liquids into tote containers for temporary storage at the Site while the disposal facility profiles were being reviewed by the disposal facility. SES personnel cleaned each of the gasoline tanks with a pressure washer, squeegees, and sorbent pads. Confined space entry was required for UST-01 to remove the fiberglass that lined the inside after it became detached from the tank sidewalls when cutting the hole in the top of the tank.

On May 24, 2023, SES excavated to the top of UST-03 and cut a hole in the top of the UST to remove residual diesel fuel and sludge from the bottom of the tank. Similar to the gasoline USTs, there was an apparent leak at one of the feed line joints that extended to the former fuel dispenser. Approximately one gallon of residual fluids was removed from the feed line and transferred to a 55-gallon drum. SES entered UST-03 using confined space entry procedures to clean the tank with a pressure washer, a squeegee and sorbent pads. Approximately 125 gallons of diesel fuel mixed with water and 30 gallons of sludge were removed from tank bottom. Material was transferred totes and a drum while disposal facility profile review was conducted.

On May 25, 2023, SES initiated removal of UST-01 and 02 by excavating soil from along the sidewalls of each UST. Excavated soils generally consisted of sand and gravel with little silt. Groundwater was encountered during the excavation at approximately 9 feet below grade surface (bgs). Excavation of soils continued until both gasoline USTs were completely exposed and could be removed from the excavation. A representative of the Lunenburg Fire Department was present to observe the UST removal and inspect the condition of the USTs. Both USTs were observed to be in good condition with the exception of some minor corrosion and surficial pitting. Photographs of the UST removals are included in Appendix A. There were no holes or cracks observed on either of the gasoline USTs. Both tanks measured approximately 28 feet long by 9 feet in diameter. The approximate limits of each excavation were 30 feet long by 10 feet wide and 13 feet in depth. There were no deadmen, pads, straps or turn buckles observed upon removal. The feed and return lines were removed at the time of UST removal.

After the USTs were removed from the excavation, KGSNE conducted field screening for total VOCs using an Ion Science Tiger photoionization detector calibrated to an isobutylene gas standard. Soils were screened using the headspace screening method in accordance with the FTWP/QAPPA. PID headspace screening results from the UST graves ranged from 0.4 ppmv to 12.1 ppmv. KGSNE collected one composite soil sample from each UST excavation. The composite sample was generated by collecting soil from along each side wall and the excavation bottom and homogenized to generate the sample aliquot. Samples were analyzed for laboratory analysis for VPH, EPH and MCP-14 metals. KGSNE also collected a grab groundwater sample from each gasoline UST grave using a bailer. The groundwater samples were submitted for laboratory analysis for VPH, EPH and dissolved MCP-14 metals. The gasoline USTs were transported off site by Assured Collision of Walpole, Massachusetts for recycling. A combination of excavated soil and clean off site backfill material was used to backfill the gasoline UST excavations. Native and offsite soil was used to backfill the excavations. Offsite soil was supplied by Powell Stone and Gravel. KGSNE screened excavated soils with a PID prior to placement back into the excavation. Soil with headspace readings of 20 ppmv or less was reused as backfill material. Soils with headspace readings of greater than 20 ppmv were stockpiled for characterization and off-site disposal. A layer of poly was placed in the excavation to segregate the excavated material from the clean off site backfill material.

On May 25, 2023, SES removed UST-03. Lunenberg Fire Department personnel were present to observe the UST removal and tank condition. The UST was observed the UST to be in relatively good condition with minor corrosion and pitting noted. KGSNE collected soil samples from the excavation bottom and sidewalls and performed headspace screening using the PID. The soil headspace screening values from Tank 3 excavation ranged from 19 ppmv to 26 ppmv. KGSNE collected one composite soil sample from the UST grave. The composite sample was generated by collecting soil from along each side wall and the excavation bottom and homogenized to generate the sample aliquot. Samples were submitted for laboratory analysis of VPH, EPH and MCP-14 metals. Groundwater was not encountered in the UST-03 excavation; there for no groundwater sample was collected. KGSNE also collected a soil sample from beneath the former pumping island where the fuel dispensers were located.

On May 26, 2023, SES performed a confined space entry into UST-03 to remove 30 gallons of sludge from the bottom of the tank. UST-03 measured 24 feet in length and 5 feet in diameter. The excavation dimensions were 15 feet in length by 20 feet in width by 8 feet in depth. There

were no pads, straps, turnbuckles or deadmen present upon removal. The feed and return lines were removed. KGSNE screened excavated soils with a PID prior to placement back into the excavation. Soil with headspace readings of 20 ppmv or less was reused as backfill material. Soils with headspace readings of greater than 20 ppmv were stockpiled for characterization and off-site disposal. A layer of poly was placed in the excavation to segregate the excavated material from the clean off site backfill material. Tank 3 was removed from the site by Assured Collision and transported to their facility in Walpole, Massachusetts for recycling.

On May 30, 2023, SES uncovered UST-04. A hole was cut into the top to remove 30 gallons of sludge and oil/water mixture. Lunenberg Fire Department personnel were onsite during the removal activities. KGSNE observed the UST to be in poor condition upon removal including two approximately 1-inch diameter holes near the tank bottom, extensive pitting and corrosion, and some exterior staining. The tank measured 5.5 feet in length and 4 feet in diameter. The excavation extents were 9 feet long by 11 feet wide by 6 feet deep. Groundwater was encountered during the excavation; however, there was insufficient volume to collect a groundwater sample. A composite soil sample was collected from the tank grave using the same procedures as the other USTs. Excavation backfilling was performed consistent with the other UST excavations.

On May 31, 2023, SES transferred UST-04 offsite to Assured Collision in Walpole for recycling.

2.4 Soil Boring Advancement and Monitoring Well Installation

On October 12, 2023, Geosearch, Inc. advanced 3 additional soil borings to approximately 20 feet below grade surface (bgs). Soil borings were advanced using a 7822 DT Geoprobe drilling rig via a direct-push technique. KGSNE visually classified soils in the field using the Modified Burmister Classification System and used a PID to field screen soil samples for the presence of VOCs. One soil sample was collected from each boring based on the highest detection of VOCs. If low PID readings were present, samples were collected where the top of groundwater was observed. The goal of the additional soil borings and monitoring wells was to assess soil and groundwater conditions around and beneath the former USTs. A summary of the maximum PID measurements from each boring is presented below.

Soil Boring	Maximum PID Measurement (ppmv)	Soil Sample Depth (ft bgs)
B-MW-106	486.8	10-15
B-MW-107	44.4	10-15
B-MW-108	None >0	15-18

Notes:
ppmv – parts per million volume

Soil samples from the October sampling event were submitted to Eurofins Laboratory of North Kingstown, Rhode Island for laboratory analysis of VPH, EPH, and MCP-14 metals. Complete laboratory analytical reports are attached as Appendix C and boring logs are attached as Appendix D.

Each soil boring was completed as 2-inch-diameter monitoring wells set at 20 feet bgs. Each well was constructed using a 10-foot 10-slot Schedule 40 polyvinyl chloride (PVC) screen and a 10-foot blank PVC riser. The wells were surrounded by No. 0 filter sand in the uppermost 2-feet above the top of the screen, then sealed with bentonite to approximately 6-inches bgs and completed with a 4-inch diameter steel road box protective casing into a 6-inch-thick concrete pad to secure the monitoring well head.

KGSNE observed groundwater between 11 and 15 feet bgs during boring advancement. Following the installation, KGSNE developed the monitoring wells using a submersible pump to purge groundwater. Water levels measured prior to development were between 7 and 10 feet bgs. Groundwater was purged until visually clear. Monitoring well MW-108 had poor recovery and went dry after approximately 2.2 gallons of groundwater was purged. KGSNE used a surge block and foot valve to manually develop the well, resulting in about 36.5 gallons removed from the well. KGSNE purged Approximately 40 gallons of water from monitoring wells MW-106 and MW-107.

2.5 Monitoring Well Elevation and Groundwater Elevation Survey

On May 31, 2023, KGSNE surveyed the five monitoring wells for elevation data using a laser level. Reference point elevations of the monitoring wells (top of PVC) were surveyed relative to an arbitrary benchmark elevation of 100 feet (front, right corner of the sidewalk in front of the garage on the property).

On October 12, 2023, KGSNE surveyed the three newly installed monitoring wells for elevation data using a laser level. Measurements were documented from two reference points including the top of PVC and top of well casing. Each were surveyed relative to a benchmark elevation of 98.38 feet in reference to MW-104. A summary of monitoring well and groundwater elevation data is presented below using the top of PVC as the measuring point.

Monitoring Well	Date	Depth to Water (ft below MP)*	Measuring Point Elevation (ft)*	Groundwater Elevation (ft)*
B/MW-101	10/12/2023	11.75	99.24	87.49
B/MW-102	10/12/2023	--	--	--
B/MW-103	10/12/2023	13.45	99.49	86.04
B/MW-104	10/12/2023	8.95	98.38	89.43
B/MW-105	10/12/2023	10.16	98.84	88.68
MW-106	10/12/2023	9.97	98.60	88.63
MW-107	10/12/2023	8.18	98.08	89.90
MW-108	10/12/2023	9.15	98.67	89.52

Notes:
* Measuring point elevation is site-specific and based on a benchmark of 100'.
-- B/MW-02 could not be located during the October groundwater sampling event.

The survey information was used in conjunction with groundwater depth information collected during groundwater sampling activities to determine groundwater elevations and create the groundwater contour map included as Figure 3. Based on the information gathered during the TBA investigation and local topography groundwater was determined to flow north towards the wetland area located approximately 250 feet north of the site.

2.6 Hydraulic Lift, Floor Drain Holding Tank Removal, and Floor Drain Closure

From October 30 through November 3, 2023, KGSNE oversaw SES perform the removal of the hydraulic lift and floor drain holding tank and closure of two floor drains.

SES removed the above ground features of the hydraulic lift before excavating approximately 8 ft through the concrete floor to disassemble the remaining lift structure. The excavation into the concrete floor allowed for access to the hydraulic fluid holding tank under the lift. Prior to removing the hydraulic fluid holding tank, the top was cut open, and the remaining hydraulic fluid and sludge were transferred to a 55-gallon drum for characterization for off-site disposal. KGNSE collected one composite soil sample from the excavation bottom and sidewalls. The sample was submitted to Eurofins for laboratory analysis of VPH, EPH, metals, and PCBs.

KGSNE initiated removal of the floor drain holding tank by pumping down approximately 250 gallons of standing water into a storage tote then removing the remaining sludge. KGNSE collected one composite soil sample from the excavation bottom and sidewalls. The sample was submitted to Eurofins for laboratory analysis of VPH, EPH, and metals.

SES closed two floor drains located in the concrete floor in the former automobile service portion of the building. Floor drains were abandoned by blocking the floor drains 12 to 18 inches into the pipe and sealed at the floor grade using neat Portland cement.

3.0 SUMMARY OF TBA SAMPLING RESULTS

KGSNE performed a review of the sampling data generated during the TBA investigation by comparing the concentrations of analytes detected in the laboratory results to applicable MCP Method 1 Risk Characterization Standards. This comparison is intended to support a preliminary evaluation of potential risks associated with contamination and to determine the need for remedial actions or use limitations to facilitate Site reuse or redevelopment.

3.1 Applicable MCP Soil and Groundwater Categories

The MCP soil categories are selected based on potential human exposure considering the accessibility of soils, the frequency and intensity of use, and whether children are present. The Site is currently zoned as Commercial (C) and is currently completed by a vacant building. Portions of the Site soils are considered accessible since asphalt was removed to facilitate the removal of the USTs. Under current use, children and adults are seldom present; therefore, the current frequency of use and intensity of use is considered low. Based on current accessibility and frequency and intensity of use, soil at the Disposal Site is categorized as S-2 and S-3, as defined in the MCP 310 CMR 40.0933. However, KGSNE assumes that the Site will be redeveloped in the future and has conservatively included the S-1 standards (the MCPs most conservative Method 1 soil standards) as part of our data review.

The current and future use of groundwater determines their applicable categories. These categories are used, in turn, to identify applicable Method 1 groundwater and/or soil standards that are used to evaluate risk. MassDEP has established three categories for groundwater, which may apply to a specified volume of groundwater at a Site or to an aquifer taken as a whole. These

groundwater categories were established to identify groundwater associated with the following three distinct types of exposures:

- GW-1 applies to groundwater that is used as a drinking water source or is otherwise assumed to be a potential source of drinking water.
- GW-2 applies to groundwater considered to be a potential source of vapors that could migrate through the subsurface and concentrate in indoor air of onsite buildings.
- GW-3 applies to groundwater that is assumed to discharge to surface water (all groundwater in the Commonwealth meets this criteria).

Based upon the MassDEP Priority Resource Map (Figure 4), the Disposal Site is not located within 500 feet of a Current Drinking Water Source Area or Potential Drinking Water Source Area. Public water serves the Site and all properties within 500 feet of the Disposal Site. Therefore, Groundwater Category GW-1 does not currently apply to the Site.

Groundwater beneath the Site was potentially encountered at approximately 7-13 feet bgs during drilling activities. Even though there are no occupied buildings currently located on the Site, KGSNE has conservatively applied category GW-2 to groundwater beneath the Site.

All groundwater in the Commonwealth is categorized as GW-3, which assumes that Site groundwater will ultimately migrate and discharge to a surface water body. There are wetlands and an unnamed surface water body located approximately 200 feet north of the Site. Based on groundwater elevation data collected by KGSNE during TBA investigations, groundwater beneath the Site flows to the northeast. Therefore, groundwater at the Site is also categorized as GW-3.

3.2 Soil Sample Results

The table below presents a summary of the soil samples collected during KSGNE TBA investigations.

Sample Type/Number of Samples	Laboratory Analyses	Locations on Site
Composite/5	VPH, EPH, and MCP Metals	Total of four composite samples, one collected from each UST excavation sidewalls and bottom. One composite soil sample collected from the floor drain holding tank excavation.

Sample Type/Number of Samples	Laboratory Analyses	Locations on Site
Composite/1	VPH, EPH, MCP Metals, and PCBs.	Composite sample collected from the hydraulic lift excavation.
Discrete Depths/3	VPH, EPH, and MCP Metals	Discrete/targeted depth sample intervals based on PID screening and visual observations during drilling for monitoring well installation.

A summary of laboratory analytical results for samples collected during the TBA investigation are presented below. Soil sample results are summarized in Table 3-1. Laboratory analytical reports are included in Appendix C.

3.2.1 Summary of VPH Sample Results

Concentrations of VPH compounds were detected in every soil sample except for UST-04 and HYDLIFT. Concentrations of C5-C8 and C9-C10 hydrocarbon fractions were detected above the MCP Method 1 S-1/GW-2 and S-1/GW-3 standards in the soil sample and corresponding field duplicate collected from MW-106 from 10 to 15 feet bgs. However, the concentrations do not exceed the MCP S-2 and S-3 soil standards. There were no other VPH compounds detected above MCP Method 1 standards in any sample collected during the TBA investigation.

3.2.2 Summary of EPH Sample Results

Concentrations of C11-C22 hydrocarbon fractions were detected above the MCP method 1 S-1/GW-2 and S-1/GW-3 standards in soil sample HYDLIFT which was collected from the hydraulic lift excavation. However, the concentrations do not exceed the MCP S-2 and S-3 standards. The remaining EPH concentrations detected in TBA soil samples did not exceed the applicable MCP Method 1 soil standards.

3.2.3 Summary of PCB Sample Results

The only sample analyzed for PCBs was the hydraulic lift excavation soil sample (HYDLIFT). PCBs were not detected above the laboratory reporting limits.

3.2.4 Summary of Metals Sample Results

Arsenic was detected in soil samples UST-01, UST-02 (and corresponding field duplicate), MW-107, and MW-108 at concentrations that exceed the MCP Method 1 S-1 and S-2 soil standards.

However, the detected concentrations do not exceed the S-3 soil standards. There were no other concentrations of metals detected that exceed any of the MCP Method 1 soil standards.

3.3 Groundwater Sample Results

The sections below present the laboratory analytical results of groundwater samples collected during TBA investigation activities. KGSNE submitted 5 groundwater samples collected from monitoring wells and 2 groundwater samples collected from the bottom of two UST graves for laboratory analysis of VPH, EPH and metals. Groundwater analytical results are compared to the MCP Method 1 standards for groundwater characterized as GW-2 and GW-3. Groundwater sampling data is summarized on Table 3-2. Copies of laboratory data reports are included in Appendix C.

3.3.1 Summary of VPH Sample Results

Laboratory analysis of groundwater samples collected from location UST-01 detected concentrations of C9-C10 aromatic hydrocarbons above the MCP Method 1 GW-2 standard. Concentrations of C9-C10 and C9-C12 VPH concentrations exceeded the MCP Method 1 standards for GW-2 in sample MW-106. Concentrations of VPH did not exceed the MCP Method 1 GW-3 standard in any sample collected during the TBA investigation.

3.3.2 Summary of EPH Sample Results

Low concentrations of EPH compounds were detected in groundwater samples collected from UST-01 and UST-02 excavations, MW-102, MW-106, and MW-107. However, none of the concentrations exceed the MCP Method 1 GW-2 and GW-3 standards.

3.3.3 Summary of Metals Sample Results

Concentrations of lead were detected above the MCP GW-3 standard in groundwater samples collected from UST-01, MW-101, and MW-103. The sample collected from MW-103 could not be field filtered due to limited water volume in the well on the day of sampling and was analyzed for total metals. There were no other metals detected at concentrations that exceed the MCP Method 1 GW-3 groundwater standards.

3.4 Data Validation

KGSNE performed a Tier 1 Stage 2A data validation in accordance with the *EPA New England Environmental Data Review Supplement for Region 1 Data Review Elements and Superfund Specific Guidance/Procedures* (EPA, 2020); *USEPA's National Functional Guidelines for Inorganic Superfund Methods Data Review* (EPA, 2017a); *USEPA's National Functional Guidelines for Superfund Organic Methods Data Review* (EPA, 2017b); the Massachusetts Department of Environmental Protection's (MassDEP) current Compendium of Quality Control Requirements and Performance Standards for Selected Analytical Protocols (referred to as the Compendium of Analytical Methods) (July, 2010 and updated periodically), and the Program QAPP and the FTWP/QAPPA for the TBA. Data validation was performed on the soil and groundwater and QA/QC samples collected during the TBA. Tier 1 Stage 2A data validation evaluates completeness of the data, holding time and sample preservation compliance, laboratory and field blank results, surrogate recoveries, laboratory control sample results, matrix spike results, laboratory duplicates, serial dilution results, field duplicate precision, dual analytical column precision for PCBs, and percent solids content of the samples. Reporting limits are also evaluated for compliance with site-specific PALs. Results of QA/QC samples were evaluated, and qualification of the data was performed. Limitations and qualification of the data were noted and explained in the data review memorandum provided in Appendix E.

4.0 NATURE AND EXTENT OF CONTAMINATION

A summary of the nature and extent of contamination identified in soil and groundwater beneath the Site is provided in the sections that follow.

4.1 Nature and Extent of Soil Contamination

During excavation activities, KGSNE screened soil samples using an Ion Science Tiger PID calibrated to a 100 ppm isobutylene standard. KGSNE used a correction factor of 0.54 to report screening values in terms of benzene in accordance with the MCP reporting conditions. Elevated PID readings were noted in soil in the excavations around USTs 1, 2 and 3. During the UST removal process clean soil was segregated from contaminated soil. The concentrations of VPH that exceed applicable MCP Method 1 soil standards were limited to the soil sample collected from soil boring MW-106 (located in the former location of UST 01) in a soil sample collected from 10-15 feet bgs. Concentrations of EPH that exceed applicable MCP Method 1 soil standards were

limited to the soil sample collected from the hydraulic lift excavation from approximately 6 to 8 feet bgs. Concentrations of VPH and EPH were detected in several other sample locations throughout the Site; however, they were relatively low and below the applicable MCP Method 1 soil standards. The concentrations of VPH and EPH detected during TBA investigations are likely associated with historical petroleum releases that occurred from historical USTs, UST piping and feed lines to the dispensing island, or small discrete surface spills that occurred during regular historical fueling activities.

Concentrations of arsenic were detected above applicable MCP Method 1 soil standards in soil samples collected from the excavations for UST-01, UST-02, MW-107, and MW-108. Arsenic contamination is not typically associated with releases of gasoline or diesel fuel. The concentrations of arsenic detected during TBA investigations are consistent with the concentrations detected during historical investigations. The concentrations of arsenic detected at the Site may be associated with natural background conditions.

Historical investigations detected concentrations of PCBs above MCP reporting standards in soil samples collected B-103 from 12 to 15 feet bgs. Concentrations of PCBs were not detected above the laboratory reporting limit in the composite soil sample collected from the hydraulic lift excavation. PCB contamination is limited to location B-103 and the source of PCB contamination is currently unknown.

4.2 Nature and Extent of Groundwater Contamination

Concentrations of VPH were detected above applicable MCP Method 1 groundwater standards in the groundwater samples collected from the excavation of UST-01 and monitoring well MW-106 which is located in the former UST-01 excavation. The concentrations of VPH detected in this portion of the Site are likely attributed to releases of gasoline from historical USTs and/or the feed lines to the dispensing island.

Concentrations of dissolved lead were detected above the applicable MCP Method 1 groundwater standard (GW-3) in groundwater samples collected from the excavation of UST-01 and monitoring well MW-101. Concentrations of total lead were detected above MCP Method 1 groundwater standard in the groundwater sample collected from MW-103 (there was insufficient well volume

to field filter the sample). The source of the lead detected in Site groundwater samples is unknown. However, it may be attributable to naturally occurring concentrations of leachable lead.

5.0 WASTE DISPOSAL SUMMARY

The table below summarizes the waste generated for disposal during the TBA investigations. Copies of waste manifests are included in Appendix F.

Waste Profile	Bulk/ Drum	Quantity	Facility	Manifest
Gas/Water Mixture	Totes	400 gallons	Norlite Cohoes, NY	23-0165-NOR-01
Hydraulic Oil Impacted Pads	Drums	3 Drums	EMI South Portland, ME	024331073JJK
Hydraulic Oil Impacted Soil from Lift	Drums	1 Drum	EMI South Portland, ME	024331073JJK
Floor Drain Holding Tank Sludge	Drums	7 Drums	EMI South Portland, ME	024331073JJK
Floor Drain Holding Tank Oily Liquids	Bulk	250 Gallons	EMI South Portland, ME	007378403GBF
Concrete Block Debris stained with Motor Oil	Roll Off	15 Tons	EMI South Portland, ME	23-0165-01
Hydraulic Oil from Lift	Drum	1 Drum	EMI South Portland, ME	024331073JJK
Motor Oil (Abandoned Drum)	Drum	1 Drum	EMI South Portland, ME	024331073JJK
Fuel Oil, Water <5%	TP	125 Gallons	Tradebe Bridgeport, CT	020790255JJK
Petroleum Impacted Absorbents from UST Cleaning	Drum	2 Drums	Tradebe, Newington, NH	016608463FLE
Petroleum Soils	Bulk	117.69 Tons	Ondricks Chicopee, MA	BOLs in eDEP

6.0 ANALYSIS OF BROWNFIELDS CLEANUP ALTERNATIVES

KGSNE evaluated soil and groundwater data collected during TBA investigations (Table 3-1 and Table 3-2, respectively) and historical soil sample results from BETA's 2020 Phase II ESA report (Table 6-1) to generate a list of contaminants of concern (COCs) that may require remediation to achieve site closure under the MCP. The following compounds are considered at the Site:

- Napthalene;
- PCBs (Aroclor 1260);
- Arsenic;

- Lead;
- C11-C22 Aromatic Hydrocarbons;
- C19-C36 Aliphatic Hydrocarbons;
- C5-C8 Aliphatic Hydrocarbons;
- C9-C10 Aromatic Hydrocarbons; and
- C9-C12 Aromatic Hydrocarbons.

The 2023 TBA soil data and 2020 BETA soil data were used to calculate exposure point concentrations for the above COCs. The EPCs are the mathematical average of COCs detected at the Site (1/2 detection limit values were used for COCs that were non-detect). All the EPCs for the Site COCs are less than their respective MCP Method 1 Risk Characterization standards. However, 30 percent of the samples in the data set contain arsenic at concentrations that exceed the MCP Method 1 Risk Characterization S-1 soil standard. The MCP states that to use the average concentration as an EPC, 75 percent of the data points must be equal to or less than the applicable standard or risk-based concentration limit [310 CMR 40.0926(3)(b)(1)]. Therefore, additional evaluations are required to determine if there is a site-specific source of arsenic, or if it is attributable to a natural background condition. A summary of EPC and Site COC statistics are presented in Table 6-2.

Concentrations of VPH that exceed the MCP Method 1 GW-2 standard were detected in the groundwater samples collected from the UST-01 excavation and monitoring well MW-106 and could pose significant risks to human health under future site redevelopment and future use activities at the Site. Additional response actions will be required to achieve a condition of No Significant Risk and a Permanent Solution under the MCP. Any response actions implemented at the Site will require a site-specific risk assessment to determine if a condition of “No Significant Risk” exists at the Site, and to identify which environmental media must be remediated in order to achieve a condition of No Significant Risk. The risk assessment will evaluate the risks residual contamination at the Site pose to human health, welfare, environment, and public safety. The risk assessment will be performed in accordance with either MCP Method 1 (310 CMR 40.0970) or Method 3 Risk Characterization (310 CMR 40.0990) methods.

The following sections present an analysis of brownfield cleanup alternatives (ABCA) that describe potential remedial alternatives to achieve a condition of No Significant Risk and a Permanent Solution under the MCP (310 CMR 40.1000). The remedial alternatives presented

below provide a range of potential cleanup strategies that include in situ (in place) remediation of contaminated soil and groundwater and monitored natural attenuation whereby contaminants are broken down into harmless by-products through natural processes.

6.1 In Situ Remedial Alternatives

A summary of in situ remedial alternatives is presented in the sections that follow. In situ remediation is often a cost-effective alternative to excavation and off-site disposal where the volume of contaminated soil is large and/or a significant volume of contaminated soil is located below the water table where dewatering/treatment and excavation “in the wet” will be required to completely remove contaminated material.

6.1.1 Monitored Natural Attenuation

Monitored natural attenuation (MNA) involves long-term monitoring of physical, chemical, and biological process that, under favorable conditions, will naturally (i.e. no human involvement) reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil and/or groundwater. However, MNA remedial alternatives have the potential to significantly prolong the period of time required to achieve cleanup goals.

6.1.2 Enhanced Aerobic Bioremediation

Aerobic bioremediation is a process by which naturally occurring microorganisms degrade organic contaminants into carbon dioxide and water. For these processes to occur there must be sufficient oxygen, otherwise aerobic function ceases. Under this alternative, aerobic bioremediation is accomplished by introducing oxygen to the subsurface soil and groundwater, typically by injecting oxygen rich solutions like Oxygen Release Compound (ORC®). Solutions like ORC® slowly release oxygen into the surrounding soil and groundwater to boost the aerobic function of naturally occurring microorganisms. ORC®-type solutions are typically applied through the use of direct push drilling and injected at specifically calculated horizontal and vertical locations. Several applications may be required to achieve cleanup goals. Enhanced bioremediation has proven effective in treating most non-chlorinated VOCs, including gasoline-related petroleum hydrocarbons.

6.1.3 Chemical Oxidation

Using this remedial alternative, direct chemical oxidation of petroleum hydrocarbons is accomplished by introducing an oxidizer (catalyzed hydrogen peroxide, sodium persulfate, or similar) that acts to break down petroleum hydrocarbons. High percentage oxidant solutions (up to 50% is common) are applied to the targeted subsurface area through direct injection distribution system. Following the oxidant solution application, a catalyst (iron, sodium persulfate, or similar depending on the selected oxidant) is applied to the targeted subsurface area creating a reagent solution. Injections of reagent solutions can produce vigorous chemical reactions known to produce gas and steam. Follow-up injection applications and collection of soil and groundwater samples would be required to document the achievement of cleanup goals. Several applications of reagent may be required to achieve cleanup goals.

6.2 Evaluation of Remedial Alternatives

The following subsections provide an analysis of cleanup alternatives with preliminary order-of-magnitude cost estimates for each alternative. The evaluation presented below assumes regulatory acceptance of the remedial approach and a MCP Method 1 or Method 3 risk assessment demonstrating that the residual concentrations of contaminants after remediation are protective of human health, the environment, and public welfare. To evaluate a range of potential remedial alternatives, Nobis evaluated the effectiveness, implementability, cleanup time, resiliency to climate change, and overall cost estimates for three potential remedial scenarios. Cost estimates do not include construction costs for redevelopment of the property, only preparation of the property for redevelopment. An initial screening of cleanup alternatives is presented in Table 6-3. Cost estimate details are summarized in Tables 6-4, 6-5, and 6-6.

The following is a tabular summary of the alternatives considered in this TBA Report.

Alternative Number	Remedial Alternative Type	Estimated Remedial Cost Range
1	Monitored Natural Attenuation	$30,000 - $50,000
2	Enhanced Aerobic Bioremediation	$95,000-$125,000
3	In Situ Chemical Oxidation	$125,000-$220,000

6.2.1 Alternative 1: Monitored Natural Attenuation

Remedial Alternative Description

Excavation of UST-01 and removal of some petroleum impacted soil during UST removal activities removed some petroleum source material that was impacting the groundwater around MW-106. However, concentrations of VPH in groundwater at MW-106 still exceed the applicable MCP Method 1 groundwater standards. Under this alternative, long-term monitoring of physical chemical, and biological process will be required until cleanup goals are achieved.

Effectiveness

This alternative would not be protective of human health because it is not likely to reduce risk in the short term and has the potential to prolong the period of time required to achieve cleanup goals. There would be minimal short-term impacts to the community since only limited action would be taken to reduce contaminant levels. The long-term effectiveness of this alternative would be dependent upon the rate at which natural degradation of contaminants occurs.

Implementability

This alternative is technically and administratively feasible. However, the time frame for remediation could be extremely long, therefore this remedial alternative may limit site redevelopment options.

Resiliency to Climate Change

This alternative would be the least resilient to climate change factors, since there would be less reduction of contaminant levels and no opportunity for improvements in flood storage or stormwater management.

Cost Estimate

The costs for Alternative 1 are typically less than Alternatives 2 and 3. However, based on the results of the effectiveness, implementability, and resiliency to climate change analysis, this alternative may not be optimal as a stand-alone remedial alternative. However, Alternative 1 may be economical as a complement to an active treatment alternative if further contaminant reduction is required after treatment or removal of source material. The estimated cost range for Alternative 1 would be $30,000-$50,000 assuming 3 years of quarterly MNA groundwater sampling. A summary of estimated remedial costs for Alternative 1 is presented in Table 6-4.

6.2.2 Alternative 2: Enhanced Aerobic Bioremediation

Remedial Alternative Description

Under this alternative, a solution like ORC® would be applied through the use of direct push drilling and injected at specifically calculated horizontal and vertical locations. Based on the low dissolved oxygen values (generally less than 0.5 mg/l) observed at MW-106 during low flow sampling, reducing conditions may be present at the site. Additional site-specific soil and groundwater data would need to be collected and used to determine the amount of ORC® required to achieve favorable geochemical conditions that would lead to aerobic bioremediation. Several applications may be required to achieve cleanup goals. Confirmatory soil and groundwater sampling would need to be performed to evaluate the effectiveness of this alternative. Additional long-term groundwater monitoring may be required to monitor for contaminant rebound following completion of the remedial alternative.

Effectiveness

This alternative would be protective of human health and the environment. Contaminant reduction would be accomplished through treatment of soil and groundwater, resulting in reduction of toxicity, mobility, and volume of contamination. Short-term impacts to the community would be low, as there would be no excavation of soil or transportation of contaminated soils over public roadways. The long-term effectiveness would be moderate to high, depending upon subsurface conditions, with the possibility of persistent contamination or contaminant rebound if site conditions are not optimal for the delivery of the treatment reagent.

Implementability

This alternative would be easily implementable from a technical and administrative standpoint, however there would be some barriers to implementation including geochemical conditions in the subsurface that might limit the effectiveness of the chemical/biological reactions necessary to achieve contaminant degradation, and the need for additional site-specific soil and groundwater data in order to develop an injection plan. Several applications of treatment reagent may be required to achieve cleanup goals, therefore the time frame for remediation is estimated to be six months to one year. The oxygen enhancement technology has been proven effective at reducing petroleum contaminant mass at sites similar in nature to this site, and the required resources are available from a limited number of vendors.

Resiliency to Climate Change

As above, the treatment of contamination would be accomplished without modifying the site grades or infiltration capacity of site soils, therefore this alternative would provide resiliency against rising sea levels, changing flood zones, and higher groundwater tables. However, since no excavation or site work would be performed, there is less opportunity to include flood storage or stormwater controls into the remedial plan.

Cost Estimate

The estimated cost range for Alternative 2 would be $95,000 to $125,000. A summary of estimated remedial costs for Alternative 2 is presented in Table 6-5.

6.2.3 Alternative 3: In Situ Chemical Oxidation

Remedial Alternative Description

Under this alternative, a chemical oxidant would be injected into subsurface soil and groundwater in the approximately 600 square foot area. This alternative would require the construction of approximately five to 10 temporary injection wells to apply the selected oxidant. Similar to Alternative 1, site specific data collected during TBA investigations suggest that reducing conditions may be present at the Site. Additional site-specific soil and groundwater data would need to be collected and used to develop bench scale tests to determine the oxidant demand of Site soils. The oxidant demand of soils determines the amount of oxidant that will need to be applied to achieve cleanup goals. Therefore, higher levels of oxidant demand lead to increased remediation costs.

Effectiveness

This alternative would be protective of human health and the environment. Contaminant reduction would be accomplished through treatment of soil and groundwater, resulting in reduction of toxicity, mobility, and volume of contamination. Short-term impacts to the community would be low, as there would be no excavation of soil or transportation of contaminated soils over public roadways. The long-term effectiveness would be moderate to high, depending upon subsurface conditions, with the possibility of persistent contamination or contaminant rebound if site conditions are not optimal for the delivery of the treatment reagent or amenable to the chemical reactions that form the basis of this technology.

Implementability

This alternative would be easily implementable from a technical and administrative standpoint, however there would be some barriers to implementation including geochemical conditions in the subsurface that might limit the effectiveness of the chemical reactions necessary to achieve contaminant degradation, and the need for additional site-specific soil and groundwater data in order to develop an injection plan. Several applications of treatment reagent may be required to achieve cleanup goals, therefore the time frame for remediation is estimated to be six months to one year. This technology has been proven effective at reducing petroleum contaminant mass at sites similar in nature to this site, and the required resources are available from several vendors.

Resiliency to Climate Change

As above, the treatment of contamination would be accomplished without modifying the site grades or infiltration capacity of site soils, therefore this alternative would provide resiliency against rising sea levels, changing flood zones, and higher groundwater tables. However, since no excavation or site work would be performed, there is less opportunity to include flood storage or stormwater controls into the remedial plan.

The estimated cost range of Alternative 3 would be $125,000 to $250,000. A summary of estimated remedial costs for Alternative 3 is presented in Table 6-6.

6.3 Remedial Alternative Recommendation

Nobis recommends a combination of implementation of Remedial Alternative 1 – Monitored Natural Attenuation and Remedial Alternative 2 – Enhanced Aerobic Bioremediation. This recommendation is based on the following factors:

- There is limited temporal groundwater data available for the Site. Follow up groundwater sampling should be performed to evaluate if MNA is occurring at the site. Some petroleum source material was removed during the 2023 TBA UST removal activities. The removal of source material may result in reduced VPH concentrations in groundwater. If it is determined that MNA is not occurring, Remedial Alternative 2 can be initiated to help accelerate the Site cleanup process.

- The combination of Remedial Alternatives will be protective of human health and the environment.

- The location of impacted soils is readily accessible for a drill rig to collect characterization samples and perform inject a solution like ORC®.

- Enhanced bioremediation has proven effective in treating most non-chlorinated VOCs, including gasoline-related petroleum hydrocarbons.

- If MNA is occurring at the Site, Remedial Alternative 1 can be completed in a relatively short time frame and in a cost-effective manner.

7.0 SUMMARY AND CONCLUSIONS

The following is a summary of the information and conclusions presented in this TBA Report:

- The Site consists of an approximate 0.19-acre parcel of land located at 925 Massachusetts Avenue, in Lunenburg, Massachusetts. The Site is completed by a 1,792 square-foot, one-story building that was formerly used as an automobile service station. Residences and commercial businesses are located in the general area of the Site.

- The Site is currently owned by the Town after completing a tax foreclosure from the former owner L&M Service Center, Inc. in August 2022. The Site has reportedly operated as a gasoline and repair facility since approximately 1918.

- The Site is currently Tier Classified as a Tier 1D Site which indicates it is in default status and out of compliance with the MCP. Historical investigations have identified concentrations of petroleum hydrocarbons in soil and groundwater at concentrations that exceed applicable MCP standards.

- KGSNE performed TBA investigations in May, June, and October 2023 to evaluate the presence of contamination in soil and groundwater at the Site.

- KGSNE performed groundwater sampling at the Site in May, June, and October 2023. Laboratory analysis of groundwater samples collected from location UST-01 detected concentrations of C9-C10 aromatic hydrocarbons above the MCP Method 1 GW-2 standard. Concentrations of C9-C10 and C9-C12 VPH exceeded the MCP Method 1 GW-2 standard in sample MW-106. Concentrations of VPH did not exceed the MCP Method 1 GW-3 standard in any sample collected during the TBA investigation. Low concentrations of EPH compounds were detected in several groundwater samples; however, none of the concentrations exceeded the MCP Method 1 GW-2 and GW-3 standards. Concentrations of lead were detected above the MCP GW-3 standard in groundwater samples collected from UST-01, MW-101, and MW-103.

- From May 22, through May 30, 2023, KGSNE oversaw the removal of two 10,000-gallon gasoline tanks (UST-01 and UST-02), one 4,000-gallon diesel tank (UST-03) and one 500-gallon heating oil tank (UST-04). KGSNE observed the gasoline and diesel USTs to be in good condition with the exception of some minor corrosion and pitting. KGSNE observed the fuel oil UST to be in poor condition and noted two approximately 1-inch diameter holes near the tank bottom, extensive pitting and corrosion, and some exterior staining.

- On October 12, 2023, KGSNE oversaw the advancement of 3 soil borings to approximately 20 feet below grade surface (bgs). Each soil boring was completed as 2-inch-diameter monitoring well set at 20 feet bgs.

- Based on the information gathered during the TBA investigation groundwater was determined to flow north towards the wetland area located approximately 250 feet north of the site.

- From October 30 through November 3, 2023, KGSNE oversaw SES perform the removal of the hydraulic lift and floor drain holding tank and closure of two floor drains. Floor drains were abandoned by blocking the floor drains 12 to 18 inches into the pipe and sealed at the floor grade using neat Portland cement.

- Concentrations of C5-C8 and C9-C10 hydrocarbon fractions were detected above the MCP Method 1 S-1/GW-2 and S-1/GW-3 standards in the soil sample and corresponding

field duplicate collected from MW-106 from 10 to 15 feet bgs. There were no other VPH compounds detected above MCP Method 1 standards in any soil sample collected during the TBA investigation.

- Concentrations of C11-C22 hydrocarbon fractions were detected above the MCP method 1 S-1/GW-2 and S-1/GW-3 standards in soil sample HYDLIFT which was collected from the hydraulic lift excavation. The remaining EPH concentrations detected in TBA soil samples did not exceed the applicable MCP Method 1 soil standards.

- Arsenic was detected in soil samples UST-01, UST-02 (and corresponding field duplicate), MW-107, and MW-108 at concentrations that exceed the MCP Method 1 S-1 standard. There were no other concentrations of metals detected that exceed MCP Method 1 soil standards.

- KGSNE prepared an ABCA that describes potential remedial alternatives to achieve a condition of No Significant Risk and a Permanent Solution under the MCP (310 CMR 40.1000). The ABCA notes that there is limited temporal groundwater data available for the Site. Follow up groundwater sampling should be performed to evaluate if MNA is occurring at the site. Some petroleum source material was removed during the 2023 TBA UST removal activities. The removal of source material may result in reduced VPH concentrations in groundwater. If it is determined that MNA is not occurring, then Remedial Alternative 2 can be initiated to help accelerate the Site cleanup process.

7.0 REFERENCES

BETA Group, Inc. 2020. Phase II Environmental Site Assessment. November 19.

EPA, 2020. Region 1 – EPA New England Environmental Data Review Supplement for Region 1 Data Review Elements and Superfund Specific Guidance/Procedures. EQADR-Supplement 2. September.

Massachusetts Contingency Plan; 310 CMR 40.0000

KGSNE JV II, LLC. 2022. Program Quality Assurance Project Plan; RFA# 22163. October 27.

KGSNE JV II, LLC. 2023. Quality Assurance Project Plan Addendum for Soil and Groundwater Sampling; Former L&M Service Station; RFA# 22163. May 4.

TABLES

Table 3-1
Summary of Soil Sample Analytical Results
Former L and M Service Station
Lunenburg, MA

Location								LM-SO-UST02	HOLDTANK	HYDLIFT	LM-SO-PI	LM-SO-UST01	LM-SO-UST02	LM-SO-UST03	LM-SO-UST04	MW-106		MW-107	MW-108
Depth Interval								9 - 12 ft	4 - 10 ft	6 - 8 ft	2 - 6 ft	9 - 12 ft	9 - 12 ft	5 - 8 ft	6 - 9 ft	10-15 ft	10 - 15 ft	10-15 ft	15-18 ft
Sample Date								05/25/2023	11/01/2023	10/31/2023	05/25/2023	05/25/2023	05/25/2023	05/25/2023	05/30/2023	10/12/2023	10/12/2023	10/12/2023	10/12/2023
Sample Type								FD	N	N	N	N	N	N	N	N	FD	N	N
Chemical/Sample ID	**Units**	**MA S-1/GW-2**	**MA S-1/GW-3**	**MA S-2/GW-2**	**MA S-2/GW-3**	**MA S-3/GW-2**	**MA S-3/GW-3**	**SO-FD-01**	**HOLDTANK-0410**	**HYDLIFT-0608**	**LM-SO-PI-052523**	**LM-SO-UST01-052523**	**LM-SO-UST02-052523**	**LM-SO-UST03-052523**	**LM-SO-UST04-053023**	**SO-B/MW-106-1015**	**SO-FD01-101223**	**SO-B/MW-107-1015**	**SO-B/MW-108-1518**
Pesticides/PCBs																			
Aroclor 1016	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	NA	NA	21 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1221	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	NA	NA	21 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	NA	NA	21 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	NA	NA	21 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	NA	NA	21 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	NA	NA	21 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	NA	NA	21 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1262	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	NA	NA	21 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1268	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	NA	NA	21 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																			
Antimony	mg/kg	20	20	30	30	30	30	**1.7 J**	**1.6 J**	**0.54 J**	**0.94 J**	**1.3 J**	**1.5 J**	**0.81 J**	8.6 UJ	**1 J**	**0.95 J**	**0.93 J**	**1.2 J**
Arsenic	mg/kg	20	20	20	20	50	50	**53**	**4.6**	**4.1**	**16**	**21**	**52**	**12**	**4.5**	**8.9**	**3.7**	**23**	**27**
Barium	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	**57 J**	**49**	**19**	**44**	**50 J**	**54 J**	**66 J**	**35**	**54**	**56**	**29**	**34**
Beryllium	mg/kg	90	90	200	200	200	200	**0.3 J**	0.52 U	0.52 U	**0.24 J**	**0.33 J**	**0.26 J**	**0.42 J**	0.86 U	0.46 U	0.49 U	0.46 U	0.56 U
Cadmium	mg/kg	70	70	100	100	100	100	0.54 U	**0.073 J**	0.52 U	**0.034 J**	0.54 U	0.62 U	0.51 U	0.86 UJ	0.46 U	0.49 U	**0.027 J**	**0.035 J**
Chromium	mg/kg	100	100	200	200	200	200	**34**	**16**	**9.5**	**20**	**27**	**34**	**27**	**10**	**20**	**17**	**18**	**21**
Lead	mg/kg	200	200	600	600	600	600	**47**	**14**	**7**	**60**	**28**	**29**	**32**	**56**	**7.2**	**2.9**	**12**	**17**
Mercury	mg/kg	20	20	30	30	30	30	**0.012 J**	**0.013 J**	0.066 U	**0.062**	**0.025 J**	0.054 U	**0.069**	**0.04 J**	0.04 U	**0.03 J**	**0.023 J**	0.032 U
Nickel	mg/kg	600	600	1,000	1,000	1,000	1,000	**24**	**9.6**	**7.4**	**16**	**20**	**23**	**19**	**8.2 J-**	**14**	**13**	**12**	**14**
Selenium	mg/kg	400	400	700	700	700	700	1.6 U	1.6 U	1.6 U	1.4 U	1.6 U	1.8 U	1.5 U	2.6 UJ	1.4 U	1.5 U	1.4 U	1.7 U
Silver	mg/kg	100	100	200	200	200	200	1.6 U	1.6 U	1.6 U	1.4 U	1.6 U	1.8 U	1.5 U	2.6 U	1.4 U	1.5 U	1.4 U	1.7 U
Thallium	mg/kg	8	8	60	60	80	80	3.2 U	3.1 U	3.1 U	2.8 U	3.2 U	3.7 U	3.1 U	5.2 U	2.8 U	2.9 U	2.8 U	3.4 U
Vanadium	mg/kg	400	400	700	700	700	700	**27**	**25**	**7.5**	**17**	**21**	**25**	**22**	**11**	**18**	**13**	**14**	**17**
Zinc	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	**86 J**	**31**	**33**	**150**	**64 J**	**150 J**	**47 J**	**36 J-**	**22**	**14**	**56**	**79**
EPH																			
2-Methylnaphthalene	mg/kg	80	300	80	500	80	500	0.4 U	**3.5**	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	**4.8**	**1.8**	**6.3**	0.39 U	0.38 U
Acenaphthene	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	0.36 U	1 U	1.1 U	0.39 U	0.38 U
Acenaphthylene	mg/kg	600	10	600	10	600	10	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	0.36 U	1 U	1.1 U	0.39 U	0.38 U
Anthracene	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	0.36 U	1 U	1.1 U	0.39 U	0.38 U
Benzo(a)anthracene	mg/kg	7	7	40	40	300	300	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	0.36 U	1 U	1.1 U	0.39 U	0.38 U
Benzo(a)pyrene	mg/kg	2	2	7	7	30	30	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	0.36 U	1 U	**2**	0.39 U	0.38 U
Benzo(b)fluoranthene	mg/kg	7	7	40	40	300	300	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	0.36 U	1 U	1.1 U	0.39 U	0.38 U
Benzo(g,h,i)perylene	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	0.36 U	1 U	1.1 U	0.39 U	0.38 U
Benzo(k)fluoranthene	mg/kg	70	70	400	400	3,000	3,000	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	0.36 U	1 U	1.1 U	0.39 U	0.38 U
C11-C22 Aromatics	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	8 U	**310**	**1,500**	**33**	**12**	8 U	**12**	**250**	**47**	**140**	**11**	7.6 U
C11-C22 Aromatics (adjusted)	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	8 U	**310**	**1,500**	**32**	**11**	8 U	**11**	**240**	**44**	**130**	**11**	7.6 U
C19-C36 Aliphatics	mg/kg	3,000	3,000	5,000	5,000	5,000	5,000	8 UJ	**380**	**880**	**58**	**16 J**	8 UJ	**19 J**	**96**	**130**	**360**	**32**	**12**
C9-C18 Aliphatics	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	8 U	**51**	**52**	7.1 U	7.2 U	8 U	6.9 U	**240**	**60**	**93**	7.7 U	7.6 U
Chrysene	mg/kg	70	70	400	400	3,000	3,000	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	0.36 U	1 U	1.1 U	0.39 U	0.38 U
Dibenz(a,h)anthracene	mg/kg	0.7	0.7	4	4	30	30	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	0.36 U	1 U	1.1 U	0.39 U	0.38 U
Fluoranthene	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	**0.45**	0.36 U	0.35 U	**0.44**	**0.63**	**0.44**	**0.64**	**0.54**	1 U	1.1 U	0.39 U	0.38 U
Fluorene	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	**0.69**	1 U	1.1 U	0.39 U	0.38 U
Indeno(1,2,3-cd)pyrene	mg/kg	7	7	40	40	300	300	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	0.36 U	1 U	1.1 U	0.39 U	0.38 U
Naphthalene	mg/kg	20	500	20	1,000	20	3,000	0.4 U	**1.3**	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	**0.48**	**1.7**	**5.2**	0.39 U	0.38 U
Phenanthrene	mg/kg	500	500	1,000	1,000	3,000	3,000	0.4 U	**0.53**	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	**0.46**	1 U	1.1 U	0.39 U	0.38 U
Pyrene	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	0.4 U	0.36 U	0.35 U	0.35 U	0.36 U	0.4 U	0.34 U	0.36 U	1 U	1.1 U	0.39 U	0.38 U
VPH																			
Benzene	mg/kg	40	40	200	200	400	1,000	0.016 U	0.26 U	0.33 U	**0.013 J**	0.013 U	0.018 U	0.015 U	0.08 U	**0.59**	1.5 U	0.15 U	0.13 U
C5-C8 Aliphatics (adjusted)	mg/kg	100	100	500	500	500	500	0.079 U	**15**	6.6 U	**0.34**	**0.2**	0.091 U	0.073 U	1.6 U	**340**	**500**	**3.6**	**4.3**
C9-C10 Aromatics	mg/kg	100	100	500	500	500	500	**0.019 J**	**76**	6.6 U	**0.17**	**0.3**	**0.034 J**	**0.024 J**	1.6 U	**210**	**460**	**16**	**18**
C9-C12 Aliphatics (adjusted)	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	0.079 U	**78**	6.6 U	**0.11**	**0.29**	0.091 U	0.073 U	1.6 U	**150**	300 U	**9.8**	**8.6**
Ethylbenzene	mg/kg	500	500	1,000	1,000	1,000	3,000	0.016 U	**0.45**	0.33 U	**0.013 J**	**0.0069 J**	**0.0049 J**	0.015 U	0.08 U	**12**	**14**	0.15 U	**0.18**
m,p-Xylene	mg/kg	100	500	100	1,000	100	3,000	**0.01 J**	**1.2**	0.66 U	**0.051**	**0.02 J**	**0.016 J**	**0.0066 J**	0.16 U	**51**	**60**	0.29 U	**0.54**
Methyl tert-butyl ether	mg/kg	100	100	100	500	100	500	**0.053 J+**	0.053 U	0.066 U	**0.088 J+**	0.013 U	**0.057 J+**	0.015 U	0.016 U	**0.23**	0.3 U	**0.31**	**0.34**
Naphthalene	mg/kg	20	500	20	1,000	20	3,000	0.016 U	**6.4**	1.3 U	0.014 U	**0.012 J**	0.018 U	0.015 U	0.32 U	**3.6**	**6.9**	0.58 U	0.52 U
o-Xylene	mg/kg	100	500	100	1,000	100	3,000	**0.0066 J**	**1.2**	0.33 U	**0.032**	**0.0048 J**	**0.0091 J**	**0.0043 J**	0.08 U	**4.6**	**4.7**	**0.17**	**0.24**
Toluene	mg/kg	500	500	1,000	1,000	2,000	3,000	**0.011 J**	**0.28**	0.33 U	**0.04**	**0.0082 J**	**0.016 J**	**0.0056 J**	0.08 U	**1.3**	1.5 U	0.15 U	0.13 U
Xylene (total)	mg/kg	100	500	100	1,000	100	3,000	NA	**2.4**	0.99 U	NA	NA	NA	NA	0.24 U	**55**	**65**	0.44 U	**0.78**

Notes:
Color= PAL Exceeded
Bold=Detected
NA=Not Analyzed
=-- PAL not established for this chemica

Table 3-2
Summary of Groundwater Analytical Results
Former L and M Service Station
Lunenburg, MA

Location					LM-GW-UST01	LM-GW-UST02	MW-101	MW-102		MW-103	MW-104	MW-105	MW-106	MW-107		MW-108
Sample Date					05/25/2023	05/25/2023	05/17/2023	05/17/2023		06/02/2023	05/17/2023	05/17/2023	10/26/2023	10/26/2023		10/26/2023
Sample Type					N	N	N	N	FD	N	N	N	N	N	FD	N
Chemical/Sample ID	**CAS Number**	**Units**	**MCP Method 1 GW-2**	**MCP Method 1 GW-3**	**LM-GW-UST01-052523**	**LM-GW-UST02-052523**	**LM-GW-B/MW101-051723**	**LM-GW-B/MW102-051723**	**LM-FD-051723**	**LM-GW-MW103-060223**	**LM-GW-B/MW104-051723**	**LM-GW-B/MW105-051723**	**LM-MW106-102623**	**LM-MW107-102623**	**LM-FD01-102623**	**LM-MW108-102623**
Metals																
Antimony	7440-36-0	mg/L	--	8	NA	NA	NA	NA	NA	**0.005**	NA	NA	NA	NA	NA	NA
Arsenic	7440-38-2	mg/L	--	0.9	NA	NA	NA	NA	NA	**0.0035**	NA	NA	NA	NA	NA	NA
Barium	7440-39-3	mg/L	--	50	NA	NA	NA	NA	NA	**0.24**	NA	NA	NA	NA	NA	NA
Beryllium	7440-41-7	mg/L	--	0.2	NA	NA	NA	NA	NA	0.002 U	NA	NA	NA	NA	NA	NA
Cadmium	7440-43-9	mg/L	--	0.004	NA	NA	NA	NA	NA	**0.0012**	NA	NA	NA	NA	NA	NA
Chromium	7440-47-3	mg/L	--	0.3	NA	NA	NA	NA	NA	**0.024**	NA	NA	NA	NA	NA	NA
Lead	7439-92-1	mg/L	--	0.01	NA	NA	NA	NA	NA	**0.041**	NA	NA	NA	NA	NA	NA
Mercury	7439-97-6	mg/L	--	0.02	NA	NA	NA	NA	NA	0.0002 U	NA	NA	NA	NA	NA	NA
Nickel	7440-02-0	mg/L	--	0.2	NA	NA	NA	NA	NA	**0.02**	NA	NA	NA	NA	NA	NA
Selenium	7782-49-2	mg/L	--	0.1	NA	NA	NA	NA	NA	0.015 U	NA	NA	NA	NA	NA	NA
Silver	7440-22-4	mg/L	--	0.007	NA	NA	NA	NA	NA	0.005 U	NA	NA	NA	NA	NA	NA
Thallium	7440-28-0	mg/L	--	3	NA	NA	NA	NA	NA	0.005 U	NA	NA	NA	NA	NA	NA
Vanadium	7440-62-2	mg/L	--	4	NA	NA	NA	NA	NA	**0.019**	NA	NA	NA	NA	NA	NA
Zinc	7440-66-6	mg/L	--	0.9	NA	NA	NA	NA	NA	**0.48**	NA	NA	NA	NA	NA	NA
Dissolved Metals																
Antimony	7440-36-0	mg/L	--	8	**0.0051 J**	**0.0039 J**	**0.0028**	**0.0049**	**0.0051**	NA	**0.0053**	**0.0045**	0.006 U	0.006 U	0.006 U	**0.0019 J**
Arsenic	7440-38-2	mg/L	--	0.9	**0.032**	**0.011**	0.004 U	**0.025**	**0.026**	NA	**0.0081**	0.004 U	**0.044**	**0.065**	**0.066**	0.004 U
Barium	7440-39-3	mg/L	--	50	**0.056**	**0.049**	**0.28**	**0.12**	**0.12**	NA	**0.069**	**0.23**	**0.054**	**0.05**	**0.05**	**0.14**
Beryllium	7440-41-7	mg/L	--	0.2	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	NA	0.002 U	0.002 U	0.002 U	0.002 U	**0.00039 J**	0.002 U
Cadmium	7440-43-9	mg/L	--	0.004	0.0025 U	**0.00045 J**	**0.0011**	0.0025 U	0.0025 U	NA	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U
Chromium	7440-47-3	mg/L	--	0.3	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	NA	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Lead	7439-92-1	mg/L	--	0.01	**0.013**	**0.0085**	**0.06**	0.0075 U	0.0075 U	NA	0.0075 U	0.0075 U	0.0075 U	0.0075 U	0.0075 U	0.0075 U
Mercury	7439-97-6	mg/L	--	0.02	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	NA	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	7440-02-0	mg/L	--	0.2	**0.011**	**0.01**	**0.0069**	**0.0024**	**0.0027**	NA	**0.015**	**0.0009**	0.005 U	**0.0026 J**	**0.0031 J**	**0.0045 J**
Selenium	7782-49-2	mg/L	--	0.1	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	NA	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
Silver	7440-22-4	mg/L	--	0.007	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	NA	0.005 U	0.005 U	0.01 U	0.005 U	0.005 U	**0.0012 J**
Thallium	7440-28-0	mg/L	--	3	**0.0022 J**	0.005 U	0.005 U	0.005 U	0.005 U	NA	**0.0027**	0.005 U	0.005 U	0.005 U	0.005 U	**0.0026 J**
Vanadium	7440-62-2	mg/L	--	4	**0.0037 J**	**0.0022 J**	0.005 U	0.005 U	0.005 U	NA	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Zinc	7440-66-6	mg/L	--	0.9	**0.033 J+**	**0.042 J+**	**0.2**	**0.0021**	**0.0035**	NA	**0.14**	**0.0026**	**0.0027 J**	**0.0033 J**	**0.0034 J**	**0.002 J**
EPH																
2-Methylnaphthalene	91-57-6	ug/L	2,000	20,000	**46**	**5.9**	1 UJ	**2.3 J**	**2.8 J**	1.1 U	1 UJ	0.95 UJ	**54**	**1.2**	**1.4**	1 U
Acenaphthene	83-32-9	ug/L	--	10,000	1.1 U	1.1 U	1 UJ	1 UJ	1 UJ	1.1 U	1 UJ	0.95 UJ	**0.2 J**	1 U	1 U	1 U
Acenaphthylene	208-96-8	ug/L	10,000	40	1.1 U	1.1 U	1 UJ	1 UJ	1 UJ	1.1 U	1 UJ	0.95 UJ	1 U	1 U	1 U	1 U
Anthracene	120-12-7	ug/L	--	30	1.1 U	1.1 U	1 U	1 U	1 U	1.1 U	1 U	0.95 U	1 U	1 U	1 U	1 U
Benzo(a)anthracene	56-55-3	ug/L	--	1,000	**0.15 J**	1.1 U	1 U	1 U	1 U	1.1 U	1 U	0.95 U	1 U	1 U	1 U	1 U
Benzo(a)pyrene	50-32-8	ug/L	--	500	**0.17 J**	0.22 U	0.2 U	0.2 U	0.2 U	0.21 U	0.2 U	0.19 U	0.2 U	0.2 U	0.2 U	0.2 U
Benzo(b)fluoranthene	205-99-2	ug/L	--	400	**0.19 J**	1.1 U	1 U	1 U	1 U	1.1 U	1 U	0.95 U	1 U	1 U	1 U	1 U
Benzo(g,h,i)perylene	191-24-2	ug/L	--	20	**0.3 J**	1.1 U	1 U	1 U	1 U	1.1 U	1 U	0.95 U	1 U	1 U	1 U	1 U
Benzo(k)fluoranthene	207-08-9	ug/L	--	100	1.1 U	1.1 U	1 U	1 U	1 U	1.1 U	1 U	0.95 U	1 U	1 U	1 U	1 U
C11-C22 Aromatics (adjusted)	STL00203	ug/L	50,000	5,000	**180**	110 U	100 U	100 U	100 U	110 U	100 U	95 U	**230**	**110**	**120**	100 U
C19-C36 Aliphatics	C19-C36-AL	ug/L	--	50,000	**110 J-**	110 U	100 U	100 U	100 U	110 UJ	100 U	95 U	100 U	100 U	100 U	100 U
C9-C18 Aliphatics	C9-C18-AL	ug/L	5,000	50,000	**230 J-**	110 U	100 U	100 U	100 U	110 UJ	100 U	95 U	**290**	100 U	100 U	100 U
Chrysene	218-01-9	ug/L	--	70	**0.19 J**	1.1 U	1 U	1 U	1 U	1.1 U	1 U	0.95 U	1 U	1 U	1 U	1 U
Dibenz(a,h)anthracene	53-70-3	ug/L	--	40	0.53 U	0.56 U	0.5 U	0.5 U	0.5 U	0.53 U	0.5 U	0.48 U	0.5 U	0.5 U	0.5 U	0.5 U
Fluoranthene	206-44-0	ug/L	--	200	**0.27 J**	1.1 U	1 U	1 U	1 U	1.1 U	1 U	0.95 U	**0.16 J**	1 U	1 U	1 U
Fluorene	86-73-7	ug/L	--	40	1.1 U	1.1 U	1 U	1 U	1 U	1.1 U	1 U	0.95 U	1 U	1 U	1 U	1 U
Indeno(1,2,3-cd)pyrene	193-39-5	ug/L	--	100	0.53 U	0.56 U	0.5 U	0.5 U	0.5 U	0.53 U	0.5 U	0.48 U	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene	91-20-3	ug/L	700	20,000	**60**	**17**	1 UJ	**28 J**	**33 J**	1.1 U	1 UJ	0.95 UJ	**90**	**8.1**	**9.1**	1 U
Phenanthrene	85-01-8	ug/L	--	10,000	1.1 U	1.1 U	1 U	1 U	1 U	1.1 U	1 U	0.95 U	**0.43 J**	1 U	1 U	1 U
Pyrene	129-00-0	ug/L	--	20	**0.23 J**	1.1 U	1 U	1 U	1 U	1.1 U	1 U	0.95 U	1 U	1 U	1 U	1 U
VPH																
Benzene	71-43-2	ug/L	1,000	10,000	**13**	**76**	5 U	**12**	**12**	5 U	5 U	5 U	**61**	5 U	5 U	5 U
C5-C8 Aliphatics (adjusted)	STL00041	ug/L	3,000	50,000	1,000 U	2,000 U	100 U	**560**	**600**	100 U	100 U	100 U	2,500 U	100 U	100 U	100 U
C9-C10 Aromatics	C9-C10-AR	ug/L	4,000	50,000	**4,400**	**890**	100 UJ	**2,000 J**	**2,000 J**	100 U	100 UJ	100 UJ	**9,100**	**210**	**230**	100 U
C9-C12 Aliphatics (adjusted)	STL00106	ug/L	5,000	50,000	**3,600**	2,000 U	100 U	**3,000**	**3,000**	100 U	100 U	100 U	**11,000**	**500**	500 U	100 U
Ethylbenzene	100-41-4	ug/L	20,000	5,000	**120**	**170**	5 U	**490**	**500**	5 U	5 U	5 U	**650**	**61**	**64**	5 U
m,p-Xylene	179601-23-1	ug/L	--	--	**720**	**570**	10 U	**1,400**	**1,500**	10 U	10 U	10 U	**1,600**	**110**	**110**	10 U
Methyl tert-butyl ether	1634-04-4	ug/L	50,000	50,000	**810**	**2,300**	5 U	5 U	5 U	5 U	5 U	5 U	**2,300**	**790**	**570**	5 U
Naphthalene	91-20-3	ug/L	700	20,000	**120**	**62**	5 U	**77**	**76**	5 U	5 U	5 U	**210**	**14**	**17**	5 U
o-Xylene	95-47-6	ug/L	--	--	**87**	**280**	5 U	5 U	5 U	5 U	5 U	5 U	**18**	**46**	**42**	5 U
Toluene	108-88-3	ug/L	50,000	40,000	**170**	**680**	5 U	5 U	5 U	5 U	5 U	5 U	5 U	**79**	**67**	5 U
Xylene (total)	1330-20-7	ug/L	3,000	5,000	**880**	**850**	15 U	**1,400**	**1,500**	15 U	15 U	15 U	**1,600**	**160**	**150**	15 U

Notes:
Color = PAL Exceeded
Bold = Detected
NA = Not Analyzed
-- PAL not established for this chemical

Table 6-1
Summary of Historical Soil Sample Results
Former L and M Service Station
Lunenburg, MA

Sub-Unit or Sub-Area									Not Specified							
Location									B-101	B-102	B-103	B-104	B-105	B-106	B-107	B-108
Depth Interval									15 - 18 ft	13 - 15 ft	13 - 15 ft	10 - 12 ft	12.5 - 17.5 ft	12.5 - 15 ft	8 - 10 ft	15 - 17.5 ft
Sample Date									08/06/2020	08/06/2020	08/06/2020	08/06/2020	08/06/2020	08/06/2020	08/06/2020	08/06/2020
Sample Type									N	N	N	N	N	N	N	N
Chemical/Sample ID	CAS Number	Units	MA S-1/GW-2	MA S-1/GW-3	MA S-2/GW-2	MA S-2/GW-3	MA S-3/GW-2	MA S-3/GW-3	B-101 15-18	B-102 13-15	B-103 13-15	B-104 10-12	B-105 12.5-17.5	B-106 12.5-15	B-107 8-10	B-108 15-17.5
Volatiles																
1,1,1,2-Tetrachloroethane	630-20-6	ug/kg	100	80,000	100	400,000	100	500,000	28 U	610 U	0.54 U	0.39 U	120 U	29 U	26 U	0.38 U
1,1,1-Trichloroethane	71-55-6	ug/kg	500,000	500,000	600,000	1,000,000	600,000	3,000,000	28 U	610 U	0.54 U	0.39 U	120 U	29 U	26 U	0.38 U
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	20	10,000	20	50,000	20	400,000	28 U	610 U	0.54 U	0.39 U	120 U	29 U	26 U	0.38 U
1,1,2-Trichloroethane	79-00-5	ug/kg	2,000	40,000	2,000	200,000	2,000	500,000	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
1,1-Dichloroethane	75-34-3	ug/kg	9,000	500,000	9,000	1,000,000	9,000	1,000,000	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
1,1-Dichloroethene	75-35-4	ug/kg	40,000	500,000	40,000	1,000,000	40,000	3,000,000	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
1,1-Dichloropropene	563-58-6	ug/kg	--	--	--	--	--	--	28 U	610 U	0.54 U	0.39 U	120 U	29 U	26 U	0.38 U
1,2,3-Trichlorobenzene	87-61-6	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
1,2,3-Trichloropropane	96-18-4	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
1,2,4-Trichlorobenzene	120-82-1	ug/kg	6,000	700,000	6,000	3,000,000	6,000	5,000,000	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
1,2,4-Trimethylbenzene	95-63-6	ug/kg	--	--	--	--	--	--	**1,200**	**350,000**	**11**	1.6 U	**92,000**	**14,000**	**2,200**	1.5 U
1,2-Dibromo-3-chloropropane	96-12-8	ug/kg	--	--	--	--	--	--	170 U	3,600 U	3.2 U	2.4 U	720 U	170 U	160 U	2.2 U
1,2-Dibromoethane	106-93-4	ug/kg	100	1,000	100	5,000	100	40,000	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
1,2-Dichlorobenzene	95-50-1	ug/kg	100,000	300,000	100,000	300,000	100,000	300,000	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
1,2-Dichloroethane	107-06-2	ug/kg	100	20,000	100	100,000	100	300,000	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
1,2-Dichloroethene (total)	540-59-0	ug/kg	--	--	--	--	--	--	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
1,2-Dichloropropane	78-87-5	ug/kg	100	30,000	100	100,000	100	1,000,000	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
1,3,5-Trimethylbenzene	108-67-8	ug/kg	--	--	--	--	--	--	**430**	**72,000**	2.2 U	1.6 U	**29,000**	**2,000**	**1,100**	1.5 U
1,3-Dichlorobenzene	541-73-1	ug/kg	100,000	100,000	200,000	500,000	200,000	500,000	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
1,3-Dichloropropane	142-28-9	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
1,3-Dichloropropene	542-75-6	ug/kg	400	20,000	400	90,000	400	100,000	28 U	610 U	0.54 U	0.39 U	120 U	29 U	26 U	0.38 U
1,4-Dichlorobenzene	106-46-7	ug/kg	1,000	80,000	1,000	400,000	1,000	2,000,000	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
1,4-Dioxane	123-91-1	ug/kg	6,000	20,000	6,000	90,000	6,000	500,000	4,600 U	97,000 U	86 U	63 U	19,000 U	4,600 U	4,200 U	60 U
2,2-Dichloropropane	594-20-7	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
2-Butanone	78-93-3	ug/kg	50,000	400,000	50,000	400,000	50,000	400,000	570 U	12,000 U	**40**	7.9 U	2,400 U	570 U	530 U	7.5 U
2-Chlorotoluene	95-49-8	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
2-Hexanone	591-78-6	ug/kg	--	--	--	--	--	--	570 U	12,000 U	11 U	7.9 U	2,400 U	570 U	530 U	7.5 U
4-Chlorotoluene	106-43-4	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
4-Isopropyltoluene	99-87-6	ug/kg	--	--	--	--	--	--	**70**	**5,700**	1.1 U	0.79 U	**940**	**120**	**150**	0.75 U
4-Methyl-2-pentanone	108-10-1	ug/kg	50,000	400,000	50,000	400,000	50,000	400,000	570 U	12,000 U	11 U	7.9 U	2,400 U	570 U	530 U	7.5 U
Acetone	67-64-1	ug/kg	50,000	400,000	50,000	400,000	50,000	400,000	570 U	12,000 U	**180**	**31**	2,400 U	570 U	**770**	19 U
Benzene	71-43-2	ug/kg	40,000	40,000	200,000	200,000	400,000	1,000,000	28 U	610 U	**5.2**	0.39 U	120 U	**320**	**550**	0.38 U
Bromobenzene	108-86-1	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
Bromochloromethane	74-97-5	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
Bromodichloromethane	75-27-4	ug/kg	100	30,000	100	100,000	100	500,000	28 U	610 U	0.54 U	0.39 U	120 U	29 U	26 U	0.38 U
Bromoform	75-25-2	ug/kg	1,000	300,000	1,000	800,000	1,000	800,000	230 U	4,900 U	4.3 U	3.2 U	960 U	230 U	210 U	3 U
Bromomethane	74-83-9	ug/kg	500	30,000	500	30,000	500	30,000	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
Carbon disulfide	75-15-0	ug/kg	--	--	--	--	--	--	570 U	12,000 U	11 U	7.9 U	2,400 U	570 U	530 U	7.5 U
Carbon tetrachloride	56-23-5	ug/kg	5,000	30,000	5,000	100,000	5,000	1,000,000	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
Chlorobenzene	108-90-7	ug/kg	3,000	100,000	3,000	100,000	3,000	100,000	28 U	610 U	0.54 U	0.39 U	120 U	29 U	26 U	0.38 U
Chloroethane	75-00-3	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
Chloroform	67-66-3	ug/kg	200	500,000	200	1,000,000	200	1,000,000	86 U	1,800 U	1.6 U	1.2 U	360 U	86 U	79 U	1.1 U
Chloromethane	74-87-3	ug/kg	--	--	--	--	--	--	230 U	4,900 U	4.3 U	3.2 U	960 U	230 U	210 U	3 U

Table 6-1
Summary of Historical Soil Sample Results
Former L and M Service Station
Lunenburg, MA

Sub-Unit or Sub-Area									Not Specified							
Location									B-101	B-102	B-103	B-104	B-105	B-106	B-107	B-108
Depth Interval									15 - 18 ft	13 - 15 ft	13 - 15 ft	10 - 12 ft	12.5 - 17.5 ft	12.5 - 15 ft	8 - 10 ft	15 - 17.5 ft
Sample Date									08/06/2020	08/06/2020	08/06/2020	08/06/2020	08/06/2020	08/06/2020	08/06/2020	08/06/2020
Sample Type									N	N	N	N	N	N	N	N
Chemical/Sample ID	CAS Number	Units	MA S-1/GW-2	MA S-1/GW-3	MA S-2/GW-2	MA S-2/GW-3	MA S-3/GW-2	MA S-3/GW-3	B-101 15-18	B-102 13-15	B-103 13-15	B-104 10-12	B-105 12.5-17.5	B-106 12.5-15	B-107 8-10	B-108 15-17.5
cis-1,2-Dichloroethene	156-59-2	ug/kg	100	100,000	100	500,000	100	500,000	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
cis-1,3-Dichloropropene	10061-01-5	ug/kg	--	--	--	--	--	--	28 U	610 U	0.54 U	0.39 U	120 U	29 U	26 U	0.38 U
Dibromochloromethane	124-48-1	ug/kg	30	20,000	30	100,000	30	500,000	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
Dibromomethane	74-95-3	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
Dichlorodifluoromethane	75-71-8	ug/kg	--	--	--	--	--	--	570 U	12,000 U	11 U	7.9 U	2,400 U	570 U	530 U	7.5 U
Diethyl ether	60-29-7	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
Diisopropyl Ether	108-20-3	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
Ethylbenzene	100-41-4	ug/kg	500,000	500,000	1,000,000	1,000,000	1,000,000	3,000,000	57 U	**3,700**	**1.5**	0.79 U	**10,000**	**110**	**700**	0.75 U
Hexachlorobutadiene	87-68-3	ug/kg	30,000	30,000	100,000	100,000	100,000	100,000	230 U	4,900 U	4.3 U	3.2 U	960 U	230 U	210 U	3 U
Isopropylbenzene	98-82-8	ug/kg	--	--	--	--	--	--	**62**	**10,000**	1.1 U	0.79 U	**3,300**	**790**	**110**	0.75 U
m,p-Xylene	179601-23-1	ug/kg	100,000	500,000	100,000	1,000,000	100,000	3,000,000	**170**	**61,000**	**19**	1.6 U	**67,000**	**12,000**	**2,600**	1.5 U
Methyl tert-butyl ether	1634-04-4	ug/kg	100,000	100,000	100,000	500,000	100,000	500,000	110 U	2,400 U	**34**	1.6 U	480 U	**140**	100 U	1.5 U
Methylene chloride	75-09-2	ug/kg	4,000	400,000	4,000	700,000	4,000	700,000	280 U	6,100 U	5.4 U	3.9 U	1,200 U	290 U	260 U	3.8 U
Naphthalene	91-20-3	ug/kg	20,000	500,000	20,000	1,000,000	20,000	3,000,000	230 U	**63,000**	4.3 U	3.2 U	**19,000**	**1,400**	**880**	3 U
n-Butylbenzene	104-51-8	ug/kg	--	--	--	--	--	--	**170**	**21,000**	1.1 U	0.79 U	**4,400**	**170**	**98**	0.75 U
n-Propylbenzene	103-65-1	ug/kg	--	--	--	--	--	--	**190**	**38,000**	1.1 U	0.79 U	**11,000**	**1,900**	**220**	0.75 U
o-Xylene	95-47-6	ug/kg	100,000	500,000	100,000	1,000,000	100,000	3,000,000	**150**	1,200 U	**2.3**	0.79 U	**12,000**	**68**	**1,000**	0.75 U
sec-Butylbenzene	135-98-8	ug/kg	--	--	--	--	--	--	**66**	**8,200**	1.1 U	0.79 U	**1,500**	**140**	**89**	0.75 U
Styrene	100-42-5	ug/kg	4,000	70,000	4,000	300,000	4,000	2,000,000	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
tert-Amyl methyl ether	994-05-8	ug/kg	--	--	--	--	--	--	110 U	2,400 U	**3.8**	1.6 U	480 U	110 U	100 U	1.5 U
Tert-Butyl Ethyl Ether	637-92-3	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
tert-Butylbenzene	98-06-6	ug/kg	--	--	--	--	--	--	110 U	2,400 U	2.2 U	1.6 U	480 U	110 U	100 U	1.5 U
Tetrachloroethene	127-18-4	ug/kg	10,000	30,000	10,000	200,000	10,000	1,000,000	28 U	610 U	0.54 U	0.39 U	120 U	29 U	26 U	0.38 U
Tetrahydrofuran	109-99-9	ug/kg	--	--	--	--	--	--	230 U	4,900 U	4.3 U	3.2 U	960 U	230 U	210 U	3 U
Toluene	108-88-3	ug/kg	500,000	500,000	1,000,000	1,000,000	2,000,000	3,000,000	57 U	1,200 U	**19**	0.79 U	240 U	57 U	**520**	0.75 U
trans-1,2-Dichloroethene	156-60-5	ug/kg	1,000	500,000	1,000	1,000,000	1,000	3,000,000	86 U	1,800 U	1.6 U	1.2 U	360 U	86 U	79 U	1.1 U
trans-1,3-Dichloropropene	10061-02-6	ug/kg	--	--	--	--	--	--	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
Trichloroethene	79-01-6	ug/kg	300	30,000	300	60,000	300	60,000	28 U	610 U	0.54 U	0.39 U	120 U	29 U	26 U	0.38 U
Trichlorofluoromethane	75-69-4	ug/kg	--	--	--	--	--	--	230 U	4,900 U	4.3 U	3.2 U	960 U	230 U	210 U	3 U
Vinyl chloride	75-01-4	ug/kg	700	1,000	700	7,000	700	60,000	57 U	1,200 U	1.1 U	0.79 U	240 U	57 U	53 U	0.75 U
Xylene (total)	1330-20-7	ug/kg	100,000	500,000	100,000	1,000,000	100,000	3,000,000	**320**	**61,000**	**21**	0.79 U	**79,000**	**12,000**	**3,600**	0.75 U
Pesticides/PCBs																
Aroclor 1016	12674-11-2	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	189 U	38.3 U	802 U	37.6 U	36.2 U	41.5 U	730 U	35.8 U
Aroclor 1221	11104-28-2	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	189 U	38.3 U	802 U	37.6 U	36.2 U	41.5 U	730 U	35.8 U
Aroclor 1232	11141-16-5	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	189 U	38.3 U	802 U	37.6 U	36.2 U	41.5 U	730 U	35.8 U
Aroclor 1242	53469-21-9	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	189 U	38.3 U	802 U	37.6 U	36.2 U	41.5 U	730 U	35.8 U
Aroclor 1248	12672-29-6	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	189 U	**200**	802 U	37.6 U	36.2 U	41.5 U	730 U	35.8 U
Aroclor 1254	11097-69-1	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	189 U	**105**	802 U	37.6 U	36.2 U	41.5 U	730 U	35.8 U
Aroclor 1260	11096-82-5	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	189 U	**132**	**3,980**	37.6 U	36.2 U	**155**	730 U	35.8 U
Aroclor 1262	37324-23-5	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	189 U	38.3 U	802 U	37.6 U	36.2 U	41.5 U	730 U	35.8 U
Aroclor 1268	11100-14-4	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	189 U	38.3 U	802 U	37.6 U	36.2 U	41.5 U	730 U	35.8 U
Aroclor, Total	AROCLORTOT	ug/kg	1,000	1,000	4,000	4,000	4,000	4,000	189 U	**437**	**3,980**	37.6 U	36.2 U	**155**	730 U	35.8 U
Metals																
Antimony	7440-36-0	mg/kg	20	20	30	30	30	30	2.28 U	2.26 U	2.43 U	2.24 U	2.22 U	2.43 U	**9.01**	2.13 U
Arsenic	7440-38-2	mg/kg	20	20	20	20	50	50	**11.3**	**6.26**	**10.8**	**7.91**	**6.19**	**14.5**	**49.6**	**7.08**
Beryllium	7440-41-7	mg/kg	90	90	200	200	200	200	**0.511**	**0.602**	**0.394**	**0.986**	**0.484**	**0.573**	**0.364**	**0.634**
Cadmium	7440-43-9	mg/kg	70	70	100	100	100	100	0.456 U	0.453 U	**2**	0.448 U	0.444 U	0.485 U	**1.57**	0.426 U
Chromium	7440-47-3	mg/kg	100	100	200	200	200	200	**26.3**	**31.5**	**26.1**	**47.8**	**35.1**	**31.1**	**20.8**	**22.7**

Table 6-1
Summary of Historical Soil Sample Results
Former L and M Service Station
Lunenburg, MA

Sub-Unit or Sub-Area									Not Specified							
Location									**B-101**	**B-102**	**B-103**	**B-104**	**B-105**	**B-106**	**B-107**	**B-108**
Depth Interval									**15 - 18 ft**	**13 - 15 ft**	**13 - 15 ft**	**10 - 12 ft**	**12.5 - 17.5 ft**	**12.5 - 15 ft**	**8 - 10 ft**	**15 - 17.5 ft**
Sample Date									**08/06/2020**	**08/06/2020**	**08/06/2020**	**08/06/2020**	**08/06/2020**	**08/06/2020**	**08/06/2020**	**08/06/2020**
Sample Type									**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Chemical/Sample ID	**CAS Number**	**Units**	**MA S-1/GW-2**	**MA S-1/GW-3**	**MA S-2/GW-2**	**MA S-2/GW-3**	**MA S-3/GW-2**	**MA S-3/GW-3**	**B-101 15-18**	**B-102 13-15**	**B-103 13-15**	**B-104 10-12**	**B-105 12.5-17.5**	**B-106 12.5-15**	**B-107 8-10**	**B-108 15-17.5**
Copper	7440-50-8	mg/kg	--	--	--	--	--	--	**8.32**	**7.6**	**23.8**	**14.8**	**9.45**	**5.8**	**982**	**7.94**
Lead	7439-92-1	mg/kg	200	200	600	600	600	600	**31.1**	**40.4**	**169**	**5.68**	**12.9**	**108**	**477**	**3.66**
Mercury	7439-97-6	mg/kg	20	20	30	30	30	30	0.085 U	0.087 U	0.089 U	0.083 U	0.082 U	0.092 U	**2.92**	0.08 U
Nickel	7440-02-0	mg/kg	600	600	1,000	1,000	1,000	1,000	**15.8**	**17.4**	**15.1**	**31.4**	**22.6**	**14.1**	**17.4**	**15.8**
Selenium	7782-49-2	mg/kg	400	400	700	700	700	700	2.28 U	2.26 U	2.43 U	2.24 U	2.22 U	2.43 U	**11.5**	2.13 U
Silver	7440-22-4	mg/kg	100	100	200	200	200	200	0.456 U	0.453 U	0.487 U	0.448 U	0.444 U	0.485 U	0.428 U	0.426 U
Thallium	7440-28-0	mg/kg	8	8	60	60	80	80	2.28 U	2.26 U	2.43 U	2.24 U	2.22 U	2.43 U	2.14 U	2.13 U
Zinc	7440-66-6	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	**48.1**	**39.6**	**60.9**	**38.5**	**48.2**	**34.6**	**501**	**21.6**
General Chemistry																
Total Solids	TSOLIDS	%	--	--	--	--	--	--	**85.5**	**85.3**	**81.3**	**87.7**	**88.8**	**79.3**	**90.6**	**90.9**
EPH																
2-Methylnaphthalene	91-57-6	mg/kg	80	300	80	500	80	500	1.93 U	**15.6**	2.04 U	0.375 U	**0.54**	**0.972**	7.18 U	0.352 U
Acenaphthene	83-32-9	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Acenaphthylene	208-96-8	mg/kg	600	10	600	10	600	10	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Anthracene	120-12-7	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Benzo(a)anthracene	56-55-3	mg/kg	7	7	40	40	300	300	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Benzo(a)pyrene	50-32-8	mg/kg	2	2	7	7	30	30	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Benzo(b)fluoranthene	205-99-2	mg/kg	7	7	40	40	300	300	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Benzo(g,h,i)perylene	191-24-2	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Benzo(k)fluoranthene	207-08-9	mg/kg	70	70	400	400	3,000	3,000	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
C11-C22 Aromatics	C11-C22-AR	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	**570**	**382**	**1,060**	7.51 U	**20.8**	**294**	**6,620**	7.05 U
C11-C22 Aromatics (adjusted)	STL00203	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	**568**	**366**	**1,060**	7.51 U	**18.7**	**292**	**6,620**	7.05 U
C19-C36 Aliphatics	C19-C36-AL	mg/kg	3,000	3,000	5,000	5,000	5,000	5,000	**5,540**	**1,740**	**3,130**	7.51 U	**23**	**2,320**	**21,200**	7.05 U
C9-C18 Aliphatics	C9-C18-AL	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	**160**	**606**	**70.4**	7.51 U	**15.8**	**118**	**672**	7.05 U
Chrysene	218-01-9	mg/kg	70	70	400	400	3,000	3,000	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Dibenz(a,h)anthracene	53-70-3	mg/kg	0.7	0.7	4	4	30	30	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Fluoranthene	206-44-0	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Fluorene	86-73-7	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	7	7	40	40	300	300	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Naphthalene	91-20-3	mg/kg	20	500	20	1,000	20	3,000	**2.06**	0.752 U	2.04 U	0.375 U	**1.5**	**1.41**	7.18 U	0.352 U
Phenanthrene	85-01-8	mg/kg	500	500	1,000	1,000	3,000	3,000	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	7.18 U	0.352 U
Pyrene	129-00-0	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	1.93 U	0.752 U	2.04 U	0.375 U	0.374 U	0.813 U	**7.26**	0.352 U
VPH																
Benzene	71-43-2	mg/kg	40	40	200	200	400	1,000	0.114 U	1.22 U	**0.171**	0.094 U	**0.745**	**0.414**	**0.643**	0.088 U
C5-C8 Aliphatics	C5-C8-AL	mg/kg	100	100	500	500	500	500	**7.32**	**467**	7.22 U	4.68 U	**208**	**16.8**	**37.2**	4.4 U
C5-C8 Aliphatics (adjusted)	STL00041	mg/kg	100	100	500	500	500	500	**7.32**	**467**	7.22 U	4.68 U	**207**	**16.2**	**35.7**	4.4 U
C9-C10 Aromatics	C9-C10-AR	mg/kg	100	100	500	500	500	500	**45.8**	**1,220**	**9.13**	4.68 U	**416**	**36.9**	**35.8**	4.4 U
C9-C12 Aliphatics	C9-C12-AL	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	**52.4**	**1,570**	**10.5**	4.68 U	**608**	**47.3**	**51.6**	4.4 U
C9-C12 Aliphatics (adjusted)	STL00106	mg/kg	1,000	1,000	3,000	3,000	5,000	5,000	**6.19**	**290**	7.22 U	4.68 U	**109**	5.74 U	**11.1**	4.4 U
Ethylbenzene	100-41-4	mg/kg	500	500	1,000	1,000	1,000	3,000	0.114 U	1.22 U	0.144 U	0.094 U	**14.1**	0.115 U	**0.862**	0.088 U
m,p-Xylene	179601-23-1	mg/kg	100	500	100	1,000	100	3,000	**0.149**	**51.4**	**1.34**	0.094 U	**57.7**	**10.8**	**2.7**	0.088 U
Methyl tert-butyl ether	1634-04-4	mg/kg	100	100	100	500	100	500	0.057 U	0.608 U	**0.144**	0.047 U	0.239 U	**0.203**	**0.288**	0.044 U
Naphthalene	91-20-3	mg/kg	20	500	20	1,000	20	3,000	**0.366**	**47.8**	**0.386**	0.187 U	**17.2**	**1.28**	**0.71**	0.176 U
o-Xylene	95-47-6	mg/kg	100	500	100	1,000	100	3,000	**0.225**	**9.07**	**0.148**	0.094 U	**11.3**	0.115 U	**1.05**	0.088 U
Toluene	108-88-3	mg/kg	500	500	1,000	1,000	2,000	3,000	0.114 U	1.22 U	**1.03**	0.094 U	0.478 U	0.115 U	**0.572**	0.088 U

Notes:
Color= PAL Exceeded
Bold=Detected
NA=Not Analyzed
=-- PAL not established for this chemica
Historical results from a Phase II Environmental Site Assessment prepared by Beta Group, Inc. dated November 19, 2002.

Table 6-2
Summary of Exposure Point Concentrations and
Contaminant of Concern Statistics
Former L and M Service Station
Lunenburg, MA

Chemical	Units	Detects	Analyzed	Detect Frequency	Detect Percent	Exposure Point Concentration (NDs as 1/2 RL)	Max (NDs as Zero)	Max Location	Max Detect	Detect Range	MCP Method 1 S-1/GW-2 Standard	S-1/GW-2 Standard Exceedances	Percent of S-1/GW-2 Exceedances
Volatiles													
Naphthalene	ug/kg	4	10	4/10	40	8440	63000	B-102	63000	880 - 63000	20000	1	10%
Semivolatiles													
Naphthalene	ug/kg	0	2	0/2	0	52.8	0				20000	0	0%
Pesticides/PCBs													
Aroclor 1260	ug/kg	3	11	3/11	27.3	439	3980	B-103	3980	132 - 3980	1000	1	9%
Metals													
Arsenic	mg/kg	20	20	20/20	100	16.2	52	LM-SO-UST02	52	4.1 - 52	20	6	**30%**
Lead	mg/kg	20	20	20/20	100	57.9	477	B-107	477	3.66 - 477	200	1	5%
EPH													
C11-C22 Aromatics	mg/kg	14	18	14/18	77.8	624	6620	B-107	6620	11 - 6620	1000	3	17%
C11-C22 Aromatics (adjusted)	mg/kg	14	18	14/18	77.8	621	6620	B-107	6620	11 - 6620	1000	3	17%
C19-C36 Aliphatics	mg/kg	15	18	15/18	83.3	1990	21200	B-107	21200	12 - 21200	3000	3	17%
Naphthalene	mg/kg	6	18	6/18	33.3	1.03	5.2	MW-106	5.2	0.48 - 5.2	20	0	0%
VPH													
C5-C8 Aliphatics (adjusted)	mg/kg	11	18	11/18	61.1	70.5	500	MW-106	500	0.2 - 500	100	3	17%
C9-C10 Aromatics	mg/kg	14	18	14/18	77.8	130	1220	B-102	1220	0.024 - 1220	100	3	17%
C9-C12 Aliphatics	mg/kg	6	8	6/8	75	293	1570	B-102	1570	10.5 - 1570	1000	1	13%
C9-C12 Aliphatics (adjusted)	mg/kg	10	18	10/18	55.6	37.7	290	B-102	290	0.11 - 290	1000	0	0%
Naphthalene	mg/kg	9	18	9/18	50	4.59	47.8	B-102	47.8	0.012 - 47.8	20	1	6%

Notes:
EPH = Extractable Petroleum Hydrocarbons
VPH = Volatile Petroleum Hydrocarbons
RL = Laboratory Reporting Limit
Bold/Shaded = Percentage of exceedances above the applicable Method 1 standard exceeds the 75/25 "rule" in 310 CMR 40.926(3)(b)(1).

Table 6-3
Analysis of Brownfield Cleanup Alternatives Screening Matrix
Former L and M Service Station
Lunenburg, Massachusetts

Remedial Alternative	Remedial Technology	Description	Evaluation Criteria					Summary
			Effectiveness	Implementability	Cleanup Time	Resiliency to Climate Change	Overall Cost	
Alternative 1 - Monitored Natural Attenuation	Monitored Natural Attenuation	Long-term monitoring of physical, chemical, and biological process that, under favorable conditions, will naturally (i.e. no human involvement) reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil and/or groundwater.	Low-Medium	High	Low	Low	Medium	The long-term effectiveness of this alternative would be dependent upon the rate at which natural degradation of contaminants occurs. This alternative is feasible but the time frame for remediation is unknown due to the limited temporal data available for the Site. Therefore this remedial alternative may limit site redevelopment options in the near term.
Alternative 2 - Enhanced Aerobic Bioremediation	Enhanced Aerobic Bioremediation	Aerobic bioremediation is accomplished by introducing oxygen to the subsurface soil and groundwater, typically by injecting oxygen rich solutions like Oxygen Release Compound (ORC®). Solutions like ORC® slowly release oxygen into the surrounding soil and groundwater to boost the aerobic function of naturally occurring microorganisms.	High	Medium	Medium	Medium	High	The long-term effectiveness of this alternative is dependent on subsurface conditions, with the possibility of persistent contamination or contaminant rebound if site conditions are not optimal for the delivery of the treatment reagent. Several applications of treatment reagent may be required to achieve cleanup goals.
Alternative 3 - Chemical Oxidation	In-Situ Chemical Oxidation	Direct chemical oxidation of petroleum hydrocarbons is accomplished by introducing an oxidizer (catalyzed hydrogen peroxide, sodium persulfate, or similar) that acts to break down petroleum hydrocarbons. High percentage oxidant solutions (up to 50% is common) are applied to the targeted subsurface area through direct injection distribution system. Following the oxidant solution application, a catalyst (iron, sodium persulfate, or similar depending on the selected oxidant) is applied to the targeted subsurface area creating a reagent solution.	High	High	Medium	Medium	High	The long-term effectiveness of this alternative is dependent on subsurface conditions, with the possibility of persistent contamination or contaminant rebound if site conditions are not optimal for the delivery of the treatment reagent or amenable to the chemical reactions that form the basis of this technology. Several applications of treatment reagent may be required to achieve cleanup goals.

Table 6-4
Cost Estimate - Remedial Alternative 1
Monitored Natural Attenuation
Former L and M Service Station
Lunenburg, MA

Activity Description	Estimated Costs
LSP Consulting Services and MCP Reporting: Groundwater Sampling, Laboratory Analysis of Ground Water Samples, Phased MCP Status Reports, and Permanent Solution Statement (Closure Report).	$30,000 - $50,000
Total Project Costs	**$30,000 - $50,000**

Note:
Costs are order of magnitude estimates based on 3 years of quarterly MNA groundwater sampling and experience with similar projects.

Table 6-5
Cost Estimate - Remedial Alternative 2
Enhanced Aerobic Bioremediation
Former L and M Service Station
Lunenburg, MA

Activity Description	Estimated Costs
LSP Services (MCP Reporting, Oversight of ORC Injections, Direct Push Drilling Services, Laboratory Analytical Services)	$70,000 - $85,000
Bioremediation Remediation Subcontractor Costs	$20,000 - $30,000
Site Restoration	$5,000 - $10,000
Total Project Costs	**$95,000 - $125,000**

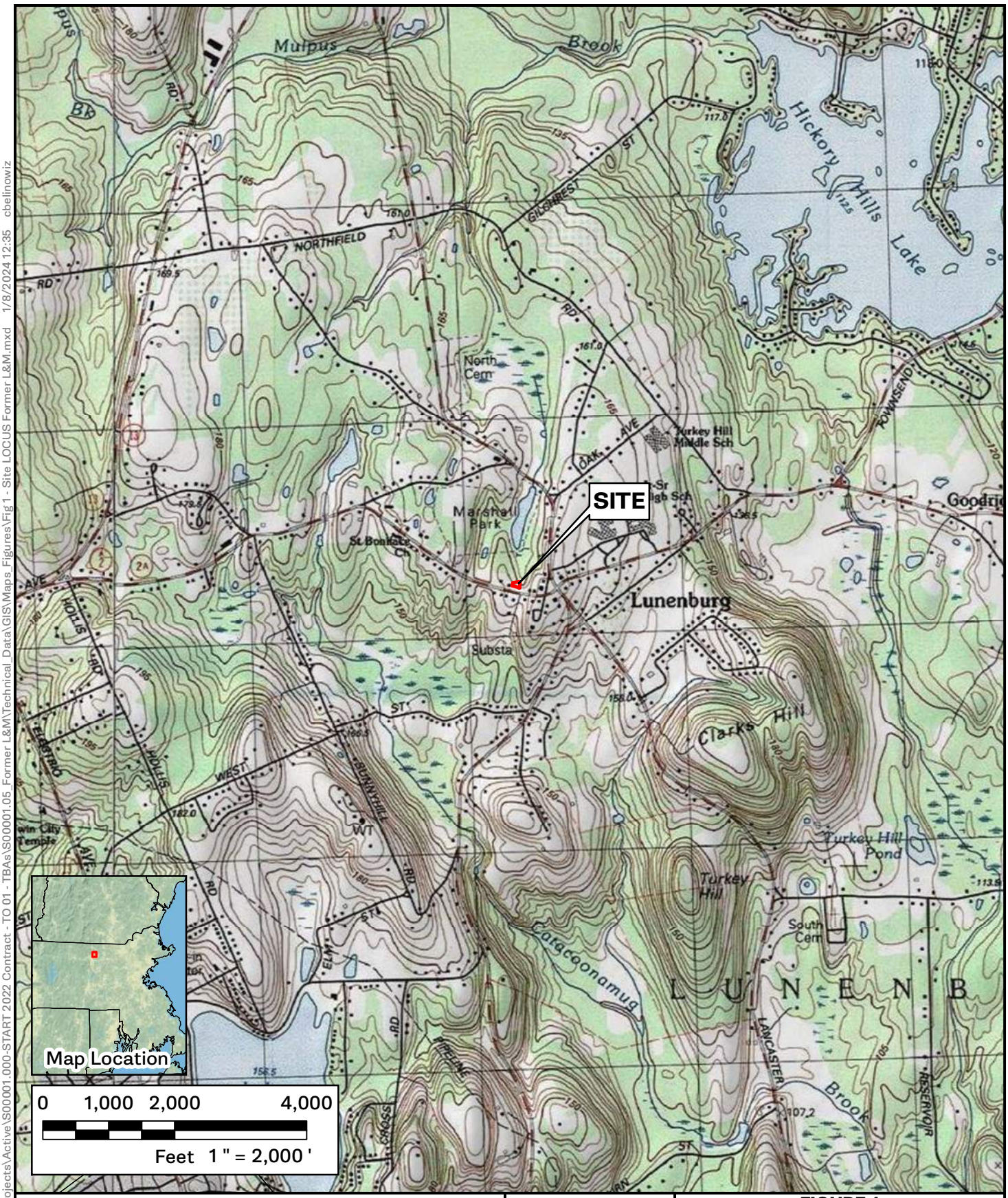
Note:
Costs are order of magnitude estimates based on experience with similar projects.

Table 6-6
Cost Estimate - Remedial Alternative 3
In Situ Chemical Oxidation
Former L and M Service Station
Lunenburg, MA

Activity Description	Estimated Costs
LSP Services (MCP Reporting, Installation of Temporary Injection Wells, ISCO Remediation Oversight, Laboratory Analytical Services)	$50,000 - $90,000
ISCO Remediation Subcontractor Costs (Bench Scale Testing and ISCO Applications)	$70,000-$120,000
Site Restoration	$5,000 - $10,000
Total Project Costs	**$125,000-$220,000**

Note:
Costs are order of magnitude estimates based on experience with similar projects.

FIGURES



USGS Topographic Map
USGS Quadrangle 7.5
Revised 1983

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FIGURE 1

SITE LOCUS
FORMER L & M
925 MASSACHUSETTS AVE
LUNENBERG, MA

PREPARED BY: CB	CHECKED BY: AR
PROJECT NO. S00001.005	DATE: JANUARY 2024

\\nobis.local\shares\Projects\Active\S00001.000-START 2022 Contract - TO 01 - TBAs\S00001.05_Former L&M\Technical_Data\GIS\Maps_Figures\Fig1 - Site LOCUS Former L&M.mxd 1/8/2024 12:35 cbelinowiz



Notes:

1. Locations of site features depicted hereon are approximate and given for illustrative purposes only.

2. (UST-01) - Sample ID label taken after excavation activities.

Legend

- Building
- Septic Tank
- Underground Storage Tank

Historic Sample Locations

- Monitoring Well
- Boring

0 7.5 15 30

Feet
1 inch = 17 feet

N

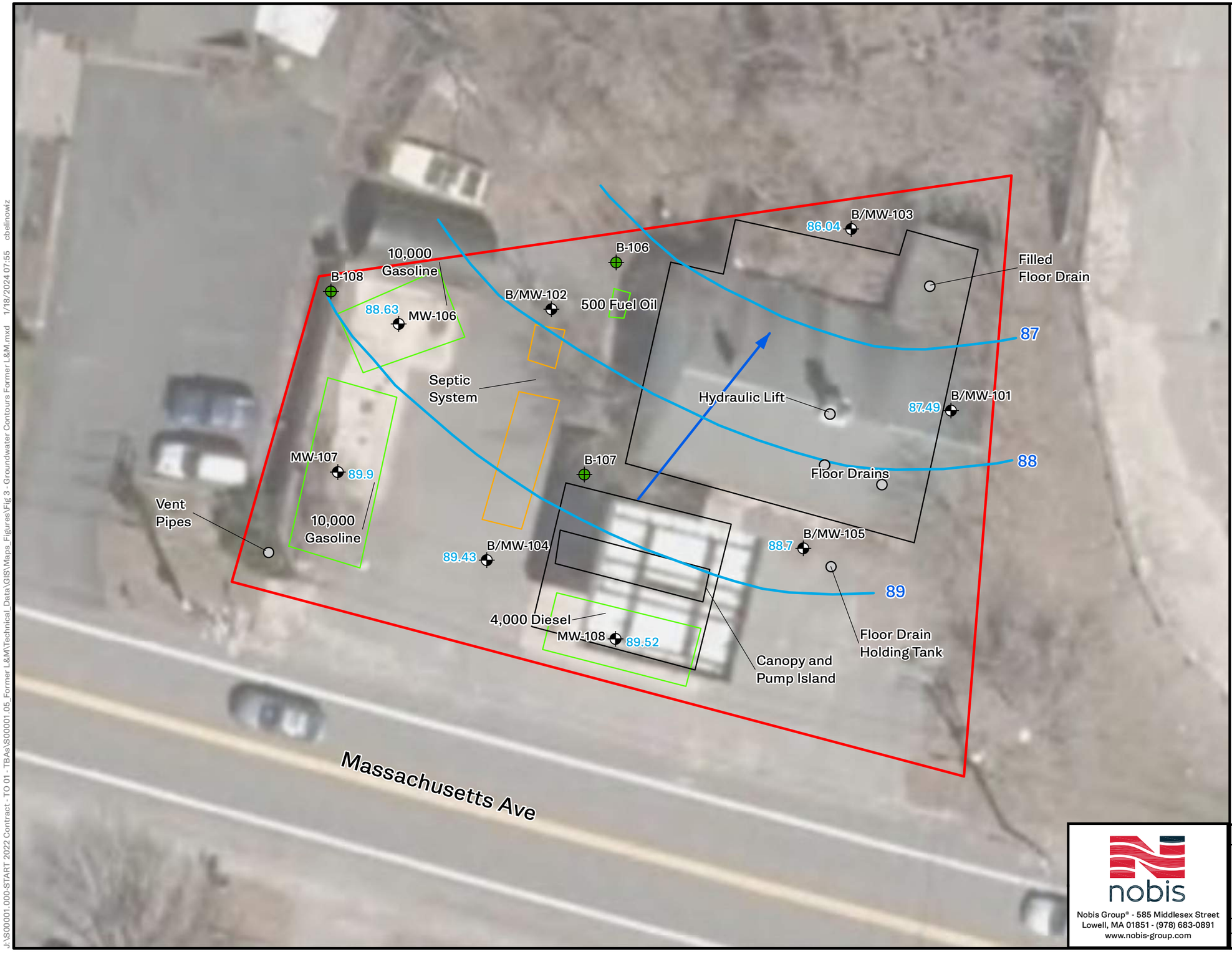
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FIGURE 2

SITE PLAN
FORMER L & M SERVICE STATION
925 MASSACHUSETTS AVE
LUNENBERG, MA

PREPARED BY: CB	CHECKED BY: AR
PROJECT NO. S00001.005	DATE: JANUARY 2024

J:\S00001.000-START 2022 Contract - TO 01 - TBAs\S00001.05_Former L&M\Technical_Data\GIS\Maps_Figures\Fig 2 - Site Plan Former L&M.mxd 1/18/2024 07:42 cbelinowiz



Notes:

1. Locations of site features depicted hereon are approximate and given for illustrative purposes only.

2. KGSNE was unable to locate B/MW-102 during the October 2023 sampling event. Therefore, no groundwater elevation is shown.

Legend

- Groundwater Contours
- Groundwater Flow Direction
- Building
- Septic Tank
- Underground Storage Tank

Historic Sample Locations

- Monitoring Well
- Boring Location

0 7.5 15 30

Feet
1 inch = 15 feet

N

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FIGURE 3

GROUNDWATER ELEVATIONS AND CONTOURS
FORMER L & M SERVICE STATION
925 MASSACHUSETTS AVE
LUNENBERG, MA

PREPARED BY: CB	CHECKED BY: AR
PROJECT NO. S00001.005	DATE: JANUARY 2024

J:\S00001.000-START 2022 Contract - TO 01 - TBAs\S00001.05_Former L&M\Technical_Data\GIS\Maps_Figures\Fig 3 - Groundwater Contours Former L&M.mxd 1/18/2024 07:55 cbelinowiz

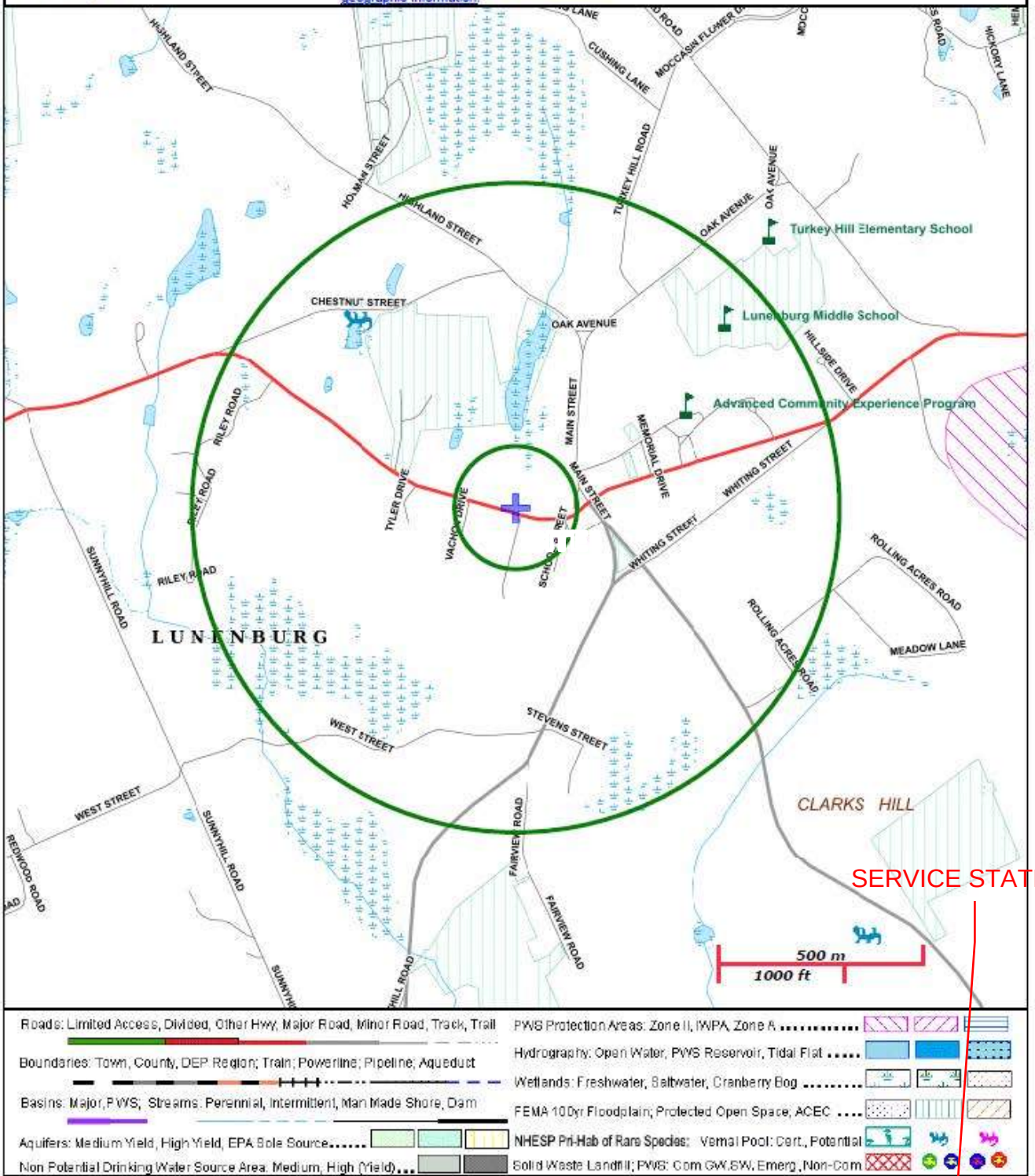
MassDEP - Bureau of Waste Site Cleanup

Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii

Site Information:
FORMER L&M SERVICE STATION
925 MASSACHUSETTS AVENUE LUNENBURG, MA
2-000002230
NAD83 UTM Meters:
4719440mN , 276280mE (Zone: 19)
December 15, 2023

The information shown is the best available at the date of printing. However, it may be incomplete. The responsible party and LSP are ultimately responsible for ascertaining the true conditions surrounding the site. Metadata for data layers shown on this map can be found at: https://www.mass.gov/orgs/massgis-bureau-of-geographic-information.

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection



Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail
Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct
Basins: Major, PWS; Streams: Perennial, Intermittent, Man Made Shore, Dam
Aquifers: Medium Yield, High Yield, EPA Sole Source
Non Potential Drinking Water Source Area: Medium, High (Yield)
PWS Protection Areas: Zone II, IWPA, Zone A
Hydrography: Open Water, PWS Reservoir, Tidal Flat
Wetlands: Freshwater, Saltwater, Cranberry Bog
FEMA 100yr Floodplain; Protected Open Space, ACEC
NHESP Pri-Hab of Rare Species: Vernal Pool: Cert., Potential
Solid Waste Landfill; PWS: Com GW,SW, Emerg, Non-Com

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FIGURE 4

MassDEP PRIORITY RESOURCE MAP
FORMER L & M
925 MASSACHUSETTS AVE
LUNENBURG, MA

PREPARED BY: CB	CHECKED BY: AR
PROJECT NO. S00001.005	DATE: JANUARY 2024

APPENDIX A

APPENDIX A
PHOTOGRAPH LOG
FORMER L&M SERVICE STATION
LUNENBURG, MA



Photo 1. Pump island in the center of the site after concrete was removed (May 2023).



Photo 2. Canopy hanging over pump island after it was demolished (May 2023).

APPENDIX A
PHOTOGRAPH LOG
FORMER L&M SERVICE STATION
LUNENBURG, MA



Photo 3. Petroleum impacted soil from one of the 10,000-gallon gasoline USTs (May 2023).



Photo 4. Removal of the sump located between the two 10,000-gallon gasoline USTs. (May 2023).

APPENDIX A
PHOTOGRAPH LOG
FORMER L&M SERVICE STATION
LUNENBURG, MA



Photo 5. Gasoline UST-01 as it was being uncovered in preparation for removal (May 2023).



Photo 6. Gasoline UST-01 and 02 during removal (May 2023).

APPENDIX A
PHOTOGRAPH LOG
FORMER L&M SERVICE STATION
LUNENBURG, MA



Photo 7. Gasoline UST-01 as it is being removed from the ground (May 2023).



Photo 8. One gasoline UST after removal. Large holes occurred during removal from the excavator bucket (May 2023).

APPENDIX A
PHOTOGRAPH LOG
FORMER L&M SERVICE STATION
LUNENBURG, MA



Photo 9. A gasoline UST being loaded out for disposal (May 2023).



Photo 10. Diesel fuel UST following removal (May 2023).

APPENDIX A
PHOTOGRAPH LOG
FORMER L&M SERVICE STATION
LUNENBURG, MA



Photo 11. The second gasoline UST as it was loaded out for disposal (May 2023).



Photo 12. Pitting and corrosion on the diesel fuel UST (May 2023).



Photo 13. Corrosion and pitting on one of the gasoline USTs after removal (May 2023).



Photo 14. Diesel fuel UST being loaded out for disposal (May 2023).

APPENDIX A
PHOTOGRAPH LOG
FORMER L&M SERVICE STATION
LUNENBURG, MA



Photo 15. Well B/MW-103 found behind the building on site (May 2023).



Photo 16. Heating oil UST following removal (May 2023).



Photo 17. Pitting, corrosion, and hole in heating oil UST (May 2023).



Photo 18. Photograph of the on-site building after UST removal and pump island demolition (May 2023).

APPENDIX A
PHOTOGRAPH LOG
FORMER L&M SERVICE STATION
LUNENBURG, MA



Photo 19. Liquid and sludge waste from the UST cleaning process (June 2023).



Photo 20. Concrete from during excavation, staged for disposal (June 2023).

APPENDIX A
PHOTOGRAPH LOG
FORMER L&M SERVICE STATION
LUNENBURG, MA



Photo 21. Stockpile from excavated soil during UST removal (August 2023).



Photo 22. Subsurface soils during drilling at MW-106 (October 2023).

APPENDIX A
PHOTOGRAPH LOG
FORMER L&M SERVICE STATION
LUNENBURG, MA



Photo 23. Subsurface soil during drilling at MW-107 (October 2023).



Photo 24. Hydraulic lift located inside the garage building (October 2023).

APPENDIX A
PHOTOGRAPH LOG
FORMER L&M SERVICE STATION
LUNENBURG, MA



Photo 25. Hydraulic lift removal (October 2023).



Photo 26. Removal of floor drain holding tank liquids (October 2023).

APPENDIX A
PHOTOGRAPH LOG
FORMER L&M SERVICE STATION
LUNENBURG, MA



Photo 27. Hydraulic lift removal (October 2023).



Photo 28. Hydraulic lift removal (October 2023).

APPENDIX A
PHOTOGRAPH LOG
FORMER L&M SERVICE STATION
LUNENBURG, MA



Photo 29. Hydraulic lift removal (October 2023).



Photo 30. Hydraulic lift load out for disposal (October 2023).



Photo 31. Sludge waste from holding tank removal containerized for disposal (October 2023).



Photo 32. Excavation of holding tank during removal (October 2023).



Photo 33. Excavation of holding tank sludge during removal (October 2023).



Photo 34. Backfilling the holding tank excavation (October 2023).

APPENDIX B

Low-Flow Field Log

Site Name: Former L&M
Job Number: S00001.005
Sampler: P. Moran

Date: 5/17/2023

Well ID: B/MW-101
Sample ID: LM-GW-BMW101-051723
Reviewed By:

Measurement Reference Point (MP): pvc (PVC, Casing, Ground, etc.)
Depth to GW: 11.39 (ft from MP)
Depth to Bottom: 19.43 (ft from MP)
Pump Intake Depth: 18 (ft from MP)
Well depth as installed: 20 (ft bgs)
Screen interval (range): 10 - 20 (ft bgs)

Purging start time: 11:40
Parameter stabalization (Y/N): Y
Two hour time limit reached (Y/N): N
Sample time: 12:45
Total volume purged (gals): 2.5
Time at purge completion: 1:10

Equipment Vendor: US Environmental
Pump Type: Peri
Turbidity Meter: Geotech
Serial #: 17061367
Multimeter: YSI Pro Quatro
Serial #: 21k103657

Notes (Initial PID reading, SOP deviations, etc.):

Lab Analyses:
QC Info (Duplicate, MS/MSD)

Clock Time	Bladder Pump Discharge/ Refill	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp ±3%	Spec. Cond. ±3%	pH ±0.1	ORP ±10	DO ±10% if >0.5 mg/L	Turbidity ±10% if >5 NTU	Comments/Gas Pressure/Observations	Stability Calculator (auto)
HHMM	sec./sec. or setting	ml/min	ft. below MP	ft.	ft.	oC	µS/cmc		mV	mg/L	NTU		
		168		-11.39	-11.39								
1145		168	11.46	11.46	0.07	12.60	2088	5.95	157.9	0.32	37		
1155		168	11.51	0.05	0.12	11.40	2091	5.92	171.9	0.48	27.1		
1200		168	11.52	0.01	0.13	12.10	2098	5.90	172.4	0.32	13.5		Not Stable
1205		168	11.54	0.02	0.15	11.40	2110	5.90	174.5	0.31	12.8		Not Stable
1210		168	11.55	0.01	0.16	10.90	2109	5.89	175.8	0.27	13		Not Stable
1215		168	11.55	0.00	0.16	11.80	2116	5.88	173.9	0.25	10.3		Not Stable
1220		168	11.56	0.01	0.17	11.60	2113	5.86	173.6	0.24	6.14		Not Stable
1225		168	11.57	0.01	0.18	11.20	2139	5.86	173.7	0.23	5.11		Not Stable
1230		168	11.57	0.00	0.18	10.80	2148	5.86	173.8	0.23	4.09		Not Stable
1235		168	11.58	0.01	0.19	11.10	2168	5.85	173.2	0.22	3.97		Not Stable
1240		168	11.58	0.00	0.19	11.10	2177	5.85	172.3	0.22	2.33		Stable

Low-Flow Field Log

Site Name: Former L&M
Job Number: S00001.005
Sampler: B. Fortier

Date: 5/17/2023

Well ID: B/MW-102
Sample ID: LM-GW-B/MW102-051723
Reviewed By: B. Fortier

Measurement Reference Point (MP): PVC (PVC, Casing, Ground, etc.)
Depth to GW: 11.36 (ft from MP)
Depth to Bottom: 19.56 (ft from MP)
Pump Intake Depth: 18 (ft from MP)
Well depth as installed: 20 (ft bgs)
Screen interval (range): 10-20 (ft bgs)

Purging start time: 11:50
Parameter stabalization (Y/N): Y
Two hour time limit reached (Y/N): N
Sample time: 12:40
Total volume purged (gals): 2.5
Time at purge completion: 13:05

Equipment Vendor: US Environmental
Pump Type: Peristaltic
Turbidity Meter: Geotech
Serial #: 19062110
Multimeter: YSI ProQuatro
Serial #: 22F103523

Notes (Initial PID reading, SOP deviations, etc.):

Lab Analyses: VPH, EPH, dissolved metals
QC Info (Duplicate, MS/MSD): FD @ 8:00

Clock Time	Bladder Pump Discharge/ Refill	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp ±3%	Spec. Cond. ±3%	pH ±0.1	ORP ±10	DO ±10% if >0.5 mg/L	Turbidity ±10% if >5 NTU	Comments/Gas Pressure/Observations	Stability Calculator (auto)
HHMM	sec./sec. or setting	ml/min	ft. below MP	ft.	ft.	oC	µS/cmc		mV	mg/L	NTU		
11:50		210	11.36	0.00	0.00								
12:00		210	12.02	0.66	0.66	11.50	1313	6.39	-44	0.39	10.3		
12:05		210	12.04	0.02	0.68	11.30	1544	6.43	-53.2	0.15	8.42		
12:10		210	12.02	-0.02	0.66	11.40	1651	6.44	-57.5	0.12	5.65		Not Stable
12:15		210	12.02	0.00	0.66	11.50	1714	6.45	-60.3	0.10	5.30		Not Stable
12:20		210	12.02	0.00	0.66	11.50	1767	6.46	-63.2	0.07	6.50		Not Stable
12:25		210	12.02	0.00	0.66	11.50	1794	6.46	-64.9	0.05	3.81		Not Stable
12:30		210	12.02	0.00	0.66	11.40	1817	6.46	-66.3	0.05	3.52		Not Stable
12:35		210	12.02	0.00	0.66	11.50	1825	6.47	-68.3	0.05	2.81	Visible sheen and petroleum smell	Stable

Low-Flow Field Log

Site Name: Former L& M
Job Number: S00001.005/400
Sampler: S. Stone

Date: 6/1/2023

Well ID: MW-103
Sample ID: LM-GW-MW103-060223
Reviewed By:

Measurement Reference Point (MP): PVC (PVC, Casing, Ground, etc.)
Depth to GW: 13.31 (ft from MP)
Depth to Bottom: 16.85 (ft from MP)
Pump Intake Depth: (ft from MP)
Well depth as installed: (ft bgs)
Screen interval (range): (ft bgs)

Purging start time: ,1330
Parameter stabalization (Y/N): N
Two hour time limit reached (Y/N): N
Sample time: 0:00
Total volume purged (gals): 0.25
Time at purge completion: 0:00

Equipment Vendor: US Environmental
Pump Type: Peristaltic

Turbidity Meter: Lamotte 2020T
Serial #: #3070-3522

Multimeter: YSI Pro DSS Display
Serial #: #21F103693

Notes (Initial PID reading, SOP deviations, etc.):

Lab Analyses:
QC Info (Duplicate, MS/MSD)

Clock Time	Bladder Pump Discharge/ Refill	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp ±3%	Spec. Cond. ±3%	pH ±0.1	ORP ±10	DO ±10% if >0.5 mg/L	Turbidity ±10% if >5 NTU	Comments/Gas Pressure/Observations	Stability Calculator (auto)
HHMM	sec./sec. or setting	ml/min	ft. below MP	ft.	ft.	oC	µS/cmc		mV	mg/L	NTU		
				-13.31	-13.31								
1335			15.90	15.90	2.59	11.90	1646	6.34	133.7	2.72			
1345												Went dry before first turbidity reading	

Low-Flow Field Log

Site Name: Former L&M
Job Number: S00001.005
Sampler: B. Fortier

Date: 5/17/2023

Well ID: B/MW-104
Sample ID: LM-GW-B/MW104-051723
Reviewed By: B. Fortier

Measurement Reference Point (MP): PVC (PVC, Casing, Ground, etc.)
Depth to GW: 9.00 (ft from MP)
Depth to Bottom: 19.61 (ft from MP)
Pump Intake Depth: 18 (ft from MP)
Well depth as installed: 20 (ft bgs)
Screen interval (range): 5-20 (ft bgs)

Purging start time: 9:35
Parameter stabalization (Y/N): Y
Two hour time limit reached (Y/N): N
Sample time: 10:45
Total volume purged (gals): 2.5
Time at purge completion: 11:45

Equipment Vendor: US Environmental
Pump Type: Peristaltic

Turbidity Meter: Geotech
Serial #: 19062110

Multimeter: YSI ProQuatro
Serial #: 22F103523

Notes (Initial PID reading, SOP deviations, etc.):

Lab Analyses: VPH, EPH, dissolved metals
QC Info (Duplicate, MS/MSD): MS/MSD

Clock Time	Bladder Pump Discharge/ Refill	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp ±3%	Spec. Cond. ±3%	pH ±0.1	ORP ±10	DO ±10% if >0.5 mg/L	Turbidity ±10% if >5 NTU	Comments/Gas Pressure/Observations	Stability Calculator (auto)
HHMM	sec./sec. or setting	ml/min	ft. below MP	ft.	ft.	oC	µS/cmc		mV	mg/L	NTU		
9:35		180	9.00	0.00	0.00								
9:40		180	9.69	0.69	0.69	12.20	2500	6.61	20.2	1.19	263	some orange iron flocc	
9:50		180	10.30	0.61	1.30	11.80	2499	6.41	18.6	0.28	162		
9:55		180	10.99	0.69	1.99	11.70	2500	6.40	14.8	0.21	110		Not Stable
10:10		180	11.75	0.76	2.75	12.30	2525	6.29	20.4	0.34	144		Not Stable
10:15		140	11.84	0.09	2.84	12.50	2501	6.39	16.3	0.25	32.6		Not Stable
10:20		140	11.97	0.13	2.97	12.60	2449	6.45	15.9	0.16	26.8		Not Stable
10:25		140	11.95	-0.02	2.95	12.50	2445	6.45	16.0	0.21	90		Not Stable
10:30		140	11.95	0.00	2.95	12.40	2431	6.45	17.0	0.16	25		Not Stable
10:35		140	11.90	-0.05	2.90	12.70	2416	6.36	14.7	0.15	25.3		Not Stable
10:40		140	11.90	0.00	2.90	12.50	2399	6.44	11.9	0.07	24.8		Stable

Low-Flow Field Log

Site Name: Former L&M
Job Number: S00001.005
Sampler: P. Moran

Date: 5/17/2023

Well ID: B/MW-105
Sample ID: LM-GW-BMW105-051723
Reviewed By:

Measurement Reference Point (MP): pvc (PVC, Casing, Ground, etc.)
Depth to GW: 10.05 (ft from MP)
Depth to Bottom: 19.36 (ft from MP)
Pump Intake Depth: 18 (ft from MP)
Well depth as installed: 20 (ft bgs)
Screen interval (range): 5 - 20 (ft bgs)

Purging start time: 9:10
Parameter stabalization (Y/N): Y
Two hour time limit reached (Y/N): N
Sample time: 10:40
Total volume purged (gals): 2.5
Time at purge completion: 11:00

Equipment Vendor: US environmental
Pump Type: Peri
Turbidity Meter: Geotech
Serial #: 17061367
Multimeter: YSI Pro Quatro
Serial #: 21k103657

Notes (Initial PID reading, SOP deviations, etc.):

Lab Analyses:
QC Info (Duplicate, MS/MSD)

Clock Time	Bladder Pump Discharge/ Refill	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp ±3%	Spec. Cond. ±3%	pH ±0.1	ORP ±10	DO ±10% if >0.5 mg/L	Turbidity ±10% if >5 NTU	Comments/Gas Pressure/Observations	Stability Calculator (auto)
HHMM	sec./sec. or setting	ml/min	ft. below MP	ft.	ft.	oC	µS/cmc		mV	mg/L	NTU		
				-10.05	-10.05								
917		188	11.50	11.50	1.45	11.60	4213	6.24	130.5	1.56	58.7		
922		188	11.61	0.11	1.56	11.70	4208	6.24	132.8	0.51	61.3		
927		188	11.78	0.17	1.73	11.70	4187	6.24	134.1	0.36	60.1		Not Stable
932		188	11.90	0.12	1.85	11.60	4164	6.24	134.2	0.30	42.7		Not Stable
937		188	12.05	0.15	2.00	11.60	4169	6.24	117.6	0.27	68		Not Stable
942		188	12.10	0.05	2.05	11.60	4102	6.26	67	0.26	52.4		Not Stable
947		188	12.15	0.05	2.10	11.60	4123	6.26	44.7	0.24	38.6		Not Stable
952		188	12.20	0.05	2.15	11.50	4128	6.25	39.9	0.23	35.1		Not Stable
957		188	12.22	0.02	2.17	11.50	4099	6.25	32.4	0.21	18.1		Not Stable
1002		188	12.28	0.06	2.23	11.50	4097	6.26	16.6	0.22	14.3		Not Stable
1010		188	12.32	0.04	2.27	11.50	4089	6.26	7.7	0.22	13.7		Not Stable
1015		188	12.35	0.03	2.30	11.50	4076	6.26	6	0.21	9.39		Not Stable
1020		188	12.40	0.05	2.35	11.50	4063	6.26	5.3	0.21	6.07		Not Stable
1025		188	12.41	0.01	2.36	11.50	4067	6.26	6.8	0.21	7.08		Not Stable
1030		188	12.43	0.02	2.38	11.60	4044	6.26	8.9	0.20	7.51		Not Stable
1035		188	12.46	0.03	2.41	11.60	4053	6.26	11	0.20	7.25		Stable

Low-Flow Field Log

Site Name: Former L&M
Job Number: S00001.05
Sampler: C. Belinowiz

Date:

Well ID: B/MW-106
Sample ID:
Reviewed By:

Measurement Reference Point (MP): pvc (PVC, Casing, Ground, etc.)
Depth to GW: 9.97 (ft from MP)
Depth to Bottom: 19.55 (ft from MP)
Pump Intake Depth: 19 (ft from MP)
Well depth as installed: 20 (ft bgs)
Screen interval (range): 10-20 (ft bgs)

Purging start time: 13:05
Parameter stabalization (Y/N): y
Two hour time limit reached (Y/N): n
Sample time: 13:35
Total volume purged (gals): 2
Time at purge completion: 13:50

Equipment Vendor: U.S Environmental
Pump Type: Peristatic
Turbidity Meter: Geotech
Serial #: 17111537
Multimeter: YSI
Serial #: 09E101042

Notes (Initial PID reading, SOP deviations, etc.):

Lab Analyses:
QC Info (Duplicate, MS/MSD)

Clock Time	Bladder Pump Discharge/ Refill	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp ±3%	Spec. Cond. ±3%	pH ±0.1	ORP ±10	DO ±10% if >0.5 mg/L	Turbidity ±10% if >5 NTU	Comments/Gas Pressure/Observations	Stability Calculator (auto)
HHMM	sec./sec. or setting	ml/min	ft. below MP	ft.	ft.	oC	µS/cmc		mV	mg/L	NTU		
				-9.97	-9.97								
1305		200	9.97	9.97	0.00	17.04	589	6.50	105.8	0.28	12.5	Strong Petroleum Smell	
1310		200	10.12	0.15	0.15	17.07	590	6.50	121.7	0.34	7.96		
1315		200	10.12	0.00	0.15	16.95	590	6.50	125	0.34	5.94		Not Stable
1320		200	10.13	0.01	0.16	16.92	590	6.50	125.6	0.33	3.84		Not Stable
1325		200	10.15	0.02	0.18	16.95	590	6.50	133.6	0.34	4.36		Not Stable
1330		200	10.15	0.00	0.18	16.90	590	6.50	135	0.31	2.91		Stable

Low-Flow Field Log

Site Name: Former L&M
Job Number: S00001.05
Sampler: C. Belinowiz

Date: 10/26/2023

Well ID: B/MW-107
Sample ID: LM-MW107-102623
Reviewed By:

Measurement Reference Point (MP): PVC (PVC, Casing, Ground, etc.)
Depth to GW: 8.18 (ft from MP)
Depth to Bottom: 19.58 (ft from MP)
Pump Intake Depth: 19 (ft from MP)
Well depth as installed: 20 (ft bgs)
Screen interval (range): 10-20 (ft bgs)

Purging start time: 11:20
Parameter stabalization (Y/N): Y
Two hour time limit reached (Y/N): N
Sample time: 12:00
Total volume purged (gals): 2 gals
Time at purge completion: 12:30

Equipment Vendor: U.S Environmental
Pump Type: Peristatic
Turbidity Meter: Geotech
Serial #: 17111537
Multimeter: YSI
Serial #: 09E101042

Notes (Initial PID reading, SOP deviations, etc.):

Lab Analyses: Eph, VPH, MCP 14- Dissolved Metals
QC Info (Duplicate, MS/MSD): field dup

Clock Time	Bladder Pump Discharge/ Refill	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp ±3%	Spec. Cond. ±3%	pH ±0.1	ORP ±10	DO ±10% if >0.5 mg/L	Turbidity ±10% if >5 NTU	Comments/Gas Pressure/Observations	Stability Calculator (auto)
HHMM	sec./sec. or setting	ml/min	ft. below MP	ft.	ft.	oC	µS/cmc		mV	mg/L	NTU		
				-8.18	-8.18								
1125		140	8.35	8.35	0.17	17.06	436	6.60	-77.5	0.22	3.31		
1130		140	8.33	-0.02	0.15	16.98	453	6.56	-73.1	0.22	3.85		
1135		140	8.34	0.01	0.16	16.90	475	6.54	-64.4	0.19	2.62		Not Stable
11:40		140	8.33	-0.01	0.15	16.92	488	6.54	-76.7	0.17	0.88		Not Stable
11:45		140	8.34	0.01	0.16	17.00	498	6.55	-83.7	0.14	0.08		Not Stable
11:50		140	8.35	0.01	0.17	16.91	502	6.55	-87.4	0.13	0.02		Not Stable
1155		140	8.34	-0.01	0.16	16.80	502	6.56	-91.2	0.12	0.74		Stable

Low-Flow Field Log

Site Name: Former L&M
Job Number: S00001.05
Sampler: C. Belinowiz

Date: 10/26/2023

Well ID: B/MW-108
Sample ID: LM-MW108-102623
Reviewed By:

Measurement Reference Point (MP): pvc (PVC, Casing, Ground, etc.)
Depth to GW: 9.15 (ft from MP)
Depth to Bottom: 19.52 (ft from MP)
Pump Intake Depth: 19 (ft from MP)
Well depth as installed: 20 (ft bgs)
Screen interval (range): 10-20 (ft bgs)

Purging start time: 8:45
Parameter stabalization (Y/N): y
Two hour time limit reached (Y/N): n
Sample time: 10:05
Total volume purged (gals): 4
Time at purge completion: 11:15

Equipment Vendor: U.S Environmental
Pump Type: Peristatic
Turbidity Meter: Geotech
Serial #: 17111537
Multimeter: YSI
Serial #: 09E101042

Notes (Initial PID reading, SOP deviations, etc.):

Lab Analyses: metals, eph, vph
QC Info (Duplicate, MS/MSD): msmsd

Clock Time	Bladder Pump Discharge/ Refill	Purge Rate	Depth to Water	Draw down	Cum. Draw down	Temp ±3%	Spec. Cond. ±3%	pH ±0.1	ORP ±10	DO ±10% if >0.5 mg/L	Turbidity ±10% if >5 NTU	Comments/Gas Pressure/Observations	Stability Calculator (auto)
HHMM	sec./sec. or setting	ml/min	ft. below MP	ft.	ft.	oC	µS/cmc		mV	mg/L	NTU		
				-9.15	-9.15								
845		186	9.61	9.61	0.46	15.73	2656	6.43	94	0.91	32.1		
850		186	10.00	0.39	0.85	15.67	2667	6.38	94.4	0.63	12.4		
900		186	10.09	0.09	0.94	15.63	2710	6.35	102.1	0.55	7.74		Not Stable
905		186	10.02	-0.07	0.87	15.60	2728	6.34	105.2	0.65	7.89		Not Stable
910		186	10.10	0.08	0.95	15.57	2734	6.34	104.3	0.65	8.2		Not Stable
915		186	10.10	0.00	0.95	15.59	2722	6.34	102	0.65	20.9		Not Stable
920		186	10.11	0.01	0.96	15.59	2730	6.34	99	0.64	16		Not Stable
925		186	10.15	0.04	1.00	15.57	2733	6.34	99.4	0.66	14.1		Not Stable
930		186	10.19	0.04	1.04	15.57	2738	6.34	99.6	0.68	24.8		Not Stable
935		186	10.19	0.00	1.04	15.57	2735	6.34	101.3	0.70	12.9		Not Stable
940		186	10.18	-0.01	1.03	15.58	2747	6.33	102.4	0.73	8.99		Not Stable
945		186	10.19	0.01	1.04	15.58	2745	6.34	103.4	0.76	7.87		Not Stable
950		186	10.19	0.00	1.04	15.59	2743	6.33	105.7	0.77	4.73		Not Stable
955		186	10.19	0.00	1.04	15.59	2743	6.34	107.4	0.77	4.33		Not Stable
1000		186	10.19	0.00	1.04	15.59	2745	6.34	110.3	0.79	4.04		Stable

APPENDIX C

ANALYTICAL REPORT

PREPARED FOR

Attn: Adam Roy
Nobis Engineering, Inc.
585 Middlesex Street
Lowell, Massachusetts 01851

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JOB DESCRIPTION

Former L&M - Lunenburg MA

JOB NUMBER

620-11550-1

Eurofins New England
646 Camp Ave
North Kingstown RI 02852

See page two for job notes and contact information.

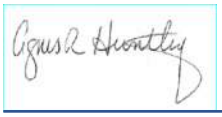
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Job Notes

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Authorization



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Authorized for release by
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Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
State Forms 5
MCP Checklist 5
Case Narrative 6
Detection Summary 7
Client Sample Results 9
Surrogate Summary 20
QC Sample Results 22
QC Association Summary 35
Lab Chronicle 39
Certification Summary 41
Method Summary 43
Sample Summary 44
Chain of Custody 45
Receipt Checklists 46

Definitions/Glossary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
F1	MS and/or MSD recovery exceeds control limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

MassDEP Analytical Protocol Certfication Form

Laboratory Name: Eurofins New England | Project #: 620-11550-1

Project Location: Former L&M - Lunenburg MA | RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
620-11550-1 through 620-11550-6

Matrices: ☑ Groundwater/Surface Water ☐ Soil/Sediment ☐ Drinking Water ☐ Air ☐ Other:

CAM Protocol (check all that apply below:)

8260 VOC CAM II A ☐	7470/7471 Hg CAM III B ☑	MassDEP VPH (GC/PID/FID) CAM IV A ☑	8082 PCB CAM V A ☐	9014 Total Cyanide/PAC CAM VI A ☐	6860 Perchlorate CAM VIII B ☐
8270 SVOC CAM II B ☐	7010 Metals CAM III C ☐	MassDEP VPH (GC/MS) CAM IV C ☐	8081 Pesticides CAM V B ☐	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
6010 Metals CAM III A ☑	6020 Metals CAM III D ☐	MassDEP EPH CAM IV B ☑	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes ☐ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☑ Yes ☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes ☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☑ Yes ☐ No
E	VPH, EPH, APH, and TO-15 only a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☑ Yes ☐ No ☐ Yes ☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☑ Yes ☐ No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☑ Yes ☐ No[1]

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☑ Yes ☐ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes ☐ No[1]

1 All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature: Agnes R Huntley **Position:** Project Manager

Printed Name: Agnes Huntley **Date:** 05/30/2023

Job ID: 620-11550-1

Laboratory: Eurofins New England

Narrative

Job Narrative
620-11550-1

Receipt
The samples were received on 5/18/2023 4:31 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.8º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA
Method EPH: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 620-22911 and 620-22956 and analytical batch 620-23053 recovered outside control limits for the following analytes: Naphthalene. The individual percent recoveries are within acceptance limits.

Method EPH: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 620-22769 and 620-22824 and analytical batch 620-22894 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA
Method MAVPH2.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 620-22877 were outside control limits for the following ranges: C9-C10 Aromatics, C5-C8 Aliphatics (unadjusted), C9-C12 Aliphatics (unadjusted). This is due to the summation of peaks including baseline for client samples.The associated laboratory control sample (LCS) recovery is within acceptance limits; therefor, the data have been reported and qualified.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA
Method MAEPH2.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 620-22769 and 620-22824 and analytical batch 620-22850 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

Method MAEPH2.1: The matrix spike and matrix spike duplicate were inadvertently spiked at the EPH MS spike amount, resulting in a low recovery.

LM-GW-B/MW104-051723 (620-11550-5[MS]) and LM-GW-B/MW104-051723 (620-11550-5[MSD])

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Client Sample ID: LM-GW-B/MW105-051723 — Lab Sample ID: 620-11550-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.0045		0.0060	0.0016	mg/L	1		6010D	Dissolved
Barium	0.23		0.0050	0.00070	mg/L	1		6010D	Dissolved
Nickel	0.00090		0.0050	0.00087	mg/L	1		6010D	Dissolved
Zinc	0.0026		0.025	0.0016	mg/L	1		6010D	Dissolved

Client Sample ID: LM-GW-B/MW102-051723 — Lab Sample ID: 620-11550-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	28		1.0	0.23	ug/L	1		EPH	Total/NA
2-Methylnaphthalene	2.3		1.0	0.29	ug/L	1		EPH	Total/NA
C5-C8 Aliphatics (adjusted)	560		100	100	ug/L	1		MAVPH2.1	Total/NA
C5-C8 Aliphatics (unadjusted)	580		100	100	ug/L	1		MAVPH2.1	Total/NA
Benzene	12		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
Naphthalene	77		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
C9-C12 Aliphatics (adjusted) - DL	3000		1000	1000	ug/L	10		MAVPH2.1	Total/NA
C9-C10 Aromatics - DL	2000		1000	1000	ug/L	10		MAVPH2.1	Total/NA
C9-C12 Aliphatics (unadjusted) - DL	6800		1000	1000	ug/L	10		MAVPH2.1	Total/NA
Ethylbenzene - DL	490		50	50	ug/L	10		MAVPH2.1	Total/NA
m,p-Xylene - DL	1400		100	100	ug/L	10		MAVPH2.1	Total/NA
Xylenes, Total - DL	1400		150	150	ug/L	10		MAVPH2.1	Total/NA
C11-C22 Aromatics	100		100	100	ug/L	1		MAEPH2.1	Total/NA
Antimony	0.0049		0.0060	0.0016	mg/L	1		6010D	Dissolved
Arsenic	0.025		0.0040	0.0014	mg/L	1		6010D	Dissolved
Barium	0.12		0.0050	0.00070	mg/L	1		6010D	Dissolved
Nickel	0.0024		0.0050	0.00087	mg/L	1		6010D	Dissolved
Zinc	0.0021		0.025	0.0016	mg/L	1		6010D	Dissolved

Client Sample ID: LM-FD-051723 — Lab Sample ID: 620-11550-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	33		1.0	0.23	ug/L	1		EPH	Total/NA
2-Methylnaphthalene	2.8		1.0	0.29	ug/L	1		EPH	Total/NA
C5-C8 Aliphatics (adjusted)	600		100	100	ug/L	1		MAVPH2.1	Total/NA
C5-C8 Aliphatics (unadjusted)	610		100	100	ug/L	1		MAVPH2.1	Total/NA
Benzene	12		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
Naphthalene	76		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
C9-C12 Aliphatics (adjusted) - DL	3000		1000	1000	ug/L	10		MAVPH2.1	Total/NA
C9-C10 Aromatics - DL	2000		1000	1000	ug/L	10		MAVPH2.1	Total/NA
C9-C12 Aliphatics (unadjusted) - DL	7000		1000	1000	ug/L	10		MAVPH2.1	Total/NA
Ethylbenzene - DL	500		50	50	ug/L	10		MAVPH2.1	Total/NA
m,p-Xylene - DL	1500		100	100	ug/L	10		MAVPH2.1	Total/NA
Xylenes, Total - DL	1500		150	150	ug/L	10		MAVPH2.1	Total/NA
C11-C22 Aromatics	110		100	100	ug/L	1		MAEPH2.1	Total/NA
Antimony	0.0051		0.0060	0.0016	mg/L	1		6010D	Dissolved
Arsenic	0.026		0.0040	0.0014	mg/L	1		6010D	Dissolved
Barium	0.12		0.0050	0.00070	mg/L	1		6010D	Dissolved
Nickel	0.0027		0.0050	0.00087	mg/L	1		6010D	Dissolved
Zinc	0.0035		0.025	0.0016	mg/L	1		6010D	Dissolved

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Client Sample ID: LM-GW-B/MW101-051723 — Lab Sample ID: 620-11550-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.0028		0.0060	0.0016	mg/L	1		6010D	Dissolved
Barium	0.28		0.0050	0.00070	mg/L	1		6010D	Dissolved
Cadmium	0.0011		0.0025	0.00036	mg/L	1		6010D	Dissolved
Lead	0.060		0.0075	0.0062	mg/L	1		6010D	Dissolved
Nickel	0.0069		0.0050	0.00087	mg/L	1		6010D	Dissolved
Zinc	0.20		0.025	0.0016	mg/L	1		6010D	Dissolved

Client Sample ID: LM-GW-B/MW104-051723 — Lab Sample ID: 620-11550-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.0053		0.0060	0.0016	mg/L	1		6010D	Dissolved
Arsenic	0.0081		0.0040	0.0014	mg/L	1		6010D	Dissolved
Barium	0.069		0.0050	0.00070	mg/L	1		6010D	Dissolved
Nickel	0.015		0.0050	0.00087	mg/L	1		6010D	Dissolved
Thallium	0.0027		0.0050	0.0021	mg/L	1		6010D	Dissolved
Zinc	0.14		0.025	0.0016	mg/L	1		6010D	Dissolved

Client Sample ID: LM-TB-051723 — Lab Sample ID: 620-11550-6

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: LM-GW-B/MW105-051723 Lab Sample ID: 620-11550-1

Date Collected: 05/17/23 10:55 **Matrix: Water**
Date Received: 05/18/23 16:31

Method: MA DEP EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.95	0.22	ug/L		05/19/23 09:53	05/23/23 11:56	1
2-Methylnaphthalene	ND		0.95	0.28	ug/L		05/19/23 09:53	05/23/23 11:56	1
Acenaphthylene	ND		0.95	0.37	ug/L		05/19/23 09:53	05/23/23 11:56	1
Acenaphthene	ND		0.95	0.18	ug/L		05/19/23 09:53	05/23/23 11:56	1
Fluorene	ND		0.95	0.37	ug/L		05/19/23 09:53	05/23/23 11:56	1
Phenanthrene	ND		0.95	0.16	ug/L		05/19/23 09:53	05/23/23 11:56	1
Anthracene	ND		0.95	0.15	ug/L		05/19/23 09:53	05/23/23 11:56	1
Fluoranthene	ND		0.95	0.14	ug/L		05/19/23 09:53	05/23/23 11:56	1
Pyrene	ND		0.95	0.14	ug/L		05/19/23 09:53	05/23/23 11:56	1
Benzo[a]anthracene	ND		0.95	0.067	ug/L		05/19/23 09:53	05/23/23 11:56	1
Chrysene	ND		0.95	0.13	ug/L		05/19/23 09:53	05/23/23 11:56	1
Benzo[b]fluoranthene	ND		0.95	0.14	ug/L		05/19/23 09:53	05/23/23 11:56	1
Benzo[k]fluoranthene	ND		0.95	0.23	ug/L		05/19/23 09:53	05/23/23 11:56	1
Benzo[a]pyrene	ND		0.19	0.15	ug/L		05/19/23 09:53	05/23/23 11:56	1
Indeno[1,2,3-cd]pyrene	ND		0.48	0.44	ug/L		05/19/23 09:53	05/23/23 11:56	1
Dibenz(a,h)anthracene	ND		0.48	0.20	ug/L		05/19/23 09:53	05/23/23 11:56	1
Benzo[g,h,i]perylene	ND		0.95	0.16	ug/L		05/19/23 09:53	05/23/23 11:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*72*		*40 - 140*	*05/19/23 09:53*	*05/23/23 11:56*	*1*
2-Fluorobiphenyl (Surr)	*97*		*40 - 140*	*05/19/23 09:53*	*05/23/23 11:56*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			05/23/23 20:34	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			05/23/23 20:34	1
C9-C10 Aromatics	ND		100	100	ug/L			05/23/23 20:34	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			05/23/23 20:34	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			05/23/23 20:34	1
Benzene	ND		5.0	5.0	ug/L			05/23/23 20:34	1
Ethylbenzene	ND		5.0	5.0	ug/L			05/23/23 20:34	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			05/23/23 20:34	1
Naphthalene	ND		5.0	5.0	ug/L			05/23/23 20:34	1
Toluene	ND		5.0	5.0	ug/L			05/23/23 20:34	1
m,p-Xylene	ND		10	10	ug/L			05/23/23 20:34	1
o-Xylene	ND		5.0	5.0	ug/L			05/23/23 20:34	1
Xylenes, Total	ND		15	15	ug/L			05/23/23 20:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*95*		*70 - 130*		*05/23/23 20:34*	*1*
2,5-Dibromotoluene (pid)	*96*		*70 - 130*		*05/23/23 20:34*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		95	95	ug/L		05/19/23 09:53	05/22/23 21:10	1
C19-C36 Aliphatics	ND		95	95	ug/L		05/19/23 09:53	05/22/23 21:10	1
C11-C22 Aromatics	ND		95	95	ug/L		05/19/23 09:53	05/22/23 21:10	1
C11-C22 Aromatics (Adjusted)	ND		95	95	ug/L		05/19/23 09:53	05/22/23 21:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*53*		*40 - 140*	*05/19/23 09:53*	*05/22/23 21:10*	*1*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Client Sample ID: LM-GW-B/MW105-051723
Date Collected: 05/17/23 10:55
Date Received: 05/18/23 16:31

Lab Sample ID: 620-11550-1
Matrix: Water

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*59*		*40 - 140*	*05/19/23 09:53*	*05/22/23 21:10*	*1*
2-Fluorobiphenyl (Surr)	*85*		*40 - 140*	*05/19/23 09:53*	*05/22/23 21:10*	*1*

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0045**		0.0060	0.0016	mg/L		05/19/23 09:48	05/22/23 13:52	1
Arsenic	ND		0.0040	0.0014	mg/L		05/19/23 09:48	05/22/23 13:52	1
Barium	**0.23**		0.0050	0.00070	mg/L		05/19/23 09:48	05/22/23 13:52	1
Beryllium	ND		0.0020	0.00028	mg/L		05/19/23 09:48	05/22/23 13:52	1
Cadmium	ND		0.0025	0.00036	mg/L		05/19/23 09:48	05/22/23 13:52	1
Chromium	ND		0.0050	0.00093	mg/L		05/19/23 09:48	05/22/23 13:52	1
Lead	ND		0.0075	0.0062	mg/L		05/19/23 09:48	05/22/23 13:52	1
Nickel	**0.00090**		0.0050	0.00087	mg/L		05/19/23 09:48	05/22/23 13:52	1
Selenium	ND		0.015	0.0042	mg/L		05/19/23 09:48	05/22/23 13:52	1
Silver	ND		0.0050	0.00062	mg/L		05/19/23 09:48	05/22/23 13:52	1
Thallium	ND		0.0050	0.0021	mg/L		05/19/23 09:48	05/22/23 13:52	1
Vanadium	ND		0.0050	0.0011	mg/L		05/19/23 09:48	05/22/23 13:52	1
Zinc	**0.0026**		0.025	0.0016	mg/L		05/19/23 09:48	05/22/23 13:52	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		05/19/23 10:03	05/19/23 15:12	1

Client Sample ID: LM-GW-B/MW102-051723

Date Collected: 05/17/23 12:40
Date Received: 05/18/23 16:31

Lab Sample ID: 620-11550-2
Matrix: Water

Method: MA DEP EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**28**		1.0	0.23	ug/L		05/19/23 09:53	05/23/23 12:19	1
2-Methylnaphthalene	**2.3**		1.0	0.29	ug/L		05/19/23 09:53	05/23/23 12:19	1
Acenaphthylene	ND		1.0	0.39	ug/L		05/19/23 09:53	05/23/23 12:19	1
Acenaphthene	ND		1.0	0.19	ug/L		05/19/23 09:53	05/23/23 12:19	1
Fluorene	ND		1.0	0.39	ug/L		05/19/23 09:53	05/23/23 12:19	1
Phenanthrene	ND		1.0	0.17	ug/L		05/19/23 09:53	05/23/23 12:19	1
Anthracene	ND		1.0	0.15	ug/L		05/19/23 09:53	05/23/23 12:19	1
Fluoranthene	ND		1.0	0.15	ug/L		05/19/23 09:53	05/23/23 12:19	1
Pyrene	ND		1.0	0.14	ug/L		05/19/23 09:53	05/23/23 12:19	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		05/19/23 09:53	05/23/23 12:19	1
Chrysene	ND		1.0	0.14	ug/L		05/19/23 09:53	05/23/23 12:19	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		05/19/23 09:53	05/23/23 12:19	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		05/19/23 09:53	05/23/23 12:19	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		05/19/23 09:53	05/23/23 12:19	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		05/19/23 09:53	05/23/23 12:19	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		05/19/23 09:53	05/23/23 12:19	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		05/19/23 09:53	05/23/23 12:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*73*		*40 - 140*	*05/19/23 09:53*	*05/23/23 12:19*	*1*
2-Fluorobiphenyl (Surr)	*88*		*40 - 140*	*05/19/23 09:53*	*05/23/23 12:19*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	**560**		100	100	ug/L			05/24/23 03:36	1
C5-C8 Aliphatics (unadjusted)	**580**		100	100	ug/L			05/24/23 03:36	1
Benzene	**12**		5.0	5.0	ug/L			05/24/23 03:36	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			05/24/23 03:36	1
Naphthalene	**77**		5.0	5.0	ug/L			05/24/23 03:36	1
Toluene	ND		5.0	5.0	ug/L			05/24/23 03:36	1
o-Xylene	ND		5.0	5.0	ug/L			05/24/23 03:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*113*		*70 - 130*		*05/24/23 03:36*	*1*
2,5-Dibromotoluene (pid)	*107*		*70 - 130*		*05/24/23 03:36*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C12 Aliphatics (adjusted)	**3000**		1000	1000	ug/L			05/24/23 15:00	10
C9-C10 Aromatics	**2000**		1000	1000	ug/L			05/24/23 15:00	10
C9-C12 Aliphatics (unadjusted)	**6800**		1000	1000	ug/L			05/24/23 15:00	10
Ethylbenzene	**490**		50	50	ug/L			05/24/23 15:00	10
m,p-Xylene	**1400**		100	100	ug/L			05/24/23 15:00	10
Xylenes, Total	**1400**		150	150	ug/L			05/24/23 15:00	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*99*		*70 - 130*		*05/24/23 15:00*	*10*
2,5-Dibromotoluene (pid)	*98*		*70 - 130*		*05/24/23 15:00*	*10*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Client Sample ID: LM-GW-B/MW102-051723

Lab Sample ID: 620-11550-2

Date Collected: 05/17/23 12:40

Matrix: Water

Date Received: 05/18/23 16:31

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		100	100	ug/L		05/19/23 09:53	05/22/23 21:39	1
C19-C36 Aliphatics	ND		100	100	ug/L		05/19/23 09:53	05/22/23 21:39	1
C11-C22 Aromatics	**100**		100	100	ug/L		05/19/23 09:53	05/22/23 21:39	1
C11-C22 Aromatics (Adjusted)	ND		100	100	ug/L		05/19/23 09:53	05/22/23 21:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*56*		*40 - 140*	*05/19/23 09:53*	*05/22/23 21:39*	*1*
o-Terphenyl (Surr)	*62*		*40 - 140*	*05/19/23 09:53*	*05/22/23 21:39*	*1*
2-Fluorobiphenyl (Surr)	*79*		*40 - 140*	*05/19/23 09:53*	*05/22/23 21:39*	*1*

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0049**		0.0060	0.0016	mg/L		05/19/23 09:48	05/22/23 13:58	1
Arsenic	**0.025**		0.0040	0.0014	mg/L		05/19/23 09:48	05/22/23 13:58	1
Barium	**0.12**		0.0050	0.00070	mg/L		05/19/23 09:48	05/22/23 13:58	1
Beryllium	ND		0.0020	0.00028	mg/L		05/19/23 09:48	05/22/23 13:58	1
Cadmium	ND		0.0025	0.00036	mg/L		05/19/23 09:48	05/22/23 13:58	1
Chromium	ND		0.0050	0.00093	mg/L		05/19/23 09:48	05/22/23 13:58	1
Lead	ND		0.0075	0.0062	mg/L		05/19/23 09:48	05/22/23 13:58	1
Nickel	**0.0024**		0.0050	0.00087	mg/L		05/19/23 09:48	05/22/23 13:58	1
Selenium	ND		0.015	0.0042	mg/L		05/19/23 09:48	05/22/23 13:58	1
Silver	ND		0.0050	0.00062	mg/L		05/19/23 09:48	05/22/23 13:58	1
Thallium	ND		0.0050	0.0021	mg/L		05/19/23 09:48	05/22/23 13:58	1
Vanadium	ND		0.0050	0.0011	mg/L		05/19/23 09:48	05/22/23 13:58	1
Zinc	**0.0021**		0.025	0.0016	mg/L		05/19/23 09:48	05/22/23 13:58	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		05/19/23 10:03	05/19/23 15:14	1

Client Sample ID: LM-FD-051723

Date Collected: 05/17/23 08:00
Date Received: 05/18/23 16:31

Lab Sample ID: 620-11550-3

Matrix: Water

Method: MA DEP EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**33**		1.0	0.23	ug/L		05/19/23 09:53	05/23/23 12:42	1
2-Methylnaphthalene	**2.8**		1.0	0.29	ug/L		05/19/23 09:53	05/23/23 12:42	1
Acenaphthylene	ND		1.0	0.39	ug/L		05/19/23 09:53	05/23/23 12:42	1
Acenaphthene	ND		1.0	0.19	ug/L		05/19/23 09:53	05/23/23 12:42	1
Fluorene	ND		1.0	0.39	ug/L		05/19/23 09:53	05/23/23 12:42	1
Phenanthrene	ND		1.0	0.17	ug/L		05/19/23 09:53	05/23/23 12:42	1
Anthracene	ND		1.0	0.15	ug/L		05/19/23 09:53	05/23/23 12:42	1
Fluoranthene	ND		1.0	0.15	ug/L		05/19/23 09:53	05/23/23 12:42	1
Pyrene	ND		1.0	0.14	ug/L		05/19/23 09:53	05/23/23 12:42	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		05/19/23 09:53	05/23/23 12:42	1
Chrysene	ND		1.0	0.14	ug/L		05/19/23 09:53	05/23/23 12:42	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		05/19/23 09:53	05/23/23 12:42	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		05/19/23 09:53	05/23/23 12:42	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		05/19/23 09:53	05/23/23 12:42	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		05/19/23 09:53	05/23/23 12:42	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		05/19/23 09:53	05/23/23 12:42	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		05/19/23 09:53	05/23/23 12:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*62*		*40 - 140*	*05/19/23 09:53*	*05/23/23 12:42*	*1*
2-Fluorobiphenyl (Surr)	*101*		*40 - 140*	*05/19/23 09:53*	*05/23/23 12:42*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	**600**		100	100	ug/L			05/24/23 03:01	1
C5-C8 Aliphatics (unadjusted)	**610**		100	100	ug/L			05/24/23 03:01	1
Benzene	**12**		5.0	5.0	ug/L			05/24/23 03:01	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			05/24/23 03:01	1
Naphthalene	**76**		5.0	5.0	ug/L			05/24/23 03:01	1
Toluene	ND		5.0	5.0	ug/L			05/24/23 03:01	1
o-Xylene	ND		5.0	5.0	ug/L			05/24/23 03:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*112*		*70 - 130*		*05/24/23 03:01*	*1*
2,5-Dibromotoluene (pid)	*111*		*70 - 130*		*05/24/23 03:01*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C12 Aliphatics (adjusted)	**3000**		1000	1000	ug/L			05/24/23 15:35	10
C9-C10 Aromatics	**2000**		1000	1000	ug/L			05/24/23 15:35	10
C9-C12 Aliphatics (unadjusted)	**7000**		1000	1000	ug/L			05/24/23 15:35	10
Ethylbenzene	**500**		50	50	ug/L			05/24/23 15:35	10
m,p-Xylene	**1500**		100	100	ug/L			05/24/23 15:35	10
Xylenes, Total	**1500**		150	150	ug/L			05/24/23 15:35	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*101*		*70 - 130*		*05/24/23 15:35*	*10*
2,5-Dibromotoluene (pid)	*99*		*70 - 130*		*05/24/23 15:35*	*10*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Client Sample ID: LM-FD-051723

Date Collected: 05/17/23 08:00
Date Received: 05/18/23 16:31

Lab Sample ID: 620-11550-3

Matrix: Water

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		100	100	ug/L		05/19/23 09:53	05/22/23 22:09	1
C19-C36 Aliphatics	ND		100	100	ug/L		05/19/23 09:53	05/22/23 22:09	1
C11-C22 Aromatics	**110**		100	100	ug/L		05/19/23 09:53	05/22/23 22:09	1
C11-C22 Aromatics (Adjusted)	ND		100	100	ug/L		05/19/23 09:53	05/22/23 22:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*50*		*40 - 140*	*05/19/23 09:53*	*05/22/23 22:09*	*1*
o-Terphenyl (Surr)	*51*		*40 - 140*	*05/19/23 09:53*	*05/22/23 22:09*	*1*
2-Fluorobiphenyl (Surr)	*79*		*40 - 140*	*05/19/23 09:53*	*05/22/23 22:09*	*1*

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0051**		0.0060	0.0016	mg/L		05/19/23 09:48	05/22/23 14:04	1
Arsenic	**0.026**		0.0040	0.0014	mg/L		05/19/23 09:48	05/22/23 14:04	1
Barium	**0.12**		0.0050	0.00070	mg/L		05/19/23 09:48	05/22/23 14:04	1
Beryllium	ND		0.0020	0.00028	mg/L		05/19/23 09:48	05/22/23 14:04	1
Cadmium	ND		0.0025	0.00036	mg/L		05/19/23 09:48	05/22/23 14:04	1
Chromium	ND		0.0050	0.00093	mg/L		05/19/23 09:48	05/22/23 14:04	1
Lead	ND		0.0075	0.0062	mg/L		05/19/23 09:48	05/22/23 14:04	1
Nickel	**0.0027**		0.0050	0.00087	mg/L		05/19/23 09:48	05/22/23 14:04	1
Selenium	ND		0.015	0.0042	mg/L		05/19/23 09:48	05/22/23 14:04	1
Silver	ND		0.0050	0.00062	mg/L		05/19/23 09:48	05/22/23 14:04	1
Thallium	ND		0.0050	0.0021	mg/L		05/19/23 09:48	05/22/23 14:04	1
Vanadium	ND		0.0050	0.0011	mg/L		05/19/23 09:48	05/22/23 14:04	1
Zinc	**0.0035**		0.025	0.0016	mg/L		05/19/23 09:48	05/22/23 14:04	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		05/19/23 10:03	05/19/23 15:16	1

Client Sample ID: LM-GW-B/MW101-051723
Date Collected: 05/17/23 13:00
Date Received: 05/18/23 16:31

Lab Sample ID: 620-11550-4
Matrix: Water

Method: MA DEP EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.0	0.23	ug/L		05/19/23 09:53	05/24/23 09:51	1
2-Methylnaphthalene	ND		1.0	0.29	ug/L		05/19/23 09:53	05/24/23 09:51	1
Acenaphthylene	ND		1.0	0.39	ug/L		05/19/23 09:53	05/24/23 09:51	1
Acenaphthene	ND		1.0	0.19	ug/L		05/19/23 09:53	05/24/23 09:51	1
Fluorene	ND		1.0	0.39	ug/L		05/19/23 09:53	05/24/23 09:51	1
Phenanthrene	ND		1.0	0.17	ug/L		05/19/23 09:53	05/24/23 09:51	1
Anthracene	ND		1.0	0.15	ug/L		05/19/23 09:53	05/24/23 09:51	1
Fluoranthene	ND		1.0	0.15	ug/L		05/19/23 09:53	05/24/23 09:51	1
Pyrene	ND		1.0	0.14	ug/L		05/19/23 09:53	05/24/23 09:51	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		05/19/23 09:53	05/24/23 09:51	1
Chrysene	ND		1.0	0.14	ug/L		05/19/23 09:53	05/24/23 09:51	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		05/19/23 09:53	05/24/23 09:51	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		05/19/23 09:53	05/24/23 09:51	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		05/19/23 09:53	05/24/23 09:51	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		05/19/23 09:53	05/24/23 09:51	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		05/19/23 09:53	05/24/23 09:51	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		05/19/23 09:53	05/24/23 09:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*49*		*40 - 140*	*05/19/23 09:53*	*05/24/23 09:51*	*1*
2-Fluorobiphenyl (Surr)	*72*		*40 - 140*	*05/19/23 09:53*	*05/24/23 09:51*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			05/23/23 21:10	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			05/23/23 21:10	1
C9-C10 Aromatics	ND		100	100	ug/L			05/23/23 21:10	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			05/23/23 21:10	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			05/23/23 21:10	1
Benzene	ND		5.0	5.0	ug/L			05/23/23 21:10	1
Ethylbenzene	ND		5.0	5.0	ug/L			05/23/23 21:10	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			05/23/23 21:10	1
Naphthalene	ND		5.0	5.0	ug/L			05/23/23 21:10	1
Toluene	ND		5.0	5.0	ug/L			05/23/23 21:10	1
m,p-Xylene	ND		10	10	ug/L			05/23/23 21:10	1
o-Xylene	ND		5.0	5.0	ug/L			05/23/23 21:10	1
Xylenes, Total	ND		15	15	ug/L			05/23/23 21:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*98*		*70 - 130*		*05/23/23 21:10*	*1*
2,5-Dibromotoluene (pid)	*101*		*70 - 130*		*05/23/23 21:10*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		100	100	ug/L		05/19/23 09:53	05/23/23 17:01	1
C19-C36 Aliphatics	ND		100	100	ug/L		05/19/23 09:53	05/23/23 17:01	1
C11-C22 Aromatics	ND		100	100	ug/L		05/19/23 09:53	05/23/23 17:01	1
C11-C22 Aromatics (Adjusted)	ND		100	100	ug/L		05/19/23 09:53	05/23/23 17:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*41*		*40 - 140*	*05/19/23 09:53*	*05/23/23 17:01*	*1*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Client Sample ID: LM-GW-B/MW101-051723

Lab Sample ID: 620-11550-4

Date Collected: 05/17/23 13:00

Matrix: Water

Date Received: 05/18/23 16:31

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*40*		*40 - 140*	*05/19/23 09:53*	*05/23/23 17:01*	*1*
2-Fluorobiphenyl (Surr)	*60*		*40 - 140*	*05/19/23 09:53*	*05/23/23 17:01*	*1*

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0028**		0.0060	0.0016	mg/L		05/19/23 09:48	05/22/23 14:10	1
Arsenic	ND		0.0040	0.0014	mg/L		05/19/23 09:48	05/22/23 14:10	1
Barium	**0.28**		0.0050	0.00070	mg/L		05/19/23 09:48	05/22/23 14:10	1
Beryllium	ND		0.0020	0.00028	mg/L		05/19/23 09:48	05/22/23 14:10	1
Cadmium	**0.0011**		0.0025	0.00036	mg/L		05/19/23 09:48	05/22/23 14:10	1
Chromium	ND		0.0050	0.00093	mg/L		05/19/23 09:48	05/22/23 14:10	1
Lead	**0.060**		0.0075	0.0062	mg/L		05/19/23 09:48	05/22/23 14:10	1
Nickel	**0.0069**		0.0050	0.00087	mg/L		05/19/23 09:48	05/22/23 14:10	1
Selenium	ND		0.015	0.0042	mg/L		05/19/23 09:48	05/22/23 14:10	1
Silver	ND		0.0050	0.00062	mg/L		05/19/23 09:48	05/22/23 14:10	1
Thallium	ND		0.0050	0.0021	mg/L		05/19/23 09:48	05/22/23 14:10	1
Vanadium	ND		0.0050	0.0011	mg/L		05/19/23 09:48	05/22/23 14:10	1
Zinc	**0.20**		0.025	0.0016	mg/L		05/19/23 09:48	05/22/23 14:10	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		05/19/23 10:03	05/19/23 15:18	1

Client Sample ID: LM-GW-B/MW104-051723

Date Collected: 05/17/23 10:45
Date Received: 05/18/23 16:31

Lab Sample ID: 620-11550-5

Matrix: Water

Method: MA DEP EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND	F1 *1	1.0	0.23	ug/L		05/24/23 11:41	05/30/23 12:54	1
2-Methylnaphthalene	ND	F1	1.0	0.29	ug/L		05/24/23 11:41	05/30/23 12:54	1
Acenaphthylene	ND	F1	1.0	0.39	ug/L		05/24/23 11:41	05/30/23 12:54	1
Acenaphthene	ND	F1	1.0	0.19	ug/L		05/24/23 11:41	05/30/23 12:54	1
Fluorene	ND		1.0	0.39	ug/L		05/24/23 11:41	05/30/23 12:54	1
Phenanthrene	ND		1.0	0.17	ug/L		05/24/23 11:41	05/30/23 12:54	1
Anthracene	ND		1.0	0.15	ug/L		05/24/23 11:41	05/30/23 12:54	1
Fluoranthene	ND		1.0	0.15	ug/L		05/24/23 11:41	05/30/23 12:54	1
Pyrene	ND		1.0	0.14	ug/L		05/24/23 11:41	05/30/23 12:54	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		05/24/23 11:41	05/30/23 12:54	1
Chrysene	ND		1.0	0.14	ug/L		05/24/23 11:41	05/30/23 12:54	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		05/24/23 11:41	05/30/23 12:54	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		05/24/23 11:41	05/30/23 12:54	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		05/24/23 11:41	05/30/23 12:54	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		05/24/23 11:41	05/30/23 12:54	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		05/24/23 11:41	05/30/23 12:54	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		05/24/23 11:41	05/30/23 12:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*74*		*40 - 140*	*05/24/23 11:41*	*05/30/23 12:54*	*1*
2-Fluorobiphenyl (Surr)	*98*		*40 - 140*	*05/24/23 11:41*	*05/30/23 12:54*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			05/23/23 18:48	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			05/23/23 18:48	1
C9-C10 Aromatics	ND		100	100	ug/L			05/23/23 18:48	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			05/23/23 18:48	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			05/23/23 18:48	1
Benzene	ND		5.0	5.0	ug/L			05/23/23 18:48	1
Ethylbenzene	ND		5.0	5.0	ug/L			05/23/23 18:48	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			05/23/23 18:48	1
Naphthalene	ND		5.0	5.0	ug/L			05/23/23 18:48	1
Toluene	ND		5.0	5.0	ug/L			05/23/23 18:48	1
m,p-Xylene	ND		10	10	ug/L			05/23/23 18:48	1
o-Xylene	ND		5.0	5.0	ug/L			05/23/23 18:48	1
Xylenes, Total	ND		15	15	ug/L			05/23/23 18:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*95*		*70 - 130*		*05/23/23 18:48*	*1*
2,5-Dibromotoluene (pid)	*96*		*70 - 130*		*05/23/23 18:48*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		100	100	ug/L		05/24/23 11:41	05/25/23 14:11	1
C19-C36 Aliphatics	ND		100	100	ug/L		05/24/23 11:41	05/25/23 14:11	1
C11-C22 Aromatics	ND		100	100	ug/L		05/24/23 11:41	05/25/23 14:11	1
C11-C22 Aromatics (Adjusted)	ND		100	100	ug/L		05/24/23 11:41	05/25/23 14:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*65*		*40 - 140*	*05/24/23 11:41*	*05/25/23 14:11*	*1*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Client Sample ID: LM-GW-B/MW104-051723
Date Collected: 05/17/23 10:45
Date Received: 05/18/23 16:31

Lab Sample ID: 620-11550-5
Matrix: Water

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*71*		*40 - 140*	*05/24/23 11:41*	*05/25/23 14:11*	*1*
2-Fluorobiphenyl (Surr)	*95*		*40 - 140*	*05/24/23 11:41*	*05/25/23 14:11*	*1*

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0053**		0.0060	0.0016	mg/L		05/19/23 09:48	05/22/23 12:58	1
Arsenic	**0.0081**		0.0040	0.0014	mg/L		05/19/23 09:48	05/22/23 12:58	1
Barium	**0.069**		0.0050	0.00070	mg/L		05/19/23 09:48	05/22/23 12:58	1
Beryllium	ND		0.0020	0.00028	mg/L		05/19/23 09:48	05/22/23 12:58	1
Cadmium	ND		0.0025	0.00036	mg/L		05/19/23 09:48	05/22/23 12:58	1
Chromium	ND		0.0050	0.00093	mg/L		05/19/23 09:48	05/22/23 12:58	1
Lead	ND		0.0075	0.0062	mg/L		05/19/23 09:48	05/22/23 12:58	1
Nickel	**0.015**		0.0050	0.00087	mg/L		05/19/23 09:48	05/22/23 12:58	1
Selenium	ND		0.015	0.0042	mg/L		05/19/23 09:48	05/22/23 12:58	1
Silver	ND		0.0050	0.00062	mg/L		05/19/23 09:48	05/22/23 12:58	1
Thallium	**0.0027**		0.0050	0.0021	mg/L		05/19/23 09:48	05/22/23 12:58	1
Vanadium	ND		0.0050	0.0011	mg/L		05/19/23 09:48	05/22/23 12:58	1
Zinc	**0.14**		0.025	0.0016	mg/L		05/19/23 09:48	05/22/23 12:58	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		05/19/23 10:03	05/19/23 15:25	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Client Sample ID: LM-TB-051723
Date Collected: 05/17/23 14:00
Date Received: 05/18/23 16:31

Lab Sample ID: 620-11550-6
Matrix: Water

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			05/23/23 17:03	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			05/23/23 17:03	1
C9-C10 Aromatics	ND		100	100	ug/L			05/23/23 17:03	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			05/23/23 17:03	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			05/23/23 17:03	1
Benzene	ND		5.0	5.0	ug/L			05/23/23 17:03	1
Ethylbenzene	ND		5.0	5.0	ug/L			05/23/23 17:03	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			05/23/23 17:03	1
Naphthalene	ND		5.0	5.0	ug/L			05/23/23 17:03	1
Toluene	ND		5.0	5.0	ug/L			05/23/23 17:03	1
m,p-Xylene	ND		10	10	ug/L			05/23/23 17:03	1
o-Xylene	ND		5.0	5.0	ug/L			05/23/23 17:03	1
Xylenes, Total	ND		15	15	ug/L			05/23/23 17:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*91*		*70 - 130*		*05/23/23 17:03*	*1*
2,5-Dibromotoluene (pid)	*92*		*70 - 130*		*05/23/23 17:03*	*1*

Surrogate Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH (40-140)	FBP (40-140)
620-11550-1	LM-GW-B/MW105-051723	72	97
620-11550-2	LM-GW-B/MW102-051723	73	88
620-11550-3	LM-FD-051723	62	101
620-11550-4	LM-GW-B/MW101-051723	49	72
620-11550-5	LM-GW-B/MW104-051723	74	98
620-11550-5 MS	LM-GW-B/MW104-051723	59	94
620-11550-5 MSD	LM-GW-B/MW104-051723	72	100
LCS 620-22769/4-B	Lab Control Sample	89	99
LCS 620-22911/4-B	Lab Control Sample	74	99
LCSD 620-22769/5-B	Lab Control Sample Dup	89	99
LCSD 620-22911/5-B	Lab Control Sample Dup	73	102
MB 620-22769/1-B	Method Blank	54	67
MB 620-22911/1-B	Method Blank	68	93

Surrogate Legend

OTPH = o-Terphenyl (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	25DBTf1 (70-130)	25DBTp1 (70-130)
620-11550-1	LM-GW-B/MW105-051723	95	96
620-11550-2	LM-GW-B/MW102-051723	113	107
620-11550-2 - DL	LM-GW-B/MW102-051723	99	98
620-11550-3	LM-FD-051723	112	111
620-11550-3 - DL	LM-FD-051723	101	99
620-11550-4	LM-GW-B/MW101-051723	98	101
620-11550-5	LM-GW-B/MW104-051723	95	96
620-11550-5 MS	LM-GW-B/MW104-051723	93	95
620-11550-5 MSD	LM-GW-B/MW104-051723	95	96
620-11550-6	LM-TB-051723	91	92
LCS 620-22877/3	Lab Control Sample	97	99
LCS 620-22907/3	Lab Control Sample	100	100
LCSD 620-22877/4	Lab Control Sample Dup	97	99
LCSD 620-22907/4	Lab Control Sample Dup	100	100
MB 620-22877/5	Method Blank	97	99
MB 620-22907/5	Method Blank	100	100

Surrogate Legend

25DBTf = 2,5-Dibromotoluene (fid)
25DBTp = 2,5-Dibromotoluene (pid)

Surrogate Summary

Client: Nobis Engineering, Inc. Job ID: 620-11550-1
Project/Site: Former L&M - Lunenburg MA

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	1COD1 (40-140)	OTPH1 (40-140)	FBP1 (40-140)
620-11550-1	LM-GW-B/MW105-051723	53	59	85
620-11550-2	LM-GW-B/MW102-051723	56	62	79
620-11550-3	LM-FD-051723	50	51	79
620-11550-4	LM-GW-B/MW101-051723	41	40	60
620-11550-5	LM-GW-B/MW104-051723	65	71	95
620-11550-5 MS	LM-GW-B/MW104-051723	50	49	78
620-11550-5 MSD	LM-GW-B/MW104-051723	55	52	78
LCS 620-22769/2-B	Lab Control Sample	69	66	81
LCS 620-22911/2-B	Lab Control Sample	68	66	96
LCSD 620-22769/3-B	Lab Control Sample Dup	65	64	84
LCSD 620-22911/3-B	Lab Control Sample Dup	69	65	94
MB 620-22769/1-B	Method Blank	56	47	63
MB 620-22911/1-B	Method Blank	62	63	88

Surrogate Legend

1COD = 1-Chlorooctadecane (Surr)
OTPH = o-Terphenyl (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Lab Sample ID: MB 620-22769/1-B
Matrix: Water
Analysis Batch: 22859

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 22769

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.0	0.23	ug/L		05/19/23 09:53	05/23/23 10:48	1
2-Methylnaphthalene	ND		1.0	0.29	ug/L		05/19/23 09:53	05/23/23 10:48	1
Acenaphthylene	ND		1.0	0.39	ug/L		05/19/23 09:53	05/23/23 10:48	1
Acenaphthene	ND		1.0	0.19	ug/L		05/19/23 09:53	05/23/23 10:48	1
Fluorene	ND		1.0	0.39	ug/L		05/19/23 09:53	05/23/23 10:48	1
Phenanthrene	ND		1.0	0.17	ug/L		05/19/23 09:53	05/23/23 10:48	1
Anthracene	ND		1.0	0.15	ug/L		05/19/23 09:53	05/23/23 10:48	1
Fluoranthene	ND		1.0	0.15	ug/L		05/19/23 09:53	05/23/23 10:48	1
Pyrene	ND		1.0	0.14	ug/L		05/19/23 09:53	05/23/23 10:48	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		05/19/23 09:53	05/23/23 10:48	1
Chrysene	ND		1.0	0.14	ug/L		05/19/23 09:53	05/23/23 10:48	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		05/19/23 09:53	05/23/23 10:48	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		05/19/23 09:53	05/23/23 10:48	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		05/19/23 09:53	05/23/23 10:48	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		05/19/23 09:53	05/23/23 10:48	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		05/19/23 09:53	05/23/23 10:48	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		05/19/23 09:53	05/23/23 10:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*54*		*40 - 140*	*05/19/23 09:53*	*05/23/23 10:48*	*1*
2-Fluorobiphenyl (Surr)	*67*		*40 - 140*	*05/19/23 09:53*	*05/23/23 10:48*	*1*

Lab Sample ID: LCS 620-22769/4-B
Matrix: Water
Analysis Batch: 22859

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22769

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Naphthalene	5.00	2.52		ug/L		50	40 - 140
2-Methylnaphthalene	5.00	2.50		ug/L		50	40 - 140
Acenaphthylene	5.00	2.51		ug/L		50	40 - 140
Acenaphthene	5.00	2.52		ug/L		50	40 - 140
Fluorene	5.00	2.60		ug/L		52	40 - 140
Phenanthrene	5.00	2.94		ug/L		59	40 - 140
Anthracene	5.00	2.84		ug/L		57	40 - 140
Fluoranthene	5.00	3.62		ug/L		72	40 - 140
Pyrene	5.00	3.53		ug/L		71	40 - 140
Benzo[a]anthracene	5.00	3.28		ug/L		66	40 - 140
Chrysene	5.00	3.41		ug/L		68	40 - 140
Benzo[b]fluoranthene	5.00	3.27		ug/L		65	40 - 140
Benzo[k]fluoranthene	5.00	4.04		ug/L		81	40 - 140
Benzo[a]pyrene	5.00	3.18		ug/L		64	40 - 140
Indeno[1,2,3-cd]pyrene	5.00	3.14		ug/L		63	40 - 140
Dibenz(a,h)anthracene	5.00	3.19		ug/L		64	40 - 140
Benzo[g,h,i]perylene	5.00	3.65		ug/L		73	40 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*89*		*40 - 140*
2-Fluorobiphenyl (Surr)	*99*		*40 - 140*

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Lab Sample ID: LCSD 620-22769/5-B
Matrix: Water
Analysis Batch: 22859

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 22769

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Naphthalene			5.00	2.44		ug/L		49	40 - 140	3	25
2-Methylnaphthalene			5.00	2.40		ug/L		48	40 - 140	4	25
Acenaphthylene			5.00	2.49		ug/L		50	40 - 140	1	25
Acenaphthene			5.00	2.55		ug/L		51	40 - 140	1	25
Fluorene			5.00	2.64		ug/L		53	40 - 140	2	25
Phenanthrene			5.00	2.89		ug/L		58	40 - 140	2	25
Anthracene			5.00	3.00		ug/L		60	40 - 140	5	25
Fluoranthene			5.00	3.65		ug/L		73	40 - 140	1	25
Pyrene			5.00	3.58		ug/L		72	40 - 140	1	25
Benzo[a]anthracene			5.00	3.37		ug/L		67	40 - 140	3	25
Chrysene			5.00	3.29		ug/L		66	40 - 140	4	25
Benzo[b]fluoranthene			5.00	3.65		ug/L		73	40 - 140	11	25
Benzo[k]fluoranthene			5.00	3.75		ug/L		75	40 - 140	8	25
Benzo[a]pyrene			5.00	3.21		ug/L		64	40 - 140	1	25
Indeno[1,2,3-cd]pyrene			5.00	3.22		ug/L		64	40 - 140	2	25
Dibenz(a,h)anthracene			5.00	3.26		ug/L		65	40 - 140	2	25
Benzo[g,h,i]perylene			5.00	3.75		ug/L		75	40 - 140	3	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*89*		*40 - 140*
2-Fluorobiphenyl (Surr)	*99*		*40 - 140*

Lab Sample ID: 620-11550-5 MS
Matrix: Water
Analysis Batch: 22894

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Total/NA
Prep Batch: 22769

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Naphthalene	ND	F1 *1	5.00	1.79	F1	ug/L		36	40 - 140
2-Methylnaphthalene	ND	F1	5.00	1.88	F1	ug/L		38	40 - 140
Acenaphthylene	ND	F1	5.00	1.89	F1	ug/L		38	40 - 140
Acenaphthene	ND	F1	5.00	2.13		ug/L		43	40 - 140
Fluorene	ND		5.00	2.15		ug/L		43	40 - 140
Phenanthrene	ND		5.00	2.47		ug/L		49	40 - 140
Anthracene	ND		5.00	2.64		ug/L		53	40 - 140
Fluoranthene	ND		5.00	3.03		ug/L		61	40 - 140
Pyrene	ND		5.00	2.98		ug/L		60	40 - 140
Benzo[a]anthracene	ND		5.00	2.69		ug/L		54	40 - 140
Chrysene	ND		5.00	2.92		ug/L		58	40 - 140
Benzo[b]fluoranthene	ND		5.00	2.41		ug/L		48	40 - 140
Benzo[k]fluoranthene	ND		5.00	3.39		ug/L		68	40 - 140
Benzo[a]pyrene	ND		5.00	2.45		ug/L		49	40 - 140
Indeno[1,2,3-cd]pyrene	ND		5.00	2.35		ug/L		47	40 - 140
Dibenz(a,h)anthracene	ND		5.00	2.46		ug/L		49	40 - 140
Benzo[g,h,i]perylene	ND		5.00	2.67		ug/L		53	40 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl (Surr)	*59*		*40 - 140*
2-Fluorobiphenyl (Surr)	*94*		*40 - 140*

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Lab Sample ID: 620-11550-5 MSD
Matrix: Water
Analysis Batch: 22894

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Total/NA
Prep Batch: 22769

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Naphthalene	ND	F1 *1	5.00	1.30	F1	ug/L		26	40 - 140	32	50
2-Methylnaphthalene	ND	F1	5.00	1.23	F1	ug/L		25	40 - 140	42	50
Acenaphthylene	ND	F1	5.00	1.81	F1	ug/L		36	40 - 140	5	50
Acenaphthene	ND	F1	5.00	1.90	F1	ug/L		38	40 - 140	11	50
Fluorene	ND		5.00	2.14		ug/L		43	40 - 140	1	50
Phenanthrene	ND		5.00	2.75		ug/L		55	40 - 140	11	50
Anthracene	ND		5.00	2.77		ug/L		55	40 - 140	5	50
Fluoranthene	ND		5.00	3.32		ug/L		66	40 - 140	9	50
Pyrene	ND		5.00	3.30		ug/L		66	40 - 140	10	50
Benzo[a]anthracene	ND		5.00	2.99		ug/L		60	40 - 140	10	50
Chrysene	ND		5.00	3.26		ug/L		65	40 - 140	11	50
Benzo[b]fluoranthene	ND		5.00	3.11		ug/L		62	40 - 140	25	50
Benzo[k]fluoranthene	ND		5.00	3.43		ug/L		69	40 - 140	1	50
Benzo[a]pyrene	ND		5.00	2.80		ug/L		56	40 - 140	13	50
Indeno[1,2,3-cd]pyrene	ND		5.00	2.73		ug/L		55	40 - 140	15	50
Dibenz(a,h)anthracene	ND		5.00	2.73		ug/L		55	40 - 140	10	50
Benzo[g,h,i]perylene	ND		5.00	3.04		ug/L		61	40 - 140	13	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*72*		*40 - 140*
2-Fluorobiphenyl (Surr)	*100*		*40 - 140*

Lab Sample ID: MB 620-22911/1-B
Matrix: Water
Analysis Batch: 23053

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 22911

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.0	0.23	ug/L		05/24/23 11:41	05/30/23 11:46	1
2-Methylnaphthalene	ND		1.0	0.29	ug/L		05/24/23 11:41	05/30/23 11:46	1
Acenaphthylene	ND		1.0	0.39	ug/L		05/24/23 11:41	05/30/23 11:46	1
Acenaphthene	ND		1.0	0.19	ug/L		05/24/23 11:41	05/30/23 11:46	1
Fluorene	ND		1.0	0.39	ug/L		05/24/23 11:41	05/30/23 11:46	1
Phenanthrene	ND		1.0	0.17	ug/L		05/24/23 11:41	05/30/23 11:46	1
Anthracene	ND		1.0	0.15	ug/L		05/24/23 11:41	05/30/23 11:46	1
Fluoranthene	ND		1.0	0.15	ug/L		05/24/23 11:41	05/30/23 11:46	1
Pyrene	ND		1.0	0.14	ug/L		05/24/23 11:41	05/30/23 11:46	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		05/24/23 11:41	05/30/23 11:46	1
Chrysene	ND		1.0	0.14	ug/L		05/24/23 11:41	05/30/23 11:46	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		05/24/23 11:41	05/30/23 11:46	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		05/24/23 11:41	05/30/23 11:46	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		05/24/23 11:41	05/30/23 11:46	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		05/24/23 11:41	05/30/23 11:46	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		05/24/23 11:41	05/30/23 11:46	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		05/24/23 11:41	05/30/23 11:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*68*		*40 - 140*	*05/24/23 11:41*	*05/30/23 11:46*	*1*
2-Fluorobiphenyl (Surr)	*93*		*40 - 140*	*05/24/23 11:41*	*05/30/23 11:46*	*1*

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Lab Sample ID: LCS 620-22911/4-B
Matrix: Water
Analysis Batch: 23053

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22911

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Naphthalene			5.00	2.26		ug/L		45	40 - 140		
2-Methylnaphthalene			5.00	2.55		ug/L		51	40 - 140		
Acenaphthylene			5.00	3.08		ug/L		62	40 - 140		
Acenaphthene			5.00	2.79		ug/L		56	40 - 140		
Fluorene			5.00	3.02		ug/L		60	40 - 140		
Phenanthrene			5.00	2.95		ug/L		59	40 - 140		
Anthracene			5.00	2.93		ug/L		59	40 - 140		
Fluoranthene			5.00	3.54		ug/L		71	40 - 140		
Pyrene			5.00	3.54		ug/L		71	40 - 140		
Benzo[a]anthracene			5.00	3.10		ug/L		62	40 - 140		
Chrysene			5.00	3.05		ug/L		61	40 - 140		
Benzo[b]fluoranthene			5.00	3.51		ug/L		70	40 - 140		
Benzo[k]fluoranthene			5.00	3.35		ug/L		67	40 - 140		
Benzo[a]pyrene			5.00	2.92		ug/L		58	40 - 140		
Indeno[1,2,3-cd]pyrene			5.00	3.14		ug/L		63	40 - 140		
Dibenz(a,h)anthracene			5.00	3.12		ug/L		62	40 - 140		
Benzo[g,h,i]perylene			5.00	3.70		ug/L		74	40 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*74*		*40 - 140*
2-Fluorobiphenyl (Surr)	*99*		*40 - 140*

Lab Sample ID: LCSD 620-22911/5-B
Matrix: Water
Analysis Batch: 23053

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 22911

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Naphthalene			5.00	3.11	*1	ug/L		62	40 - 140	32	25
2-Methylnaphthalene			5.00	3.08		ug/L		62	40 - 140	19	25
Acenaphthylene			5.00	3.23		ug/L		65	40 - 140	5	25
Acenaphthene			5.00	3.18		ug/L		64	40 - 140	13	25
Fluorene			5.00	3.05		ug/L		61	40 - 140	1	25
Phenanthrene			5.00	2.98		ug/L		60	40 - 140	1	25
Anthracene			5.00	2.88		ug/L		58	40 - 140	2	25
Fluoranthene			5.00	3.38		ug/L		68	40 - 140	5	25
Pyrene			5.00	3.35		ug/L		67	40 - 140	6	25
Benzo[a]anthracene			5.00	3.13		ug/L		63	40 - 140	1	25
Chrysene			5.00	3.24		ug/L		65	40 - 140	6	25
Benzo[b]fluoranthene			5.00	3.48		ug/L		70	40 - 140	1	25
Benzo[k]fluoranthene			5.00	3.95		ug/L		79	40 - 140	16	25
Benzo[a]pyrene			5.00	3.14		ug/L		63	40 - 140	7	25
Indeno[1,2,3-cd]pyrene			5.00	3.32		ug/L		66	40 - 140	5	25
Dibenz(a,h)anthracene			5.00	3.36		ug/L		67	40 - 140	7	25
Benzo[g,h,i]perylene			5.00	3.86		ug/L		77	40 - 140	4	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*73*		*40 - 140*
2-Fluorobiphenyl (Surr)	*102*		*40 - 140*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-22877/5
Matrix: Water
Analysis Batch: 22877

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			05/23/23 14:54	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			05/23/23 14:54	1
C9-C10 Aromatics	ND		100	100	ug/L			05/23/23 14:54	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			05/23/23 14:54	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			05/23/23 14:54	1
Benzene	ND		5.0	5.0	ug/L			05/23/23 14:54	1
Ethylbenzene	ND		5.0	5.0	ug/L			05/23/23 14:54	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			05/23/23 14:54	1
Naphthalene	ND		5.0	5.0	ug/L			05/23/23 14:54	1
Toluene	ND		5.0	5.0	ug/L			05/23/23 14:54	1
m,p-Xylene	ND		10	10	ug/L			05/23/23 14:54	1
o-Xylene	ND		5.0	5.0	ug/L			05/23/23 14:54	1
Xylenes, Total	ND		15	15	ug/L			05/23/23 14:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*97*		*70 - 130*		*05/23/23 14:54*	*1*
2,5-Dibromotoluene (pid)	*99*		*70 - 130*		*05/23/23 14:54*	*1*

Lab Sample ID: LCS 620-22877/3
Matrix: Water
Analysis Batch: 22877

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C10 Aromatics	20.0	ND		ug/L		110	70 - 130
C5-C8 Aliphatics (unadjusted)	60.0	ND		ug/L		99	70 - 130
C9-C12 Aliphatics (unadjusted)	60.0	ND		ug/L		100	70 - 130
Benzene	20.0	20.3		ug/L		102	70 - 130
Ethylbenzene	20.0	21.4		ug/L		107	70 - 130
Methyl tert-butyl ether	20.0	20.2		ug/L		101	70 - 130
Naphthalene	20.0	21.3		ug/L		107	70 - 130
Toluene	20.0	21.2		ug/L		106	70 - 130
m,p-Xylene	40.0	44.0		ug/L		110	70 - 130
o-Xylene	20.0	22.0		ug/L		110	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*97*		*70 - 130*
2,5-Dibromotoluene (pid)	*99*		*70 - 130*

Lab Sample ID: LCSD 620-22877/4
Matrix: Water
Analysis Batch: 22877

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics	20.0	ND		ug/L		107	70 - 130	3	25
C5-C8 Aliphatics (unadjusted)	60.0	ND		ug/L		98	70 - 130	2	25
C9-C12 Aliphatics (unadjusted)	60.0	ND		ug/L		96	70 - 130	3	25
Benzene	20.0	19.7		ug/L		99	70 - 130	3	25
Ethylbenzene	20.0	20.9		ug/L		104	70 - 130	3	25

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-22877/4
Matrix: Water
Analysis Batch: 22877

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methyl tert-butyl ether			20.0	19.9		ug/L		100	70 - 130	1	25
Naphthalene			20.0	21.5		ug/L		108	70 - 130	1	25
Toluene			20.0	20.4		ug/L		102	70 - 130	4	25
m,p-Xylene			40.0	42.7		ug/L		107	70 - 130	3	25
o-Xylene			20.0	21.6		ug/L		108	70 - 130	2	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*97*		*70 - 130*
2,5-Dibromotoluene (pid)	*99*		*70 - 130*

Lab Sample ID: 620-11550-5 MS
Matrix: Water
Analysis Batch: 22877

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C10 Aromatics	ND		20.3	ND		ug/L		NC	70 - 130		
C5-C8 Aliphatics (unadjusted)	ND		61.0	137		ug/L		NC	70 - 130		
C9-C12 Aliphatics (unadjusted)	ND		61.0	277		ug/L		NC	70 - 130		
Benzene	ND		20.3	20.8		ug/L		102	70 - 130		
Ethylbenzene	ND		20.3	22.1		ug/L		109	70 - 130		
Methyl tert-butyl ether	ND		20.3	19.9		ug/L		98	70 - 130		
Naphthalene	ND		20.3	20.4		ug/L		100	70 - 130		
Toluene	ND		20.3	21.5		ug/L		106	70 - 130		
m,p-Xylene	ND		40.7	45.0		ug/L		111	70 - 130		
o-Xylene	ND		20.3	22.3		ug/L		109	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*93*		*70 - 130*
2,5-Dibromotoluene (pid)	*95*		*70 - 130*

Lab Sample ID: 620-11550-5 MSD
Matrix: Water
Analysis Batch: 22877

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics	ND		20.3	ND		ug/L		NC	70 - 130	NC	30
C5-C8 Aliphatics (unadjusted)	ND		61.0	149		ug/L		NC	70 - 130	9	30
C9-C12 Aliphatics (unadjusted)	ND		61.0	303		ug/L		NC	70 - 130	9	30
Benzene	ND		20.3	23.0		ug/L		113	70 - 130	10	30
Ethylbenzene	ND		20.3	24.4		ug/L		120	70 - 130	10	30
Methyl tert-butyl ether	ND		20.3	22.0		ug/L		108	70 - 130	10	30
Naphthalene	ND		20.3	22.9		ug/L		113	70 - 130	12	30
Toluene	ND		20.3	23.7		ug/L		117	70 - 130	10	30
m,p-Xylene	ND		40.7	50.1		ug/L		123	70 - 130	11	30
o-Xylene	ND		20.3	24.7		ug/L		121	70 - 130	10	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*95*		*70 - 130*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: 620-11550-5 MSD
Matrix: Water
Analysis Batch: 22877

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Total/NA

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,5-Dibromotoluene (pid)	*96*		*70 - 130*

Lab Sample ID: MB 620-22907/5
Matrix: Water
Analysis Batch: 22907

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			05/24/23 13:14	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			05/24/23 13:14	1
C9-C10 Aromatics	ND		100	100	ug/L			05/24/23 13:14	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			05/24/23 13:14	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			05/24/23 13:14	1
Benzene	ND		5.0	5.0	ug/L			05/24/23 13:14	1
Ethylbenzene	ND		5.0	5.0	ug/L			05/24/23 13:14	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			05/24/23 13:14	1
Naphthalene	ND		5.0	5.0	ug/L			05/24/23 13:14	1
Toluene	ND		5.0	5.0	ug/L			05/24/23 13:14	1
m,p-Xylene	ND		10	10	ug/L			05/24/23 13:14	1
o-Xylene	ND		5.0	5.0	ug/L			05/24/23 13:14	1
Xylenes, Total	ND		15	15	ug/L			05/24/23 13:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*100*		*70 - 130*		*05/24/23 13:14*	*1*
2,5-Dibromotoluene (pid)	*100*		*70 - 130*		*05/24/23 13:14*	*1*

Lab Sample ID: LCS 620-22907/3
Matrix: Water
Analysis Batch: 22907

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C10 Aromatics	20.0	ND		ug/L		109	70 - 130
C5-C8 Aliphatics (unadjusted)	60.0	ND		ug/L		97	70 - 130
C9-C12 Aliphatics (unadjusted)	60.0	ND		ug/L		97	70 - 130
Benzene	20.0	19.7		ug/L		99	70 - 130
Ethylbenzene	20.0	20.9		ug/L		105	70 - 130
Methyl tert-butyl ether	20.0	19.9		ug/L		100	70 - 130
Naphthalene	20.0	21.3		ug/L		107	70 - 130
Toluene	20.0	20.2		ug/L		101	70 - 130
m,p-Xylene	40.0	42.9		ug/L		107	70 - 130
o-Xylene	20.0	21.6		ug/L		108	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*100*		*70 - 130*
2,5-Dibromotoluene (pid)	*100*		*70 - 130*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-22907/4
Matrix: Water
Analysis Batch: 22907

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics			20.0	ND		ug/L		111	70 - 130	2	25
C5-C8 Aliphatics (unadjusted)			60.0	ND		ug/L		97	70 - 130	0	25
C9-C12 Aliphatics (unadjusted)			60.0	ND		ug/L		97	70 - 130	0	25
Benzene			20.0	19.7		ug/L		98	70 - 130	0	25
Ethylbenzene			20.0	21.2		ug/L		106	70 - 130	1	25
Methyl tert-butyl ether			20.0	20.3		ug/L		102	70 - 130	2	25
Naphthalene			20.0	22.2		ug/L		111	70 - 130	4	25
Toluene			20.0	20.4		ug/L		102	70 - 130	1	25
m,p-Xylene			40.0	43.4		ug/L		108	70 - 130	1	25
o-Xylene			20.0	21.7		ug/L		108	70 - 130	0	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*100*		*70 - 130*
2,5-Dibromotoluene (pid)	*100*		*70 - 130*

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-22769/1-B
Matrix: Water
Analysis Batch: 22799

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 22769

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		100	100	ug/L		05/19/23 09:53	05/22/23 19:41	1
C19-C36 Aliphatics	ND		100	100	ug/L		05/19/23 09:53	05/22/23 19:41	1
C11-C22 Aromatics	ND		100	100	ug/L		05/19/23 09:53	05/22/23 19:41	1
C11-C22 Aromatics (Adjusted)	ND		100	100	ug/L		05/19/23 09:53	05/22/23 19:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*56*		*40 - 140*	*05/19/23 09:53*	*05/22/23 19:41*	*1*
o-Terphenyl (Surr)	*47*		*40 - 140*	*05/19/23 09:53*	*05/22/23 19:41*	*1*
2-Fluorobiphenyl (Surr)	*63*		*40 - 140*	*05/19/23 09:53*	*05/22/23 19:41*	*1*

Lab Sample ID: LCS 620-22769/2-B
Matrix: Water
Analysis Batch: 22799

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22769

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C18 Aliphatics			120	ND		ug/L		60	40 - 140		
C19-C36 Aliphatics			160	122		ug/L		76	40 - 140		
C11-C22 Aromatics			340	266		ug/L		78	40 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*69*		*40 - 140*
o-Terphenyl (Surr)	*66*		*40 - 140*
2-Fluorobiphenyl (Surr)	*81*		*40 - 140*

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-22769/3-B
Matrix: Water
Analysis Batch: 22799

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 22769

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics			120	ND		ug/L		58	40 - 140	3	25
C19-C36 Aliphatics			160	126		ug/L		78	40 - 140	3	25
C11-C22 Aromatics			340	274		ug/L		81	40 - 140	3	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*65*		*40 - 140*
o-Terphenyl (Surr)	*64*		*40 - 140*
2-Fluorobiphenyl (Surr)	*84*		*40 - 140*

Lab Sample ID: 620-11550-5 MS
Matrix: Water
Analysis Batch: 22850

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Total/NA
Prep Batch: 22769

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C18 Aliphatics	ND		30.0	ND		ug/L		NC	40 - 140		
C19-C36 Aliphatics	ND		40.0	ND		ug/L		NC	40 - 140		
C11-C22 Aromatics	ND		85.0	ND		ug/L		NC	40 - 140		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*50*		*40 - 140*
o-Terphenyl (Surr)	*49*		*40 - 140*
2-Fluorobiphenyl (Surr)	*78*		*40 - 140*

Lab Sample ID: 620-11550-5 MSD
Matrix: Water
Analysis Batch: 22850

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Total/NA
Prep Batch: 22769

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics	ND		30.0	ND		ug/L		NC	40 - 140	NC	50
C19-C36 Aliphatics	ND		40.0	ND		ug/L		NC	40 - 140	NC	50
C11-C22 Aromatics	ND		85.0	ND		ug/L		NC	40 - 140	NC	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*55*		*40 - 140*
o-Terphenyl (Surr)	*52*		*40 - 140*
2-Fluorobiphenyl (Surr)	*78*		*40 - 140*

Lab Sample ID: MB 620-22911/1-B
Matrix: Water
Analysis Batch: 22945

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 22911

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		100	100	ug/L		05/24/23 11:41	05/25/23 12:41	1
C19-C36 Aliphatics	ND		100	100	ug/L		05/24/23 11:41	05/25/23 12:41	1
C11-C22 Aromatics	ND		100	100	ug/L		05/24/23 11:41	05/25/23 12:41	1
C11-C22 Aromatics (Adjusted)	ND		100	100	ug/L		05/24/23 11:41	05/25/23 12:41	1

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: MB 620-22911/1-B
Matrix: Water
Analysis Batch: 22945

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 22911

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctadecane (Surr)	62		40 - 140	05/24/23 11:41	05/25/23 12:41	1
o-Terphenyl (Surr)	63		40 - 140	05/24/23 11:41	05/25/23 12:41	1
2-Fluorobiphenyl (Surr)	88		40 - 140	05/24/23 11:41	05/25/23 12:41	1

Lab Sample ID: LCS 620-22911/2-B
Matrix: Water
Analysis Batch: 22945

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22911

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C18 Aliphatics			120	ND		ug/L		49	40 - 140		
C19-C36 Aliphatics			160	ND		ug/L		61	40 - 140		
C11-C22 Aromatics			340	245		ug/L		72	40 - 140		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctadecane (Surr)	68		40 - 140
o-Terphenyl (Surr)	66		40 - 140
2-Fluorobiphenyl (Surr)	96		40 - 140

Lab Sample ID: LCSD 620-22911/3-B
Matrix: Water
Analysis Batch: 22945

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 22911

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics			120	ND		ug/L		43	40 - 140	13	25
C19-C36 Aliphatics			160	ND		ug/L		56	40 - 140	9	25
C11-C22 Aromatics			340	249		ug/L		73	40 - 140	1	25

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctadecane (Surr)	69		40 - 140
o-Terphenyl (Surr)	65		40 - 140
2-Fluorobiphenyl (Surr)	94		40 - 140

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 620-22768/1-A
Matrix: Water
Analysis Batch: 22844

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 22768

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.012	0.0032	mg/L		05/19/23 09:48	05/22/23 12:41	1
Arsenic	ND		0.0080	0.0028	mg/L		05/19/23 09:48	05/22/23 12:41	1
Barium	ND		0.010	0.0014	mg/L		05/19/23 09:48	05/22/23 12:41	1
Beryllium	ND		0.0040	0.00056	mg/L		05/19/23 09:48	05/22/23 12:41	1
Cadmium	ND		0.0050	0.00071	mg/L		05/19/23 09:48	05/22/23 12:41	1
Chromium	ND		0.010	0.0019	mg/L		05/19/23 09:48	05/22/23 12:41	1
Lead	ND		0.015	0.012	mg/L		05/19/23 09:48	05/22/23 12:41	1
Nickel	ND		0.010	0.0017	mg/L		05/19/23 09:48	05/22/23 12:41	1
Selenium	ND		0.030	0.0083	mg/L		05/19/23 09:48	05/22/23 12:41	1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: MB 620-22768/1-A
Matrix: Water
Analysis Batch: 22844

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 22768

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.010	0.0012	mg/L		05/19/23 09:48	05/22/23 12:41	1
Thallium	ND		0.010	0.0042	mg/L		05/19/23 09:48	05/22/23 12:41	1
Vanadium	ND		0.010	0.0022	mg/L		05/19/23 09:48	05/22/23 12:41	1
Zinc	ND		0.050	0.0032	mg/L		05/19/23 09:48	05/22/23 12:41	1

Lab Sample ID: LCS 620-22768/2-A
Matrix: Water
Analysis Batch: 22844

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22768

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	2.50	2.56		mg/L		102	80 - 120
Arsenic	2.50	2.64		mg/L		106	80 - 120
Barium	2.50	2.36		mg/L		94	80 - 120
Beryllium	2.50	2.67		mg/L		107	80 - 120
Cadmium	2.50	2.64		mg/L		105	80 - 120
Chromium	2.50	2.56		mg/L		102	80 - 120
Lead	2.50	2.34		mg/L		94	80 - 120
Nickel	2.50	2.58		mg/L		103	80 - 120
Selenium	2.50	2.70		mg/L		108	80 - 120
Silver	2.50	2.48		mg/L		99	80 - 120
Thallium	2.50	2.61		mg/L		104	80 - 120
Vanadium	2.50	2.53		mg/L		101	80 - 120
Zinc	2.50	2.67		mg/L		107	80 - 120

Lab Sample ID: LCSD 620-22768/3-A
Matrix: Water
Analysis Batch: 22844

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 22768

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	2.50	2.50		mg/L		100	80 - 120	2	20
Arsenic	2.50	2.58		mg/L		103	80 - 120	2	20
Barium	2.50	2.35		mg/L		94	80 - 120	1	20
Beryllium	2.50	2.65		mg/L		106	80 - 120	1	20
Cadmium	2.50	2.58		mg/L		103	80 - 120	2	20
Chromium	2.50	2.53		mg/L		101	80 - 120	1	20
Lead	2.50	2.30		mg/L		92	80 - 120	2	20
Nickel	2.50	2.52		mg/L		101	80 - 120	2	20
Selenium	2.50	2.64		mg/L		106	80 - 120	2	20
Silver	2.50	2.45		mg/L		98	80 - 120	1	20
Thallium	2.50	2.55		mg/L		102	80 - 120	2	20
Vanadium	2.50	2.49		mg/L		100	80 - 120	1	20
Zinc	2.50	2.61		mg/L		104	80 - 120	2	20

Lab Sample ID: 620-11550-5 MS
Matrix: Water
Analysis Batch: 22844

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Dissolved
Prep Batch: 22768

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0053		2.50	2.53		mg/L		101	75 - 125

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 620-11550-5 MS
Matrix: Water
Analysis Batch: 22844

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Dissolved
Prep Batch: 22768

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.0081		2.50	2.68		mg/L		107	75 - 125
Barium	0.069		2.50	2.44		mg/L		95	75 - 125
Beryllium	ND		2.50	2.74		mg/L		109	75 - 125
Cadmium	ND		2.50	2.48		mg/L		99	75 - 125
Chromium	ND		2.50	2.52		mg/L		101	75 - 125
Lead	ND		2.50	2.13		mg/L		85	75 - 125
Nickel	0.015		2.50	2.38		mg/L		95	75 - 125
Selenium	ND		2.50	2.67		mg/L		107	75 - 125
Silver	ND		2.50	2.57		mg/L		103	75 - 125
Thallium	0.0027		2.50	2.44		mg/L		97	75 - 125
Vanadium	ND		2.50	2.57		mg/L		103	75 - 125
Zinc	0.14		2.50	2.67		mg/L		101	75 - 125

Lab Sample ID: 620-11550-5 MSD
Matrix: Water
Analysis Batch: 22844

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Dissolved
Prep Batch: 22768

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	0.0053		2.50	2.53		mg/L		101	75 - 125	0	20
Arsenic	0.0081		2.50	2.70		mg/L		108	75 - 125	1	20
Barium	0.069		2.50	2.44		mg/L		95	75 - 125	0	20
Beryllium	ND		2.50	2.72		mg/L		109	75 - 125	0	20
Cadmium	ND		2.50	2.51		mg/L		100	75 - 125	1	20
Chromium	ND		2.50	2.51		mg/L		100	75 - 125	1	20
Lead	ND		2.50	2.14		mg/L		85	75 - 125	0	20
Nickel	0.015		2.50	2.41		mg/L		96	75 - 125	1	20
Selenium	ND		2.50	2.67		mg/L		107	75 - 125	0	20
Silver	ND		2.50	2.54		mg/L		102	75 - 125	1	20
Thallium	0.0027		2.50	2.47		mg/L		99	75 - 125	1	20
Vanadium	ND		2.50	2.55		mg/L		102	75 - 125	1	20
Zinc	0.14		2.50	2.70		mg/L		102	75 - 125	1	20

Lab Sample ID: 620-11550-5 DU
Matrix: Water
Analysis Batch: 22844

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Dissolved
Prep Batch: 22768

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	0.0053		0.00555		mg/L		5	20
Arsenic	0.0081		0.00760		mg/L		6	20
Barium	0.069		0.0696		mg/L		0.4	20
Beryllium	ND		ND		mg/L		NC	20
Cadmium	ND		ND		mg/L		NC	20
Chromium	ND		ND		mg/L		NC	20
Lead	ND		ND		mg/L		NC	20
Nickel	0.015		0.0152		mg/L		2	20
Selenium	ND		ND		mg/L		NC	20
Silver	ND		ND		mg/L		NC	20
Thallium	0.0027		ND		mg/L		NC	20
Vanadium	ND		ND		mg/L		NC	20

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 620-11550-5 DU
Matrix: Water
Analysis Batch: 22844

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Dissolved
Prep Batch: 22768

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Zinc	0.14		0.142		mg/L		0.3	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 620-22770/1-A
Matrix: Water
Analysis Batch: 22788

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 22770

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		05/19/23 10:03	05/19/23 15:00	1

Lab Sample ID: LCS 620-22770/2-A
Matrix: Water
Analysis Batch: 22788

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22770

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00519		mg/L		104	85 - 115

Lab Sample ID: LCSD 620-22770/3-A
Matrix: Water
Analysis Batch: 22788

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 22770

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.00500	0.00510		mg/L		102	85 - 115	2	20

Lab Sample ID: 620-11550-5 MS
Matrix: Water
Analysis Batch: 22788

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Dissolved
Prep Batch: 22770

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		0.00500	0.00520		mg/L		104	80 - 120

Lab Sample ID: 620-11550-5 MSD
Matrix: Water
Analysis Batch: 22788

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Dissolved
Prep Batch: 22770

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		0.00500	0.00511		mg/L		102	80 - 120	2	20

Lab Sample ID: 620-11550-5 DU
Matrix: Water
Analysis Batch: 22788

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Dissolved
Prep Batch: 22770

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Mercury	ND		ND		mg/L		NC	20

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Prep Batch: 22769

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-1	LM-GW-B/MW105-051723	Total/NA	Water	3510C	
620-11550-2	LM-GW-B/MW102-051723	Total/NA	Water	3510C	
620-11550-3	LM-FD-051723	Total/NA	Water	3510C	
620-11550-4	LM-GW-B/MW101-051723	Total/NA	Water	3510C	
MB 620-22769/1-B	Method Blank	Total/NA	Water	3510C	
LCS 620-22769/4-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 620-22769/5-B	Lab Control Sample Dup	Total/NA	Water	3510C	
620-11550-5 MS	LM-GW-B/MW104-051723	Total/NA	Water	3510C	
620-11550-5 MSD	LM-GW-B/MW104-051723	Total/NA	Water	3510C	

Fraction Batch: 22824

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-1	LM-GW-B/MW105-051723	Total/NA	Water	MA EPH Frac	22769
620-11550-2	LM-GW-B/MW102-051723	Total/NA	Water	MA EPH Frac	22769
620-11550-3	LM-FD-051723	Total/NA	Water	MA EPH Frac	22769
620-11550-4	LM-GW-B/MW101-051723	Total/NA	Water	MA EPH Frac	22769
MB 620-22769/1-B	Method Blank	Total/NA	Water	MA EPH Frac	22769
LCS 620-22769/4-B	Lab Control Sample	Total/NA	Water	MA EPH Frac	22769
LCSD 620-22769/5-B	Lab Control Sample Dup	Total/NA	Water	MA EPH Frac	22769
620-11550-5 MS	LM-GW-B/MW104-051723	Total/NA	Water	MA EPH Frac	22769
620-11550-5 MSD	LM-GW-B/MW104-051723	Total/NA	Water	MA EPH Frac	22769

Analysis Batch: 22859

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-1	LM-GW-B/MW105-051723	Total/NA	Water	EPH	22824
620-11550-2	LM-GW-B/MW102-051723	Total/NA	Water	EPH	22824
620-11550-3	LM-FD-051723	Total/NA	Water	EPH	22824
MB 620-22769/1-B	Method Blank	Total/NA	Water	EPH	22824
LCS 620-22769/4-B	Lab Control Sample	Total/NA	Water	EPH	22824
LCSD 620-22769/5-B	Lab Control Sample Dup	Total/NA	Water	EPH	22824

Analysis Batch: 22894

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-4	LM-GW-B/MW101-051723	Total/NA	Water	EPH	22824
620-11550-5 MS	LM-GW-B/MW104-051723	Total/NA	Water	EPH	22824
620-11550-5 MSD	LM-GW-B/MW104-051723	Total/NA	Water	EPH	22824

Prep Batch: 22911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-5	LM-GW-B/MW104-051723	Total/NA	Water	3510C	
MB 620-22911/1-B	Method Blank	Total/NA	Water	3510C	
LCS 620-22911/4-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 620-22911/5-B	Lab Control Sample Dup	Total/NA	Water	3510C	

Fraction Batch: 22956

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-5	LM-GW-B/MW104-051723	Total/NA	Water	MA EPH Frac	22911
MB 620-22911/1-B	Method Blank	Total/NA	Water	MA EPH Frac	22911
LCS 620-22911/4-B	Lab Control Sample	Total/NA	Water	MA EPH Frac	22911
LCSD 620-22911/5-B	Lab Control Sample Dup	Total/NA	Water	MA EPH Frac	22911

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Analysis Batch: 23053

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-5	LM-GW-B/MW104-051723	Total/NA	Water	EPH	22956
MB 620-22911/1-B	Method Blank	Total/NA	Water	EPH	22956
LCS 620-22911/4-B	Lab Control Sample	Total/NA	Water	EPH	22956
LCSD 620-22911/5-B	Lab Control Sample Dup	Total/NA	Water	EPH	22956

GC VOA

Analysis Batch: 22877

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-1	LM-GW-B/MW105-051723	Total/NA	Water	MAVPH2.1	
620-11550-2	LM-GW-B/MW102-051723	Total/NA	Water	MAVPH2.1	
620-11550-3	LM-FD-051723	Total/NA	Water	MAVPH2.1	
620-11550-4	LM-GW-B/MW101-051723	Total/NA	Water	MAVPH2.1	
620-11550-5	LM-GW-B/MW104-051723	Total/NA	Water	MAVPH2.1	
620-11550-6	LM-TB-051723	Total/NA	Water	MAVPH2.1	
MB 620-22877/5	Method Blank	Total/NA	Water	MAVPH2.1	
LCS 620-22877/3	Lab Control Sample	Total/NA	Water	MAVPH2.1	
LCSD 620-22877/4	Lab Control Sample Dup	Total/NA	Water	MAVPH2.1	
620-11550-5 MS	LM-GW-B/MW104-051723	Total/NA	Water	MAVPH2.1	
620-11550-5 MSD	LM-GW-B/MW104-051723	Total/NA	Water	MAVPH2.1	

Analysis Batch: 22907

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-2 - DL	LM-GW-B/MW102-051723	Total/NA	Water	MAVPH2.1	
620-11550-3 - DL	LM-FD-051723	Total/NA	Water	MAVPH2.1	
MB 620-22907/5	Method Blank	Total/NA	Water	MAVPH2.1	
LCS 620-22907/3	Lab Control Sample	Total/NA	Water	MAVPH2.1	
LCSD 620-22907/4	Lab Control Sample Dup	Total/NA	Water	MAVPH2.1	

GC Semi VOA

Prep Batch: 22769

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-1	LM-GW-B/MW105-051723	Total/NA	Water	3510C	
620-11550-2	LM-GW-B/MW102-051723	Total/NA	Water	3510C	
620-11550-3	LM-FD-051723	Total/NA	Water	3510C	
620-11550-4	LM-GW-B/MW101-051723	Total/NA	Water	3510C	
MB 620-22769/1-B	Method Blank	Total/NA	Water	3510C	
LCS 620-22769/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 620-22769/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	
620-11550-5 MS	LM-GW-B/MW104-051723	Total/NA	Water	3510C	
620-11550-5 MSD	LM-GW-B/MW104-051723	Total/NA	Water	3510C	

Analysis Batch: 22799

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-1	LM-GW-B/MW105-051723	Total/NA	Water	MAEPH2.1	22824
620-11550-2	LM-GW-B/MW102-051723	Total/NA	Water	MAEPH2.1	22824
620-11550-3	LM-FD-051723	Total/NA	Water	MAEPH2.1	22824
MB 620-22769/1-B	Method Blank	Total/NA	Water	MAEPH2.1	22824
LCS 620-22769/2-B	Lab Control Sample	Total/NA	Water	MAEPH2.1	22824
LCSD 620-22769/3-B	Lab Control Sample Dup	Total/NA	Water	MAEPH2.1	22824

GC Semi VOA

Fraction Batch: 22824

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-1	LM-GW-B/MW105-051723	Total/NA	Water	MA EPH Frac	22769
620-11550-2	LM-GW-B/MW102-051723	Total/NA	Water	MA EPH Frac	22769
620-11550-3	LM-FD-051723	Total/NA	Water	MA EPH Frac	22769
620-11550-4	LM-GW-B/MW101-051723	Total/NA	Water	MA EPH Frac	22769
MB 620-22769/1-B	Method Blank	Total/NA	Water	MA EPH Frac	22769
LCS 620-22769/2-B	Lab Control Sample	Total/NA	Water	MA EPH Frac	22769
LCSD 620-22769/3-B	Lab Control Sample Dup	Total/NA	Water	MA EPH Frac	22769
620-11550-5 MS	LM-GW-B/MW104-051723	Total/NA	Water	MA EPH Frac	22769
620-11550-5 MSD	LM-GW-B/MW104-051723	Total/NA	Water	MA EPH Frac	22769

Analysis Batch: 22850

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-4	LM-GW-B/MW101-051723	Total/NA	Water	MAEPH2.1	22824
620-11550-5 MS	LM-GW-B/MW104-051723	Total/NA	Water	MAEPH2.1	22824
620-11550-5 MSD	LM-GW-B/MW104-051723	Total/NA	Water	MAEPH2.1	22824

Prep Batch: 22911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-5	LM-GW-B/MW104-051723	Total/NA	Water	3510C	
MB 620-22911/1-B	Method Blank	Total/NA	Water	3510C	
LCS 620-22911/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 620-22911/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 22945

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-5	LM-GW-B/MW104-051723	Total/NA	Water	MAEPH2.1	22956
MB 620-22911/1-B	Method Blank	Total/NA	Water	MAEPH2.1	22956
LCS 620-22911/2-B	Lab Control Sample	Total/NA	Water	MAEPH2.1	22956
LCSD 620-22911/3-B	Lab Control Sample Dup	Total/NA	Water	MAEPH2.1	22956

Fraction Batch: 22956

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-5	LM-GW-B/MW104-051723	Total/NA	Water	MA EPH Frac	22911
MB 620-22911/1-B	Method Blank	Total/NA	Water	MA EPH Frac	22911
LCS 620-22911/2-B	Lab Control Sample	Total/NA	Water	MA EPH Frac	22911
LCSD 620-22911/3-B	Lab Control Sample Dup	Total/NA	Water	MA EPH Frac	22911

Metals

Prep Batch: 22768

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-1	LM-GW-B/MW105-051723	Dissolved	Water	3005A	
620-11550-2	LM-GW-B/MW102-051723	Dissolved	Water	3005A	
620-11550-3	LM-FD-051723	Dissolved	Water	3005A	
620-11550-4	LM-GW-B/MW101-051723	Dissolved	Water	3005A	
620-11550-5	LM-GW-B/MW104-051723	Dissolved	Water	3005A	
MB 620-22768/1-A	Method Blank	Total/NA	Water	3005A	
LCS 620-22768/2-A	Lab Control Sample	Total/NA	Water	3005A	
LCSD 620-22768/3-A	Lab Control Sample Dup	Total/NA	Water	3005A	
620-11550-5 MS	LM-GW-B/MW104-051723	Dissolved	Water	3005A	
620-11550-5 MSD	LM-GW-B/MW104-051723	Dissolved	Water	3005A	

Metals (Continued)

Prep Batch: 22768 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-5 DU	LM-GW-B/MW104-051723	Dissolved	Water	3005A	

Prep Batch: 22770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-1	LM-GW-B/MW105-051723	Dissolved	Water	7470A	
620-11550-2	LM-GW-B/MW102-051723	Dissolved	Water	7470A	
620-11550-3	LM-FD-051723	Dissolved	Water	7470A	
620-11550-4	LM-GW-B/MW101-051723	Dissolved	Water	7470A	
620-11550-5	LM-GW-B/MW104-051723	Dissolved	Water	7470A	
MB 620-22770/1-A	Method Blank	Total/NA	Water	7470A	
LCS 620-22770/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 620-22770/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	
620-11550-5 MS	LM-GW-B/MW104-051723	Dissolved	Water	7470A	
620-11550-5 MSD	LM-GW-B/MW104-051723	Dissolved	Water	7470A	
620-11550-5 DU	LM-GW-B/MW104-051723	Dissolved	Water	7470A	

Analysis Batch: 22788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-1	LM-GW-B/MW105-051723	Dissolved	Water	7470A	22770
620-11550-2	LM-GW-B/MW102-051723	Dissolved	Water	7470A	22770
620-11550-3	LM-FD-051723	Dissolved	Water	7470A	22770
620-11550-4	LM-GW-B/MW101-051723	Dissolved	Water	7470A	22770
620-11550-5	LM-GW-B/MW104-051723	Dissolved	Water	7470A	22770
MB 620-22770/1-A	Method Blank	Total/NA	Water	7470A	22770
LCS 620-22770/2-A	Lab Control Sample	Total/NA	Water	7470A	22770
LCSD 620-22770/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	22770
620-11550-5 MS	LM-GW-B/MW104-051723	Dissolved	Water	7470A	22770
620-11550-5 MSD	LM-GW-B/MW104-051723	Dissolved	Water	7470A	22770
620-11550-5 DU	LM-GW-B/MW104-051723	Dissolved	Water	7470A	22770

Analysis Batch: 22844

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-1	LM-GW-B/MW105-051723	Dissolved	Water	6010D	22768
620-11550-2	LM-GW-B/MW102-051723	Dissolved	Water	6010D	22768
620-11550-3	LM-FD-051723	Dissolved	Water	6010D	22768
620-11550-4	LM-GW-B/MW101-051723	Dissolved	Water	6010D	22768
620-11550-5	LM-GW-B/MW104-051723	Dissolved	Water	6010D	22768
MB 620-22768/1-A	Method Blank	Total/NA	Water	6010D	22768
LCS 620-22768/2-A	Lab Control Sample	Total/NA	Water	6010D	22768
LCSD 620-22768/3-A	Lab Control Sample Dup	Total/NA	Water	6010D	22768
620-11550-5 MS	LM-GW-B/MW104-051723	Dissolved	Water	6010D	22768
620-11550-5 MSD	LM-GW-B/MW104-051723	Dissolved	Water	6010D	22768
620-11550-5 DU	LM-GW-B/MW104-051723	Dissolved	Water	6010D	22768

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Client Sample ID: LM-GW-B/MW105-051723

Lab Sample ID: 620-11550-1

Date Collected: 05/17/23 10:55

Matrix: Water

Date Received: 05/18/23 16:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			22769	AAH	EET NE	05/19/23 09:53
Total/NA	Fraction	MA EPH Frac			22824	BJJ	EET NE	05/22/23 14:23
Total/NA	Analysis	EPH		1	22859	JS	EET NE	05/23/23 11:56
Total/NA	Analysis	MAVPH2.1		1	22877	BMH	EET NE	05/23/23 20:34
Total/NA	Prep	3510C			22769	AAH	EET NE	05/19/23 09:53
Total/NA	Fraction	MA EPH Frac			22824	BJJ	EET NE	05/22/23 14:23
Total/NA	Analysis	MAEPH2.1		1	22799	JS	EET NE	05/22/23 21:10
Dissolved	Prep	3005A			22768	PRB	EET NE	05/19/23 09:48
Dissolved	Analysis	6010D		1	22844	JPC	EET NE	05/22/23 13:52
Dissolved	Prep	7470A			22770	PRB	EET NE	05/19/23 10:03
Dissolved	Analysis	7470A		1	22788	PRB	EET NE	05/19/23 15:12

Client Sample ID: LM-GW-B/MW102-051723

Lab Sample ID: 620-11550-2

Date Collected: 05/17/23 12:40

Matrix: Water

Date Received: 05/18/23 16:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			22769	AAH	EET NE	05/19/23 09:53
Total/NA	Fraction	MA EPH Frac			22824	BJJ	EET NE	05/22/23 14:23
Total/NA	Analysis	EPH		1	22859	JS	EET NE	05/23/23 12:19
Total/NA	Analysis	MAVPH2.1		1	22877	BMH	EET NE	05/24/23 03:36
Total/NA	Analysis	MAVPH2.1	DL	10	22907	BMH	EET NE	05/24/23 15:00
Total/NA	Prep	3510C			22769	AAH	EET NE	05/19/23 09:53
Total/NA	Fraction	MA EPH Frac			22824	BJJ	EET NE	05/22/23 14:23
Total/NA	Analysis	MAEPH2.1		1	22799	JS	EET NE	05/22/23 21:39
Dissolved	Prep	3005A			22768	PRB	EET NE	05/19/23 09:48
Dissolved	Analysis	6010D		1	22844	JPC	EET NE	05/22/23 13:58
Dissolved	Prep	7470A			22770	PRB	EET NE	05/19/23 10:03
Dissolved	Analysis	7470A		1	22788	PRB	EET NE	05/19/23 15:14

Client Sample ID: LM-FD-051723

Lab Sample ID: 620-11550-3

Date Collected: 05/17/23 08:00

Matrix: Water

Date Received: 05/18/23 16:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			22769	AAH	EET NE	05/19/23 09:53
Total/NA	Fraction	MA EPH Frac			22824	BJJ	EET NE	05/22/23 14:23
Total/NA	Analysis	EPH		1	22859	JS	EET NE	05/23/23 12:42
Total/NA	Analysis	MAVPH2.1		1	22877	BMH	EET NE	05/24/23 03:01
Total/NA	Analysis	MAVPH2.1	DL	10	22907	BMH	EET NE	05/24/23 15:35
Total/NA	Prep	3510C			22769	AAH	EET NE	05/19/23 09:53
Total/NA	Fraction	MA EPH Frac			22824	BJJ	EET NE	05/22/23 14:23
Total/NA	Analysis	MAEPH2.1		1	22799	JS	EET NE	05/22/23 22:09
Dissolved	Prep	3005A			22768	PRB	EET NE	05/19/23 09:48
Dissolved	Analysis	6010D		1	22844	JPC	EET NE	05/22/23 14:04

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Client Sample ID: LM-FD-051723

Lab Sample ID: 620-11550-3

Date Collected: 05/17/23 08:00

Matrix: Water

Date Received: 05/18/23 16:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	7470A			22770	PRB	EET NE	05/19/23 10:03
Dissolved	Analysis	7470A		1	22788	PRB	EET NE	05/19/23 15:16

Client Sample ID: LM-GW-B/MW101-051723

Lab Sample ID: 620-11550-4

Date Collected: 05/17/23 13:00

Matrix: Water

Date Received: 05/18/23 16:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			22769	AAH	EET NE	05/19/23 09:53
Total/NA	Fraction	MA EPH Frac			22824	BJJ	EET NE	05/22/23 14:23
Total/NA	Analysis	EPH		1	22894	JS	EET NE	05/24/23 09:51
Total/NA	Analysis	MAVPH2.1		1	22877	BMH	EET NE	05/23/23 21:10
Total/NA	Prep	3510C			22769	AAH	EET NE	05/19/23 09:53
Total/NA	Fraction	MA EPH Frac			22824	BJJ	EET NE	05/22/23 14:23
Total/NA	Analysis	MAEPH2.1		1	22850	JS	EET NE	05/23/23 17:01
Dissolved	Prep	3005A			22768	PRB	EET NE	05/19/23 09:48
Dissolved	Analysis	6010D		1	22844	JPC	EET NE	05/22/23 14:10
Dissolved	Prep	7470A			22770	PRB	EET NE	05/19/23 10:03
Dissolved	Analysis	7470A		1	22788	PRB	EET NE	05/19/23 15:18

Client Sample ID: LM-GW-B/MW104-051723

Lab Sample ID: 620-11550-5

Date Collected: 05/17/23 10:45

Matrix: Water

Date Received: 05/18/23 16:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			22911	AAH	EET NE	05/24/23 11:41
Total/NA	Fraction	MA EPH Frac			22956	BMS	EET NE	05/25/23 10:50
Total/NA	Analysis	EPH		1	23053	JS	EET NE	05/30/23 12:54
Total/NA	Analysis	MAVPH2.1		1	22877	BMH	EET NE	05/23/23 18:48
Total/NA	Prep	3510C			22911	AAH	EET NE	05/24/23 11:41
Total/NA	Fraction	MA EPH Frac			22956	BMS	EET NE	05/25/23 10:50
Total/NA	Analysis	MAEPH2.1		1	22945	JS	EET NE	05/25/23 14:11
Dissolved	Prep	3005A			22768	PRB	EET NE	05/19/23 09:48
Dissolved	Analysis	6010D		1	22844	JPC	EET NE	05/22/23 12:58
Dissolved	Prep	7470A			22770	PRB	EET NE	05/19/23 10:03
Dissolved	Analysis	7470A		1	22788	PRB	EET NE	05/19/23 15:25

Client Sample ID: LM-TB-051723

Lab Sample ID: 620-11550-6

Date Collected: 05/17/23 14:00

Matrix: Water

Date Received: 05/18/23 16:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	MAVPH2.1		1	22877	BMH	EET NE	05/23/23 17:03

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-11550-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Massachusetts	State	M-RI907	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6010D	3005A	Water	Antimony
6010D	3005A	Water	Arsenic
6010D	3005A	Water	Barium
6010D	3005A	Water	Beryllium
6010D	3005A	Water	Cadmium
6010D	3005A	Water	Chromium
6010D	3005A	Water	Lead
6010D	3005A	Water	Nickel
6010D	3005A	Water	Selenium
6010D	3005A	Water	Silver
6010D	3005A	Water	Thallium
6010D	3005A	Water	Vanadium
6010D	3005A	Water	Zinc
7470A	7470A	Water	Mercury
EPH	3510C	Water	2-Methylnaphthalene
EPH	3510C	Water	Acenaphthene
EPH	3510C	Water	Acenaphthylene
EPH	3510C	Water	Anthracene
EPH	3510C	Water	Benzo[a]anthracene
EPH	3510C	Water	Benzo[a]pyrene
EPH	3510C	Water	Benzo[b]fluoranthene
EPH	3510C	Water	Benzo[g,h,i]perylene
EPH	3510C	Water	Benzo[k]fluoranthene
EPH	3510C	Water	Chrysene
EPH	3510C	Water	Dibenz(a,h)anthracene
EPH	3510C	Water	Fluoranthene
EPH	3510C	Water	Fluorene
EPH	3510C	Water	Indeno[1,2,3-cd]pyrene
EPH	3510C	Water	Naphthalene
EPH	3510C	Water	Phenanthrene
EPH	3510C	Water	Pyrene
MAEPH2.1	3510C	Water	C11-C22 Aromatics
MAEPH2.1	3510C	Water	C11-C22 Aromatics (Adjusted)
MAEPH2.1	3510C	Water	C19-C36 Aliphatics
MAEPH2.1	3510C	Water	C9-C18 Aliphatics
MAVPH2.1		Water	Benzene
MAVPH2.1		Water	C5-C8 Aliphatics (adjusted)
MAVPH2.1		Water	C5-C8 Aliphatics (unadjusted)
MAVPH2.1		Water	C9-C10 Aromatics
MAVPH2.1		Water	C9-C12 Aliphatics (adjusted)
MAVPH2.1		Water	C9-C12 Aliphatics (unadjusted)
MAVPH2.1		Water	Ethylbenzene
MAVPH2.1		Water	m,p-Xylene
MAVPH2.1		Water	Methyl tert-butyl ether
MAVPH2.1		Water	Naphthalene

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-11550-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
MAVPH2.1		Water	o-Xylene
MAVPH2.1		Water	Toluene
MAVPH2.1		Water	Xylenes, Total

Method Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Method	Method Description	Protocol	Laboratory
EPH	Extractable Petroleum Hydrocarbons (GC/MS)	MA DEP	EET NE
MAVPH2.1	Massachusetts - Volatile Petroleum Hydrocarbons (GC)	MA DEP	EET NE
MAEPH2.1	Massachusetts - Extractable Petroleum Hydrocarbons (GC)	MA DEP	EET NE
6010D	Metals (ICP)	SW846	EET NE
7470A	Mercury (CVAA)	SW846	EET NE
3005A	Preparation, Total Metals	SW846	EET NE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET NE
5030C	Purge and Trap	SW846	EET NE
7470A	Preparation, Mercury	SW846	EET NE
MA EPH Frac	Massachusetts - Extractable Petroleum Hydrocarbon Fractionation	MA DEP	EET NE

Protocol References:

MA DEP = Massachusetts Department Of Environmental Protection

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Sample Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
620-11550-1	LM-GW-B/MW105-051723	Water	05/17/23 10:55	05/18/23 16:31
620-11550-2	LM-GW-B/MW102-051723	Water	05/17/23 12:40	05/18/23 16:31
620-11550-3	LM-FD-051723	Water	05/17/23 08:00	05/18/23 16:31
620-11550-4	LM-GW-B/MW101-051723	Water	05/17/23 13:00	05/18/23 16:31
620-11550-5	LM-GW-B/MW104-051723	Water	05/17/23 10:45	05/18/23 16:31
620-11550-6	LM-TB-051723	Water	05/17/23 14:00	05/18/23 16:31

11550

620-11550 Chain of Custody

Testing

Page 1 of 2

CHAIN OF CUSTODY RECORD

☐ Almgren Drive
Agawam, MA 01001
(413) 789-9018

☐ 46 Camp Avenue
N Kingstown, RI 02852
(401) 732-3400

Special Handling:

☐ TAT - Date Needed: Standard

All TATs subject to laboratory approval
Min 24-hr notification needed for rushes
Samples disposed after 30 days unless otherwise instructed.

Report To: aroy@nobis-group com
Adam Roy
Telephone #:
Project Mgr:

Invoice To: ap@nobis-group com
P O No:
Quote #:

Project No: S00001 005/400
Site Name: Former L&M
Location: Lunenburg State: MA
Sampler(s): B Fortier (978) 399-9651

F=Field Filtered 1=Na_2S2O_3 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
7=CH3OH 8=$NaHSO_4$ 9=Deionized Water 10=H_3PO_4 11= 12=

DW=Drinking Water GW=Groundwater SW=Surface Water WW=Waste Water
O=Oil SO=Soil SL=Sludge A=Indoor/Ambient Air SG=Soil Gas
X1= X2= X3=

G= Grab C=Compsite

List Preservative Code below:

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	Containers: # of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Analysis: VPH MassDEP	EPH MassDEP	MCP 14 Dissolved Metals 6010/7471						Check if chlorinated	QA/QC Reporting Notes:
										2	2	4							
01	LM-GW-B/MW105-051723	5/17/2023	10 55 AM	G	GW	3	2		1	x	x	x						☐	Metals are field filtered
02	LM-GW-B/MW102-051723	5/17/2023	12 40 PM	G	GW	3	2		1	x	x	x						☐	Metals are field filtered
03	LM-FD-051723	5/17/2023	8 00 AM	G	GW	3	2		1	x	x	x						☐	Metals are field filtered
04	LM-GW-B/MW101-051723	5/17/2023	1 00 PM	G	GW	3	2		1	x	x	x						☐	Metals are field filtered
05	LM-GW-B/MW104-051723	5/17/2023	10 45 AM	G	GW	9	6		3	x	x	x						☐	MS/MSD, Metals are field filtered
06	LM-TB-051723	5/17/2023	2 00 PM	G	GW	2				x								☐	
																		☐	
																		☐	
																		☐	
																		☐	

QA/QC Reporting Level
☐ Level I ☐ Level II
☐ Level III ☐ Level IV
☐ Other
State-specific reporting standards
MA MCP

Relinquished by:	Received by:	Date:	Time:
		5/17/23	17:10
		5/18/23	16:31

Temp °C
Observed: 2.5
Correction Factor: -0.2
Corrected: 2.3
IR ID #: 6

☑ EDD format: Equis EDD
☑ E-mail to: aroy@nobis-group com

Condition upon receipt: Custody Seals. ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☐ Iced ☑ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

5/30/2023

Login Sample Receipt Checklist

Client: Nobis Engineering, Inc.

Job Number: 620-11550-1

Login Number: 11550
List Number: 1
Creator: Makhoul, Elie

List Source: Eurofins New England

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Adam Roy
Nobis Engineering, Inc.
585 Middlesex Street
Lowell, Massachusetts 01851

Generated 6/7/2023 4:43:59 PM

JOB DESCRIPTION

Former L&M - Lunenburg MA

JOB NUMBER

620-11736-1

Eurofins New England
646 Camp Ave
North Kingstown RI 02852

See page two for job notes and contact information.

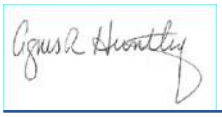
myEOL

Job Notes

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The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northeast, LLC Project Manager.

Authorization



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Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
Case Narrative 5
Detection Summary 6
Client Sample Results 9
Surrogate Summary 19
QC Sample Results 20
QC Association Summary 29
Lab Chronicle 32
Certification Summary 35
Method Summary 37
Sample Summary 38
Chain of Custody 39
Receipt Checklists 41

Definitions/Glossary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
F1	MS and/or MSD recovery exceeds control limits.

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F3	Duplicate RPD exceeds the control limit
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL, and the absolute difference between results is < the upper reporting limits for both.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 620-11736-1

Laboratory: Eurofins New England

Narrative

Job Narrative
620-11736-1

Receipt
The samples were received on 5/26/2023 4:59 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.6º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA
Method MAVPH: The method blank for preparation batch 480-671326 and analytical batch 480-671344 contained Methyl tert-butyl ether above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA
Method MAEPH2.1: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 620-23055 and 620-23114 and analytical batch 620-23095 recovered outside control limits for the following analytes: Benzo[k]fluoranthene. The individual percent recoveries are within acceptance limits.

Method MAEPH2.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 620-23055 and 620-23114 and analytical batch 620-23139 were outside control limits for C9-C18 Aliphatics. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Methods 6010, 6010D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 620-23032 and analytical batch 620-23088 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

Methods 7471A, 7471B: The sample duplicate (DUP) precision for preparation batch 620-23034 and analytical batch 620-23098 was outside control limits. Sample matrix interference is suspected.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
Method Moisture: The sample duplicate (DUP) precision for analytical batch 620-23159 was outside control limits. Sample non-homogeneity is suspected.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Client Sample ID: LM-SO-UST01-052523 — Lab Sample ID: 620-11736-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C5-C8 Aliphatics (adjusted)	0.20		0.065	0.033	mg/Kg	1		MA VPH SUM	Total/NA
C9-C12 Aliphatics (adjusted)	0.29		0.065	0.028	mg/Kg	1		MA VPH SUM	Total/NA
Ethylbenzene	0.0069	J	0.013	0.0026	mg/Kg	1	☼	MAVPH	Total/NA
Methyl tert-butyl ether	0.0043	J B	0.013	0.0026	mg/Kg	1	☼	MAVPH	Total/NA
m,p-Xylene	0.020	J	0.026	0.0026	mg/Kg	1	☼	MAVPH	Total/NA
Naphthalene	0.012	J	0.013	0.0088	mg/Kg	1	☼	MAVPH	Total/NA
o-Xylene	0.0048	J	0.013	0.0026	mg/Kg	1	☼	MAVPH	Total/NA
Toluene	0.0082	J	0.013	0.0026	mg/Kg	1	☼	MAVPH	Total/NA
C5-C8 Aliphatics (unadjusted)	0.21		0.065	0.033	mg/Kg	1	☼	MAVPH	Total/NA
C9-C10 Aromatics	0.30		0.065	0.0091	mg/Kg	1	☼	MAVPH	Total/NA
C9-C12 Aliphatics (unadjusted)	0.62		0.065	0.028	mg/Kg	1	☼	MAVPH	Total/NA
C19-C36 Aliphatics	16		7.2	7.2	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics	12		7.2	7.2	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	11		7.2	7.2	mg/Kg	1	☼	MAEPH2.1	Total/NA
Fluoranthene	0.63		0.36	0.36	mg/Kg	1	☼	MAEPH2.1	Total/NA
Antimony	1.3	J	5.4	0.41	mg/Kg	1	☼	6010D	Total/NA
Arsenic	21		1.6	0.20	mg/Kg	1	☼	6010D	Total/NA
Barium	50		1.1	0.13	mg/Kg	1	☼	6010D	Total/NA
Beryllium	0.33	J	0.54	0.027	mg/Kg	1	☼	6010D	Total/NA
Chromium	27		1.1	0.14	mg/Kg	1	☼	6010D	Total/NA
Lead	28		1.6	0.23	mg/Kg	1	☼	6010D	Total/NA
Nickel	20		1.1	0.12	mg/Kg	1	☼	6010D	Total/NA
Vanadium	21		1.6	0.29	mg/Kg	1	☼	6010D	Total/NA
Zinc	64		3.2	0.83	mg/Kg	1	☼	6010D	Total/NA
Mercury	0.025	J	0.054	0.0091	mg/Kg	1	☼	7471A	Total/NA

Client Sample ID: LM-SO-UST02-052523 — Lab Sample ID: 620-11736-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.0049	J	0.018	0.0036	mg/Kg	1	☼	MAVPH	Total/NA
Methyl tert-butyl ether	0.057	B	0.018	0.0036	mg/Kg	1	☼	MAVPH	Total/NA
m,p-Xylene	0.016	J	0.036	0.0036	mg/Kg	1	☼	MAVPH	Total/NA
o-Xylene	0.0091	J	0.018	0.0036	mg/Kg	1	☼	MAVPH	Total/NA
Toluene	0.016	J	0.018	0.0036	mg/Kg	1	☼	MAVPH	Total/NA
C9-C10 Aromatics	0.034	J	0.091	0.013	mg/Kg	1	☼	MAVPH	Total/NA
C9-C12 Aliphatics (unadjusted)	0.072	J	0.091	0.039	mg/Kg	1	☼	MAVPH	Total/NA
Fluoranthene	0.44		0.40	0.40	mg/Kg	1	☼	MAEPH2.1	Total/NA
Antimony	1.5	J	6.2	0.46	mg/Kg	1	☼	6010D	Total/NA
Arsenic	52		1.8	0.23	mg/Kg	1	☼	6010D	Total/NA
Barium	54		1.2	0.15	mg/Kg	1	☼	6010D	Total/NA
Beryllium	0.26	J	0.62	0.031	mg/Kg	1	☼	6010D	Total/NA
Chromium	34		1.2	0.16	mg/Kg	1	☼	6010D	Total/NA
Lead	29		1.8	0.26	mg/Kg	1	☼	6010D	Total/NA
Nickel	23		1.2	0.14	mg/Kg	1	☼	6010D	Total/NA
Vanadium	25		1.8	0.33	mg/Kg	1	☼	6010D	Total/NA
Zinc	150		3.7	0.95	mg/Kg	1	☼	6010D	Total/NA

Client Sample ID: LM-SO-UST03-052523 — Lab Sample ID: 620-11736-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	0.011	J B	0.015	0.0029	mg/Kg	1	☼	MAVPH	Total/NA
m,p-Xylene	0.0066	J	0.029	0.0029	mg/Kg	1	☼	MAVPH	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins New England

Client Sample ID: LM-SO-UST03-052523 (Continued) — Lab Sample ID: 620-11736-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
o-Xylene	0.0043	J	0.015	0.0029	mg/Kg	1	☼	MAVPH	Total/NA
Toluene	0.0056	J	0.015	0.0029	mg/Kg	1	☼	MAVPH	Total/NA
C9-C10 Aromatics	0.024	J	0.073	0.010	mg/Kg	1	☼	MAVPH	Total/NA
C9-C12 Aliphatics (unadjusted)	0.055	J	0.073	0.031	mg/Kg	1	☼	MAVPH	Total/NA
C19-C36 Aliphatics	19	F1	6.9	6.9	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics	12		6.9	6.9	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	11		6.9	6.9	mg/Kg	1	☼	MAEPH2.1	Total/NA
Fluoranthene	0.64		0.34	0.34	mg/Kg	1	☼	MAEPH2.1	Total/NA
Antimony	0.81	J	5.1	0.38	mg/Kg	1	☼	6010D	Total/NA
Arsenic	12		1.5	0.19	mg/Kg	1	☼	6010D	Total/NA
Barium	66	F1	1.0	0.12	mg/Kg	1	☼	6010D	Total/NA
Beryllium	0.42	J	0.51	0.026	mg/Kg	1	☼	6010D	Total/NA
Chromium	27		1.0	0.14	mg/Kg	1	☼	6010D	Total/NA
Lead	32		1.5	0.22	mg/Kg	1	☼	6010D	Total/NA
Nickel	19		1.0	0.12	mg/Kg	1	☼	6010D	Total/NA
Vanadium	22		1.5	0.27	mg/Kg	1	☼	6010D	Total/NA
Zinc	47		3.1	0.79	mg/Kg	1	☼	6010D	Total/NA
Mercury	0.069		0.045	0.0076	mg/Kg	1	☼	7471A	Total/NA

Client Sample ID: SO-FD-01 — Lab Sample ID: 620-11736-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	0.053	B	0.016	0.0032	mg/Kg	1	☼	MAVPH	Total/NA
m,p-Xylene	0.010	J	0.032	0.0032	mg/Kg	1	☼	MAVPH	Total/NA
o-Xylene	0.0066	J	0.016	0.0032	mg/Kg	1	☼	MAVPH	Total/NA
Toluene	0.011	J	0.016	0.0032	mg/Kg	1	☼	MAVPH	Total/NA
C9-C10 Aromatics	0.019	J	0.079	0.011	mg/Kg	1	☼	MAVPH	Total/NA
C9-C12 Aliphatics (unadjusted)	0.049	J	0.079	0.034	mg/Kg	1	☼	MAVPH	Total/NA
Fluoranthene	0.45		0.40	0.40	mg/Kg	1	☼	MAEPH2.1	Total/NA
Antimony	1.7	J	5.4	0.40	mg/Kg	1	☼	6010D	Total/NA
Arsenic	53		1.6	0.20	mg/Kg	1	☼	6010D	Total/NA
Barium	57		1.1	0.13	mg/Kg	1	☼	6010D	Total/NA
Beryllium	0.30	J	0.54	0.027	mg/Kg	1	☼	6010D	Total/NA
Chromium	34		1.1	0.14	mg/Kg	1	☼	6010D	Total/NA
Lead	47		1.6	0.23	mg/Kg	1	☼	6010D	Total/NA
Nickel	24		1.1	0.12	mg/Kg	1	☼	6010D	Total/NA
Vanadium	27		1.6	0.29	mg/Kg	1	☼	6010D	Total/NA
Zinc	86		3.2	0.83	mg/Kg	1	☼	6010D	Total/NA
Mercury	0.012	J	0.052	0.0087	mg/Kg	1	☼	7471A	Total/NA

Client Sample ID: LM-SO-P1-052523 — Lab Sample ID: 620-11736-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C5-C8 Aliphatics (adjusted)	0.34		0.070	0.036	mg/Kg	1		MA VPH SUM	Total/NA
C9-C12 Aliphatics (adjusted)	0.11		0.070	0.030	mg/Kg	1		MA VPH SUM	Total/NA
Benzene	0.013	J	0.014	0.0028	mg/Kg	1	☼	MAVPH	Total/NA
Ethylbenzene	0.013	J	0.014	0.0028	mg/Kg	1	☼	MAVPH	Total/NA
Methyl tert-butyl ether	0.088	B	0.014	0.0028	mg/Kg	1	☼	MAVPH	Total/NA
m,p-Xylene	0.051		0.028	0.0028	mg/Kg	1	☼	MAVPH	Total/NA
o-Xylene	0.032		0.014	0.0028	mg/Kg	1	☼	MAVPH	Total/NA
Toluene	0.040		0.014	0.0028	mg/Kg	1	☼	MAVPH	Total/NA
C5-C8 Aliphatics (unadjusted)	0.48		0.070	0.036	mg/Kg	1	☼	MAVPH	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: LM-SO-P1-052523 (Continued)

Lab Sample ID: 620-11736-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C9-C10 Aromatics	0.17		0.070	0.0098	mg/Kg	1	☼	MAVPH	Total/NA
C9-C12 Aliphatics (unadjusted)	0.38		0.070	0.030	mg/Kg	1	☼	MAVPH	Total/NA
C19-C36 Aliphatics	58		7.1	7.1	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics	33		7.1	7.1	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	32		7.1	7.1	mg/Kg	1	☼	MAEPH2.1	Total/NA
Fluoranthene	0.44		0.35	0.35	mg/Kg	1	☼	MAEPH2.1	Total/NA
Antimony	0.94	J	4.7	0.36	mg/Kg	1	☼	6010D	Total/NA
Arsenic	16		1.4	0.18	mg/Kg	1	☼	6010D	Total/NA
Barium	44		0.95	0.11	mg/Kg	1	☼	6010D	Total/NA
Beryllium	0.24	J	0.47	0.024	mg/Kg	1	☼	6010D	Total/NA
Cadmium	0.034	J	0.47	0.025	mg/Kg	1	☼	6010D	Total/NA
Chromium	20		0.95	0.13	mg/Kg	1	☼	6010D	Total/NA
Lead	60		1.4	0.20	mg/Kg	1	☼	6010D	Total/NA
Nickel	16		0.95	0.11	mg/Kg	1	☼	6010D	Total/NA
Vanadium	17		1.4	0.25	mg/Kg	1	☼	6010D	Total/NA
Zinc	150		2.8	0.74	mg/Kg	1	☼	6010D	Total/NA
Mercury	0.062		0.044	0.0074	mg/Kg	1	☼	7471A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: LM-SO-UST01-052523 Lab Sample ID: 620-11736-1

Date Collected: 05/25/23 12:10 **Matrix: Solid**
Date Received: 05/26/23 16:59 **Percent Solids: 90.3**

Method: MA DEP MA VPH SUM - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	**0.20**		0.065	0.033	mg/Kg			06/02/23 10:41	1
C9-C12 Aliphatics (adjusted)	**0.29**		0.065	0.028	mg/Kg			06/02/23 10:41	1

Method: MA DEP MAVPH - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.013	0.0026	mg/Kg	☼	05/31/23 07:06	05/31/23 10:03	1
Ethylbenzene	**0.0069**	**J**	0.013	0.0026	mg/Kg	☼	05/31/23 07:06	05/31/23 10:03	1
Methyl tert-butyl ether	**0.0043**	**J B**	0.013	0.0026	mg/Kg	☼	05/31/23 07:06	05/31/23 10:03	1
m,p-Xylene	**0.020**	**J**	0.026	0.0026	mg/Kg	☼	05/31/23 07:06	05/31/23 10:03	1
Naphthalene	**0.012**	**J**	0.013	0.0088	mg/Kg	☼	05/31/23 07:06	05/31/23 10:03	1
o-Xylene	**0.0048**	**J**	0.013	0.0026	mg/Kg	☼	05/31/23 07:06	05/31/23 10:03	1
Toluene	**0.0082**	**J**	0.013	0.0026	mg/Kg	☼	05/31/23 07:06	05/31/23 10:03	1
C5-C8 Aliphatics (unadjusted)	**0.21**		0.065	0.033	mg/Kg	☼	05/31/23 07:06	05/31/23 10:03	1
C9-C10 Aromatics	**0.30**		0.065	0.0091	mg/Kg	☼	05/31/23 07:06	05/31/23 10:03	1
C9-C12 Aliphatics (unadjusted)	**0.62**		0.065	0.028	mg/Kg	☼	05/31/23 07:06	05/31/23 10:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*103*		*70 - 130*	*05/31/23 07:06*	*05/31/23 10:03*	*1*
a,a,a-Trifluorotoluene (pid)	*94*		*70 - 130*	*05/31/23 07:06*	*05/31/23 10:03*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		7.2	7.2	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
C19-C36 Aliphatics	**16**		7.2	7.2	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
C11-C22 Aromatics	**12**		7.2	7.2	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
C11-C22 Aromatics (Adjusted)	**11**		7.2	7.2	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Naphthalene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
2-Methylnaphthalene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Acenaphthylene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Acenaphthene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Fluorene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Phenanthrene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Anthracene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Fluoranthene	**0.63**		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Pyrene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Benzo[a]anthracene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Chrysene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Benzo[b]fluoranthene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Benzo[k]fluoranthene	ND	*1	0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Benzo[a]pyrene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Indeno[1,2,3-cd]pyrene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Dibenz(a,h)anthracene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Benzo[g,h,i]perylene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*60*		*40 - 140*	*05/30/23 10:20*	*06/01/23 18:20*	*1*
o-Terphenyl (Surr)	*69*		*40 - 140*	*05/30/23 10:20*	*06/01/23 18:20*	*1*
2-Fluorobiphenyl (Surr)	*94*		*40 - 140*	*05/30/23 10:20*	*06/01/23 18:20*	*1*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Client Sample ID: LM-SO-UST01-052523

Date Collected: 05/25/23 12:10
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-1

Matrix: Solid
Percent Solids: 90.3

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.3	J	5.4	0.41	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1
Arsenic	21		1.6	0.20	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1
Barium	50		1.1	0.13	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1
Beryllium	0.33	J	0.54	0.027	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1
Cadmium	ND		0.54	0.028	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1
Chromium	27		1.1	0.14	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1
Lead	28		1.6	0.23	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1
Nickel	20		1.1	0.12	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1
Selenium	ND		1.6	0.31	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1
Silver	ND		1.6	0.17	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1
Thallium	ND		3.2	1.2	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1
Vanadium	21		1.6	0.29	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1
Zinc	64		3.2	0.83	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.025	J	0.054	0.0091	mg/Kg	☼	05/30/23 08:08	05/30/23 13:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	9.7		0.1	0.1	%			06/01/23 10:58	1
Percent Solids (EPA Moisture)	90.3		0.1	0.1	%			06/01/23 10:58	1

Client Sample ID: LM-SO-UST02-052523 Lab Sample ID: 620-11736-2

Date Collected: 05/25/23 17:50 **Matrix: Solid**
Date Received: 05/26/23 16:59 **Percent Solids: 79.9**

Method: MA DEP MA VPH SUM - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		0.091	0.047	mg/Kg			06/02/23 10:41	1
C9-C12 Aliphatics (adjusted)	ND		0.091	0.039	mg/Kg			06/02/23 10:41	1

Method: MA DEP MAVPH - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.018	0.0036	mg/Kg	☼	05/31/23 07:06	05/31/23 10:44	1
Ethylbenzene	**0.0049**	**J**	0.018	0.0036	mg/Kg	☼	05/31/23 07:06	05/31/23 10:44	1
Methyl tert-butyl ether	**0.057**	**B**	0.018	0.0036	mg/Kg	☼	05/31/23 07:06	05/31/23 10:44	1
m,p-Xylene	**0.016**	**J**	0.036	0.0036	mg/Kg	☼	05/31/23 07:06	05/31/23 10:44	1
Naphthalene	ND		0.018	0.012	mg/Kg	☼	05/31/23 07:06	05/31/23 10:44	1
o-Xylene	**0.0091**	**J**	0.018	0.0036	mg/Kg	☼	05/31/23 07:06	05/31/23 10:44	1
Toluene	**0.016**	**J**	0.018	0.0036	mg/Kg	☼	05/31/23 07:06	05/31/23 10:44	1
C5-C8 Aliphatics (unadjusted)	ND		0.091	0.047	mg/Kg	☼	05/31/23 07:06	05/31/23 10:44	1
C9-C10 Aromatics	**0.034**	**J**	0.091	0.013	mg/Kg	☼	05/31/23 07:06	05/31/23 10:44	1
C9-C12 Aliphatics (unadjusted)	**0.072**	**J**	0.091	0.039	mg/Kg	☼	05/31/23 07:06	05/31/23 10:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*104*		*70 - 130*	*05/31/23 07:06*	*05/31/23 10:44*	*1*
a,a,a-Trifluorotoluene (pid)	*95*		*70 - 130*	*05/31/23 07:06*	*05/31/23 10:44*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		8.0	8.0	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
C19-C36 Aliphatics	ND		8.0	8.0	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
C11-C22 Aromatics	ND		8.0	8.0	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
C11-C22 Aromatics (Adjusted)	ND		8.0	8.0	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Naphthalene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
2-Methylnaphthalene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Acenaphthylene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Acenaphthene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Fluorene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Phenanthrene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Anthracene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Fluoranthene	**0.44**		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Pyrene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Benzo[a]anthracene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Chrysene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Benzo[b]fluoranthene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Benzo[k]fluoranthene	ND	*1	0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Benzo[a]pyrene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Indeno[1,2,3-cd]pyrene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Dibenz(a,h)anthracene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Benzo[g,h,i]perylene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*53*		*40 - 140*	*05/30/23 10:20*	*06/01/23 18:49*	*1*
o-Terphenyl (Surr)	*58*		*40 - 140*	*05/30/23 10:20*	*06/01/23 18:49*	*1*
2-Fluorobiphenyl (Surr)	*88*		*40 - 140*	*05/30/23 10:20*	*06/01/23 18:49*	*1*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Client Sample ID: LM-SO-UST02-052523

Date Collected: 05/25/23 17:50
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-2

Matrix: Solid
Percent Solids: 79.9

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.5	J	6.2	0.46	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1
Arsenic	52		1.8	0.23	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1
Barium	54		1.2	0.15	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1
Beryllium	0.26	J	0.62	0.031	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1
Cadmium	ND		0.62	0.032	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1
Chromium	34		1.2	0.16	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1
Lead	29		1.8	0.26	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1
Nickel	23		1.2	0.14	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1
Selenium	ND		1.8	0.35	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1
Silver	ND		1.8	0.20	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1
Thallium	ND		3.7	1.4	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1
Vanadium	25		1.8	0.33	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1
Zinc	150		3.7	0.95	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.054	0.0089	mg/Kg	☼	05/30/23 08:08	05/30/23 13:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	20.1		0.1	0.1	%			06/01/23 10:58	1
Percent Solids (EPA Moisture)	79.9		0.1	0.1	%			06/01/23 10:58	1

Client Sample ID: LM-SO-UST03-052523 Lab Sample ID: 620-11736-3

Date Collected: 05/25/23 16:30 **Matrix: Solid**
Date Received: 05/26/23 16:59 **Percent Solids: 91.2**

Method: MA DEP MA VPH SUM - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		0.073	0.037	mg/Kg			06/02/23 10:41	1
C9-C12 Aliphatics (adjusted)	ND		0.073	0.031	mg/Kg			06/02/23 10:41	1

Method: MA DEP MAVPH - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.015	0.0029	mg/Kg	☼	05/31/23 07:06	05/31/23 11:25	1
Ethylbenzene	ND		0.015	0.0029	mg/Kg	☼	05/31/23 07:06	05/31/23 11:25	1
Methyl tert-butyl ether	**0.011**	**J B**	0.015	0.0029	mg/Kg	☼	05/31/23 07:06	05/31/23 11:25	1
m,p-Xylene	**0.0066**	**J**	0.029	0.0029	mg/Kg	☼	05/31/23 07:06	05/31/23 11:25	1
Naphthalene	ND		0.015	0.0099	mg/Kg	☼	05/31/23 07:06	05/31/23 11:25	1
o-Xylene	**0.0043**	**J**	0.015	0.0029	mg/Kg	☼	05/31/23 07:06	05/31/23 11:25	1
Toluene	**0.0056**	**J**	0.015	0.0029	mg/Kg	☼	05/31/23 07:06	05/31/23 11:25	1
C5-C8 Aliphatics (unadjusted)	ND		0.073	0.037	mg/Kg	☼	05/31/23 07:06	05/31/23 11:25	1
C9-C10 Aromatics	**0.024**	**J**	0.073	0.010	mg/Kg	☼	05/31/23 07:06	05/31/23 11:25	1
C9-C12 Aliphatics (unadjusted)	**0.055**	**J**	0.073	0.031	mg/Kg	☼	05/31/23 07:06	05/31/23 11:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*102*		*70 - 130*	*05/31/23 07:06*	*05/31/23 11:25*	*1*
a,a,a-Trifluorotoluene (pid)	*93*		*70 - 130*	*05/31/23 07:06*	*05/31/23 11:25*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND	F1	6.9	6.9	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
C19-C36 Aliphatics	**19**	**F1**	6.9	6.9	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
C11-C22 Aromatics	**12**		6.9	6.9	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
C11-C22 Aromatics (Adjusted)	**11**		6.9	6.9	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Naphthalene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
2-Methylnaphthalene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Acenaphthylene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Acenaphthene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Fluorene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Phenanthrene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Anthracene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Fluoranthene	**0.64**		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Pyrene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Benzo[a]anthracene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Chrysene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Benzo[b]fluoranthene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Benzo[k]fluoranthene	ND	*1	0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Benzo[a]pyrene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Indeno[1,2,3-cd]pyrene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Dibenz(a,h)anthracene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Benzo[g,h,i]perylene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*55*		*40 - 140*	*05/30/23 10:20*	*06/01/23 19:18*	*1*
o-Terphenyl (Surr)	*64*		*40 - 140*	*05/30/23 10:20*	*06/01/23 19:18*	*1*
2-Fluorobiphenyl (Surr)	*103*		*40 - 140*	*05/30/23 10:20*	*06/01/23 19:18*	*1*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Client Sample ID: LM-SO-UST03-052523

Date Collected: 05/25/23 16:30
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-3

Matrix: Solid
Percent Solids: 91.2

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.81	J	5.1	0.38	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1
Arsenic	12		1.5	0.19	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1
Barium	66	F1	1.0	0.12	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1
Beryllium	0.42	J	0.51	0.026	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1
Cadmium	ND		0.51	0.026	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1
Chromium	27		1.0	0.14	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1
Lead	32		1.5	0.22	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1
Nickel	19		1.0	0.12	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1
Selenium	ND		1.5	0.29	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1
Silver	ND		1.5	0.16	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1
Thallium	ND		3.1	1.1	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1
Vanadium	22		1.5	0.27	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1
Zinc	47		3.1	0.79	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.069		0.045	0.0076	mg/Kg	☼	05/30/23 08:08	05/30/23 14:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	8.8		0.1	0.1	%			06/01/23 10:58	1
Percent Solids (EPA Moisture)	91.2		0.1	0.1	%			06/01/23 10:58	1

Client Sample ID: SO-FD-01

Date Collected: 05/25/23 08:00
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-4

Matrix: Solid
Percent Solids: 81.2

Method: MA DEP MA VPH SUM - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		0.079	0.041	mg/Kg			06/02/23 10:41	1
C9-C12 Aliphatics (adjusted)	ND		0.079	0.034	mg/Kg			06/02/23 10:41	1

Method: MA DEP MAVPH - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.016	0.0032	mg/Kg	☼	05/31/23 07:06	05/31/23 12:05	1
Ethylbenzene	ND		0.016	0.0032	mg/Kg	☼	05/31/23 07:06	05/31/23 12:05	1
Methyl tert-butyl ether	**0.053**	**B**	0.016	0.0032	mg/Kg	☼	05/31/23 07:06	05/31/23 12:05	1
m,p-Xylene	**0.010**	**J**	0.032	0.0032	mg/Kg	☼	05/31/23 07:06	05/31/23 12:05	1
Naphthalene	ND		0.016	0.011	mg/Kg	☼	05/31/23 07:06	05/31/23 12:05	1
o-Xylene	**0.0066**	**J**	0.016	0.0032	mg/Kg	☼	05/31/23 07:06	05/31/23 12:05	1
Toluene	**0.011**	**J**	0.016	0.0032	mg/Kg	☼	05/31/23 07:06	05/31/23 12:05	1
C5-C8 Aliphatics (unadjusted)	ND		0.079	0.041	mg/Kg	☼	05/31/23 07:06	05/31/23 12:05	1
C9-C10 Aromatics	**0.019**	**J**	0.079	0.011	mg/Kg	☼	05/31/23 07:06	05/31/23 12:05	1
C9-C12 Aliphatics (unadjusted)	**0.049**	**J**	0.079	0.034	mg/Kg	☼	05/31/23 07:06	05/31/23 12:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*103*		*70 - 130*	*05/31/23 07:06*	*05/31/23 12:05*	*1*
a,a,a-Trifluorotoluene (pid)	*94*		*70 - 130*	*05/31/23 07:06*	*05/31/23 12:05*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		8.0	8.0	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
C19-C36 Aliphatics	ND		8.0	8.0	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
C11-C22 Aromatics	ND		8.0	8.0	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
C11-C22 Aromatics (Adjusted)	ND		8.0	8.0	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Naphthalene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
2-Methylnaphthalene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Acenaphthylene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Acenaphthene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Fluorene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Phenanthrene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Anthracene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Fluoranthene	**0.45**		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Pyrene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Benzo[a]anthracene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Chrysene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Benzo[b]fluoranthene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Benzo[k]fluoranthene	ND	*1	0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Benzo[a]pyrene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Indeno[1,2,3-cd]pyrene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Dibenz(a,h)anthracene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Benzo[g,h,i]perylene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*57*		*40 - 140*	*05/30/23 10:20*	*06/01/23 20:46*	*1*
o-Terphenyl (Surr)	*60*		*40 - 140*	*05/30/23 10:20*	*06/01/23 20:46*	*1*
2-Fluorobiphenyl (Surr)	*102*		*40 - 140*	*05/30/23 10:20*	*06/01/23 20:46*	*1*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Client Sample ID: SO-FD-01

Date Collected: 05/25/23 08:00
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-4

Matrix: Solid
Percent Solids: 81.2

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.7	J	5.4	0.40	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1
Arsenic	53		1.6	0.20	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1
Barium	57		1.1	0.13	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1
Beryllium	0.30	J	0.54	0.027	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1
Cadmium	ND		0.54	0.028	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1
Chromium	34		1.1	0.14	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1
Lead	47		1.6	0.23	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1
Nickel	24		1.1	0.12	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1
Selenium	ND		1.6	0.31	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1
Silver	ND		1.6	0.17	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1
Thallium	ND		3.2	1.2	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1
Vanadium	27		1.6	0.29	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1
Zinc	86		3.2	0.83	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.012	J	0.052	0.0087	mg/Kg	☼	05/30/23 08:08	05/30/23 14:14	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	18.8		0.1	0.1	%			06/01/23 10:58	1
Percent Solids (EPA Moisture)	81.2		0.1	0.1	%			06/01/23 10:58	1

Client Sample ID: LM-SO-P1-052523

Date Collected: 05/25/23 16:50
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-5

Matrix: Solid
Percent Solids: 92.2

Method: MA DEP MA VPH SUM - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	**0.34**		0.070	0.036	mg/Kg			06/02/23 10:41	1
C9-C12 Aliphatics (adjusted)	**0.11**		0.070	0.030	mg/Kg			06/02/23 10:41	1

Method: MA DEP MAVPH - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.013**	**J**	0.014	0.0028	mg/Kg	☼	05/31/23 07:06	05/31/23 12:45	1
Ethylbenzene	**0.013**	**J**	0.014	0.0028	mg/Kg	☼	05/31/23 07:06	05/31/23 12:45	1
Methyl tert-butyl ether	**0.088**	**B**	0.014	0.0028	mg/Kg	☼	05/31/23 07:06	05/31/23 12:45	1
m,p-Xylene	**0.051**		0.028	0.0028	mg/Kg	☼	05/31/23 07:06	05/31/23 12:45	1
Naphthalene	ND		0.014	0.0095	mg/Kg	☼	05/31/23 07:06	05/31/23 12:45	1
o-Xylene	**0.032**		0.014	0.0028	mg/Kg	☼	05/31/23 07:06	05/31/23 12:45	1
Toluene	**0.040**		0.014	0.0028	mg/Kg	☼	05/31/23 07:06	05/31/23 12:45	1
C5-C8 Aliphatics (unadjusted)	**0.48**		0.070	0.036	mg/Kg	☼	05/31/23 07:06	05/31/23 12:45	1
C9-C10 Aromatics	**0.17**		0.070	0.0098	mg/Kg	☼	05/31/23 07:06	05/31/23 12:45	1
C9-C12 Aliphatics (unadjusted)	**0.38**		0.070	0.030	mg/Kg	☼	05/31/23 07:06	05/31/23 12:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*105*		*70 - 130*	*05/31/23 07:06*	*05/31/23 12:45*	*1*
a,a,a-Trifluorotoluene (pid)	*95*		*70 - 130*	*05/31/23 07:06*	*05/31/23 12:45*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		7.1	7.1	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
C19-C36 Aliphatics	**58**		7.1	7.1	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
C11-C22 Aromatics	**33**		7.1	7.1	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
C11-C22 Aromatics (Adjusted)	**32**		7.1	7.1	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Naphthalene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
2-Methylnaphthalene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Acenaphthylene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Acenaphthene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Fluorene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Phenanthrene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Anthracene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Fluoranthene	**0.44**		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Pyrene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Benzo[a]anthracene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Chrysene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Benzo[b]fluoranthene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Benzo[k]fluoranthene	ND	*1	0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Benzo[a]pyrene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Indeno[1,2,3-cd]pyrene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Dibenz(a,h)anthracene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Benzo[g,h,i]perylene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*51*		*40 - 140*	*05/30/23 10:20*	*06/01/23 21:15*	*1*
o-Terphenyl (Surr)	*56*		*40 - 140*	*05/30/23 10:20*	*06/01/23 21:15*	*1*
2-Fluorobiphenyl (Surr)	*92*		*40 - 140*	*05/30/23 10:20*	*06/01/23 21:15*	*1*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Client Sample ID: LM-SO-P1-052523

Date Collected: 05/25/23 16:50
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-5

Matrix: Solid
Percent Solids: 92.2

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.94	J	4.7	0.36	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1
Arsenic	16		1.4	0.18	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1
Barium	44		0.95	0.11	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1
Beryllium	0.24	J	0.47	0.024	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1
Cadmium	0.034	J	0.47	0.025	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1
Chromium	20		0.95	0.13	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1
Lead	60		1.4	0.20	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1
Nickel	16		0.95	0.11	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1
Selenium	ND		1.4	0.27	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1
Silver	ND		1.4	0.15	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1
Thallium	ND		2.8	1.0	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1
Vanadium	17		1.4	0.25	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1
Zinc	150		2.8	0.74	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.062		0.044	0.0074	mg/Kg	☼	05/30/23 08:08	05/30/23 14:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	7.8		0.1	0.1	%			06/01/23 10:58	1
Percent Solids (EPA Moisture)	92.2		0.1	0.1	%			06/01/23 10:58	1

Surrogate Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Method: MAVPH - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		TFT-F1	TFT-P2
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
620-11736-1	LM-SO-UST01-052523	103	94
620-11736-2	LM-SO-UST02-052523	104	95
620-11736-3	LM-SO-UST03-052523	102	93
620-11736-3 MS	LM-SO-UST03-052523	102	95
620-11736-3 MSD	LM-SO-UST03-052523	103	96
620-11736-4	SO-FD-01	103	94
620-11736-5	LM-SO-P1-052523	105	95
LCS 480-671326/2-A	Lab Control Sample	103	95
LCSD 480-671326/3-A	Lab Control Sample Dup	99	92
MB 480-671326/1-A	Method Blank	113	103

Surrogate Legend

TFT-F = a,a,a-Trifluorotoluene (fid)
TFT-P = a,a,a-Trifluorotoluene (pid)

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		1COD1	OTPH1	FBP1
Lab Sample ID	Client Sample ID	(40-140)	(40-140)	(40-140)
620-11736-1	LM-SO-UST01-052523	60	69	94
620-11736-2	LM-SO-UST02-052523	53	58	88
620-11736-3	LM-SO-UST03-052523	55	64	103
620-11736-3 MS	LM-SO-UST03-052523	77	89	127
620-11736-3 MSD	LM-SO-UST03-052523	68	70	101
620-11736-4	SO-FD-01	57	60	102
620-11736-5	LM-SO-P1-052523	51	56	92
LCS 620-23055/2-B	Lab Control Sample	77	66	103
LCSD 620-23055/3-B	Lab Control Sample Dup	70	67	104
MB 620-23055/1-B	Method Blank	65	60	106

Surrogate Legend

1COD = 1-Chlorooctadecane (Surr)
OTPH = o-Terphenyl (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Method: MAVPH - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 480-671326/1-A
Matrix: Solid
Analysis Batch: 671344

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 671326

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.050	0.010	mg/Kg		05/31/23 07:06	05/31/23 08:02	1
Ethylbenzene	ND		0.050	0.010	mg/Kg		05/31/23 07:06	05/31/23 08:02	1
Methyl tert-butyl ether	0.0110	J	0.050	0.010	mg/Kg		05/31/23 07:06	05/31/23 08:02	1
m,p-Xylene	ND		0.10	0.010	mg/Kg		05/31/23 07:06	05/31/23 08:02	1
Naphthalene	ND		0.050	0.034	mg/Kg		05/31/23 07:06	05/31/23 08:02	1
o-Xylene	ND		0.050	0.010	mg/Kg		05/31/23 07:06	05/31/23 08:02	1
Toluene	ND		0.050	0.010	mg/Kg		05/31/23 07:06	05/31/23 08:02	1
C5-C8 Aliphatics (unadjusted)	ND		0.25	0.13	mg/Kg		05/31/23 07:06	05/31/23 08:02	1
C9-C10 Aromatics	ND		0.25	0.035	mg/Kg		05/31/23 07:06	05/31/23 08:02	1
C9-C12 Aliphatics (unadjusted)	ND		0.25	0.11	mg/Kg		05/31/23 07:06	05/31/23 08:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*113*		*70 - 130*	*05/31/23 07:06*	*05/31/23 08:02*	*1*
a,a,a-Trifluorotoluene (pid)	*103*		*70 - 130*	*05/31/23 07:06*	*05/31/23 08:02*	*1*

Lab Sample ID: LCS 480-671326/2-A
Matrix: Solid
Analysis Batch: 671344

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 671326

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	2.50	2.25		mg/Kg		90	70 - 130
Ethylbenzene	2.50	2.32		mg/Kg		93	70 - 130
Methyl tert-butyl ether	2.50	2.01		mg/Kg		80	70 - 130
m,p-Xylene	5.00	4.54		mg/Kg		91	70 - 130
Naphthalene	2.50	2.14		mg/Kg		85	70 - 130
o-Xylene	2.50	2.25		mg/Kg		90	70 - 130
Toluene	2.50	2.24		mg/Kg		90	70 - 130
C5-C8 Aliphatics (unadjusted)	7.50	8.06		mg/Kg		107	70 - 130
C9-C10 Aromatics	2.50	2.46		mg/Kg		99	70 - 130
C9-C12 Aliphatics (unadjusted)	7.50	8.39		mg/Kg		112	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (fid)	*103*		*70 - 130*
a,a,a-Trifluorotoluene (pid)	*95*		*70 - 130*

Lab Sample ID: LCSD 480-671326/3-A
Matrix: Solid
Analysis Batch: 671344

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 671326

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	2.50	2.19		mg/Kg		87	70 - 130	3	25
Ethylbenzene	2.50	2.26		mg/Kg		90	70 - 130	3	25
Methyl tert-butyl ether	2.50	1.97		mg/Kg		79	70 - 130	2	25
m,p-Xylene	5.00	4.42		mg/Kg		88	70 - 130	3	25
Naphthalene	2.50	2.12		mg/Kg		85	70 - 130	1	25
o-Xylene	2.50	2.21		mg/Kg		88	70 - 130	2	25
Toluene	2.50	2.18		mg/Kg		87	70 - 130	3	25
C5-C8 Aliphatics (unadjusted)	7.50	7.74		mg/Kg		103	70 - 130	4	25

Method: MAVPH - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 480-671326/3-A
Matrix: Solid
Analysis Batch: 671344

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 671326

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics			2.50	2.39		mg/Kg		96	70 - 130	3	25
C9-C12 Aliphatics (unadjusted)			7.50	8.09		mg/Kg		108	70 - 130	4	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (fid)	*99*		*70 - 130*
a,a,a-Trifluorotoluene (pid)	*92*		*70 - 130*

Lab Sample ID: 620-11736-3 MS
Matrix: Solid
Analysis Batch: 671344

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 671326

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	ND		0.696	0.639		mg/Kg	☼	92	70 - 130
Ethylbenzene	ND		0.696	0.648		mg/Kg	☼	93	70 - 130
Methyl tert-butyl ether	0.011	J B	0.696	0.582		mg/Kg	☼	82	70 - 130
m,p-Xylene	0.0066	J	1.39	1.29		mg/Kg	☼	92	70 - 130
Naphthalene	ND		0.696	0.586		mg/Kg	☼	84	70 - 130
o-Xylene	0.0043	J	0.696	0.635		mg/Kg	☼	91	70 - 130
Toluene	0.0056	J	0.696	0.634		mg/Kg	☼	90	70 - 130
C5-C8 Aliphatics (unadjusted)	ND		2.09	2.25		mg/Kg	☼	108	70 - 130
C9-C10 Aromatics	0.024	J	0.696	0.722		mg/Kg	☼	100	70 - 130
C9-C12 Aliphatics (unadjusted)	0.055	J	2.09	2.47		mg/Kg	☼	116	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (fid)	*102*		*70 - 130*
a,a,a-Trifluorotoluene (pid)	*95*		*70 - 130*

Lab Sample ID: 620-11736-3 MSD
Matrix: Solid
Analysis Batch: 671344

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 671326

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.687	0.632		mg/Kg	☼	92	70 - 130	1	50
Ethylbenzene	ND		0.687	0.647		mg/Kg	☼	94	70 - 130	0	50
Methyl tert-butyl ether	0.011	J B	0.687	0.577		mg/Kg	☼	82	70 - 130	1	50
m,p-Xylene	0.0066	J	1.37	1.28		mg/Kg	☼	93	70 - 130	1	50
Naphthalene	ND		0.687	0.572		mg/Kg	☼	83	70 - 130	2	50
o-Xylene	0.0043	J	0.687	0.629		mg/Kg	☼	91	70 - 130	1	50
Toluene	0.0056	J	0.687	0.632		mg/Kg	☼	91	70 - 130	0	50
C5-C8 Aliphatics (unadjusted)	ND		2.06	2.15		mg/Kg	☼	104	70 - 130	4	50
C9-C10 Aromatics	0.024	J	0.687	0.720		mg/Kg	☼	101	70 - 130	0	50
C9-C12 Aliphatics (unadjusted)	0.055	J	2.06	2.47		mg/Kg	☼	117	70 - 130	0	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (fid)	*103*		*70 - 130*
a,a,a-Trifluorotoluene (pid)	*96*		*70 - 130*

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-23055/1-B
Matrix: Solid
Analysis Batch: 23095

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23055

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		6.7	6.7	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
C19-C36 Aliphatics	ND		6.7	6.7	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
C11-C22 Aromatics	ND		6.7	6.7	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
C11-C22 Aromatics (Adjusted)	ND		6.7	6.7	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Naphthalene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
2-Methylnaphthalene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Acenaphthylene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Acenaphthene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Fluorene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Phenanthrene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Anthracene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Fluoranthene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Pyrene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Benzo[a]anthracene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Chrysene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Benzo[b]fluoranthene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Benzo[k]fluoranthene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Benzo[a]pyrene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Indeno[1,2,3-cd]pyrene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Dibenz(a,h)anthracene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Benzo[g,h,i]perylene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*65*		*40 - 140*	*05/30/23 10:20*	*05/31/23 13:14*	*1*
o-Terphenyl (Surr)	*60*		*40 - 140*	*05/30/23 10:20*	*05/31/23 13:14*	*1*
2-Fluorobiphenyl (Surr)	*106*		*40 - 140*	*05/30/23 10:20*	*05/31/23 13:14*	*1*

Lab Sample ID: LCS 620-23055/2-B
Matrix: Solid
Analysis Batch: 23095

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23055

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C18 Aliphatics	8.00	ND		mg/Kg		57	40 - 140
C19-C36 Aliphatics	10.7	8.17		mg/Kg		77	40 - 140
C11-C22 Aromatics	22.7	17.2		mg/Kg		76	40 - 140
Naphthalene	1.33	0.912		mg/Kg		68	40 - 140
2-Methylnaphthalene	1.33	0.917		mg/Kg		69	40 - 140
Acenaphthylene	1.33	0.907		mg/Kg		68	40 - 140
Acenaphthene	1.33	0.871		mg/Kg		65	40 - 140
Fluorene	1.33	0.881		mg/Kg		66	40 - 140
Phenanthrene	1.33	0.793		mg/Kg		59	40 - 140
Anthracene	1.33	0.938		mg/Kg		70	40 - 140
Fluoranthene	1.33	1.56		mg/Kg		117	40 - 140
Pyrene	1.33	1.01		mg/Kg		76	40 - 140
Benzo[a]anthracene	1.33	0.882		mg/Kg		66	40 - 140
Chrysene	1.33	1.04		mg/Kg		78	40 - 140
Benzo[b]fluoranthene	1.33	0.857		mg/Kg		64	40 - 140
Benzo[k]fluoranthene	1.33	1.40		mg/Kg		105	40 - 140

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCS 620-23055/2-B
Matrix: Solid
Analysis Batch: 23095

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23055

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]pyrene	1.33	0.966		mg/Kg		72	40 - 140
Indeno[1,2,3-cd]pyrene	1.33	0.974		mg/Kg		73	40 - 140
Dibenz(a,h)anthracene	1.33	0.993		mg/Kg		75	40 - 140
Benzo[g,h,i]perylene	1.33	1.12		mg/Kg		84	40 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*77*		*40 - 140*
o-Terphenyl (Surr)	*66*		*40 - 140*
2-Fluorobiphenyl (Surr)	*103*		*40 - 140*

Lab Sample ID: LCSD 620-23055/3-B
Matrix: Solid
Analysis Batch: 23095

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23055

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics	8.00	ND		mg/Kg		49	40 - 140	16	25
C19-C36 Aliphatics	10.7	7.04		mg/Kg		66	40 - 140	15	25
C11-C22 Aromatics	22.7	17.1		mg/Kg		75	40 - 140	1	25
Naphthalene	1.33	0.921		mg/Kg		69	40 - 140	1	25
2-Methylnaphthalene	1.33	0.915		mg/Kg		69	40 - 140	0	25
Acenaphthylene	1.33	0.898		mg/Kg		67	40 - 140	1	25
Acenaphthene	1.33	0.866		mg/Kg		65	40 - 140	1	25
Fluorene	1.33	0.874		mg/Kg		66	40 - 140	1	25
Phenanthrene	1.33	0.793		mg/Kg		59	40 - 140	0	25
Anthracene	1.33	0.935		mg/Kg		70	40 - 140	0	25
Fluoranthene	1.33	1.40		mg/Kg		105	40 - 140	10	25
Pyrene	1.33	1.02		mg/Kg		76	40 - 140	0	25
Benzo[a]anthracene	1.33	0.892		mg/Kg		67	40 - 140	1	25
Chrysene	1.33	0.987		mg/Kg		74	40 - 140	6	25
Benzo[b]fluoranthene	1.33	0.980		mg/Kg		74	40 - 140	13	25
Benzo[k]fluoranthene	1.33	0.910	*1	mg/Kg		68	40 - 140	42	25
Benzo[a]pyrene	1.33	1.08		mg/Kg		81	40 - 140	12	25
Indeno[1,2,3-cd]pyrene	1.33	0.973		mg/Kg		73	40 - 140	0	25
Dibenz(a,h)anthracene	1.33	0.994		mg/Kg		75	40 - 140	0	25
Benzo[g,h,i]perylene	1.33	1.12		mg/Kg		84	40 - 140	0	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*70*		*40 - 140*
o-Terphenyl (Surr)	*67*		*40 - 140*
2-Fluorobiphenyl (Surr)	*104*		*40 - 140*

Lab Sample ID: 620-11736-3 MS
Matrix: Solid
Analysis Batch: 23364

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 23055

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C18 Aliphatics	ND	F1	8.59	6.41		mg/Kg	☼	75	40 - 140
C19-C36 Aliphatics	19	F1	11.5	25.4		mg/Kg	☼	53	40 - 140

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: 620-11736-3 MS
Matrix: Solid
Analysis Batch: 23364

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 23055

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
C11-C22 Aromatics	12		24.4	36.5		mg/Kg	☼	103	40 - 140
Naphthalene	ND		1.43	1.04		mg/Kg	☼	72	40 - 140
2-Methylnaphthalene	ND		1.43	1.09		mg/Kg	☼	76	40 - 140
Acenaphthylene	ND		1.43	1.13		mg/Kg	☼	79	40 - 140
Acenaphthene	ND		1.43	1.09		mg/Kg	☼	76	40 - 140
Fluorene	ND		1.43	1.14		mg/Kg	☼	80	40 - 140
Phenanthrene	ND		1.43	1.19		mg/Kg	☼	83	40 - 140
Anthracene	ND		1.43	1.28		mg/Kg	☼	89	40 - 140
Fluoranthene	0.64		1.43	1.82		mg/Kg	☼	82	40 - 140
Pyrene	ND		1.43	1.59		mg/Kg	☼	111	40 - 140
Benzo[a]anthracene	ND		1.43	1.25		mg/Kg	☼	87	40 - 140
Chrysene	ND		1.43	1.52		mg/Kg	☼	106	40 - 140
Benzo[b]fluoranthene	ND		1.43	1.38		mg/Kg	☼	97	40 - 140
Benzo[k]fluoranthene	ND	*1	1.43	1.37		mg/Kg	☼	95	40 - 140
Benzo[a]pyrene	ND		1.43	1.57		mg/Kg	☼	110	40 - 140
Indeno[1,2,3-cd]pyrene	ND		1.43	1.48		mg/Kg	☼	103	40 - 140
Dibenz(a,h)anthracene	ND		1.43	1.77		mg/Kg	☼	123	40 - 140
Benzo[g,h,i]perylene	ND		1.43	1.54		mg/Kg	☼	107	40 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*77*		*40 - 140*
o-Terphenyl (Surr)	*89*		*40 - 140*
2-Fluorobiphenyl (Surr)	*127*		*40 - 140*

Lab Sample ID: 620-11736-3 MSD
Matrix: Solid
Analysis Batch: 23139

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 23055

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics	ND	F1	8.70	4.26		mg/Kg	☼	49	40 - 140	NC	50
C19-C36 Aliphatics	19	F1	11.6	23.8	F1	mg/Kg	☼	38	40 - 140	7	50
C11-C22 Aromatics	12		24.6	29.5		mg/Kg	☼	73	40 - 140	21	50
Naphthalene	ND		1.45	0.858		mg/Kg	☼	59	40 - 140	19	50
2-Methylnaphthalene	ND		1.45	0.867		mg/Kg	☼	60	40 - 140	23	50
Acenaphthylene	ND		1.45	0.916		mg/Kg	☼	63	40 - 140	21	50
Acenaphthene	ND		1.45	0.868		mg/Kg	☼	60	40 - 140	22	50
Fluorene	ND		1.45	0.921		mg/Kg	☼	64	40 - 140	21	50
Phenanthrene	ND		1.45	0.984		mg/Kg	☼	68	40 - 140	19	50
Anthracene	ND		1.45	0.988		mg/Kg	☼	68	40 - 140	26	50
Fluoranthene	0.64		1.45	1.75		mg/Kg	☼	77	40 - 140	4	50
Pyrene	ND		1.45	1.22		mg/Kg	☼	84	40 - 140	26	50
Benzo[a]anthracene	ND		1.45	1.02		mg/Kg	☼	70	40 - 140	20	50
Chrysene	ND		1.45	1.24		mg/Kg	☼	85	40 - 140	20	50
Benzo[b]fluoranthene	ND		1.45	1.02		mg/Kg	☼	71	40 - 140	30	50
Benzo[k]fluoranthene	ND	*1	1.45	0.999		mg/Kg	☼	69	40 - 140	31	50
Benzo[a]pyrene	ND		1.45	1.17		mg/Kg	☼	81	40 - 140	30	50
Indeno[1,2,3-cd]pyrene	ND		1.45	1.21		mg/Kg	☼	84	40 - 140	20	50
Dibenz(a,h)anthracene	ND		1.45	1.26		mg/Kg	☼	87	40 - 140	33	50

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: 620-11736-3 MSD
Matrix: Solid
Analysis Batch: 23139

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 23055

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzo[g,h,i]perylene	ND		1.45	1.76		mg/Kg	☼	121	40 - 140	14	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*68*		*40 - 140*
o-Terphenyl (Surr)	*70*		*40 - 140*
2-Fluorobiphenyl (Surr)	*101*		*40 - 140*

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 620-23032/1-A
Matrix: Solid
Analysis Batch: 23088

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23032

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		5.0	0.38	mg/Kg		05/30/23 07:41	05/30/23 17:27	1
Arsenic	ND		1.5	0.19	mg/Kg		05/30/23 07:41	05/30/23 17:27	1
Barium	ND		1.0	0.12	mg/Kg		05/30/23 07:41	05/30/23 17:27	1
Beryllium	ND		0.50	0.025	mg/Kg		05/30/23 07:41	05/30/23 17:27	1
Cadmium	ND		0.50	0.026	mg/Kg		05/30/23 07:41	05/30/23 17:27	1
Chromium	ND		1.0	0.13	mg/Kg		05/30/23 07:41	05/30/23 17:27	1
Lead	ND		1.5	0.21	mg/Kg		05/30/23 07:41	05/30/23 17:27	1
Nickel	ND		1.0	0.12	mg/Kg		05/30/23 07:41	05/30/23 17:27	1
Selenium	ND		1.5	0.29	mg/Kg		05/30/23 07:41	05/30/23 17:27	1
Silver	ND		1.5	0.16	mg/Kg		05/30/23 07:41	05/30/23 17:27	1
Thallium	ND		3.0	1.1	mg/Kg		05/30/23 07:41	05/30/23 17:27	1
Vanadium	ND		1.5	0.27	mg/Kg		05/30/23 07:41	05/30/23 17:27	1
Zinc	ND		3.0	0.77	mg/Kg		05/30/23 07:41	05/30/23 17:27	1

Lab Sample ID: LCDSRM 620-23032/3-A
Matrix: Solid
Analysis Batch: 23088

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23032

Analyte			Spike Added	LCDSRM Result	LCDSRM Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony			225	78.5		mg/Kg		35.0	10.0 - 139.2	1	20
Arsenic			189	166		mg/Kg		88.1	65.6 - 122.1	3	20
Barium			311	284		mg/Kg		91.5	69.5 - 115.9	0	20
Beryllium			82.1	69.9		mg/Kg		85.2	69.7 - 116.0	1	20
Cadmium			239	184		mg/Kg		76.8	67.2 - 111.7	5	20
Chromium			210	183		mg/Kg		87.1	64.5 - 119.8	1	20
Lead			261	218		mg/Kg		83.4	70.4 - 120.0	4	20
Nickel			181	150		mg/Kg		82.9	63.1 - 117.1	1	20
Selenium			233	192		mg/Kg		82.2	62.2 - 118.3	3	20

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCDSRM 620-23032/3-A
Matrix: Solid
Analysis Batch: 23088

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23032

Analyte	Spike Added	LCDSRM Result	LCDSRM Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Silver	69.7	59.6		mg/Kg		85.5	66.5 - 121.7	2	20
Thallium	86.0	72.6		mg/Kg		84.4	58.9 - 122.6	7	20
Vanadium	218	195		mg/Kg		89.3	68.0 - 114.2	2	20
Zinc	234	202		mg/Kg		86.2	64.9 - 120.7	2	20

Lab Sample ID: LCSSRM 620-23032/2-A
Matrix: Solid
Analysis Batch: 23088

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23032

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	212	77.4		mg/Kg		36.5	10.0 - 139.2
Arsenic	178	171		mg/Kg		96.1	65.6 - 122.1
Barium	293	285		mg/Kg		97.1	69.5 - 115.9
Beryllium	77.5	70.5		mg/Kg		91.1	69.7 - 116.0
Cadmium	226	193		mg/Kg		85.4	67.2 - 111.7
Chromium	198	185		mg/Kg		93.4	64.5 - 119.8
Lead	247	227		mg/Kg		92.0	70.4 - 120.0
Nickel	171	151		mg/Kg		88.5	63.1 - 117.1
Selenium	220	198		mg/Kg		89.8	62.2 - 118.3
Silver	65.8	60.5		mg/Kg		92.0	66.5 - 121.7
Thallium	81.2	77.8		mg/Kg		95.8	58.9 - 122.6
Vanadium	206	198		mg/Kg		96.2	68.0 - 114.2
Zinc	221	206		mg/Kg		93.4	64.9 - 120.7

Lab Sample ID: 620-11736-3 MS
Matrix: Solid
Analysis Batch: 23088

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 23032

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.81	J	116	118		mg/Kg	☼	101	75 - 125
Arsenic	12		116	118		mg/Kg	☼	91	75 - 125
Barium	66	F1	116	137	F1	mg/Kg	☼	61	75 - 125
Beryllium	0.42	J	116	105		mg/Kg	☼	90	75 - 125
Cadmium	ND		116	97.3		mg/Kg	☼	84	75 - 125
Chromium	27		116	128		mg/Kg	☼	86	75 - 125
Lead	32		116	126		mg/Kg	☼	80	75 - 125

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 620-11736-3 MS
Matrix: Solid
Analysis Batch: 23088

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 23032

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nickel	19		116	113		mg/Kg	☼	80	75 - 125
Selenium	ND		116	100		mg/Kg	☼	86	75 - 125
Silver	ND		116	94.3		mg/Kg	☼	81	75 - 125
Thallium	ND		116	112		mg/Kg	☼	96	75 - 125
Vanadium	22		116	127		mg/Kg	☼	90	75 - 125
Zinc	47		116	139		mg/Kg	☼	79	75 - 125

Lab Sample ID: 620-11736-3 MSD
Matrix: Solid
Analysis Batch: 23088

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 23032

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	0.81	J	129	130		mg/Kg	☼	100	75 - 125	10	20
Arsenic	12		129	131		mg/Kg	☼	92	75 - 125	10	20
Barium	66	F1	129	136	F1	mg/Kg	☼	54	75 - 125	1	20
Beryllium	0.42	J	129	116		mg/Kg	☼	89	75 - 125	10	20
Cadmium	ND		129	111		mg/Kg	☼	86	75 - 125	13	20
Chromium	27		129	138		mg/Kg	☼	85	75 - 125	8	20
Lead	32		129	139		mg/Kg	☼	83	75 - 125	10	20
Nickel	19		129	125		mg/Kg	☼	82	75 - 125	10	20
Selenium	ND		129	115		mg/Kg	☼	89	75 - 125	13	20
Silver	ND		129	108		mg/Kg	☼	84	75 - 125	14	20
Thallium	ND		129	126		mg/Kg	☼	98	75 - 125	12	20
Vanadium	22		129	136		mg/Kg	☼	88	75 - 125	7	20
Zinc	47		129	161		mg/Kg	☼	88	75 - 125	14	20

Lab Sample ID: 620-11736-3 DU
Matrix: Solid
Analysis Batch: 23088

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 23032

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	0.81	J	0.905	J	mg/Kg	☼	11	20
Arsenic	12		11.7		mg/Kg	☼	0.8	20
Barium	66	F1	63.2		mg/Kg	☼	4	20
Beryllium	0.42	J	0.412	J	mg/Kg	☼	0.7	20
Cadmium	ND		ND		mg/Kg	☼	NC	20
Chromium	27		27.8		mg/Kg	☼	2	20
Lead	32		26.0	F3	mg/Kg	☼	22	20
Nickel	19		18.8		mg/Kg	☼	2	20
Selenium	ND		ND		mg/Kg	☼	NC	20
Silver	ND		ND		mg/Kg	☼	NC	20
Thallium	ND		ND		mg/Kg	☼	NC	20
Vanadium	22		24.2		mg/Kg	☼	9	20
Zinc	47		46.7		mg/Kg	☼	1	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 620-23034/1-A
Matrix: Solid
Analysis Batch: 23098

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23034

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.050	0.0083	mg/Kg		05/30/23 08:08	05/30/23 13:09	1

Lab Sample ID: LCDSRM 620-23034/3-A ^10
Matrix: Solid
Analysis Batch: 23098

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23034

Analyte			Spike Added	LCDSRM Result	LCDSRM Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury			18.2	21.2		mg/Kg		116.6	59.9 - 140.1	4	

Lab Sample ID: LCSSRM 620-23034/2-A ^10
Matrix: Solid
Analysis Batch: 23098

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23034

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			18.2	20.3		mg/Kg		111.7	59.9 - 140.1		

Lab Sample ID: 620-11736-3 MS
Matrix: Solid
Analysis Batch: 23098

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 23034

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury	0.069		0.201	0.321		mg/Kg	☼	125	75 - 125		

Lab Sample ID: 620-11736-3 MSD
Matrix: Solid
Analysis Batch: 23098

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 23034

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.069		0.219	0.338		mg/Kg	☼	123	75 - 125	5	20

Lab Sample ID: 620-11736-3 DU
Matrix: Solid
Analysis Batch: 23098

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 23034

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Mercury	0.069		0.0884	F5	mg/Kg	☼	24	20

GC VOA

Prep Batch: 671326

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11736-1	LM-SO-UST01-052523	Total/NA	Solid	5035A_H	
620-11736-2	LM-SO-UST02-052523	Total/NA	Solid	5035A_H	
620-11736-3	LM-SO-UST03-052523	Total/NA	Solid	5035A_H	
620-11736-4	SO-FD-01	Total/NA	Solid	5035A_H	
620-11736-5	LM-SO-P1-052523	Total/NA	Solid	5035A_H	
MB 480-671326/1-A	Method Blank	Total/NA	Solid	5035A_H	
LCS 480-671326/2-A	Lab Control Sample	Total/NA	Solid	5035A_H	
LCSD 480-671326/3-A	Lab Control Sample Dup	Total/NA	Solid	5035A_H	
620-11736-3 MS	LM-SO-UST03-052523	Total/NA	Solid	5035A_H	
620-11736-3 MSD	LM-SO-UST03-052523	Total/NA	Solid	5035A_H	

Analysis Batch: 671344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11736-1	LM-SO-UST01-052523	Total/NA	Solid	MAVPH	671326
620-11736-2	LM-SO-UST02-052523	Total/NA	Solid	MAVPH	671326
620-11736-3	LM-SO-UST03-052523	Total/NA	Solid	MAVPH	671326
620-11736-4	SO-FD-01	Total/NA	Solid	MAVPH	671326
620-11736-5	LM-SO-P1-052523	Total/NA	Solid	MAVPH	671326
MB 480-671326/1-A	Method Blank	Total/NA	Solid	MAVPH	671326
LCS 480-671326/2-A	Lab Control Sample	Total/NA	Solid	MAVPH	671326
LCSD 480-671326/3-A	Lab Control Sample Dup	Total/NA	Solid	MAVPH	671326
620-11736-3 MS	LM-SO-UST03-052523	Total/NA	Solid	MAVPH	671326
620-11736-3 MSD	LM-SO-UST03-052523	Total/NA	Solid	MAVPH	671326

Analysis Batch: 671728

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11736-1	LM-SO-UST01-052523	Total/NA	Solid	MA VPH SUM	
620-11736-2	LM-SO-UST02-052523	Total/NA	Solid	MA VPH SUM	
620-11736-3	LM-SO-UST03-052523	Total/NA	Solid	MA VPH SUM	
620-11736-4	SO-FD-01	Total/NA	Solid	MA VPH SUM	
620-11736-5	LM-SO-P1-052523	Total/NA	Solid	MA VPH SUM	

GC Semi VOA

Prep Batch: 23055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11736-1	LM-SO-UST01-052523	Total/NA	Solid	3546	
620-11736-2	LM-SO-UST02-052523	Total/NA	Solid	3546	
620-11736-3	LM-SO-UST03-052523	Total/NA	Solid	3546	
620-11736-4	SO-FD-01	Total/NA	Solid	3546	
620-11736-5	LM-SO-P1-052523	Total/NA	Solid	3546	
MB 620-23055/1-B	Method Blank	Total/NA	Solid	3546	
LCS 620-23055/2-B	Lab Control Sample	Total/NA	Solid	3546	
LCSD 620-23055/3-B	Lab Control Sample Dup	Total/NA	Solid	3546	
620-11736-3 MS	LM-SO-UST03-052523	Total/NA	Solid	3546	
620-11736-3 MSD	LM-SO-UST03-052523	Total/NA	Solid	3546	

Analysis Batch: 23095

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 620-23055/1-B	Method Blank	Total/NA	Solid	MAEPH2.1	23114
LCS 620-23055/2-B	Lab Control Sample	Total/NA	Solid	MAEPH2.1	23114

GC Semi VOA (Continued)

Analysis Batch: 23095 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 620-23055/3-B	Lab Control Sample Dup	Total/NA	Solid	MAEPH2.1	23114

Fraction Batch: 23114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11736-1	LM-SO-UST01-052523	Total/NA	Solid	MA EPH Frac	23055
620-11736-2	LM-SO-UST02-052523	Total/NA	Solid	MA EPH Frac	23055
620-11736-3	LM-SO-UST03-052523	Total/NA	Solid	MA EPH Frac	23055
620-11736-4	SO-FD-01	Total/NA	Solid	MA EPH Frac	23055
620-11736-5	LM-SO-P1-052523	Total/NA	Solid	MA EPH Frac	23055
MB 620-23055/1-B	Method Blank	Total/NA	Solid	MA EPH Frac	23055
LCS 620-23055/2-B	Lab Control Sample	Total/NA	Solid	MA EPH Frac	23055
LCSD 620-23055/3-B	Lab Control Sample Dup	Total/NA	Solid	MA EPH Frac	23055
620-11736-3 MS	LM-SO-UST03-052523	Total/NA	Solid	MA EPH Frac	23055
620-11736-3 MSD	LM-SO-UST03-052523	Total/NA	Solid	MA EPH Frac	23055

Analysis Batch: 23139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11736-1	LM-SO-UST01-052523	Total/NA	Solid	MAEPH2.1	23114
620-11736-2	LM-SO-UST02-052523	Total/NA	Solid	MAEPH2.1	23114
620-11736-3	LM-SO-UST03-052523	Total/NA	Solid	MAEPH2.1	23114
620-11736-4	SO-FD-01	Total/NA	Solid	MAEPH2.1	23114
620-11736-5	LM-SO-P1-052523	Total/NA	Solid	MAEPH2.1	23114
620-11736-3 MSD	LM-SO-UST03-052523	Total/NA	Solid	MAEPH2.1	23114

Analysis Batch: 23364

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11736-3 MS	LM-SO-UST03-052523	Total/NA	Solid	MAEPH2.1	23114

Metals

Prep Batch: 23032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11736-1	LM-SO-UST01-052523	Total/NA	Solid	3050B	
620-11736-2	LM-SO-UST02-052523	Total/NA	Solid	3050B	
620-11736-3	LM-SO-UST03-052523	Total/NA	Solid	3050B	
620-11736-4	SO-FD-01	Total/NA	Solid	3050B	
620-11736-5	LM-SO-P1-052523	Total/NA	Solid	3050B	
MB 620-23032/1-A	Method Blank	Total/NA	Solid	3050B	
LCDSRM 620-23032/3-A	Lab Control Sample Dup	Total/NA	Solid	3050B	
LCSSRM 620-23032/2-A	Lab Control Sample	Total/NA	Solid	3050B	
620-11736-3 MS	LM-SO-UST03-052523	Total/NA	Solid	3050B	
620-11736-3 MSD	LM-SO-UST03-052523	Total/NA	Solid	3050B	
620-11736-3 DU	LM-SO-UST03-052523	Total/NA	Solid	3050B	

Prep Batch: 23034

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11736-1	LM-SO-UST01-052523	Total/NA	Solid	7471B	
620-11736-2	LM-SO-UST02-052523	Total/NA	Solid	7471B	
620-11736-3	LM-SO-UST03-052523	Total/NA	Solid	7471B	
620-11736-4	SO-FD-01	Total/NA	Solid	7471B	
620-11736-5	LM-SO-P1-052523	Total/NA	Solid	7471B	

Metals (Continued)

Prep Batch: 23034 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 620-23034/1-A	Method Blank	Total/NA	Solid	7471B	
LCDSRM 620-23034/3-A ^10	Lab Control Sample Dup	Total/NA	Solid	7471B	
LCSSRM 620-23034/2-A ^10	Lab Control Sample	Total/NA	Solid	7471B	
620-11736-3 MS	LM-SO-UST03-052523	Total/NA	Solid	7471B	
620-11736-3 MSD	LM-SO-UST03-052523	Total/NA	Solid	7471B	
620-11736-3 DU	LM-SO-UST03-052523	Total/NA	Solid	7471B	

Analysis Batch: 23088

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11736-1	LM-SO-UST01-052523	Total/NA	Solid	6010D	23032
620-11736-2	LM-SO-UST02-052523	Total/NA	Solid	6010D	23032
620-11736-3	LM-SO-UST03-052523	Total/NA	Solid	6010D	23032
620-11736-4	SO-FD-01	Total/NA	Solid	6010D	23032
620-11736-5	LM-SO-P1-052523	Total/NA	Solid	6010D	23032
MB 620-23032/1-A	Method Blank	Total/NA	Solid	6010D	23032
LCDSRM 620-23032/3-A	Lab Control Sample Dup	Total/NA	Solid	6010D	23032
LCSSRM 620-23032/2-A	Lab Control Sample	Total/NA	Solid	6010D	23032
620-11736-3 MS	LM-SO-UST03-052523	Total/NA	Solid	6010D	23032
620-11736-3 MSD	LM-SO-UST03-052523	Total/NA	Solid	6010D	23032
620-11736-3 DU	LM-SO-UST03-052523	Total/NA	Solid	6010D	23032

Analysis Batch: 23098

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11736-1	LM-SO-UST01-052523	Total/NA	Solid	7471A	23034
620-11736-2	LM-SO-UST02-052523	Total/NA	Solid	7471A	23034
620-11736-3	LM-SO-UST03-052523	Total/NA	Solid	7471A	23034
620-11736-4	SO-FD-01	Total/NA	Solid	7471A	23034
620-11736-5	LM-SO-P1-052523	Total/NA	Solid	7471A	23034
MB 620-23034/1-A	Method Blank	Total/NA	Solid	7471A	23034
LCDSRM 620-23034/3-A ^10	Lab Control Sample Dup	Total/NA	Solid	7471A	23034
LCSSRM 620-23034/2-A ^10	Lab Control Sample	Total/NA	Solid	7471A	23034
620-11736-3 MS	LM-SO-UST03-052523	Total/NA	Solid	7471A	23034
620-11736-3 MSD	LM-SO-UST03-052523	Total/NA	Solid	7471A	23034
620-11736-3 DU	LM-SO-UST03-052523	Total/NA	Solid	7471A	23034

General Chemistry

Analysis Batch: 23159

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11736-1	LM-SO-UST01-052523	Total/NA	Solid	Moisture	
620-11736-2	LM-SO-UST02-052523	Total/NA	Solid	Moisture	
620-11736-3	LM-SO-UST03-052523	Total/NA	Solid	Moisture	
620-11736-4	SO-FD-01	Total/NA	Solid	Moisture	
620-11736-5	LM-SO-P1-052523	Total/NA	Solid	Moisture	
620-11736-3 MS	LM-SO-UST03-052523	Total/NA	Solid	Moisture	
620-11736-3 MSD	LM-SO-UST03-052523	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Client Sample ID: LM-SO-UST01-052523

Lab Sample ID: 620-11736-1

Date Collected: 05/25/23 12:10

Matrix: Solid

Date Received: 05/26/23 16:59

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	MA VPH SUM		1	671728	MAN	EET BUF	06/02/23 10:41
Total/NA	Analysis	Moisture		1	23159	MJH	EET NE	06/01/23 10:58

Client Sample ID: LM-SO-UST01-052523

Lab Sample ID: 620-11736-1

Date Collected: 05/25/23 12:10

Matrix: Solid

Date Received: 05/26/23 16:59

Percent Solids: 90.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035A_H			671326	JLS	EET BUF	05/31/23 07:06
Total/NA	Analysis	MAVPH		1	671344	JLS	EET BUF	05/31/23 10:03
Total/NA	Prep	3546			23055	JAC	EET NE	05/30/23 10:20
Total/NA	Fraction	MA EPH Frac			23114	BJJ	EET NE	05/31/23 11:25
Total/NA	Analysis	MAEPH2.1		1	23139	BJJ	EET NE	06/01/23 18:20
Total/NA	Prep	3050B			23032	PRB	EET NE	05/30/23 07:41
Total/NA	Analysis	6010D		1	23088	JPC	EET NE	05/30/23 17:51
Total/NA	Prep	7471B			23034	PRB	EET NE	05/30/23 08:08
Total/NA	Analysis	7471A		1	23098	PRB	EET NE	05/30/23 13:51

Client Sample ID: LM-SO-UST02-052523

Lab Sample ID: 620-11736-2

Date Collected: 05/25/23 17:50

Matrix: Solid

Date Received: 05/26/23 16:59

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	MA VPH SUM		1	671728	MAN	EET BUF	06/02/23 10:41
Total/NA	Analysis	Moisture		1	23159	MJH	EET NE	06/01/23 10:58

Client Sample ID: LM-SO-UST02-052523

Lab Sample ID: 620-11736-2

Date Collected: 05/25/23 17:50

Matrix: Solid

Date Received: 05/26/23 16:59

Percent Solids: 79.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035A_H			671326	JLS	EET BUF	05/31/23 07:06
Total/NA	Analysis	MAVPH		1	671344	JLS	EET BUF	05/31/23 10:44
Total/NA	Prep	3546			23055	JAC	EET NE	05/30/23 10:20
Total/NA	Fraction	MA EPH Frac			23114	BJJ	EET NE	05/31/23 11:25
Total/NA	Analysis	MAEPH2.1		1	23139	BJJ	EET NE	06/01/23 18:49
Total/NA	Prep	3050B			23032	PRB	EET NE	05/30/23 07:41
Total/NA	Analysis	6010D		1	23088	JPC	EET NE	05/30/23 17:57
Total/NA	Prep	7471B			23034	PRB	EET NE	05/30/23 08:08
Total/NA	Analysis	7471A		1	23098	PRB	EET NE	05/30/23 13:53

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Client Sample ID: LM-SO-UST03-052523
Date Collected: 05/25/23 16:30
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	MA VPH SUM		1	671728	MAN	EET BUF	06/02/23 10:41
Total/NA	Analysis	Moisture		1	23159	MJH	EET NE	06/01/23 10:58

Client Sample ID: LM-SO-UST03-052523
Date Collected: 05/25/23 16:30
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-3
Matrix: Solid
Percent Solids: 91.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035A_H			671326	JLS	EET BUF	05/31/23 07:06
Total/NA	Analysis	MAVPH		1	671344	JLS	EET BUF	05/31/23 11:25
Total/NA	Prep	3546			23055	JAC	EET NE	05/30/23 10:20
Total/NA	Fraction	MA EPH Frac			23114	BJJ	EET NE	05/31/23 11:25
Total/NA	Analysis	MAEPH2.1		1	23139	BJJ	EET NE	06/01/23 19:18
Total/NA	Prep	3050B			23032	PRB	EET NE	05/30/23 07:41
Total/NA	Analysis	6010D		1	23088	JPC	EET NE	05/30/23 18:03
Total/NA	Prep	7471B			23034	PRB	EET NE	05/30/23 08:08
Total/NA	Analysis	7471A		1	23098	PRB	EET NE	05/30/23 14:01

Client Sample ID: SO-FD-01
Date Collected: 05/25/23 08:00
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	MA VPH SUM		1	671728	MAN	EET BUF	06/02/23 10:41
Total/NA	Analysis	Moisture		1	23159	MJH	EET NE	06/01/23 10:58

Client Sample ID: SO-FD-01
Date Collected: 05/25/23 08:00
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-4
Matrix: Solid
Percent Solids: 81.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035A_H			671326	JLS	EET BUF	05/31/23 07:06
Total/NA	Analysis	MAVPH		1	671344	JLS	EET BUF	05/31/23 12:05
Total/NA	Prep	3546			23055	JAC	EET NE	05/30/23 10:20
Total/NA	Fraction	MA EPH Frac			23114	BJJ	EET NE	05/31/23 11:25
Total/NA	Analysis	MAEPH2.1		1	23139	BJJ	EET NE	06/01/23 20:46
Total/NA	Prep	3050B			23032	PRB	EET NE	05/30/23 07:41
Total/NA	Analysis	6010D		1	23088	JPC	EET NE	05/30/23 18:39
Total/NA	Prep	7471B			23034	PRB	EET NE	05/30/23 08:08
Total/NA	Analysis	7471A		1	23098	PRB	EET NE	05/30/23 14:14

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Client Sample ID: LM-SO-P1-052523

Date Collected: 05/25/23 16:50
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-5

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	MA VPH SUM		1	671728	MAN	EET BUF	06/02/23 10:41
Total/NA	Analysis	Moisture		1	23159	MJH	EET NE	06/01/23 10:58

Client Sample ID: LM-SO-P1-052523

Date Collected: 05/25/23 16:50
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-5

Matrix: Solid
Percent Solids: 92.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035A_H			671326	JLS	EET BUF	05/31/23 07:06
Total/NA	Analysis	MAVPH		1	671344	JLS	EET BUF	05/31/23 12:45
Total/NA	Prep	3546			23055	JAC	EET NE	05/30/23 10:20
Total/NA	Fraction	MA EPH Frac			23114	BJJ	EET NE	05/31/23 11:25
Total/NA	Analysis	MAEPH2.1		1	23139	BJJ	EET NE	06/01/23 21:15
Total/NA	Prep	3050B			23032	PRB	EET NE	05/30/23 07:41
Total/NA	Analysis	6010D		1	23088	JPC	EET NE	05/30/23 18:45
Total/NA	Prep	7471B			23034	PRB	EET NE	05/30/23 08:08
Total/NA	Analysis	7471A		1	23098	PRB	EET NE	05/30/23 14:16

Laboratory References:

EET BUF = Eurofins Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600
EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-11736-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Massachusetts	State	M-RI907	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6010D	3050B	Solid	Antimony
6010D	3050B	Solid	Arsenic
6010D	3050B	Solid	Barium
6010D	3050B	Solid	Beryllium
6010D	3050B	Solid	Cadmium
6010D	3050B	Solid	Chromium
6010D	3050B	Solid	Lead
6010D	3050B	Solid	Nickel
6010D	3050B	Solid	Selenium
6010D	3050B	Solid	Silver
6010D	3050B	Solid	Thallium
6010D	3050B	Solid	Vanadium
6010D	3050B	Solid	Zinc
7471A	7471B	Solid	Mercury
MAEPH2.1	3546	Solid	2-Methylnaphthalene
MAEPH2.1	3546	Solid	Acenaphthene
MAEPH2.1	3546	Solid	Acenaphthylene
MAEPH2.1	3546	Solid	Anthracene
MAEPH2.1	3546	Solid	Benzo[a]anthracene
MAEPH2.1	3546	Solid	Benzo[a]pyrene
MAEPH2.1	3546	Solid	Benzo[b]fluoranthene
MAEPH2.1	3546	Solid	Benzo[g,h,i]perylene
MAEPH2.1	3546	Solid	Benzo[k]fluoranthene
MAEPH2.1	3546	Solid	C11-C22 Aromatics
MAEPH2.1	3546	Solid	C11-C22 Aromatics (Adjusted)
MAEPH2.1	3546	Solid	C19-C36 Aliphatics
MAEPH2.1	3546	Solid	C9-C18 Aliphatics
MAEPH2.1	3546	Solid	Chrysene
MAEPH2.1	3546	Solid	Dibenz(a,h)anthracene
MAEPH2.1	3546	Solid	Fluoranthene
MAEPH2.1	3546	Solid	Fluorene
MAEPH2.1	3546	Solid	Indeno[1,2,3-cd]pyrene
MAEPH2.1	3546	Solid	Naphthalene
MAEPH2.1	3546	Solid	Phenanthrene
MAEPH2.1	3546	Solid	Pyrene
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

Laboratory: Eurofins Buffalo

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-0686	07-06-22 *
Connecticut	State	PH-0568	03-31-24
Florida	NELAP	E87672	06-30-23
Georgia	State	10026 (NY)	03-31-24

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-11736-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins Buffalo (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Georgia	State Program	N/A	03-31-09 *
Georgia (DW)	State	956	03-31-23 *
Illinois	NELAP	200003	09-30-23
Iowa	State	374	03-01-23 *
Iowa	State Program	374	03-01-09 *
Kansas	NELAP	E-10187	02-01-24
Kentucky (DW)	State	90029	01-01-24
Kentucky (UST)	State	30	04-01-23 *
Kentucky (WW)	State	KY90029	12-31-23
Louisiana	NELAP	02031	06-30-23
Louisiana (All)	NELAP	02031	06-30-23
Maine	State	NY00044	12-04-24
Maryland	State	294	03-31-23 *
Massachusetts	State	M-NY044	06-30-23
Michigan	State	9937	03-31-23 *
Michigan	State Program	9937	04-01-09 *
New Hampshire	NELAP	2973	09-11-19 *
New Hampshire	NELAP	2337	11-17-23
New Jersey	NELAP	NY455	06-30-23
New York	NELAP	10026	03-31-24
Pennsylvania	NELAP	68-00281	07-31-23
Rhode Island	State	LAO00328	12-30-23
Texas	NELAP	T104704412-18-10	07-31-23
USDA	US Federal Programs	P330-18-00039	03-25-24
Virginia	NELAP	460185	09-14-23
Washington	State	C784	02-10-23 *
Wisconsin	State	998310390	08-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Method	Method Description	Protocol	Laboratory
MA VPH SUM	Massachusetts - Volatile Petroleum Hydrocarbons (GC)	MA DEP	EET BUF
MAVPH	Massachusetts - Volatile Petroleum Hydrocarbons (GC)	MA DEP	EET BUF
MAEPH2.1	Massachusetts - Extractable Petroleum Hydrocarbons (GC)	MA DEP	EET NE
6010D	Metals (ICP)	SW846	EET NE
7471A	Mercury (CVAA)	SW846	EET NE
Moisture	Percent Moisture	EPA	EET NE
3050B	Preparation, Metals	SW846	EET NE
3546	Microwave Extraction	SW846	EET NE
5035A_H	Closed System Purge and Trap	SW846	EET BUF
7471B	Preparation, Mercury	SW846	EET NE
MA EPH Frac	Massachusetts - Extractable Petroleum Hydrocarbon Fractionation	MA DEP	EET NE

Protocol References:

EPA = US Environmental Protection Agency

MA DEP = Massachusetts Department Of Environmental Protection

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET BUF = Eurofins Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Sample Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
620-11736-1	LM-SO-UST01-052523	Solid	05/25/23 12:10	05/26/23 16:59
620-11736-2	LM-SO-UST02-052523	Solid	05/25/23 17:50	05/26/23 16:59
620-11736-3	LM-SO-UST03-052523	Solid	05/25/23 16:30	05/26/23 16:59
620-11736-4	SO-FD-01	Solid	05/25/23 08:00	05/26/23 16:59
620-11736-5	LM-SO-P1-052523	Solid	05/25/23 16:50	05/26/23 16:59

620-11736 Chain of Custody

11736

Chain of Custody Record

eurofins | Environment Testing

Client Contact: Bridget Fortier	Sampler: S. Stone	Lab PM: A. Ray	Carrier Tracking No(s):	COC No: 620-10175-1337 1
Company: Nobis Engineering, Inc	Phone: 774-245-3607	E-Mail: aray@nobis-group.com	State of Origin:	Page: Page 1 of 2
Address: 585 Middlesex Street	PWSID:			Job #:
City: Lowell	Due Date Requested:			
State, Zip: MA, 01851	TAT Requested (days): standard 10 day			
Phone:	Compliance Project: Δ Yes Δ No			
Email: bfortier@nobis-group.com	PO #:			
Project Name: Former L&M	WO #:			
Site:	Project #: 50000001.005/406			
	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

	Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Preservation Code:	UPH	EDD, MADEP (CAM)	Total Number of containers	Special Instructions/Note:
01	LM-SO-UST01-052523	5-25-23	1210	C	Solid			F	X	X		
02	LM-SO-UST02-052523		1750	C	Solid				X	X		
03	LM-SO-UST03-052523		1630	C	Solid		Y		X	X		MS/MSD
04	SO-FD-01		800	C	Solid				X	X		
05	LM-SO-01-052523		1650	G	Solid				X	X		
					Solid							
					Solid							
					Solid							
					Solid							
					Solid							
					Solid							

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested. I, II, III, IV, Other (specify): EDD report PDF & email

Special Instructions/QC Requirements: MADEP CAM METHOD required

Empty Kit Relinquished by: | Date: | Time | Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1		5-26-23 1135			5/26/23 1135	ENE
2		5/26/23 1659			5/26/23 16:59	ENE
3						

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 3.4 +0.2 = 3.6 #6

Ver: 06/08/2021

Eurofins New England
646 Camp Ave
North Kingstown, RI 02852
Phone: 413-789-9018

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Huntley, Agnes R	Carrier Tracking No(s):	COC No: 620-9727.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Agnes.Huntley@et.eurofinsus.com	State of Origin: Massachusetts	Page: Page 1 of 1
Company: Eurofins Environment Testing Northeast,		Accreditations Required (See note): State - Massachusetts		Job #: 620-11736-1
Address: 10 Hazelwood Drive, ,	Due Date Requested: 6/1/2023			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228-2298	PO #:			
Phone: 716-691-2600(Tel) 716-691-7991(Fax)	WO #:			
Email:	Project #: 62002215			
Project Name: Former L&M - Lunenburg MA	SSOW#:			
Site:				

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	MAVPH/5035A_M_Calc (MOD) Standard Targets and Carbon Ranges	MAVPH_SUM/ MAVPH Adjusted Range Calculation	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
LM-SO-UST01-052523 (620-11736-1)	5/25/23	Eastern		Solid			X	X	1	
LM-SO-UST02-052523 (620-11736-2)	5/25/23	Eastern		Solid			X	X	1	
LM-SO-UST03-052523 (620-11736-3)	5/25/23	Eastern		Solid			X	X	1	
LM-SO-UST03-052523 (620-11736-3MS)	5/25/23	Eastern	MS	Solid			X	X	1	
LM-SO-UST03-052523 (620-11736-3MSD)	5/25/23	Eastern	MSD	Solid			X	X	1	
SO-FD-01 (620-11736-4)	5/25/23	Eastern		Solid			X	X	1	
LM-SO-P1-052523 (620-11736-5)	5/25/23	Eastern		Solid			X	X	1	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northeast, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northeast, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northeast, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northeast, LLC.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by:	Date/Time: 5/26/23 17:17	Company: ENE	Received by:	Date/Time: 5/27/23 1000	Company: TVT
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 2.9# ICE

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Nobis Engineering, Inc.

Job Number: 620-11736-1

Login Number: 11736
List Number: 1
Creator: Makhoul, Elie

List Source: Eurofins New England

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Nobis Engineering, Inc.

Job Number: 620-11736-1

Login Number: 11736
List Number: 2
Creator: Kolb, Chris M

List Source: Eurofins Buffalo
List Creation: 05/30/23 02:03 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.9 ir gun #1 ice
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	True	

ANALYTICAL REPORT

PREPARED FOR

Attn: Adam Roy
Nobis Engineering, Inc.
585 Middlesex Street
Lowell, Massachusetts 01851

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JOB DESCRIPTION

Former L&M - Lunenburg MA

JOB NUMBER

620-11737-1

Eurofins New England
646 Camp Ave
North Kingstown RI 02852

See page two for job notes and contact information.

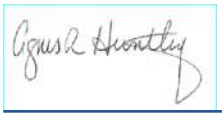
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Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northeast, LLC Project Manager.

Authorization



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Authorized for release by
Agnes Huntley, Project Manager
Agnes.Huntley@et.eurofinsus.com
(401)372-3482

Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
State Forms 5
MCP Checklist 5
Case Narrative 6
Detection Summary 7
Client Sample Results 9
Surrogate Summary 14
QC Sample Results 15
QC Association Summary 24
Lab Chronicle 27
Certification Summary 28
Method Summary 30
Sample Summary 31
Chain of Custody 32
Receipt Checklists 33

Definitions/Glossary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11737-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
S1-	Surrogate recovery exceeds control limits, low biased.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

MassDEP Analytical Protocol Certfication Form

Laboratory Name: Eurofins New England | Project #: 620-11737-1

Project Location: Former L&M - Lunenburg MA | RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
620-11737-1 through 620-11737-3

Matrices: ☑ Groundwater/Surface Water ☐ Soil/Sediment ☐ Drinking Water ☐ Air ☐ Other:

CAM Protocol (check all that apply below:)

8260 VOC CAM II A ☐	7470/7471 Hg CAM III B ☑	MassDEP VPH (GC/PID/FID) CAM IV A ☑	8082 PCB CAM V A ☐	9014 Total Cyanide/PAC CAM VI A ☐	6860 Perchlorate CAM VIII B ☐
8270 SVOC CAM II B ☐	7010 Metals CAM III C ☐	MassDEP VPH (GC/MS) CAM IV C ☐	8081 Pesticides CAM V B ☐	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
6010 Metals CAM III A ☑	6020 Metals CAM III D ☐	MassDEP EPH CAM IV B ☑	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes ☐ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☑ Yes ☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes ☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☑ Yes ☐ No
E	VPH, EPH, APH, and TO-15 only a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☑ Yes ☐ No ☐ Yes ☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☑ Yes ☐ No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☐ Yes ☑ No[1]

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☑ Yes ☐ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes ☐ No[1]

1 All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature: Agnes R Huntley **Position:** Project Manager

Printed Name: Agnes Huntley **Date:** 06/05/2023

Job ID: 620-11737-1

Laboratory: Eurofins New England

Narrative

Job Narrative
620-11737-1

Receipt
The samples were received on 5/26/2023 4:59 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.6º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA
Method MAVPH2.1: The following sample was diluted due to the nature of the sample matrix: LM-GW-UST02-0525-23 (620-11737-2). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA
Method MAEPH2.1: Surrogate recovery for the following sample was outside control limits: LM-GW-UST01-0525-23 (620-11737-1). Evidence of matrix interference is present in the extraction process; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11737-1

Client Sample ID: LM-GW-UST01-0525-23 — Lab Sample ID: 620-11737-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	60		5.3	1.2	ug/L	5		EPH	Total/NA
2-Methylnaphthalene	46		1.1	0.31	ug/L	1		EPH	Total/NA
Fluoranthene	0.27	J	1.1	0.16	ug/L	1		EPH	Total/NA
Pyrene	0.23	J	1.1	0.15	ug/L	1		EPH	Total/NA
Benzo[a]anthracene	0.15	J	1.1	0.074	ug/L	1		EPH	Total/NA
Chrysene	0.19	J	1.1	0.15	ug/L	1		EPH	Total/NA
Benzo[b]fluoranthene	0.19	J	1.1	0.16	ug/L	1		EPH	Total/NA
Benzo[a]pyrene	0.17	J	0.21	0.17	ug/L	1		EPH	Total/NA
Benzo[g,h,i]perylene	0.30	J	1.1	0.18	ug/L	1		EPH	Total/NA
Benzene	13		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
Ethylbenzene	120		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
Naphthalene	120		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
Toluene	170		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
o-Xylene	87		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
C9-C12 Aliphatics (adjusted) - DL	3600		1000	1000	ug/L	10		MAVPH2.1	Total/NA
C9-C10 Aromatics - DL	4400		1000	1000	ug/L	10		MAVPH2.1	Total/NA
C5-C8 Aliphatics (unadjusted) - DL	1200		1000	1000	ug/L	10		MAVPH2.1	Total/NA
C9-C12 Aliphatics (unadjusted) - DL	9100		1000	1000	ug/L	10		MAVPH2.1	Total/NA
Methyl tert-butyl ether - DL	810		50	50	ug/L	10		MAVPH2.1	Total/NA
m,p-Xylene - DL	720		100	100	ug/L	10		MAVPH2.1	Total/NA
Xylenes, Total - DL	880		150	150	ug/L	10		MAVPH2.1	Total/NA
C9-C18 Aliphatics	230		110	110	ug/L	1		MAEPH2.1	Total/NA
C19-C36 Aliphatics	110		110	110	ug/L	1		MAEPH2.1	Total/NA
C11-C22 Aromatics	290		110	110	ug/L	1		MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	180		110	110	ug/L	1		MAEPH2.1	Total/NA
Antimony	0.0051	J	0.0060	0.0016	mg/L	1		6010D	Dissolved
Arsenic	0.032		0.0040	0.0014	mg/L	1		6010D	Dissolved
Barium	0.056		0.0050	0.00070	mg/L	1		6010D	Dissolved
Chromium	0.0043		0.0050	0.00093	mg/L	1		6010D	Dissolved
Lead	0.013		0.0075	0.0062	mg/L	1		6010D	Dissolved
Nickel	0.011		0.0050	0.00087	mg/L	1		6010D	Dissolved
Thallium	0.0022	J	0.0050	0.0021	mg/L	1		6010D	Dissolved
Vanadium	0.0037	J	0.0050	0.0011	mg/L	1		6010D	Dissolved
Zinc	0.033		0.025	0.0016	mg/L	1		6010D	Dissolved

Client Sample ID: LM-GW-UST02-0525-23 — Lab Sample ID: 620-11737-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	17		1.1	0.26	ug/L	1		EPH	Total/NA
2-Methylnaphthalene	5.9		1.1	0.32	ug/L	1		EPH	Total/NA
C9-C10 Aromatics	890		500	500	ug/L	5		MAVPH2.1	Total/NA
Benzene	76		25	25	ug/L	5		MAVPH2.1	Total/NA
Ethylbenzene	170		25	25	ug/L	5		MAVPH2.1	Total/NA
Naphthalene	62		25	25	ug/L	5		MAVPH2.1	Total/NA
Toluene	680		25	25	ug/L	5		MAVPH2.1	Total/NA
m,p-Xylene	570		50	50	ug/L	5		MAVPH2.1	Total/NA
o-Xylene	280		25	25	ug/L	5		MAVPH2.1	Total/NA
Xylenes, Total	850		75	75	ug/L	5		MAVPH2.1	Total/NA
C5-C8 Aliphatics (unadjusted) - DL	2800		2000	2000	ug/L	20		MAVPH2.1	Total/NA
C9-C12 Aliphatics (unadjusted) - DL	3900		2000	2000	ug/L	20		MAVPH2.1	Total/NA
Methyl tert-butyl ether - DL	2300		100	100	ug/L	20		MAVPH2.1	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11737-1

Client Sample ID: LM-GW-UST02-0525-23 (Continued)

Lab Sample ID: 620-11737-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.0039	J	0.0060	0.0016	mg/L	1		6010D	Dissolved
Arsenic	0.011		0.0040	0.0014	mg/L	1		6010D	Dissolved
Barium	0.049		0.0050	0.00070	mg/L	1		6010D	Dissolved
Cadmium	0.00045	J	0.0025	0.00036	mg/L	1		6010D	Dissolved
Chromium	0.0027		0.0050	0.00093	mg/L	1		6010D	Dissolved
Lead	0.0085		0.0075	0.0062	mg/L	1		6010D	Dissolved
Nickel	0.010		0.0050	0.00087	mg/L	1		6010D	Dissolved
Silver	0.00080		0.0050	0.00062	mg/L	1		6010D	Dissolved
Vanadium	0.0022	J	0.0050	0.0011	mg/L	1		6010D	Dissolved
Zinc	0.042		0.025	0.0016	mg/L	1		6010D	Dissolved

Client Sample ID: TB-01-052523

Lab Sample ID: 620-11737-3

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: LM-GW-UST01-0525-23

Date Collected: 05/25/23 11:30
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11737-1
Matrix: Water

Method: MA DEP EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**60**		5.3	1.2	ug/L		05/30/23 14:16	06/05/23 14:25	5
2-Methylnaphthalene	**46**		1.1	0.31	ug/L		05/30/23 14:16	06/05/23 13:40	1
Acenaphthylene	ND		1.1	0.41	ug/L		05/30/23 14:16	06/05/23 13:40	1
Acenaphthene	ND		1.1	0.20	ug/L		05/30/23 14:16	06/05/23 13:40	1
Fluorene	ND		1.1	0.41	ug/L		05/30/23 14:16	06/05/23 13:40	1
Phenanthrene	ND		1.1	0.18	ug/L		05/30/23 14:16	06/05/23 13:40	1
Anthracene	ND		1.1	0.16	ug/L		05/30/23 14:16	06/05/23 13:40	1
Fluoranthene	**0.27**	**J**	1.1	0.16	ug/L		05/30/23 14:16	06/05/23 13:40	1
Pyrene	**0.23**	**J**	1.1	0.15	ug/L		05/30/23 14:16	06/05/23 13:40	1
Benzo[a]anthracene	**0.15**	**J**	1.1	0.074	ug/L		05/30/23 14:16	06/05/23 13:40	1
Chrysene	**0.19**	**J**	1.1	0.15	ug/L		05/30/23 14:16	06/05/23 13:40	1
Benzo[b]fluoranthene	**0.19**	**J**	1.1	0.16	ug/L		05/30/23 14:16	06/05/23 13:40	1
Benzo[k]fluoranthene	ND		1.1	0.25	ug/L		05/30/23 14:16	06/05/23 13:40	1
Benzo[a]pyrene	**0.17**	**J**	0.21	0.17	ug/L		05/30/23 14:16	06/05/23 13:40	1
Indeno[1,2,3-cd]pyrene	ND		0.53	0.49	ug/L		05/30/23 14:16	06/05/23 13:40	1
Dibenz(a,h)anthracene	ND		0.53	0.23	ug/L		05/30/23 14:16	06/05/23 13:40	1
Benzo[g,h,i]perylene	**0.30**	**J**	1.1	0.18	ug/L		05/30/23 14:16	06/05/23 13:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*62*		*40 - 140*	*05/30/23 14:16*	*06/05/23 13:40*	*1*
o-Terphenyl (Surr)	*48*		*40 - 140*	*05/30/23 14:16*	*06/05/23 14:25*	*5*
2-Fluorobiphenyl (Surr)	*106*		*40 - 140*	*05/30/23 14:16*	*06/05/23 13:40*	*1*
2-Fluorobiphenyl (Surr)	*76*		*40 - 140*	*05/30/23 14:16*	*06/05/23 14:25*	*5*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**13**		5.0	5.0	ug/L			05/30/23 23:26	1
Ethylbenzene	**120**		5.0	5.0	ug/L			05/30/23 23:26	1
Naphthalene	**120**		5.0	5.0	ug/L			05/30/23 23:26	1
Toluene	**170**		5.0	5.0	ug/L			05/30/23 23:26	1
o-Xylene	**87**		5.0	5.0	ug/L			05/30/23 23:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*114*		*70 - 130*		*05/30/23 23:26*	*1*
2,5-Dibromotoluene (pid)	*109*		*70 - 130*		*05/30/23 23:26*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		1000	1000	ug/L			05/31/23 16:57	10
C9-C12 Aliphatics (adjusted)	**3600**		1000	1000	ug/L			05/31/23 16:57	10
C9-C10 Aromatics	**4400**		1000	1000	ug/L			05/31/23 16:57	10
C5-C8 Aliphatics (unadjusted)	**1200**		1000	1000	ug/L			05/31/23 16:57	10
C9-C12 Aliphatics (unadjusted)	**9100**		1000	1000	ug/L			05/31/23 16:57	10
Methyl tert-butyl ether	**810**		50	50	ug/L			05/31/23 16:57	10
m,p-Xylene	**720**		100	100	ug/L			05/31/23 16:57	10
Xylenes, Total	**880**		150	150	ug/L			05/31/23 16:57	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*99*		*70 - 130*		*05/31/23 16:57*	*10*
2,5-Dibromotoluene (pid)	*95*		*70 - 130*		*05/31/23 16:57*	*10*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11737-1

Client Sample ID: LM-GW-UST01-0525-23

Lab Sample ID: 620-11737-1

Date Collected: 05/25/23 11:30

Matrix: Water

Date Received: 05/26/23 16:59

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	230		110	110	ug/L		05/30/23 14:16	06/01/23 14:42	1
C19-C36 Aliphatics	110		110	110	ug/L		05/30/23 14:16	06/01/23 14:42	1
C11-C22 Aromatics	290		110	110	ug/L		05/30/23 14:16	06/01/23 14:42	1
C11-C22 Aromatics (Adjusted)	180		110	110	ug/L		05/30/23 14:16	06/01/23 14:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*34*	*S1-*	*40 - 140*	*05/30/23 14:16*	*06/01/23 14:42*	*1*
o-Terphenyl (Surr)	*50*		*40 - 140*	*05/30/23 14:16*	*06/01/23 14:42*	*1*
2-Fluorobiphenyl (Surr)	*83*		*40 - 140*	*05/30/23 14:16*	*06/01/23 14:42*	*1*

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0051	J	0.0060	0.0016	mg/L		05/30/23 09:06	05/31/23 14:29	1
Arsenic	0.032		0.0040	0.0014	mg/L		05/30/23 09:06	05/31/23 14:29	1
Barium	0.056		0.0050	0.00070	mg/L		05/30/23 09:06	05/31/23 14:29	1
Beryllium	ND		0.0020	0.00028	mg/L		05/30/23 09:06	05/31/23 14:29	1
Cadmium	ND		0.0025	0.00036	mg/L		05/30/23 09:06	05/31/23 14:29	1
Chromium	0.0043		0.0050	0.00093	mg/L		05/30/23 09:06	05/31/23 14:29	1
Lead	0.013		0.0075	0.0062	mg/L		05/30/23 09:06	05/31/23 14:29	1
Nickel	0.011		0.0050	0.00087	mg/L		05/30/23 09:06	05/31/23 14:29	1
Selenium	ND		0.015	0.0042	mg/L		05/30/23 09:06	05/31/23 14:29	1
Silver	ND		0.0050	0.00062	mg/L		05/30/23 09:06	05/31/23 14:29	1
Thallium	0.0022	J	0.0050	0.0021	mg/L		05/30/23 09:06	05/31/23 14:29	1
Vanadium	0.0037	J	0.0050	0.0011	mg/L		05/30/23 09:06	05/31/23 14:29	1
Zinc	0.033		0.025	0.0016	mg/L		05/30/23 09:06	05/31/23 14:29	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		05/30/23 10:37	06/02/23 13:26	1

Client Sample ID: LM-GW-UST02-0525-23

Date Collected: 05/25/23 17:10
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11737-2

Matrix: Water

Method: MA DEP EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**17**		1.1	0.26	ug/L		05/30/23 14:16	06/05/23 14:02	1
2-Methylnaphthalene	**5.9**		1.1	0.32	ug/L		05/30/23 14:16	06/05/23 14:02	1
Acenaphthylene	ND		1.1	0.43	ug/L		05/30/23 14:16	06/05/23 14:02	1
Acenaphthene	ND		1.1	0.21	ug/L		05/30/23 14:16	06/05/23 14:02	1
Fluorene	ND		1.1	0.43	ug/L		05/30/23 14:16	06/05/23 14:02	1
Phenanthrene	ND		1.1	0.19	ug/L		05/30/23 14:16	06/05/23 14:02	1
Anthracene	ND		1.1	0.17	ug/L		05/30/23 14:16	06/05/23 14:02	1
Fluoranthene	ND		1.1	0.17	ug/L		05/30/23 14:16	06/05/23 14:02	1
Pyrene	ND		1.1	0.16	ug/L		05/30/23 14:16	06/05/23 14:02	1
Benzo[a]anthracene	ND		1.1	0.078	ug/L		05/30/23 14:16	06/05/23 14:02	1
Chrysene	ND		1.1	0.16	ug/L		05/30/23 14:16	06/05/23 14:02	1
Benzo[b]fluoranthene	ND		1.1	0.17	ug/L		05/30/23 14:16	06/05/23 14:02	1
Benzo[k]fluoranthene	ND		1.1	0.26	ug/L		05/30/23 14:16	06/05/23 14:02	1
Benzo[a]pyrene	ND		0.22	0.18	ug/L		05/30/23 14:16	06/05/23 14:02	1
Indeno[1,2,3-cd]pyrene	ND		0.56	0.51	ug/L		05/30/23 14:16	06/05/23 14:02	1
Dibenz(a,h)anthracene	ND		0.56	0.24	ug/L		05/30/23 14:16	06/05/23 14:02	1
Benzo[g,h,i]perylene	ND		1.1	0.19	ug/L		05/30/23 14:16	06/05/23 14:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*67*		*40 - 140*	*05/30/23 14:16*	*06/05/23 14:02*	*1*
2-Fluorobiphenyl (Surr)	*101*		*40 - 140*	*05/30/23 14:16*	*06/05/23 14:02*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C10 Aromatics	**890**		500	500	ug/L			05/31/23 01:11	5
Benzene	**76**		25	25	ug/L			05/31/23 01:11	5
Ethylbenzene	**170**		25	25	ug/L			05/31/23 01:11	5
Naphthalene	**62**		25	25	ug/L			05/31/23 01:11	5
Toluene	**680**		25	25	ug/L			05/31/23 01:11	5
m,p-Xylene	**570**		50	50	ug/L			05/31/23 01:11	5
o-Xylene	**280**		25	25	ug/L			05/31/23 01:11	5
Xylenes, Total	**850**		75	75	ug/L			05/31/23 01:11	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*97*		*70 - 130*		*05/31/23 01:11*	*5*
2,5-Dibromotoluene (pid)	*93*		*70 - 130*		*05/31/23 01:11*	*5*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		2000	2000	ug/L			05/31/23 16:22	20
C9-C12 Aliphatics (adjusted)	ND		2000	2000	ug/L			05/31/23 16:22	20
C5-C8 Aliphatics (unadjusted)	**2800**		2000	2000	ug/L			05/31/23 16:22	20
C9-C12 Aliphatics (unadjusted)	**3900**		2000	2000	ug/L			05/31/23 16:22	20
Methyl tert-butyl ether	**2300**		100	100	ug/L			05/31/23 16:22	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*95*		*70 - 130*		*05/31/23 16:22*	*20*
2,5-Dibromotoluene (pid)	*95*		*70 - 130*		*05/31/23 16:22*	*20*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11737-1

Client Sample ID: LM-GW-UST02-0525-23

Lab Sample ID: 620-11737-2

Date Collected: 05/25/23 17:10

Matrix: Water

Date Received: 05/26/23 16:59

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		110	110	ug/L		05/30/23 14:16	06/01/23 15:11	1
C19-C36 Aliphatics	ND		110	110	ug/L		05/30/23 14:16	06/01/23 15:11	1
C11-C22 Aromatics	ND		110	110	ug/L		05/30/23 14:16	06/01/23 15:11	1
C11-C22 Aromatics (Adjusted)	ND		110	110	ug/L		05/30/23 14:16	06/01/23 15:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*48*		*40 - 140*	*05/30/23 14:16*	*06/01/23 15:11*	*1*
o-Terphenyl (Surr)	*56*		*40 - 140*	*05/30/23 14:16*	*06/01/23 15:11*	*1*
2-Fluorobiphenyl (Surr)	*94*		*40 - 140*	*05/30/23 14:16*	*06/01/23 15:11*	*1*

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0039**	**J**	0.0060	0.0016	mg/L		05/30/23 09:06	05/31/23 15:17	1
Arsenic	**0.011**		0.0040	0.0014	mg/L		05/30/23 09:06	05/31/23 15:17	1
Barium	**0.049**		0.0050	0.00070	mg/L		05/30/23 09:06	05/31/23 15:17	1
Beryllium	ND		0.0020	0.00028	mg/L		05/30/23 09:06	05/31/23 15:17	1
Cadmium	**0.00045**	**J**	0.0025	0.00036	mg/L		05/30/23 09:06	05/31/23 15:17	1
Chromium	**0.0027**		0.0050	0.00093	mg/L		05/30/23 09:06	05/31/23 15:17	1
Lead	**0.0085**		0.0075	0.0062	mg/L		05/30/23 09:06	05/31/23 15:17	1
Nickel	**0.010**		0.0050	0.00087	mg/L		05/30/23 09:06	05/31/23 15:17	1
Selenium	ND		0.015	0.0042	mg/L		05/30/23 09:06	05/31/23 15:17	1
Silver	**0.00080**		0.0050	0.00062	mg/L		05/30/23 09:06	05/31/23 15:17	1
Thallium	ND		0.0050	0.0021	mg/L		05/30/23 09:06	05/31/23 15:17	1
Vanadium	**0.0022**	**J**	0.0050	0.0011	mg/L		05/30/23 09:06	05/31/23 15:17	1
Zinc	**0.042**		0.025	0.0016	mg/L		05/30/23 09:06	05/31/23 15:17	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		05/30/23 10:37	06/02/23 13:34	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11737-1

Client Sample ID: TB-01-052523

Date Collected: 05/25/23 16:00
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11737-3

Matrix: Water

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			05/30/23 15:51	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			05/30/23 15:51	1
C9-C10 Aromatics	ND		100	100	ug/L			05/30/23 15:51	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			05/30/23 15:51	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			05/30/23 15:51	1
Benzene	ND		5.0	5.0	ug/L			05/30/23 15:51	1
Ethylbenzene	ND		5.0	5.0	ug/L			05/30/23 15:51	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			05/30/23 15:51	1
Naphthalene	ND		5.0	5.0	ug/L			05/30/23 15:51	1
Toluene	ND		5.0	5.0	ug/L			05/30/23 15:51	1
m,p-Xylene	ND		10	10	ug/L			05/30/23 15:51	1
o-Xylene	ND		5.0	5.0	ug/L			05/30/23 15:51	1
Xylenes, Total	ND		15	15	ug/L			05/30/23 15:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*92*		*70 - 130*		*05/30/23 15:51*	*1*
2,5-Dibromotoluene (pid)	*93*		*70 - 130*		*05/30/23 15:51*	*1*

Surrogate Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11737-1

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
		OTPH	FBP
Lab Sample ID	Client Sample ID	(40-140)	(40-140)
620-11737-1	LM-GW-UST01-0525-23	62	106
620-11737-1	LM-GW-UST01-0525-23	48	76
620-11737-2	LM-GW-UST02-0525-23	67	101
LCS 620-23074/4-B	Lab Control Sample	74	113
LCSD 620-23074/5-B	Lab Control Sample Dup	70	96
MB 620-23074/1-B	Method Blank	70	106

Surrogate Legend

OTPH = o-Terphenyl (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
		25DBTf1	25DBTp1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
620-11737-1	LM-GW-UST01-0525-23	114	109
620-11737-1 - DL	LM-GW-UST01-0525-23	99	95
620-11737-2	LM-GW-UST02-0525-23	97	93
620-11737-2 - DL	LM-GW-UST02-0525-23	95	95
620-11737-3	TB-01-052523	92	93
LCS 620-23050/3	Lab Control Sample	96	95
LCS 620-23107/3	Lab Control Sample	99	97
LCSD 620-23050/4	Lab Control Sample Dup	97	96
LCSD 620-23107/4	Lab Control Sample Dup	99	98
MB 620-23050/5	Method Blank	96	96
MB 620-23107/5	Method Blank	100	99

Surrogate Legend

25DBTf = 2,5-Dibromotoluene (fid)
25DBTp = 2,5-Dibromotoluene (pid)

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)		
		1COD1	OTPH1	FBP1
Lab Sample ID	Client Sample ID	(40-140)	(40-140)	(40-140)
620-11737-1	LM-GW-UST01-0525-23	34 S1-	50	83
620-11737-2	LM-GW-UST02-0525-23	48	56	94
LCS 620-23074/2-B	Lab Control Sample	73	54	79
LCSD 620-23074/3-B	Lab Control Sample Dup	74	60	91
MB 620-23074/1-B	Method Blank	70	60	91

Surrogate Legend

1COD = 1-Chlorooctadecane (Surr)
OTPH = o-Terphenyl (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Lab Sample ID: MB 620-23074/1-B
Matrix: Water
Analysis Batch: 23261

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23074

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.0	0.23	ug/L		05/30/23 14:16	06/05/23 12:32	1
2-Methylnaphthalene	ND		1.0	0.29	ug/L		05/30/23 14:16	06/05/23 12:32	1
Acenaphthylene	ND		1.0	0.39	ug/L		05/30/23 14:16	06/05/23 12:32	1
Acenaphthene	ND		1.0	0.19	ug/L		05/30/23 14:16	06/05/23 12:32	1
Fluorene	ND		1.0	0.39	ug/L		05/30/23 14:16	06/05/23 12:32	1
Phenanthrene	ND		1.0	0.17	ug/L		05/30/23 14:16	06/05/23 12:32	1
Anthracene	ND		1.0	0.15	ug/L		05/30/23 14:16	06/05/23 12:32	1
Fluoranthene	ND		1.0	0.15	ug/L		05/30/23 14:16	06/05/23 12:32	1
Pyrene	ND		1.0	0.14	ug/L		05/30/23 14:16	06/05/23 12:32	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		05/30/23 14:16	06/05/23 12:32	1
Chrysene	ND		1.0	0.14	ug/L		05/30/23 14:16	06/05/23 12:32	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		05/30/23 14:16	06/05/23 12:32	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		05/30/23 14:16	06/05/23 12:32	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		05/30/23 14:16	06/05/23 12:32	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		05/30/23 14:16	06/05/23 12:32	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		05/30/23 14:16	06/05/23 12:32	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		05/30/23 14:16	06/05/23 12:32	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*70*		*40 - 140*	*05/30/23 14:16*	*06/05/23 12:32*	*1*
2-Fluorobiphenyl (Surr)	*106*		*40 - 140*	*05/30/23 14:16*	*06/05/23 12:32*	*1*

Lab Sample ID: LCS 620-23074/4-B
Matrix: Water
Analysis Batch: 23261

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23074

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Naphthalene	5.00	2.96		ug/L		59	40 - 140
2-Methylnaphthalene	5.00	2.92		ug/L		58	40 - 140
Acenaphthylene	5.00	3.16		ug/L		63	40 - 140
Acenaphthene	5.00	3.11		ug/L		62	40 - 140
Fluorene	5.00	3.01		ug/L		60	40 - 140
Phenanthrene	5.00	3.13		ug/L		63	40 - 140
Anthracene	5.00	3.01		ug/L		60	40 - 140
Fluoranthene	5.00	3.55		ug/L		71	40 - 140
Pyrene	5.00	3.48		ug/L		70	40 - 140
Benzo[a]anthracene	5.00	3.40		ug/L		68	40 - 140
Chrysene	5.00	3.48		ug/L		70	40 - 140
Benzo[b]fluoranthene	5.00	3.29		ug/L		66	40 - 140
Benzo[k]fluoranthene	5.00	3.82		ug/L		76	40 - 140
Benzo[a]pyrene	5.00	3.20		ug/L		64	40 - 140
Indeno[1,2,3-cd]pyrene	5.00	3.37		ug/L		67	40 - 140
Dibenz(a,h)anthracene	5.00	3.41		ug/L		68	40 - 140
Benzo[g,h,i]perylene	5.00	3.97		ug/L		79	40 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*74*		*40 - 140*
2-Fluorobiphenyl (Surr)	*113*		*40 - 140*

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Lab Sample ID: LCSD 620-23074/5-B
Matrix: Water
Analysis Batch: 23261

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23074

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Naphthalene			5.00	2.56		ug/L		51	40 - 140	14	25
2-Methylnaphthalene			5.00	2.47		ug/L		49	40 - 140	17	25
Acenaphthylene			5.00	2.75		ug/L		55	40 - 140	14	25
Acenaphthene			5.00	2.65		ug/L		53	40 - 140	16	25
Fluorene			5.00	2.85		ug/L		57	40 - 140	6	25
Phenanthrene			5.00	2.75		ug/L		55	40 - 140	13	25
Anthracene			5.00	2.67		ug/L		53	40 - 140	12	25
Fluoranthene			5.00	3.15		ug/L		63	40 - 140	12	25
Pyrene			5.00	3.15		ug/L		63	40 - 140	10	25
Benzo[a]anthracene			5.00	2.76		ug/L		55	40 - 140	21	25
Chrysene			5.00	2.82		ug/L		56	40 - 140	21	25
Benzo[b]fluoranthene			5.00	3.11		ug/L		62	40 - 140	6	25
Benzo[k]fluoranthene			5.00	3.66		ug/L		73	40 - 140	4	25
Benzo[a]pyrene			5.00	2.84		ug/L		57	40 - 140	12	25
Indeno[1,2,3-cd]pyrene			5.00	2.84		ug/L		57	40 - 140	17	25
Dibenz(a,h)anthracene			5.00	2.85		ug/L		57	40 - 140	18	25
Benzo[g,h,i]perylene			5.00	3.25		ug/L		65	40 - 140	20	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*70*		*40 - 140*
2-Fluorobiphenyl (Surr)	*96*		*40 - 140*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-23050/5
Matrix: Water
Analysis Batch: 23050

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			05/30/23 13:36	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			05/30/23 13:36	1
C9-C10 Aromatics	ND		100	100	ug/L			05/30/23 13:36	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			05/30/23 13:36	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			05/30/23 13:36	1
Benzene	ND		5.0	5.0	ug/L			05/30/23 13:36	1
Ethylbenzene	ND		5.0	5.0	ug/L			05/30/23 13:36	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			05/30/23 13:36	1
Naphthalene	ND		5.0	5.0	ug/L			05/30/23 13:36	1
Toluene	ND		5.0	5.0	ug/L			05/30/23 13:36	1
m,p-Xylene	ND		10	10	ug/L			05/30/23 13:36	1
o-Xylene	ND		5.0	5.0	ug/L			05/30/23 13:36	1
Xylenes, Total	ND		15	15	ug/L			05/30/23 13:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*96*		*70 - 130*		*05/30/23 13:36*	*1*
2,5-Dibromotoluene (pid)	*96*		*70 - 130*		*05/30/23 13:36*	*1*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCS 620-23050/3
Matrix: Water
Analysis Batch: 23050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C10 Aromatics			20.0	ND		ug/L		109	70 - 130		
C5-C8 Aliphatics (unadjusted)			60.0	ND		ug/L		99	70 - 130		
C9-C12 Aliphatics (unadjusted)			60.0	ND		ug/L		98	70 - 130		
Benzene			20.0	20.0		ug/L		100	70 - 130		
Ethylbenzene			20.0	21.2		ug/L		106	70 - 130		
Methyl tert-butyl ether			20.0	20.0		ug/L		100	70 - 130		
Naphthalene			20.0	20.5		ug/L		103	70 - 130		
Toluene			20.0	20.5		ug/L		102	70 - 130		
m,p-Xylene			40.0	43.5		ug/L		109	70 - 130		
o-Xylene			20.0	21.7		ug/L		108	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*96*		*70 - 130*
2,5-Dibromotoluene (pid)	*95*		*70 - 130*

Lab Sample ID: LCSD 620-23050/4
Matrix: Water
Analysis Batch: 23050

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics			20.0	ND		ug/L		109	70 - 130	0	25
C5-C8 Aliphatics (unadjusted)			60.0	ND		ug/L		97	70 - 130	2	25
C9-C12 Aliphatics (unadjusted)			60.0	ND		ug/L		95	70 - 130	3	25
Benzene			20.0	20.0		ug/L		100	70 - 130	0	25
Ethylbenzene			20.0	21.0		ug/L		105	70 - 130	1	25
Methyl tert-butyl ether			20.0	19.5		ug/L		98	70 - 130	2	25
Naphthalene			20.0	20.6		ug/L		103	70 - 130	0	25
Toluene			20.0	20.4		ug/L		102	70 - 130	1	25
m,p-Xylene			40.0	42.7		ug/L		107	70 - 130	2	25
o-Xylene			20.0	21.5		ug/L		108	70 - 130	1	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*97*		*70 - 130*
2,5-Dibromotoluene (pid)	*96*		*70 - 130*

Lab Sample ID: MB 620-23107/5
Matrix: Water
Analysis Batch: 23107

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			05/31/23 13:03	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			05/31/23 13:03	1
C9-C10 Aromatics	ND		100	100	ug/L			05/31/23 13:03	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			05/31/23 13:03	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			05/31/23 13:03	1
Benzene	ND		5.0	5.0	ug/L			05/31/23 13:03	1
Ethylbenzene	ND		5.0	5.0	ug/L			05/31/23 13:03	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			05/31/23 13:03	1

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: MB 620-23107/5
Matrix: Water
Analysis Batch: 23107

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		5.0	5.0	ug/L			05/31/23 13:03	1
Toluene	ND		5.0	5.0	ug/L			05/31/23 13:03	1
m,p-Xylene	ND		10	10	ug/L			05/31/23 13:03	1
o-Xylene	ND		5.0	5.0	ug/L			05/31/23 13:03	1
Xylenes, Total	ND		15	15	ug/L			05/31/23 13:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*100*		*70 - 130*		*05/31/23 13:03*	*1*
2,5-Dibromotoluene (pid)	*99*		*70 - 130*		*05/31/23 13:03*	*1*

Lab Sample ID: LCS 620-23107/3
Matrix: Water
Analysis Batch: 23107

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C10 Aromatics	20.0	ND		ug/L		110	70 - 130
C5-C8 Aliphatics (unadjusted)	60.0	ND		ug/L		98	70 - 130
C9-C12 Aliphatics (unadjusted)	60.0	ND		ug/L		96	70 - 130
Benzene	20.0	19.9		ug/L		100	70 - 130
Ethylbenzene	20.0	21.3		ug/L		107	70 - 130
Methyl tert-butyl ether	20.0	20.3		ug/L		102	70 - 130
Naphthalene	20.0	21.7		ug/L		109	70 - 130
Toluene	20.0	20.6		ug/L		103	70 - 130
m,p-Xylene	40.0	43.6		ug/L		109	70 - 130
o-Xylene	20.0	21.9		ug/L		109	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*99*		*70 - 130*
2,5-Dibromotoluene (pid)	*97*		*70 - 130*

Lab Sample ID: LCSD 620-23107/4
Matrix: Water
Analysis Batch: 23107

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics	20.0	ND		ug/L		110	70 - 130	0	25
C5-C8 Aliphatics (unadjusted)	60.0	ND		ug/L		96	70 - 130	2	25
C9-C12 Aliphatics (unadjusted)	60.0	ND		ug/L		93	70 - 130	3	25
Benzene	20.0	20.0		ug/L		100	70 - 130	0	25
Ethylbenzene	20.0	21.1		ug/L		105	70 - 130	1	25
Methyl tert-butyl ether	20.0	20.2		ug/L		101	70 - 130	1	25
Naphthalene	20.0	21.7		ug/L		108	70 - 130	0	25
Toluene	20.0	20.5		ug/L		102	70 - 130	0	25
m,p-Xylene	40.0	43.3		ug/L		108	70 - 130	1	25
o-Xylene	20.0	21.6		ug/L		108	70 - 130	1	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*99*		*70 - 130*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-23107/4
Matrix: Water
Analysis Batch: 23107

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2,5-Dibromotoluene (pid)	98		70 - 130

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-23074/1-B
Matrix: Water
Analysis Batch: 23139

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23074

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		100	100	ug/L		05/30/23 14:16	06/01/23 13:13	1
C19-C36 Aliphatics	ND		100	100	ug/L		05/30/23 14:16	06/01/23 13:13	1
C11-C22 Aromatics	ND		100	100	ug/L		05/30/23 14:16	06/01/23 13:13	1
C11-C22 Aromatics (Adjusted)	ND		100	100	ug/L		05/30/23 14:16	06/01/23 13:13	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctadecane (Surr)	70		40 - 140	05/30/23 14:16	06/01/23 13:13	1
o-Terphenyl (Surr)	60		40 - 140	05/30/23 14:16	06/01/23 13:13	1
2-Fluorobiphenyl (Surr)	91		40 - 140	05/30/23 14:16	06/01/23 13:13	1

Lab Sample ID: LCS 620-23074/2-B
Matrix: Water
Analysis Batch: 23139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23074

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C18 Aliphatics			120	ND		ug/L		41	40 - 140		
C19-C36 Aliphatics			160	ND		ug/L		57	40 - 140		
C11-C22 Aromatics			340	212		ug/L		62	40 - 140		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctadecane (Surr)	73		40 - 140
o-Terphenyl (Surr)	54		40 - 140
2-Fluorobiphenyl (Surr)	79		40 - 140

Lab Sample ID: LCSD 620-23074/3-B
Matrix: Water
Analysis Batch: 23139

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23074

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics			120	ND		ug/L		43	40 - 140	6	25
C19-C36 Aliphatics			160	ND		ug/L		56	40 - 140	3	25
C11-C22 Aromatics			340	253		ug/L		74	40 - 140	18	25

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctadecane (Surr)	74		40 - 140
o-Terphenyl (Surr)	60		40 - 140
2-Fluorobiphenyl (Surr)	91		40 - 140

Method: 6010D - Metals (ICP)

Lab Sample ID: LCS 620-23040/2-A
Matrix: Water
Analysis Batch: 23156

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23040

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	2.50	2.76		mg/L		110	80 - 120
Arsenic	2.50	2.36		mg/L		94	80 - 120
Barium	2.50	2.38		mg/L		95	80 - 120
Beryllium	2.50	2.51		mg/L		100	80 - 120
Cadmium	2.50	2.74		mg/L		110	80 - 120
Chromium	2.50	2.50		mg/L		100	80 - 120
Lead	2.50	2.59		mg/L		104	80 - 120
Nickel	2.50	2.52		mg/L		101	80 - 120
Selenium	2.50	2.79		mg/L		112	80 - 120
Silver	2.50	2.36		mg/L		95	80 - 120
Thallium	2.50	2.55		mg/L		102	80 - 120
Vanadium	2.50	2.45		mg/L		98	80 - 120
Zinc	2.50	2.59		mg/L		103	80 - 120

Lab Sample ID: LCSD 620-23040/3-A
Matrix: Water
Analysis Batch: 23156

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23040

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	2.50	2.75		mg/L		110	80 - 120	0	20
Arsenic	2.50	2.39		mg/L		96	80 - 120	1	20
Barium	2.50	2.37		mg/L		95	80 - 120	0	20
Beryllium	2.50	2.51		mg/L		101	80 - 120	0	20
Cadmium	2.50	2.73		mg/L		109	80 - 120	0	20
Chromium	2.50	2.50		mg/L		100	80 - 120	0	20
Lead	2.50	2.59		mg/L		104	80 - 120	0	20
Nickel	2.50	2.53		mg/L		101	80 - 120	0	20
Selenium	2.50	2.80		mg/L		112	80 - 120	0	20
Silver	2.50	2.37		mg/L		95	80 - 120	0	20
Thallium	2.50	2.56		mg/L		102	80 - 120	1	20
Vanadium	2.50	2.47		mg/L		99	80 - 120	0	20
Zinc	2.50	2.59		mg/L		103	80 - 120	0	20

Lab Sample ID: MB 620-23100/1-A
Matrix: Water
Analysis Batch: 23156

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23100

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.012	0.0032	mg/L		05/31/23 10:04	05/31/23 13:36	1
Arsenic	ND		0.0080	0.0028	mg/L		05/31/23 10:04	05/31/23 13:36	1
Barium	0.00170	J	0.010	0.0014	mg/L		05/31/23 10:04	05/31/23 13:36	1
Beryllium	ND		0.0040	0.00056	mg/L		05/31/23 10:04	05/31/23 13:36	1
Cadmium	ND		0.0050	0.00071	mg/L		05/31/23 10:04	05/31/23 13:36	1
Chromium	0.00360	J	0.010	0.0019	mg/L		05/31/23 10:04	05/31/23 13:36	1
Lead	ND		0.015	0.012	mg/L		05/31/23 10:04	05/31/23 13:36	1
Nickel	ND		0.010	0.0017	mg/L		05/31/23 10:04	05/31/23 13:36	1
Selenium	ND		0.030	0.0083	mg/L		05/31/23 10:04	05/31/23 13:36	1
Silver	0.00190	J	0.010	0.0012	mg/L		05/31/23 10:04	05/31/23 13:36	1
Thallium	ND		0.010	0.0042	mg/L		05/31/23 10:04	05/31/23 13:36	1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: MB 620-23100/1-A
Matrix: Water
Analysis Batch: 23156

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23100

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vanadium	ND		0.010	0.0022	mg/L		05/31/23 10:04	05/31/23 13:36	1
Zinc	0.00610	J	0.050	0.0032	mg/L		05/31/23 10:04	05/31/23 13:36	1

Lab Sample ID: 620-11737-1 MS
Matrix: Water
Analysis Batch: 23156

Client Sample ID: LM-GW-UST01-0525-23
Prep Type: Dissolved
Prep Batch: 23040

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0051	J	2.50	2.79		mg/L		112	75 - 125
Arsenic	0.032		2.50	2.38		mg/L		94	75 - 125
Barium	0.056		2.50	2.43		mg/L		95	75 - 125
Beryllium	ND		2.50	2.46		mg/L		98	75 - 125
Cadmium	ND		2.50	2.67		mg/L		107	75 - 125
Chromium	0.0043		2.50	2.45		mg/L		98	75 - 125
Lead	0.013		2.50	2.53		mg/L		101	75 - 125
Nickel	0.011		2.50	2.46		mg/L		98	75 - 125
Selenium	ND		2.50	2.79		mg/L		112	75 - 125
Silver	ND		2.50	2.35		mg/L		94	75 - 125
Thallium	0.0022	J	2.50	2.51		mg/L		100	75 - 125
Vanadium	0.0037	J	2.50	2.44		mg/L		97	75 - 125
Zinc	0.033		2.50	2.54		mg/L		100	75 - 125

Lab Sample ID: 620-11737-1 MSD
Matrix: Water
Analysis Batch: 23156

Client Sample ID: LM-GW-UST01-0525-23
Prep Type: Dissolved
Prep Batch: 23040

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	0.0051	J	2.50	2.80		mg/L		112	75 - 125	0	20
Arsenic	0.032		2.50	2.43		mg/L		96	75 - 125	2	20
Barium	0.056		2.50	2.44		mg/L		95	75 - 125	0	20
Beryllium	ND		2.50	2.50		mg/L		100	75 - 125	2	20
Cadmium	ND		2.50	2.71		mg/L		108	75 - 125	1	20
Chromium	0.0043		2.50	2.48		mg/L		99	75 - 125	1	20
Lead	0.013		2.50	2.55		mg/L		102	75 - 125	1	20
Nickel	0.011		2.50	2.49		mg/L		99	75 - 125	1	20
Selenium	ND		2.50	2.82		mg/L		113	75 - 125	1	20
Silver	ND		2.50	2.38		mg/L		95	75 - 125	1	20
Thallium	0.0022	J	2.50	2.55		mg/L		102	75 - 125	2	20
Vanadium	0.0037	J	2.50	2.47		mg/L		99	75 - 125	1	20
Zinc	0.033		2.50	2.58		mg/L		102	75 - 125	2	20

Lab Sample ID: 620-11737-1 DU
Matrix: Water
Analysis Batch: 23156

Client Sample ID: LM-GW-UST01-0525-23
Prep Type: Dissolved
Prep Batch: 23040

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	0.0051	J	0.00580	J	mg/L		13	20
Arsenic	0.032		0.0298		mg/L		7	20
Barium	0.056		0.0560		mg/L		0.8	20

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 620-11737-1 DU
Matrix: Water
Analysis Batch: 23156

Client Sample ID: LM-GW-UST01-0525-23
Prep Type: Dissolved
Prep Batch: 23040

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Beryllium	ND		ND		mg/L		NC	20
Cadmium	ND		ND		mg/L		NC	20
Chromium	0.0043		0.00415	J	mg/L		4	20
Lead	0.013		0.0131		mg/L		2	20
Nickel	0.011		0.0116		mg/L		1	20
Selenium	ND		ND		mg/L		NC	20
Silver	ND		0.000750	J	mg/L		NC	20
Thallium	0.0022	J	0.00215	J	mg/L		2	20
Vanadium	0.0037	J	0.00350	J	mg/L		4	20
Zinc	0.033		0.0333		mg/L		1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 620-23056/1-A
Matrix: Water
Analysis Batch: 23226

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23056

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		05/30/23 10:37	06/02/23 13:10	1

Lab Sample ID: LCS 620-23056/2-A
Matrix: Water
Analysis Batch: 23226

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23056

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00548		mg/L		110	85 - 115

Lab Sample ID: LCSD 620-23056/3-A
Matrix: Water
Analysis Batch: 23226

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23056

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.00500	0.00534		mg/L		107	85 - 115	3	20

Lab Sample ID: 620-11737-1 MS
Matrix: Water
Analysis Batch: 23226

Client Sample ID: LM-GW-UST01-0525-23
Prep Type: Dissolved
Prep Batch: 23056

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		0.00500	0.00575		mg/L		115	80 - 120

Lab Sample ID: 620-11737-1 MSD
Matrix: Water
Analysis Batch: 23226

Client Sample ID: LM-GW-UST01-0525-23
Prep Type: Dissolved
Prep Batch: 23056

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		0.00500	0.00576		mg/L		115	80 - 120	0	20

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11737-1

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 620-11737-1 DU
Matrix: Water
Analysis Batch: 23226

Client Sample ID: LM-GW-UST01-0525-23
Prep Type: Dissolved
Prep Batch: 23056

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Mercury	ND			ND		mg/L				NC	20

GC/MS Semi VOA

Prep Batch: 23074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11737-1	LM-GW-UST01-0525-23	Total/NA	Water	3510C	
620-11737-2	LM-GW-UST02-0525-23	Total/NA	Water	3510C	
MB 620-23074/1-B	Method Blank	Total/NA	Water	3510C	
LCS 620-23074/4-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 620-23074/5-B	Lab Control Sample Dup	Total/NA	Water	3510C	

Fraction Batch: 23131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11737-1	LM-GW-UST01-0525-23	Total/NA	Water	MA EPH Frac	23074
620-11737-2	LM-GW-UST02-0525-23	Total/NA	Water	MA EPH Frac	23074
MB 620-23074/1-B	Method Blank	Total/NA	Water	MA EPH Frac	23074
LCS 620-23074/4-B	Lab Control Sample	Total/NA	Water	MA EPH Frac	23074
LCSD 620-23074/5-B	Lab Control Sample Dup	Total/NA	Water	MA EPH Frac	23074

Analysis Batch: 23261

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11737-1	LM-GW-UST01-0525-23	Total/NA	Water	EPH	23131
620-11737-1	LM-GW-UST01-0525-23	Total/NA	Water	EPH	23131
620-11737-2	LM-GW-UST02-0525-23	Total/NA	Water	EPH	23131
MB 620-23074/1-B	Method Blank	Total/NA	Water	EPH	23131
LCS 620-23074/4-B	Lab Control Sample	Total/NA	Water	EPH	23131
LCSD 620-23074/5-B	Lab Control Sample Dup	Total/NA	Water	EPH	23131

GC VOA

Analysis Batch: 23050

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11737-1	LM-GW-UST01-0525-23	Total/NA	Water	MAVPH2.1	
620-11737-2	LM-GW-UST02-0525-23	Total/NA	Water	MAVPH2.1	
620-11737-3	TB-01-052523	Total/NA	Water	MAVPH2.1	
MB 620-23050/5	Method Blank	Total/NA	Water	MAVPH2.1	
LCS 620-23050/3	Lab Control Sample	Total/NA	Water	MAVPH2.1	
LCSD 620-23050/4	Lab Control Sample Dup	Total/NA	Water	MAVPH2.1	

Analysis Batch: 23107

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11737-1 - DL	LM-GW-UST01-0525-23	Total/NA	Water	MAVPH2.1	
620-11737-2 - DL	LM-GW-UST02-0525-23	Total/NA	Water	MAVPH2.1	
MB 620-23107/5	Method Blank	Total/NA	Water	MAVPH2.1	
LCS 620-23107/3	Lab Control Sample	Total/NA	Water	MAVPH2.1	
LCSD 620-23107/4	Lab Control Sample Dup	Total/NA	Water	MAVPH2.1	

GC Semi VOA

Prep Batch: 23074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11737-1	LM-GW-UST01-0525-23	Total/NA	Water	3510C	
620-11737-2	LM-GW-UST02-0525-23	Total/NA	Water	3510C	
MB 620-23074/1-B	Method Blank	Total/NA	Water	3510C	
LCS 620-23074/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 620-23074/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	

GC Semi VOA

Fraction Batch: 23131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11737-1	LM-GW-UST01-0525-23	Total/NA	Water	MA EPH Frac	23074
620-11737-2	LM-GW-UST02-0525-23	Total/NA	Water	MA EPH Frac	23074
MB 620-23074/1-B	Method Blank	Total/NA	Water	MA EPH Frac	23074
LCS 620-23074/2-B	Lab Control Sample	Total/NA	Water	MA EPH Frac	23074
LCSD 620-23074/3-B	Lab Control Sample Dup	Total/NA	Water	MA EPH Frac	23074

Analysis Batch: 23139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11737-1	LM-GW-UST01-0525-23	Total/NA	Water	MAEPH2.1	23131
620-11737-2	LM-GW-UST02-0525-23	Total/NA	Water	MAEPH2.1	23131
MB 620-23074/1-B	Method Blank	Total/NA	Water	MAEPH2.1	23131
LCS 620-23074/2-B	Lab Control Sample	Total/NA	Water	MAEPH2.1	23131
LCSD 620-23074/3-B	Lab Control Sample Dup	Total/NA	Water	MAEPH2.1	23131

Metals

Prep Batch: 23040

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11737-1	LM-GW-UST01-0525-23	Dissolved	Water	3005A	
620-11737-2	LM-GW-UST02-0525-23	Dissolved	Water	3005A	
LCS 620-23040/2-A	Lab Control Sample	Total/NA	Water	3005A	
LCSD 620-23040/3-A	Lab Control Sample Dup	Total/NA	Water	3005A	
620-11737-1 MS	LM-GW-UST01-0525-23	Dissolved	Water	3005A	
620-11737-1 MSD	LM-GW-UST01-0525-23	Dissolved	Water	3005A	
620-11737-1 DU	LM-GW-UST01-0525-23	Dissolved	Water	3005A	

Prep Batch: 23056

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11737-1	LM-GW-UST01-0525-23	Dissolved	Water	7470A	
620-11737-2	LM-GW-UST02-0525-23	Dissolved	Water	7470A	
MB 620-23056/1-A	Method Blank	Total/NA	Water	7470A	
LCS 620-23056/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 620-23056/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	
620-11737-1 MS	LM-GW-UST01-0525-23	Dissolved	Water	7470A	
620-11737-1 MSD	LM-GW-UST01-0525-23	Dissolved	Water	7470A	
620-11737-1 DU	LM-GW-UST01-0525-23	Dissolved	Water	7470A	

Prep Batch: 23100

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 620-23100/1-A	Method Blank	Total/NA	Water	3005A	

Analysis Batch: 23156

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11737-1	LM-GW-UST01-0525-23	Dissolved	Water	6010D	23040
620-11737-2	LM-GW-UST02-0525-23	Dissolved	Water	6010D	23040
MB 620-23100/1-A	Method Blank	Total/NA	Water	6010D	23100
LCS 620-23040/2-A	Lab Control Sample	Total/NA	Water	6010D	23040
LCSD 620-23040/3-A	Lab Control Sample Dup	Total/NA	Water	6010D	23040
620-11737-1 MS	LM-GW-UST01-0525-23	Dissolved	Water	6010D	23040
620-11737-1 MSD	LM-GW-UST01-0525-23	Dissolved	Water	6010D	23040
620-11737-1 DU	LM-GW-UST01-0525-23	Dissolved	Water	6010D	23040

QC Association Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11737-1

Metals

Analysis Batch: 23226

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11737-1	LM-GW-UST01-0525-23	Dissolved	Water	7470A	23056
620-11737-2	LM-GW-UST02-0525-23	Dissolved	Water	7470A	23056
MB 620-23056/1-A	Method Blank	Total/NA	Water	7470A	23056
LCS 620-23056/2-A	Lab Control Sample	Total/NA	Water	7470A	23056
LCSD 620-23056/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	23056
620-11737-1 MS	LM-GW-UST01-0525-23	Dissolved	Water	7470A	23056
620-11737-1 MSD	LM-GW-UST01-0525-23	Dissolved	Water	7470A	23056
620-11737-1 DU	LM-GW-UST01-0525-23	Dissolved	Water	7470A	23056

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11737-1

Client Sample ID: LM-GW-UST01-0525-23

Lab Sample ID: 620-11737-1

Date Collected: 05/25/23 11:30

Matrix: Water

Date Received: 05/26/23 16:59

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			23074	AAH	EET NE	05/30/23 14:16
Total/NA	Fraction	MA EPH Frac			23131	BJJ	EET NE	05/31/23 16:59
Total/NA	Analysis	EPH		1	23261	BJJ	EET NE	06/05/23 13:40
Total/NA	Prep	3510C			23074	AAH	EET NE	05/30/23 14:16
Total/NA	Fraction	MA EPH Frac			23131	BJJ	EET NE	05/31/23 16:59
Total/NA	Analysis	EPH		5	23261	BJJ	EET NE	06/05/23 14:25
Total/NA	Analysis	MAVPH2.1		1	23050	BMH	EET NE	05/30/23 23:26
Total/NA	Analysis	MAVPH2.1	DL	10	23107	BMH	EET NE	05/31/23 16:57
Total/NA	Prep	3510C			23074	AAH	EET NE	05/30/23 14:16
Total/NA	Fraction	MA EPH Frac			23131	BJJ	EET NE	05/31/23 16:59
Total/NA	Analysis	MAEPH2.1		1	23139	BJJ	EET NE	06/01/23 14:42
Dissolved	Prep	3005A			23040	PRB	EET NE	05/30/23 09:06
Dissolved	Analysis	6010D		1	23156	JPC	EET NE	05/31/23 14:29
Dissolved	Prep	7470A			23056	PRB	EET NE	05/30/23 10:37
Dissolved	Analysis	7470A		1	23226	PRB	EET NE	06/02/23 13:26

Client Sample ID: LM-GW-UST02-0525-23

Lab Sample ID: 620-11737-2

Date Collected: 05/25/23 17:10

Matrix: Water

Date Received: 05/26/23 16:59

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			23074	AAH	EET NE	05/30/23 14:16
Total/NA	Fraction	MA EPH Frac			23131	BJJ	EET NE	05/31/23 16:59
Total/NA	Analysis	EPH		1	23261	BJJ	EET NE	06/05/23 14:02
Total/NA	Analysis	MAVPH2.1		5	23050	BMH	EET NE	05/31/23 01:11
Total/NA	Analysis	MAVPH2.1	DL	20	23107	BMH	EET NE	05/31/23 16:22
Total/NA	Prep	3510C			23074	AAH	EET NE	05/30/23 14:16
Total/NA	Fraction	MA EPH Frac			23131	BJJ	EET NE	05/31/23 16:59
Total/NA	Analysis	MAEPH2.1		1	23139	BJJ	EET NE	06/01/23 15:11
Dissolved	Prep	3005A			23040	PRB	EET NE	05/30/23 09:06
Dissolved	Analysis	6010D		1	23156	JPC	EET NE	05/31/23 15:17
Dissolved	Prep	7470A			23056	PRB	EET NE	05/30/23 10:37
Dissolved	Analysis	7470A		1	23226	PRB	EET NE	06/02/23 13:34

Client Sample ID: TB-01-052523

Lab Sample ID: 620-11737-3

Date Collected: 05/25/23 16:00

Matrix: Water

Date Received: 05/26/23 16:59

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	MAVPH2.1		1	23050	BMH	EET NE	05/30/23 15:51

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-11737-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Massachusetts	State	M-RI907	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6010D	3005A	Water	Antimony
6010D	3005A	Water	Arsenic
6010D	3005A	Water	Barium
6010D	3005A	Water	Beryllium
6010D	3005A	Water	Cadmium
6010D	3005A	Water	Chromium
6010D	3005A	Water	Lead
6010D	3005A	Water	Nickel
6010D	3005A	Water	Selenium
6010D	3005A	Water	Silver
6010D	3005A	Water	Thallium
6010D	3005A	Water	Vanadium
6010D	3005A	Water	Zinc
7470A	7470A	Water	Mercury
EPH	3510C	Water	2-Methylnaphthalene
EPH	3510C	Water	Acenaphthene
EPH	3510C	Water	Acenaphthylene
EPH	3510C	Water	Anthracene
EPH	3510C	Water	Benzo[a]anthracene
EPH	3510C	Water	Benzo[a]pyrene
EPH	3510C	Water	Benzo[b]fluoranthene
EPH	3510C	Water	Benzo[g,h,i]perylene
EPH	3510C	Water	Benzo[k]fluoranthene
EPH	3510C	Water	Chrysene
EPH	3510C	Water	Dibenz(a,h)anthracene
EPH	3510C	Water	Fluoranthene
EPH	3510C	Water	Fluorene
EPH	3510C	Water	Indeno[1,2,3-cd]pyrene
EPH	3510C	Water	Naphthalene
EPH	3510C	Water	Phenanthrene
EPH	3510C	Water	Pyrene
MAEPH2.1	3510C	Water	C11-C22 Aromatics
MAEPH2.1	3510C	Water	C11-C22 Aromatics (Adjusted)
MAEPH2.1	3510C	Water	C19-C36 Aliphatics
MAEPH2.1	3510C	Water	C9-C18 Aliphatics
MAVPH2.1		Water	Benzene
MAVPH2.1		Water	C5-C8 Aliphatics (adjusted)
MAVPH2.1		Water	C5-C8 Aliphatics (unadjusted)
MAVPH2.1		Water	C9-C10 Aromatics
MAVPH2.1		Water	C9-C12 Aliphatics (adjusted)
MAVPH2.1		Water	C9-C12 Aliphatics (unadjusted)
MAVPH2.1		Water	Ethylbenzene
MAVPH2.1		Water	m,p-Xylene
MAVPH2.1		Water	Methyl tert-butyl ether
MAVPH2.1		Water	Naphthalene

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-11737-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
MAVPH2.1		Water	o-Xylene
MAVPH2.1		Water	Toluene
MAVPH2.1		Water	Xylenes, Total

Method Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11737-1

Method	Method Description	Protocol	Laboratory
EPH	Extractable Petroleum Hydrocarbons (GC/MS)	MA DEP	EET NE
MAVPH2.1	Massachusetts - Volatile Petroleum Hydrocarbons (GC)	MA DEP	EET NE
MAEPH2.1	Massachusetts - Extractable Petroleum Hydrocarbons (GC)	MA DEP	EET NE
6010D	Metals (ICP)	SW846	EET NE
7470A	Mercury (CVAA)	SW846	EET NE
3005A	Preparation, Total Metals	SW846	EET NE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET NE
5030C	Purge and Trap	SW846	EET NE
7470A	Preparation, Mercury	SW846	EET NE
MA EPH Frac	Massachusetts - Extractable Petroleum Hydrocarbon Fractionation	MA DEP	EET NE

Protocol References:

MA DEP = Massachusetts Department Of Environmental Protection

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Sample Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11737-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
620-11737-1	LM-GW-UST01-0525-23	Water	05/25/23 11:30	05/26/23 16:59
620-11737-2	LM-GW-UST02-0525-23	Water	05/25/23 17:10	05/26/23 16:59
620-11737-3	TB-01-052523	Water	05/25/23 16:00	05/26/23 16:59

11737

620-11737 Chain of Custody

Chain of Custody Record

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Client Contact: Bridget Fortier	Sampler: S. Stone	Lab PM: A. Ray	Carrier Tracking No(s):	COC No: 620-10175-1337 2
Company: Nobis Engineering, Inc	Phone: 774-245-3612	E-Mail: araya@nobis-group.com	State of Origin:	Page: Page 2 of 2
Address: 585 Middlesex Street	PWSID:			Job #:
City: Lowell	Due Date Requested:			
State, Zip: MA, 01851	TAT Requested (days): standard 10 day			
Phone:	Compliance Project: Δ Yes Δ No			
Email: bfortier@nobis-group.com	PO #:			
Project Name: Former L&M	WO #:			
Site:	Project #: 50000101.005/400			
	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	VOC	GDH, ~~Metals~~	Metals (Filtered)	Trip Blank	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	A	A	D	A	X	
LM-GW-UST01-0525-23	5-25-23	1130	G	Water	✓	X	X	X				
LM-GW-UST02-0525-23	5-25-23	1710	G	Water	✓	X	X	X				
TB-01-052523	5-25-23	1600	G	Water						X		
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								

Page 32 of 33

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested I, II, III, IV, Other (specify): EDD report PDF email

Special Instructions/QC Requirements: MADEP CAM methods required

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by:		Date/Time: 5-26-23 1135	Company	Received by:		Date/Time: 5/26/23 1135	Company
Relinquished by:		Date/Time: 5/26/23 16:59	Company	Received by:		Date/Time: 5/26/23 16:59	Company: CHC
Relinquished by:		Date/Time	Company	Received by:		Date/Time	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No :

Cooler Temperature(s) °C and Other Remarks: 3.4 to 3.6 #6

6/5/2023

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Nobis Engineering, Inc.

Job Number: 620-11737-1

Login Number: 11737
List Number: 1
Creator: Makhoul, Elie

List Source: Eurofins New England

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Adam Roy
Nobis Engineering, Inc.
585 Middlesex Street
Lowell, Massachusetts 01851

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JOB DESCRIPTION

Former L&M - Lunenburg MA

JOB NUMBER

620-11778-1

Eurofins New England
646 Camp Ave
North Kingstown RI 02852

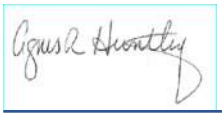
See page two for job notes and contact information.

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northeast, LLC Project Manager.

Authorization



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Authorized for release by
Agnes Huntley, Project Manager
Agnes.Huntley@et.eurofinsus.com
(401)372-3482

Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
State Forms 6
    MCP Checklist 6
Case Narrative 7
Detection Summary 9
Client Sample Results 11
Surrogate Summary 23
QC Sample Results 25
QC Association Summary 47
Lab Chronicle 52
Certification Summary 54
Method Summary 59
Sample Summary 60
Chain of Custody 61
Receipt Checklists 62

Definitions/Glossary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL, and the absolute difference between results is < the upper reporting limits for both.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
F3	Duplicate RPD exceeds the control limit

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

MassDEP Analytical Protocol Certfication Form

Laboratory Name: Eurofins New England | Project #: 620-11778-1

Project Location: Former L&M - Lunenburg MA | RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
620-11778-1, 620-11778-2

Matrices: ☑ Groundwater/Surface Water ☑ Soil/Sediment ☐ Drinking Water ☐ Air ☐ Other:

CAM Protocol (check all that apply below:)

8260 VOC CAM II A ☑	7470/7471 Hg CAM III B ☑	MassDEP VPH (GC/PID/FID) CAM IV A ☐	8082 PCB CAM V A ☑	9014 Total Cyanide/PAC CAM VI A ☐	6860 Perchlorate CAM VIII B ☐
8270 SVOC CAM II B ☑	7010 Metals CAM III C ☐	MassDEP VPH (GC/MS) CAM IV C ☐	8081 Pesticides CAM V B ☑	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
6010 Metals CAM III A ☑	6020 Metals CAM III D ☐	MassDEP EPH CAM IV B ☐	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes ☐ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☑ Yes ☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes ☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☑ Yes ☐ No
E	VPH, EPH, APH, and TO-15 only a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes ☐ No ☐ Yes ☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☑ Yes ☐ No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☐ Yes ☑ No[1]

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☐ Yes ☑ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☐ Yes ☑ No[1]

1 All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature: Agnes R Huntley **Position:** Project Manager

Printed Name: Agnes Huntley **Date:** 06/05/2023

Job ID: 620-11778-1

Laboratory: Eurofins New England

Narrative

Job Narrative
620-11778-1

Receipt
The samples were received on 5/31/2023 1:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.6º C.

GC/MS VOA
Method 8260C: The large number of analytes included in the continuing calibration verification (CCV) gives a high probability that one or more analytes will be outside acceptance criteria. As indicated in the reference method, analysis may proceed as long as no more than 20% of the analytes of interest are outside the method-defined %D criteria. Affected analyte (high bias): Dichlorodifluoromethane. (CCVIS 620-23153/3)

Method 8260C: The laboratory control sample (LCS) for preparation batch 620-23152 and analytical batch 620-23153 recovered outside control limits for the following analytes: Dichlorodifluoromethane and Ethanol, which have been identified as poor performing analytes when analyzed using this method. According to MCP requirements, poor performers are allowed to recover within 40-160%; therefore, re-extraction/re-analysis was not performed. These results have been reported and qualified.

Method 8260C: The laboratory control sample duplicate (LCSD) for preparation batch 620-23152 and analytical batch 620-23153 recovered outside control limits for the following analytes: Dichlorodifluoromethane and Bromomethane, which have been identified as poor performing analytes when analyzed using this method. According to MCP requirements, poor performers are allowed to recover within 40-160%; therefore, re-extraction/re-analysis was not performed. These results have been reported and qualified.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA
Method 8270D: The large number of analytes included in the continuing calibration verification (CCV) (CCVIS 620-23208/3) gives a high probability that one or more analytes will be outside acceptance criteria. As indicated in the MCP method, analysis may proceed as long as no more than 20% of the analytes of interest are outside the method-defined %D criteria. Benzidine.

Method 8270D: The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 620-23157 and analytical batch 620-23208 recovered outside control limits for the following analytes: bis (2-chloroisopropyl) ether and N-Nitrosodimethylamine. MCP allows for <10% of analytes to fall outside of control limits. The affected target analytes recovered within acceptance limits >10%; therefore, demonstrates the analytical system had sufficient sensitivity to detect the compounds had they been present. Since the affected target compounds were not detected in the samples, the data have been reported and qualified.

Method 8270D: The laboratory control sample (LCS) for preparation batch 620-23157 and analytical batch 620-23208 recovered outside control limits for the following analyte: Hexachlorocyclopentadiene. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported.

Method 8270D: The laboratory control sample duplicate (LCSD) for preparation batch 620-23157 and analytical batch 620-23208 recovered outside control limits for the following analytes: Bis(2-chloroethoxy)methane, Bis(2-chloroethyl)ether, Hexachlorobenzene and N-Nitrosodi-n-propylamine. The affected target analytes recovered within acceptance limits in the LCS, therefore the data have been reported.

Method 8270D: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 620-23157 and analytical batch 620-23208 recovered outside control limits for the following analytes: N-Nitrosodimethylamine. The individual percent recoveries are within acceptance criteria.

Method 8270D: The laboratory control sample duplicate (LCSD) for preparation batch 620-23157 and analytical batch 620-23208 recovered above the upper calibration limit for the following analyte: Benzidine. This analyte was biased high in the LCSD and was not detected in the associated samples; therefore, the data have been reported. The analyte recovered within calibration limits in the LCS.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 620-11778-1 (Continued)

Laboratory: Eurofins New England (Continued)

GC Semi VOA
Method 8082: The following samples exhibited elevated noise or matrix interferences for one or more analytes causing elevation of the detection limit (EDL): LM-SO-SD01-053123 (620-11778-1) and LM-SO-SD02-053123 (620-11778-2) . The reporting limit (RL) for the affected analytes has been raised to be equal to the EDL.

Method 8081B: The continuing calibration verification (CCV) associated with batch 620-23216 recovered outside acceptance criteria, low biased, for Endrin on the confirmation column. The analyte passes within method criteria on the primary column, thus all data was reported off the primary column.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method SM 2510B: The sample duplicate (DUP) precision for preparation batch 620-23168 and analytical batch 620-23175 was outside control limits. Sample non-homogeneity is suspected.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work
Methods Reactive Cyanide, Reactive Sulfide: These methods were subcontracted to Phoenix Environmental Laboratories, Inc.. The subcontract laboratory certifications are different from that of the facility issuing the final report.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Client Sample ID: LM-SO-SD01-053123 — Lab Sample ID: 620-11778-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	11	J	17	3.9	ug/Kg	1	☼	8260C	Total/NA
Methyl tert-butyl ether	1.7		1.7	1.0	ug/Kg	1	☼	8260C	Total/NA
Benzo[a]anthracene	65	J	71	40	ug/Kg	1	☼	8270D	Total/NA
Benzo[a]pyrene	69	J	71	51	ug/Kg	1	☼	8270D	Total/NA
Benzo[b]fluoranthene	71		71	59	ug/Kg	1	☼	8270D	Total/NA
Benzo[g,h,i]perylene	58	J	71	55	ug/Kg	1	☼	8270D	Total/NA
Benzo[k]fluoranthene	78		71	55	ug/Kg	1	☼	8270D	Total/NA
Chrysene	74		71	40	ug/Kg	1	☼	8270D	Total/NA
Fluoranthene	110		71	42	ug/Kg	1	☼	8270D	Total/NA
Phenanthrene	41	J	71	40	ug/Kg	1	☼	8270D	Total/NA
Pyrene	120		71	39	ug/Kg	1	☼	8270D	Total/NA
4,4'-DDT	1.7	J	8.5	0.85	ug/Kg	1	☼	8081B	Total/NA
TEPH (C9-C36)	93		14	12	mg/Kg	1	☼	8100	Total/NA
Arsenic	22		2.3	0.29	mg/Kg	1	☼	6010D	Total/NA
Barium	42		1.5	0.18	mg/Kg	1	☼	6010D	Total/NA
Chromium	21		1.5	0.20	mg/Kg	1	☼	6010D	Total/NA
Lead	29		2.3	0.32	mg/Kg	1	☼	6010D	Total/NA
Arsenic	0.0045	J	0.0080	0.0028	mg/L	1		6010D	TCLP
Barium	0.38		0.010	0.0014	mg/L	1		6010D	TCLP
Cadmium	0.0011	J	0.0050	0.00071	mg/L	1		6010D	TCLP
Chromium	0.0078	J	0.010	0.0019	mg/L	1		6010D	TCLP
Lead	0.024		0.015	0.012	mg/L	1		6010D	TCLP
Mercury	0.056		0.053	0.0088	mg/Kg	1	☼	7471A	Total/NA
Ignitability	negative				NONE	1		1030	Total/NA
pH	6.8				SU	1		9045D	Soluble
Temperature	28.5				Degrees C	1		9045D	Soluble
Specific Conductance	1900		10	10	uS/cm	1		SM 2510B	Soluble

Client Sample ID: LM-SO-SD02-053123 — Lab Sample ID: 620-11778-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	2.6		1.6	0.93	ug/Kg	1	☼	8260C	Total/NA
Benzo[a]anthracene	86	J	140	79	ug/Kg	1	☼	8270D	Total/NA
Benzo[k]fluoranthene	110	J	140	110	ug/Kg	1	☼	8270D	Total/NA
Chrysene	98	J	140	80	ug/Kg	1	☼	8270D	Total/NA
Fluoranthene	130	J	140	83	ug/Kg	1	☼	8270D	Total/NA
Pyrene	130	J	140	78	ug/Kg	1	☼	8270D	Total/NA
4,4'-DDT	1.7	J	8.4	0.84	ug/Kg	1	☼	8081B	Total/NA
TEPH (C9-C36)	410		27	23	mg/Kg	1	☼	8100	Total/NA
Arsenic	15		2.8	0.35	mg/Kg	1	☼	6010D	Total/NA
Barium	33		1.8	0.22	mg/Kg	1	☼	6010D	Total/NA
Chromium	18		1.8	0.25	mg/Kg	1	☼	6010D	Total/NA
Lead	20		2.8	0.39	mg/Kg	1	☼	6010D	Total/NA
Arsenic	0.0032	J	0.0080	0.0028	mg/L	1		6010D	TCLP
Barium	0.23		0.010	0.0014	mg/L	1		6010D	TCLP
Cadmium	0.0011	J	0.0050	0.00071	mg/L	1		6010D	TCLP
Chromium	0.0032	J	0.010	0.0019	mg/L	1		6010D	TCLP
Lead	0.052		0.015	0.012	mg/L	1		6010D	TCLP
Mercury	0.035	J	0.052	0.0086	mg/Kg	1	☼	7471A	Total/NA
Ignitability	negative				NONE	1		1030	Total/NA
pH	7.0				SU	1		9045D	Soluble

This Detection Summary does not include radiochemical test results.

Client Sample ID: LM-SO-SD02-053123 (Continued)

Lab Sample ID: 620-11778-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Temperature	28.5				Degrees C	1		9045D	Soluble
Specific Conductance	200		10	10	uS/cm	1		SM 2510B	Soluble

This Detection Summary does not include radiochemical test results.

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Client Sample ID: LM-SO-SD01-053123
Date Collected: 05/31/23 07:50
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-1
Matrix: Solid
Percent Solids: 93.9

Method: MA DEP 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichlorotrifluoroethane (Freon 113)	ND		1.7	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Acetone	**11**	**J**	17	3.9	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Acrylonitrile	ND		1.7	1.0	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Benzene	ND		1.7	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Bromobenzene	ND		1.7	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Bromochloromethane	ND		1.7	0.99	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Bromodichloromethane	ND		1.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Bromoform	ND		1.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Bromomethane	ND	*+	3.5	2.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
2-Butanone (MEK)	ND		3.5	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
n-Butylbenzene	ND		3.5	1.9	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
sec-Butylbenzene	ND		1.7	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
tert-Butylbenzene	ND		1.7	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Carbon disulfide	ND		3.5	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Carbon tetrachloride	ND		1.7	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Chlorobenzene	ND		1.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Chloroethane	ND		3.5	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Chloroform	ND		1.7	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Chloromethane	ND		3.5	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
2-Chlorotoluene	ND		1.7	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
4-Chlorotoluene	ND		1.7	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,2-Dibromo-3-Chloropropane	ND		3.5	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Dibromochloromethane	ND		1.7	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,2-Dibromoethane (EDB)	ND		1.7	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Dibromomethane	ND		1.7	1.0	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,2-Dichlorobenzene	ND		1.7	1.6	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,3-Dichlorobenzene	ND		1.7	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,4-Dichlorobenzene	ND		1.7	1.6	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Dichlorodifluoromethane (Freon 12)	ND	*+	3.5	0.93	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,1-Dichloroethane	ND		1.7	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,2-Dichloroethane	ND		1.7	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,1-Dichloroethene	ND		1.7	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
cis-1,2-Dichloroethene	ND		1.7	1.0	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
trans-1,2-Dichloroethene	ND		1.7	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,2-Dichloropropane	ND		1.7	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,3-Dichloropropane	ND		1.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
2,2-Dichloropropane	ND		1.7	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,1-Dichloropropene	ND		1.7	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
cis-1,3-Dichloropropene	ND		1.7	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
trans-1,3-Dichloropropene	ND		1.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Ethylbenzene	ND		1.7	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Hexachlorobutadiene	ND		3.5	1.7	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
2-Hexanone (MBK)	ND		3.5	1.0	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Isopropylbenzene	ND		1.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
4-Isopropyltoluene	ND		1.7	1.7	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Methyl tert-butyl ether	**1.7**		1.7	1.0	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
4-Methyl-2-pentanone (MIBK)	ND		3.5	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Methylene Chloride	ND		3.5	0.93	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Naphthalene	ND		1.7	1.6	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1

Client Sample ID: LM-SO-SD01-053123
Date Collected: 05/31/23 07:50
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-1
Matrix: Solid
Percent Solids: 93.9

Method: MA DEP 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-Propylbenzene	ND		1.7	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Styrene	ND		1.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,1,1,2-Tetrachloroethane	ND		1.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,1,2,2-Tetrachloroethane	ND		1.7	1.6	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Tetrachloroethene	ND		1.7	0.96	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Toluene	ND		1.7	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,2,3-Trichlorobenzene	ND		1.7	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,2,4-Trichlorobenzene	ND		1.7	1.6	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,3,5-Trichlorobenzene	ND		1.7	1.6	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,1,1-Trichloroethane	ND		1.7	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,1,2-Trichloroethane	ND		1.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Trichloroethene	ND		1.7	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Trichlorofluoromethane (Freon 11)	ND		1.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,2,3-Trichloropropane	ND		1.7	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,2,4-Trimethylbenzene	ND		1.7	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,3,5-Trimethylbenzene	ND		1.7	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Vinyl chloride	ND		1.7	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
m,p-Xylene	ND		1.7	2.4	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
o-Xylene	ND		1.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Tetrahydrofuran	ND		3.5	0.88	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Ethyl ether	ND		1.7	0.91	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Tert-amyl methyl ether	ND		1.7	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Ethyl tert-butyl ether	ND		1.7	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
di-Isopropyl ether	ND		1.7	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
tert-Butanol	ND		35	9.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,4-Dioxane	ND		35	11	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
trans-1,4-Dichloro-2-butene	ND		8.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Ethanol	ND	*-	350	22	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,3-Dichloropropene, Total	ND		1.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Xylenes, Total	ND		5.2	1.7	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*	*06/01/23 13:00*	*06/01/23 15:48*	*1*
Toluene-d8 (Surr)	*105*		*70 - 130*	*06/01/23 13:00*	*06/01/23 15:48*	*1*
1,2-Dichloroethane-d4 (Surr)	*108*		*70 - 130*	*06/01/23 13:00*	*06/01/23 15:48*	*1*
Dibromofluoromethane (Surr)	*104*		*70 - 130*	*06/01/23 13:00*	*06/01/23 15:48*	*1*

Method: MA DEP 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	ND		350	62	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
1,2,4-Trichlorobenzene	ND		350	80	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
1,2-Dichlorobenzene	ND		350	68	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
1,3-Dichlorobenzene	ND		350	85	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
1,4-Dichlorobenzene	ND		350	83	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
1-Methylnaphthalene	ND		71	59	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
2,4,5-Trichlorophenol	ND		350	40	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
2,4,6-Trichlorophenol	ND		180	43	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
2,4-Dichlorophenol	ND		180	71	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
2,4-Dimethylphenol	ND		350	51	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
2,4-Dinitrophenol	ND		350	92	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1

Client Sample ID: LM-SO-SD01-053123

Date Collected: 05/31/23 07:50
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-1

Matrix: Solid
Percent Solids: 93.9

Method: MA DEP 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dinitrotoluene	ND		180	42	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
2,6-Dinitrotoluene	ND		180	42	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
2-Chloronaphthalene	ND		350	81	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
2-Chlorophenol	ND		180	73	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
2-Methylnaphthalene	ND		71	52	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
2-Methylphenol	ND		350	51	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
2-Nitroaniline	ND		350	33	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
2-Nitrophenol	ND		180	63	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
3 & 4 Methylphenol	ND		350	66	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
3,3'-Dichlorobenzidine	ND		350	58	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
3-Nitroaniline	ND		350	31	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
4,6-Dinitro-2-methylphenol	ND		350	63	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
4-Bromophenyl phenyl ether	ND		350	40	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
4-Chloro-3-methylphenol	ND		350	69	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
4-Chloroaniline	ND		180	27	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
4-Chlorophenyl phenyl ether	ND		350	37	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
4-Nitroaniline	ND		180	56	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
4-Nitrophenol	ND		350	120	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Acenaphthene	ND		71	57	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Acenaphthylene	ND		71	47	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Acetophenone	ND		180	43	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Aniline	ND		350	27	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Anthracene	ND		71	41	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Azobenzene/Diphenyldiazene	ND		350	60	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Benzidine	ND		700	100	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Benzo[a]anthracene	**65**	**J**	71	40	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Benzo[a]pyrene	**69**	**J**	71	51	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Benzo[b]fluoranthene	**71**		71	59	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Benzo[g,h,i]perylene	**58**	**J**	71	55	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Benzo[k]fluoranthene	**78**		71	55	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Benzoic acid	ND		350	240	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Benzyl alcohol	ND		350	64	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Bis(2-chloroethoxy)methane	ND	*-	350	61	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Bis(2-chloroethyl)ether	ND	*-	180	58	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
bis (2-chloroisopropyl) ether	ND	*-	180	79	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Bis(2-ethylhexyl) phthalate	ND		180	45	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Butyl benzyl phthalate	ND		350	35	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Carbazole	ND		180	46	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Chrysene	**74**		71	40	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Dibenz(a,h)anthracene	ND		71	54	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Dibenzofuran	ND		180	61	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Diethyl phthalate	ND		350	38	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Dimethyl phthalate	ND		350	46	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Di-n-butyl phthalate	ND		350	37	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Di-n-octyl phthalate	ND		350	58	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Fluoranthene	**110**		71	42	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Fluorene	ND		71	65	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Hexachlorobenzene	ND	*+	180	49	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Hexachlorobutadiene	ND		180	88	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1

Client Sample ID: LM-SO-SD01-053123
Date Collected: 05/31/23 07:50
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-1
Matrix: Solid
Percent Solids: 93.9

Method: MA DEP 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachlorocyclopentadiene	ND	*+	180	68	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Hexachloroethane	ND		180	70	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Indeno[1,2,3-cd]pyrene	ND		71	60	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Isophorone	ND		180	49	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Naphthalene	ND		71	68	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Nitrobenzene	ND		180	82	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
N-Nitrosodimethylamine	ND	*- *1	180	47	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
N-Nitrosodi-n-propylamine	ND	*-	180	71	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
N-Nitrosodiphenylamine	ND		350	45	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Pentachloronitrobenzene	ND		350	55	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Pentachlorophenol	ND		350	140	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Phenanthrene	**41**	**J**	71	40	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Phenol	ND		350	72	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Pyrene	**120**		71	39	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Pyridine	ND		350	83	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*51*		*30 - 130*	*06/01/23 10:46*	*06/02/23 15:20*	*1*
2-Fluorophenol (Surr)	*52*		*15 - 110*	*06/01/23 10:46*	*06/02/23 15:20*	*1*
Nitrobenzene-d5 (Surr)	*44*		*30 - 130*	*06/01/23 10:46*	*06/02/23 15:20*	*1*
Phenol-d5 (Surr)	*50*		*15 - 110*	*06/01/23 10:46*	*06/02/23 15:20*	*1*
2,4,6-Tribromophenol (Surr)	*50*		*15 - 110*	*06/01/23 10:46*	*06/02/23 15:20*	*1*
Terphenyl-d14	*49*		*30 - 130*	*06/01/23 10:46*	*06/02/23 15:20*	*1*

Method: MA DEP 8081B - Organochlorine Pesticides (GC/ECD)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		5.3	1.1	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
beta-BHC	ND		5.3	0.95	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
delta-BHC	ND		5.3	1.1	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
gamma-BHC (Lindane)	ND		2.1	1.1	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Heptachlor	ND		5.3	1.1	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Aldrin	ND		5.3	1.0	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Heptachlor epoxide	ND		5.3	1.3	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Endosulfan I	ND		5.3	1.3	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Dieldrin	ND		5.3	1.1	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
4,4'-DDE	ND		8.5	1.3	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Endrin	ND		8.5	1.7	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Endosulfan II	ND		8.5	1.3	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
4,4'-DDD	ND		8.5	1.6	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Endosulfan sulfate	ND		8.5	1.6	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
4,4'-DDT	**1.7**	**J**	8.5	0.85	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Methoxychlor	ND		8.5	1.5	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Endrin ketone	ND		8.5	1.2	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Endrin aldehyde	ND		8.5	1.7	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
cis-Chlordane	ND		5.3	1.3	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
trans-Chlordane	ND		5.3	1.3	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Toxaphene	ND		110	75	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Alachlor	ND		5.3	1.2	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1

Client Sample ID: LM-SO-SD01-053123

Date Collected: 05/31/23 07:50
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-1

Matrix: Solid
Percent Solids: 93.9

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*48*		*30 - 150*	*06/01/23 09:22*	*06/02/23 19:31*	*1*
Tetrachloro-m-xylene	*54*		*30 - 150*	*06/01/23 09:22*	*06/02/23 19:31*	*1*
DCB Decachlorobiphenyl (Surr)	*60*		*30 - 150*	*06/01/23 09:22*	*06/02/23 19:31*	*1*
DCB Decachlorobiphenyl (Surr)	*56*		*30 - 150*	*06/01/23 09:22*	*06/02/23 19:31*	*1*

Method: MA DEP 8082 - Polychlorinated Biphenyls (GC/ECD)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		35	35	ug/Kg	☼	06/01/23 09:22	06/01/23 16:23	1
PCB-1221	ND		35	35	ug/Kg	☼	06/01/23 09:22	06/01/23 16:23	1
PCB-1232	ND		35	35	ug/Kg	☼	06/01/23 09:22	06/01/23 16:23	1
PCB-1242	ND		35	35	ug/Kg	☼	06/01/23 09:22	06/01/23 16:23	1
PCB-1248	ND		35	35	ug/Kg	☼	06/01/23 09:22	06/01/23 16:23	1
PCB-1254	ND		35	35	ug/Kg	☼	06/01/23 09:22	06/01/23 16:23	1
PCB-1262	ND		35	35	ug/Kg	☼	06/01/23 09:22	06/01/23 16:23	1
PCB-1260	ND		35	35	ug/Kg	☼	06/01/23 09:22	06/01/23 16:23	1
PCB-1268	ND		35	35	ug/Kg	☼	06/01/23 09:22	06/01/23 16:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*91*		*30 - 150*	*06/01/23 09:22*	*06/01/23 16:23*	*1*
Tetrachloro-m-xylene	*86*		*30 - 150*	*06/01/23 09:22*	*06/01/23 16:23*	*1*
DCB Decachlorobiphenyl (Surr)	*95*		*30 - 150*	*06/01/23 09:22*	*06/01/23 16:23*	*1*
DCB Decachlorobiphenyl (Surr)	*101*		*30 - 150*	*06/01/23 09:22*	*06/01/23 16:23*	*1*

Method: SW846 8100 - Polynuclear Aromatic Hydrocarbons (PAHs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TEPH (C9-C36)	**93**		14	12	mg/Kg	☼	06/01/23 14:23	06/02/23 14:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*78*		*40 - 140*	*06/01/23 14:23*	*06/02/23 14:21*	*1*
o-Terphenyl (Surr)	*57*		*40 - 140*	*06/01/23 14:23*	*06/02/23 14:21*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**22**		2.3	0.29	mg/Kg	☼	05/31/23 14:15	06/01/23 12:54	1
Barium	**42**		1.5	0.18	mg/Kg	☼	05/31/23 14:15	06/01/23 12:54	1
Cadmium	ND		0.76	0.039	mg/Kg	☼	05/31/23 14:15	06/01/23 12:54	1
Chromium	**21**		1.5	0.20	mg/Kg	☼	05/31/23 14:15	06/01/23 12:54	1
Lead	**29**		2.3	0.32	mg/Kg	☼	05/31/23 14:15	06/01/23 12:54	1
Selenium	ND		2.3	0.44	mg/Kg	☼	05/31/23 14:15	06/01/23 12:54	1
Silver	ND		2.3	0.25	mg/Kg	☼	05/31/23 14:15	06/01/23 12:54	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0045**	**J**	0.0080	0.0028	mg/L		06/01/23 10:53	06/01/23 14:51	1
Barium	**0.38**		0.010	0.0014	mg/L		06/01/23 10:53	06/01/23 14:51	1
Cadmium	**0.0011**	**J**	0.0050	0.00071	mg/L		06/01/23 10:53	06/01/23 14:51	1
Chromium	**0.0078**	**J**	0.010	0.0019	mg/L		06/01/23 10:53	06/01/23 14:51	1
Lead	**0.024**		0.015	0.012	mg/L		06/01/23 10:53	06/01/23 14:51	1
Selenium	ND		0.030	0.0083	mg/L		06/01/23 10:53	06/01/23 14:51	1
Silver	ND		0.010	0.0012	mg/L		06/01/23 10:53	06/01/23 14:51	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Client Sample ID: LM-SO-SD01-053123

Date Collected: 05/31/23 07:50
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-1

Matrix: Solid
Percent Solids: 93.9

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		06/02/23 07:19	06/02/23 14:22	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.056**		0.053	0.0088	mg/Kg	☼	06/01/23 09:40	06/02/23 12:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability (SW846 1030)	**negative**				NONE			06/01/23 15:23	1
Percent Moisture (EPA Moisture)	**6.1**		0.1	0.1	%			06/01/23 11:46	1
Percent Solids (EPA Moisture)	**93.9**		0.1	0.1	%			06/01/23 11:46	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9045D)	**6.8**				SU			06/01/23 14:14	1
Temperature (SW846 9045D)	**28.5**				Degrees C			06/01/23 14:14	1
Specific Conductance (SM 2510B)	**1900**		10	10	uS/cm			06/01/23 14:51	1

Method: Reactive Cyanide - SW846 9014/9034 Reactivity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Reactivity Cyanide	ND		5		mg/Kg		06/01/23 17:09	06/01/23 16:15	1

Method: Reactive Sulfide - SW846 9034 – Reactive Sulfide

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Reactivity Sulfide	ND		20		mg/Kg		06/01/23 00:00	06/01/23 17:09	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Client Sample ID: LM-SO-SD02-053123

Date Collected: 05/31/23 08:10
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-2

Matrix: Solid
Percent Solids: 93.7

Method: MA DEP 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichlorotrifluoroethane (Freon 113)	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Acetone	ND		16	3.6	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Acrylonitrile	ND		1.6	0.97	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Benzene	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Bromobenzene	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Bromochloromethane	ND		1.6	0.92	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Bromodichloromethane	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Bromoform	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Bromomethane	ND	*+	3.2	2.0	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
2-Butanone (MEK)	ND		3.2	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
n-Butylbenzene	ND		3.2	1.7	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
sec-Butylbenzene	ND		1.6	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
tert-Butylbenzene	ND		1.6	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Carbon disulfide	ND		3.2	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Carbon tetrachloride	ND		1.6	1.0	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Chlorobenzene	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Chloroethane	ND		3.2	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Chloroform	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Chloromethane	ND		3.2	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
2-Chlorotoluene	ND		1.6	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
4-Chlorotoluene	ND		1.6	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,2-Dibromo-3-Chloropropane	ND		3.2	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Dibromochloromethane	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,2-Dibromoethane (EDB)	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Dibromomethane	ND		1.6	0.95	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,2-Dichlorobenzene	ND		1.6	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,3-Dichlorobenzene	ND		1.6	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,4-Dichlorobenzene	ND		1.6	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Dichlorodifluoromethane (Freon 12)	ND	*+	3.2	0.87	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,1-Dichloroethane	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,2-Dichloroethane	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,1-Dichloroethene	ND		1.6	0.99	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
cis-1,2-Dichloroethene	ND		1.6	0.93	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
trans-1,2-Dichloroethene	ND		1.6	1.0	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,2-Dichloropropane	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,3-Dichloropropane	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
2,2-Dichloropropane	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,1-Dichloropropene	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
cis-1,3-Dichloropropene	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
trans-1,3-Dichloropropene	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Ethylbenzene	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Hexachlorobutadiene	ND		3.2	1.6	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
2-Hexanone (MBK)	ND		3.2	0.95	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Isopropylbenzene	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
4-Isopropyltoluene	ND		1.6	1.6	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Methyl tert-butyl ether	**2.6**		1.6	0.93	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
4-Methyl-2-pentanone (MIBK)	ND		3.2	1.0	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Methylene Chloride	ND		3.2	0.87	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Naphthalene	ND		1.6	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1

Client Sample ID: LM-SO-SD02-053123
Date Collected: 05/31/23 08:10
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-2
Matrix: Solid
Percent Solids: 93.7

Method: MA DEP 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-Propylbenzene	ND		1.6	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Styrene	ND		1.6	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,1,1,2-Tetrachloroethane	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,1,2,2-Tetrachloroethane	ND		1.6	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Tetrachloroethene	ND		1.6	0.90	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Toluene	ND		1.6	1.0	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,2,3-Trichlorobenzene	ND		1.6	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,2,4-Trichlorobenzene	ND		1.6	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,3,5-Trichlorobenzene	ND		1.6	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,1,1-Trichloroethane	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,1,2-Trichloroethane	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Trichloroethene	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Trichlorofluoromethane (Freon 11)	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,2,3-Trichloropropane	ND		1.6	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,2,4-Trimethylbenzene	ND		1.6	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,3,5-Trimethylbenzene	ND		1.6	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Vinyl chloride	ND		1.6	0.99	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
m,p-Xylene	ND		1.6	2.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
o-Xylene	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Tetrahydrofuran	ND		3.2	0.82	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Ethyl ether	ND		1.6	0.85	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Tert-amyl methyl ether	ND		1.6	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Ethyl tert-butyl ether	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
di-Isopropyl ether	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
tert-Butanol	ND		32	8.7	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,4-Dioxane	ND		32	10	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
trans-1,4-Dichloro-2-butene	ND		8.1	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Ethanol	ND	*-	320	20	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,3-Dichloropropene, Total	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Xylenes, Total	ND		4.8	1.6	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*	*06/01/23 13:00*	*06/01/23 16:13*	*1*
Toluene-d8 (Surr)	*106*		*70 - 130*	*06/01/23 13:00*	*06/01/23 16:13*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*	*06/01/23 13:00*	*06/01/23 16:13*	*1*
Dibromofluoromethane (Surr)	*117*		*70 - 130*	*06/01/23 13:00*	*06/01/23 16:13*	*1*

Method: MA DEP 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	ND		700	120	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
1,2,4-Trichlorobenzene	ND		700	160	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
1,2-Dichlorobenzene	ND		700	130	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
1,3-Dichlorobenzene	ND		700	170	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
1,4-Dichlorobenzene	ND		700	160	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
1-Methylnaphthalene	ND		140	120	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
2,4,5-Trichlorophenol	ND		700	80	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
2,4,6-Trichlorophenol	ND		350	86	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
2,4-Dichlorophenol	ND		350	140	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
2,4-Dimethylphenol	ND		700	100	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
2,4-Dinitrophenol	ND		700	180	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Client Sample ID: LM-SO-SD02-053123
Date Collected: 05/31/23 08:10
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-2
Matrix: Solid
Percent Solids: 93.7

Method: MA DEP 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dinitrotoluene	ND		350	83	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
2,6-Dinitrotoluene	ND		350	83	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
2-Chloronaphthalene	ND		700	160	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
2-Chlorophenol	ND		350	140	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
2-Methylnaphthalene	ND		140	100	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
2-Methylphenol	ND		700	100	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
2-Nitroaniline	ND		700	67	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
2-Nitrophenol	ND		350	130	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
3 & 4 Methylphenol	ND		700	130	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
3,3'-Dichlorobenzidine	ND		700	120	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
3-Nitroaniline	ND		700	62	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
4,6-Dinitro-2-methylphenol	ND		700	130	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
4-Bromophenyl phenyl ether	ND		700	79	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
4-Chloro-3-methylphenol	ND		700	140	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
4-Chloroaniline	ND		350	54	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
4-Chlorophenyl phenyl ether	ND		700	75	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
4-Nitroaniline	ND		350	110	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
4-Nitrophenol	ND		700	240	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Acenaphthene	ND		140	110	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Acenaphthylene	ND		140	93	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Acetophenone	ND		350	86	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Aniline	ND		700	54	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Anthracene	ND		140	82	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Azobenzene/Diphenyldiazene	ND		700	120	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Benzidine	ND		1400	210	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Benzo[a]anthracene	**86**	**J**	140	79	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Benzo[a]pyrene	ND		140	100	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Benzo[b]fluoranthene	ND		140	120	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Benzo[g,h,i]perylene	ND		140	110	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Benzo[k]fluoranthene	**110**	**J**	140	110	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Benzoic acid	ND		700	480	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Benzyl alcohol	ND		700	130	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Bis(2-chloroethoxy)methane	ND	*-	700	120	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Bis(2-chloroethyl)ether	ND	*-	350	120	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
bis (2-chloroisopropyl) ether	ND	*-	350	160	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Bis(2-ethylhexyl) phthalate	ND		350	90	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Butyl benzyl phthalate	ND		700	70	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Carbazole	ND		350	93	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Chrysene	**98**	**J**	140	80	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Dibenz(a,h)anthracene	ND		140	110	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Dibenzofuran	ND		350	120	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Diethyl phthalate	ND		700	77	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Dimethyl phthalate	ND		700	91	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Di-n-butyl phthalate	ND		700	75	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Di-n-octyl phthalate	ND		700	120	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Fluoranthene	**130**	**J**	140	83	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Fluorene	ND		140	130	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Hexachlorobenzene	ND	*+	350	98	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Hexachlorobutadiene	ND		350	180	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Client Sample ID: LM-SO-SD02-053123

Date Collected: 05/31/23 08:10
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-2

Matrix: Solid
Percent Solids: 93.7

Method: MA DEP 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachlorocyclopentadiene	ND	*+	350	140	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Hexachloroethane	ND		350	140	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Indeno[1,2,3-cd]pyrene	ND		140	120	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Isophorone	ND		350	97	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Naphthalene	ND		140	140	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Nitrobenzene	ND		350	160	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
N-Nitrosodimethylamine	ND	*- *1	350	93	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
N-Nitrosodi-n-propylamine	ND	*-	350	140	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
N-Nitrosodiphenylamine	ND		700	89	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Pentachloronitrobenzene	ND		700	110	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Pentachlorophenol	ND		700	290	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Phenanthrene	ND		140	80	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Phenol	ND		700	140	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Pyrene	**130**	**J**	140	78	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Pyridine	ND		700	170	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*77*		*30 - 130*	*06/01/23 10:46*	*06/02/23 15:45*	*1*
2-Fluorophenol (Surr)	*80*		*15 - 110*	*06/01/23 10:46*	*06/02/23 15:45*	*1*
Nitrobenzene-d5 (Surr)	*71*		*30 - 130*	*06/01/23 10:46*	*06/02/23 15:45*	*1*
Phenol-d5 (Surr)	*76*		*15 - 110*	*06/01/23 10:46*	*06/02/23 15:45*	*1*
2,4,6-Tribromophenol (Surr)	*79*		*15 - 110*	*06/01/23 10:46*	*06/02/23 15:45*	*1*
Terphenyl-d14	*70*		*30 - 130*	*06/01/23 10:46*	*06/02/23 15:45*	*1*

Method: MA DEP 8081B - Organochlorine Pesticides (GC/ECD)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		5.2	1.1	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
beta-BHC	ND		5.2	0.93	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
delta-BHC	ND		5.2	1.1	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
gamma-BHC (Lindane)	ND		2.1	1.1	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Heptachlor	ND		5.2	1.1	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Aldrin	ND		5.2	1.0	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Heptachlor epoxide	ND		5.2	1.2	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Endosulfan I	ND		5.2	1.3	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Dieldrin	ND		5.2	1.1	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
4,4'-DDE	ND		8.4	1.3	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Endrin	ND		8.4	1.7	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Endosulfan II	ND		8.4	1.3	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
4,4'-DDD	ND		8.4	1.6	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Endosulfan sulfate	ND		8.4	1.6	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
4,4'-DDT	**1.7**	**J**	8.4	0.84	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Methoxychlor	ND		8.4	1.5	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Endrin ketone	ND		8.4	1.2	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Endrin aldehyde	ND		8.4	1.7	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
cis-Chlordane	ND		5.2	1.3	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
trans-Chlordane	ND		5.2	1.3	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Toxaphene	ND		100	74	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Alachlor	ND		5.2	1.2	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1

Client Sample ID: LM-SO-SD02-053123

Date Collected: 05/31/23 08:10
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-2

Matrix: Solid
Percent Solids: 93.7

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*69*		*30 - 150*	*06/01/23 09:23*	*06/02/23 19:47*	*1*
Tetrachloro-m-xylene	*73*		*30 - 150*	*06/01/23 09:23*	*06/02/23 19:47*	*1*
DCB Decachlorobiphenyl (Surr)	*77*		*30 - 150*	*06/01/23 09:23*	*06/02/23 19:47*	*1*
DCB Decachlorobiphenyl (Surr)	*80*		*30 - 150*	*06/01/23 09:23*	*06/02/23 19:47*	*1*

Method: MA DEP 8082 - Polychlorinated Biphenyls (GC/ECD)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		35	35	ug/Kg	☼	06/01/23 09:23	06/01/23 16:40	1
PCB-1221	ND		35	35	ug/Kg	☼	06/01/23 09:23	06/01/23 16:40	1
PCB-1232	ND		35	35	ug/Kg	☼	06/01/23 09:23	06/01/23 16:40	1
PCB-1242	ND		35	35	ug/Kg	☼	06/01/23 09:23	06/01/23 16:40	1
PCB-1248	ND		35	35	ug/Kg	☼	06/01/23 09:23	06/01/23 16:40	1
PCB-1254	ND		35	35	ug/Kg	☼	06/01/23 09:23	06/01/23 16:40	1
PCB-1262	ND		35	35	ug/Kg	☼	06/01/23 09:23	06/01/23 16:40	1
PCB-1260	ND		35	35	ug/Kg	☼	06/01/23 09:23	06/01/23 16:40	1
PCB-1268	ND		35	35	ug/Kg	☼	06/01/23 09:23	06/01/23 16:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*113*		*30 - 150*	*06/01/23 09:23*	*06/01/23 16:40*	*1*
Tetrachloro-m-xylene	*107*		*30 - 150*	*06/01/23 09:23*	*06/01/23 16:40*	*1*
DCB Decachlorobiphenyl (Surr)	*125*		*30 - 150*	*06/01/23 09:23*	*06/01/23 16:40*	*1*
DCB Decachlorobiphenyl (Surr)	*121*		*30 - 150*	*06/01/23 09:23*	*06/01/23 16:40*	*1*

Method: SW846 8100 - Polynuclear Aromatic Hydrocarbons (PAHs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TEPH (C9-C36)	**410**		27	23	mg/Kg	☼	06/01/23 14:23	06/02/23 14:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*98*		*40 - 140*	*06/01/23 14:23*	*06/02/23 14:43*	*1*
o-Terphenyl (Surr)	*65*		*40 - 140*	*06/01/23 14:23*	*06/02/23 14:43*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**15**		2.8	0.35	mg/Kg	☼	05/31/23 14:15	06/01/23 13:00	1
Barium	**33**		1.8	0.22	mg/Kg	☼	05/31/23 14:15	06/01/23 13:00	1
Cadmium	ND		0.92	0.048	mg/Kg	☼	05/31/23 14:15	06/01/23 13:00	1
Chromium	**18**		1.8	0.25	mg/Kg	☼	05/31/23 14:15	06/01/23 13:00	1
Lead	**20**		2.8	0.39	mg/Kg	☼	05/31/23 14:15	06/01/23 13:00	1
Selenium	ND		2.8	0.53	mg/Kg	☼	05/31/23 14:15	06/01/23 13:00	1
Silver	ND		2.8	0.30	mg/Kg	☼	05/31/23 14:15	06/01/23 13:00	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0032**	**J**	0.0080	0.0028	mg/L		06/01/23 10:53	06/01/23 14:21	1
Barium	**0.23**		0.010	0.0014	mg/L		06/01/23 10:53	06/01/23 14:21	1
Cadmium	**0.0011**	**J**	0.0050	0.00071	mg/L		06/01/23 10:53	06/01/23 14:21	1
Chromium	**0.0032**	**J**	0.010	0.0019	mg/L		06/01/23 10:53	06/01/23 14:21	1
Lead	**0.052**		0.015	0.012	mg/L		06/01/23 10:53	06/01/23 14:21	1
Selenium	ND		0.030	0.0083	mg/L		06/01/23 10:53	06/01/23 14:21	1
Silver	ND		0.010	0.0012	mg/L		06/01/23 10:53	06/01/23 14:21	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Client Sample ID: LM-SO-SD02-053123

Date Collected: 05/31/23 08:10
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-2

Matrix: Solid
Percent Solids: 93.7

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		06/02/23 07:19	06/02/23 14:24	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.035**	**J**	0.052	0.0086	mg/Kg	☼	06/01/23 09:40	06/02/23 12:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability (SW846 1030)	**negative**				NONE			06/01/23 15:23	1
Percent Moisture (EPA Moisture)	**6.3**		0.1	0.1	%			06/01/23 11:46	1
Percent Solids (EPA Moisture)	**93.7**		0.1	0.1	%			06/01/23 11:46	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9045D)	**7.0**				SU			06/01/23 14:14	1
Temperature (SW846 9045D)	**28.5**				Degrees C			06/01/23 14:14	1
Specific Conductance (SM 2510B)	**200**		10	10	uS/cm			06/01/23 14:51	1

Method: Reactive Cyanide - SW846 9014/9034 Reactivity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Reactivity Cyanide	ND		5		mg/Kg		06/01/23 17:09	06/01/23 16:16	1

Method: Reactive Sulfide - SW846 9034 – Reactive Sulfide

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Reactivity Sulfide	ND		20		mg/Kg		06/01/23 00:00	06/01/23 17:09	1

Surrogate Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Method: 8260C - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		BFB	TOL	DCA	DBFM
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)	(70-130)
620-11778-1	LM-SO-SD01-053123	109	105	108	104
620-11778-2	LM-SO-SD02-053123	105	106	98	117
LCS 620-23152/1-A	Lab Control Sample	106	104	94	104
LCSD 620-23152/2-A	Lab Control Sample Dup	106	105	93	102
MB 620-23152/3-A	Method Blank	106	104	95	101

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		FBP	2FP	NBZ	PHL	TBP	TPHL
Lab Sample ID	Client Sample ID	(30-130)	(15-110)	(30-130)	(15-110)	(15-110)	(30-130)
620-11778-1	LM-SO-SD01-053123	51	52	44	50	50	49
620-11778-2	LM-SO-SD02-053123	77	80	71	76	79	70
LCS 620-23157/2-A	Lab Control Sample	84	90	87	86	97	82
LCSD 620-23157/3-A	Lab Control Sample Dup	77	71	78	71	99	86
MB 620-23157/1-A	Method Blank	80	93	81	86	83	81

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TBP = 2,4,6-Tribromophenol (Surr)
TPHL = Terphenyl-d14

Method: 8081B - Organochlorine Pesticides (GC/ECD)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TCX1	TCX2	DCB1	DCB2
Lab Sample ID	Client Sample ID	(30-150)	(30-150)	(30-150)	(30-150)
620-11778-1	LM-SO-SD01-053123	48	54	60	56
620-11778-2	LM-SO-SD02-053123	69	73	77	80
LCS 620-23137/2-A	Lab Control Sample	89	96	101	92
LCSD 620-23137/3-A	Lab Control Sample Dup	91	95	99	93
MB 620-23137/1-A	Method Blank	83	88	114	88

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

Surrogate Summary

Client: Nobis Engineering, Inc. Job ID: 620-11778-1
Project/Site: Former L&M - Lunenburg MA

Method: 8082 - Polychlorinated Biphenyls (GC/ECD)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TCX1	TCX2	DCB1	DCB2
Lab Sample ID	Client Sample ID	(30-150)	(30-150)	(30-150)	(30-150)
620-11778-1	LM-SO-SD01-053123	91	86	95	101
620-11778-2	LM-SO-SD02-053123	113	107	125	121
LCS 620-23137/4-A	Lab Control Sample	112	105	136	138
LCSD 620-23137/5-A	Lab Control Sample Dup	122	115	143	131
MB 620-23137/1-A	Method Blank	114	109	123	125

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

Method: 8100 - Polynuclear Aromatic Hydrocarbons (PAHs) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		1COD	OTPH
Lab Sample ID	Client Sample ID	(40-140)	(40-140)
620-11778-1	LM-SO-SD01-053123	78	57
620-11778-2	LM-SO-SD02-053123	98	65
LCS 620-23173/2-A	Lab Control Sample	63	67
LCSD 620-23173/3-A	Lab Control Sample Dup	62	62
MB 620-23173/1-A	Method Blank	79	56

Surrogate Legend

1COD = 1-Chlorooctadecane (Surr)
OTPH = o-Terphenyl (Surr)

Method: 8260C - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 620-23152/3-A
Matrix: Solid
Analysis Batch: 23153

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23152

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichlorotrifluoroethane (Freon 113)	ND		5.0	3.3	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Acetone	ND		50	11	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Acrylonitrile	ND		5.0	3.0	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Benzene	ND		5.0	3.3	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Bromobenzene	ND		5.0	3.3	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Bromochloromethane	ND		5.0	2.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Bromodichloromethane	ND		5.0	3.7	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Bromoform	ND		5.0	3.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Bromomethane	ND		10	6.2	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
2-Butanone (MEK)	ND		10	4.0	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
n-Butylbenzene	ND		10	5.4	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
sec-Butylbenzene	ND		5.0	4.0	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
tert-Butylbenzene	ND		5.0	3.9	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Carbon disulfide	ND		10	3.5	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Carbon tetrachloride	ND		5.0	3.2	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Chlorobenzene	ND		5.0	3.7	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Chloroethane	ND		10	3.7	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Chloroform	ND		5.0	3.4	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Chloromethane	ND		10	3.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
2-Chlorotoluene	ND		5.0	4.0	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
4-Chlorotoluene	ND		5.0	4.3	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,2-Dibromo-3-Chloropropane	ND		10	4.2	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Dibromochloromethane	ND		5.0	3.3	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,2-Dibromoethane (EDB)	ND		5.0	3.6	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Dibromomethane	ND		5.0	2.9	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,2-Dichlorobenzene	ND		5.0	4.6	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,3-Dichlorobenzene	ND		5.0	4.0	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,4-Dichlorobenzene	ND		5.0	4.7	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Dichlorodifluoromethane (Freon 12)	ND		10	2.7	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,1-Dichloroethane	ND		5.0	3.4	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,2-Dichloroethane	ND		5.0	3.4	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,1-Dichloroethene	ND		5.0	3.1	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
cis-1,2-Dichloroethene	ND		5.0	2.9	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
trans-1,2-Dichloroethene	ND		5.0	3.1	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,2-Dichloropropane	ND		5.0	3.3	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,3-Dichloropropane	ND		5.0	3.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
2,2-Dichloropropane	ND		5.0	3.5	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,1-Dichloropropene	ND		5.0	3.4	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
cis-1,3-Dichloropropene	ND		5.0	3.3	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
trans-1,3-Dichloropropene	ND		5.0	3.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Ethylbenzene	ND		5.0	3.6	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Hexachlorobutadiene	ND		10	5.0	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
2-Hexanone (MBK)	ND		10	2.9	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Isopropylbenzene	ND		5.0	3.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
4-Isopropyltoluene	ND		5.0	4.9	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Methyl tert-butyl ether	ND		5.0	2.9	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
4-Methyl-2-pentanone (MIBK)	ND		10	3.2	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Methylene Chloride	ND		10	2.7	ug/Kg		06/01/23 09:52	06/01/23 14:07	1

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 620-23152/3-A
Matrix: Solid
Analysis Batch: 23153

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23152

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		5.0	4.5	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
N-Propylbenzene	ND		5.0	4.2	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Styrene	ND		5.0	3.9	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,1,1,2-Tetrachloroethane	ND		5.0	3.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,1,2,2-Tetrachloroethane	ND		5.0	4.6	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Tetrachloroethene	ND		5.0	2.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Toluene	ND		5.0	3.2	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,2,3-Trichlorobenzene	ND		5.0	4.2	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,2,4-Trichlorobenzene	ND		5.0	4.6	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,3,5-Trichlorobenzene	ND		5.0	4.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,1,1-Trichloroethane	ND		5.0	3.4	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,1,2-Trichloroethane	ND		5.0	3.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Trichloroethene	ND		5.0	3.4	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Trichlorofluoromethane (Freon 11)	ND		5.0	3.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,2,3-Trichloropropane	ND		5.0	4.4	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,2,4-Trimethylbenzene	ND		5.0	4.2	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,3,5-Trimethylbenzene	ND		5.0	4.3	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Vinyl chloride	ND		5.0	3.1	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
m,p-Xylene	ND		5.0	6.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
o-Xylene	ND		5.0	3.7	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Tetrahydrofuran	ND		10	2.5	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Ethyl ether	ND		5.0	2.6	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Tert-amyl methyl ether	ND		5.0	4.0	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Ethyl tert-butyl ether	ND		5.0	3.3	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
di-Isopropyl ether	ND		5.0	3.6	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
tert-Butanol	ND		100	27	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,4-Dioxane	ND		100	31	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
trans-1,4-Dichloro-2-butene	ND		25	3.7	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Ethanol	ND		1000	62	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,3-Dichloropropene, Total	ND		5.0	3.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Xylenes, Total	ND		15	5.0	ug/Kg		06/01/23 09:52	06/01/23 14:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*	*06/01/23 09:52*	*06/01/23 14:07*	*1*
Toluene-d8 (Surr)	*104*		*70 - 130*	*06/01/23 09:52*	*06/01/23 14:07*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 130*	*06/01/23 09:52*	*06/01/23 14:07*	*1*
Dibromofluoromethane (Surr)	*101*		*70 - 130*	*06/01/23 09:52*	*06/01/23 14:07*	*1*

Lab Sample ID: LCS 620-23152/1-A
Matrix: Solid
Analysis Batch: 23153

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23152

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,2-Trichlorotrifluoroethane (Freon 113)	20.0	17.5		ug/Kg		87	70 - 130
Acetone	20.0	17.6	J	ug/Kg		88	70 - 130
Acrylonitrile	20.0	16.8		ug/Kg		84	70 - 130
Benzene	20.0	17.6		ug/Kg		88	70 - 130
Bromobenzene	20.0	16.2		ug/Kg		81	70 - 130

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 620-23152/1-A
Matrix: Solid
Analysis Batch: 23153

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23152

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bromochloromethane	20.0	18.3		ug/Kg		92	70 - 130
Bromodichloromethane	20.0	16.9		ug/Kg		85	70 - 130
Bromoform	20.0	15.7		ug/Kg		79	70 - 130
Bromomethane	20.0	26.9	*+	ug/Kg		135	70 - 130
2-Butanone (MEK)	20.0	17.1		ug/Kg		86	70 - 130
n-Butylbenzene	20.0	14.2		ug/Kg		71	70 - 130
sec-Butylbenzene	20.0	16.1		ug/Kg		80	70 - 130
tert-Butylbenzene	20.0	18.4		ug/Kg		92	70 - 130
Carbon disulfide	20.0	17.8		ug/Kg		89	70 - 130
Carbon tetrachloride	20.0	18.6		ug/Kg		93	70 - 130
Chlorobenzene	20.0	15.3		ug/Kg		76	70 - 130
Chloroethane	20.0	18.5		ug/Kg		93	70 - 130
Chloroform	20.0	17.2		ug/Kg		86	70 - 130
Chloromethane	20.0	22.5		ug/Kg		113	70 - 130
2-Chlorotoluene	20.0	16.2		ug/Kg		81	70 - 130
4-Chlorotoluene	20.0	15.5		ug/Kg		78	70 - 130
1,2-Dibromo-3-Chloropropane	20.0	14.9		ug/Kg		75	70 - 130
Dibromochloromethane	20.0	16.7		ug/Kg		84	70 - 130
1,2-Dibromoethane (EDB)	20.0	16.9		ug/Kg		85	70 - 130
Dibromomethane	20.0	17.0		ug/Kg		85	70 - 130
1,2-Dichlorobenzene	20.0	15.0		ug/Kg		75	70 - 130
1,3-Dichlorobenzene	20.0	16.6		ug/Kg		83	70 - 130
1,4-Dichlorobenzene	20.0	14.7		ug/Kg		74	70 - 130
Dichlorodifluoromethane (Freon 12)	20.0	26.7	*+	ug/Kg		134	70 - 130
1,1-Dichloroethane	20.0	17.5		ug/Kg		87	70 - 130
1,2-Dichloroethane	20.0	17.0		ug/Kg		85	70 - 130
1,1-Dichloroethene	20.0	18.1		ug/Kg		90	70 - 130
cis-1,2-Dichloroethene	20.0	17.8		ug/Kg		89	70 - 130
trans-1,2-Dichloroethene	20.0	18.1		ug/Kg		90	70 - 130
1,2-Dichloropropane	20.0	17.1		ug/Kg		85	70 - 130
1,3-Dichloropropane	20.0	16.7		ug/Kg		84	70 - 130
2,2-Dichloropropane	20.0	18.7		ug/Kg		94	70 - 130
1,1-Dichloropropene	20.0	18.0		ug/Kg		90	70 - 130
cis-1,3-Dichloropropene	20.0	17.0		ug/Kg		85	70 - 130
trans-1,3-Dichloropropene	20.0	16.9		ug/Kg		84	70 - 130
Ethylbenzene	20.0	15.0		ug/Kg		75	70 - 130
Hexachlorobutadiene	20.0	17.7		ug/Kg		89	70 - 130
2-Hexanone (MBK)	20.0	17.0		ug/Kg		85	70 - 130
Isopropylbenzene	20.0	15.8		ug/Kg		79	70 - 130
4-Isopropyltoluene	20.0	14.8		ug/Kg		74	70 - 130
Methyl tert-butyl ether	20.0	17.3		ug/Kg		86	70 - 130
4-Methyl-2-pentanone (MIBK)	20.0	16.8		ug/Kg		84	70 - 130
Methylene Chloride	20.0	16.4		ug/Kg		82	70 - 130
Naphthalene	20.0	17.3		ug/Kg		87	70 - 130
N-Propylbenzene	20.0	15.5		ug/Kg		77	70 - 130
Styrene	20.0	15.2		ug/Kg		76	70 - 130
1,1,1,2-Tetrachloroethane	20.0	15.5		ug/Kg		77	70 - 130
1,1,2,2-Tetrachloroethane	20.0	14.7		ug/Kg		73	70 - 130

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 620-23152/1-A
Matrix: Solid
Analysis Batch: 23153

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23152

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Tetrachloroethene	20.0	19.2		ug/Kg		96	70 - 130
Toluene	20.0	17.3		ug/Kg		87	70 - 130
1,2,3-Trichlorobenzene	20.0	18.7		ug/Kg		93	70 - 130
1,2,4-Trichlorobenzene	20.0	20.3		ug/Kg		102	70 - 130
1,3,5-Trichlorobenzene	20.0	17.2		ug/Kg		86	70 - 130
1,1,1-Trichloroethane	20.0	18.1		ug/Kg		91	70 - 130
1,1,2-Trichloroethane	20.0	16.6		ug/Kg		83	70 - 130
Trichloroethene	20.0	17.9		ug/Kg		90	70 - 130
Trichlorofluoromethane (Freon 11)	20.0	18.6		ug/Kg		93	70 - 130
1,2,3-Trichloropropane	20.0	15.1		ug/Kg		76	70 - 130
1,2,4-Trimethylbenzene	20.0	15.8		ug/Kg		79	70 - 130
1,3,5-Trimethylbenzene	20.0	15.7		ug/Kg		79	70 - 130
Vinyl chloride	20.0	19.6		ug/Kg		98	70 - 130
m,p-Xylene	20.0	15.5		ug/Kg		78	70 - 130
o-Xylene	20.0	15.3		ug/Kg		77	70 - 130
Tetrahydrofuran	20.0	14.6		ug/Kg		73	70 - 130
Ethyl ether	20.0	16.2		ug/Kg		81	70 - 130
Tert-amyl methyl ether	20.0	17.6		ug/Kg		88	70 - 130
Ethyl tert-butyl ether	20.0	17.3		ug/Kg		86	70 - 130
di-Isopropyl ether	20.0	17.2		ug/Kg		86	70 - 130
tert-Butanol	200	167		ug/Kg		83	70 - 130
1,4-Dioxane	200	171		ug/Kg		86	70 - 130
trans-1,4-Dichloro-2-butene	20.0	15.1	J	ug/Kg		76	70 - 130
Ethanol	400	311	J	ug/Kg		78	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*
Toluene-d8 (Surr)	*104*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 130*
Dibromofluoromethane (Surr)	*104*		*70 - 130*

Lab Sample ID: LCSD 620-23152/2-A
Matrix: Solid
Analysis Batch: 23153

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23152

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,2-Trichlorotrifluoroethane (Freon 113)	20.0	17.9		ug/Kg		90	70 - 130	2	30
Acetone	20.0	15.6	J	ug/Kg		78	70 - 130	12	30
Acrylonitrile	20.0	16.3		ug/Kg		81	70 - 130	3	30
Benzene	20.0	18.2		ug/Kg		91	70 - 130	3	30
Bromobenzene	20.0	16.9		ug/Kg		85	70 - 130	4	30
Bromochloromethane	20.0	19.0		ug/Kg		95	70 - 130	4	30
Bromodichloromethane	20.0	17.8		ug/Kg		89	70 - 130	5	30
Bromoform	20.0	16.7		ug/Kg		84	70 - 130	6	30
Bromomethane	20.0	26.0		ug/Kg		130	70 - 130	3	30
2-Butanone (MEK)	20.0	17.4		ug/Kg		87	70 - 130	2	30
n-Butylbenzene	20.0	15.1		ug/Kg		76	70 - 130	6	30

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 620-23152/2-A
Matrix: Solid
Analysis Batch: 23153

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23152

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
sec-Butylbenzene	20.0	16.9		ug/Kg		84	70 - 130	5	30
tert-Butylbenzene	20.0	19.4		ug/Kg		97	70 - 130	5	30
Carbon disulfide	20.0	17.7		ug/Kg		88	70 - 130	1	30
Carbon tetrachloride	20.0	18.8		ug/Kg		94	70 - 130	1	30
Chlorobenzene	20.0	16.1		ug/Kg		81	70 - 130	5	30
Chloroethane	20.0	18.6		ug/Kg		93	70 - 130	0	30
Chloroform	20.0	17.7		ug/Kg		89	70 - 130	3	30
Chloromethane	20.0	21.7		ug/Kg		109	70 - 130	4	30
2-Chlorotoluene	20.0	16.8		ug/Kg		84	70 - 130	4	30
4-Chlorotoluene	20.0	16.2		ug/Kg		81	70 - 130	4	30
1,2-Dibromo-3-Chloropropane	20.0	15.2		ug/Kg		76	70 - 130	2	30
Dibromochloromethane	20.0	17.9		ug/Kg		89	70 - 130	7	30
1,2-Dibromoethane (EDB)	20.0	18.4		ug/Kg		92	70 - 130	9	30
Dibromomethane	20.0	18.0		ug/Kg		90	70 - 130	6	30
1,2-Dichlorobenzene	20.0	15.6		ug/Kg		78	70 - 130	4	30
1,3-Dichlorobenzene	20.0	17.5		ug/Kg		88	70 - 130	6	30
1,4-Dichlorobenzene	20.0	15.6		ug/Kg		78	70 - 130	6	30
Dichlorodifluoromethane (Freon 12)	20.0	26.3	*+	ug/Kg		132	70 - 130	2	30
1,1-Dichloroethane	20.0	18.0		ug/Kg		90	70 - 130	3	30
1,2-Dichloroethane	20.0	18.0		ug/Kg		90	70 - 130	6	30
1,1-Dichloroethene	20.0	17.9		ug/Kg		89	70 - 130	1	30
cis-1,2-Dichloroethene	20.0	18.5		ug/Kg		92	70 - 130	4	30
trans-1,2-Dichloroethene	20.0	18.6		ug/Kg		93	70 - 130	3	30
1,2-Dichloropropane	20.0	17.9		ug/Kg		89	70 - 130	5	30
1,3-Dichloropropane	20.0	17.7		ug/Kg		88	70 - 130	6	30
2,2-Dichloropropane	20.0	18.9		ug/Kg		94	70 - 130	1	30
1,1-Dichloropropene	20.0	18.7		ug/Kg		93	70 - 130	4	30
cis-1,3-Dichloropropene	20.0	18.2		ug/Kg		91	70 - 130	7	30
trans-1,3-Dichloropropene	20.0	17.9		ug/Kg		89	70 - 130	6	30
Ethylbenzene	20.0	15.9		ug/Kg		79	70 - 130	6	30
Hexachlorobutadiene	20.0	18.9		ug/Kg		95	70 - 130	7	30
2-Hexanone (MBK)	20.0	17.2		ug/Kg		86	70 - 130	1	30
Isopropylbenzene	20.0	16.5		ug/Kg		83	70 - 130	4	30
4-Isopropyltoluene	20.0	15.6		ug/Kg		78	70 - 130	5	30
Methyl tert-butyl ether	20.0	18.4		ug/Kg		92	70 - 130	6	30
4-Methyl-2-pentanone (MIBK)	20.0	17.0		ug/Kg		85	70 - 130	1	30
Methylene Chloride	20.0	16.8		ug/Kg		84	70 - 130	3	30
Naphthalene	20.0	17.8		ug/Kg		89	70 - 130	3	30
N-Propylbenzene	20.0	16.2		ug/Kg		81	70 - 130	5	30
Styrene	20.0	15.8		ug/Kg		79	70 - 130	4	30
1,1,1,2-Tetrachloroethane	20.0	16.2		ug/Kg		81	70 - 130	5	30
1,1,2,2-Tetrachloroethane	20.0	15.5		ug/Kg		77	70 - 130	5	30
Tetrachloroethene	20.0	19.8		ug/Kg		99	70 - 130	3	30
Toluene	20.0	18.1		ug/Kg		91	70 - 130	4	30
1,2,3-Trichlorobenzene	20.0	19.3		ug/Kg		96	70 - 130	3	30
1,2,4-Trichlorobenzene	20.0	21.1		ug/Kg		106	70 - 130	4	30
1,3,5-Trichlorobenzene	20.0	18.2		ug/Kg		91	70 - 130	6	30
1,1,1-Trichloroethane	20.0	18.6		ug/Kg		93	70 - 130	3	30

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 620-23152/2-A
Matrix: Solid
Analysis Batch: 23153

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23152

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,2-Trichloroethane			20.0	17.5		ug/Kg		88	70 - 130	5	30
Trichloroethene			20.0	18.5		ug/Kg		92	70 - 130	3	30
Trichlorofluoromethane (Freon 11)			20.0	17.3		ug/Kg		86	70 - 130	8	30
1,2,3-Trichloropropane			20.0	15.3		ug/Kg		77	70 - 130	1	30
1,2,4-Trimethylbenzene			20.0	16.6		ug/Kg		83	70 - 130	5	30
1,3,5-Trimethylbenzene			20.0	16.5		ug/Kg		83	70 - 130	5	30
Vinyl chloride			20.0	19.2		ug/Kg		96	70 - 130	2	30
m,p-Xylene			20.0	16.2		ug/Kg		81	70 - 130	4	30
o-Xylene			20.0	16.2		ug/Kg		81	70 - 130	5	30
Tetrahydrofuran			20.0	15.8		ug/Kg		79	70 - 130	7	30
Ethyl ether			20.0	16.9		ug/Kg		85	70 - 130	4	30
Tert-amyl methyl ether			20.0	18.7		ug/Kg		94	70 - 130	6	30
Ethyl tert-butyl ether			20.0	18.0		ug/Kg		90	70 - 130	4	30
di-Isopropyl ether			20.0	17.9		ug/Kg		89	70 - 130	4	30
tert-Butanol			200	168		ug/Kg		84	70 - 130	1	30
1,4-Dioxane			200	189		ug/Kg		94	70 - 130	10	30
trans-1,4-Dichloro-2-butene			20.0	15.8	J	ug/Kg		79	70 - 130	4	30
Ethanol			400	275	J *-	ug/Kg		69	70 - 130	12	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*
Toluene-d8 (Surr)	*105*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 130*
Dibromofluoromethane (Surr)	*102*		*70 - 130*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 620-23157/1-A
Matrix: Solid
Analysis Batch: 23208

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23157

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	ND		330	59	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
1,2,4-Trichlorobenzene	ND		330	76	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
1,2-Dichlorobenzene	ND		330	64	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
1,3-Dichlorobenzene	ND		330	80	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
1,4-Dichlorobenzene	ND		330	78	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
1-Methylnaphthalene	ND		67	56	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
2,4,5-Trichlorophenol	ND		330	38	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
2,4,6-Trichlorophenol	ND		170	41	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
2,4-Dichlorophenol	ND		170	67	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
2,4-Dimethylphenol	ND		330	48	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
2,4-Dinitrophenol	ND		330	87	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
2,4-Dinitrotoluene	ND		170	39	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
2,6-Dinitrotoluene	ND		170	39	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
2-Chloronaphthalene	ND		330	76	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
2-Chlorophenol	ND		170	68	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
2-Methylnaphthalene	ND		67	49	ug/Kg		06/01/23 10:46	06/02/23 14:03	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 620-23157/1-A
Matrix: Solid
Analysis Batch: 23208

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23157

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		330	48	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
2-Nitroaniline	ND		330	31	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
2-Nitrophenol	ND		170	59	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
3 & 4 Methylphenol	ND		330	63	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
3,3'-Dichlorobenzidine	ND		330	55	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
3-Nitroaniline	ND		330	30	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
4,6-Dinitro-2-methylphenol	ND		330	59	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
4-Bromophenyl phenyl ether	ND		330	37	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
4-Chloro-3-methylphenol	ND		330	65	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
4-Chloroaniline	ND		170	25	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
4-Chlorophenyl phenyl ether	ND		330	35	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
4-Nitroaniline	ND		170	53	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
4-Nitrophenol	ND		330	120	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Acenaphthene	ND		67	53	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Acenaphthylene	ND		67	44	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Acetophenone	ND		170	41	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Aniline	ND		330	25	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Anthracene	ND		67	39	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Azobenzene/Diphenyldiazene	ND		330	56	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Benzidine	ND		660	98	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Benzo[a]anthracene	ND		67	38	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Benzo[a]pyrene	ND		67	48	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Benzo[b]fluoranthene	ND		67	55	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Benzo[g,h,i]perylene	ND		67	52	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Benzo[k]fluoranthene	ND		67	52	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Benzoic acid	ND		330	230	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Benzyl alcohol	ND		330	60	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Bis(2-chloroethoxy)methane	ND		330	57	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Bis(2-chloroethyl)ether	ND		170	55	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
bis (2-chloroisopropyl) ether	ND		170	74	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Bis(2-ethylhexyl) phthalate	ND		170	43	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Butyl benzyl phthalate	ND		330	33	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Carbazole	ND		170	44	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Chrysene	ND		67	38	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Dibenz(a,h)anthracene	ND		67	51	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Dibenzofuran	ND		170	58	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Diethyl phthalate	ND		330	36	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Dimethyl phthalate	ND		330	43	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Di-n-butyl phthalate	ND		330	35	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Di-n-octyl phthalate	ND		330	55	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Fluoranthene	ND		67	39	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Fluorene	ND		67	61	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Hexachlorobenzene	ND		170	46	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Hexachlorobutadiene	ND		170	83	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Hexachlorocyclopentadiene	ND		170	64	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Hexachloroethane	ND		170	66	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Indeno[1,2,3-cd]pyrene	ND		67	57	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Isophorone	ND		170	46	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Naphthalene	ND		67	64	ug/Kg		06/01/23 10:46	06/02/23 14:03	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 620-23157/1-A
Matrix: Solid
Analysis Batch: 23208

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23157

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrobenzene	ND		170	77	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
N-Nitrosodimethylamine	ND		170	44	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
N-Nitrosodi-n-propylamine	ND		170	67	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
N-Nitrosodiphenylamine	ND		330	42	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Pentachloronitrobenzene	ND		330	52	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Pentachlorophenol	ND		330	140	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Phenanthrene	ND		67	38	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Phenol	ND		330	68	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Pyrene	ND		67	37	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Pyridine	ND		330	78	ug/Kg		06/01/23 10:46	06/02/23 14:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*80*		*30 - 130*	*06/01/23 10:46*	*06/02/23 14:03*	*1*
2-Fluorophenol (Surr)	*93*		*15 - 110*	*06/01/23 10:46*	*06/02/23 14:03*	*1*
Nitrobenzene-d5 (Surr)	*81*		*30 - 130*	*06/01/23 10:46*	*06/02/23 14:03*	*1*
Phenol-d5 (Surr)	*86*		*15 - 110*	*06/01/23 10:46*	*06/02/23 14:03*	*1*
2,4,6-Tribromophenol (Surr)	*83*		*15 - 110*	*06/01/23 10:46*	*06/02/23 14:03*	*1*
Terphenyl-d14	*81*		*30 - 130*	*06/01/23 10:46*	*06/02/23 14:03*	*1*

Lab Sample ID: LCS 620-23157/2-A
Matrix: Solid
Analysis Batch: 23208

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23157

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2,4,5-Tetrachlorobenzene	1670	1370		ug/Kg		82	40 - 140
1,2,4-Trichlorobenzene	1670	2120		ug/Kg		127	40 - 140
1,2-Dichlorobenzene	1670	1970		ug/Kg		118	40 - 140
1,3-Dichlorobenzene	1670	1980		ug/Kg		119	40 - 140
1,4-Dichlorobenzene	1670	1990		ug/Kg		119	40 - 140
1-Methylnaphthalene	1670	1380		ug/Kg		83	40 - 140
2,4,5-Trichlorophenol	1670	1340		ug/Kg		80	30 - 130
2,4,6-Trichlorophenol	1670	1350		ug/Kg		81	30 - 130
2,4-Dichlorophenol	1670	1300		ug/Kg		78	30 - 130
2,4-Dimethylphenol	1670	1210		ug/Kg		73	30 - 130
2,4-Dinitrophenol	1670	1090		ug/Kg		65	30 - 130
2,4-Dinitrotoluene	1670	2290		ug/Kg		137	40 - 140
2,6-Dinitrotoluene	1670	2260		ug/Kg		136	40 - 140
2-Chloronaphthalene	1670	2210		ug/Kg		133	40 - 140
2-Chlorophenol	1670	1270		ug/Kg		76	30 - 130
2-Methylnaphthalene	1670	2280		ug/Kg		137	40 - 140
2-Methylphenol	1670	1230		ug/Kg		74	30 - 130
2-Nitroaniline	1670	1430		ug/Kg		86	40 - 140
2-Nitrophenol	1670	1300		ug/Kg		78	30 - 130
3 & 4 Methylphenol	1670	1280		ug/Kg		77	30 - 130
3,3'-Dichlorobenzidine	1670	1960		ug/Kg		118	40 - 140
3-Nitroaniline	1670	1100		ug/Kg		66	40 - 140
4,6-Dinitro-2-methylphenol	1670	1180		ug/Kg		71	30 - 130
4-Bromophenyl phenyl ether	1670	786		ug/Kg		47	40 - 140

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 620-23157/2-A
Matrix: Solid
Analysis Batch: 23208

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23157

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
4-Chloro-3-methylphenol	1670	1330		ug/Kg		80	30 - 130
4-Chloroaniline	1670	875		ug/Kg		53	40 - 140
4-Chlorophenyl phenyl ether	1670	791		ug/Kg		47	40 - 140
4-Nitroaniline	1670	1510		ug/Kg		91	40 - 140
4-Nitrophenol	1670	1430		ug/Kg		86	30 - 130
Acenaphthene	1670	1350		ug/Kg		81	40 - 140
Acenaphthylene	1670	1320		ug/Kg		79	40 - 140
Acetophenone	1670	1300		ug/Kg		78	40 - 140
Aniline	1670	1060		ug/Kg		64	40 - 140
Anthracene	1670	1560		ug/Kg		93	40 - 140
Azobenzene/Diphenyldiazene	1670	1260		ug/Kg		76	40 - 140
Benzidine	1670	1440		ug/Kg		86	40 - 140
Benzo[a]anthracene	1670	1590		ug/Kg		96	40 - 140
Benzo[a]pyrene	1670	1530		ug/Kg		92	40 - 140
Benzo[b]fluoranthene	1670	1480		ug/Kg		89	40 - 140
Benzo[g,h,i]perylene	1670	1560		ug/Kg		93	40 - 140
Benzo[k]fluoranthene	1670	1410		ug/Kg		84	40 - 140
Benzoic acid	1670	495		ug/Kg		30	30 - 130
Benzyl alcohol	1670	1770		ug/Kg		106	40 - 140
Bis(2-chloroethoxy)methane	1670	673		ug/Kg		40	40 - 140
Bis(2-chloroethyl)ether	1670	691		ug/Kg		41	40 - 140
bis (2-chloroisopropyl) ether	1670	626	*-	ug/Kg		38	40 - 140
Bis(2-ethylhexyl) phthalate	1670	857		ug/Kg		51	40 - 140
Butyl benzyl phthalate	1670	846		ug/Kg		51	40 - 140
Carbazole	1670	1480		ug/Kg		89	40 - 140
Chrysene	1670	1540		ug/Kg		92	40 - 140
Dibenz(a,h)anthracene	1670	1570		ug/Kg		94	40 - 140
Dibenzofuran	1670	2240		ug/Kg		134	40 - 140
Diethyl phthalate	1670	795		ug/Kg		48	40 - 140
Dimethyl phthalate	1670	787		ug/Kg		47	40 - 140
Di-n-butyl phthalate	1670	856		ug/Kg		51	40 - 140
Di-n-octyl phthalate	1670	858		ug/Kg		51	40 - 140
Fluoranthene	1670	1530		ug/Kg		92	40 - 140
Fluorene	1670	1450		ug/Kg		87	40 - 140
Hexachlorobenzene	1670	2310		ug/Kg		139	40 - 140
Hexachlorobutadiene	1670	1890		ug/Kg		113	40 - 140
Hexachlorocyclopentadiene	1670	2380	*+	ug/Kg		143	40 - 140
Hexachloroethane	1670	1950		ug/Kg		117	40 - 140
Indeno[1,2,3-cd]pyrene	1670	1550		ug/Kg		93	40 - 140
Isophorone	1670	1820		ug/Kg		109	40 - 140
Naphthalene	1670	1380		ug/Kg		83	40 - 140
Nitrobenzene	1670	2150		ug/Kg		129	40 - 140
N-Nitrosodimethylamine	1670	607	*-	ug/Kg		36	40 - 140
N-Nitrosodi-n-propylamine	1670	732		ug/Kg		44	40 - 140
N-Nitrosodiphenylamine	1670	888		ug/Kg		53	40 - 140
Pentachloronitrobenzene	1670	1540		ug/Kg		92	40 - 140
Pentachlorophenol	1670	1170		ug/Kg		70	30 - 130
Phenanthrene	1670	1460		ug/Kg		87	40 - 140
Phenol	1670	1260		ug/Kg		76	40 - 140

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 620-23157/2-A
Matrix: Solid
Analysis Batch: 23208

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23157

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Pyrene			1670	1600		ug/Kg		96	40 - 140		
Pyridine			1670	861		ug/Kg		52	40 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*84*		*30 - 130*
2-Fluorophenol (Surr)	*90*		*15 - 110*
Nitrobenzene-d5 (Surr)	*87*		*30 - 130*
Phenol-d5 (Surr)	*86*		*15 - 110*
2,4,6-Tribromophenol (Surr)	*97*		*15 - 110*
Terphenyl-d14	*82*		*30 - 130*

Lab Sample ID: LCSD 620-23157/3-A
Matrix: Solid
Analysis Batch: 23208

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23157

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2,4,5-Tetrachlorobenzene			1670	1200		ug/Kg		72	40 - 140	13	30
1,2,4-Trichlorobenzene			1670	1790		ug/Kg		108	40 - 140	17	30
1,2-Dichlorobenzene			1670	1690		ug/Kg		102	40 - 140	15	30
1,3-Dichlorobenzene			1670	1660		ug/Kg		100	40 - 140	17	30
1,4-Dichlorobenzene			1670	1690		ug/Kg		101	40 - 140	16	30
1-Methylnaphthalene			1670	1230		ug/Kg		74	40 - 140	12	30
2,4,5-Trichlorophenol			1670	1330		ug/Kg		80	30 - 130	0	30
2,4,6-Trichlorophenol			1670	1330		ug/Kg		80	30 - 130	1	30
2,4-Dichlorophenol			1670	1240		ug/Kg		74	30 - 130	5	30
2,4-Dimethylphenol			1670	1070		ug/Kg		64	30 - 130	12	30
2,4-Dinitrophenol			1670	1120		ug/Kg		67	30 - 130	3	30
2,4-Dinitrotoluene			1670	2050		ug/Kg		123	40 - 140	11	30
2,6-Dinitrotoluene			1670	2280		ug/Kg		137	40 - 140	1	30
2-Chloronaphthalene			1670	1980		ug/Kg		119	40 - 140	11	30
2-Chlorophenol			1670	1050		ug/Kg		63	30 - 130	19	30
2-Methylnaphthalene			1670	1990		ug/Kg		119	40 - 140	14	30
2-Methylphenol			1670	1090		ug/Kg		66	30 - 130	12	30
2-Nitroaniline			1670	1430		ug/Kg		86	40 - 140	0	30
2-Nitrophenol			1670	1120		ug/Kg		67	30 - 130	15	30
3 & 4 Methylphenol			1670	1160		ug/Kg		70	30 - 130	10	30
3,3'-Dichlorobenzidine			1670	2240		ug/Kg		134	40 - 140	13	30
3-Nitroaniline			1670	1220		ug/Kg		73	40 - 140	11	30
4,6-Dinitro-2-methylphenol			1670	1210		ug/Kg		73	30 - 130	3	30
4-Bromophenyl phenyl ether			1670	800		ug/Kg		48	40 - 140	2	30
4-Chloro-3-methylphenol			1670	1270		ug/Kg		76	30 - 130	5	30
4-Chloroaniline			1670	1030		ug/Kg		62	40 - 140	16	30
4-Chlorophenyl phenyl ether			1670	668		ug/Kg		40	40 - 140	17	30
4-Nitroaniline			1670	1390		ug/Kg		83	40 - 140	8	30
4-Nitrophenol			1670	1340		ug/Kg		80	30 - 130	7	30
Acenaphthene			1670	1290		ug/Kg		77	40 - 140	5	30
Acenaphthylene			1670	1230		ug/Kg		74	40 - 140	7	30
Acetophenone			1670	1160		ug/Kg		69	40 - 140	12	30

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 620-23157/3-A
Matrix: Solid
Analysis Batch: 23208

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23157

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Aniline			1670	972		ug/Kg		58	40 - 140	9	30
Anthracene			1670	1600		ug/Kg		96	40 - 140	3	30
Azobenzene/Diphenyldiazene			1670	1260		ug/Kg		76	40 - 140	0	30
Benzidine			1670	NQ	E	ug/Kg		NaN	40 - 140	NaN	30
Benzo[a]anthracene			1670	1700		ug/Kg		102	40 - 140	6	30
Benzo[a]pyrene			1670	1600		ug/Kg		96	40 - 140	4	30
Benzo[b]fluoranthene			1670	1530		ug/Kg		92	40 - 140	3	30
Benzo[g,h,i]perylene			1670	1670		ug/Kg		100	40 - 140	7	30
Benzo[k]fluoranthene			1670	1500		ug/Kg		90	40 - 140	6	30
Benzoic acid			1670	651		ug/Kg		39	30 - 130	27	30
Benzyl alcohol			1670	1570		ug/Kg		94	40 - 140	12	30
Bis(2-chloroethoxy)methane			1670	611	*-	ug/Kg		37	40 - 140	10	30
Bis(2-chloroethyl)ether			1670	565	*-	ug/Kg		34	40 - 140	20	30
bis (2-chloroisopropyl) ether			1670	525	*-	ug/Kg		32	40 - 140	17	30
Bis(2-ethylhexyl) phthalate			1670	898		ug/Kg		54	40 - 140	5	30
Butyl benzyl phthalate			1670	895		ug/Kg		54	40 - 140	6	30
Carbazole			1670	1580		ug/Kg		95	40 - 140	6	30
Chrysene			1670	1610		ug/Kg		97	40 - 140	5	30
Dibenz(a,h)anthracene			1670	1670		ug/Kg		100	40 - 140	6	30
Dibenzofuran			1670	1910		ug/Kg		115	40 - 140	16	30
Diethyl phthalate			1670	702		ug/Kg		42	40 - 140	12	30
Dimethyl phthalate			1670	811		ug/Kg		49	40 - 140	3	30
Di-n-butyl phthalate			1670	909		ug/Kg		55	40 - 140	6	30
Di-n-octyl phthalate			1670	901		ug/Kg		54	40 - 140	5	30
Fluoranthene			1670	1620		ug/Kg		97	40 - 140	6	30
Fluorene			1670	1240		ug/Kg		74	40 - 140	16	30
Hexachlorobenzene			1670	2400	*+	ug/Kg		144	40 - 140	4	30
Hexachlorobutadiene			1670	1700		ug/Kg		102	40 - 140	10	30
Hexachlorocyclopentadiene			1670	2030		ug/Kg		122	40 - 140	15	30
Hexachloroethane			1670	1670		ug/Kg		100	40 - 140	16	30
Indeno[1,2,3-cd]pyrene			1670	1650		ug/Kg		99	40 - 140	6	30
Isophorone			1670	1570		ug/Kg		94	40 - 140	14	30
Naphthalene			1670	1190		ug/Kg		71	40 - 140	15	30
Nitrobenzene			1670	1930		ug/Kg		116	40 - 140	11	30
N-Nitrosodimethylamine			1670	441	*- *1	ug/Kg		26	40 - 140	32	30
N-Nitrosodi-n-propylamine			1670	643	*-	ug/Kg		39	40 - 140	13	30
N-Nitrosodiphenylamine			1670	909		ug/Kg		55	40 - 140	2	30
Pentachloronitrobenzene			1670	1610		ug/Kg		96	40 - 140	4	30
Pentachlorophenol			1670	1250		ug/Kg		75	30 - 130	6	30
Phenanthrene			1670	1490		ug/Kg		89	40 - 140	2	30
Phenol			1670	1060		ug/Kg		64	40 - 140	17	30
Pyrene			1670	1640		ug/Kg		99	40 - 140	3	30
Pyridine			1670	697		ug/Kg		42	40 - 140	21	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*77*		*30 - 130*
2-Fluorophenol (Surr)	*71*		*15 - 110*
Nitrobenzene-d5 (Surr)	*78*		*30 - 130*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 620-23157/3-A
Matrix: Solid
Analysis Batch: 23208

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23157

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Phenol-d5 (Surr)	*71*		*15 - 110*
2,4,6-Tribromophenol (Surr)	*99*		*15 - 110*
Terphenyl-d14	*86*		*30 - 130*

Method: 8081B - Organochlorine Pesticides (GC/ECD)

Lab Sample ID: MB 620-23137/1-A
Matrix: Solid
Analysis Batch: 23216

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23137

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		5.0	1.1	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
beta-BHC	ND		5.0	0.89	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
delta-BHC	ND		5.0	1.0	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
gamma-BHC (Lindane)	ND		2.0	1.0	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Heptachlor	ND		5.0	1.0	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Aldrin	ND		5.0	0.98	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Heptachlor epoxide	ND		5.0	1.2	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Endosulfan I	ND		5.0	1.3	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Dieldrin	ND		5.0	1.0	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
4,4'-DDE	ND		8.0	1.2	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Endrin	ND		8.0	1.6	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Endosulfan II	ND		8.0	1.3	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
4,4'-DDD	ND		8.0	1.5	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Endosulfan sulfate	ND		8.0	1.5	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
4,4'-DDT	ND		8.0	0.80	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Methoxychlor	ND		8.0	1.4	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Endrin ketone	ND		8.0	1.1	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Endrin aldehyde	ND		8.0	1.6	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
cis-Chlordane	ND		5.0	1.2	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
trans-Chlordane	ND		5.0	1.2	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Toxaphene	ND		100	71	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Alachlor	ND		5.0	1.1	ug/Kg		06/01/23 09:22	06/02/23 17:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*83*		*30 - 150*	*06/01/23 09:22*	*06/02/23 17:23*	*1*
Tetrachloro-m-xylene	*88*		*30 - 150*	*06/01/23 09:22*	*06/02/23 17:23*	*1*
DCB Decachlorobiphenyl (Surr)	*114*		*30 - 150*	*06/01/23 09:22*	*06/02/23 17:23*	*1*
DCB Decachlorobiphenyl (Surr)	*88*		*30 - 150*	*06/01/23 09:22*	*06/02/23 17:23*	*1*

Lab Sample ID: LCS 620-23137/2-A
Matrix: Solid
Analysis Batch: 23216

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23137

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
alpha-BHC	13.4	10.5		ug/Kg		78	40 - 140
alpha-BHC	13.4	11.1		ug/Kg		83	40 - 140
beta-BHC	13.3	10.8		ug/Kg		81	40 - 140

Method: 8081B - Organochlorine Pesticides (GC/ECD) (Continued)

Lab Sample ID: LCS 620-23137/2-A
Matrix: Solid
Analysis Batch: 23216

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23137

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
beta-BHC	13.3	11.8		ug/Kg		88	40 - 140
delta-BHC	13.4	8.01		ug/Kg		60	40 - 140
delta-BHC	13.4	8.99		ug/Kg		67	40 - 140
gamma-BHC (Lindane)	13.5	10.3		ug/Kg		77	40 - 140
gamma-BHC (Lindane)	13.5	10.9		ug/Kg		81	40 - 140
Heptachlor	13.4	10.6		ug/Kg		80	40 - 140
Heptachlor	13.4	11.2		ug/Kg		84	40 - 140
Aldrin	13.4	9.69		ug/Kg		73	40 - 140
Aldrin	13.4	10.5		ug/Kg		79	40 - 140
Heptachlor epoxide	13.3	9.64		ug/Kg		72	40 - 140
Heptachlor epoxide	13.3	10.1		ug/Kg		76	40 - 140
Endosulfan I	13.3	10.6		ug/Kg		79	40 - 140
Endosulfan I	13.3	10.4		ug/Kg		78	40 - 140
Dieldrin	13.4	10.3		ug/Kg		77	40 - 140
Dieldrin	13.4	10.5		ug/Kg		79	40 - 140
4,4'-DDE	13.4	10.0		ug/Kg		75	40 - 140
4,4'-DDE	13.4	10.8		ug/Kg		80	40 - 140
Endrin	13.4	12.3		ug/Kg		92	40 - 140
Endrin	13.4	11.7		ug/Kg		88	40 - 140
Endosulfan II	13.3	10.5		ug/Kg		79	40 - 140
Endosulfan II	13.3	10.9		ug/Kg		82	40 - 140
4,4'-DDD	13.4	10.1		ug/Kg		76	40 - 140
4,4'-DDD	13.4	10.9		ug/Kg		81	40 - 140
Endosulfan sulfate	13.4	10.7		ug/Kg		79	40 - 140
Endosulfan sulfate	13.4	10.9		ug/Kg		81	40 - 140
4,4'-DDT	13.5	12.4		ug/Kg		92	40 - 140
4,4'-DDT	13.5	13.0		ug/Kg		97	40 - 140
Methoxychlor	13.3	12.6		ug/Kg		94	40 - 140
Methoxychlor	13.3	13.4		ug/Kg		101	40 - 140
Endrin ketone	13.4	10.2		ug/Kg		76	40 - 140
Endrin ketone	13.4	11.3		ug/Kg		84	40 - 140
Endrin aldehyde	13.4	8.46		ug/Kg		63	40 - 140
Endrin aldehyde	13.4	9.24		ug/Kg		69	40 - 140
cis-Chlordane	13.4	10.1		ug/Kg		75	40 - 140
cis-Chlordane	13.4	10.1		ug/Kg		75	40 - 140
trans-Chlordane	13.4	9.91		ug/Kg		74	40 - 140
trans-Chlordane	13.4	10.3		ug/Kg		77	40 - 140
Alachlor	13.4	11.2		ug/Kg		84	40 - 140
Alachlor	13.4	12.4		ug/Kg		93	40 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*89*		*30 - 150*
Tetrachloro-m-xylene	*96*		*30 - 150*
DCB Decachlorobiphenyl (Surr)	*101*		*30 - 150*
DCB Decachlorobiphenyl (Surr)	*92*		*30 - 150*

Method: 8081B - Organochlorine Pesticides (GC/ECD) (Continued)

Lab Sample ID: LCSD 620-23137/3-A
Matrix: Solid
Analysis Batch: 23216

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23137

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
alpha-BHC			13.4	10.7		ug/Kg		80	40 - 140	3	30
alpha-BHC			13.4	11.4		ug/Kg		85	40 - 140	3	30
beta-BHC			13.3	11.1		ug/Kg		83	40 - 140	3	30
beta-BHC			13.3	12.2		ug/Kg		92	40 - 140	4	30
delta-BHC			13.4	8.26		ug/Kg		62	40 - 140	3	30
delta-BHC			13.4	10.3		ug/Kg		77	40 - 140	14	30
gamma-BHC (Lindane)			13.5	10.6		ug/Kg		79	40 - 140	3	30
gamma-BHC (Lindane)			13.5	11.3		ug/Kg		84	40 - 140	3	30
Heptachlor			13.4	11.0		ug/Kg		82	40 - 140	3	30
Heptachlor			13.4	11.4		ug/Kg		85	40 - 140	1	30
Aldrin			13.4	9.91		ug/Kg		74	40 - 140	2	30
Aldrin			13.4	10.5		ug/Kg		79	40 - 140	0	30
Heptachlor epoxide			13.3	9.84		ug/Kg		74	40 - 140	2	30
Heptachlor epoxide			13.3	10.3		ug/Kg		77	40 - 140	2	30
Endosulfan I			13.3	10.7		ug/Kg		80	40 - 140	1	30
Endosulfan I			13.3	10.7		ug/Kg		80	40 - 140	3	30
Dieldrin			13.4	10.3		ug/Kg		77	40 - 140	0	30
Dieldrin			13.4	10.5		ug/Kg		79	40 - 140	0	30
4,4'-DDE			13.4	10.1		ug/Kg		75	40 - 140	1	30
4,4'-DDE			13.4	10.9		ug/Kg		81	40 - 140	1	30
Endrin			13.4	12.1		ug/Kg		91	40 - 140	1	30
Endrin			13.4	11.6		ug/Kg		87	40 - 140	1	30
Endosulfan II			13.3	10.5		ug/Kg		79	40 - 140	0	30
Endosulfan II			13.3	11.0		ug/Kg		82	40 - 140	1	30
4,4'-DDD			13.4	10.2		ug/Kg		76	40 - 140	1	30
4,4'-DDD			13.4	11.0		ug/Kg		82	40 - 140	1	30
Endosulfan sulfate			13.4	10.9		ug/Kg		81	40 - 140	2	30
Endosulfan sulfate			13.4	11.1		ug/Kg		82	40 - 140	1	30
4,4'-DDT			13.5	12.6		ug/Kg		93	40 - 140	1	30
4,4'-DDT			13.5	13.0		ug/Kg		96	40 - 140	0	30
Methoxychlor			13.3	12.7		ug/Kg		95	40 - 140	1	30
Methoxychlor			13.3	13.7		ug/Kg		103	40 - 140	2	30
Endrin ketone			13.4	10.5		ug/Kg		78	40 - 140	3	30
Endrin ketone			13.4	11.5		ug/Kg		86	40 - 140	2	30
Endrin aldehyde			13.4	8.68		ug/Kg		65	40 - 140	3	30
Endrin aldehyde			13.4	9.40		ug/Kg		70	40 - 140	2	30
cis-Chlordane			13.4	10.2		ug/Kg		76	40 - 140	1	30
cis-Chlordane			13.4	10.3		ug/Kg		77	40 - 140	2	30
trans-Chlordane			13.4	10.1		ug/Kg		75	40 - 140	2	30
trans-Chlordane			13.4	10.5		ug/Kg		79	40 - 140	2	30
Alachlor			13.4	11.7		ug/Kg		87	40 - 140	4	30
Alachlor			13.4	12.1		ug/Kg		91	40 - 140	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*91*		*30 - 150*
Tetrachloro-m-xylene	*95*		*30 - 150*
DCB Decachlorobiphenyl (Surr)	*99*		*30 - 150*
DCB Decachlorobiphenyl (Surr)	*93*		*30 - 150*

Method: 8082 - Polychlorinated Biphenyls (GC/ECD)

Lab Sample ID: MB 620-23137/1-A
Matrix: Solid
Analysis Batch: 23154

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23137

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		20	14	ug/Kg		06/01/23 09:22	06/01/23 15:31	1
PCB-1221	ND		20	5.9	ug/Kg		06/01/23 09:22	06/01/23 15:31	1
PCB-1232	ND		20	5.5	ug/Kg		06/01/23 09:22	06/01/23 15:31	1
PCB-1242	ND		20	3.2	ug/Kg		06/01/23 09:22	06/01/23 15:31	1
PCB-1248	ND		20	6.3	ug/Kg		06/01/23 09:22	06/01/23 15:31	1
PCB-1254	ND		20	16	ug/Kg		06/01/23 09:22	06/01/23 15:31	1
PCB-1262	ND		20	4.7	ug/Kg		06/01/23 09:22	06/01/23 15:31	1
PCB-1260	ND		20	4.3	ug/Kg		06/01/23 09:22	06/01/23 15:31	1
PCB-1268	ND		20	4.3	ug/Kg		06/01/23 09:22	06/01/23 15:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*114*		*30 - 150*	*06/01/23 09:22*	*06/01/23 15:31*	*1*
Tetrachloro-m-xylene	*109*		*30 - 150*	*06/01/23 09:22*	*06/01/23 15:31*	*1*
DCB Decachlorobiphenyl (Surr)	*123*		*30 - 150*	*06/01/23 09:22*	*06/01/23 15:31*	*1*
DCB Decachlorobiphenyl (Surr)	*125*		*30 - 150*	*06/01/23 09:22*	*06/01/23 15:31*	*1*

Lab Sample ID: LCS 620-23137/4-A
Matrix: Solid
Analysis Batch: 23154

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23137

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
PCB-1016			167	186		ug/Kg		111	40 - 140		
PCB-1016			167	168		ug/Kg		101	40 - 140		
PCB-1260			167	208		ug/Kg		125	40 - 140		
PCB-1260			167	219		ug/Kg		132	40 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*112*		*30 - 150*
Tetrachloro-m-xylene	*105*		*30 - 150*
DCB Decachlorobiphenyl (Surr)	*136*		*30 - 150*
DCB Decachlorobiphenyl (Surr)	*138*		*30 - 150*

Lab Sample ID: LCSD 620-23137/5-A
Matrix: Solid
Analysis Batch: 23154

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23137

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
PCB-1016			167	213		ug/Kg		128	40 - 140	14	30
PCB-1016			167	221		ug/Kg		133	40 - 140	28	30
PCB-1260			167	227		ug/Kg		136	40 - 140	8	30
PCB-1260			167	226		ug/Kg		136	40 - 140	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*122*		*30 - 150*
Tetrachloro-m-xylene	*115*		*30 - 150*
DCB Decachlorobiphenyl (Surr)	*143*		*30 - 150*
DCB Decachlorobiphenyl (Surr)	*131*		*30 - 150*

Method: 8100 - Polynuclear Aromatic Hydrocarbons (PAHs) (GC)

Lab Sample ID: MB 620-23173/1-A
Matrix: Solid
Analysis Batch: 23204

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23173

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TEPH (C9-C36)	ND		13	11	mg/Kg		06/01/23 14:23	06/02/23 13:13	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*79*		*40 - 140*	*06/01/23 14:23*	*06/02/23 13:13*	*1*
o-Terphenyl (Surr)	*56*		*40 - 140*	*06/01/23 14:23*	*06/02/23 13:13*	*1*

Lab Sample ID: LCS 620-23173/2-A
Matrix: Solid
Analysis Batch: 23204

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23173

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
TEPH (C9-C36)			340	247		mg/Kg		73	20 - 106		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*63*		*40 - 140*
o-Terphenyl (Surr)	*67*		*40 - 140*

Lab Sample ID: LCSD 620-23173/3-A
Matrix: Solid
Analysis Batch: 23204

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23173

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
TEPH (C9-C36)			340	236		mg/Kg		69	20 - 106	4	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*62*		*40 - 140*
o-Terphenyl (Surr)	*62*		*40 - 140*

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 620-23122/1-A
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23122

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.7	0.22	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Barium	ND		1.1	0.13	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Cadmium	ND		0.57	0.030	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Chromium	ND		1.1	0.15	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Lead	ND		1.7	0.24	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Selenium	ND		1.7	0.33	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Silver	ND		1.7	0.19	mg/Kg		05/31/23 14:15	06/01/23 11:12	1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCDSRM 620-23122/3-A
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23122

Analyte	Spike Added	LCDSRM Result	LCDSRM Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	195	160		mg/Kg		82.2	65.6 - 122.1	4	20
Barium	321	286		mg/Kg		89.0	69.5 - 115.9	0	20
Cadmium	247	170		mg/Kg		68.8	67.2 - 111.7	9	20
Chromium	217	182		mg/Kg		84.0	64.5 - 119.8	5	20
Lead	270	216		mg/Kg		80.0	70.4 - 120.0	4	20
Selenium	241	183		mg/Kg		75.8	62.2 - 118.3	6	20
Silver	72.0	64.6		mg/Kg		89.7	66.5 - 121.7	8	20

Lab Sample ID: LCSSRM 620-23122/2-A
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23122

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	195	167		mg/Kg		85.4	65.6 - 122.1
Barium	321	287		mg/Kg		89.4	69.5 - 115.9
Cadmium	247	186		mg/Kg		75.4	67.2 - 111.7
Chromium	217	192		mg/Kg		88.5	64.5 - 119.8
Lead	270	226		mg/Kg		83.7	70.4 - 120.0
Selenium	241	193		mg/Kg		80.3	62.2 - 118.3
Silver	72.0	59.7		mg/Kg		82.9	66.5 - 121.7

Lab Sample ID: MB 620-23158/1-A
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23158

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0080	0.0028	mg/L		06/01/23 10:53	06/01/23 13:58	1
Barium	ND		0.010	0.0014	mg/L		06/01/23 10:53	06/01/23 13:58	1
Cadmium	ND		0.0050	0.00071	mg/L		06/01/23 10:53	06/01/23 13:58	1
Chromium	ND		0.010	0.0019	mg/L		06/01/23 10:53	06/01/23 13:58	1
Lead	ND		0.015	0.012	mg/L		06/01/23 10:53	06/01/23 13:58	1
Selenium	ND		0.030	0.0083	mg/L		06/01/23 10:53	06/01/23 13:58	1
Silver	ND		0.010	0.0012	mg/L		06/01/23 10:53	06/01/23 13:58	1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCS 620-23158/2-A
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23158

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	2.50	2.20		mg/L		88	80 - 120
Barium	2.50	2.29		mg/L		92	80 - 120
Cadmium	2.50	2.05		mg/L		82	80 - 120
Chromium	2.50	2.24		mg/L		90	80 - 120
Lead	2.50	2.16		mg/L		86	80 - 120
Selenium	2.50	2.21		mg/L		88	80 - 120
Silver	2.50	2.45		mg/L		98	80 - 120

Lab Sample ID: LCSD 620-23158/3-A
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23158

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	2.50	2.34		mg/L		94	80 - 120	6	20
Barium	2.50	2.40		mg/L		96	80 - 120	5	20
Cadmium	2.50	2.17		mg/L		87	80 - 120	6	20
Chromium	2.50	2.38		mg/L		95	80 - 120	6	20
Lead	2.50	2.30		mg/L		92	80 - 120	6	20
Selenium	2.50	2.35		mg/L		94	80 - 120	6	20
Silver	2.50	2.61		mg/L		104	80 - 120	6	20

Lab Sample ID: LB 620-23125/1-B
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 23158

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0080	0.0028	mg/L		06/01/23 10:53	06/01/23 14:04	1
Barium	ND		0.010	0.0014	mg/L		06/01/23 10:53	06/01/23 14:04	1
Cadmium	ND		0.0050	0.00071	mg/L		06/01/23 10:53	06/01/23 14:04	1
Chromium	ND		0.010	0.0019	mg/L		06/01/23 10:53	06/01/23 14:04	1
Lead	ND		0.015	0.012	mg/L		06/01/23 10:53	06/01/23 14:04	1
Selenium	ND		0.030	0.0083	mg/L		06/01/23 10:53	06/01/23 14:04	1
Silver	ND		0.010	0.0012	mg/L		06/01/23 10:53	06/01/23 14:04	1

Lab Sample ID: 620-11778-2 MS
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: LM-SO-SD02-053123
Prep Type: TCLP
Prep Batch: 23158

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.0032	J	2.50	2.67		mg/L		107	75 - 125
Barium	0.23		2.50	2.67		mg/L		98	75 - 125
Cadmium	0.0011	J	2.50	2.33		mg/L		93	75 - 125
Chromium	0.0032	J	2.50	2.50		mg/L		100	75 - 125
Lead	0.052		2.50	2.33		mg/L		91	75 - 125
Selenium	ND		2.50	2.76		mg/L		111	75 - 125
Silver	ND		2.50	2.78		mg/L		111	75 - 125

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 620-11778-2 MSD
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: LM-SO-SD02-053123
Prep Type: TCLP
Prep Batch: 23158

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	0.0032	J	2.50	2.56		mg/L		102	75 - 125	4	20
Barium	0.23		2.50	2.62		mg/L		96	75 - 125	2	20
Cadmium	0.0011	J	2.50	2.19		mg/L		87	75 - 125	6	20
Chromium	0.0032	J	2.50	2.41		mg/L		96	75 - 125	4	20
Lead	0.052		2.50	2.22		mg/L		87	75 - 125	5	20
Selenium	ND		2.50	2.64		mg/L		105	75 - 125	5	20
Silver	ND		2.50	2.73		mg/L		109	75 - 125	2	20

Lab Sample ID: 620-11778-2 DU
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: LM-SO-SD02-053123
Prep Type: TCLP
Prep Batch: 23158

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	0.0032	J	0.00330	J	mg/L		3	20
Barium	0.23		0.238		mg/L		4	20
Cadmium	0.0011	J	0.00105	J	mg/L		2	20
Chromium	0.0032	J	0.00330	J	mg/L		3	20
Lead	0.052		0.0601		mg/L		14	20
Selenium	ND		ND		mg/L		NC	20
Silver	ND		ND		mg/L		NC	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 620-23193/1-A
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23193

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		06/02/23 07:19	06/02/23 14:14	1

Lab Sample ID: LCS 620-23193/2-A
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23193

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00509		mg/L		102	85 - 115

Lab Sample ID: LCSD 620-23193/3-A
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23193

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.00500	0.00498		mg/L		100	85 - 115	2	20

Lab Sample ID: LB 620-23125/1-C
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 23193

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		06/02/23 07:19	06/02/23 14:20	1

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 620-23147/1-A
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23147

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.050	0.0083	mg/Kg		06/01/23 09:40	06/02/23 12:01	1

Lab Sample ID: LCDSRM 620-23147/3-A
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23147

Analyte			Spike Added	LCDSRM Result	LCDSRM Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury			18.2	19.7		mg/Kg		108.1	59.9 - 140.1	1	

Lab Sample ID: LCSSRM 620-23147/2-A
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23147

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			18.2	19.6		mg/Kg		107.5	59.9 - 140.1		

Lab Sample ID: 620-11778-1 MS
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: LM-SO-SD01-053123
Prep Type: Total/NA
Prep Batch: 23147

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury	0.056		0.214	0.309		mg/Kg	☼	118	75 - 125		

Lab Sample ID: 620-11778-1 MSD
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: LM-SO-SD01-053123
Prep Type: Total/NA
Prep Batch: 23147

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.056		0.206	0.286		mg/Kg	☼	112	75 - 125	8	20

Lab Sample ID: 620-11778-1 DU
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: LM-SO-SD01-053123
Prep Type: Total/NA
Prep Batch: 23147

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Mercury	0.056			0.0337	J F5	mg/Kg	☼			50	20

Method: 1030 - Ignitability, Solids

Lab Sample ID: 620-11778-1 DU
Matrix: Solid
Analysis Batch: 23180

Client Sample ID: LM-SO-SD01-053123
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Ignitability	negative			negative		NONE				NC	35

Method: 9045D - pH

Lab Sample ID: LCDSRM 620-23172/3
Matrix: Solid
Analysis Batch: 23172

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCDSRM Result	LCDSRM Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
pH			6.00	6.0		SU		99.5	97.5 - 102.5	0	20

Lab Sample ID: LCSSRM 620-23172/2
Matrix: Solid
Analysis Batch: 23172

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits		
pH			6.00	6.0		SU		99.7	97.5 - 102.5		

Lab Sample ID: MB 620-23168/1-A
Matrix: Solid
Analysis Batch: 23172

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.2				SU			06/01/23 14:14	1
Temperature	28.5				Degrees C			06/01/23 14:14	1

Lab Sample ID: 620-11778-2 DU
Matrix: Solid
Analysis Batch: 23172

Client Sample ID: LM-SO-SD02-053123
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.0			7.1		SU				1	5
Temperature	28.5			28.5		Degrees C				0	5

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: LCDSRM 620-23175/3
Matrix: Solid
Analysis Batch: 23175

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCDSRM Result	LCDSRM Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Specific Conductance			1410	1380		uS/cm		97.3	95.0 - 105.0	0	20

Lab Sample ID: LCSSRM 620-23175/2
Matrix: Solid
Analysis Batch: 23175

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits		
Specific Conductance			1410	1380		uS/cm		97.5	95.0 - 105.0		

Lab Sample ID: MB 620-23168/1-A
Matrix: Solid
Analysis Batch: 23175

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		10	10	uS/cm			06/01/23 14:51	1

Method: SM 2510B - Conductivity, Specific Conductance (Continued)

Lab Sample ID: 620-11778-2 DU
Matrix: Solid
Analysis Batch: 23175

Client Sample ID: LM-SO-SD02-053123
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Specific Conductance	200			136	F3	uS/cm				40	5

Method: Reactive Cyanide - SW846 9014/9034 Reactivity

Lab Sample ID: CO14857-BLK
Matrix: SOLID
Analysis Batch: 680267A

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 680267A_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Reactivity Cyanide	ND		5		mg/Kg		06/01/23 00:00	06/01/23 15:54	5

Lab Sample ID: CO14857-LCS
Matrix: SOLID
Analysis Batch: 680267A

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 680267A_P

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Reactivity Cyanide			0.5	0.4840		mg/Kg		96.8	80 - 120		

Method: Reactive Sulfide - SW846 9034 – Reactive Sulfide

Lab Sample ID: CO14857-BLK
Matrix: SOLID
Analysis Batch: 680267B

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 680267B_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Reactivity Sulfide	ND		20		mg/Kg		06/01/23 00:00	06/01/23 17:09	1

Lab Sample ID: CO14857-LCS
Matrix: SOLID
Analysis Batch: 680267B

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 680267B_P

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Reactivity Sulfide			40	0		mg/Kg		95.5	80 - 120		

QC Association Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

GC/MS VOA

Pre Prep Batch: 23132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	Frozen Preserve	
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	Frozen Preserve	

Prep Batch: 23152

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	5035	23132
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	5035	23132
MB 620-23152/3-A	Method Blank	Total/NA	Solid	5035	
LCS 620-23152/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 620-23152/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 23153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	8260C	23152
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	8260C	23152
MB 620-23152/3-A	Method Blank	Total/NA	Solid	8260C	23152
LCS 620-23152/1-A	Lab Control Sample	Total/NA	Solid	8260C	23152
LCSD 620-23152/2-A	Lab Control Sample Dup	Total/NA	Solid	8260C	23152

GC/MS Semi VOA

Prep Batch: 23157

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	3546	
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	3546	
MB 620-23157/1-A	Method Blank	Total/NA	Solid	3546	
LCS 620-23157/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCSD 620-23157/3-A	Lab Control Sample Dup	Total/NA	Solid	3546	

Analysis Batch: 23208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	8270D	23157
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	8270D	23157
MB 620-23157/1-A	Method Blank	Total/NA	Solid	8270D	23157
LCS 620-23157/2-A	Lab Control Sample	Total/NA	Solid	8270D	23157
LCSD 620-23157/3-A	Lab Control Sample Dup	Total/NA	Solid	8270D	23157

GC Semi VOA

Prep Batch: 23137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	3546	
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	3546	
MB 620-23137/1-A	Method Blank	Total/NA	Solid	3546	
LCS 620-23137/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 620-23137/4-A	Lab Control Sample	Total/NA	Solid	3546	
LCSD 620-23137/3-A	Lab Control Sample Dup	Total/NA	Solid	3546	
LCSD 620-23137/5-A	Lab Control Sample Dup	Total/NA	Solid	3546	

GC Semi VOA

Analysis Batch: 23154

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	8082	23137
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	8082	23137
MB 620-23137/1-A	Method Blank	Total/NA	Solid	8082	23137
LCS 620-23137/4-A	Lab Control Sample	Total/NA	Solid	8082	23137
LCSD 620-23137/5-A	Lab Control Sample Dup	Total/NA	Solid	8082	23137

Prep Batch: 23173

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	3546	
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	3546	
MB 620-23173/1-A	Method Blank	Total/NA	Solid	3546	
LCS 620-23173/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCSD 620-23173/3-A	Lab Control Sample Dup	Total/NA	Solid	3546	

Analysis Batch: 23204

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	8100	23173
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	8100	23173
MB 620-23173/1-A	Method Blank	Total/NA	Solid	8100	23173
LCS 620-23173/2-A	Lab Control Sample	Total/NA	Solid	8100	23173
LCSD 620-23173/3-A	Lab Control Sample Dup	Total/NA	Solid	8100	23173

Analysis Batch: 23216

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	8081B	23137
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	8081B	23137
MB 620-23137/1-A	Method Blank	Total/NA	Solid	8081B	23137
LCS 620-23137/2-A	Lab Control Sample	Total/NA	Solid	8081B	23137
LCSD 620-23137/3-A	Lab Control Sample Dup	Total/NA	Solid	8081B	23137

Metals

Prep Batch: 23122

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	3050B	
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	3050B	
MB 620-23122/1-A	Method Blank	Total/NA	Solid	3050B	
LCDSRM 620-23122/3-A	Lab Control Sample Dup	Total/NA	Solid	3050B	
LCSSRM 620-23122/2-A	Lab Control Sample	Total/NA	Solid	3050B	

Leach Batch: 23125

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	TCLP	Solid	1311	
620-11778-2	LM-SO-SD02-053123	TCLP	Solid	1311	
LB 620-23125/1-B	Method Blank	TCLP	Solid	1311	
LB 620-23125/1-C	Method Blank	TCLP	Solid	1311	
620-11778-2 MS	LM-SO-SD02-053123	TCLP	Solid	1311	
620-11778-2 MSD	LM-SO-SD02-053123	TCLP	Solid	1311	
620-11778-2 DU	LM-SO-SD02-053123	TCLP	Solid	1311	

Metals

Prep Batch: 23147

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	7471B	
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	7471B	
MB 620-23147/1-A	Method Blank	Total/NA	Solid	7471B	
LCDSRM 620-23147/3-A	Lab Control Sample Dup	Total/NA	Solid	7471B	
LCSSRM 620-23147/2-A	Lab Control Sample	Total/NA	Solid	7471B	
620-11778-1 MS	LM-SO-SD01-053123	Total/NA	Solid	7471B	
620-11778-1 MSD	LM-SO-SD01-053123	Total/NA	Solid	7471B	
620-11778-1 DU	LM-SO-SD01-053123	Total/NA	Solid	7471B	

Prep Batch: 23158

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	TCLP	Solid	3010A	23125
620-11778-2	LM-SO-SD02-053123	TCLP	Solid	3010A	23125
LB 620-23125/1-B	Method Blank	TCLP	Solid	3010A	23125
MB 620-23158/1-A	Method Blank	Total/NA	Solid	3010A	
LCS 620-23158/2-A	Lab Control Sample	Total/NA	Solid	3010A	
LCSD 620-23158/3-A	Lab Control Sample Dup	Total/NA	Solid	3010A	
620-11778-2 MS	LM-SO-SD02-053123	TCLP	Solid	3010A	23125
620-11778-2 MSD	LM-SO-SD02-053123	TCLP	Solid	3010A	23125
620-11778-2 DU	LM-SO-SD02-053123	TCLP	Solid	3010A	23125

Analysis Batch: 23183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	TCLP	Solid	6010D	23158
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	6010D	23122
620-11778-2	LM-SO-SD02-053123	TCLP	Solid	6010D	23158
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	6010D	23122
LB 620-23125/1-B	Method Blank	TCLP	Solid	6010D	23158
MB 620-23122/1-A	Method Blank	Total/NA	Solid	6010D	23122
MB 620-23158/1-A	Method Blank	Total/NA	Solid	6010D	23158
LCDSRM 620-23122/3-A	Lab Control Sample Dup	Total/NA	Solid	6010D	23122
LCS 620-23158/2-A	Lab Control Sample	Total/NA	Solid	6010D	23158
LCSD 620-23158/3-A	Lab Control Sample Dup	Total/NA	Solid	6010D	23158
LCSSRM 620-23122/2-A	Lab Control Sample	Total/NA	Solid	6010D	23122
620-11778-2 MS	LM-SO-SD02-053123	TCLP	Solid	6010D	23158
620-11778-2 MSD	LM-SO-SD02-053123	TCLP	Solid	6010D	23158
620-11778-2 DU	LM-SO-SD02-053123	TCLP	Solid	6010D	23158

Prep Batch: 23193

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	TCLP	Solid	7470A	23125
620-11778-2	LM-SO-SD02-053123	TCLP	Solid	7470A	23125
LB 620-23125/1-C	Method Blank	TCLP	Solid	7470A	23125
MB 620-23193/1-A	Method Blank	Total/NA	Solid	7470A	
LCS 620-23193/2-A	Lab Control Sample	Total/NA	Solid	7470A	
LCSD 620-23193/3-A	Lab Control Sample Dup	Total/NA	Solid	7470A	

Analysis Batch: 23226

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	TCLP	Solid	7470A	23193
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	7471A	23147

Metals (Continued)

Analysis Batch: 23226 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-2	LM-SO-SD02-053123	TCLP	Solid	7470A	23193
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	7471A	23147
LB 620-23125/1-C	Method Blank	TCLP	Solid	7470A	23193
MB 620-23147/1-A	Method Blank	Total/NA	Solid	7471A	23147
MB 620-23193/1-A	Method Blank	Total/NA	Solid	7470A	23193
LCDSRM 620-23147/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	23147
LCS 620-23193/2-A	Lab Control Sample	Total/NA	Solid	7470A	23193
LCSD 620-23193/3-A	Lab Control Sample Dup	Total/NA	Solid	7470A	23193
LCSSRM 620-23147/2-A	Lab Control Sample	Total/NA	Solid	7471A	23147
620-11778-1 MS	LM-SO-SD01-053123	Total/NA	Solid	7471A	23147
620-11778-1 MSD	LM-SO-SD01-053123	Total/NA	Solid	7471A	23147
620-11778-1 DU	LM-SO-SD01-053123	Total/NA	Solid	7471A	23147

General Chemistry

Analysis Batch: 23163

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	Moisture	
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	Moisture	

Leach Batch: 23168

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Soluble	Solid	DI Leach	
620-11778-2	LM-SO-SD02-053123	Soluble	Solid	DI Leach	
MB 620-23168/1-A	Method Blank	Soluble	Solid	DI Leach	
620-11778-2 DU	LM-SO-SD02-053123	Soluble	Solid	DI Leach	

Analysis Batch: 23172

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Soluble	Solid	9045D	23168
620-11778-2	LM-SO-SD02-053123	Soluble	Solid	9045D	23168
MB 620-23168/1-A	Method Blank	Soluble	Solid	9045D	23168
LCDSRM 620-23172/3	Lab Control Sample Dup	Total/NA	Solid	9045D	
LCSSRM 620-23172/2	Lab Control Sample	Total/NA	Solid	9045D	
620-11778-2 DU	LM-SO-SD02-053123	Soluble	Solid	9045D	23168

Analysis Batch: 23175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Soluble	Solid	SM 2510B	23168
620-11778-2	LM-SO-SD02-053123	Soluble	Solid	SM 2510B	23168
MB 620-23168/1-A	Method Blank	Soluble	Solid	SM 2510B	23168
LCDSRM 620-23175/3	Lab Control Sample Dup	Total/NA	Solid	SM 2510B	
LCSSRM 620-23175/2	Lab Control Sample	Total/NA	Solid	SM 2510B	
620-11778-2 DU	LM-SO-SD02-053123	Soluble	Solid	SM 2510B	23168

Analysis Batch: 23180

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	1030	
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	1030	
620-11778-1 DU	LM-SO-SD01-053123	Total/NA	Solid	1030	

Subcontract

Analysis Batch: 680267A

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	Reactive Cyanide	680267A_P
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	Reactive Cyanide	680267A_P
CO14857-BLK	Method Blank	Total/NA	SOLID	Reactive Cyanide	680267A_P
CO14857-LCS	Lab Control Sample	Total/NA	SOLID	Reactive Cyanide	680267A_P

Analysis Batch: 680267B

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	Reactive Sulfide	680267B_P
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	Reactive Sulfide	680267B_P
CO14857-BLK	Method Blank	Total/NA	SOLID	Reactive Sulfide	680267B_P
CO14857-LCS	Lab Control Sample	Total/NA	SOLID	Reactive Sulfide	680267B_P

Prep Batch: 680267A_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	SW846 7.3.3.1/90	
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	SW846 7.3.3.1/90	
CO14857-BLK	Method Blank	Total/NA	SOLID	SW846 7.3.3.1/90	
CO14857-LCS	Lab Control Sample	Total/NA	SOLID	SW846 7.3.3.1/90	

Prep Batch: 680267B_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	SW846 7.3.3.1/90	
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	SW846 7.3.3.1/90	
CO14857-BLK	Method Blank	Total/NA	SOLID	SW846 7.3.3.1/90	
CO14857-LCS	Lab Control Sample	Total/NA	SOLID	SW846 7.3.3.1/90	

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Client Sample ID: LM-SO-SD01-053123

Lab Sample ID: 620-11778-1

Date Collected: 05/31/23 07:50

Matrix: Solid

Date Received: 05/31/23 13:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			23125	PRB	EET NE	05/31/23 14:46 - 06/01/23 08:30 [1]
TCLP	Prep	3010A			23158	PRB	EET NE	06/01/23 10:53
TCLP	Analysis	6010D		1	23183	JPC	EET NE	06/01/23 14:51
TCLP	Leach	1311			23125	PRB	EET NE	05/31/23 14:46 - 06/01/23 08:30 [1]
TCLP	Prep	7470A			23193	PRB	EET NE	06/02/23 07:19
TCLP	Analysis	7470A		1	23226	PRB	EET NE	06/02/23 14:22
Total/NA	Analysis	1030		1	23180	MJH	EET NE	06/01/23 15:23
Soluble	Leach	DI Leach			23168	MJH	EET NE	06/01/23 12:50
Soluble	Analysis	9045D		1	23172	MJH	EET NE	06/01/23 14:14
Total/NA	Analysis	Moisture		1	23163	MJH	EET NE	06/01/23 11:46
Soluble	Leach	DI Leach			23168	MJH	EET NE	06/01/23 12:50
Soluble	Analysis	SM 2510B		1	23175	MJH	EET NE	06/01/23 14:51
Total/NA	Analysis	Reactive Cyanide		1	680267A	CT007	PEL, Inc	06/01/23 16:15
Total/NA	Prep	SW846 7.3.3.1/90		1	680267A_P		PEL, Inc	06/01/23 17:09
Total/NA	Prep	SW846 7.3.3.1/90		1	680267B_P		PEL, Inc	06/01/23 00:00
Total/NA	Analysis	Reactive Sulfide		1	680267B	CT007	PEL, Inc	06/01/23 17:09

Client Sample ID: LM-SO-SD01-053123

Lab Sample ID: 620-11778-1

Date Collected: 05/31/23 07:50

Matrix: Solid

Date Received: 05/31/23 13:30

Percent Solids: 93.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Pre Prep	Frozen Preserve			23132	KFS	EET NE	05/31/23 19:52
Total/NA	Prep	5035			23152	CLR	EET NE	06/01/23 13:00
Total/NA	Analysis	8260C		1	23153	CLR	EET NE	06/01/23 15:48
Total/NA	Prep	3546			23157	JAC	EET NE	06/01/23 10:46
Total/NA	Analysis	8270D		1	23208	JS	EET NE	06/02/23 15:20
Total/NA	Prep	3546			23137	JAC	EET NE	06/01/23 09:22
Total/NA	Analysis	8081B		1	23216	SFL	EET NE	06/02/23 19:31
Total/NA	Prep	3546			23137	JAC	EET NE	06/01/23 09:22
Total/NA	Analysis	8082		1	23154	SFL	EET NE	06/01/23 16:23
Total/NA	Prep	3546			23173	JAC	EET NE	06/01/23 14:23
Total/NA	Analysis	8100		1	23204	JS	EET NE	06/02/23 14:21
Total/NA	Prep	3050B			23122	PRB	EET NE	05/31/23 14:15
Total/NA	Analysis	6010D		1	23183	JPC	EET NE	06/01/23 12:54
Total/NA	Prep	7471B			23147	PRB	EET NE	06/01/23 09:40
Total/NA	Analysis	7471A		1	23226	PRB	EET NE	06/02/23 12:07

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Client Sample ID: LM-SO-SD02-053123

Date Collected: 05/31/23 08:10
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			23125	PRB	EET NE	05/31/23 14:46 - 06/01/23 08:30 [1]
TCLP	Prep	3010A			23158	PRB	EET NE	06/01/23 10:53
TCLP	Analysis	6010D		1	23183	JPC	EET NE	06/01/23 14:21
TCLP	Leach	1311			23125	PRB	EET NE	05/31/23 14:46 - 06/01/23 08:30 [1]
TCLP	Prep	7470A			23193	PRB	EET NE	06/02/23 07:19
TCLP	Analysis	7470A		1	23226	PRB	EET NE	06/02/23 14:24
Total/NA	Analysis	1030		1	23180	MJH	EET NE	06/01/23 15:23
Soluble	Leach	DI Leach			23168	MJH	EET NE	06/01/23 12:50
Soluble	Analysis	9045D		1	23172	MJH	EET NE	06/01/23 14:14
Total/NA	Analysis	Moisture		1	23163	MJH	EET NE	06/01/23 11:46
Soluble	Leach	DI Leach			23168	MJH	EET NE	06/01/23 12:50
Soluble	Analysis	SM 2510B		1	23175	MJH	EET NE	06/01/23 14:51
Total/NA	Analysis	Reactive Cyanide		1	680267A	CT007	PEL, Inc	06/01/23 16:16
Total/NA	Prep	SW846 7.3.3.1/90		1	680267A_P		PEL, Inc	06/01/23 17:09
Total/NA	Prep	SW846 7.3.3.1/90		1	680267B_P		PEL, Inc	06/01/23 00:00
Total/NA	Analysis	Reactive Sulfide		1	680267B	CT007	PEL, Inc	06/01/23 17:09

Client Sample ID: LM-SO-SD02-053123

Date Collected: 05/31/23 08:10
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-2

Matrix: Solid
Percent Solids: 93.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Pre Prep	Frozen Preserve			23132	KFS	EET NE	05/31/23 19:52
Total/NA	Prep	5035			23152	CLR	EET NE	06/01/23 13:00
Total/NA	Analysis	8260C		1	23153	CLR	EET NE	06/01/23 16:13
Total/NA	Prep	3546			23157	JAC	EET NE	06/01/23 10:46
Total/NA	Analysis	8270D		1	23208	JS	EET NE	06/02/23 15:45
Total/NA	Prep	3546			23137	JAC	EET NE	06/01/23 09:23
Total/NA	Analysis	8081B		1	23216	SFL	EET NE	06/02/23 19:47
Total/NA	Prep	3546			23137	JAC	EET NE	06/01/23 09:23
Total/NA	Analysis	8082		1	23154	SFL	EET NE	06/01/23 16:40
Total/NA	Prep	3546			23173	JAC	EET NE	06/01/23 14:23
Total/NA	Analysis	8100		1	23204	JS	EET NE	06/02/23 14:43
Total/NA	Prep	3050B			23122	PRB	EET NE	05/31/23 14:15
Total/NA	Analysis	6010D		1	23183	JPC	EET NE	06/01/23 13:00
Total/NA	Prep	7471B			23147	PRB	EET NE	06/01/23 09:40
Total/NA	Analysis	7471A		1	23226	PRB	EET NE	06/02/23 12:16

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

PEL, Inc = Phoenix Environmental Laboratories, Inc., 587 East Middle Turnpike, Manchester, CT 06040, TEL (860)645-8726

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-11778-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Massachusetts	State	M-RI907	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
1030		Solid	Ignitability
6010D	3010A	Solid	Arsenic
6010D	3010A	Solid	Barium
6010D	3010A	Solid	Cadmium
6010D	3010A	Solid	Chromium
6010D	3010A	Solid	Lead
6010D	3010A	Solid	Selenium
6010D	3010A	Solid	Silver
6010D	3050B	Solid	Arsenic
6010D	3050B	Solid	Barium
6010D	3050B	Solid	Cadmium
6010D	3050B	Solid	Chromium
6010D	3050B	Solid	Lead
6010D	3050B	Solid	Selenium
6010D	3050B	Solid	Silver
7470A	7470A	Solid	Mercury
7471A	7471B	Solid	Mercury
8081B	3546	Solid	4,4'-DDD
8081B	3546	Solid	4,4'-DDE
8081B	3546	Solid	4,4'-DDT
8081B	3546	Solid	Alachlor
8081B	3546	Solid	Aldrin
8081B	3546	Solid	alpha-BHC
8081B	3546	Solid	beta-BHC
8081B	3546	Solid	cis-Chlordane
8081B	3546	Solid	delta-BHC
8081B	3546	Solid	Dieldrin
8081B	3546	Solid	Endosulfan I
8081B	3546	Solid	Endosulfan II
8081B	3546	Solid	Endosulfan sulfate
8081B	3546	Solid	Endrin
8081B	3546	Solid	Endrin aldehyde
8081B	3546	Solid	Endrin ketone
8081B	3546	Solid	gamma-BHC (Lindane)
8081B	3546	Solid	Heptachlor
8081B	3546	Solid	Heptachlor epoxide
8081B	3546	Solid	Methoxychlor
8081B	3546	Solid	Toxaphene
8081B	3546	Solid	trans-Chlordane
8082	3546	Solid	PCB-1016
8082	3546	Solid	PCB-1221
8082	3546	Solid	PCB-1232
8082	3546	Solid	PCB-1242
8082	3546	Solid	PCB-1248
8082	3546	Solid	PCB-1254

Laboratory: Eurofins New England (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8082	3546	Solid	PCB-1260
8082	3546	Solid	PCB-1262
8082	3546	Solid	PCB-1268
8100	3546	Solid	TEPH (C9-C36)
8260C	5035	Solid	1,1,1,2-Tetrachloroethane
8260C	5035	Solid	1,1,1-Trichloroethane
8260C	5035	Solid	1,1,2,2-Tetrachloroethane
8260C	5035	Solid	1,1,2-Trichloroethane
8260C	5035	Solid	1,1,2-Trichlorotrifluoroethane (Freon 113)
8260C	5035	Solid	1,1-Dichloroethane
8260C	5035	Solid	1,1-Dichloroethene
8260C	5035	Solid	1,1-Dichloropropene
8260C	5035	Solid	1,2,3-Trichlorobenzene
8260C	5035	Solid	1,2,3-Trichloropropane
8260C	5035	Solid	1,2,4-Trichlorobenzene
8260C	5035	Solid	1,2,4-Trimethylbenzene
8260C	5035	Solid	1,2-Dibromo-3-Chloropropane
8260C	5035	Solid	1,2-Dibromoethane (EDB)
8260C	5035	Solid	1,2-Dichlorobenzene
8260C	5035	Solid	1,2-Dichloroethane
8260C	5035	Solid	1,2-Dichloropropane
8260C	5035	Solid	1,3,5-Trichlorobenzene
8260C	5035	Solid	1,3,5-Trimethylbenzene
8260C	5035	Solid	1,3-Dichlorobenzene
8260C	5035	Solid	1,3-Dichloropropane
8260C	5035	Solid	1,3-Dichloropropene, Total
8260C	5035	Solid	1,4-Dichlorobenzene
8260C	5035	Solid	1,4-Dioxane
8260C	5035	Solid	2,2-Dichloropropane
8260C	5035	Solid	2-Butanone (MEK)
8260C	5035	Solid	2-Chlorotoluene
8260C	5035	Solid	2-Hexanone (MBK)
8260C	5035	Solid	4-Chlorotoluene
8260C	5035	Solid	4-Isopropyltoluene
8260C	5035	Solid	4-Methyl-2-pentanone (MIBK)
8260C	5035	Solid	Acetone
8260C	5035	Solid	Acrylonitrile
8260C	5035	Solid	Benzene
8260C	5035	Solid	Bromobenzene
8260C	5035	Solid	Bromochloromethane
8260C	5035	Solid	Bromodichloromethane
8260C	5035	Solid	Bromoform
8260C	5035	Solid	Bromomethane
8260C	5035	Solid	Carbon disulfide
8260C	5035	Solid	Carbon tetrachloride
8260C	5035	Solid	Chlorobenzene
8260C	5035	Solid	Chloroethane

Laboratory: Eurofins New England (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8260C	5035	Solid	Chloroform
8260C	5035	Solid	Chloromethane
8260C	5035	Solid	cis-1,2-Dichloroethene
8260C	5035	Solid	cis-1,3-Dichloropropene
8260C	5035	Solid	Dibromochloromethane
8260C	5035	Solid	Dibromomethane
8260C	5035	Solid	Dichlorodifluoromethane (Freon 12)
8260C	5035	Solid	di-Isopropyl ether
8260C	5035	Solid	Ethanol
8260C	5035	Solid	Ethyl ether
8260C	5035	Solid	Ethyl tert-butyl ether
8260C	5035	Solid	Ethylbenzene
8260C	5035	Solid	Hexachlorobutadiene
8260C	5035	Solid	Isopropylbenzene
8260C	5035	Solid	m,p-Xylene
8260C	5035	Solid	Methyl tert-butyl ether
8260C	5035	Solid	Methylene Chloride
8260C	5035	Solid	Naphthalene
8260C	5035	Solid	n-Butylbenzene
8260C	5035	Solid	N-Propylbenzene
8260C	5035	Solid	o-Xylene
8260C	5035	Solid	sec-Butylbenzene
8260C	5035	Solid	Styrene
8260C	5035	Solid	Tert-amyl methyl ether
8260C	5035	Solid	tert-Butanol
8260C	5035	Solid	tert-Butylbenzene
8260C	5035	Solid	Tetrachloroethene
8260C	5035	Solid	Tetrahydrofuran
8260C	5035	Solid	Toluene
8260C	5035	Solid	trans-1,2-Dichloroethene
8260C	5035	Solid	trans-1,3-Dichloropropene
8260C	5035	Solid	trans-1,4-Dichloro-2-butene
8260C	5035	Solid	Trichloroethene
8260C	5035	Solid	Trichlorofluoromethane (Freon 11)
8260C	5035	Solid	Vinyl chloride
8260C	5035	Solid	Xylenes, Total
8270D	3546	Solid	1,2,4,5-Tetrachlorobenzene
8270D	3546	Solid	1,2,4-Trichlorobenzene
8270D	3546	Solid	1,2-Dichlorobenzene
8270D	3546	Solid	1,3-Dichlorobenzene
8270D	3546	Solid	1,4-Dichlorobenzene
8270D	3546	Solid	1-Methylnaphthalene
8270D	3546	Solid	2,4,5-Trichlorophenol
8270D	3546	Solid	2,4,6-Trichlorophenol
8270D	3546	Solid	2,4-Dichlorophenol
8270D	3546	Solid	2,4-Dimethylphenol
8270D	3546	Solid	2,4-Dinitrophenol

Laboratory: Eurofins New England (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8270D	3546	Solid	2,4-Dinitrotoluene
8270D	3546	Solid	2,6-Dinitrotoluene
8270D	3546	Solid	2-Chloronaphthalene
8270D	3546	Solid	2-Chlorophenol
8270D	3546	Solid	2-Methylnaphthalene
8270D	3546	Solid	2-Methylphenol
8270D	3546	Solid	2-Nitroaniline
8270D	3546	Solid	2-Nitrophenol
8270D	3546	Solid	3 & 4 Methylphenol
8270D	3546	Solid	3,3'-Dichlorobenzidine
8270D	3546	Solid	3-Nitroaniline
8270D	3546	Solid	4,6-Dinitro-2-methylphenol
8270D	3546	Solid	4-Bromophenyl phenyl ether
8270D	3546	Solid	4-Chloro-3-methylphenol
8270D	3546	Solid	4-Chloroaniline
8270D	3546	Solid	4-Chlorophenyl phenyl ether
8270D	3546	Solid	4-Nitroaniline
8270D	3546	Solid	4-Nitrophenol
8270D	3546	Solid	Acenaphthene
8270D	3546	Solid	Acenaphthylene
8270D	3546	Solid	Acetophenone
8270D	3546	Solid	Aniline
8270D	3546	Solid	Anthracene
8270D	3546	Solid	Azobenzene/Diphenyldiazene
8270D	3546	Solid	Benzidine
8270D	3546	Solid	Benzo[a]anthracene
8270D	3546	Solid	Benzo[a]pyrene
8270D	3546	Solid	Benzo[b]fluoranthene
8270D	3546	Solid	Benzo[g,h,i]perylene
8270D	3546	Solid	Benzo[k]fluoranthene
8270D	3546	Solid	Benzoic acid
8270D	3546	Solid	Benzyl alcohol
8270D	3546	Solid	bis (2-chloroisopropyl) ether
8270D	3546	Solid	Bis(2-chloroethoxy)methane
8270D	3546	Solid	Bis(2-chloroethyl)ether
8270D	3546	Solid	Bis(2-ethylhexyl) phthalate
8270D	3546	Solid	Butyl benzyl phthalate
8270D	3546	Solid	Carbazole
8270D	3546	Solid	Chrysene
8270D	3546	Solid	Dibenz(a,h)anthracene
8270D	3546	Solid	Dibenzofuran
8270D	3546	Solid	Diethyl phthalate
8270D	3546	Solid	Dimethyl phthalate
8270D	3546	Solid	Di-n-butyl phthalate
8270D	3546	Solid	Di-n-octyl phthalate
8270D	3546	Solid	Fluoranthene
8270D	3546	Solid	Fluorene

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-11778-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8270D	3546	Solid	Hexachlorobenzene
8270D	3546	Solid	Hexachlorobutadiene
8270D	3546	Solid	Hexachlorocyclopentadiene
8270D	3546	Solid	Hexachloroethane
8270D	3546	Solid	Indeno[1,2,3-cd]pyrene
8270D	3546	Solid	Isophorone
8270D	3546	Solid	Naphthalene
8270D	3546	Solid	Nitrobenzene
8270D	3546	Solid	N-Nitrosodimethylamine
8270D	3546	Solid	N-Nitrosodi-n-propylamine
8270D	3546	Solid	N-Nitrosodiphenylamine
8270D	3546	Solid	Pentachloronitrobenzene
8270D	3546	Solid	Pentachlorophenol
8270D	3546	Solid	Phenanthrene
8270D	3546	Solid	Phenol
8270D	3546	Solid	Pyrene
8270D	3546	Solid	Pyridine
9045D		Solid	pH
9045D		Solid	Temperature
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids
SM 2510B		Solid	Specific Conductance

Method Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds (GC/MS)	MA DEP	EET NE
8270D	Semivolatile Organic Compounds (GC/MS)	MA DEP	EET NE
8081B	Organochlorine Pesticides (GC/ECD)	MA DEP	EET NE
8082	Polychlorinated Biphenyls (GC/ECD)	MA DEP	EET NE
8100	Polynuclear Aromatic Hydrocarbons (PAHs) (GC)	SW846	EET NE
6010D	Metals (ICP)	SW846	EET NE
7470A	Mercury (CVAA)	SW846	EET NE
7471A	Mercury (CVAA)	SW846	EET NE
1030	Ignitability, Solids	SW846	EET NE
9045D	pH	SW846	EET NE
Moisture	Percent Moisture	EPA	EET NE
SM 2510B	Conductivity, Specific Conductance	SM	EET NE
9014/9034	SW846 9014/9034 Reactivity	EPA	PEL, Inc
9034	SW846 9034 – Reactive Sulfide	SW846	PEL, Inc
1311	TCLP Extraction	SW846	EET NE
3010A	Preparation, Total Metals	SW846	EET NE
3050B	Preparation, Metals	SW846	EET NE
3546	Microwave Extraction	SW846	EET NE
5035	Closed System Purge and Trap	SW846	EET NE
7470A	Preparation, Mercury	SW846	EET NE
7471B	Preparation, Mercury	SW846	EET NE
DI Leach	Deionized Water Leaching Procedure	ASTM	EET NE
Frozen Preserve	Freezing Samples	None	EET NE

Protocol References:

ASTM = ASTM International
EPA = US Environmental Protection Agency
MA DEP = Massachusetts Department Of Environmental Protection
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018
PEL, Inc = Phoenix Environmental Laboratories, Inc., 587 East Middle Turnpike, Manchester, CT 06040, TEL (860)645-8726

Sample Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
620-11778-1	LM-SO-SD01-053123	Solid	05/31/23 07:50	05/31/23 13:30
620-11778-2	LM-SO-SD02-053123	Solid	05/31/23 08:10	05/31/23 13:30

11778

Chain of Custody Record

eurofins | Environment Testing

	Sampler: S Stone	Lab PM	Carrier Tracking No(s)	COC No: 620-10175-1337 3
Bridget Fortier	Phone	E-Mail: arcyn@nobis-group.com	State of Origin: MA	Page: Page ~~3 of 3~~ 1 of 1
Company: Nobis Engineering, Inc	PWSID			Job #:

Address: 585 Middlesex Street	Due Date Requested: 6/2-23	
City: Lowell	TAT Requested (days): LM-SO-SD01-053123]2 day; LM-SO-SD02-053123	
State, Zip: MA, 01851	Compliance Project: Δ Yes Δ No	
Phone	PO #:	
Email: bfortier@nobis-group com	WO #:	
Project Name: Former L&M	Project #: 50000105/400	
Site: Former L&M	SSOW#:	

Analysis Requested

Preservation Codes:

A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Y - Trizma; Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	VPH	EPH, metals, % moisture	VOCs LL	VOCs HL	SVOCs, pest, PCBs & TPH	Total & TCLP RCRA	Spec. Cond, Flashpoint, Reactivity	Total Number of containers	Special Instructions/Note:
			Preservation Code:				F		J	F					
				Water											
				Solid											
				Water											
LM-SO-SD01-053123	5-31-23	750	C	Soil					X	X	X	X	X		
LM-SO-SD02-053123	5-31-23	810	C	Soil					X	X	X	X	X		
LM-SO-UST04-053023	5-30-23	1330	C	Soil			X	X							

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	**Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)**: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested I, II, III, IV, Other (specify): EDD PDF and email	Special Instructions/QC Requirements: MCP CAM Methods; LM-SO-UST04-053023 is standard TAT

Empty Kit Relinquished by	Date:	Time	Method of Shipment:

Relinquished by:	Date/Time: 5-31-23 10:55	Company	Received by:	Date/Time: 5/31/23 10:55	Company
Relinquished by:	Date/Time: 5/31/23	Company	Received by:	Date/Time: 5/31/23 13:30	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No..
Cooler Temperature(s) °C and Other Remarks: 0.9 +0.2 -0.6 IR#5	

Login Sample Receipt Checklist

Client: Nobis Engineering, Inc.

Job Number: 620-11778-1

Login Number: 11778
List Number: 1
Creator: Makhoul, Elie

List Source: Eurofins New England

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Adam Roy
Nobis Engineering, Inc.
585 Middlesex Street
Lowell, Massachusetts 01851

Generated 6/7/2023 4:13:14 PM

JOB DESCRIPTION

Former L&M - Lunenburg MA

JOB NUMBER

620-11778-2

Eurofins New England
646 Camp Ave
North Kingstown RI 02852

See page two for job notes and contact information.

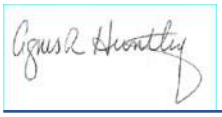
myEOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northeast, LLC Project Manager.

Authorization



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Authorized for release by
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Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
Case Narrative 5
Detection Summary 6
Client Sample Results 7
Surrogate Summary 9
QC Sample Results 10
QC Association Summary 16
Lab Chronicle 18
Certification Summary 19
Method Summary 21
Sample Summary 22
Chain of Custody 23
Receipt Checklists 24

Definitions/Glossary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-2

Qualifiers

GC VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-2

Job ID: 620-11778-2

Laboratory: Eurofins New England

Narrative

Job Narrative
620-11778-2

Receipt
The samples were received on 5/31/2023 1:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.6º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA
Method MAVPH2.1: Surrogate recoveries for the following sample was outside the upper control limit: LM-SO-UST04-053023 (620-11778-3). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed. In addition to the provided sample vials containing more than 5 grams of soil sample per 5mL of methanol (notated in the prep batch), sample matrix is suspected due to some visible noise in the baseline.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
Method 7471A: The matrix duplicate (DU) recoveries and precision for preparation batch 620-23147 and analytical batch 620-23226 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-2

Client Sample ID: LM-SO-UST04-053023

Lab Sample ID: 620-11778-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C9-C18 Aliphatics	240		7.2	7.2	mg/Kg	1	☼	MAEPH2.1	Total/NA
C19-C36 Aliphatics	96		7.2	7.2	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics	250		7.2	7.2	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	240		7.2	7.2	mg/Kg	1	☼	MAEPH2.1	Total/NA
Naphthalene	0.48		0.36	0.36	mg/Kg	1	☼	MAEPH2.1	Total/NA
2-Methylnaphthalene	4.8		0.36	0.36	mg/Kg	1	☼	MAEPH2.1	Total/NA
Fluorene	0.69		0.36	0.36	mg/Kg	1	☼	MAEPH2.1	Total/NA
Phenanthrene	0.46		0.36	0.36	mg/Kg	1	☼	MAEPH2.1	Total/NA
Fluoranthene	0.54		0.36	0.36	mg/Kg	1	☼	MAEPH2.1	Total/NA
Arsenic	4.5		2.6	0.33	mg/Kg	1	☼	6010D	Total/NA
Barium	35		1.7	0.20	mg/Kg	1	☼	6010D	Total/NA
Chromium	10		1.7	0.23	mg/Kg	1	☼	6010D	Total/NA
Lead	56		2.6	0.37	mg/Kg	1	☼	6010D	Total/NA
Nickel	8.2		1.7	0.20	mg/Kg	1	☼	6010D	Total/NA
Vanadium	11		2.6	0.46	mg/Kg	1	☼	6010D	Total/NA
Zinc	36		5.2	1.3	mg/Kg	1	☼	6010D	Total/NA
Mercury	0.040	J	0.052	0.0086	mg/Kg	1	☼	7471A	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-2

Client Sample ID: LM-SO-UST04-053023

Date Collected: 05/30/23 13:30
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-3

Matrix: Solid
Percent Solids: 90.9

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		1.6	1.6	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1
C9-C12 Aliphatics (adjusted)	ND		1.6	1.6	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1
C9-C10 Aromatics	ND		1.6	1.6	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1
C5-C8 Aliphatics (unadjusted)	ND		1.6	1.6	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1
C9-C12 Aliphatics (unadjusted)	ND		1.6	1.6	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1
Benzene	ND		0.080	0.080	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1
Ethylbenzene	ND		0.080	0.080	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1
Methyl tert-butyl ether	ND		0.016	0.016	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1
Naphthalene	ND		0.32	0.32	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1
Toluene	ND		0.080	0.080	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1
m,p-Xylene	ND		0.16	0.16	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1
o-Xylene	ND		0.080	0.080	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1
Xylenes, Total	ND		0.24	0.24	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*158*	*S1+*	*70 - 130*	*06/06/23 10:47*	*06/06/23 21:56*	*1*
2,5-Dibromotoluene (pid)	*148*	*S1+*	*70 - 130*	*06/06/23 10:47*	*06/06/23 21:56*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	**240**		7.2	7.2	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
C19-C36 Aliphatics	**96**		7.2	7.2	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
C11-C22 Aromatics	**250**		7.2	7.2	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
C11-C22 Aromatics (Adjusted)	**240**		7.2	7.2	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Naphthalene	**0.48**		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
2-Methylnaphthalene	**4.8**		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Acenaphthylene	ND		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Acenaphthene	ND		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Fluorene	**0.69**		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Phenanthrene	**0.46**		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Anthracene	ND		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Fluoranthene	**0.54**		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Pyrene	ND		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Benzo[a]anthracene	ND		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Chrysene	ND		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Benzo[b]fluoranthene	ND		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Benzo[k]fluoranthene	ND		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Benzo[a]pyrene	ND		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Indeno[1,2,3-cd]pyrene	ND		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Dibenz(a,h)anthracene	ND		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Benzo[g,h,i]perylene	ND		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*47*		*40 - 140*	*06/01/23 08:31*	*06/05/23 21:06*	*1*
o-Terphenyl (Surr)	*55*		*40 - 140*	*06/01/23 08:31*	*06/05/23 21:06*	*1*
2-Fluorobiphenyl (Surr)	*101*		*40 - 140*	*06/01/23 08:31*	*06/05/23 21:06*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		8.6	0.65	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1

Client Sample ID: LM-SO-UST04-053023

Date Collected: 05/30/23 13:30
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-3

Matrix: Solid
Percent Solids: 90.9

Method: SW846 6010D - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**4.5**		2.6	0.33	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1
Barium	**35**		1.7	0.20	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1
Beryllium	ND		0.86	0.043	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1
Cadmium	ND		0.86	0.045	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1
Chromium	**10**		1.7	0.23	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1
Lead	**56**		2.6	0.37	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1
Nickel	**8.2**		1.7	0.20	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1
Selenium	ND		2.6	0.49	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1
Silver	ND		2.6	0.28	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1
Thallium	ND		5.2	1.9	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1
Vanadium	**11**		2.6	0.46	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1
Zinc	**36**		5.2	1.3	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.040**	**J**	0.052	0.0086	mg/Kg	☼	06/01/23 09:40	06/02/23 12:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	**9.1**		0.1	0.1	%			06/01/23 11:46	1
Percent Solids (EPA Moisture)	**90.9**		0.1	0.1	%			06/01/23 11:46	1

Surrogate Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-2

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		25DBTf1	25DBTp1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
620-11778-3	LM-SO-UST04-053023	158 S1+	148 S1+
LCS 620-23366/1-A	Lab Control Sample	99	98
LCSD 620-23366/2-A	Lab Control Sample Dup	99	98
MB 620-23366/3-A	Method Blank	94	93

Surrogate Legend

25DBTf = 2,5-Dibromotoluene (fid)
25DBTp = 2,5-Dibromotoluene (pid)

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		1COD1	OTPH1	FBP1
Lab Sample ID	Client Sample ID	(40-140)	(40-140)	(40-140)
620-11778-3	LM-SO-UST04-053023	47	55	101
LCS 620-23135/2-B	Lab Control Sample	54	60	115
LCSD 620-23135/3-B	Lab Control Sample Dup	62	63	112
MB 620-23135/1-B	Method Blank	49	50	103

Surrogate Legend

1COD = 1-Chlorooctadecane (Surr)
OTPH = o-Terphenyl (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-23366/3-A
Matrix: Solid
Analysis Batch: 23320

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23366

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		5.0	5.0	mg/Kg		06/06/23 10:47	06/06/23 21:25	1
C9-C12 Aliphatics (adjusted)	ND		5.0	5.0	mg/Kg		06/06/23 10:47	06/06/23 21:25	1
C9-C10 Aromatics	ND		5.0	5.0	mg/Kg		06/06/23 10:47	06/06/23 21:25	1
C5-C8 Aliphatics (unadjusted)	ND		5.0	5.0	mg/Kg		06/06/23 10:47	06/06/23 21:25	1
C9-C12 Aliphatics (unadjusted)	ND		5.0	5.0	mg/Kg		06/06/23 10:47	06/06/23 21:25	1
Benzene	ND		0.25	0.25	mg/Kg		06/06/23 10:47	06/06/23 21:25	1
Ethylbenzene	ND		0.25	0.25	mg/Kg		06/06/23 10:47	06/06/23 21:25	1
Methyl tert-butyl ether	ND		0.050	0.050	mg/Kg		06/06/23 10:47	06/06/23 21:25	1
Naphthalene	ND		1.0	1.0	mg/Kg		06/06/23 10:47	06/06/23 21:25	1
Toluene	ND		0.25	0.25	mg/Kg		06/06/23 10:47	06/06/23 21:25	1
m,p-Xylene	ND		0.50	0.50	mg/Kg		06/06/23 10:47	06/06/23 21:25	1
o-Xylene	ND		0.25	0.25	mg/Kg		06/06/23 10:47	06/06/23 21:25	1
Xylenes, Total	ND		0.75	0.75	mg/Kg		06/06/23 10:47	06/06/23 21:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*94*		*70 - 130*	*06/06/23 10:47*	*06/06/23 21:25*	*1*
2,5-Dibromotoluene (pid)	*93*		*70 - 130*	*06/06/23 10:47*	*06/06/23 21:25*	*1*

Lab Sample ID: LCS 620-23366/1-A
Matrix: Solid
Analysis Batch: 23320

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23366

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C10 Aromatics	1.00	ND		mg/Kg		117	70 - 130
C5-C8 Aliphatics (unadjusted)	3.00	ND		mg/Kg		102	70 - 130
C9-C12 Aliphatics (unadjusted)	3.00	ND		mg/Kg		99	70 - 130
Benzene	1.00	1.06		mg/Kg		106	70 - 130
Ethylbenzene	1.00	1.06		mg/Kg		106	70 - 130
Methyl tert-butyl ether	1.00	1.09		mg/Kg		109	70 - 130
Naphthalene	1.00	1.04		mg/Kg		104	70 - 130
Toluene	1.00	1.06		mg/Kg		106	70 - 130
m,p-Xylene	2.00	2.14		mg/Kg		107	70 - 130
o-Xylene	1.00	1.03		mg/Kg		103	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*99*		*70 - 130*
2,5-Dibromotoluene (pid)	*98*		*70 - 130*

Lab Sample ID: LCSD 620-23366/2-A
Matrix: Solid
Analysis Batch: 23320

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23366

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics	1.00	ND		mg/Kg		113	70 - 130	3	25
C5-C8 Aliphatics (unadjusted)	3.00	ND		mg/Kg		101	70 - 130	1	25
C9-C12 Aliphatics (unadjusted)	3.00	ND		mg/Kg		97	70 - 130	2	25
Benzene	1.00	1.05		mg/Kg		105	70 - 130	2	25
Ethylbenzene	1.00	1.03		mg/Kg		103	70 - 130	4	25

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-23366/2-A
Matrix: Solid
Analysis Batch: 23320

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23366

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methyl tert-butyl ether			1.00	1.05		mg/Kg		105	70 - 130	4	25
Naphthalene			1.00	1.04		mg/Kg		104	70 - 130	0	25
Toluene			1.00	1.04		mg/Kg		104	70 - 130	2	25
m,p-Xylene			2.00	2.06		mg/Kg		103	70 - 130	4	25
o-Xylene			1.00	1.00		mg/Kg		100	70 - 130	3	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*99*		*70 - 130*
2,5-Dibromotoluene (pid)	*98*		*70 - 130*

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-23135/1-B
Matrix: Solid
Analysis Batch: 23246

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23135

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		6.7	6.7	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
C19-C36 Aliphatics	ND		6.7	6.7	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
C11-C22 Aromatics	ND		6.7	6.7	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
C11-C22 Aromatics (Adjusted)	ND		6.7	6.7	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Naphthalene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
2-Methylnaphthalene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Acenaphthylene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Acenaphthene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Fluorene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Phenanthrene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Anthracene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Fluoranthene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Pyrene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Benzo[a]anthracene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Chrysene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Benzo[b]fluoranthene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Benzo[k]fluoranthene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Benzo[a]pyrene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Indeno[1,2,3-cd]pyrene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Dibenz(a,h)anthracene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Benzo[g,h,i]perylene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*49*		*40 - 140*	*06/01/23 08:31*	*06/05/23 18:39*	*1*
o-Terphenyl (Surr)	*50*		*40 - 140*	*06/01/23 08:31*	*06/05/23 18:39*	*1*
2-Fluorobiphenyl (Surr)	*103*		*40 - 140*	*06/01/23 08:31*	*06/05/23 18:39*	*1*

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCS 620-23135/2-B
Matrix: Solid
Analysis Batch: 23246

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23135

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C18 Aliphatics			8.00	ND		mg/Kg		42	40 - 140		
C19-C36 Aliphatics			10.7	ND		mg/Kg		49	40 - 140		
C11-C22 Aromatics			22.7	18.0		mg/Kg		79	40 - 140		
Naphthalene			1.33	0.842		mg/Kg		63	40 - 140		
2-Methylnaphthalene			1.33	0.826		mg/Kg		62	40 - 140		
Acenaphthylene			1.33	0.800		mg/Kg		60	40 - 140		
Acenaphthene			1.33	0.781		mg/Kg		59	40 - 140		
Fluorene			1.33	0.772		mg/Kg		58	40 - 140		
Phenanthrene			1.33	0.691		mg/Kg		52	40 - 140		
Anthracene			1.33	0.821		mg/Kg		62	40 - 140		
Fluoranthene			1.33	1.30		mg/Kg		97	40 - 140		
Pyrene			1.33	0.911		mg/Kg		68	40 - 140		
Benzo[a]anthracene			1.33	0.790		mg/Kg		59	40 - 140		
Chrysene			1.33	0.984		mg/Kg		74	40 - 140		
Benzo[b]fluoranthene			1.33	0.905		mg/Kg		68	40 - 140		
Benzo[k]fluoranthene			1.33	1.25		mg/Kg		93	40 - 140		
Benzo[a]pyrene			1.33	1.12		mg/Kg		84	40 - 140		
Indeno[1,2,3-cd]pyrene			1.33	0.896		mg/Kg		67	40 - 140		
Dibenz(a,h)anthracene			1.33	0.946		mg/Kg		71	40 - 140		
Benzo[g,h,i]perylene			1.33	1.18		mg/Kg		88	40 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*54*		*40 - 140*
o-Terphenyl (Surr)	*60*		*40 - 140*
2-Fluorobiphenyl (Surr)	*115*		*40 - 140*

Lab Sample ID: LCSD 620-23135/3-B
Matrix: Solid
Analysis Batch: 23246

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23135

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics			8.00	ND		mg/Kg		46	40 - 140	9	25
C19-C36 Aliphatics			10.7	ND		mg/Kg		51	40 - 140	6	25
C11-C22 Aromatics			22.7	17.2		mg/Kg		76	40 - 140	5	25
Naphthalene			1.33	0.900		mg/Kg		68	40 - 140	7	25
2-Methylnaphthalene			1.33	0.883		mg/Kg		66	40 - 140	7	25
Acenaphthylene			1.33	0.880		mg/Kg		66	40 - 140	10	25
Acenaphthene			1.33	0.843		mg/Kg		63	40 - 140	8	25
Fluorene			1.33	0.841		mg/Kg		63	40 - 140	9	25
Phenanthrene			1.33	0.733		mg/Kg		55	40 - 140	6	25
Anthracene			1.33	0.907		mg/Kg		68	40 - 140	10	25
Fluoranthene			1.33	1.32		mg/Kg		99	40 - 140	2	25
Pyrene			1.33	0.950		mg/Kg		71	40 - 140	4	25
Benzo[a]anthracene			1.33	0.831		mg/Kg		62	40 - 140	5	25
Chrysene			1.33	1.02		mg/Kg		77	40 - 140	4	25
Benzo[b]fluoranthene			1.33	0.866		mg/Kg		65	40 - 140	4	25
Benzo[k]fluoranthene			1.33	1.03		mg/Kg		77	40 - 140	19	25
Benzo[a]pyrene			1.33	1.12		mg/Kg		84	40 - 140	0	25

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-23135/3-B
Matrix: Solid
Analysis Batch: 23246

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23135

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Indeno[1,2,3-cd]pyrene			1.33	0.928		mg/Kg		70	40 - 140	4	25
Dibenz(a,h)anthracene			1.33	0.998		mg/Kg		75	40 - 140	5	25
Benzo[g,h,i]perylene			1.33	1.22		mg/Kg		91	40 - 140	3	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*62*		*40 - 140*
o-Terphenyl (Surr)	*63*		*40 - 140*
2-Fluorobiphenyl (Surr)	*112*		*40 - 140*

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 620-23122/1-A
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23122

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		5.7	0.43	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Arsenic	ND		1.7	0.22	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Barium	ND		1.1	0.13	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Beryllium	ND		0.57	0.029	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Cadmium	ND		0.57	0.030	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Chromium	ND		1.1	0.15	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Lead	ND		1.7	0.24	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Nickel	ND		1.1	0.13	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Selenium	ND		1.7	0.33	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Silver	ND		1.7	0.19	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Thallium	ND		3.4	1.3	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Vanadium	ND		1.7	0.30	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Zinc	ND		3.4	0.88	mg/Kg		05/31/23 14:15	06/01/23 11:12	1

Lab Sample ID: LCDSRM 620-23122/3-A
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23122

Analyte			Spike Added	LCDSRM Result	LCDSRM Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony			232	72.0		mg/Kg		31.0	10.0 - 139.2	0	20
Arsenic			195	160		mg/Kg		82.2	65.6 - 122.1	4	20
Barium			321	286		mg/Kg		89.0	69.5 - 115.9	0	20
Beryllium			84.8	73.8		mg/Kg		87.0	69.7 - 116.0	6	20
Cadmium			247	170		mg/Kg		68.8	67.2 - 111.7	9	20
Chromium			217	182		mg/Kg		84.0	64.5 - 119.8	5	20
Lead			270	216		mg/Kg		80.0	70.4 - 120.0	4	20
Nickel			187	143		mg/Kg		76.7	63.1 - 117.1	4	20

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCDSRM 620-23122/3-A
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23122

Analyte	Spike Added	LCDSRM Result	LCDSRM Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Selenium	241	183		mg/Kg		75.8	62.2 - 118.3	6	20
Silver	72.0	64.6		mg/Kg		89.7	66.5 - 121.7	8	20
Thallium	88.9	74.2		mg/Kg		83.5	58.9 - 122.6	9	20
Vanadium	225	203		mg/Kg		90.4	68.0 - 114.2	4	20
Zinc	242	188		mg/Kg		77.7	64.9 - 120.7	4	20

Lab Sample ID: LCSSRM 620-23122/2-A
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23122

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	232	72.0		mg/Kg		31.0	10.0 - 139.2
Arsenic	195	167		mg/Kg		85.4	65.6 - 122.1
Barium	321	287		mg/Kg		89.4	69.5 - 115.9
Beryllium	84.8	78.5		mg/Kg		92.5	69.7 - 116.0
Cadmium	247	186		mg/Kg		75.4	67.2 - 111.7
Chromium	217	192		mg/Kg		88.5	64.5 - 119.8
Lead	270	226		mg/Kg		83.7	70.4 - 120.0
Nickel	187	150		mg/Kg		80.1	63.1 - 117.1
Selenium	241	193		mg/Kg		80.3	62.2 - 118.3
Silver	72.0	59.7		mg/Kg		82.9	66.5 - 121.7
Thallium	88.9	81.3		mg/Kg		91.5	58.9 - 122.6
Vanadium	225	212		mg/Kg		94.3	68.0 - 114.2
Zinc	242	195		mg/Kg		80.7	64.9 - 120.7

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 620-23147/1-A
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23147

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.050	0.0083	mg/Kg		06/01/23 09:40	06/02/23 12:01	1

Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: LCDSRM 620-23147/3-A
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23147

Analyte			Spike Added	LCDSRM Result	LCDSRM Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury			18.2	19.7		mg/Kg		108.1	59.9 - 140.1	1	20

Lab Sample ID: LCSSRM 620-23147/2-A
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23147

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			18.2	19.6		mg/Kg		107.5	59.9 - 140.1		

QC Association Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-2

GC VOA

Analysis Batch: 23320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-3	LM-SO-UST04-053023	Total/NA	Solid	MAVPH2.1	23366
MB 620-23366/3-A	Method Blank	Total/NA	Solid	MAVPH2.1	23366
LCS 620-23366/1-A	Lab Control Sample	Total/NA	Solid	MAVPH2.1	23366
LCSD 620-23366/2-A	Lab Control Sample Dup	Total/NA	Solid	MAVPH2.1	23366

Prep Batch: 23366

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-3	LM-SO-UST04-053023	Total/NA	Solid	5035	
MB 620-23366/3-A	Method Blank	Total/NA	Solid	5035	
LCS 620-23366/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 620-23366/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

GC Semi VOA

Prep Batch: 23135

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-3	LM-SO-UST04-053023	Total/NA	Solid	3546	
MB 620-23135/1-B	Method Blank	Total/NA	Solid	3546	
LCS 620-23135/2-B	Lab Control Sample	Total/NA	Solid	3546	
LCSD 620-23135/3-B	Lab Control Sample Dup	Total/NA	Solid	3546	

Analysis Batch: 23246

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-3	LM-SO-UST04-053023	Total/NA	Solid	MAEPH2.1	23279
MB 620-23135/1-B	Method Blank	Total/NA	Solid	MAEPH2.1	23279
LCS 620-23135/2-B	Lab Control Sample	Total/NA	Solid	MAEPH2.1	23279
LCSD 620-23135/3-B	Lab Control Sample Dup	Total/NA	Solid	MAEPH2.1	23279

Fraction Batch: 23279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-3	LM-SO-UST04-053023	Total/NA	Solid	MA EPH Frac	23135
MB 620-23135/1-B	Method Blank	Total/NA	Solid	MA EPH Frac	23135
LCS 620-23135/2-B	Lab Control Sample	Total/NA	Solid	MA EPH Frac	23135
LCSD 620-23135/3-B	Lab Control Sample Dup	Total/NA	Solid	MA EPH Frac	23135

Metals

Prep Batch: 23122

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-3	LM-SO-UST04-053023	Total/NA	Solid	3050B	
MB 620-23122/1-A	Method Blank	Total/NA	Solid	3050B	
LCDSRM 620-23122/3-A	Lab Control Sample Dup	Total/NA	Solid	3050B	
LCSSRM 620-23122/2-A	Lab Control Sample	Total/NA	Solid	3050B	

Prep Batch: 23147

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-3	LM-SO-UST04-053023	Total/NA	Solid	7471B	
MB 620-23147/1-A	Method Blank	Total/NA	Solid	7471B	
LCDSRM 620-23147/3-A	Lab Control Sample Dup	Total/NA	Solid	7471B	
LCSSRM 620-23147/2-A	Lab Control Sample	Total/NA	Solid	7471B	

QC Association Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-2

Metals

Analysis Batch: 23183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-3	LM-SO-UST04-053023	Total/NA	Solid	6010D	23122
MB 620-23122/1-A	Method Blank	Total/NA	Solid	6010D	23122
LCDSRM 620-23122/3-A	Lab Control Sample Dup	Total/NA	Solid	6010D	23122
LCSSRM 620-23122/2-A	Lab Control Sample	Total/NA	Solid	6010D	23122

Analysis Batch: 23226

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-3	LM-SO-UST04-053023	Total/NA	Solid	7471A	23147
MB 620-23147/1-A	Method Blank	Total/NA	Solid	7471A	23147
LCDSRM 620-23147/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	23147
LCSSRM 620-23147/2-A	Lab Control Sample	Total/NA	Solid	7471A	23147

General Chemistry

Analysis Batch: 23163

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-3	LM-SO-UST04-053023	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-2

Client Sample ID: LM-SO-UST04-053023
Date Collected: 05/30/23 13:30
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	23163	MJH	EET NE	06/01/23 11:46

Client Sample ID: LM-SO-UST04-053023
Date Collected: 05/30/23 13:30
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-3
Matrix: Solid
Percent Solids: 90.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			23366	BMH	EET NE	06/06/23 10:47
Total/NA	Analysis	MAVPH2.1		1	23320	BMH	EET NE	06/06/23 21:56
Total/NA	Prep	3546			23135	JAC	EET NE	06/01/23 08:31
Total/NA	Fraction	MA EPH Frac			23279	AAH	EET NE	06/05/23 15:02
Total/NA	Analysis	MAEPH2.1		1	23246	BJJ	EET NE	06/05/23 21:06
Total/NA	Prep	3050B			23122	PRB	EET NE	05/31/23 14:15
Total/NA	Analysis	6010D		1	23183	JPC	EET NE	06/01/23 13:06
Total/NA	Prep	7471B			23147	PRB	EET NE	06/01/23 09:40
Total/NA	Analysis	7471A		1	23226	PRB	EET NE	06/02/23 12:18

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-11778-2
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Massachusetts	State	M-RI907	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6010D	3050B	Solid	Antimony
6010D	3050B	Solid	Arsenic
6010D	3050B	Solid	Barium
6010D	3050B	Solid	Beryllium
6010D	3050B	Solid	Cadmium
6010D	3050B	Solid	Chromium
6010D	3050B	Solid	Lead
6010D	3050B	Solid	Nickel
6010D	3050B	Solid	Selenium
6010D	3050B	Solid	Silver
6010D	3050B	Solid	Thallium
6010D	3050B	Solid	Vanadium
6010D	3050B	Solid	Zinc
7471A	7471B	Solid	Mercury
MAEPH2.1	3546	Solid	2-Methylnaphthalene
MAEPH2.1	3546	Solid	Acenaphthene
MAEPH2.1	3546	Solid	Acenaphthylene
MAEPH2.1	3546	Solid	Anthracene
MAEPH2.1	3546	Solid	Benzo[a]anthracene
MAEPH2.1	3546	Solid	Benzo[a]pyrene
MAEPH2.1	3546	Solid	Benzo[b]fluoranthene
MAEPH2.1	3546	Solid	Benzo[g,h,i]perylene
MAEPH2.1	3546	Solid	Benzo[k]fluoranthene
MAEPH2.1	3546	Solid	C11-C22 Aromatics
MAEPH2.1	3546	Solid	C11-C22 Aromatics (Adjusted)
MAEPH2.1	3546	Solid	C19-C36 Aliphatics
MAEPH2.1	3546	Solid	C9-C18 Aliphatics
MAEPH2.1	3546	Solid	Chrysene
MAEPH2.1	3546	Solid	Dibenz(a,h)anthracene
MAEPH2.1	3546	Solid	Fluoranthene
MAEPH2.1	3546	Solid	Fluorene
MAEPH2.1	3546	Solid	Indeno[1,2,3-cd]pyrene
MAEPH2.1	3546	Solid	Naphthalene
MAEPH2.1	3546	Solid	Phenanthrene
MAEPH2.1	3546	Solid	Pyrene
MAVPH2.1	5035	Solid	Benzene
MAVPH2.1	5035	Solid	C5-C8 Aliphatics (adjusted)
MAVPH2.1	5035	Solid	C5-C8 Aliphatics (unadjusted)
MAVPH2.1	5035	Solid	C9-C10 Aromatics
MAVPH2.1	5035	Solid	C9-C12 Aliphatics (adjusted)
MAVPH2.1	5035	Solid	C9-C12 Aliphatics (unadjusted)
MAVPH2.1	5035	Solid	Ethylbenzene
MAVPH2.1	5035	Solid	m,p-Xylene
MAVPH2.1	5035	Solid	Methyl tert-butyl ether
MAVPH2.1	5035	Solid	Naphthalene

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-11778-2
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
MAVPH2.1	5035	Solid	o-Xylene
MAVPH2.1	5035	Solid	Toluene
MAVPH2.1	5035	Solid	Xylenes, Total
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

Method Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-2

Method	Method Description	Protocol	Laboratory
MAVPH2.1	Massachusetts - Volatile Petroleum Hydrocarbons (GC)	MA DEP	EET NE
MAEPH2.1	Massachusetts - Extractable Petroleum Hydrocarbons (GC)	MA DEP	EET NE
6010D	Metals (ICP)	SW846	EET NE
7471A	Mercury (CVAA)	SW846	EET NE
Moisture	Percent Moisture	EPA	EET NE
3050B	Preparation, Metals	SW846	EET NE
3546	Microwave Extraction	SW846	EET NE
5035	Closed System Purge and Trap	SW846	EET NE
7471B	Preparation, Mercury	SW846	EET NE
MA EPH Frac	Massachusetts - Extractable Petroleum Hydrocarbon Fractionation	MA DEP	EET NE

Protocol References:

EPA = US Environmental Protection Agency

MA DEP = Massachusetts Department Of Environmental Protection

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Sample Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
620-11778-3	LM-SO-UST04-053023	Solid	05/30/23 13:30	05/31/23 13:30

10778

620-11778 Chain of Custody

Chain of Custody Record

eurofins | Environment Testing

	Sampler: S Stone	Lab PM	Carrier Tracking No(s)	COC No: 620-10175-1337 3
Bridget Fortier	Phone	E-Mail: arcyn@nobis-group.com	State of Origin: MA	Page: Page ~~3 of 3~~ 1 of 1
Company: Nobis Engineering, Inc	PWSID			Job #:

Analysis Requested

Address: 585 Middlesex Street	Due Date Requested: 6/2-23
City: Lowell	TAT Requested (days): LM-SO-SD01-053123]2 day; LM-SO-SD02-053123
State, Zip: MA, 01851	Compliance Project: Δ Yes Δ No
Phone	PO #:
Email: bfortier@nobis-group com	WO #:
Project Name: Former L&M	Project #: 50000105/400
Site: Former L&M	SSOW#:

Preservation Codes:

A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Y - Trizma; Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	VPH	EPH, metals, % moisture	VOCs LL	VOCs HL	SVOCs, pest, PCBs & TPH	TCLP RCRA	Spec. Cond, Flashpoint, Reactivity	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	F		J	F				X	
				Water											
				Solid											
				Water											
LM-SO-SD01-053123	5-31-23	750	C	Soil					X	X	X	X	X		
LM-SO-SD02-053123	5-31-23	810	C	Soil					X	X	X	X	X		
LM-SO-UST04-053023	5-30-23	1330	C	Soil			X	X							

Page 23 of 24 5 02 03

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested I, II, III, IV, Other (specify): EDD PDF and Email

Special Instructions/QC Requirements: MCP CAM Methods; LM-SO-UST04-053023 is standard TAT

Empty Kit Relinquished by	Date:	Time	Method of Shipment:

Relinquished by:	Date/Time: 5-31-23 10:55	Company	Received by:	Date/Time: 5/31/23 10:55	Company
Relinquished by:	Date/Time: 5/31/23	Company	Received by:	Date/Time: 5/31/23 13:30	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No..

Cooler Temperature(s) °C and Other Remarks: 0.9 +0.2 -0.6 IR#5

6/7/2023

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Nobis Engineering, Inc.

Job Number: 620-11778-2

Login Number: 11778
List Number: 1
Creator: Makhoul, Elie

List Source: Eurofins New England

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

PREPARED FOR

Attn: Adam Roy
Nobis Engineering, Inc.
585 Middlesex Street
Lowell, Massachusetts 01851

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JOB DESCRIPTION

Former L&M - Lunenburg MA

JOB NUMBER

620-11883-1

Eurofins New England
646 Camp Ave
North Kingstown RI 02852

See page two for job notes and contact information.

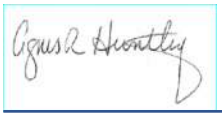
my EOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northeast, LLC Project Manager.

Authorization



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Authorized for release by
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Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
Case Narrative 5
Detection Summary 6
Client Sample Results 7
Surrogate Summary 10
QC Sample Results 11
QC Association Summary 17
Lab Chronicle 19
Certification Summary 20
Method Summary 22
Sample Summary 23
Chain of Custody 24
Receipt Checklists 25

Definitions/Glossary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11883-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.

GC Semi VOA

Qualifier	Qualifier Description
S1-	Surrogate recovery exceeds control limits, low biased.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client: Nobis Engineering, Inc. Job ID: 620-11883-1
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11883-1

Laboratory: Eurofins New England

Narrative

Job Narrative
620-11883-1

Receipt
The samples were received on 6/2/2023 3:10 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.4º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA
Method EPH: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 620-23423 and 620-23465 and analytical batch 620-23645 recovered outside control limits for the following analytes: 2-Methylnaphthalene, Anthracene and Benzo[g,h,i]perylene. The individual percent recoveries are within acceptance criteria.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method MAEPH2.1: Surrogate recovery for the following sample was outside control limits: LM-GW-MW103-060223 (620-11883-1). Evidence of matrix interference was present and noted in the extraction process; therefore, re-extraction and/or re-analysis was not performed.

Method MAEPH2.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 620-23423 and 620-23465 and analytical batch 620-23496 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11883-1

Client Sample ID: LM-GW-MW103-060223 — Lab Sample ID: 620-11883-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.0050	J	0.0060	0.0016	mg/L	1		6010D	Total/NA
Arsenic	0.0035	J	0.0040	0.0014	mg/L	1		6010D	Total/NA
Barium	0.24		0.0050	0.00070	mg/L	1		6010D	Total/NA
Cadmium	0.0012	J	0.0025	0.00036	mg/L	1		6010D	Total/NA
Chromium	0.024		0.0050	0.00093	mg/L	1		6010D	Total/NA
Lead	0.041		0.0075	0.0062	mg/L	1		6010D	Total/NA
Nickel	0.020		0.0050	0.00087	mg/L	1		6010D	Total/NA
Vanadium	0.019		0.0050	0.0011	mg/L	1		6010D	Total/NA
Zinc	0.48		0.025	0.0016	mg/L	1		6010D	Total/NA

Client Sample ID: TB01-060223 — Lab Sample ID: 620-11883-2

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: LM-GW-MW103-060223

Date Collected: 06/02/23 08:35
Date Received: 06/02/23 15:10

Lab Sample ID: 620-11883-1

Matrix: Water

Method: MA DEP EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.1	0.25	ug/L		06/08/23 13:47	06/15/23 17:32	1
2-Methylnaphthalene	ND	*1	1.1	0.31	ug/L		06/08/23 13:47	06/15/23 17:32	1
Acenaphthylene	ND		1.1	0.41	ug/L		06/08/23 13:47	06/15/23 17:32	1
Acenaphthene	ND		1.1	0.20	ug/L		06/08/23 13:47	06/15/23 17:32	1
Fluorene	ND		1.1	0.41	ug/L		06/08/23 13:47	06/15/23 17:32	1
Phenanthrene	ND		1.1	0.18	ug/L		06/08/23 13:47	06/15/23 17:32	1
Anthracene	ND	*1	1.1	0.16	ug/L		06/08/23 13:47	06/15/23 17:32	1
Fluoranthene	ND		1.1	0.16	ug/L		06/08/23 13:47	06/15/23 17:32	1
Pyrene	ND		1.1	0.15	ug/L		06/08/23 13:47	06/15/23 17:32	1
Benzo[a]anthracene	ND		1.1	0.074	ug/L		06/08/23 13:47	06/15/23 17:32	1
Chrysene	ND		1.1	0.15	ug/L		06/08/23 13:47	06/15/23 17:32	1
Benzo[b]fluoranthene	ND		1.1	0.16	ug/L		06/08/23 13:47	06/15/23 17:32	1
Benzo[k]fluoranthene	ND		1.1	0.25	ug/L		06/08/23 13:47	06/15/23 17:32	1
Benzo[a]pyrene	ND		0.21	0.17	ug/L		06/08/23 13:47	06/15/23 17:32	1
Indeno[1,2,3-cd]pyrene	ND		0.53	0.49	ug/L		06/08/23 13:47	06/15/23 17:32	1
Dibenz(a,h)anthracene	ND		0.53	0.23	ug/L		06/08/23 13:47	06/15/23 17:32	1
Benzo[g,h,i]perylene	ND	*1	1.1	0.18	ug/L		06/08/23 13:47	06/15/23 17:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*42*		*40 - 140*	*06/08/23 13:47*	*06/15/23 17:32*	*1*
2-Fluorobiphenyl (Surr)	*102*		*40 - 140*	*06/08/23 13:47*	*06/15/23 17:32*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			06/06/23 02:40	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			06/06/23 02:40	1
C9-C10 Aromatics	ND		100	100	ug/L			06/06/23 02:40	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			06/06/23 02:40	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			06/06/23 02:40	1
Benzene	ND		5.0	5.0	ug/L			06/06/23 02:40	1
Ethylbenzene	ND		5.0	5.0	ug/L			06/06/23 02:40	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			06/06/23 02:40	1
Naphthalene	ND		5.0	5.0	ug/L			06/06/23 02:40	1
Toluene	ND		5.0	5.0	ug/L			06/06/23 02:40	1
m,p-Xylene	ND		10	10	ug/L			06/06/23 02:40	1
o-Xylene	ND		5.0	5.0	ug/L			06/06/23 02:40	1
Xylenes, Total	ND		15	15	ug/L			06/06/23 02:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*99*		*70 - 130*		*06/06/23 02:40*	*1*
2,5-Dibromotoluene (pid)	*93*		*70 - 130*		*06/06/23 02:40*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		110	110	ug/L		06/08/23 13:47	06/14/23 13:43	1
C19-C36 Aliphatics	ND		110	110	ug/L		06/08/23 13:47	06/14/23 13:43	1
C11-C22 Aromatics	ND		110	110	ug/L		06/08/23 13:47	06/14/23 13:43	1
C11-C22 Aromatics (Adjusted)	ND		110	110	ug/L		06/08/23 13:47	06/14/23 13:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*26*	*S1-*	*40 - 140*	*06/08/23 13:47*	*06/14/23 13:43*	*1*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11883-1

Client Sample ID: LM-GW-MW103-060223
Date Collected: 06/02/23 08:35
Date Received: 06/02/23 15:10

Lab Sample ID: 620-11883-1
Matrix: Water

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*42*		*40 - 140*	*06/08/23 13:47*	*06/14/23 13:43*	*1*
2-Fluorobiphenyl (Surr)	*99*		*40 - 140*	*06/08/23 13:47*	*06/14/23 13:43*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0050**	**J**	0.0060	0.0016	mg/L		06/05/23 07:49	06/07/23 12:55	1
Arsenic	**0.0035**	**J**	0.0040	0.0014	mg/L		06/05/23 07:49	06/07/23 12:55	1
Barium	**0.24**		0.0050	0.00070	mg/L		06/05/23 07:49	06/07/23 12:55	1
Beryllium	ND		0.0020	0.00028	mg/L		06/05/23 07:49	06/07/23 12:55	1
Cadmium	**0.0012**	**J**	0.0025	0.00036	mg/L		06/05/23 07:49	06/07/23 12:55	1
Chromium	**0.024**		0.0050	0.00093	mg/L		06/05/23 07:49	06/07/23 12:55	1
Lead	**0.041**		0.0075	0.0062	mg/L		06/05/23 07:49	06/07/23 12:55	1
Nickel	**0.020**		0.0050	0.00087	mg/L		06/05/23 07:49	06/07/23 12:55	1
Selenium	ND		0.015	0.0042	mg/L		06/05/23 07:49	06/07/23 12:55	1
Silver	ND		0.0050	0.00062	mg/L		06/05/23 07:49	06/07/23 12:55	1
Thallium	ND		0.0050	0.0021	mg/L		06/05/23 07:49	06/07/23 12:55	1
Vanadium	**0.019**		0.0050	0.0011	mg/L		06/05/23 07:49	06/07/23 12:55	1
Zinc	**0.48**		0.025	0.0016	mg/L		06/05/23 07:49	06/07/23 12:55	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		06/12/23 10:41	06/12/23 16:20	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11883-1

Client Sample ID: TB01-060223
Date Collected: 06/02/23 10:00
Date Received: 06/02/23 15:10

Lab Sample ID: 620-11883-2
Matrix: Water

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			06/05/23 17:52	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			06/05/23 17:52	1
C9-C10 Aromatics	ND		100	100	ug/L			06/05/23 17:52	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			06/05/23 17:52	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			06/05/23 17:52	1
Benzene	ND		5.0	5.0	ug/L			06/05/23 17:52	1
Ethylbenzene	ND		5.0	5.0	ug/L			06/05/23 17:52	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			06/05/23 17:52	1
Naphthalene	ND		5.0	5.0	ug/L			06/05/23 17:52	1
Toluene	ND		5.0	5.0	ug/L			06/05/23 17:52	1
m,p-Xylene	ND		10	10	ug/L			06/05/23 17:52	1
o-Xylene	ND		5.0	5.0	ug/L			06/05/23 17:52	1
Xylenes, Total	ND		15	15	ug/L			06/05/23 17:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*90*		*70 - 130*		*06/05/23 17:52*	*1*
2,5-Dibromotoluene (pid)	*86*		*70 - 130*		*06/05/23 17:52*	*1*

Surrogate Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11883-1

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH (40-140)	FBP (40-140)
620-11883-1	LM-GW-MW103-060223	42	102
LCS 620-23423/24-B	Lab Control Sample	64	101
LCSD 620-23423/25-B	Lab Control Sample Dup	72	95
MB 620-23423/1-B	Method Blank	60	115

Surrogate Legend

OTPH = o-Terphenyl (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	25DBTf1 (70-130)	25DBTp1 (70-130)
620-11883-1	LM-GW-MW103-060223	99	93
620-11883-2	TB01-060223	90	86
LCS 620-23260/4	Lab Control Sample	89	86
LCSD 620-23260/5	Lab Control Sample Dup	92	88
MB 620-23260/6	Method Blank	94	90

Surrogate Legend

25DBTf = 2,5-Dibromotoluene (fid)
25DBTp = 2,5-Dibromotoluene (pid)

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	1COD1 (40-140)	OTPH1 (40-140)	FBP1 (40-140)
620-11883-1	LM-GW-MW103-060223	26 S1-	42	99
LCS 620-23423/2-B	Lab Control Sample	61	75	120
LCSD 620-23423/3-B	Lab Control Sample Dup	76	72	115
MB 620-23423/1-B	Method Blank	68	67	110

Surrogate Legend

1COD = 1-Chlorooctadecane (Surr)
OTPH = o-Terphenyl (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11883-1

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Lab Sample ID: MB 620-23423/1-B
Matrix: Water
Analysis Batch: 23645

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23423

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.0	0.23	ug/L		06/08/23 13:47	06/15/23 16:25	1
2-Methylnaphthalene	ND		1.0	0.29	ug/L		06/08/23 13:47	06/15/23 16:25	1
Acenaphthylene	ND		1.0	0.39	ug/L		06/08/23 13:47	06/15/23 16:25	1
Acenaphthene	ND		1.0	0.19	ug/L		06/08/23 13:47	06/15/23 16:25	1
Fluorene	ND		1.0	0.39	ug/L		06/08/23 13:47	06/15/23 16:25	1
Phenanthrene	ND		1.0	0.17	ug/L		06/08/23 13:47	06/15/23 16:25	1
Anthracene	ND		1.0	0.15	ug/L		06/08/23 13:47	06/15/23 16:25	1
Fluoranthene	ND		1.0	0.15	ug/L		06/08/23 13:47	06/15/23 16:25	1
Pyrene	ND		1.0	0.14	ug/L		06/08/23 13:47	06/15/23 16:25	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		06/08/23 13:47	06/15/23 16:25	1
Chrysene	ND		1.0	0.14	ug/L		06/08/23 13:47	06/15/23 16:25	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		06/08/23 13:47	06/15/23 16:25	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		06/08/23 13:47	06/15/23 16:25	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		06/08/23 13:47	06/15/23 16:25	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		06/08/23 13:47	06/15/23 16:25	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		06/08/23 13:47	06/15/23 16:25	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		06/08/23 13:47	06/15/23 16:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*60*		*40 - 140*	*06/08/23 13:47*	*06/15/23 16:25*	*1*
2-Fluorobiphenyl (Surr)	*115*		*40 - 140*	*06/08/23 13:47*	*06/15/23 16:25*	*1*

Lab Sample ID: LCS 620-23423/24-B
Matrix: Water
Analysis Batch: 23645

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23423

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Naphthalene	5.00	1.99		ug/L		40	40 - 140
2-Methylnaphthalene	5.00	2.17		ug/L		43	40 - 140
Acenaphthylene	5.00	2.89		ug/L		58	40 - 140
Acenaphthene	5.00	2.39		ug/L		48	40 - 140
Fluorene	5.00	2.68		ug/L		54	40 - 140
Phenanthrene	5.00	2.66		ug/L		53	40 - 140
Anthracene	5.00	2.02		ug/L		40	40 - 140
Fluoranthene	5.00	3.33		ug/L		67	40 - 140
Pyrene	5.00	3.33		ug/L		67	40 - 140
Benzo[a]anthracene	5.00	3.58		ug/L		72	40 - 140
Chrysene	5.00	3.31		ug/L		66	40 - 140
Benzo[b]fluoranthene	5.00	3.77		ug/L		75	40 - 140
Benzo[k]fluoranthene	5.00	3.45		ug/L		69	40 - 140
Benzo[a]pyrene	5.00	3.30		ug/L		66	40 - 140
Indeno[1,2,3-cd]pyrene	5.00	3.31		ug/L		66	40 - 140
Dibenz(a,h)anthracene	5.00	3.27		ug/L		65	40 - 140
Benzo[g,h,i]perylene	5.00	3.59		ug/L		72	40 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*64*		*40 - 140*
2-Fluorobiphenyl (Surr)	*101*		*40 - 140*

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Lab Sample ID: LCSD 620-23423/25-B
Matrix: Water
Analysis Batch: 23645

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23423

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Naphthalene			5.00	2.31		ug/L		46	40 - 140	15	25
2-Methylnaphthalene			5.00	2.82	*1	ug/L		56	40 - 140	26	25
Acenaphthylene			5.00	3.03		ug/L		61	40 - 140	5	25
Acenaphthene			5.00	2.85		ug/L		57	40 - 140	17	25
Fluorene			5.00	2.64		ug/L		53	40 - 140	2	25
Phenanthrene			5.00	2.86		ug/L		57	40 - 140	7	25
Anthracene			5.00	3.00	*1	ug/L		60	40 - 140	39	25
Fluoranthene			5.00	3.76		ug/L		75	40 - 140	12	25
Pyrene			5.00	3.87		ug/L		77	40 - 140	15	25
Benzo[a]anthracene			5.00	3.94		ug/L		79	40 - 140	9	25
Chrysene			5.00	3.45		ug/L		69	40 - 140	4	25
Benzo[b]fluoranthene			5.00	4.24		ug/L		85	40 - 140	12	25
Benzo[k]fluoranthene			5.00	4.15		ug/L		83	40 - 140	18	25
Benzo[a]pyrene			5.00	3.65		ug/L		73	40 - 140	10	25
Indeno[1,2,3-cd]pyrene			5.00	4.24		ug/L		85	40 - 140	25	25
Dibenz(a,h)anthracene			5.00	4.22		ug/L		84	40 - 140	25	25
Benzo[g,h,i]perylene			5.00	4.66	*1	ug/L		93	40 - 140	26	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*72*		*40 - 140*
2-Fluorobiphenyl (Surr)	*95*		*40 - 140*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-23260/6
Matrix: Water
Analysis Batch: 23260

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			06/05/23 15:29	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			06/05/23 15:29	1
C9-C10 Aromatics	ND		100	100	ug/L			06/05/23 15:29	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			06/05/23 15:29	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			06/05/23 15:29	1
Benzene	ND		5.0	5.0	ug/L			06/05/23 15:29	1
Ethylbenzene	ND		5.0	5.0	ug/L			06/05/23 15:29	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			06/05/23 15:29	1
Naphthalene	ND		5.0	5.0	ug/L			06/05/23 15:29	1
Toluene	ND		5.0	5.0	ug/L			06/05/23 15:29	1
m,p-Xylene	ND		10	10	ug/L			06/05/23 15:29	1
o-Xylene	ND		5.0	5.0	ug/L			06/05/23 15:29	1
Xylenes, Total	ND		15	15	ug/L			06/05/23 15:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*94*		*70 - 130*		*06/05/23 15:29*	*1*
2,5-Dibromotoluene (pid)	*90*		*70 - 130*		*06/05/23 15:29*	*1*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCS 620-23260/4
Matrix: Water
Analysis Batch: 23260

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C10 Aromatics			20.0	ND		ug/L		112	70 - 130		
C5-C8 Aliphatics (unadjusted)			60.0	ND		ug/L		97	70 - 130		
C9-C12 Aliphatics (unadjusted)			60.0	ND		ug/L		98	70 - 130		
Benzene			20.0	19.3		ug/L		96	70 - 130		
Ethylbenzene			20.0	20.5		ug/L		103	70 - 130		
Methyl tert-butyl ether			20.0	18.5		ug/L		93	70 - 130		
Naphthalene			20.0	19.5		ug/L		97	70 - 130		
Toluene			20.0	19.9		ug/L		99	70 - 130		
m,p-Xylene			40.0	42.2		ug/L		106	70 - 130		
o-Xylene			20.0	21.3		ug/L		107	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*89*		*70 - 130*
2,5-Dibromotoluene (pid)	*86*		*70 - 130*

Lab Sample ID: LCSD 620-23260/5
Matrix: Water
Analysis Batch: 23260

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics			20.0	ND		ug/L		108	70 - 130	4	25
C5-C8 Aliphatics (unadjusted)			60.0	ND		ug/L		97	70 - 130	0	25
C9-C12 Aliphatics (unadjusted)			60.0	ND		ug/L		96	70 - 130	2	25
Benzene			20.0	19.2		ug/L		96	70 - 130	1	25
Ethylbenzene			20.0	20.6		ug/L		103	70 - 130	0	25
Methyl tert-butyl ether			20.0	19.2		ug/L		96	70 - 130	4	25
Naphthalene			20.0	19.1		ug/L		96	70 - 130	2	25
Toluene			20.0	20.0		ug/L		100	70 - 130	1	25
m,p-Xylene			40.0	42.3		ug/L		106	70 - 130	0	25
o-Xylene			20.0	21.3		ug/L		107	70 - 130	0	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*92*		*70 - 130*
2,5-Dibromotoluene (pid)	*88*		*70 - 130*

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-23423/1-B
Matrix: Water
Analysis Batch: 23496

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23423

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		100	100	ug/L		06/08/23 13:47	06/13/23 12:11	1
C19-C36 Aliphatics	ND		100	100	ug/L		06/08/23 13:47	06/13/23 12:11	1
C11-C22 Aromatics	ND		100	100	ug/L		06/08/23 13:47	06/13/23 12:11	1
C11-C22 Aromatics (Adjusted)	ND		100	100	ug/L		06/08/23 13:47	06/13/23 12:11	1

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: MB 620-23423/1-B
Matrix: Water
Analysis Batch: 23496

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23423

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctadecane (Surr)	68		40 - 140	06/08/23 13:47	06/13/23 12:11	1
o-Terphenyl (Surr)	67		40 - 140	06/08/23 13:47	06/13/23 12:11	1
2-Fluorobiphenyl (Surr)	110		40 - 140	06/08/23 13:47	06/13/23 12:11	1

Lab Sample ID: LCS 620-23423/2-B
Matrix: Water
Analysis Batch: 23496

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23423

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C18 Aliphatics			120	ND		ug/L		55	40 - 140		
C19-C36 Aliphatics			160	123		ug/L		77	40 - 140		
C11-C22 Aromatics			340	329		ug/L		97	40 - 140		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctadecane (Surr)	61		40 - 140
o-Terphenyl (Surr)	75		40 - 140
2-Fluorobiphenyl (Surr)	120		40 - 140

Lab Sample ID: LCSD 620-23423/3-B
Matrix: Water
Analysis Batch: 23496

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23423

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics			120	ND		ug/L		66	40 - 140	18	25
C19-C36 Aliphatics			160	120		ug/L		75	40 - 140	2	25
C11-C22 Aromatics			340	308		ug/L		91	40 - 140	7	25

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctadecane (Surr)	76		40 - 140
o-Terphenyl (Surr)	72		40 - 140
2-Fluorobiphenyl (Surr)	115		40 - 140

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 620-23239/1-A
Matrix: Water
Analysis Batch: 23376

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23239

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0060	0.0016	mg/L		06/05/23 07:45	06/07/23 09:59	1
Arsenic	ND		0.0040	0.0014	mg/L		06/05/23 07:45	06/07/23 09:59	1
Barium	ND		0.0050	0.00070	mg/L		06/05/23 07:45	06/07/23 09:59	1
Beryllium	ND		0.0020	0.00028	mg/L		06/05/23 07:45	06/07/23 09:59	1
Cadmium	ND		0.0025	0.00036	mg/L		06/05/23 07:45	06/07/23 09:59	1
Chromium	ND		0.0050	0.00093	mg/L		06/05/23 07:45	06/07/23 09:59	1
Lead	ND		0.0075	0.0062	mg/L		06/05/23 07:45	06/07/23 09:59	1
Nickel	ND		0.0050	0.00087	mg/L		06/05/23 07:45	06/07/23 09:59	1
Selenium	ND		0.015	0.0042	mg/L		06/05/23 07:45	06/07/23 09:59	1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: MB 620-23239/1-A
Matrix: Water
Analysis Batch: 23376

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23239

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.0050	0.00062	mg/L		06/05/23 07:45	06/07/23 09:59	1
Thallium	ND		0.0050	0.0021	mg/L		06/05/23 07:45	06/07/23 09:59	1
Vanadium	ND		0.0050	0.0011	mg/L		06/05/23 07:45	06/07/23 09:59	1
Zinc	ND		0.025	0.0016	mg/L		06/05/23 07:45	06/07/23 09:59	1

Lab Sample ID: LCS 620-23239/2-A
Matrix: Water
Analysis Batch: 23376

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23239

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	1.25	1.26		mg/L		101	80 - 120
Arsenic	1.25	1.27		mg/L		101	80 - 120
Barium	1.25	1.25		mg/L		100	80 - 120
Beryllium	1.25	1.27		mg/L		101	80 - 120
Cadmium	1.25	1.26		mg/L		101	80 - 120
Chromium	1.25	1.24		mg/L		99	80 - 120
Lead	1.25	1.27		mg/L		101	80 - 120
Nickel	1.25	1.26		mg/L		100	80 - 120
Selenium	1.25	1.33		mg/L		106	80 - 120
Silver	1.25	1.23		mg/L		98	80 - 120
Thallium	1.25	1.27		mg/L		101	80 - 120
Vanadium	1.25	1.26		mg/L		101	80 - 120
Zinc	1.25	1.29		mg/L		103	80 - 120

Lab Sample ID: LCSD 620-23239/3-A
Matrix: Water
Analysis Batch: 23376

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23239

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	1.25	1.26		mg/L		101	80 - 120	0	20
Arsenic	1.25	1.27		mg/L		102	80 - 120	0	20
Barium	1.25	1.25		mg/L		100	80 - 120	0	20
Beryllium	1.25	1.27		mg/L		102	80 - 120	0	20
Cadmium	1.25	1.26		mg/L		100	80 - 120	0	20
Chromium	1.25	1.24		mg/L		99	80 - 120	0	20
Lead	1.25	1.27		mg/L		101	80 - 120	0	20
Nickel	1.25	1.26		mg/L		100	80 - 120	0	20
Selenium	1.25	1.33		mg/L		106	80 - 120	0	20
Silver	1.25	1.23		mg/L		99	80 - 120	0	20
Thallium	1.25	1.27		mg/L		101	80 - 120	0	20
Vanadium	1.25	1.26		mg/L		101	80 - 120	0	20
Zinc	1.25	1.29		mg/L		103	80 - 120	0	20

QC Sample Results

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11883-1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 620-23514/1-A
Matrix: Water
Analysis Batch: 23549

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23514

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		06/12/23 10:41	06/12/23 16:05	1

Lab Sample ID: LCS 620-23514/2-A
Matrix: Water
Analysis Batch: 23549

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23514

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			0.00500	0.00490		mg/L		98	85 - 115		

Lab Sample ID: LCSD 620-23514/3-A
Matrix: Water
Analysis Batch: 23549

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23514

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury			0.00500	0.00495		mg/L		99	85 - 115	1	20

QC Association Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11883-1

GC/MS Semi VOA

Prep Batch: 23423

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11883-1	LM-GW-MW103-060223	Total/NA	Water	3510C	
MB 620-23423/1-B	Method Blank	Total/NA	Water	3510C	
LCS 620-23423/24-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 620-23423/25-B	Lab Control Sample Dup	Total/NA	Water	3510C	

Fraction Batch: 23465

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11883-1	LM-GW-MW103-060223	Total/NA	Water	MA EPH Frac	23423
MB 620-23423/1-B	Method Blank	Total/NA	Water	MA EPH Frac	23423
LCS 620-23423/24-B	Lab Control Sample	Total/NA	Water	MA EPH Frac	23423
LCSD 620-23423/25-B	Lab Control Sample Dup	Total/NA	Water	MA EPH Frac	23423

Analysis Batch: 23645

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11883-1	LM-GW-MW103-060223	Total/NA	Water	EPH	23465
MB 620-23423/1-B	Method Blank	Total/NA	Water	EPH	23465
LCS 620-23423/24-B	Lab Control Sample	Total/NA	Water	EPH	23465
LCSD 620-23423/25-B	Lab Control Sample Dup	Total/NA	Water	EPH	23465

GC VOA

Analysis Batch: 23260

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11883-1	LM-GW-MW103-060223	Total/NA	Water	MAVPH2.1	
620-11883-2	TB01-060223	Total/NA	Water	MAVPH2.1	
MB 620-23260/6	Method Blank	Total/NA	Water	MAVPH2.1	
LCS 620-23260/4	Lab Control Sample	Total/NA	Water	MAVPH2.1	
LCSD 620-23260/5	Lab Control Sample Dup	Total/NA	Water	MAVPH2.1	

GC Semi VOA

Prep Batch: 23423

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11883-1	LM-GW-MW103-060223	Total/NA	Water	3510C	
MB 620-23423/1-B	Method Blank	Total/NA	Water	3510C	
LCS 620-23423/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 620-23423/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	

Fraction Batch: 23465

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11883-1	LM-GW-MW103-060223	Total/NA	Water	MA EPH Frac	23423
MB 620-23423/1-B	Method Blank	Total/NA	Water	MA EPH Frac	23423
LCS 620-23423/2-B	Lab Control Sample	Total/NA	Water	MA EPH Frac	23423
LCSD 620-23423/3-B	Lab Control Sample Dup	Total/NA	Water	MA EPH Frac	23423

Analysis Batch: 23496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 620-23423/1-B	Method Blank	Total/NA	Water	MAEPH2.1	23465
LCS 620-23423/2-B	Lab Control Sample	Total/NA	Water	MAEPH2.1	23465
LCSD 620-23423/3-B	Lab Control Sample Dup	Total/NA	Water	MAEPH2.1	23465

GC Semi VOA

Analysis Batch: 23595

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11883-1	LM-GW-MW103-060223	Total/NA	Water	MAEPH2.1	23465

Metals

Prep Batch: 23239

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11883-1	LM-GW-MW103-060223	Total/NA	Water	3005A	
MB 620-23239/1-A	Method Blank	Total/NA	Water	3005A	
LCS 620-23239/2-A	Lab Control Sample	Total/NA	Water	3005A	
LCSD 620-23239/3-A	Lab Control Sample Dup	Total/NA	Water	3005A	

Analysis Batch: 23376

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11883-1	LM-GW-MW103-060223	Total/NA	Water	6010D	23239
MB 620-23239/1-A	Method Blank	Total/NA	Water	6010D	23239
LCS 620-23239/2-A	Lab Control Sample	Total/NA	Water	6010D	23239
LCSD 620-23239/3-A	Lab Control Sample Dup	Total/NA	Water	6010D	23239

Prep Batch: 23514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11883-1	LM-GW-MW103-060223	Total/NA	Water	7470A	
MB 620-23514/1-A	Method Blank	Total/NA	Water	7470A	
LCS 620-23514/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 620-23514/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	

Analysis Batch: 23549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11883-1	LM-GW-MW103-060223	Total/NA	Water	7470A	23514
MB 620-23514/1-A	Method Blank	Total/NA	Water	7470A	23514
LCS 620-23514/2-A	Lab Control Sample	Total/NA	Water	7470A	23514
LCSD 620-23514/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	23514

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11883-1

Client Sample ID: LM-GW-MW103-060223

Lab Sample ID: 620-11883-1

Date Collected: 06/02/23 08:35

Matrix: Water

Date Received: 06/02/23 15:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			23423	BMS	EET NE	06/08/23 13:47
Total/NA	Fraction	MA EPH Frac			23465	BMS	EET NE	06/09/23 11:38
Total/NA	Analysis	EPH		1	23645	JS	EET NE	06/15/23 17:32
Total/NA	Analysis	MAVPH2.1		1	23260	BMH	EET NE	06/06/23 02:40
Total/NA	Prep	3510C			23423	BMS	EET NE	06/08/23 13:47
Total/NA	Fraction	MA EPH Frac			23465	BMS	EET NE	06/09/23 11:38
Total/NA	Analysis	MAEPH2.1		1	23595	JS	EET NE	06/14/23 13:43
Total/NA	Prep	3005A			23239	PRB	EET NE	06/05/23 07:49
Total/NA	Analysis	6010D		1	23376	JPC	EET NE	06/07/23 12:55
Total/NA	Prep	7470A			23514	PRB	EET NE	06/12/23 10:41
Total/NA	Analysis	7470A		1	23549	PRB	EET NE	06/12/23 16:20

Client Sample ID: TB01-060223

Lab Sample ID: 620-11883-2

Date Collected: 06/02/23 10:00

Matrix: Water

Date Received: 06/02/23 15:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	MAVPH2.1		1	23260	BMH	EET NE	06/05/23 17:52

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-11883-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Massachusetts	State	M-RI907	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6010D	3005A	Water	Antimony
6010D	3005A	Water	Arsenic
6010D	3005A	Water	Barium
6010D	3005A	Water	Beryllium
6010D	3005A	Water	Cadmium
6010D	3005A	Water	Chromium
6010D	3005A	Water	Lead
6010D	3005A	Water	Nickel
6010D	3005A	Water	Selenium
6010D	3005A	Water	Silver
6010D	3005A	Water	Thallium
6010D	3005A	Water	Vanadium
6010D	3005A	Water	Zinc
7470A	7470A	Water	Mercury
EPH	3510C	Water	2-Methylnaphthalene
EPH	3510C	Water	Acenaphthene
EPH	3510C	Water	Acenaphthylene
EPH	3510C	Water	Anthracene
EPH	3510C	Water	Benzo[a]anthracene
EPH	3510C	Water	Benzo[a]pyrene
EPH	3510C	Water	Benzo[b]fluoranthene
EPH	3510C	Water	Benzo[g,h,i]perylene
EPH	3510C	Water	Benzo[k]fluoranthene
EPH	3510C	Water	Chrysene
EPH	3510C	Water	Dibenz(a,h)anthracene
EPH	3510C	Water	Fluoranthene
EPH	3510C	Water	Fluorene
EPH	3510C	Water	Indeno[1,2,3-cd]pyrene
EPH	3510C	Water	Naphthalene
EPH	3510C	Water	Phenanthrene
EPH	3510C	Water	Pyrene
MAEPH2.1	3510C	Water	C11-C22 Aromatics
MAEPH2.1	3510C	Water	C11-C22 Aromatics (Adjusted)
MAEPH2.1	3510C	Water	C19-C36 Aliphatics
MAEPH2.1	3510C	Water	C9-C18 Aliphatics
MAVPH2.1		Water	Benzene
MAVPH2.1		Water	C5-C8 Aliphatics (adjusted)
MAVPH2.1		Water	C5-C8 Aliphatics (unadjusted)
MAVPH2.1		Water	C9-C10 Aromatics
MAVPH2.1		Water	C9-C12 Aliphatics (adjusted)
MAVPH2.1		Water	C9-C12 Aliphatics (unadjusted)
MAVPH2.1		Water	Ethylbenzene
MAVPH2.1		Water	m,p-Xylene
MAVPH2.1		Water	Methyl tert-butyl ether
MAVPH2.1		Water	Naphthalene

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-11883-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
MAVPH2.1		Water	o-Xylene
MAVPH2.1		Water	Toluene
MAVPH2.1		Water	Xylenes, Total

Method Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11883-1

Method	Method Description	Protocol	Laboratory
EPH	Extractable Petroleum Hydrocarbons (GC/MS)	MA DEP	EET NE
MAVPH2.1	Massachusetts - Volatile Petroleum Hydrocarbons (GC)	MA DEP	EET NE
MAEPH2.1	Massachusetts - Extractable Petroleum Hydrocarbons (GC)	MA DEP	EET NE
6010D	Metals (ICP)	SW846	EET NE
7470A	Mercury (CVAA)	SW846	EET NE
3005A	Preparation, Total Metals	SW846	EET NE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET NE
5030C	Purge and Trap	SW846	EET NE
7470A	Preparation, Mercury	SW846	EET NE
MA EPH Frac	Massachusetts - Extractable Petroleum Hydrocarbon Fractionation	MA DEP	EET NE

Protocol References:

MA DEP = Massachusetts Department Of Environmental Protection

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Sample Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11883-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
620-11883-1	LM-GW-MW103-060223	Water	06/02/23 08:35	06/02/23 15:10
620-11883-2	TB01-060223	Water	06/02/23 10:00	06/02/23 15:10

11883

Chain of Custody Record

eurofins | Environment Testing

	Sampler: S. Stone	Lab PM	Carrier Tracking No(s)	COC No: 620-10175-1337 2
Bridget Fortier	Phone	E-Mail: dru_Nobis-group.com	State of Origin	Page: Page 1 of 3
Company: Nobis Engineering, Inc	PWSID			Job #:

Analysis Requested

Address: 585 Middlesex Street	Due Date Requested:
City: Lowell	TAT Requested (days): Standard
State, Zip: MA, 01851	Compliance Project: Δ Yes Δ No
Phone	PO #:
Email: bfortier@nobis-group.com	WO #:
Project Name: Former L&M	Project #: 500001.005/406
Site: Former L&M	SSOW#:

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	VPH	Metals	EPH	Total Number of containers	Special Instructions/Note:
Preservation Code:							A	D	A		
01 LM-GW-MW103-060223	06-02-23	835	G	Water			X	X	X		metals could not be filtered
02 TB01-060223	06-02-23	1000	G	Water			X				trip blank
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested I, II, III, IV, Other (specify): EDD format PDF & email

Special Instructions/QC Requirements: MCP CAM metals; only 1 EPH due to volume

Empty Kit Relinquished by		Date		Time		Method of Shipment:	
Relinquished by:		Date/Time: 6-2-23 1305	Company: EA	Received by:		Date/Time: 6/2-23 1305	Company: EA
Relinquished by:		Date/Time: 6-2-23 1510	Company: EA	Received by:		Date/Time: 6/2/23 1510	Company: Eurofins
Relinquished by:		Date/Time.	Company	Received by:		Date/Time.	Company

Custody Seals Intact. Δ Yes Δ No | Custody Seal No .

Cooler Temperature(s) °C and Other Remarks: 2.2 +0.2 2.4 #8

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Nobis Engineering, Inc.

Job Number: 620-11883-1

Login Number: 11883
List Number: 1
Creator: Makhoul, Elie

List Source: Eurofins New England

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

PREPARED FOR

Attn: Adam Roy
Nobis Engineering, Inc.
585 Middlesex Street
Lowell, Massachusetts 01851

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JOB DESCRIPTION

Former L&M - Lunenburg MA

JOB NUMBER

620-14582-1

Eurofins New England
646 Camp Ave
North Kingstown RI 02852

See page two for job notes and contact information.

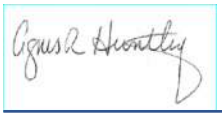
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Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northeast, LLC Project Manager.

Authorization



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Authorized for release by
Agnes Huntley, Project Manager
Agnes.Huntley@et.eurofinsus.com
(401)372-3482

Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
State Forms 6
    MCP Checklist 6
Case Narrative 7
Detection Summary 9
Client Sample Results 12
Surrogate Summary 21
QC Sample Results 22
QC Association Summary 32
Lab Chronicle 35
Certification Summary 38
Method Summary 40
Sample Summary 41
Chain of Custody 42
Receipt Checklists 43

Definitions/Glossary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
S1-	Surrogate recovery exceeds control limits, low biased.

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
F3	Duplicate RPD exceeds the control limit
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL, and the absolute difference between results is < the upper reporting limits for both.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TNTC	Too Numerous To Count

MassDEP Analytical Protocol Certfication Form

Laboratory Name: Eurofins New England | Project #: 620-14582-1

Project Location: Former L&M - Lunenburg MA | RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
620-14582-1 through 620-14582-5

Matrices: ☐ Groundwater/Surface Water ☑ Soil/Sediment ☐ Drinking Water ☐ Air ☐ Other:

CAM Protocol (check all that apply below:)

8260 VOC CAM II A ☐	7470/7471 Hg CAM III B ☑	MassDEP VPH (GC/PID/FID) CAM IV A ☑	8082 PCB CAM V A ☐	9014 Total Cyanide/PAC CAM VI A ☐	6860 Perchlorate CAM VIII B ☐
8270 SVOC CAM II B ☐	7010 Metals CAM III C ☐	MassDEP VPH (GC/MS) CAM IV C ☐	8081 Pesticides CAM V B ☐	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
6010 Metals CAM III A ☑	6020 Metals CAM III D ☐	MassDEP EPH CAM IV B ☑	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes ☐ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☑ Yes ☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes ☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☑ Yes ☐ No
E	VPH, EPH, APH, and TO-15 only a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☑ Yes ☐ No ☐ Yes ☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☑ Yes ☐ No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☐ Yes ☑ No[1]

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☐ Yes ☑ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes ☐ No[1]

1 All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature: Agnes R Huntley **Position:** Project Manager

Printed Name: Agnes Huntley **Date:** 10/30/2023

Job ID: 620-14582-1

Laboratory: Eurofins New England

Narrative

Job Narrative
620-14582-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 10/13/2023 5:11 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.8°C

GC VOA
Method MAVPH2.1: The following sample was diluted due to the nature of the sample matrix (strong odor) : SO-FD01-101223 (620-14582-4). Elevated reporting limits (RLs) are provided.

Method MAVPH2.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 620-28025 and analytical batch 620-27958 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

Method MAVPH2.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 620-28025 and analytical batch 620-27958 were outside control limits for one or more ranges due to the complete integration of the baseline in samples rather than the summation of peaks in QC samples. The associated laboratory control sample (LCS) recovery is within acceptance limits.

Method MAVPH2.1: The following samples required a dilution due to the nature of the sample matrix: SO-B/MW-106-1015 (620-14582-1) and SO-FD01-101223 (620-14582-4). Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA
Method MAEPH2.1: Due to the matrix and fuel odor, the initial volume used for the following samples deviated from the standard procedure: SO-B/MW-106-1015 (620-14582-1) and SO-FD01-101223 (620-14582-4). The reporting limits (RLs) have been adjusted proportionately.

Method MAEPH2.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 620-27844 and 620-27964 and analytical batch 620-28114 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
Method 7471MCP: The matrix spike duplicate (MSD) recoveries and precision for preparation batch 620-27974 and analytical batch 620-28044 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample / matrix spike(LCS/MS) precision was within acceptance limits.

Job ID: 620-14582-1 (Continued)

Laboratory: Eurofins New England (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Client Sample ID: SO-B/MW-106-1015 — Lab Sample ID: 620-14582-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.59		0.15	0.15	mg/Kg	1	☼	MAVPH2.1	Total/NA
Methyl tert-butyl ether	0.23		0.030	0.030	mg/Kg	1	☼	MAVPH2.1	Total/NA
Naphthalene	3.6		0.59	0.59	mg/Kg	1	☼	MAVPH2.1	Total/NA
Toluene	1.3		0.15	0.15	mg/Kg	1	☼	MAVPH2.1	Total/NA
o-Xylene	4.6		0.15	0.15	mg/Kg	1	☼	MAVPH2.1	Total/NA
C5-C8 Aliphatics (adjusted) - DL	340		30	30	mg/Kg	10	☼	MAVPH2.1	Total/NA
C9-C12 Aliphatics (adjusted) - DL	150		30	30	mg/Kg	10	☼	MAVPH2.1	Total/NA
C9-C10 Aromatics - DL	210		30	30	mg/Kg	10	☼	MAVPH2.1	Total/NA
C5-C8 Aliphatics (unadjusted) - DL	340		30	30	mg/Kg	10	☼	MAVPH2.1	Total/NA
C9-C12 Aliphatics (unadjusted) - DL	430		30	30	mg/Kg	10	☼	MAVPH2.1	Total/NA
Ethylbenzene - DL	12		1.5	1.5	mg/Kg	10	☼	MAVPH2.1	Total/NA
m,p-Xylene - DL	51		3.0	3.0	mg/Kg	10	☼	MAVPH2.1	Total/NA
Xylenes, Total - DL	55		4.5	4.5	mg/Kg	10	☼	MAVPH2.1	Total/NA
C9-C18 Aliphatics	60		20	20	mg/Kg	1	☼	MAEPH2.1	Total/NA
C19-C36 Aliphatics	130		20	20	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics	47		20	20	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	44		20	20	mg/Kg	1	☼	MAEPH2.1	Total/NA
Naphthalene	1.7		1.0	1.0	mg/Kg	1	☼	MAEPH2.1	Total/NA
2-Methylnaphthalene	1.8		1.0	1.0	mg/Kg	1	☼	MAEPH2.1	Total/NA
Antimony	1.0	J	4.6	0.35	mg/Kg	1	☼	6010D	Total/NA
Arsenic	8.9		1.4	0.18	mg/Kg	1	☼	6010D	Total/NA
Barium	54		0.92	0.11	mg/Kg	1	☼	6010D	Total/NA
Chromium	20		0.92	0.12	mg/Kg	1	☼	6010D	Total/NA
Lead	7.2		1.4	0.20	mg/Kg	1	☼	6010D	Total/NA
Nickel	14		0.92	0.11	mg/Kg	1	☼	6010D	Total/NA
Vanadium	18		1.4	0.25	mg/Kg	1	☼	6010D	Total/NA
Zinc	22		2.8	0.71	mg/Kg	1	☼	6010D	Total/NA

Client Sample ID: SO-B/MW-107-1015 — Lab Sample ID: 620-14582-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C5-C8 Aliphatics (adjusted)	3.6		2.9	2.9	mg/Kg	1	☼	MAVPH2.1	Total/NA
C9-C12 Aliphatics (adjusted)	9.8		2.9	2.9	mg/Kg	1	☼	MAVPH2.1	Total/NA
C9-C10 Aromatics	16	F2	2.9	2.9	mg/Kg	1	☼	MAVPH2.1	Total/NA
C5-C8 Aliphatics (unadjusted)	3.9	F1	2.9	2.9	mg/Kg	1	☼	MAVPH2.1	Total/NA
C9-C12 Aliphatics (unadjusted)	26	F2	2.9	2.9	mg/Kg	1	☼	MAVPH2.1	Total/NA
Methyl tert-butyl ether	0.31	F1	0.029	0.029	mg/Kg	1	☼	MAVPH2.1	Total/NA
o-Xylene	0.17	F2	0.15	0.15	mg/Kg	1	☼	MAVPH2.1	Total/NA
C19-C36 Aliphatics	32		7.7	7.7	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics	11		7.7	7.7	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	11		7.7	7.7	mg/Kg	1	☼	MAEPH2.1	Total/NA
Antimony	0.93	J	4.6	0.35	mg/Kg	1	☼	6010D	Total/NA
Arsenic	23		1.4	0.18	mg/Kg	1	☼	6010D	Total/NA
Barium	29		0.93	0.11	mg/Kg	1	☼	6010D	Total/NA
Cadmium	0.027	J	0.46	0.024	mg/Kg	1	☼	6010D	Total/NA
Chromium	18		0.93	0.12	mg/Kg	1	☼	6010D	Total/NA
Lead	12		1.4	0.20	mg/Kg	1	☼	6010D	Total/NA
Nickel	12		0.93	0.11	mg/Kg	1	☼	6010D	Total/NA
Vanadium	14		1.4	0.25	mg/Kg	1	☼	6010D	Total/NA
Zinc	56		2.8	0.72	mg/Kg	1	☼	6010D	Total/NA
Mercury	0.023	J F1 F2	0.030	0.0050	mg/Kg	1	☼	7471A	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Client Sample ID: SO-B/MW-108-1518

Lab Sample ID: 620-14582-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C5-C8 Aliphatics (adjusted)	4.3		2.6	2.6	mg/Kg	1	☼	MAVPH2.1	Total/NA
C9-C12 Aliphatics (adjusted)	8.6		2.6	2.6	mg/Kg	1	☼	MAVPH2.1	Total/NA
C9-C10 Aromatics	18		2.6	2.6	mg/Kg	1	☼	MAVPH2.1	Total/NA
C5-C8 Aliphatics (unadjusted)	4.6		2.6	2.6	mg/Kg	1	☼	MAVPH2.1	Total/NA
C9-C12 Aliphatics (unadjusted)	28		2.6	2.6	mg/Kg	1	☼	MAVPH2.1	Total/NA
Ethylbenzene	0.18		0.13	0.13	mg/Kg	1	☼	MAVPH2.1	Total/NA
Methyl tert-butyl ether	0.34		0.026	0.026	mg/Kg	1	☼	MAVPH2.1	Total/NA
m,p-Xylene	0.54		0.26	0.26	mg/Kg	1	☼	MAVPH2.1	Total/NA
o-Xylene	0.24		0.13	0.13	mg/Kg	1	☼	MAVPH2.1	Total/NA
Xylenes, Total	0.78		0.39	0.39	mg/Kg	1	☼	MAVPH2.1	Total/NA
C19-C36 Aliphatics	12		7.6	7.6	mg/Kg	1	☼	MAEPH2.1	Total/NA
Antimony	1.2	J	5.6	0.42	mg/Kg	1	☼	6010D	Total/NA
Arsenic	27		1.7	0.21	mg/Kg	1	☼	6010D	Total/NA
Barium	34		1.1	0.13	mg/Kg	1	☼	6010D	Total/NA
Cadmium	0.035	J	0.56	0.029	mg/Kg	1	☼	6010D	Total/NA
Chromium	21		1.1	0.15	mg/Kg	1	☼	6010D	Total/NA
Lead	17		1.7	0.24	mg/Kg	1	☼	6010D	Total/NA
Nickel	14		1.1	0.13	mg/Kg	1	☼	6010D	Total/NA
Vanadium	17		1.7	0.30	mg/Kg	1	☼	6010D	Total/NA
Zinc	79		3.4	0.87	mg/Kg	1	☼	6010D	Total/NA

Client Sample ID: SO-FD01-101223

Lab Sample ID: 620-14582-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	14		1.5	1.5	mg/Kg	10	☼	MAVPH2.1	Total/NA
Naphthalene	6.9		6.1	6.1	mg/Kg	10	☼	MAVPH2.1	Total/NA
m,p-Xylene	60		3.0	3.0	mg/Kg	10	☼	MAVPH2.1	Total/NA
o-Xylene	4.7		1.5	1.5	mg/Kg	10	☼	MAVPH2.1	Total/NA
Xylenes, Total	65		4.5	4.5	mg/Kg	10	☼	MAVPH2.1	Total/NA
C5-C8 Aliphatics (adjusted) - DL	500		300	300	mg/Kg	100	☼	MAVPH2.1	Total/NA
C9-C10 Aromatics - DL	460		300	300	mg/Kg	100	☼	MAVPH2.1	Total/NA
C5-C8 Aliphatics (unadjusted) - DL	500		300	300	mg/Kg	100	☼	MAVPH2.1	Total/NA
C9-C12 Aliphatics (unadjusted) - DL	720		300	300	mg/Kg	100	☼	MAVPH2.1	Total/NA
C9-C18 Aliphatics	93		22	22	mg/Kg	1	☼	MAEPH2.1	Total/NA
C19-C36 Aliphatics	360		22	22	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics	140		22	22	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	130		22	22	mg/Kg	1	☼	MAEPH2.1	Total/NA
Naphthalene	5.2		1.1	1.1	mg/Kg	1	☼	MAEPH2.1	Total/NA
2-Methylnaphthalene	6.3		1.1	1.1	mg/Kg	1	☼	MAEPH2.1	Total/NA
Benzo[a]pyrene	2.0		1.1	1.1	mg/Kg	1	☼	MAEPH2.1	Total/NA
Antimony	0.95	J	4.9	0.37	mg/Kg	1	☼	6010D	Total/NA
Arsenic	3.7		1.5	0.19	mg/Kg	1	☼	6010D	Total/NA
Barium	56		0.98	0.12	mg/Kg	1	☼	6010D	Total/NA
Chromium	17		0.98	0.13	mg/Kg	1	☼	6010D	Total/NA
Lead	2.9		1.5	0.21	mg/Kg	1	☼	6010D	Total/NA
Nickel	13		0.98	0.11	mg/Kg	1	☼	6010D	Total/NA
Vanadium	13		1.5	0.26	mg/Kg	1	☼	6010D	Total/NA
Zinc	14		2.9	0.76	mg/Kg	1	☼	6010D	Total/NA
Mercury	0.030	J	0.043	0.0072	mg/Kg	1	☼	7471A	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Client Sample ID: TB01-101223 **Lab Sample ID: 620-14582-5**

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: SO-B/MW-106-1015

Date Collected: 10/12/23 08:50
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-1

Matrix: Solid
Percent Solids: 86.2

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.59**		0.15	0.15	mg/Kg	☼	10/18/23 11:23	10/19/23 02:53	1
Methyl tert-butyl ether	**0.23**		0.030	0.030	mg/Kg	☼	10/18/23 11:23	10/19/23 02:53	1
Naphthalene	**3.6**		0.59	0.59	mg/Kg	☼	10/18/23 11:23	10/19/23 02:53	1
Toluene	**1.3**		0.15	0.15	mg/Kg	☼	10/18/23 11:23	10/19/23 02:53	1
o-Xylene	**4.6**		0.15	0.15	mg/Kg	☼	10/18/23 11:23	10/19/23 02:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*76*		*70 - 130*	*10/18/23 11:23*	*10/19/23 02:53*	*1*
2,5-Dibromotoluene (pid)	*76*		*70 - 130*	*10/18/23 11:23*	*10/19/23 02:53*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	**340**		30	30	mg/Kg	☼	10/18/23 11:23	10/25/23 01:10	10
C9-C12 Aliphatics (adjusted)	**150**		30	30	mg/Kg	☼	10/18/23 11:23	10/25/23 01:10	10
C9-C10 Aromatics	**210**		30	30	mg/Kg	☼	10/18/23 11:23	10/25/23 01:10	10
C5-C8 Aliphatics (unadjusted)	**340**		30	30	mg/Kg	☼	10/18/23 11:23	10/25/23 01:10	10
C9-C12 Aliphatics (unadjusted)	**430**		30	30	mg/Kg	☼	10/18/23 11:23	10/25/23 01:10	10
Ethylbenzene	**12**		1.5	1.5	mg/Kg	☼	10/18/23 11:23	10/25/23 01:10	10
m,p-Xylene	**51**		3.0	3.0	mg/Kg	☼	10/18/23 11:23	10/25/23 01:10	10
Xylenes, Total	**55**		4.5	4.5	mg/Kg	☼	10/18/23 11:23	10/25/23 01:10	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*10*	*S1-*	*70 - 130*	*10/18/23 11:23*	*10/25/23 01:10*	*10*
2,5-Dibromotoluene (pid)	*9*	*S1-*	*70 - 130*	*10/18/23 11:23*	*10/25/23 01:10*	*10*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	**60**		20	20	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
C19-C36 Aliphatics	**130**		20	20	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
C11-C22 Aromatics	**47**		20	20	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
C11-C22 Aromatics (Adjusted)	**44**		20	20	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Naphthalene	**1.7**		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
2-Methylnaphthalene	**1.8**		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Acenaphthylene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Acenaphthene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Fluorene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Phenanthrene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Anthracene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Fluoranthene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Pyrene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Benzo[a]anthracene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Chrysene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Benzo[b]fluoranthene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Benzo[k]fluoranthene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Benzo[a]pyrene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Indeno[1,2,3-cd]pyrene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Dibenz(a,h)anthracene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Benzo[g,h,i]perylene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*68*		*40 - 140*	*10/16/23 09:16*	*10/19/23 22:03*	*1*

Client Sample ID: SO-B/MW-106-1015

Date Collected: 10/12/23 08:50
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-1

Matrix: Solid
Percent Solids: 86.2

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*58*		*40 - 140*	*10/16/23 09:16*	*10/19/23 22:03*	*1*
2-Fluorobiphenyl (Surr)	*64*		*40 - 140*	*10/16/23 09:16*	*10/19/23 22:03*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**1.0**	**J**	4.6	0.35	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1
Arsenic	**8.9**		1.4	0.18	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1
Barium	**54**		0.92	0.11	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1
Beryllium	ND		0.46	0.023	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1
Cadmium	ND		0.46	0.024	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1
Chromium	**20**		0.92	0.12	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1
Lead	**7.2**		1.4	0.20	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1
Nickel	**14**		0.92	0.11	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1
Selenium	ND		1.4	0.26	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1
Silver	ND		1.4	0.15	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1
Thallium	ND		2.8	1.0	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1
Vanadium	**18**		1.4	0.25	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1
Zinc	**22**		2.8	0.71	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.040	0.0067	mg/Kg	☼	10/18/23 13:57	10/19/23 12:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	**13.8**		0.1	0.1	%			10/16/23 09:33	1
Percent Solids (EPA Moisture)	**86.2**		0.1	0.1	%			10/16/23 09:33	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Client Sample ID: SO-B/MW-107-1015

Date Collected: 10/12/23 09:30
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-2

Matrix: Solid
Percent Solids: 84.3

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	**3.6**		2.9	2.9	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1
C9-C12 Aliphatics (adjusted)	**9.8**		2.9	2.9	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1
C9-C10 Aromatics	**16**	**F2**	2.9	2.9	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1
C5-C8 Aliphatics (unadjusted)	**3.9**	**F1**	2.9	2.9	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1
C9-C12 Aliphatics (unadjusted)	**26**	**F2**	2.9	2.9	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1
Benzene	ND	F2	0.15	0.15	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1
Ethylbenzene	ND	F2	0.15	0.15	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1
Methyl tert-butyl ether	**0.31**	**F1**	0.029	0.029	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1
Naphthalene	ND	F1	0.58	0.58	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1
Toluene	ND	F2	0.15	0.15	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1
m,p-Xylene	ND		0.29	0.29	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1
o-Xylene	**0.17**	**F2**	0.15	0.15	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1
Xylenes, Total	ND	F2	0.44	0.44	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*89*		*70 - 130*	*10/18/23 11:23*	*10/18/23 19:44*	*1*
2,5-Dibromotoluene (pid)	*80*		*70 - 130*	*10/18/23 11:23*	*10/18/23 19:44*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		7.7	7.7	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
C19-C36 Aliphatics	**32**		7.7	7.7	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
C11-C22 Aromatics	**11**		7.7	7.7	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
C11-C22 Aromatics (Adjusted)	**11**		7.7	7.7	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Naphthalene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
2-Methylnaphthalene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Acenaphthylene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Acenaphthene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Fluorene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Phenanthrene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Anthracene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Fluoranthene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Pyrene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Benzo[a]anthracene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Chrysene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Benzo[b]fluoranthene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Benzo[k]fluoranthene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Benzo[a]pyrene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Indeno[1,2,3-cd]pyrene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Dibenz(a,h)anthracene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Benzo[g,h,i]perylene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*70*		*40 - 140*	*10/16/23 09:16*	*10/19/23 22:30*	*1*
o-Terphenyl (Surr)	*62*		*40 - 140*	*10/16/23 09:16*	*10/19/23 22:30*	*1*
2-Fluorobiphenyl (Surr)	*73*		*40 - 140*	*10/16/23 09:16*	*10/19/23 22:30*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.93**	**J**	4.6	0.35	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1

Client Sample ID: SO-B/MW-107-1015
Date Collected: 10/12/23 09:30
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-2
Matrix: Solid
Percent Solids: 84.3

Method: SW846 6010D - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	23		1.4	0.18	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1
Barium	29		0.93	0.11	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1
Beryllium	ND		0.46	0.023	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1
Cadmium	0.027	J	0.46	0.024	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1
Chromium	18		0.93	0.12	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1
Lead	12		1.4	0.20	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1
Nickel	12		0.93	0.11	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1
Selenium	ND		1.4	0.26	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1
Silver	ND		1.4	0.15	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1
Thallium	ND		2.8	1.0	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1
Vanadium	14		1.4	0.25	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1
Zinc	56		2.8	0.72	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.023	J F1 F2	0.030	0.0050	mg/Kg	☼	10/18/23 13:57	10/19/23 12:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	15.7		0.1	0.1	%			10/16/23 09:33	1
Percent Solids (EPA Moisture)	84.3		0.1	0.1	%			10/16/23 09:33	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Client Sample ID: SO-B/MW-108-1518

Date Collected: 10/12/23 10:10
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-3

Matrix: Solid
Percent Solids: 85.3

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	**4.3**		2.6	2.6	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1
C9-C12 Aliphatics (adjusted)	**8.6**		2.6	2.6	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1
C9-C10 Aromatics	**18**		2.6	2.6	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1
C5-C8 Aliphatics (unadjusted)	**4.6**		2.6	2.6	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1
C9-C12 Aliphatics (unadjusted)	**28**		2.6	2.6	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1
Benzene	ND		0.13	0.13	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1
Ethylbenzene	**0.18**		0.13	0.13	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1
Methyl tert-butyl ether	**0.34**		0.026	0.026	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1
Naphthalene	ND		0.52	0.52	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1
Toluene	ND		0.13	0.13	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1
m,p-Xylene	**0.54**		0.26	0.26	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1
o-Xylene	**0.24**		0.13	0.13	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1
Xylenes, Total	**0.78**		0.39	0.39	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*87*		*70 - 130*	*10/18/23 11:23*	*10/19/23 03:29*	*1*
2,5-Dibromotoluene (pid)	*78*		*70 - 130*	*10/18/23 11:23*	*10/19/23 03:29*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		7.6	7.6	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
C19-C36 Aliphatics	**12**		7.6	7.6	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
C11-C22 Aromatics	ND		7.6	7.6	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
C11-C22 Aromatics (Adjusted)	ND		7.6	7.6	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Naphthalene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
2-Methylnaphthalene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Acenaphthylene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Acenaphthene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Fluorene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Phenanthrene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Anthracene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Fluoranthene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Pyrene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Benzo[a]anthracene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Chrysene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Benzo[b]fluoranthene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Benzo[k]fluoranthene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Benzo[a]pyrene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Indeno[1,2,3-cd]pyrene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Dibenz(a,h)anthracene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Benzo[g,h,i]perylene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*63*		*40 - 140*	*10/16/23 09:16*	*10/23/23 21:35*	*1*
o-Terphenyl (Surr)	*80*		*40 - 140*	*10/16/23 09:16*	*10/23/23 21:35*	*1*
2-Fluorobiphenyl (Surr)	*100*		*40 - 140*	*10/16/23 09:16*	*10/23/23 21:35*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**1.2**	**J**	5.6	0.42	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Client Sample ID: SO-B/MW-108-1518

Date Collected: 10/12/23 10:10
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-3

Matrix: Solid
Percent Solids: 85.3

Method: SW846 6010D - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**27**		1.7	0.21	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1
Barium	**34**		1.1	0.13	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1
Beryllium	ND		0.56	0.028	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1
Cadmium	**0.035**	**J**	0.56	0.029	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1
Chromium	**21**		1.1	0.15	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1
Lead	**17**		1.7	0.24	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1
Nickel	**14**		1.1	0.13	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1
Selenium	ND		1.7	0.32	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1
Silver	ND		1.7	0.18	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1
Thallium	ND		3.4	1.2	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1
Vanadium	**17**		1.7	0.30	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1
Zinc	**79**		3.4	0.87	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.032	0.0053	mg/Kg	☼	10/18/23 13:57	10/19/23 13:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	**14.7**		0.1	0.1	%			10/16/23 09:33	1
Percent Solids (EPA Moisture)	**85.3**		0.1	0.1	%			10/16/23 09:33	1

Client Sample ID: SO-FD01-101223

Date Collected: 10/12/23 08:00
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-4

Matrix: Solid
Percent Solids: 88.4

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.5	1.5	mg/Kg	☼	10/18/23 11:23	10/19/23 04:05	10
Ethylbenzene	**14**		1.5	1.5	mg/Kg	☼	10/18/23 11:23	10/19/23 04:05	10
Methyl tert-butyl ether	ND		0.30	0.30	mg/Kg	☼	10/18/23 11:23	10/19/23 04:05	10
Naphthalene	**6.9**		6.1	6.1	mg/Kg	☼	10/18/23 11:23	10/19/23 04:05	10
Toluene	ND		1.5	1.5	mg/Kg	☼	10/18/23 11:23	10/19/23 04:05	10
m,p-Xylene	**60**		3.0	3.0	mg/Kg	☼	10/18/23 11:23	10/19/23 04:05	10
o-Xylene	**4.7**		1.5	1.5	mg/Kg	☼	10/18/23 11:23	10/19/23 04:05	10
Xylenes, Total	**65**		4.5	4.5	mg/Kg	☼	10/18/23 11:23	10/19/23 04:05	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*81*		*70 - 130*	*10/18/23 11:23*	*10/19/23 04:05*	*10*
2,5-Dibromotoluene (pid)	*77*		*70 - 130*	*10/18/23 11:23*	*10/19/23 04:05*	*10*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	**500**		300	300	mg/Kg	☼	10/18/23 11:23	10/25/23 00:34	100
C9-C12 Aliphatics (adjusted)	ND		300	300	mg/Kg	☼	10/18/23 11:23	10/25/23 00:34	100
C9-C10 Aromatics	**460**		300	300	mg/Kg	☼	10/18/23 11:23	10/25/23 00:34	100
C5-C8 Aliphatics (unadjusted)	**500**		300	300	mg/Kg	☼	10/18/23 11:23	10/25/23 00:34	100
C9-C12 Aliphatics (unadjusted)	**720**		300	300	mg/Kg	☼	10/18/23 11:23	10/25/23 00:34	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*7*	*S1-*	*70 - 130*	*10/18/23 11:23*	*10/25/23 00:34*	*100*
2,5-Dibromotoluene (pid)	*6*	*S1-*	*70 - 130*	*10/18/23 11:23*	*10/25/23 00:34*	*100*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	**93**		22	22	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
C19-C36 Aliphatics	**360**		22	22	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
C11-C22 Aromatics	**140**		22	22	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
C11-C22 Aromatics (Adjusted)	**130**		22	22	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Naphthalene	**5.2**		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
2-Methylnaphthalene	**6.3**		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Acenaphthylene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Acenaphthene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Fluorene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Phenanthrene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Anthracene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Fluoranthene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Pyrene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Benzo[a]anthracene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Chrysene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Benzo[b]fluoranthene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Benzo[k]fluoranthene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Benzo[a]pyrene	**2.0**		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Indeno[1,2,3-cd]pyrene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Dibenz(a,h)anthracene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Benzo[g,h,i]perylene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*61*		*40 - 140*	*10/16/23 09:16*	*10/23/23 22:03*	*1*

Client Sample ID: SO-FD01-101223

Date Collected: 10/12/23 08:00
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-4

Matrix: Solid
Percent Solids: 88.4

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*72*		*40 - 140*	*10/16/23 09:16*	*10/23/23 22:03*	*1*
2-Fluorobiphenyl (Surr)	*91*		*40 - 140*	*10/16/23 09:16*	*10/23/23 22:03*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.95**	**J**	4.9	0.37	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1
Arsenic	**3.7**		1.5	0.19	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1
Barium	**56**		0.98	0.12	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1
Beryllium	ND		0.49	0.025	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1
Cadmium	ND		0.49	0.025	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1
Chromium	**17**		0.98	0.13	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1
Lead	**2.9**		1.5	0.21	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1
Nickel	**13**		0.98	0.11	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1
Selenium	ND		1.5	0.28	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1
Silver	ND		1.5	0.16	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1
Thallium	ND		2.9	1.1	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1
Vanadium	**13**		1.5	0.26	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1
Zinc	**14**		2.9	0.76	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.030**	**J**	0.043	0.0072	mg/Kg	☼	10/18/23 13:57	10/19/23 13:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	**11.6**		0.1	0.1	%			10/16/23 09:33	1
Percent Solids (EPA Moisture)	**88.4**		0.1	0.1	%			10/16/23 09:33	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Client Sample ID: TB01-101223
Date Collected: 10/12/23 00:00
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-5
Matrix: Solid

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		5.0	5.0	mg/Kg		10/24/23 12:28	10/24/23 22:47	1
C9-C12 Aliphatics (adjusted)	ND		5.0	5.0	mg/Kg		10/24/23 12:28	10/24/23 22:47	1
C9-C10 Aromatics	ND		5.0	5.0	mg/Kg		10/24/23 12:28	10/24/23 22:47	1
C5-C8 Aliphatics (unadjusted)	ND		5.0	5.0	mg/Kg		10/24/23 12:28	10/24/23 22:47	1
C9-C12 Aliphatics (unadjusted)	ND		5.0	5.0	mg/Kg		10/24/23 12:28	10/24/23 22:47	1
Benzene	ND		0.25	0.25	mg/Kg		10/24/23 12:28	10/24/23 22:47	1
Ethylbenzene	ND		0.25	0.25	mg/Kg		10/24/23 12:28	10/24/23 22:47	1
Methyl tert-butyl ether	ND		0.050	0.050	mg/Kg		10/24/23 12:28	10/24/23 22:47	1
Naphthalene	ND		1.0	1.0	mg/Kg		10/24/23 12:28	10/24/23 22:47	1
Toluene	ND		0.25	0.25	mg/Kg		10/24/23 12:28	10/24/23 22:47	1
m,p-Xylene	ND		0.50	0.50	mg/Kg		10/24/23 12:28	10/24/23 22:47	1
o-Xylene	ND		0.25	0.25	mg/Kg		10/24/23 12:28	10/24/23 22:47	1
Xylenes, Total	ND		0.75	0.75	mg/Kg		10/24/23 12:28	10/24/23 22:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*91*		*70 - 130*	*10/24/23 12:28*	*10/24/23 22:47*	*1*
2,5-Dibromotoluene (pid)	*90*		*70 - 130*	*10/24/23 12:28*	*10/24/23 22:47*	*1*

Surrogate Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		25DBTf1	25DBTp1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
620-14582-1	SO-B/MW-106-1015	76	76
620-14582-1 - DL	SO-B/MW-106-1015	10 S1-	9 S1-
620-14582-2	SO-B/MW-107-1015	89	80
620-14582-2 MS	SO-B/MW-107-1015	81	78
620-14582-2 MSD	SO-B/MW-107-1015	89	81
620-14582-3	SO-B/MW-108-1518	87	78
620-14582-4	SO-FD01-101223	81	77
620-14582-4 - DL	SO-FD01-101223	7 S1-	6 S1-
620-14582-5	TB01-101223	91	90
LCS 620-28025/1-A	Lab Control Sample	86	85
LCS 620-28262/1-A	Lab Control Sample	94	93
LCSD 620-28025/2-A	Lab Control Sample Dup	84	82
LCSD 620-28262/2-A	Lab Control Sample Dup	94	94
MB 620-28025/3-A	Method Blank	74	74
MB 620-28262/3-A	Method Blank	90	88

Surrogate Legend

25DBTf = 2,5-Dibromotoluene (fid)
25DBTp = 2,5-Dibromotoluene (pid)

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		1COD1	OTPH1	FBP1
Lab Sample ID	Client Sample ID	(40-140)	(40-140)	(40-140)
620-14582-1	SO-B/MW-106-1015	68	58	64
620-14582-2	SO-B/MW-107-1015	70	62	73
620-14582-2 MS	SO-B/MW-107-1015	43	55	80
620-14582-2 MSD	SO-B/MW-107-1015	49	67	93
620-14582-3	SO-B/MW-108-1518	63	80	100
620-14582-4	SO-FD01-101223	61	72	91
LCS 620-27844/2-B	Lab Control Sample	70	76	78
LCSD 620-27844/3-B	Lab Control Sample Dup	69	72	76
MB 620-27844/1-B	Method Blank	64	59	67

Surrogate Legend

1COD = 1-Chlorooctadecane (Surr)
OTPH = o-Terphenyl (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-28025/3-A
Matrix: Solid
Analysis Batch: 27958

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28025

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		5.0	5.0	mg/Kg		10/18/23 10:00	10/18/23 16:45	1
C9-C12 Aliphatics (adjusted)	ND		5.0	5.0	mg/Kg		10/18/23 10:00	10/18/23 16:45	1
C9-C10 Aromatics	ND		5.0	5.0	mg/Kg		10/18/23 10:00	10/18/23 16:45	1
C5-C8 Aliphatics (unadjusted)	ND		5.0	5.0	mg/Kg		10/18/23 10:00	10/18/23 16:45	1
C9-C12 Aliphatics (unadjusted)	ND		5.0	5.0	mg/Kg		10/18/23 10:00	10/18/23 16:45	1
Benzene	ND		0.25	0.25	mg/Kg		10/18/23 10:00	10/18/23 16:45	1
Ethylbenzene	ND		0.25	0.25	mg/Kg		10/18/23 10:00	10/18/23 16:45	1
Methyl tert-butyl ether	ND		0.050	0.050	mg/Kg		10/18/23 10:00	10/18/23 16:45	1
Naphthalene	ND		1.0	1.0	mg/Kg		10/18/23 10:00	10/18/23 16:45	1
Toluene	ND		0.25	0.25	mg/Kg		10/18/23 10:00	10/18/23 16:45	1
m,p-Xylene	ND		0.50	0.50	mg/Kg		10/18/23 10:00	10/18/23 16:45	1
o-Xylene	ND		0.25	0.25	mg/Kg		10/18/23 10:00	10/18/23 16:45	1
Xylenes, Total	ND		0.75	0.75	mg/Kg		10/18/23 10:00	10/18/23 16:45	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*74*		*70 - 130*	*10/18/23 10:00*	*10/18/23 16:45*	*1*
2,5-Dibromotoluene (pid)	*74*		*70 - 130*	*10/18/23 10:00*	*10/18/23 16:45*	*1*

Lab Sample ID: LCS 620-28025/1-A
Matrix: Solid
Analysis Batch: 27958

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28025

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C10 Aromatics	1.00	ND		mg/Kg		99	70 - 130
C5-C8 Aliphatics (unadjusted)	3.00	ND		mg/Kg		95	70 - 130
C9-C12 Aliphatics (unadjusted)	3.00	ND		mg/Kg		96	70 - 130
Benzene	1.00	0.976		mg/Kg		98	70 - 130
Ethylbenzene	1.00	1.01		mg/Kg		101	70 - 130
Methyl tert-butyl ether	1.00	0.928		mg/Kg		93	70 - 130
Naphthalene	1.00	ND		mg/Kg		94	70 - 130
Toluene	1.00	0.986		mg/Kg		99	70 - 130
m,p-Xylene	2.00	2.03		mg/Kg		102	70 - 130
o-Xylene	1.00	1.01		mg/Kg		101	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*86*		*70 - 130*
2,5-Dibromotoluene (pid)	*85*		*70 - 130*

Lab Sample ID: LCSD 620-28025/2-A
Matrix: Solid
Analysis Batch: 27958

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28025

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics	1.00	ND		mg/Kg		99	70 - 130	0	25
C5-C8 Aliphatics (unadjusted)	3.00	ND		mg/Kg		95	70 - 130	0	25
C9-C12 Aliphatics (unadjusted)	3.00	ND		mg/Kg		97	70 - 130	1	25
Benzene	1.00	0.972		mg/Kg		97	70 - 130	0	25
Ethylbenzene	1.00	1.02		mg/Kg		102	70 - 130	1	25

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-28025/2-A
Matrix: Solid
Analysis Batch: 27958

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28025

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methyl tert-butyl ether			1.00	0.915		mg/Kg		91	70 - 130	1	25
Naphthalene			1.00	ND		mg/Kg		89	70 - 130	6	25
Toluene			1.00	0.974		mg/Kg		97	70 - 130	1	25
m,p-Xylene			2.00	2.03		mg/Kg		102	70 - 130	0	25
o-Xylene			1.00	1.01		mg/Kg		101	70 - 130	0	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*84*		*70 - 130*
2,5-Dibromotoluene (pid)	*82*		*70 - 130*

Lab Sample ID: 620-14582-2 MS
Matrix: Solid
Analysis Batch: 27958

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 28025

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C10 Aromatics	16	F2	1.23	9.27	4	mg/Kg	☼	-524	70 - 130
C5-C8 Aliphatics (unadjusted)	3.9	F1	3.68	8.09		mg/Kg	☼	114	70 - 130
C9-C12 Aliphatics (unadjusted)	26	F2	3.68	12.8	4	mg/Kg	☼	-349	70 - 130
Benzene	ND	F2	1.23	1.19		mg/Kg	☼	97	70 - 130
Ethylbenzene	ND	F2	1.23	1.23		mg/Kg	☼	100	70 - 130
Methyl tert-butyl ether	0.31	F1	1.23	1.08	F1	mg/Kg	☼	63	70 - 130
Naphthalene	ND	F1	1.23	1.03		mg/Kg	☼	84	70 - 130
Toluene	ND	F2	1.23	1.20		mg/Kg	☼	98	70 - 130
m,p-Xylene	ND		2.46	2.45		mg/Kg	☼	100	70 - 130
o-Xylene	0.17	F2	1.23	1.22		mg/Kg	☼	85	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*81*		*70 - 130*
2,5-Dibromotoluene (pid)	*78*		*70 - 130*

Lab Sample ID: 620-14582-2 MSD
Matrix: Solid
Analysis Batch: 27958

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 28025

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics	16	F2	0.715	19.1	4 F2	mg/Kg	☼	472	70 - 130	69	50
C5-C8 Aliphatics (unadjusted)	3.9	F1	2.14	7.83	F1	mg/Kg	☼	184	70 - 130	3	50
C9-C12 Aliphatics (unadjusted)	26	F2	2.14	33.2	4 F2	mg/Kg	☼	353	70 - 130	89	50
Benzene	ND	F2	0.715	0.699	F2	mg/Kg	☼	98	70 - 130	52	30
Ethylbenzene	ND	F2	0.715	0.893	F2	mg/Kg	☼	125	70 - 130	32	30
Methyl tert-butyl ether	0.31	F1	0.715	1.03		mg/Kg	☼	100	70 - 130	6	30
Naphthalene	ND	F1	0.715	0.886		mg/Kg	☼	124	70 - 130	NC	30
Toluene	ND	F2	0.715	0.706	F2	mg/Kg	☼	99	70 - 130	52	30
m,p-Xylene	ND		1.43	1.81		mg/Kg	☼	127	70 - 130	30	30
o-Xylene	0.17	F2	0.715	0.874	F2	mg/Kg	☼	98	70 - 130	33	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*89*		*70 - 130*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: 620-14582-2 MSD
Matrix: Solid
Analysis Batch: 27958

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 28025

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,5-Dibromotoluene (pid)	*81*		*70 - 130*

Lab Sample ID: MB 620-28262/3-A
Matrix: Solid
Analysis Batch: 28182

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28262

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		5.0	5.0	mg/Kg		10/24/23 12:28	10/24/23 21:36	1
C9-C12 Aliphatics (adjusted)	ND		5.0	5.0	mg/Kg		10/24/23 12:28	10/24/23 21:36	1
C9-C10 Aromatics	ND		5.0	5.0	mg/Kg		10/24/23 12:28	10/24/23 21:36	1
C5-C8 Aliphatics (unadjusted)	ND		5.0	5.0	mg/Kg		10/24/23 12:28	10/24/23 21:36	1
C9-C12 Aliphatics (unadjusted)	ND		5.0	5.0	mg/Kg		10/24/23 12:28	10/24/23 21:36	1
Benzene	ND		0.25	0.25	mg/Kg		10/24/23 12:28	10/24/23 21:36	1
Ethylbenzene	ND		0.25	0.25	mg/Kg		10/24/23 12:28	10/24/23 21:36	1
Methyl tert-butyl ether	ND		0.050	0.050	mg/Kg		10/24/23 12:28	10/24/23 21:36	1
Naphthalene	ND		1.0	1.0	mg/Kg		10/24/23 12:28	10/24/23 21:36	1
Toluene	ND		0.25	0.25	mg/Kg		10/24/23 12:28	10/24/23 21:36	1
m,p-Xylene	ND		0.50	0.50	mg/Kg		10/24/23 12:28	10/24/23 21:36	1
o-Xylene	ND		0.25	0.25	mg/Kg		10/24/23 12:28	10/24/23 21:36	1
Xylenes, Total	ND		0.75	0.75	mg/Kg		10/24/23 12:28	10/24/23 21:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*90*		*70 - 130*	*10/24/23 12:28*	*10/24/23 21:36*	*1*
2,5-Dibromotoluene (pid)	*88*		*70 - 130*	*10/24/23 12:28*	*10/24/23 21:36*	*1*

Lab Sample ID: LCS 620-28262/1-A
Matrix: Solid
Analysis Batch: 28182

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28262

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C10 Aromatics	1.00	ND		mg/Kg		96	70 - 130
C5-C8 Aliphatics (unadjusted)	3.00	ND		mg/Kg		93	70 - 130
C9-C12 Aliphatics (unadjusted)	3.00	ND		mg/Kg		91	70 - 130
Benzene	1.00	0.956		mg/Kg		96	70 - 130
Ethylbenzene	1.00	0.970		mg/Kg		97	70 - 130
Methyl tert-butyl ether	1.00	0.948		mg/Kg		95	70 - 130
Naphthalene	1.00	ND		mg/Kg		95	70 - 130
Toluene	1.00	0.937		mg/Kg		94	70 - 130
m,p-Xylene	2.00	1.96		mg/Kg		98	70 - 130
o-Xylene	1.00	0.959		mg/Kg		96	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*94*		*70 - 130*
2,5-Dibromotoluene (pid)	*93*		*70 - 130*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-28262/2-A
Matrix: Solid
Analysis Batch: 28182

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28262

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics			1.00	ND		mg/Kg		95	70 - 130	1	25
C5-C8 Aliphatics (unadjusted)			3.00	ND		mg/Kg		93	70 - 130	1	25
C9-C12 Aliphatics (unadjusted)			3.00	ND		mg/Kg		90	70 - 130	1	25
Benzene			1.00	0.964		mg/Kg		96	70 - 130	1	25
Ethylbenzene			1.00	0.960		mg/Kg		96	70 - 130	1	25
Methyl tert-butyl ether			1.00	0.947		mg/Kg		95	70 - 130	0	25
Naphthalene			1.00	ND		mg/Kg		95	70 - 130	0	25
Toluene			1.00	0.937		mg/Kg		94	70 - 130	0	25
m,p-Xylene			2.00	1.95		mg/Kg		98	70 - 130	0	25
o-Xylene			1.00	0.947		mg/Kg		95	70 - 130	1	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*94*		*70 - 130*
2,5-Dibromotoluene (pid)	*94*		*70 - 130*

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-27844/1-B
Matrix: Solid
Analysis Batch: 27945

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 27844

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		6.7	6.7	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
C19-C36 Aliphatics	ND		6.7	6.7	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
C11-C22 Aromatics	ND		6.7	6.7	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
C11-C22 Aromatics (Adjusted)	ND		6.7	6.7	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Naphthalene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
2-Methylnaphthalene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Acenaphthylene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Acenaphthene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Fluorene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Phenanthrene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Anthracene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Fluoranthene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Pyrene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Benzo[a]anthracene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Chrysene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Benzo[b]fluoranthene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Benzo[k]fluoranthene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Benzo[a]pyrene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Indeno[1,2,3-cd]pyrene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Dibenz(a,h)anthracene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Benzo[g,h,i]perylene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*64*		*40 - 140*	*10/16/23 09:16*	*10/18/23 17:18*	*1*
o-Terphenyl (Surr)	*59*		*40 - 140*	*10/16/23 09:16*	*10/18/23 17:18*	*1*
2-Fluorobiphenyl (Surr)	*67*		*40 - 140*	*10/16/23 09:16*	*10/18/23 17:18*	*1*

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Lab Sample ID: LCS 620-27844/2-B
Matrix: Solid
Analysis Batch: 27945

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 27844

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C18 Aliphatics			8.00	ND		mg/Kg		62	40 - 140		
C19-C36 Aliphatics			10.7	11.5		mg/Kg		108	40 - 140		
C11-C22 Aromatics			22.7	16.8		mg/Kg		74	40 - 140		
Naphthalene			1.33	0.869		mg/Kg		65	40 - 140		
2-Methylnaphthalene			1.33	0.812		mg/Kg		61	40 - 140		
Acenaphthylene			1.33	0.959		mg/Kg		72	40 - 140		
Acenaphthene			1.33	0.999		mg/Kg		75	40 - 140		
Fluorene			1.33	0.778		mg/Kg		58	40 - 140		
Phenanthrene			1.33	0.757		mg/Kg		57	40 - 140		
Anthracene			1.33	0.947		mg/Kg		71	40 - 140		
Fluoranthene			1.33	1.06		mg/Kg		79	40 - 140		
Pyrene			1.33	1.18		mg/Kg		89	40 - 140		
Benzo[a]anthracene			1.33	0.688		mg/Kg		52	40 - 140		
Chrysene			1.33	1.06		mg/Kg		80	40 - 140		
Benzo[b]fluoranthene			1.33	0.862		mg/Kg		65	40 - 140		
Benzo[k]fluoranthene			1.33	1.25		mg/Kg		93	40 - 140		
Benzo[a]pyrene			1.33	0.749		mg/Kg		56	40 - 140		
Indeno[1,2,3-cd]pyrene			1.33	0.704		mg/Kg		53	40 - 140		
Dibenz(a,h)anthracene			1.33	0.838		mg/Kg		63	40 - 140		
Benzo[g,h,i]perylene			1.33	1.14		mg/Kg		85	40 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*70*		*40 - 140*
o-Terphenyl (Surr)	*76*		*40 - 140*
2-Fluorobiphenyl (Surr)	*78*		*40 - 140*

Lab Sample ID: LCSD 620-27844/3-B
Matrix: Solid
Analysis Batch: 27945

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 27844

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics			8.00	ND		mg/Kg		61	40 - 140	2	25
C19-C36 Aliphatics			10.7	11.9		mg/Kg		112	40 - 140	3	25
C11-C22 Aromatics			22.7	16.2		mg/Kg		71	40 - 140	4	25
Naphthalene			1.33	0.778		mg/Kg		58	40 - 140	11	25
2-Methylnaphthalene			1.33	0.709		mg/Kg		53	40 - 140	14	25
Acenaphthylene			1.33	0.956		mg/Kg		72	40 - 140	0	25
Acenaphthene			1.33	0.987		mg/Kg		74	40 - 140	1	25
Fluorene			1.33	0.656		mg/Kg		49	40 - 140	17	25
Phenanthrene			1.33	0.692		mg/Kg		52	40 - 140	9	25
Anthracene			1.33	0.788		mg/Kg		59	40 - 140	18	25
Fluoranthene			1.33	1.00		mg/Kg		75	40 - 140	5	25
Pyrene			1.33	1.11		mg/Kg		83	40 - 140	7	25
Benzo[a]anthracene			1.33	0.591		mg/Kg		44	40 - 140	15	25
Chrysene			1.33	1.10		mg/Kg		83	40 - 140	4	25
Benzo[b]fluoranthene			1.33	0.780		mg/Kg		59	40 - 140	10	25
Benzo[k]fluoranthene			1.33	1.28		mg/Kg		96	40 - 140	3	25
Benzo[a]pyrene			1.33	0.820		mg/Kg		62	40 - 140	9	25

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-27844/3-B
Matrix: Solid
Analysis Batch: 27945

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 27844

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Indeno[1,2,3-cd]pyrene			1.33	0.664		mg/Kg		50	40 - 140	6	25
Dibenz(a,h)anthracene			1.33	0.785		mg/Kg		59	40 - 140	6	25
Benzo[g,h,i]perylene			1.33	1.09		mg/Kg		81	40 - 140	5	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*69*		*40 - 140*
o-Terphenyl (Surr)	*72*		*40 - 140*
2-Fluorobiphenyl (Surr)	*76*		*40 - 140*

Lab Sample ID: 620-14582-2 MS
Matrix: Solid
Analysis Batch: 28114

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 27844

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C18 Aliphatics	ND		9.38	8.31		mg/Kg	☼	89	40 - 140
C19-C36 Aliphatics	32		12.5	21.0	F1	mg/Kg	☼	-88	40 - 140
C11-C22 Aromatics	11		26.6	23.2		mg/Kg	☼	47	40 - 140
Naphthalene	ND		1.56	0.982		mg/Kg	☼	63	40 - 140
2-Methylnaphthalene	ND		1.56	0.944		mg/Kg	☼	60	40 - 140
Acenaphthylene	ND		1.56	0.874		mg/Kg	☼	56	40 - 140
Acenaphthene	ND		1.56	0.950		mg/Kg	☼	61	40 - 140
Fluorene	ND		1.56	0.753		mg/Kg	☼	48	40 - 140
Phenanthrene	ND		1.56	0.900		mg/Kg	☼	58	40 - 140
Anthracene	ND		1.56	0.770		mg/Kg	☼	49	40 - 140
Fluoranthene	ND		1.56	1.22		mg/Kg	☼	78	40 - 140
Pyrene	ND		1.56	1.12		mg/Kg	☼	71	40 - 140
Benzo[a]anthracene	ND		1.56	1.01		mg/Kg	☼	65	40 - 140
Chrysene	ND		1.56	1.17		mg/Kg	☼	75	40 - 140
Benzo[b]fluoranthene	ND		1.56	0.997		mg/Kg	☼	64	40 - 140
Benzo[k]fluoranthene	ND		1.56	1.03		mg/Kg	☼	66	40 - 140
Benzo[a]pyrene	ND		1.56	1.06		mg/Kg	☼	68	40 - 140
Indeno[1,2,3-cd]pyrene	ND		1.56	0.862		mg/Kg	☼	55	40 - 140
Dibenz(a,h)anthracene	ND		1.56	1.16		mg/Kg	☼	74	40 - 140
Benzo[g,h,i]perylene	ND		1.56	0.897		mg/Kg	☼	57	40 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*43*		*40 - 140*
o-Terphenyl (Surr)	*55*		*40 - 140*
2-Fluorobiphenyl (Surr)	*80*		*40 - 140*

Lab Sample ID: 620-14582-2 MSD
Matrix: Solid
Analysis Batch: 28114

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 27844

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics	ND		9.40	9.04		mg/Kg	☼	96	40 - 140	8	50
C19-C36 Aliphatics	32		12.5	45.5	F2	mg/Kg	☼	108	40 - 140	74	50
C11-C22 Aromatics	11		26.6	37.5		mg/Kg	☼	100	40 - 140	47	50

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: 620-14582-2 MSD
Matrix: Solid
Analysis Batch: 28114

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 27844

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Naphthalene	ND		1.57	0.912		mg/Kg	☼	58	40 - 140	7	50
2-Methylnaphthalene	ND		1.57	0.992		mg/Kg	☼	63	40 - 140	5	50
Acenaphthylene	ND		1.57	0.902		mg/Kg	☼	58	40 - 140	3	50
Acenaphthene	ND		1.57	1.00		mg/Kg	☼	64	40 - 140	5	50
Fluorene	ND		1.57	0.880		mg/Kg	☼	56	40 - 140	16	50
Phenanthrene	ND		1.57	1.06		mg/Kg	☼	68	40 - 140	17	50
Anthracene	ND		1.57	0.928		mg/Kg	☼	59	40 - 140	19	50
Fluoranthene	ND		1.57	1.30		mg/Kg	☼	83	40 - 140	6	50
Pyrene	ND		1.57	1.40		mg/Kg	☼	89	40 - 140	22	50
Benzo[a]anthracene	ND		1.57	1.29		mg/Kg	☼	82	40 - 140	24	50
Chrysene	ND		1.57	1.68		mg/Kg	☼	107	40 - 140	36	50
Benzo[b]fluoranthene	ND		1.57	1.10		mg/Kg	☼	70	40 - 140	10	50
Benzo[k]fluoranthene	ND		1.57	1.04		mg/Kg	☼	66	40 - 140	1	50
Benzo[a]pyrene	ND		1.57	1.25		mg/Kg	☼	80	40 - 140	17	50
Indeno[1,2,3-cd]pyrene	ND		1.57	1.21		mg/Kg	☼	77	40 - 140	34	50
Dibenz(a,h)anthracene	ND		1.57	1.73		mg/Kg	☼	110	40 - 140	39	50
Benzo[g,h,i]perylene	ND		1.57	1.13		mg/Kg	☼	72	40 - 140	23	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*49*		*40 - 140*
o-Terphenyl (Surr)	*67*		*40 - 140*
2-Fluorobiphenyl (Surr)	*93*		*40 - 140*

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 620-27854/1-A
Matrix: Solid
Analysis Batch: 27926

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 27854

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		4.6	0.34	mg/Kg		10/16/23 11:07	10/17/23 14:14	1
Arsenic	ND		1.4	0.17	mg/Kg		10/16/23 11:07	10/17/23 14:14	1
Barium	ND		0.91	0.11	mg/Kg		10/16/23 11:07	10/17/23 14:14	1
Beryllium	ND		0.46	0.023	mg/Kg		10/16/23 11:07	10/17/23 14:14	1
Cadmium	ND		0.46	0.024	mg/Kg		10/16/23 11:07	10/17/23 14:14	1
Chromium	ND		0.91	0.12	mg/Kg		10/16/23 11:07	10/17/23 14:14	1
Lead	ND		1.4	0.19	mg/Kg		10/16/23 11:07	10/17/23 14:14	1
Nickel	ND		0.91	0.11	mg/Kg		10/16/23 11:07	10/17/23 14:14	1
Selenium	ND		1.4	0.26	mg/Kg		10/16/23 11:07	10/17/23 14:14	1
Silver	ND		1.4	0.15	mg/Kg		10/16/23 11:07	10/17/23 14:14	1
Thallium	ND		2.7	1.0	mg/Kg		10/16/23 11:07	10/17/23 14:14	1
Vanadium	ND		1.4	0.24	mg/Kg		10/16/23 11:07	10/17/23 14:14	1
Zinc	ND		2.7	0.71	mg/Kg		10/16/23 11:07	10/17/23 14:14	1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCSSRM 620-27854/2-A ^5
Matrix: Solid
Analysis Batch: 27926

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 27854

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	270	102		mg/Kg		37.7	3.3 - 103.3
Arsenic	218	165		mg/Kg		75.8	67.0 - 98.6
Barium	388	344		mg/Kg		88.7	74.5 - 107.7
Beryllium	165	146		mg/Kg		88.2	76.4 - 108.5
Cadmium	118	97.2		mg/Kg		82.4	73.6 - 105.1
Chromium	255	227		mg/Kg		89.1	74.1 - 107.8
Lead	155	137		mg/Kg		88.4	76.8 - 110.3
Nickel	120	102		mg/Kg		85.0	74.3 - 105.8
Selenium	107	87.8		mg/Kg		82.1	70.9 - 109.3
Silver	51.0	45.2		mg/Kg		88.6	73.7 - 111.8
Thallium	188	164		mg/Kg		87.3	73.9 - 108.5
Vanadium	133	121		mg/Kg		91.1	69.1 - 108.3
Zinc	406	337		mg/Kg		83.1	72.9 - 109.1

Lab Sample ID: 620-14582-2 MS
Matrix: Solid
Analysis Batch: 27992

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 27854

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.93	J	109	111		mg/Kg	☼	101	75 - 125
Arsenic	23		109	120		mg/Kg	☼	90	75 - 125
Barium	29		109	137		mg/Kg	☼	100	75 - 125
Beryllium	ND		109	89.7		mg/Kg	☼	82	75 - 125
Cadmium	0.027	J	109	87.4		mg/Kg	☼	80	75 - 125
Chromium	18		109	116		mg/Kg	☼	90	75 - 125
Lead	12		109	104		mg/Kg	☼	85	75 - 125
Nickel	12		109	103		mg/Kg	☼	84	75 - 125
Selenium	ND		109	89.7		mg/Kg	☼	83	75 - 125
Silver	ND		109	91.6		mg/Kg	☼	84	75 - 125
Thallium	ND		109	99.1		mg/Kg	☼	91	75 - 125
Vanadium	14		109	115		mg/Kg	☼	93	75 - 125
Zinc	56		109	157		mg/Kg	☼	93	75 - 125

Lab Sample ID: 620-14582-2 MSD
Matrix: Solid
Analysis Batch: 27992

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 27854

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	0.93	J	124	135		mg/Kg	☼	108	75 - 125	19	20
Arsenic	23		124	137		mg/Kg	☼	92	75 - 125	13	20

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 620-14582-2 MSD
Matrix: Solid
Analysis Batch: 27992

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 27854

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Barium	29		124	159		mg/Kg	☼	105	75 - 125	15	20
Beryllium	ND		124	108		mg/Kg	☼	87	75 - 125	18	20
Cadmium	0.027	J	124	105		mg/Kg	☼	84	75 - 125	18	20
Chromium	18		124	134		mg/Kg	☼	94	75 - 125	15	20
Lead	12		124	125		mg/Kg	☼	91	75 - 125	18	20
Nickel	12		124	120		mg/Kg	☼	87	75 - 125	15	20
Selenium	ND		124	107		mg/Kg	☼	86	75 - 125	17	20
Silver	ND		124	109		mg/Kg	☼	88	75 - 125	18	20
Thallium	ND		124	117		mg/Kg	☼	94	75 - 125	16	20
Vanadium	14		124	134		mg/Kg	☼	96	75 - 125	15	20
Zinc	56		124	175		mg/Kg	☼	96	75 - 125	11	20

Lab Sample ID: 620-14582-2 DU
Matrix: Solid
Analysis Batch: 27992

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 27854

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Antimony	0.93	J		1.35	J F5	mg/Kg	☼			37	20
Arsenic	23			28.5	F3	mg/Kg	☼			23	20
Barium	29			36.0	F3	mg/Kg	☼			23	20
Beryllium	ND			ND		mg/Kg	☼			NC	20
Cadmium	0.027	J		0.0291	J	mg/Kg	☼			6	20
Chromium	18			22.9	F3	mg/Kg	☼			26	20
Lead	12			16.5	F3	mg/Kg	☼			31	20
Nickel	12			14.9	F3	mg/Kg	☼			21	20
Selenium	ND			ND		mg/Kg	☼			NC	20
Silver	ND			ND		mg/Kg	☼			NC	20
Thallium	ND			ND		mg/Kg	☼			NC	20
Vanadium	14			17.3		mg/Kg	☼			20	20
Zinc	56			86.7	F3	mg/Kg	☼			43	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 620-27974/1-A
Matrix: Solid
Analysis Batch: 28044

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 27974

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.050	0.0083	mg/Kg		10/18/23 13:57	10/19/23 11:09	1

Lab Sample ID: LCSSRM 620-27974/2-A ^10
Matrix: Solid
Analysis Batch: 28044

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 27974

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			17.1	11.0		mg/Kg		64.2	36.0 - 109.9		

Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: 620-14582-2 MS
Matrix: Solid
Analysis Batch: 28044

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 27974

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury	0.023	J F1 F2	0.110	0.148		mg/Kg	☼	114	75 - 125		

Lab Sample ID: 620-14582-2 MSD
Matrix: Solid
Analysis Batch: 28044

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 27974

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.023	J F1 F2	0.127	0.183	F1 F2	mg/Kg	☼	126	75 - 125	21	20

Lab Sample ID: 620-14582-2 DU
Matrix: Solid
Analysis Batch: 28044

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 27974

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Mercury	0.023	J F1 F2	0.0214	J	mg/Kg	☼	8	20

Method: Moisture - Percent Moisture

Lab Sample ID: 620-14582-2 DU
Matrix: Solid
Analysis Batch: 27847

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	15.7		15.8		%		0.4	5
Percent Solids	84.3		84.2		%		0.08	5

GC VOA

Analysis Batch: 27958

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-1	SO-B/MW-106-1015	Total/NA	Solid	MAVPH2.1	28025
620-14582-2	SO-B/MW-107-1015	Total/NA	Solid	MAVPH2.1	28025
620-14582-3	SO-B/MW-108-1518	Total/NA	Solid	MAVPH2.1	28025
620-14582-4	SO-FD01-101223	Total/NA	Solid	MAVPH2.1	28025
MB 620-28025/3-A	Method Blank	Total/NA	Solid	MAVPH2.1	28025
LCS 620-28025/1-A	Lab Control Sample	Total/NA	Solid	MAVPH2.1	28025
LCSD 620-28025/2-A	Lab Control Sample Dup	Total/NA	Solid	MAVPH2.1	28025
620-14582-2 MS	SO-B/MW-107-1015	Total/NA	Solid	MAVPH2.1	28025
620-14582-2 MSD	SO-B/MW-107-1015	Total/NA	Solid	MAVPH2.1	28025

Prep Batch: 28025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-1 - DL	SO-B/MW-106-1015	Total/NA	Solid	5035	
620-14582-1	SO-B/MW-106-1015	Total/NA	Solid	5035	
620-14582-2	SO-B/MW-107-1015	Total/NA	Solid	5035	
620-14582-3	SO-B/MW-108-1518	Total/NA	Solid	5035	
620-14582-4	SO-FD01-101223	Total/NA	Solid	5035	
620-14582-4 - DL	SO-FD01-101223	Total/NA	Solid	5035	
MB 620-28025/3-A	Method Blank	Total/NA	Solid	5035	
LCS 620-28025/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 620-28025/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
620-14582-2 MS	SO-B/MW-107-1015	Total/NA	Solid	5035	
620-14582-2 MSD	SO-B/MW-107-1015	Total/NA	Solid	5035	

Analysis Batch: 28182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-1 - DL	SO-B/MW-106-1015	Total/NA	Solid	MAVPH2.1	28025
620-14582-4 - DL	SO-FD01-101223	Total/NA	Solid	MAVPH2.1	28025
620-14582-5	TB01-101223	Total/NA	Solid	MAVPH2.1	28262
MB 620-28262/3-A	Method Blank	Total/NA	Solid	MAVPH2.1	28262
LCS 620-28262/1-A	Lab Control Sample	Total/NA	Solid	MAVPH2.1	28262
LCSD 620-28262/2-A	Lab Control Sample Dup	Total/NA	Solid	MAVPH2.1	28262

Prep Batch: 28262

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-5	TB01-101223	Total/NA	Solid	5035	
MB 620-28262/3-A	Method Blank	Total/NA	Solid	5035	
LCS 620-28262/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 620-28262/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

GC Semi VOA

Prep Batch: 27844

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-1	SO-B/MW-106-1015	Total/NA	Solid	3546	
620-14582-2	SO-B/MW-107-1015	Total/NA	Solid	3546	
620-14582-3	SO-B/MW-108-1518	Total/NA	Solid	3546	
620-14582-4	SO-FD01-101223	Total/NA	Solid	3546	
MB 620-27844/1-B	Method Blank	Total/NA	Solid	3546	
LCS 620-27844/2-B	Lab Control Sample	Total/NA	Solid	3546	
LCSD 620-27844/3-B	Lab Control Sample Dup	Total/NA	Solid	3546	

GC Semi VOA (Continued)

Prep Batch: 27844 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-2 MS	SO-B/MW-107-1015	Total/NA	Solid	3546	
620-14582-2 MSD	SO-B/MW-107-1015	Total/NA	Solid	3546	

Analysis Batch: 27945

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 620-27844/1-B	Method Blank	Total/NA	Solid	MAEPH2.1	27964
LCS 620-27844/2-B	Lab Control Sample	Total/NA	Solid	MAEPH2.1	27964
LCSD 620-27844/3-B	Lab Control Sample Dup	Total/NA	Solid	MAEPH2.1	27964

Fraction Batch: 27964

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-1	SO-B/MW-106-1015	Total/NA	Solid	MA EPH Frac	27844
620-14582-2	SO-B/MW-107-1015	Total/NA	Solid	MA EPH Frac	27844
620-14582-3	SO-B/MW-108-1518	Total/NA	Solid	MA EPH Frac	27844
620-14582-4	SO-FD01-101223	Total/NA	Solid	MA EPH Frac	27844
MB 620-27844/1-B	Method Blank	Total/NA	Solid	MA EPH Frac	27844
LCS 620-27844/2-B	Lab Control Sample	Total/NA	Solid	MA EPH Frac	27844
LCSD 620-27844/3-B	Lab Control Sample Dup	Total/NA	Solid	MA EPH Frac	27844
620-14582-2 MS	SO-B/MW-107-1015	Total/NA	Solid	MA EPH Frac	27844
620-14582-2 MSD	SO-B/MW-107-1015	Total/NA	Solid	MA EPH Frac	27844

Analysis Batch: 28013

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-1	SO-B/MW-106-1015	Total/NA	Solid	MAEPH2.1	27964
620-14582-2	SO-B/MW-107-1015	Total/NA	Solid	MAEPH2.1	27964

Analysis Batch: 28114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-3	SO-B/MW-108-1518	Total/NA	Solid	MAEPH2.1	27964
620-14582-4	SO-FD01-101223	Total/NA	Solid	MAEPH2.1	27964
620-14582-2 MS	SO-B/MW-107-1015	Total/NA	Solid	MAEPH2.1	27964
620-14582-2 MSD	SO-B/MW-107-1015	Total/NA	Solid	MAEPH2.1	27964

Metals

Prep Batch: 27854

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-1	SO-B/MW-106-1015	Total/NA	Solid	3050B	
620-14582-2	SO-B/MW-107-1015	Total/NA	Solid	3050B	
620-14582-3	SO-B/MW-108-1518	Total/NA	Solid	3050B	
620-14582-4	SO-FD01-101223	Total/NA	Solid	3050B	
MB 620-27854/1-A	Method Blank	Total/NA	Solid	3050B	
LCSSRM 620-27854/2-A ^5	Lab Control Sample	Total/NA	Solid	3050B	
620-14582-2 MS	SO-B/MW-107-1015	Total/NA	Solid	3050B	
620-14582-2 MSD	SO-B/MW-107-1015	Total/NA	Solid	3050B	
620-14582-2 DU	SO-B/MW-107-1015	Total/NA	Solid	3050B	

Analysis Batch: 27926

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-2	SO-B/MW-107-1015	Total/NA	Solid	6010D	27854
MB 620-27854/1-A	Method Blank	Total/NA	Solid	6010D	27854

Metals (Continued)

Analysis Batch: 27926 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSSRM 620-27854/2-A ^5	Lab Control Sample	Total/NA	Solid	6010D	27854

Prep Batch: 27974

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-1	SO-B/MW-106-1015	Total/NA	Solid	7471B	
620-14582-2	SO-B/MW-107-1015	Total/NA	Solid	7471B	
620-14582-3	SO-B/MW-108-1518	Total/NA	Solid	7471B	
620-14582-4	SO-FD01-101223	Total/NA	Solid	7471B	
MB 620-27974/1-A	Method Blank	Total/NA	Solid	7471B	
LCSSRM 620-27974/2-A ^10	Lab Control Sample	Total/NA	Solid	7471B	
620-14582-2 MS	SO-B/MW-107-1015	Total/NA	Solid	7471B	
620-14582-2 MSD	SO-B/MW-107-1015	Total/NA	Solid	7471B	
620-14582-2 DU	SO-B/MW-107-1015	Total/NA	Solid	7471B	

Analysis Batch: 27992

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-1	SO-B/MW-106-1015	Total/NA	Solid	6010D	27854
620-14582-3	SO-B/MW-108-1518	Total/NA	Solid	6010D	27854
620-14582-4	SO-FD01-101223	Total/NA	Solid	6010D	27854
620-14582-2 MS	SO-B/MW-107-1015	Total/NA	Solid	6010D	27854
620-14582-2 MSD	SO-B/MW-107-1015	Total/NA	Solid	6010D	27854
620-14582-2 DU	SO-B/MW-107-1015	Total/NA	Solid	6010D	27854

Analysis Batch: 28044

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-1	SO-B/MW-106-1015	Total/NA	Solid	7471A	27974
620-14582-2	SO-B/MW-107-1015	Total/NA	Solid	7471A	27974
620-14582-3	SO-B/MW-108-1518	Total/NA	Solid	7471A	27974
620-14582-4	SO-FD01-101223	Total/NA	Solid	7471A	27974
MB 620-27974/1-A	Method Blank	Total/NA	Solid	7471A	27974
LCSSRM 620-27974/2-A ^10	Lab Control Sample	Total/NA	Solid	7471A	27974
620-14582-2 MS	SO-B/MW-107-1015	Total/NA	Solid	7471A	27974
620-14582-2 MSD	SO-B/MW-107-1015	Total/NA	Solid	7471A	27974
620-14582-2 DU	SO-B/MW-107-1015	Total/NA	Solid	7471A	27974

General Chemistry

Analysis Batch: 27847

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-1	SO-B/MW-106-1015	Total/NA	Solid	Moisture	
620-14582-2	SO-B/MW-107-1015	Total/NA	Solid	Moisture	
620-14582-3	SO-B/MW-108-1518	Total/NA	Solid	Moisture	
620-14582-4	SO-FD01-101223	Total/NA	Solid	Moisture	
620-14582-2 MS	SO-B/MW-107-1015	Total/NA	Solid	Moisture	
620-14582-2 MSD	SO-B/MW-107-1015	Total/NA	Solid	Moisture	
620-14582-2 DU	SO-B/MW-107-1015	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Client Sample ID: SO-B/MW-106-1015
Date Collected: 10/12/23 08:50
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	27847	ODO	EET NE	10/16/23 09:33

Client Sample ID: SO-B/MW-106-1015
Date Collected: 10/12/23 08:50
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-1
Matrix: Solid
Percent Solids: 86.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			28025	BMH	EET NE	10/18/23 11:23
Total/NA	Analysis	MAVPH2.1		1	27958	BMH	EET NE	10/19/23 02:53
Total/NA	Prep	5035	DL		28025	BMH	EET NE	10/18/23 11:23
Total/NA	Analysis	MAVPH2.1	DL	10	28182	BMH	EET NE	10/25/23 01:10
Total/NA	Prep	3546			27844	JAC	EET NE	10/16/23 09:16
Total/NA	Fraction	MA EPH Frac			27964	BJJ	EET NE	10/18/23 12:27
Total/NA	Analysis	MAEPH2.1		1	28013	JS	EET NE	10/19/23 22:03
Total/NA	Prep	3050B			27854	ODO	EET NE	10/16/23 11:07
Total/NA	Analysis	6010D		1	27992	JPC	EET NE	10/17/23 17:09
Total/NA	Prep	7471B			27974	PRB	EET NE	10/18/23 13:57
Total/NA	Analysis	7471A		1	28044	PRB	EET NE	10/19/23 12:50

Client Sample ID: SO-B/MW-107-1015
Date Collected: 10/12/23 09:30
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	27847	ODO	EET NE	10/16/23 09:33

Client Sample ID: SO-B/MW-107-1015
Date Collected: 10/12/23 09:30
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-2
Matrix: Solid
Percent Solids: 84.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			28025	BMH	EET NE	10/18/23 11:23
Total/NA	Analysis	MAVPH2.1		1	27958	BMH	EET NE	10/18/23 19:44
Total/NA	Prep	3546			27844	JAC	EET NE	10/16/23 09:16
Total/NA	Fraction	MA EPH Frac			27964	BJJ	EET NE	10/18/23 12:27
Total/NA	Analysis	MAEPH2.1		1	28013	JS	EET NE	10/19/23 22:30
Total/NA	Prep	3050B			27854	ODO	EET NE	10/16/23 11:07
Total/NA	Analysis	6010D		1	27926	JPC	EET NE	10/17/23 14:49
Total/NA	Prep	7471B			27974	PRB	EET NE	10/18/23 13:57
Total/NA	Analysis	7471A		1	28044	PRB	EET NE	10/19/23 12:52

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Client Sample ID: SO-B/MW-108-1518
Date Collected: 10/12/23 10:10
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	27847	ODO	EET NE	10/16/23 09:33

Client Sample ID: SO-B/MW-108-1518
Date Collected: 10/12/23 10:10
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-3
Matrix: Solid
Percent Solids: 85.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			28025	BMH	EET NE	10/18/23 11:23
Total/NA	Analysis	MAVPH2.1		1	27958	BMH	EET NE	10/19/23 03:29
Total/NA	Prep	3546			27844	JAC	EET NE	10/16/23 09:16
Total/NA	Fraction	MA EPH Frac			27964	BJJ	EET NE	10/18/23 12:27
Total/NA	Analysis	MAEPH2.1		1	28114	JS	EET NE	10/23/23 21:35
Total/NA	Prep	3050B			27854	ODO	EET NE	10/16/23 11:07
Total/NA	Analysis	6010D		1	27992	JPC	EET NE	10/17/23 17:03
Total/NA	Prep	7471B			27974	PRB	EET NE	10/18/23 13:57
Total/NA	Analysis	7471A		1	28044	PRB	EET NE	10/19/23 13:00

Client Sample ID: SO-FD01-101223
Date Collected: 10/12/23 08:00
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	27847	ODO	EET NE	10/16/23 09:33

Client Sample ID: SO-FD01-101223
Date Collected: 10/12/23 08:00
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-4
Matrix: Solid
Percent Solids: 88.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			28025	BMH	EET NE	10/18/23 11:23
Total/NA	Analysis	MAVPH2.1		10	27958	BMH	EET NE	10/19/23 04:05
Total/NA	Prep	5035	DL		28025	BMH	EET NE	10/18/23 11:23
Total/NA	Analysis	MAVPH2.1	DL	100	28182	BMH	EET NE	10/25/23 00:34
Total/NA	Prep	3546			27844	JAC	EET NE	10/16/23 09:16
Total/NA	Fraction	MA EPH Frac			27964	BJJ	EET NE	10/18/23 12:27
Total/NA	Analysis	MAEPH2.1		1	28114	JS	EET NE	10/23/23 22:03
Total/NA	Prep	3050B			27854	ODO	EET NE	10/16/23 11:07
Total/NA	Analysis	6010D		1	27992	JPC	EET NE	10/17/23 16:57
Total/NA	Prep	7471B			27974	PRB	EET NE	10/18/23 13:57
Total/NA	Analysis	7471A		1	28044	PRB	EET NE	10/19/23 13:02

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Client Sample ID: TB01-101223

Date Collected: 10/12/23 00:00
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-5

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			28262	BMH	EET NE	10/24/23 12:28
Total/NA	Analysis	MAVPH2.1		1	28182	BMH	EET NE	10/24/23 22:47

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-14582-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Massachusetts	State	M-RI907	06-30-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6010D	3050B	Solid	Antimony
6010D	3050B	Solid	Arsenic
6010D	3050B	Solid	Barium
6010D	3050B	Solid	Beryllium
6010D	3050B	Solid	Cadmium
6010D	3050B	Solid	Chromium
6010D	3050B	Solid	Lead
6010D	3050B	Solid	Nickel
6010D	3050B	Solid	Selenium
6010D	3050B	Solid	Silver
6010D	3050B	Solid	Thallium
6010D	3050B	Solid	Vanadium
6010D	3050B	Solid	Zinc
7471A	7471B	Solid	Mercury
MAEPH2.1	3546	Solid	2-Methylnaphthalene
MAEPH2.1	3546	Solid	Acenaphthene
MAEPH2.1	3546	Solid	Acenaphthylene
MAEPH2.1	3546	Solid	Anthracene
MAEPH2.1	3546	Solid	Benzo[a]anthracene
MAEPH2.1	3546	Solid	Benzo[a]pyrene
MAEPH2.1	3546	Solid	Benzo[b]fluoranthene
MAEPH2.1	3546	Solid	Benzo[g,h,i]perylene
MAEPH2.1	3546	Solid	Benzo[k]fluoranthene
MAEPH2.1	3546	Solid	C11-C22 Aromatics
MAEPH2.1	3546	Solid	C11-C22 Aromatics (Adjusted)
MAEPH2.1	3546	Solid	C19-C36 Aliphatics
MAEPH2.1	3546	Solid	C9-C18 Aliphatics
MAEPH2.1	3546	Solid	Chrysene
MAEPH2.1	3546	Solid	Dibenz(a,h)anthracene
MAEPH2.1	3546	Solid	Fluoranthene
MAEPH2.1	3546	Solid	Fluorene
MAEPH2.1	3546	Solid	Indeno[1,2,3-cd]pyrene
MAEPH2.1	3546	Solid	Naphthalene
MAEPH2.1	3546	Solid	Phenanthrene
MAEPH2.1	3546	Solid	Pyrene
MAVPH2.1	5035	Solid	Benzene
MAVPH2.1	5035	Solid	C5-C8 Aliphatics (adjusted)
MAVPH2.1	5035	Solid	C5-C8 Aliphatics (unadjusted)
MAVPH2.1	5035	Solid	C9-C10 Aromatics
MAVPH2.1	5035	Solid	C9-C12 Aliphatics (adjusted)
MAVPH2.1	5035	Solid	C9-C12 Aliphatics (unadjusted)
MAVPH2.1	5035	Solid	Ethylbenzene
MAVPH2.1	5035	Solid	m,p-Xylene
MAVPH2.1	5035	Solid	Methyl tert-butyl ether
MAVPH2.1	5035	Solid	Naphthalene

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-14582-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
MAVPH2.1	5035	Solid	o-Xylene
MAVPH2.1	5035	Solid	Toluene
MAVPH2.1	5035	Solid	Xylenes, Total
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

Method Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Method	Method Description	Protocol	Laboratory
MAVPH2.1	Massachusetts - Volatile Petroleum Hydrocarbons (GC)	MA DEP	EET NE
MAEPH2.1	Massachusetts - Extractable Petroleum Hydrocarbons (GC)	MA DEP	EET NE
6010D	Metals (ICP)	SW846	EET NE
7471A	Mercury (CVAA)	SW846	EET NE
Moisture	Percent Moisture	EPA	EET NE
3050B	Preparation, Metals	SW846	EET NE
3546	Microwave Extraction	SW846	EET NE
5035	Closed System Purge and Trap	SW846	EET NE
7471B	Preparation, Mercury	SW846	EET NE
MA EPH Frac	Massachusetts - Extractable Petroleum Hydrocarbon Fractionation	MA DEP	EET NE

Protocol References:

EPA = US Environmental Protection Agency

MA DEP = Massachusetts Department Of Environmental Protection

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Sample Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
620-14582-1	SO-B/MW-106-1015	Solid	10/12/23 08:50	10/13/23 17:11
620-14582-2	SO-B/MW-107-1015	Solid	10/12/23 09:30	10/13/23 17:11
620-14582-3	SO-B/MW-108-1518	Solid	10/12/23 10:10	10/13/23 17:11
620-14582-4	SO-FD01-101223	Solid	10/12/23 08:00	10/13/23 17:11
620-14582-5	TB01-101223	Solid	10/12/23 00:00	10/13/23 17:11

620-14582 Chain of Custody

KFS 10/13

~~14582~~ 14582

Chain of Custody Record

eurofins | Environment Testing

Client Contact: ~~Stephanie Stone~~ Caitlin ODell	Sampler: C. Odell	Lab PM: A. Roy	Carrier Tracking No(s):	COC No: 620-12716-1718 3
Company: Nobis Engineering, Inc	Phone: 203-530-4433	E-Mail: aroy@nobis-group.com	State of Origin: MA	Page: ~~Page 3 of 4~~ 1 of 1
Address: 585 Middlesex Street	PWSID	Analysis Requested		Job #:
City: Lowell	Due Date Requested:			
State, Zip: MA, 01851	TAT Requested (days): Standard			
Phone: 203-530-4433	Compliance Project: X Yes △ No MA CAM			
Email: sstone@nobis-group com	PO #:			
Project Name: S00001 005 L$M Service Station	WO #:			
Site: Lunenburg, MA	Project #: S00001.05/400			
	SSOW#:			

Preservation Codes:

A - HCl, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other: ~~~~

	Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	EPH (MassDEP CAM)	Metals (MCP 14) (6010/7471)	VPH (MassDEP CAM)	% Moisture	Trip blank	Total Number of containers	Special Instructions/Note:
	Preservation Code:									F				
1	SO-B/MW-106-1015	10/12/23	0850	G	Water Solid								4	
2	SO-B/MW-107-1015	"	0930	"	Water Solid		X						12	MS/MSD
3	SO-B/MW-108-1518	"	1010	"	Water Solid								4	
4	SO-FD01-101223	"	0800	"	Water Solid								4	
5	TB01-101223	"	—		Solid							X	1	
					Solid									
					Solid									
					Solid									
					Solid									
					Solid									
					Solid									

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested I, II, III, IV, Other (specify): EDD Report, PDF, & email

Special Instructions/QC Requirements: email EDD to AROY@nobis-group.com; MADEP CAM methods required

Empty Kit Relinquished by:		Date		Time		Method of Shipment:	
Relinquished by: Caitlin ODell	Date/Time: 10/13/23 11:40	Company: Nobis	Received by:	Date/Time: 10/13/23 1140	Company: EA		
Relinquished by:	Date/Time: 10/13/23 17:11	Company: EA	Received by:	Date/Time: 10/13/23 17:11	Company:		
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:		

Custody Seals Intact: △ Yes △ No	Custody Seal No:	Cooler Temperature(s) °C and Other Remarks: 5.6 to 2.8 +3

Ver: 06/08/2021

Page 42 of 43

10/30/2023

Login Sample Receipt Checklist

Client: Nobis Engineering, Inc.

Job Number: 620-14582-1

Login Number: 14582
List Number: 1
Creator: Makhoul, Elie

List Source: Eurofins New England

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

PREPARED FOR

Attn: Adam Roy
Nobis Engineering, Inc.
585 Middlesex Street
Lowell, Massachusetts 01851

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JOB DESCRIPTION

Former L&M - Lunenburg MA

JOB NUMBER

620-14942-1

Eurofins New England
646 Camp Ave
North Kingstown RI 02852

See page two for job notes and contact information.

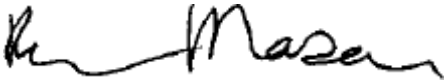
my EOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northeast, LLC Project Manager.

Authorization



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Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
State Forms 5
MCP Checklist 5
Case Narrative 6
Detection Summary 7
Client Sample Results 9
Surrogate Summary 18
QC Sample Results 20
QC Association Summary 33
Lab Chronicle 37
Certification Summary 39
Method Summary 41
Sample Summary 42
Chain of Custody 43
Receipt Checklists 44

Definitions/Glossary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14942-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.

Metals

Qualifier	Qualifier Description
^3+	Reporting Limit Check Standard is outside acceptance limits, high biased
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

MassDEP Analytical Protocol Certfication Form

Laboratory Name: Eurofins New England | Project #: 620-14942-1

Project Location: Former L&M - Lunenburg MA | RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
620-14942-1 through 620-14942-5

Matrices: ☑ Groundwater/Surface Water ☐ Soil/Sediment ☐ Drinking Water ☐ Air ☐ Other:

CAM Protocol (check all that apply below:)

8260 VOC CAM II A ☐	7470/7471 Hg CAM III B ☑	MassDEP VPH (GC/PID/FID) CAM IV A ☑	8082 PCB CAM V A ☐	9014 Total Cyanide/PAC CAM VI A ☐	6860 Perchlorate CAM VIII B ☐
8270 SVOC CAM II B ☐	7010 Metals CAM III C ☐	MassDEP VPH (GC/MS) CAM IV C ☐	8081 Pesticides CAM V B ☐	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
6010 Metals CAM III A ☑	6020 Metals CAM III D ☐	MassDEP EPH CAM IV B ☑	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes ☐ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☑ Yes ☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes ☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☑ Yes ☐ No
E	VPH, EPH, APH, and TO-15 only a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☑ Yes ☐ No ☐ Yes ☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☑ Yes ☐ No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☑ Yes ☐ No[1]

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☐ Yes ☑ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes ☐ No[1]

1 All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature: _____ **Position:** Project Manager II

Printed Name: Becky Mason **Date:** 11/13/2023

Job ID: 620-14942-1

Laboratory: Eurofins New England

Narrative

Job Narrative
620-14942-1

Receipt
The samples were received on 10/27/2023 4:22 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method MAEPH2.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 620-28762 and 620-28794 and analytical batch 620-28787 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method 7470A: The matrix spike duplicate (MSD) precision for preparation batch 620-28845 and analytical batch 620-28884 was outside control limits. The sample spike volume was doubled, leading to precision failure; however, recovery was within acceptable limits. No additional sample volume was available, therefore the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14942-1

Client Sample ID: LM-MW106-102623 — Lab Sample ID: 620-14942-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	90		10	2.3	ug/L	10		EPH	Total/NA
2-Methylnaphthalene	54		10	2.9	ug/L	10		EPH	Total/NA
Acenaphthene	0.20	J	1.0	0.19	ug/L	1		EPH	Total/NA
Phenanthrene	0.43	J	1.0	0.17	ug/L	1		EPH	Total/NA
Fluoranthene	0.16	J	1.0	0.15	ug/L	1		EPH	Total/NA
Benzene	61		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
o-Xylene	18		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
C9-C12 Aliphatics (adjusted) - DL	11000		2500	2500	ug/L	25		MAVPH2.1	Total/NA
C9-C10 Aromatics - DL	9100		2500	2500	ug/L	25		MAVPH2.1	Total/NA
C5-C8 Aliphatics (unadjusted) - DL	3200		2500	2500	ug/L	25		MAVPH2.1	Total/NA
C9-C12 Aliphatics (unadjusted) - DL	23000		2500	2500	ug/L	25		MAVPH2.1	Total/NA
Ethylbenzene - DL	650		130	130	ug/L	25		MAVPH2.1	Total/NA
Methyl tert-butyl ether - DL	2300		130	130	ug/L	25		MAVPH2.1	Total/NA
Naphthalene - DL	210		130	130	ug/L	25		MAVPH2.1	Total/NA
m,p-Xylene - DL	1600		250	250	ug/L	25		MAVPH2.1	Total/NA
Xylenes, Total - DL	1600		380	380	ug/L	25		MAVPH2.1	Total/NA
C9-C18 Aliphatics	290		100	100	ug/L	1		MAEPH2.1	Total/NA
C11-C22 Aromatics	400		100	100	ug/L	1		MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	230		100	100	ug/L	1		MAEPH2.1	Total/NA
Arsenic	0.044		0.0040	0.0014	mg/L	1		6010D	Dissolved
Barium	0.054		0.0050	0.00070	mg/L	1		6010D	Dissolved
Zinc	0.0027	J	0.025	0.0016	mg/L	1		6010D	Dissolved

Client Sample ID: LM-MW107-102623 — Lab Sample ID: 620-14942-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	8.1		1.0	0.23	ug/L	1		EPH	Total/NA
2-Methylnaphthalene	1.2		1.0	0.29	ug/L	1		EPH	Total/NA
C9-C10 Aromatics	210		100	100	ug/L	1		MAVPH2.1	Total/NA
C5-C8 Aliphatics (unadjusted)	610		100	100	ug/L	1		MAVPH2.1	Total/NA
Ethylbenzene	61		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
Naphthalene	14		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
Toluene	79		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
m,p-Xylene	110		10	10	ug/L	1		MAVPH2.1	Total/NA
o-Xylene	46		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
Xylenes, Total	160		15	15	ug/L	1		MAVPH2.1	Total/NA
C9-C12 Aliphatics (adjusted) - DL	500		500	500	ug/L	5		MAVPH2.1	Total/NA
C9-C12 Aliphatics (unadjusted) - DL	980		500	500	ug/L	5		MAVPH2.1	Total/NA
Methyl tert-butyl ether - DL	790		25	25	ug/L	5		MAVPH2.1	Total/NA
C11-C22 Aromatics	120		100	100	ug/L	1		MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	110		100	100	ug/L	1		MAEPH2.1	Total/NA
Arsenic	0.065		0.0040	0.0014	mg/L	1		6010D	Dissolved
Barium	0.050		0.0050	0.00070	mg/L	1		6010D	Dissolved
Nickel	0.0026	J	0.0050	0.00087	mg/L	1		6010D	Dissolved
Zinc	0.0033	J	0.025	0.0016	mg/L	1		6010D	Dissolved

Client Sample ID: LM-MW108-102623 — Lab Sample ID: 620-14942-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.0019	J	0.0060	0.0016	mg/L	1		6010D	Dissolved
Barium	0.14		0.0050	0.00070	mg/L	1		6010D	Dissolved
Nickel	0.0045	J	0.0050	0.00087	mg/L	1		6010D	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins New England

Client Sample ID: LM-MW108-102623 (Continued)

Lab Sample ID: 620-14942-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Silver	0.0012	J	0.0050	0.00062	mg/L	1		6010D	Dissolved
Thallium	0.0026	J	0.0050	0.0021	mg/L	1		6010D	Dissolved
Zinc	0.0020	J	0.025	0.0016	mg/L	1		6010D	Dissolved

Client Sample ID: LM-FD01-102623

Lab Sample ID: 620-14942-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	9.1		1.0	0.23	ug/L	1		EPH	Total/NA
2-Methylnaphthalene	1.4		1.0	0.29	ug/L	1		EPH	Total/NA
C9-C10 Aromatics	230		100	100	ug/L	1		MAVPH2.1	Total/NA
C5-C8 Aliphatics (unadjusted)	670		100	100	ug/L	1		MAVPH2.1	Total/NA
Ethylbenzene	64		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
Naphthalene	17		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
Toluene	67		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
m,p-Xylene	110		10	10	ug/L	1		MAVPH2.1	Total/NA
o-Xylene	42		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
Xylenes, Total	150		15	15	ug/L	1		MAVPH2.1	Total/NA
C9-C12 Aliphatics (unadjusted) - DL	670		500	500	ug/L	5		MAVPH2.1	Total/NA
Methyl tert-butyl ether - DL	570		25	25	ug/L	5		MAVPH2.1	Total/NA
C11-C22 Aromatics	130		100	100	ug/L	1		MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	120		100	100	ug/L	1		MAEPH2.1	Total/NA
Arsenic	0.066		0.0040	0.0014	mg/L	1		6010D	Dissolved
Barium	0.050		0.0050	0.00070	mg/L	1		6010D	Dissolved
Beryllium	0.00039	J	0.0020	0.00028	mg/L	1		6010D	Dissolved
Nickel	0.0031	J	0.0050	0.00087	mg/L	1		6010D	Dissolved
Zinc	0.0034	J	0.025	0.0016	mg/L	1		6010D	Dissolved

Client Sample ID: Trip Blank

Lab Sample ID: 620-14942-5

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: LM-MW106-102623

Date Collected: 10/26/23 13:35
Date Received: 10/27/23 16:22

Lab Sample ID: 620-14942-1

Matrix: Water

Method: MA DEP EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**90**		10	2.3	ug/L		11/07/23 09:35	11/08/23 13:43	10
2-Methylnaphthalene	**54**		10	2.9	ug/L		11/07/23 09:35	11/08/23 13:43	10
Acenaphthylene	ND		1.0	0.39	ug/L		11/07/23 09:35	11/08/23 11:29	1
Acenaphthene	**0.20**	**J**	1.0	0.19	ug/L		11/07/23 09:35	11/08/23 11:29	1
Fluorene	ND		1.0	0.39	ug/L		11/07/23 09:35	11/08/23 11:29	1
Phenanthrene	**0.43**	**J**	1.0	0.17	ug/L		11/07/23 09:35	11/08/23 11:29	1
Anthracene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 11:29	1
Fluoranthene	**0.16**	**J**	1.0	0.15	ug/L		11/07/23 09:35	11/08/23 11:29	1
Pyrene	ND		1.0	0.14	ug/L		11/07/23 09:35	11/08/23 11:29	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		11/07/23 09:35	11/08/23 11:29	1
Chrysene	ND		1.0	0.14	ug/L		11/07/23 09:35	11/08/23 11:29	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 11:29	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		11/07/23 09:35	11/08/23 11:29	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		11/07/23 09:35	11/08/23 11:29	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		11/07/23 09:35	11/08/23 11:29	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		11/07/23 09:35	11/08/23 11:29	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		11/07/23 09:35	11/08/23 11:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*65*		*40 - 140*	*11/07/23 09:35*	*11/08/23 11:29*	*1*
o-Terphenyl (Surr)	*56*		*40 - 140*	*11/07/23 09:35*	*11/08/23 13:43*	*10*
2-Fluorobiphenyl (Surr)	*109*		*40 - 140*	*11/07/23 09:35*	*11/08/23 11:29*	*1*
2-Fluorobiphenyl (Surr)	*93*		*40 - 140*	*11/07/23 09:35*	*11/08/23 13:43*	*10*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**61**		5.0	5.0	ug/L			11/01/23 00:16	1
Toluene	ND		5.0	5.0	ug/L			11/01/23 00:16	1
o-Xylene	**18**		5.0	5.0	ug/L			11/01/23 00:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*128*		*70 - 130*		*11/01/23 00:16*	*1*
2,5-Dibromotoluene (pid)	*116*		*70 - 130*		*11/01/23 00:16*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		2500	2500	ug/L			11/01/23 14:59	25
C9-C12 Aliphatics (adjusted)	**11000**		2500	2500	ug/L			11/01/23 14:59	25
C9-C10 Aromatics	**9100**		2500	2500	ug/L			11/01/23 14:59	25
C5-C8 Aliphatics (unadjusted)	**3200**		2500	2500	ug/L			11/01/23 14:59	25
C9-C12 Aliphatics (unadjusted)	**23000**		2500	2500	ug/L			11/01/23 14:59	25
Ethylbenzene	**650**		130	130	ug/L			11/01/23 14:59	25
Methyl tert-butyl ether	**2300**		130	130	ug/L			11/01/23 14:59	25
Naphthalene	**210**		130	130	ug/L			11/01/23 14:59	25
m,p-Xylene	**1600**		250	250	ug/L			11/01/23 14:59	25
Xylenes, Total	**1600**		380	380	ug/L			11/01/23 14:59	25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*100*		*70 - 130*		*11/01/23 14:59*	*25*
2,5-Dibromotoluene (pid)	*98*		*70 - 130*		*11/01/23 14:59*	*25*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14942-1

Client Sample ID: LM-MW106-102623

Date Collected: 10/26/23 13:35
Date Received: 10/27/23 16:22

Lab Sample ID: 620-14942-1

Matrix: Water

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	**290**		100	100	ug/L		11/07/23 09:35	11/08/23 12:41	1
C19-C36 Aliphatics	ND		100	100	ug/L		11/07/23 09:35	11/08/23 12:41	1
C11-C22 Aromatics	**400**		100	100	ug/L		11/07/23 09:35	11/08/23 12:41	1
C11-C22 Aromatics (Adjusted)	**230**		100	100	ug/L		11/07/23 09:35	11/08/23 12:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*53*		*40 - 140*	*11/07/23 09:35*	*11/08/23 12:41*	*1*
o-Terphenyl (Surr)	*76*		*40 - 140*	*11/07/23 09:35*	*11/08/23 12:41*	*1*
2-Fluorobiphenyl (Surr)	*110*		*40 - 140*	*11/07/23 09:35*	*11/08/23 12:41*	*1*

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0060	0.0016	mg/L		10/30/23 14:59	11/02/23 13:52	1
Arsenic	**0.044**		0.0040	0.0014	mg/L		10/30/23 14:59	11/02/23 13:52	1
Barium	**0.054**		0.0050	0.00070	mg/L		10/30/23 14:59	11/02/23 13:52	1
Beryllium	ND		0.0020	0.00028	mg/L		10/30/23 14:59	11/02/23 13:52	1
Cadmium	ND		0.0025	0.00036	mg/L		10/30/23 14:59	11/02/23 13:52	1
Chromium	ND		0.0050	0.00093	mg/L		10/30/23 14:59	11/02/23 13:52	1
Lead	ND		0.0075	0.0062	mg/L		10/30/23 14:59	11/02/23 13:52	1
Nickel	ND		0.0050	0.00087	mg/L		10/30/23 14:59	11/02/23 13:52	1
Selenium	ND		0.015	0.0042	mg/L		10/30/23 14:59	11/02/23 13:52	1
Silver	ND		0.010	0.00062	mg/L		11/07/23 15:24	11/08/23 12:52	1
Thallium	ND		0.0050	0.0021	mg/L		10/30/23 14:59	11/02/23 13:52	1
Vanadium	ND		0.0050	0.0011	mg/L		10/30/23 14:59	11/02/23 13:52	1
Zinc	**0.0027**	**J**	0.025	0.0016	mg/L		11/07/23 15:24	11/08/23 12:52	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		11/09/23 08:42	11/09/23 14:40	1

Client Sample ID: LM-MW107-102623

Date Collected: 10/26/23 12:00
Date Received: 10/27/23 16:22

Lab Sample ID: 620-14942-2

Matrix: Water

Method: MA DEP EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**8.1**		1.0	0.23	ug/L		11/07/23 09:35	11/08/23 11:52	1
2-Methylnaphthalene	**1.2**		1.0	0.29	ug/L		11/07/23 09:35	11/08/23 11:52	1
Acenaphthylene	ND		1.0	0.39	ug/L		11/07/23 09:35	11/08/23 11:52	1
Acenaphthene	ND		1.0	0.19	ug/L		11/07/23 09:35	11/08/23 11:52	1
Fluorene	ND		1.0	0.39	ug/L		11/07/23 09:35	11/08/23 11:52	1
Phenanthrene	ND		1.0	0.17	ug/L		11/07/23 09:35	11/08/23 11:52	1
Anthracene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 11:52	1
Fluoranthene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 11:52	1
Pyrene	ND		1.0	0.14	ug/L		11/07/23 09:35	11/08/23 11:52	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		11/07/23 09:35	11/08/23 11:52	1
Chrysene	ND		1.0	0.14	ug/L		11/07/23 09:35	11/08/23 11:52	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 11:52	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		11/07/23 09:35	11/08/23 11:52	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		11/07/23 09:35	11/08/23 11:52	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		11/07/23 09:35	11/08/23 11:52	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		11/07/23 09:35	11/08/23 11:52	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		11/07/23 09:35	11/08/23 11:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*67*		*40 - 140*	*11/07/23 09:35*	*11/08/23 11:52*	*1*
2-Fluorobiphenyl (Surr)	*116*		*40 - 140*	*11/07/23 09:35*	*11/08/23 11:52*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			10/31/23 19:09	1
C9-C10 Aromatics	**210**		100	100	ug/L			10/31/23 19:09	1
C5-C8 Aliphatics (unadjusted)	**610**		100	100	ug/L			10/31/23 19:09	1
Benzene	ND		5.0	5.0	ug/L			10/31/23 19:09	1
Ethylbenzene	**61**		5.0	5.0	ug/L			10/31/23 19:09	1
Naphthalene	**14**		5.0	5.0	ug/L			10/31/23 19:09	1
Toluene	**79**		5.0	5.0	ug/L			10/31/23 19:09	1
m,p-Xylene	**110**		10	10	ug/L			10/31/23 19:09	1
o-Xylene	**46**		5.0	5.0	ug/L			10/31/23 19:09	1
Xylenes, Total	**160**		15	15	ug/L			10/31/23 19:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*95*		*70 - 130*		*10/31/23 19:09*	*1*
2,5-Dibromotoluene (pid)	*94*		*70 - 130*		*10/31/23 19:09*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C12 Aliphatics (adjusted)	**500**		500	500	ug/L			11/01/23 15:30	5
C9-C12 Aliphatics (unadjusted)	**980**		500	500	ug/L			11/01/23 15:30	5
Methyl tert-butyl ether	**790**		25	25	ug/L			11/01/23 15:30	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*101*		*70 - 130*		*11/01/23 15:30*	*5*
2,5-Dibromotoluene (pid)	*99*		*70 - 130*		*11/01/23 15:30*	*5*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14942-1

Client Sample ID: LM-MW107-102623

Date Collected: 10/26/23 12:00
Date Received: 10/27/23 16:22

Lab Sample ID: 620-14942-2

Matrix: Water

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		100	100	ug/L		11/07/23 09:35	11/08/23 13:08	1
C19-C36 Aliphatics	ND		100	100	ug/L		11/07/23 09:35	11/08/23 13:08	1
C11-C22 Aromatics	**120**		100	100	ug/L		11/07/23 09:35	11/08/23 13:08	1
C11-C22 Aromatics (Adjusted)	**110**		100	100	ug/L		11/07/23 09:35	11/08/23 13:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*62*		*40 - 140*	*11/07/23 09:35*	*11/08/23 13:08*	*1*
o-Terphenyl (Surr)	*75*		*40 - 140*	*11/07/23 09:35*	*11/08/23 13:08*	*1*
2-Fluorobiphenyl (Surr)	*99*		*40 - 140*	*11/07/23 09:35*	*11/08/23 13:08*	*1*

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0060	0.0016	mg/L		10/30/23 14:59	11/02/23 13:58	1
Arsenic	**0.065**		0.0040	0.0014	mg/L		10/30/23 14:59	11/02/23 13:58	1
Barium	**0.050**		0.0050	0.00070	mg/L		10/30/23 14:59	11/02/23 13:58	1
Beryllium	ND		0.0020	0.00028	mg/L		10/30/23 14:59	11/02/23 13:58	1
Cadmium	ND		0.0025	0.00036	mg/L		10/30/23 14:59	11/02/23 13:58	1
Chromium	ND		0.0050	0.00093	mg/L		10/30/23 14:59	11/02/23 13:58	1
Lead	ND		0.0075	0.0062	mg/L		10/30/23 14:59	11/02/23 13:58	1
Nickel	**0.0026**	**J**	0.0050	0.00087	mg/L		10/30/23 14:59	11/02/23 13:58	1
Selenium	ND		0.015	0.0042	mg/L		10/30/23 14:59	11/02/23 13:58	1
Silver	ND		0.0050	0.00062	mg/L		11/07/23 15:24	11/08/23 12:58	1
Thallium	ND		0.0050	0.0021	mg/L		10/30/23 14:59	11/02/23 13:58	1
Vanadium	ND		0.0050	0.0011	mg/L		10/30/23 14:59	11/02/23 13:58	1
Zinc	**0.0033**	**J**	0.025	0.0016	mg/L		11/07/23 15:24	11/08/23 12:58	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		11/09/23 08:42	11/09/23 14:42	1

Client Sample ID: LM-MW108-102623

Date Collected: 10/26/23 10:05
Date Received: 10/27/23 16:22

Lab Sample ID: 620-14942-3

Matrix: Water

Method: MA DEP EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.0	0.23	ug/L		11/07/23 09:35	11/08/23 12:14	1
2-Methylnaphthalene	ND		1.0	0.29	ug/L		11/07/23 09:35	11/08/23 12:14	1
Acenaphthylene	ND		1.0	0.39	ug/L		11/07/23 09:35	11/08/23 12:14	1
Acenaphthene	ND		1.0	0.19	ug/L		11/07/23 09:35	11/08/23 12:14	1
Fluorene	ND		1.0	0.39	ug/L		11/07/23 09:35	11/08/23 12:14	1
Phenanthrene	ND		1.0	0.17	ug/L		11/07/23 09:35	11/08/23 12:14	1
Anthracene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 12:14	1
Fluoranthene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 12:14	1
Pyrene	ND		1.0	0.14	ug/L		11/07/23 09:35	11/08/23 12:14	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		11/07/23 09:35	11/08/23 12:14	1
Chrysene	ND		1.0	0.14	ug/L		11/07/23 09:35	11/08/23 12:14	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 12:14	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		11/07/23 09:35	11/08/23 12:14	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		11/07/23 09:35	11/08/23 12:14	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		11/07/23 09:35	11/08/23 12:14	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		11/07/23 09:35	11/08/23 12:14	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		11/07/23 09:35	11/08/23 12:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*55*		*40 - 140*	*11/07/23 09:35*	*11/08/23 12:14*	*1*
2-Fluorobiphenyl (Surr)	*93*		*40 - 140*	*11/07/23 09:35*	*11/08/23 12:14*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			11/03/23 15:22	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			11/03/23 15:22	1
C9-C10 Aromatics	ND		100	100	ug/L			11/03/23 15:22	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			11/03/23 15:22	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			11/03/23 15:22	1
Benzene	ND		5.0	5.0	ug/L			11/03/23 15:22	1
Ethylbenzene	ND		5.0	5.0	ug/L			11/03/23 15:22	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			11/03/23 15:22	1
Naphthalene	ND		5.0	5.0	ug/L			11/03/23 15:22	1
Toluene	ND		5.0	5.0	ug/L			11/03/23 15:22	1
m,p-Xylene	ND		10	10	ug/L			11/03/23 15:22	1
o-Xylene	ND		5.0	5.0	ug/L			11/03/23 15:22	1
Xylenes, Total	ND		15	15	ug/L			11/03/23 15:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*106*		*70 - 130*		*11/03/23 15:22*	*1*
2,5-Dibromotoluene (pid)	*105*		*70 - 130*		*11/03/23 15:22*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND	F1	100	100	ug/L		11/07/23 09:35	11/08/23 13:34	1
C19-C36 Aliphatics	ND		100	100	ug/L		11/07/23 09:35	11/08/23 13:34	1
C11-C22 Aromatics	ND		100	100	ug/L		11/07/23 09:35	11/08/23 13:34	1
C11-C22 Aromatics (Adjusted)	ND		100	100	ug/L		11/07/23 09:35	11/08/23 13:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*46*		*40 - 140*	*11/07/23 09:35*	*11/08/23 13:34*	*1*

Client Sample ID: LM-MW108-102623

Date Collected: 10/26/23 10:05
Date Received: 10/27/23 16:22

Lab Sample ID: 620-14942-3

Matrix: Water

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*75*		*40 - 140*	*11/07/23 09:35*	*11/08/23 13:34*	*1*
2-Fluorobiphenyl (Surr)	*98*		*40 - 140*	*11/07/23 09:35*	*11/08/23 13:34*	*1*

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0019**	**J**	0.0060	0.0016	mg/L		10/30/23 14:59	11/02/23 13:11	1
Arsenic	ND		0.0040	0.0014	mg/L		10/30/23 14:59	11/02/23 13:11	1
Barium	**0.14**		0.0050	0.00070	mg/L		10/30/23 14:59	11/02/23 13:11	1
Beryllium	ND		0.0020	0.00028	mg/L		10/30/23 14:59	11/02/23 13:11	1
Cadmium	ND		0.0025	0.00036	mg/L		10/30/23 14:59	11/02/23 13:11	1
Chromium	ND		0.0050	0.00093	mg/L		10/30/23 14:59	11/02/23 13:11	1
Lead	ND		0.0075	0.0062	mg/L		10/30/23 14:59	11/02/23 13:11	1
Nickel	**0.0045**	**J**	0.0050	0.00087	mg/L		10/30/23 14:59	11/02/23 13:11	1
Selenium	ND		0.015	0.0042	mg/L		10/30/23 14:59	11/02/23 13:11	1
Silver	**0.0012**	**J**	0.0050	0.00062	mg/L		11/07/23 15:24	11/08/23 12:28	1
Thallium	**0.0026**	**J**	0.0050	0.0021	mg/L		10/30/23 14:59	11/02/23 13:11	1
Vanadium	ND		0.0050	0.0011	mg/L		10/30/23 14:59	11/02/23 13:11	1
Zinc	**0.0020**	**J**	0.025	0.0016	mg/L		11/07/23 15:24	11/08/23 12:28	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		11/09/23 08:42	11/09/23 14:45	1

Client Sample ID: LM-FD01-102623

Date Collected: 10/26/23 08:00
Date Received: 10/27/23 16:22

Lab Sample ID: 620-14942-4

Matrix: Water

Method: MA DEP EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**9.1**		1.0	0.23	ug/L		11/07/23 09:35	11/08/23 13:21	1
2-Methylnaphthalene	**1.4**		1.0	0.29	ug/L		11/07/23 09:35	11/08/23 13:21	1
Acenaphthylene	ND		1.0	0.39	ug/L		11/07/23 09:35	11/08/23 13:21	1
Acenaphthene	ND		1.0	0.19	ug/L		11/07/23 09:35	11/08/23 13:21	1
Fluorene	ND		1.0	0.39	ug/L		11/07/23 09:35	11/08/23 13:21	1
Phenanthrene	ND		1.0	0.17	ug/L		11/07/23 09:35	11/08/23 13:21	1
Anthracene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 13:21	1
Fluoranthene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 13:21	1
Pyrene	ND		1.0	0.14	ug/L		11/07/23 09:35	11/08/23 13:21	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		11/07/23 09:35	11/08/23 13:21	1
Chrysene	ND		1.0	0.14	ug/L		11/07/23 09:35	11/08/23 13:21	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 13:21	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		11/07/23 09:35	11/08/23 13:21	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		11/07/23 09:35	11/08/23 13:21	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		11/07/23 09:35	11/08/23 13:21	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		11/07/23 09:35	11/08/23 13:21	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		11/07/23 09:35	11/08/23 13:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*72*		*40 - 140*	*11/07/23 09:35*	*11/08/23 13:21*	*1*
2-Fluorobiphenyl (Surr)	*113*		*40 - 140*	*11/07/23 09:35*	*11/08/23 13:21*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			10/31/23 19:40	1
C9-C10 Aromatics	**230**		100	100	ug/L			10/31/23 19:40	1
C5-C8 Aliphatics (unadjusted)	**670**		100	100	ug/L			10/31/23 19:40	1
Benzene	ND		5.0	5.0	ug/L			10/31/23 19:40	1
Ethylbenzene	**64**		5.0	5.0	ug/L			10/31/23 19:40	1
Naphthalene	**17**		5.0	5.0	ug/L			10/31/23 19:40	1
Toluene	**67**		5.0	5.0	ug/L			10/31/23 19:40	1
m,p-Xylene	**110**		10	10	ug/L			10/31/23 19:40	1
o-Xylene	**42**		5.0	5.0	ug/L			10/31/23 19:40	1
Xylenes, Total	**150**		15	15	ug/L			10/31/23 19:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*100*		*70 - 130*		*10/31/23 19:40*	*1*
2,5-Dibromotoluene (pid)	*97*		*70 - 130*		*10/31/23 19:40*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C12 Aliphatics (adjusted)	ND		500	500	ug/L			11/01/23 16:01	5
C9-C12 Aliphatics (unadjusted)	**670**		500	500	ug/L			11/01/23 16:01	5
Methyl tert-butyl ether	**570**		25	25	ug/L			11/01/23 16:01	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*101*		*70 - 130*		*11/01/23 16:01*	*5*
2,5-Dibromotoluene (pid)	*99*		*70 - 130*		*11/01/23 16:01*	*5*

Client Sample ID: LM-FD01-102623

Date Collected: 10/26/23 08:00
Date Received: 10/27/23 16:22

Lab Sample ID: 620-14942-4

Matrix: Water

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		100	100	ug/L		11/07/23 09:35	11/08/23 15:39	1
C19-C36 Aliphatics	ND		100	100	ug/L		11/07/23 09:35	11/08/23 15:39	1
C11-C22 Aromatics	**130**		100	100	ug/L		11/07/23 09:35	11/08/23 15:39	1
C11-C22 Aromatics (Adjusted)	**120**		100	100	ug/L		11/07/23 09:35	11/08/23 15:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*52*		*40 - 140*	*11/07/23 09:35*	*11/08/23 15:39*	*1*
o-Terphenyl (Surr)	*85*		*40 - 140*	*11/07/23 09:35*	*11/08/23 15:39*	*1*
2-Fluorobiphenyl (Surr)	*107*		*40 - 140*	*11/07/23 09:35*	*11/08/23 15:39*	*1*

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0060	0.0016	mg/L		10/30/23 14:59	11/02/23 13:47	1
Arsenic	**0.066**		0.0040	0.0014	mg/L		10/30/23 14:59	11/02/23 13:47	1
Barium	**0.050**		0.0050	0.00070	mg/L		10/30/23 14:59	11/02/23 13:47	1
Beryllium	**0.00039**	**J**	0.0020	0.00028	mg/L		10/30/23 14:59	11/02/23 13:47	1
Cadmium	ND		0.0025	0.00036	mg/L		10/30/23 14:59	11/02/23 13:47	1
Chromium	ND		0.0050	0.00093	mg/L		10/30/23 14:59	11/02/23 13:47	1
Lead	ND		0.0075	0.0062	mg/L		10/30/23 14:59	11/02/23 13:47	1
Nickel	**0.0031**	**J**	0.0050	0.00087	mg/L		10/30/23 14:59	11/02/23 13:47	1
Selenium	ND		0.015	0.0042	mg/L		10/30/23 14:59	11/02/23 13:47	1
Silver	ND		0.0050	0.00062	mg/L		11/07/23 15:24	11/08/23 13:04	1
Thallium	ND		0.0050	0.0021	mg/L		10/30/23 14:59	11/02/23 13:47	1
Vanadium	ND		0.0050	0.0011	mg/L		10/30/23 14:59	11/02/23 13:47	1
Zinc	**0.0034**	**J**	0.025	0.0016	mg/L		11/07/23 15:24	11/08/23 13:04	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		11/09/23 08:42	11/09/23 14:47	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14942-1

Client Sample ID: Trip Blank

Date Collected: 10/26/23 00:00
Date Received: 10/27/23 16:22

Lab Sample ID: 620-14942-5

Matrix: Water

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			10/31/23 15:36	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			10/31/23 15:36	1
C9-C10 Aromatics	ND		100	100	ug/L			10/31/23 15:36	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			10/31/23 15:36	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			10/31/23 15:36	1
Benzene	ND		5.0	5.0	ug/L			10/31/23 15:36	1
Ethylbenzene	ND		5.0	5.0	ug/L			10/31/23 15:36	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			10/31/23 15:36	1
Naphthalene	ND		5.0	5.0	ug/L			10/31/23 15:36	1
Toluene	ND		5.0	5.0	ug/L			10/31/23 15:36	1
m,p-Xylene	ND		10	10	ug/L			10/31/23 15:36	1
o-Xylene	ND		5.0	5.0	ug/L			10/31/23 15:36	1
Xylenes, Total	ND		15	15	ug/L			10/31/23 15:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*95*		*70 - 130*		*10/31/23 15:36*	*1*
2,5-Dibromotoluene (pid)	*95*		*70 - 130*		*10/31/23 15:36*	*1*

Surrogate Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14942-1

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH (40-140)	FBP (40-140)
620-14942-1	LM-MW106-102623	56	93
620-14942-1	LM-MW106-102623	65	109
620-14942-2	LM-MW107-102623	67	116
620-14942-3	LM-MW108-102623	55	93
620-14942-3 MS	LM-MW108-102623	66	110
620-14942-3 MSD	LM-MW108-102623	64	113
620-14942-4	LM-FD01-102623	72	113
LCS 620-28762/4-B	Lab Control Sample	68	112
LCSD 620-28762/5-B	Lab Control Sample Dup	71	117
MB 620-28762/1-B	Method Blank	71	115

Surrogate Legend

OTPH = o-Terphenyl (Surr)

FBP = 2-Fluorobiphenyl (Surr)

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	25DBTf1 (70-130)	25DBTp1 (70-130)
620-14942-1	LM-MW106-102623	128	116
620-14942-1 - DL	LM-MW106-102623	100	98
620-14942-2	LM-MW107-102623	95	94
620-14942-2 - DL	LM-MW107-102623	101	99
620-14942-3	LM-MW108-102623	106	105
620-14942-3 MS	LM-MW108-102623	99	101
620-14942-3 MSD	LM-MW108-102623	102	103
620-14942-4	LM-FD01-102623	100	97
620-14942-4 - DL	LM-FD01-102623	101	99
620-14942-5	Trip Blank	95	95
LCS 620-28516/3	Lab Control Sample	100	100
LCS 620-28559/3	Lab Control Sample	103	99
LCS 620-28656/3	Lab Control Sample	106	105
LCSD 620-28516/4	Lab Control Sample Dup	103	101
LCSD 620-28559/4	Lab Control Sample Dup	108	107
LCSD 620-28656/4	Lab Control Sample Dup	104	103
MB 620-28516/5	Method Blank	104	103
MB 620-28559/5	Method Blank	110	108
MB 620-28656/5	Method Blank	103	103

Surrogate Legend

25DBTf = 2,5-Dibromotoluene (fid)

25DBTp = 2,5-Dibromotoluene (pid)

Surrogate Summary

Client: Nobis Engineering, Inc.
Job ID: 620-14942-1
Project/Site: Former L&M - Lunenburg MA

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Matrix: Water
Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	1COD1 (40-140)	OTPH1 (40-140)	FBP1 (40-140)
620-14942-1	LM-MW106-102623	53	76	110
620-14942-2	LM-MW107-102623	62	75	99
620-14942-3	LM-MW108-102623	46	75	98
620-14942-3 MS	LM-MW108-102623	57	79	113
620-14942-3 MSD	LM-MW108-102623	48	70	105
620-14942-4	LM-FD01-102623	52	85	107
LCS 620-28762/2-B	Lab Control Sample	49	80	112
LCSD 620-28762/3-B	Lab Control Sample Dup	67	88	112
MB 620-28762/1-B	Method Blank	44	65	93

Surrogate Legend

1COD = 1-Chlorooctadecane (Surr)
OTPH = o-Terphenyl (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Lab Sample ID: MB 620-28762/1-B
Matrix: Water
Analysis Batch: 28788

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28762

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.0	0.23	ug/L		11/07/23 09:35	11/08/23 10:22	1
2-Methylnaphthalene	ND		1.0	0.29	ug/L		11/07/23 09:35	11/08/23 10:22	1
Acenaphthylene	ND		1.0	0.39	ug/L		11/07/23 09:35	11/08/23 10:22	1
Acenaphthene	ND		1.0	0.19	ug/L		11/07/23 09:35	11/08/23 10:22	1
Fluorene	ND		1.0	0.39	ug/L		11/07/23 09:35	11/08/23 10:22	1
Phenanthrene	ND		1.0	0.17	ug/L		11/07/23 09:35	11/08/23 10:22	1
Anthracene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 10:22	1
Fluoranthene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 10:22	1
Pyrene	ND		1.0	0.14	ug/L		11/07/23 09:35	11/08/23 10:22	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		11/07/23 09:35	11/08/23 10:22	1
Chrysene	ND		1.0	0.14	ug/L		11/07/23 09:35	11/08/23 10:22	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 10:22	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		11/07/23 09:35	11/08/23 10:22	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		11/07/23 09:35	11/08/23 10:22	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		11/07/23 09:35	11/08/23 10:22	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		11/07/23 09:35	11/08/23 10:22	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		11/07/23 09:35	11/08/23 10:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*71*		*40 - 140*	*11/07/23 09:35*	*11/08/23 10:22*	*1*
2-Fluorobiphenyl (Surr)	*115*		*40 - 140*	*11/07/23 09:35*	*11/08/23 10:22*	*1*

Lab Sample ID: LCS 620-28762/4-B
Matrix: Water
Analysis Batch: 28788

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28762

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Naphthalene	5.00	3.10		ug/L		62	40 - 140
2-Methylnaphthalene	5.00	3.04		ug/L		61	40 - 140
Acenaphthylene	5.00	3.18		ug/L		64	40 - 140
Acenaphthene	5.00	3.16		ug/L		63	40 - 140
Fluorene	5.00	3.06		ug/L		61	40 - 140
Phenanthrene	5.00	3.16		ug/L		63	40 - 140
Anthracene	5.00	2.95		ug/L		59	40 - 140
Fluoranthene	5.00	3.64		ug/L		73	40 - 140
Pyrene	5.00	3.55		ug/L		71	40 - 140
Benzo[a]anthracene	5.00	3.39		ug/L		68	40 - 140
Chrysene	5.00	3.25		ug/L		65	40 - 140
Benzo[b]fluoranthene	5.00	3.13		ug/L		63	40 - 140
Benzo[k]fluoranthene	5.00	3.50		ug/L		70	40 - 140
Benzo[a]pyrene	5.00	2.79		ug/L		56	40 - 140
Indeno[1,2,3-cd]pyrene	5.00	2.94		ug/L		59	40 - 140
Dibenz(a,h)anthracene	5.00	2.85		ug/L		57	40 - 140
Benzo[g,h,i]perylene	5.00	3.18		ug/L		64	40 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*68*		*40 - 140*
2-Fluorobiphenyl (Surr)	*112*		*40 - 140*

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Lab Sample ID: LCSD 620-28762/5-B
Matrix: Water
Analysis Batch: 28788

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28762

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Naphthalene			5.00	2.96		ug/L		59	40 - 140	5	25
2-Methylnaphthalene			5.00	2.91		ug/L		58	40 - 140	4	25
Acenaphthylene			5.00	3.15		ug/L		63	40 - 140	1	25
Acenaphthene			5.00	3.08		ug/L		62	40 - 140	3	25
Fluorene			5.00	3.14		ug/L		63	40 - 140	2	25
Phenanthrene			5.00	3.27		ug/L		65	40 - 140	4	25
Anthracene			5.00	3.05		ug/L		61	40 - 140	3	25
Fluoranthene			5.00	3.80		ug/L		76	40 - 140	5	25
Pyrene			5.00	3.76		ug/L		75	40 - 140	6	25
Benzo[a]anthracene			5.00	3.80		ug/L		76	40 - 140	11	25
Chrysene			5.00	3.88		ug/L		78	40 - 140	18	25
Benzo[b]fluoranthene			5.00	3.91		ug/L		78	40 - 140	22	25
Benzo[k]fluoranthene			5.00	4.38		ug/L		88	40 - 140	22	25
Benzo[a]pyrene			5.00	3.25		ug/L		65	40 - 140	15	25
Indeno[1,2,3-cd]pyrene			5.00	3.62		ug/L		72	40 - 140	21	25
Dibenz(a,h)anthracene			5.00	3.60		ug/L		72	40 - 140	23	25
Benzo[g,h,i]perylene			5.00	4.01		ug/L		80	40 - 140	23	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*71*		*40 - 140*
2-Fluorobiphenyl (Surr)	*117*		*40 - 140*

Lab Sample ID: 620-14942-3 MS
Matrix: Water
Analysis Batch: 28788

Client Sample ID: LM-MW108-102623
Prep Type: Total/NA
Prep Batch: 28762

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Naphthalene	ND		5.00	2.27		ug/L		45	40 - 140
2-Methylnaphthalene	ND		5.00	2.30		ug/L		46	40 - 140
Acenaphthylene	ND		5.00	2.48		ug/L		50	40 - 140
Acenaphthene	ND		5.00	2.47		ug/L		49	40 - 140
Fluorene	ND		5.00	2.49		ug/L		50	40 - 140
Phenanthrene	ND		5.00	2.96		ug/L		59	40 - 140
Anthracene	ND		5.00	2.80		ug/L		56	40 - 140
Fluoranthene	ND		5.00	3.63		ug/L		73	40 - 140
Pyrene	ND		5.00	3.61		ug/L		72	40 - 140
Benzo[a]anthracene	ND		5.00	3.42		ug/L		68	40 - 140
Chrysene	ND		5.00	3.48		ug/L		70	40 - 140
Benzo[b]fluoranthene	ND		5.00	3.20		ug/L		64	40 - 140
Benzo[k]fluoranthene	ND		5.00	3.73		ug/L		75	40 - 140
Benzo[a]pyrene	ND		5.00	2.68		ug/L		54	40 - 140
Indeno[1,2,3-cd]pyrene	ND		5.00	2.90		ug/L		58	40 - 140
Dibenz(a,h)anthracene	ND		5.00	2.88		ug/L		58	40 - 140
Benzo[g,h,i]perylene	ND		5.00	3.16		ug/L		63	40 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl (Surr)	*66*		*40 - 140*
2-Fluorobiphenyl (Surr)	*110*		*40 - 140*

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Lab Sample ID: 620-14942-3 MSD
Matrix: Water
Analysis Batch: 28788

Client Sample ID: LM-MW108-102623
Prep Type: Total/NA
Prep Batch: 28762

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Naphthalene	ND		5.00	2.16		ug/L		43	40 - 140	5	50
2-Methylnaphthalene	ND		5.00	2.21		ug/L		44	40 - 140	4	50
Acenaphthylene	ND		5.00	2.45		ug/L		49	40 - 140	1	50
Acenaphthene	ND		5.00	2.39		ug/L		48	40 - 140	3	50
Fluorene	ND		5.00	2.49		ug/L		50	40 - 140	0	50
Phenanthrene	ND		5.00	2.95		ug/L		59	40 - 140	0	50
Anthracene	ND		5.00	2.73		ug/L		55	40 - 140	3	50
Fluoranthene	ND		5.00	3.49		ug/L		70	40 - 140	4	50
Pyrene	ND		5.00	3.41		ug/L		68	40 - 140	6	50
Benzo[a]anthracene	ND		5.00	3.13		ug/L		63	40 - 140	9	50
Chrysene	ND		5.00	3.20		ug/L		64	40 - 140	8	50
Benzo[b]fluoranthene	ND		5.00	2.86		ug/L		57	40 - 140	11	50
Benzo[k]fluoranthene	ND		5.00	3.28		ug/L		66	40 - 140	13	50
Benzo[a]pyrene	ND		5.00	2.39		ug/L		48	40 - 140	12	50
Indeno[1,2,3-cd]pyrene	ND		5.00	2.51		ug/L		50	40 - 140	14	50
Dibenz(a,h)anthracene	ND		5.00	2.52		ug/L		50	40 - 140	13	50
Benzo[g,h,i]perylene	ND		5.00	2.77		ug/L		55	40 - 140	13	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*64*		*40 - 140*
2-Fluorobiphenyl (Surr)	*113*		*40 - 140*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-28516/5
Matrix: Water
Analysis Batch: 28516

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			10/31/23 13:17	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			10/31/23 13:17	1
C9-C10 Aromatics	ND		100	100	ug/L			10/31/23 13:17	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			10/31/23 13:17	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			10/31/23 13:17	1
Benzene	ND		5.0	5.0	ug/L			10/31/23 13:17	1
Ethylbenzene	ND		5.0	5.0	ug/L			10/31/23 13:17	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			10/31/23 13:17	1
Naphthalene	ND		5.0	5.0	ug/L			10/31/23 13:17	1
Toluene	ND		5.0	5.0	ug/L			10/31/23 13:17	1
m,p-Xylene	ND		10	10	ug/L			10/31/23 13:17	1
o-Xylene	ND		5.0	5.0	ug/L			10/31/23 13:17	1
Xylenes, Total	ND		15	15	ug/L			10/31/23 13:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*104*		*70 - 130*		*10/31/23 13:17*	*1*
2,5-Dibromotoluene (pid)	*103*		*70 - 130*		*10/31/23 13:17*	*1*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCS 620-28516/3
Matrix: Water
Analysis Batch: 28516

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C10 Aromatics			20.0	ND		ug/L		92	70 - 130		
C5-C8 Aliphatics (unadjusted)			60.0	ND		ug/L		86	70 - 130		
C9-C12 Aliphatics (unadjusted)			60.0	ND		ug/L		86	70 - 130		
Benzene			20.0	17.4		ug/L		87	70 - 130		
Ethylbenzene			20.0	18.0		ug/L		90	70 - 130		
Methyl tert-butyl ether			20.0	17.9		ug/L		90	70 - 130		
Naphthalene			20.0	19.4		ug/L		97	70 - 130		
Toluene			20.0	17.8		ug/L		89	70 - 130		
m,p-Xylene			40.0	37.2		ug/L		93	70 - 130		
o-Xylene			20.0	18.6		ug/L		93	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*100*		*70 - 130*
2,5-Dibromotoluene (pid)	*100*		*70 - 130*

Lab Sample ID: LCSD 620-28516/4
Matrix: Water
Analysis Batch: 28516

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics			20.0	ND		ug/L		117	70 - 130	24	25
C5-C8 Aliphatics (unadjusted)			60.0	ND		ug/L		107	70 - 130	22	25
C9-C12 Aliphatics (unadjusted)			60.0	ND		ug/L		107	70 - 130	22	25
Benzene			20.0	21.6		ug/L		108	70 - 130	22	25
Ethylbenzene			20.0	22.7		ug/L		114	70 - 130	23	25
Methyl tert-butyl ether			20.0	22.8		ug/L		114	70 - 130	24	25
Naphthalene			20.0	24.1		ug/L		121	70 - 130	22	25
Toluene			20.0	22.2		ug/L		111	70 - 130	22	25
m,p-Xylene			40.0	47.2		ug/L		118	70 - 130	24	25
o-Xylene			20.0	23.6		ug/L		118	70 - 130	24	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*103*		*70 - 130*
2,5-Dibromotoluene (pid)	*101*		*70 - 130*

Lab Sample ID: MB 620-28559/5
Matrix: Water
Analysis Batch: 28559

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			11/01/23 13:27	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			11/01/23 13:27	1
C9-C10 Aromatics	ND		100	100	ug/L			11/01/23 13:27	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			11/01/23 13:27	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			11/01/23 13:27	1
Benzene	ND		5.0	5.0	ug/L			11/01/23 13:27	1
Ethylbenzene	ND		5.0	5.0	ug/L			11/01/23 13:27	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			11/01/23 13:27	1

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: MB 620-28559/5
Matrix: Water
Analysis Batch: 28559

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		5.0	5.0	ug/L			11/01/23 13:27	1
Toluene	ND		5.0	5.0	ug/L			11/01/23 13:27	1
m,p-Xylene	ND		10	10	ug/L			11/01/23 13:27	1
o-Xylene	ND		5.0	5.0	ug/L			11/01/23 13:27	1
Xylenes, Total	ND		15	15	ug/L			11/01/23 13:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*110*		*70 - 130*		*11/01/23 13:27*	*1*
2,5-Dibromotoluene (pid)	*108*		*70 - 130*		*11/01/23 13:27*	*1*

Lab Sample ID: LCS 620-28559/3
Matrix: Water
Analysis Batch: 28559

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C10 Aromatics			20.0	ND		ug/L		109	70 - 130		
C5-C8 Aliphatics (unadjusted)			60.0	ND		ug/L		97	70 - 130		
C9-C12 Aliphatics (unadjusted)			60.0	ND		ug/L		98	70 - 130		
Benzene			20.0	19.8		ug/L		99	70 - 130		
Ethylbenzene			20.0	21.1		ug/L		105	70 - 130		
Methyl tert-butyl ether			20.0	20.8		ug/L		104	70 - 130		
Naphthalene			20.0	23.1		ug/L		116	70 - 130		
Toluene			20.0	20.6		ug/L		103	70 - 130		
m,p-Xylene			40.0	43.5		ug/L		109	70 - 130		
o-Xylene			20.0	21.7		ug/L		109	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*103*		*70 - 130*
2,5-Dibromotoluene (pid)	*99*		*70 - 130*

Lab Sample ID: LCSD 620-28559/4
Matrix: Water
Analysis Batch: 28559

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics			20.0	ND		ug/L		112	70 - 130	2	25
C5-C8 Aliphatics (unadjusted)			60.0	ND		ug/L		98	70 - 130	1	25
C9-C12 Aliphatics (unadjusted)			60.0	ND		ug/L		98	70 - 130	0	25
Benzene			20.0	20.2		ug/L		101	70 - 130	2	25
Ethylbenzene			20.0	21.6		ug/L		108	70 - 130	3	25
Methyl tert-butyl ether			20.0	21.0		ug/L		105	70 - 130	1	25
Naphthalene			20.0	23.8		ug/L		119	70 - 130	3	25
Toluene			20.0	21.0		ug/L		105	70 - 130	2	25
m,p-Xylene			40.0	44.3		ug/L		111	70 - 130	2	25
o-Xylene			20.0	22.2		ug/L		111	70 - 130	2	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*108*		*70 - 130*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-28559/4
Matrix: Water
Analysis Batch: 28559

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (pid)	*107*		*70 - 130*

Lab Sample ID: MB 620-28656/5
Matrix: Water
Analysis Batch: 28656

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			11/03/23 12:49	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			11/03/23 12:49	1
C9-C10 Aromatics	ND		100	100	ug/L			11/03/23 12:49	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			11/03/23 12:49	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			11/03/23 12:49	1
Benzene	ND		5.0	5.0	ug/L			11/03/23 12:49	1
Ethylbenzene	ND		5.0	5.0	ug/L			11/03/23 12:49	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			11/03/23 12:49	1
Naphthalene	ND		5.0	5.0	ug/L			11/03/23 12:49	1
Toluene	ND		5.0	5.0	ug/L			11/03/23 12:49	1
m,p-Xylene	ND		10	10	ug/L			11/03/23 12:49	1
o-Xylene	ND		5.0	5.0	ug/L			11/03/23 12:49	1
Xylenes, Total	ND		15	15	ug/L			11/03/23 12:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*103*		*70 - 130*		*11/03/23 12:49*	*1*
2,5-Dibromotoluene (pid)	*103*		*70 - 130*		*11/03/23 12:49*	*1*

Lab Sample ID: LCS 620-28656/3
Matrix: Water
Analysis Batch: 28656

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C10 Aromatics	20.0	ND		ug/L		109	70 - 130
C5-C8 Aliphatics (unadjusted)	60.0	ND		ug/L		99	70 - 130
C9-C12 Aliphatics (unadjusted)	60.0	ND		ug/L		100	70 - 130
Benzene	20.0	20.0		ug/L		100	70 - 130
Ethylbenzene	20.0	21.2		ug/L		106	70 - 130
Methyl tert-butyl ether	20.0	20.2		ug/L		101	70 - 130
Naphthalene	20.0	23.1		ug/L		116	70 - 130
Toluene	20.0	20.9		ug/L		104	70 - 130
m,p-Xylene	40.0	43.7		ug/L		109	70 - 130
o-Xylene	20.0	21.9		ug/L		109	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*106*		*70 - 130*
2,5-Dibromotoluene (pid)	*105*		*70 - 130*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-28656/4
Matrix: Water
Analysis Batch: 28656

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics			20.0	ND		ug/L		111	70 - 130	1	25
C5-C8 Aliphatics (unadjusted)			60.0	ND		ug/L		99	70 - 130	0	25
C9-C12 Aliphatics (unadjusted)			60.0	ND		ug/L		100	70 - 130	0	25
Benzene			20.0	20.1		ug/L		101	70 - 130	1	25
Ethylbenzene			20.0	21.4		ug/L		107	70 - 130	1	25
Methyl tert-butyl ether			20.0	21.0		ug/L		105	70 - 130	4	25
Naphthalene			20.0	23.4		ug/L		117	70 - 130	1	25
Toluene			20.0	20.9		ug/L		104	70 - 130	0	25
m,p-Xylene			40.0	44.2		ug/L		111	70 - 130	1	25
o-Xylene			20.0	22.1		ug/L		110	70 - 130	1	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*104*		*70 - 130*
2,5-Dibromotoluene (pid)	*103*		*70 - 130*

Lab Sample ID: 620-14942-3 MS
Matrix: Water
Analysis Batch: 28656

Client Sample ID: LM-MW108-102623
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C10 Aromatics	ND		20.3	ND		ug/L		NC	70 - 130
C5-C8 Aliphatics (unadjusted)	ND		61.0	140		ug/L		NC	70 - 130
C9-C12 Aliphatics (unadjusted)	ND		61.0	328		ug/L		NC	70 - 130
Benzene	ND		20.3	20.9		ug/L		103	70 - 130
Ethylbenzene	ND		20.3	22.2		ug/L		109	70 - 130
Methyl tert-butyl ether	ND		20.3	20.2		ug/L		99	70 - 130
Naphthalene	ND		20.3	20.5		ug/L		101	70 - 130
Toluene	ND		20.3	21.7		ug/L		107	70 - 130
m,p-Xylene	ND		40.7	45.4		ug/L		112	70 - 130
o-Xylene	ND		20.3	22.4		ug/L		110	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*99*		*70 - 130*
2,5-Dibromotoluene (pid)	*101*		*70 - 130*

Lab Sample ID: 620-14942-3 MSD
Matrix: Water
Analysis Batch: 28656

Client Sample ID: LM-MW108-102623
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics	ND		20.3	ND		ug/L		NC	70 - 130	NC	30
C5-C8 Aliphatics (unadjusted)	ND		61.0	143		ug/L		NC	70 - 130	3	30
C9-C12 Aliphatics (unadjusted)	ND		61.0	339		ug/L		NC	70 - 130	3	30
Benzene	ND		20.3	21.5		ug/L		106	70 - 130	3	30
Ethylbenzene	ND		20.3	23.0		ug/L		113	70 - 130	4	30
Methyl tert-butyl ether	ND		20.3	20.3		ug/L		100	70 - 130	1	30
Naphthalene	ND		20.3	22.3		ug/L		110	70 - 130	8	30
Toluene	ND		20.3	22.3		ug/L		110	70 - 130	3	30

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: 620-14942-3 MSD
Matrix: Water
Analysis Batch: 28656

Client Sample ID: LM-MW108-102623
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
m,p-Xylene	ND		40.7	47.1		ug/L		116	70 - 130	4	30
o-Xylene	ND		20.3	23.1		ug/L		114	70 - 130	3	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*102*		*70 - 130*
2,5-Dibromotoluene (pid)	*103*		*70 - 130*

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-28762/1-B
Matrix: Water
Analysis Batch: 28787

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28762

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		100	100	ug/L		11/07/23 09:35	11/08/23 14:23	1
C19-C36 Aliphatics	ND		100	100	ug/L		11/07/23 09:35	11/08/23 14:23	1
C11-C22 Aromatics	ND		100	100	ug/L		11/07/23 09:35	11/08/23 14:23	1
C11-C22 Aromatics (Adjusted)	ND		100	100	ug/L		11/07/23 09:35	11/08/23 14:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*44*		*40 - 140*	*11/07/23 09:35*	*11/08/23 14:23*	*1*
o-Terphenyl (Surr)	*65*		*40 - 140*	*11/07/23 09:35*	*11/08/23 14:23*	*1*
2-Fluorobiphenyl (Surr)	*93*		*40 - 140*	*11/07/23 09:35*	*11/08/23 14:23*	*1*

Lab Sample ID: LCS 620-28762/2-B
Matrix: Water
Analysis Batch: 28787

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28762

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C18 Aliphatics	120	ND		ug/L		50	40 - 140
C19-C36 Aliphatics	160	143		ug/L		90	40 - 140
C11-C22 Aromatics	340	330		ug/L		97	40 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*49*		*40 - 140*
o-Terphenyl (Surr)	*80*		*40 - 140*
2-Fluorobiphenyl (Surr)	*112*		*40 - 140*

Lab Sample ID: LCSD 620-28762/3-B
Matrix: Water
Analysis Batch: 28787

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28762

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics	120	ND		ug/L		59	40 - 140	16	25
C19-C36 Aliphatics	160	171		ug/L		107	40 - 140	18	25
C11-C22 Aromatics	340	358		ug/L		105	40 - 140	8	25

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-28762/3-B
Matrix: Water
Analysis Batch: 28787

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28762

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*67*		*40 - 140*
o-Terphenyl (Surr)	*88*		*40 - 140*
2-Fluorobiphenyl (Surr)	*112*		*40 - 140*

Lab Sample ID: 620-14942-3 MS
Matrix: Water
Analysis Batch: 28787

Client Sample ID: LM-MW108-102623
Prep Type: Total/NA
Prep Batch: 28762

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C18 Aliphatics	ND	F1	114	55.3		ug/L		48	40 - 140
C19-C36 Aliphatics	ND		152	135		ug/L		88	40 - 140
C11-C22 Aromatics	ND		324	300		ug/L		93	40 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*57*		*40 - 140*
o-Terphenyl (Surr)	*79*		*40 - 140*
2-Fluorobiphenyl (Surr)	*113*		*40 - 140*

Lab Sample ID: 620-14942-3 MSD
Matrix: Water
Analysis Batch: 28787

Client Sample ID: LM-MW108-102623
Prep Type: Total/NA
Prep Batch: 28762

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics	ND	F1	126	61.0		ug/L		48	40 - 140	10	50
C19-C36 Aliphatics	ND		168	156		ug/L		93	40 - 140	15	50
C11-C22 Aromatics	ND		358	299		ug/L		84	40 - 140	0	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*48*		*40 - 140*
o-Terphenyl (Surr)	*70*		*40 - 140*
2-Fluorobiphenyl (Surr)	*105*		*40 - 140*

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 620-28470/1-A
Matrix: Water
Analysis Batch: 28620

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28470

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0060	0.0016	mg/L		10/30/23 14:59	11/02/23 12:59	1
Arsenic	ND		0.0040	0.0014	mg/L		10/30/23 14:59	11/02/23 12:59	1
Barium	ND		0.0050	0.00070	mg/L		10/30/23 14:59	11/02/23 12:59	1
Beryllium	ND		0.0020	0.00028	mg/L		10/30/23 14:59	11/02/23 12:59	1
Cadmium	ND		0.0025	0.00036	mg/L		10/30/23 14:59	11/02/23 12:59	1
Chromium	ND		0.0050	0.00093	mg/L		10/30/23 14:59	11/02/23 12:59	1
Lead	ND		0.0075	0.0062	mg/L		10/30/23 14:59	11/02/23 12:59	1
Nickel	ND		0.0050	0.00087	mg/L		10/30/23 14:59	11/02/23 12:59	1
Selenium	ND		0.015	0.0042	mg/L		10/30/23 14:59	11/02/23 12:59	1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: MB 620-28470/1-A
Matrix: Water
Analysis Batch: 28620

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28470

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.0050	0.0021	mg/L		10/30/23 14:59	11/02/23 12:59	1
Vanadium	ND		0.0050	0.0011	mg/L		10/30/23 14:59	11/02/23 12:59	1
Zinc	0.00170	J ^3+	0.025	0.0016	mg/L		10/30/23 14:59	11/02/23 12:59	1

Lab Sample ID: LCS 620-28470/2-A
Matrix: Water
Analysis Batch: 28620

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28470

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	1.25	1.31		mg/L		104	80 - 120
Arsenic	1.25	1.37		mg/L		110	80 - 120
Barium	1.25	1.26		mg/L		101	80 - 120
Beryllium	1.25	1.33		mg/L		107	80 - 120
Cadmium	1.25	1.32		mg/L		106	80 - 120
Chromium	1.25	1.31		mg/L		104	80 - 120
Lead	1.25	1.32		mg/L		105	80 - 120
Nickel	1.25	1.28		mg/L		102	80 - 120
Selenium	1.25	1.42		mg/L		114	80 - 120
Thallium	1.25	1.28		mg/L		102	80 - 120
Vanadium	1.25	1.26		mg/L		101	80 - 120
Zinc	1.25	1.33	^3+	mg/L		107	80 - 120

Lab Sample ID: MB 620-28780/1-A
Matrix: Water
Analysis Batch: 28840

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28780

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.012	0.0032	mg/L		11/07/23 15:24	11/08/23 12:16	1
Arsenic	ND		0.0080	0.0028	mg/L		11/07/23 15:24	11/08/23 12:16	1
Barium	ND		0.010	0.0014	mg/L		11/07/23 15:24	11/08/23 12:16	1
Cadmium	ND		0.0050	0.00071	mg/L		11/07/23 15:24	11/08/23 12:16	1
Chromium	ND		0.010	0.0019	mg/L		11/07/23 15:24	11/08/23 12:16	1
Lead	ND		0.015	0.012	mg/L		11/07/23 15:24	11/08/23 12:16	1
Nickel	ND		0.010	0.0017	mg/L		11/07/23 15:24	11/08/23 12:16	1
Selenium	ND		0.030	0.0083	mg/L		11/07/23 15:24	11/08/23 12:16	1
Silver	ND		0.010	0.0012	mg/L		11/07/23 15:24	11/08/23 12:16	1
Thallium	ND		0.010	0.0042	mg/L		11/07/23 15:24	11/08/23 12:16	1
Vanadium	ND		0.010	0.0022	mg/L		11/07/23 15:24	11/08/23 12:16	1
Zinc	ND		0.050	0.0032	mg/L		11/07/23 15:24	11/08/23 12:16	1

Lab Sample ID: LCS 620-28780/2-A
Matrix: Water
Analysis Batch: 28840

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28780

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	1.25	1.13		mg/L		91	80 - 120
Arsenic	1.25	1.17		mg/L		93	80 - 120
Barium	1.25	1.15		mg/L		92	80 - 120
Cadmium	1.25	1.16		mg/L		93	80 - 120

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCS 620-28780/2-A
Matrix: Water
Analysis Batch: 28840

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28780

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chromium	1.25	1.11		mg/L		89	80 - 120
Lead	1.25	1.15		mg/L		92	80 - 120
Nickel	1.25	1.14		mg/L		92	80 - 120
Selenium	1.25	1.18		mg/L		95	80 - 120
Silver	1.25	1.15		mg/L		92	80 - 120
Thallium	1.25	1.16		mg/L		93	80 - 120
Vanadium	1.25	1.14		mg/L		91	80 - 120
Zinc	1.25	1.16		mg/L		93	80 - 120

Lab Sample ID: 620-14942-3 MS
Matrix: Water
Analysis Batch: 28620

Client Sample ID: LM-MW108-102623
Prep Type: Dissolved
Prep Batch: 28470

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0019	J	1.25	1.27		mg/L		102	75 - 125
Arsenic	ND		1.25	1.38		mg/L		110	75 - 125
Barium	0.14		1.25	1.35		mg/L		97	75 - 125
Beryllium	ND		1.25	1.32		mg/L		106	75 - 125
Cadmium	ND		1.25	1.25		mg/L		100	75 - 125
Chromium	ND		1.25	1.24		mg/L		99	75 - 125
Lead	ND		1.25	1.22		mg/L		98	75 - 125
Nickel	0.0045	J	1.25	1.18		mg/L		94	75 - 125
Selenium	ND		1.25	1.36		mg/L		109	75 - 125
Thallium	0.0026	J	1.25	1.23		mg/L		98	75 - 125
Vanadium	ND		1.25	1.23		mg/L		99	75 - 125

Lab Sample ID: 620-14942-3 MSD
Matrix: Water
Analysis Batch: 28620

Client Sample ID: LM-MW108-102623
Prep Type: Dissolved
Prep Batch: 28470

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	0.0019	J	1.25	1.35		mg/L		108	75 - 125	6	20
Arsenic	ND		1.25	1.45		mg/L		116	75 - 125	5	20
Barium	0.14		1.25	1.39		mg/L		100	75 - 125	3	20
Beryllium	ND		1.25	1.35		mg/L		108	75 - 125	2	20
Cadmium	ND		1.25	1.30		mg/L		104	75 - 125	4	20
Chromium	ND		1.25	1.29		mg/L		103	75 - 125	4	20
Lead	ND		1.25	1.28		mg/L		102	75 - 125	4	20
Nickel	0.0045	J	1.25	1.24		mg/L		99	75 - 125	5	20
Selenium	ND		1.25	1.44		mg/L		115	75 - 125	5	20
Thallium	0.0026	J	1.25	1.28		mg/L		102	75 - 125	4	20
Vanadium	ND		1.25	1.28		mg/L		103	75 - 125	4	20

Lab Sample ID: 620-14942-3 DU
Matrix: Water
Analysis Batch: 28620

Client Sample ID: LM-MW108-102623
Prep Type: Dissolved
Prep Batch: 28470

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	0.0019	J	ND		mg/L		NC	20

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 620-14942-3 DU
Matrix: Water
Analysis Batch: 28620

Client Sample ID: LM-MW108-102623
Prep Type: Dissolved
Prep Batch: 28470

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	ND		0.00165	J	mg/L		NC	20
Barium	0.14		0.150		mg/L		5	20
Beryllium	ND		ND		mg/L		NC	20
Cadmium	ND		ND		mg/L		NC	20
Chromium	ND		ND		mg/L		NC	20
Lead	ND		ND		mg/L		NC	20
Nickel	0.0045	J	0.00440	J	mg/L		1	20
Selenium	ND		ND		mg/L		NC	20
Thallium	0.0026	J	ND		mg/L		NC	20
Vanadium	ND		ND		mg/L		NC	20

Lab Sample ID: 620-14942-3 MS
Matrix: Water
Analysis Batch: 28840

Client Sample ID: LM-MW108-102623
Prep Type: Dissolved
Prep Batch: 28780

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	0.0012	J	1.25	1.28		mg/L		103	75 - 125
Zinc	0.0020	J	1.25	1.18		mg/L		94	75 - 125

Lab Sample ID: 620-14942-3 MSD
Matrix: Water
Analysis Batch: 28840

Client Sample ID: LM-MW108-102623
Prep Type: Dissolved
Prep Batch: 28780

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Silver	0.0012	J	1.25	1.32		mg/L		105	75 - 125	3	20
Zinc	0.0020	J	1.25	1.21		mg/L		97	75 - 125	2	20

Lab Sample ID: 620-14942-3 DU
Matrix: Water
Analysis Batch: 28840

Client Sample ID: LM-MW108-102623
Prep Type: Dissolved
Prep Batch: 28780

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Silver	0.0012	J	ND		mg/L		NC	20
Zinc	0.0020	J	0.00235	J	mg/L		19	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 620-28845/1-A
Matrix: Water
Analysis Batch: 28884

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28845

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		11/09/23 08:42	11/09/23 14:15	1

Lab Sample ID: LCS 620-28845/2-A
Matrix: Water
Analysis Batch: 28884

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28845

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00500		mg/L		100	85 - 115

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCSD 620-28845/3-A
Matrix: Water
Analysis Batch: 28884

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28845

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury			0.00500	0.00494		mg/L		99	85 - 115	1	20

Lab Sample ID: MB 620-28897/1-A
Matrix: Water
Analysis Batch: 28931

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28897

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		11/10/23 09:18	11/10/23 12:54	1

Lab Sample ID: LCS 620-28897/2-A
Matrix: Water
Analysis Batch: 28931

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28897

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			0.00500	0.00500		mg/L		100	85 - 115		

Lab Sample ID: LCSD 620-28897/3-A
Matrix: Water
Analysis Batch: 28931

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28897

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury			0.00500	0.00500		mg/L		100	85 - 115	0	20

Lab Sample ID: 620-14942-3 MS
Matrix: Water
Analysis Batch: 28931

Client Sample ID: LM-MW108-102623
Prep Type: Dissolved
Prep Batch: 28897

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury	ND		0.00500	0.00536		mg/L		107	80 - 120		

Lab Sample ID: 620-14942-3 MSD
Matrix: Water
Analysis Batch: 28931

Client Sample ID: LM-MW108-102623
Prep Type: Dissolved
Prep Batch: 28897

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		0.00500	0.00505		mg/L		101	80 - 120	6	20

GC/MS Semi VOA

Prep Batch: 28762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Total/NA	Water	3510C	
620-14942-2	LM-MW107-102623	Total/NA	Water	3510C	
620-14942-3	LM-MW108-102623	Total/NA	Water	3510C	
620-14942-4	LM-FD01-102623	Total/NA	Water	3510C	
MB 620-28762/1-B	Method Blank	Total/NA	Water	3510C	
LCS 620-28762/4-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 620-28762/5-B	Lab Control Sample Dup	Total/NA	Water	3510C	
620-14942-3 MS	LM-MW108-102623	Total/NA	Water	3510C	
620-14942-3 MSD	LM-MW108-102623	Total/NA	Water	3510C	

Analysis Batch: 28788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Total/NA	Water	EPH	28794
620-14942-1	LM-MW106-102623	Total/NA	Water	EPH	28794
620-14942-2	LM-MW107-102623	Total/NA	Water	EPH	28794
620-14942-3	LM-MW108-102623	Total/NA	Water	EPH	28794
620-14942-4	LM-FD01-102623	Total/NA	Water	EPH	28794
MB 620-28762/1-B	Method Blank	Total/NA	Water	EPH	28794
LCS 620-28762/4-B	Lab Control Sample	Total/NA	Water	EPH	28794
LCSD 620-28762/5-B	Lab Control Sample Dup	Total/NA	Water	EPH	28794
620-14942-3 MS	LM-MW108-102623	Total/NA	Water	EPH	28794
620-14942-3 MSD	LM-MW108-102623	Total/NA	Water	EPH	28794

Fraction Batch: 28794

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Total/NA	Water	MA EPH Frac	28762
620-14942-2	LM-MW107-102623	Total/NA	Water	MA EPH Frac	28762
620-14942-3	LM-MW108-102623	Total/NA	Water	MA EPH Frac	28762
620-14942-4	LM-FD01-102623	Total/NA	Water	MA EPH Frac	28762
MB 620-28762/1-B	Method Blank	Total/NA	Water	MA EPH Frac	28762
LCS 620-28762/4-B	Lab Control Sample	Total/NA	Water	MA EPH Frac	28762
LCSD 620-28762/5-B	Lab Control Sample Dup	Total/NA	Water	MA EPH Frac	28762
620-14942-3 MS	LM-MW108-102623	Total/NA	Water	MA EPH Frac	28762
620-14942-3 MSD	LM-MW108-102623	Total/NA	Water	MA EPH Frac	28762

GC VOA

Analysis Batch: 28516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Total/NA	Water	MAVPH2.1	
620-14942-2	LM-MW107-102623	Total/NA	Water	MAVPH2.1	
620-14942-4	LM-FD01-102623	Total/NA	Water	MAVPH2.1	
620-14942-5	Trip Blank	Total/NA	Water	MAVPH2.1	
MB 620-28516/5	Method Blank	Total/NA	Water	MAVPH2.1	
LCS 620-28516/3	Lab Control Sample	Total/NA	Water	MAVPH2.1	
LCSD 620-28516/4	Lab Control Sample Dup	Total/NA	Water	MAVPH2.1	

Analysis Batch: 28559

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1 - DL	LM-MW106-102623	Total/NA	Water	MAVPH2.1	
620-14942-2 - DL	LM-MW107-102623	Total/NA	Water	MAVPH2.1	

GC VOA (Continued)

Analysis Batch: 28559 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-4 - DL	LM-FD01-102623	Total/NA	Water	MAVPH2.1	
MB 620-28559/5	Method Blank	Total/NA	Water	MAVPH2.1	
LCS 620-28559/3	Lab Control Sample	Total/NA	Water	MAVPH2.1	
LCSD 620-28559/4	Lab Control Sample Dup	Total/NA	Water	MAVPH2.1	

Analysis Batch: 28656

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-3	LM-MW108-102623	Total/NA	Water	MAVPH2.1	
MB 620-28656/5	Method Blank	Total/NA	Water	MAVPH2.1	
LCS 620-28656/3	Lab Control Sample	Total/NA	Water	MAVPH2.1	
LCSD 620-28656/4	Lab Control Sample Dup	Total/NA	Water	MAVPH2.1	
620-14942-3 MS	LM-MW108-102623	Total/NA	Water	MAVPH2.1	
620-14942-3 MSD	LM-MW108-102623	Total/NA	Water	MAVPH2.1	

GC Semi VOA

Prep Batch: 28762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Total/NA	Water	3510C	
620-14942-2	LM-MW107-102623	Total/NA	Water	3510C	
620-14942-3	LM-MW108-102623	Total/NA	Water	3510C	
620-14942-4	LM-FD01-102623	Total/NA	Water	3510C	
MB 620-28762/1-B	Method Blank	Total/NA	Water	3510C	
LCS 620-28762/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 620-28762/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	
620-14942-3 MS	LM-MW108-102623	Total/NA	Water	3510C	
620-14942-3 MSD	LM-MW108-102623	Total/NA	Water	3510C	

Analysis Batch: 28787

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Total/NA	Water	MAEPH2.1	28794
620-14942-2	LM-MW107-102623	Total/NA	Water	MAEPH2.1	28794
620-14942-3	LM-MW108-102623	Total/NA	Water	MAEPH2.1	28794
620-14942-4	LM-FD01-102623	Total/NA	Water	MAEPH2.1	28794
MB 620-28762/1-B	Method Blank	Total/NA	Water	MAEPH2.1	28794
LCS 620-28762/2-B	Lab Control Sample	Total/NA	Water	MAEPH2.1	28794
LCSD 620-28762/3-B	Lab Control Sample Dup	Total/NA	Water	MAEPH2.1	28794
620-14942-3 MS	LM-MW108-102623	Total/NA	Water	MAEPH2.1	28794
620-14942-3 MSD	LM-MW108-102623	Total/NA	Water	MAEPH2.1	28794

Fraction Batch: 28794

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Total/NA	Water	MA EPH Frac	28762
620-14942-2	LM-MW107-102623	Total/NA	Water	MA EPH Frac	28762
620-14942-3	LM-MW108-102623	Total/NA	Water	MA EPH Frac	28762
620-14942-4	LM-FD01-102623	Total/NA	Water	MA EPH Frac	28762
MB 620-28762/1-B	Method Blank	Total/NA	Water	MA EPH Frac	28762
LCS 620-28762/2-B	Lab Control Sample	Total/NA	Water	MA EPH Frac	28762
LCSD 620-28762/3-B	Lab Control Sample Dup	Total/NA	Water	MA EPH Frac	28762
620-14942-3 MS	LM-MW108-102623	Total/NA	Water	MA EPH Frac	28762
620-14942-3 MSD	LM-MW108-102623	Total/NA	Water	MA EPH Frac	28762

Metals

Prep Batch: 28470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Dissolved	Water	3005A	
620-14942-2	LM-MW107-102623	Dissolved	Water	3005A	
620-14942-3	LM-MW108-102623	Dissolved	Water	3005A	
620-14942-4	LM-FD01-102623	Dissolved	Water	3005A	
MB 620-28470/1-A	Method Blank	Total/NA	Water	3005A	
LCS 620-28470/2-A	Lab Control Sample	Total/NA	Water	3005A	
620-14942-3 MS	LM-MW108-102623	Dissolved	Water	3005A	
620-14942-3 MSD	LM-MW108-102623	Dissolved	Water	3005A	
620-14942-3 DU	LM-MW108-102623	Dissolved	Water	3005A	

Analysis Batch: 28620

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Dissolved	Water	6010D	28470
620-14942-2	LM-MW107-102623	Dissolved	Water	6010D	28470
620-14942-3	LM-MW108-102623	Dissolved	Water	6010D	28470
620-14942-4	LM-FD01-102623	Dissolved	Water	6010D	28470
MB 620-28470/1-A	Method Blank	Total/NA	Water	6010D	28470
LCS 620-28470/2-A	Lab Control Sample	Total/NA	Water	6010D	28470
620-14942-3 MS	LM-MW108-102623	Dissolved	Water	6010D	28470
620-14942-3 MSD	LM-MW108-102623	Dissolved	Water	6010D	28470
620-14942-3 DU	LM-MW108-102623	Dissolved	Water	6010D	28470

Prep Batch: 28780

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Dissolved	Water	3005A	
620-14942-2	LM-MW107-102623	Dissolved	Water	3005A	
620-14942-3	LM-MW108-102623	Dissolved	Water	3005A	
620-14942-4	LM-FD01-102623	Dissolved	Water	3005A	
MB 620-28780/1-A	Method Blank	Total/NA	Water	3005A	
LCS 620-28780/2-A	Lab Control Sample	Total/NA	Water	3005A	
620-14942-3 MS	LM-MW108-102623	Dissolved	Water	3005A	
620-14942-3 MSD	LM-MW108-102623	Dissolved	Water	3005A	
620-14942-3 DU	LM-MW108-102623	Dissolved	Water	3005A	

Analysis Batch: 28840

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Dissolved	Water	6010D	28780
620-14942-2	LM-MW107-102623	Dissolved	Water	6010D	28780
620-14942-3	LM-MW108-102623	Dissolved	Water	6010D	28780
620-14942-4	LM-FD01-102623	Dissolved	Water	6010D	28780
MB 620-28780/1-A	Method Blank	Total/NA	Water	6010D	28780
LCS 620-28780/2-A	Lab Control Sample	Total/NA	Water	6010D	28780
620-14942-3 MS	LM-MW108-102623	Dissolved	Water	6010D	28780
620-14942-3 MSD	LM-MW108-102623	Dissolved	Water	6010D	28780
620-14942-3 DU	LM-MW108-102623	Dissolved	Water	6010D	28780

Prep Batch: 28845

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Dissolved	Water	7470A	
620-14942-2	LM-MW107-102623	Dissolved	Water	7470A	
620-14942-3	LM-MW108-102623	Dissolved	Water	7470A	

Metals (Continued)

Prep Batch: 28845 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-4	LM-FD01-102623	Dissolved	Water	7470A	
MB 620-28845/1-A	Method Blank	Total/NA	Water	7470A	
LCS 620-28845/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 620-28845/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	

Analysis Batch: 28884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Dissolved	Water	7470A	28845
620-14942-2	LM-MW107-102623	Dissolved	Water	7470A	28845
620-14942-3	LM-MW108-102623	Dissolved	Water	7470A	28845
620-14942-4	LM-FD01-102623	Dissolved	Water	7470A	28845
MB 620-28845/1-A	Method Blank	Total/NA	Water	7470A	28845
LCS 620-28845/2-A	Lab Control Sample	Total/NA	Water	7470A	28845
LCSD 620-28845/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	28845

Prep Batch: 28897

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 620-28897/1-A	Method Blank	Total/NA	Water	7470A	
LCS 620-28897/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 620-28897/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	
620-14942-3 MS	LM-MW108-102623	Dissolved	Water	7470A	
620-14942-3 MSD	LM-MW108-102623	Dissolved	Water	7470A	

Analysis Batch: 28931

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 620-28897/1-A	Method Blank	Total/NA	Water	7470A	28897
LCS 620-28897/2-A	Lab Control Sample	Total/NA	Water	7470A	28897
LCSD 620-28897/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	28897
620-14942-3 MS	LM-MW108-102623	Dissolved	Water	7470A	28897
620-14942-3 MSD	LM-MW108-102623	Dissolved	Water	7470A	28897

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14942-1

Client Sample ID: LM-MW106-102623

Lab Sample ID: 620-14942-1

Date Collected: 10/26/23 13:35

Matrix: Water

Date Received: 10/27/23 16:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			28762	AAH	EET NE	11/07/23 09:35
Total/NA	Fraction	MA EPH Frac			28794	JJB	EET NE	11/08/23 08:22
Total/NA	Analysis	EPH		1	28788	JS	EET NE	11/08/23 11:29
Total/NA	Prep	3510C			28762	AAH	EET NE	11/07/23 09:35
Total/NA	Fraction	MA EPH Frac			28794	JJB	EET NE	11/08/23 08:22
Total/NA	Analysis	EPH		10	28788	JS	EET NE	11/08/23 13:43
Total/NA	Analysis	MAVPH2.1		1	28516	BMH	EET NE	11/01/23 00:16
Total/NA	Analysis	MAVPH2.1	DL	25	28559	BMH	EET NE	11/01/23 14:59
Total/NA	Prep	3510C			28762	AAH	EET NE	11/07/23 09:35
Total/NA	Fraction	MA EPH Frac			28794	JJB	EET NE	11/08/23 08:22
Total/NA	Analysis	MAEPH2.1		1	28787	JS	EET NE	11/08/23 12:41
Dissolved	Prep	3005A			28470	ODO	EET NE	10/30/23 14:59
Dissolved	Analysis	6010D		1	28620	PRB	EET NE	11/02/23 13:52
Dissolved	Prep	3005A			28780	ODO	EET NE	11/07/23 15:24
Dissolved	Analysis	6010D		1	28840	PRB	EET NE	11/08/23 12:52
Dissolved	Prep	7470A			28845	PRB	EET NE	11/09/23 08:42
Dissolved	Analysis	7470A		1	28884	PRB	EET NE	11/09/23 14:40

Client Sample ID: LM-MW107-102623

Lab Sample ID: 620-14942-2

Date Collected: 10/26/23 12:00

Matrix: Water

Date Received: 10/27/23 16:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			28762	AAH	EET NE	11/07/23 09:35
Total/NA	Fraction	MA EPH Frac			28794	JJB	EET NE	11/08/23 08:22
Total/NA	Analysis	EPH		1	28788	JS	EET NE	11/08/23 11:52
Total/NA	Analysis	MAVPH2.1		1	28516	BMH	EET NE	10/31/23 19:09
Total/NA	Analysis	MAVPH2.1	DL	5	28559	BMH	EET NE	11/01/23 15:30
Total/NA	Prep	3510C			28762	AAH	EET NE	11/07/23 09:35
Total/NA	Fraction	MA EPH Frac			28794	JJB	EET NE	11/08/23 08:22
Total/NA	Analysis	MAEPH2.1		1	28787	JS	EET NE	11/08/23 13:08
Dissolved	Prep	3005A			28470	ODO	EET NE	10/30/23 14:59
Dissolved	Analysis	6010D		1	28620	PRB	EET NE	11/02/23 13:58
Dissolved	Prep	3005A			28780	ODO	EET NE	11/07/23 15:24
Dissolved	Analysis	6010D		1	28840	PRB	EET NE	11/08/23 12:58
Dissolved	Prep	7470A			28845	PRB	EET NE	11/09/23 08:42
Dissolved	Analysis	7470A		1	28884	PRB	EET NE	11/09/23 14:42

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14942-1

Client Sample ID: LM-MW108-102623

Lab Sample ID: 620-14942-3

Date Collected: 10/26/23 10:05
Matrix: Water
Date Received: 10/27/23 16:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			28762	AAH	EET NE	11/07/23 09:35
Total/NA	Fraction	MA EPH Frac			28794	JJB	EET NE	11/08/23 08:22
Total/NA	Analysis	EPH		1	28788	JS	EET NE	11/08/23 12:14
Total/NA	Analysis	MAVPH2.1		1	28656	BMH	EET NE	11/03/23 15:22
Total/NA	Prep	3510C			28762	AAH	EET NE	11/07/23 09:35
Total/NA	Fraction	MA EPH Frac			28794	JJB	EET NE	11/08/23 08:22
Total/NA	Analysis	MAEPH2.1		1	28787	JS	EET NE	11/08/23 13:34
Dissolved	Prep	3005A			28470	ODO	EET NE	10/30/23 14:59
Dissolved	Analysis	6010D		1	28620	PRB	EET NE	11/02/23 13:11
Dissolved	Prep	3005A			28780	ODO	EET NE	11/07/23 15:24
Dissolved	Analysis	6010D		1	28840	PRB	EET NE	11/08/23 12:28
Dissolved	Prep	7470A			28845	PRB	EET NE	11/09/23 08:42
Dissolved	Analysis	7470A		1	28884	PRB	EET NE	11/09/23 14:45

Client Sample ID: LM-FD01-102623

Lab Sample ID: 620-14942-4

Date Collected: 10/26/23 08:00
Matrix: Water
Date Received: 10/27/23 16:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			28762	AAH	EET NE	11/07/23 09:35
Total/NA	Fraction	MA EPH Frac			28794	JJB	EET NE	11/08/23 08:22
Total/NA	Analysis	EPH		1	28788	JS	EET NE	11/08/23 13:21
Total/NA	Analysis	MAVPH2.1		1	28516	BMH	EET NE	10/31/23 19:40
Total/NA	Analysis	MAVPH2.1	DL	5	28559	BMH	EET NE	11/01/23 16:01
Total/NA	Prep	3510C			28762	AAH	EET NE	11/07/23 09:35
Total/NA	Fraction	MA EPH Frac			28794	JJB	EET NE	11/08/23 08:22
Total/NA	Analysis	MAEPH2.1		1	28787	JS	EET NE	11/08/23 15:39
Dissolved	Prep	3005A			28470	ODO	EET NE	10/30/23 14:59
Dissolved	Analysis	6010D		1	28620	PRB	EET NE	11/02/23 13:47
Dissolved	Prep	3005A			28780	ODO	EET NE	11/07/23 15:24
Dissolved	Analysis	6010D		1	28840	PRB	EET NE	11/08/23 13:04
Dissolved	Prep	7470A			28845	PRB	EET NE	11/09/23 08:42
Dissolved	Analysis	7470A		1	28884	PRB	EET NE	11/09/23 14:47

Client Sample ID: Trip Blank

Lab Sample ID: 620-14942-5

Date Collected: 10/26/23 00:00
Matrix: Water
Date Received: 10/27/23 16:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	MAVPH2.1		1	28516	BMH	EET NE	10/31/23 15:36

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-14942-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Massachusetts	State	M-RI907	06-30-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6010D	3005A	Water	Antimony
6010D	3005A	Water	Arsenic
6010D	3005A	Water	Barium
6010D	3005A	Water	Beryllium
6010D	3005A	Water	Cadmium
6010D	3005A	Water	Chromium
6010D	3005A	Water	Lead
6010D	3005A	Water	Nickel
6010D	3005A	Water	Selenium
6010D	3005A	Water	Silver
6010D	3005A	Water	Thallium
6010D	3005A	Water	Vanadium
6010D	3005A	Water	Zinc
7470A	7470A	Water	Mercury
EPH	3510C	Water	2-Methylnaphthalene
EPH	3510C	Water	Acenaphthene
EPH	3510C	Water	Acenaphthylene
EPH	3510C	Water	Anthracene
EPH	3510C	Water	Benzo[a]anthracene
EPH	3510C	Water	Benzo[a]pyrene
EPH	3510C	Water	Benzo[b]fluoranthene
EPH	3510C	Water	Benzo[g,h,i]perylene
EPH	3510C	Water	Benzo[k]fluoranthene
EPH	3510C	Water	Chrysene
EPH	3510C	Water	Dibenz(a,h)anthracene
EPH	3510C	Water	Fluoranthene
EPH	3510C	Water	Fluorene
EPH	3510C	Water	Indeno[1,2,3-cd]pyrene
EPH	3510C	Water	Naphthalene
EPH	3510C	Water	Phenanthrene
EPH	3510C	Water	Pyrene
MAEPH2.1	3510C	Water	C11-C22 Aromatics
MAEPH2.1	3510C	Water	C11-C22 Aromatics (Adjusted)
MAEPH2.1	3510C	Water	C19-C36 Aliphatics
MAEPH2.1	3510C	Water	C9-C18 Aliphatics
MAVPH2.1		Water	Benzene
MAVPH2.1		Water	C5-C8 Aliphatics (adjusted)
MAVPH2.1		Water	C5-C8 Aliphatics (unadjusted)
MAVPH2.1		Water	C9-C10 Aromatics
MAVPH2.1		Water	C9-C12 Aliphatics (adjusted)
MAVPH2.1		Water	C9-C12 Aliphatics (unadjusted)
MAVPH2.1		Water	Ethylbenzene
MAVPH2.1		Water	m,p-Xylene
MAVPH2.1		Water	Methyl tert-butyl ether
MAVPH2.1		Water	Naphthalene

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-14942-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
MAVPH2.1		Water	o-Xylene
MAVPH2.1		Water	Toluene
MAVPH2.1		Water	Xylenes, Total

Method Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14942-1

Method	Method Description	Protocol	Laboratory
EPH	Extractable Petroleum Hydrocarbons (GC/MS)	MA DEP	EET NE
MAVPH2.1	Massachusetts - Volatile Petroleum Hydrocarbons (GC)	MA DEP	EET NE
MAEPH2.1	Massachusetts - Extractable Petroleum Hydrocarbons (GC)	MA DEP	EET NE
6010D	Metals (ICP)	SW846	EET NE
7470A	Mercury (CVAA)	SW846	EET NE
3005A	Preparation, Total Metals	SW846	EET NE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET NE
5030C	Purge and Trap	SW846	EET NE
7470A	Preparation, Mercury	SW846	EET NE
MA EPH Frac	Massachusetts - Extractable Petroleum Hydrocarbon Fractionation	MA DEP	EET NE

Protocol References:

MA DEP = Massachusetts Department Of Environmental Protection

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Sample Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14942-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
620-14942-1	LM-MW106-102623	Water	10/26/23 13:35	10/27/23 16:22
620-14942-2	LM-MW107-102623	Water	10/26/23 12:00	10/27/23 16:22
620-14942-3	LM-MW108-102623	Water	10/26/23 10:05	10/27/23 16:22
620-14942-4	LM-FD01-102623	Water	10/26/23 08:00	10/27/23 16:22
620-14942-5	Trip Blank	Water	10/26/23 00:00	10/27/23 16:22



620-14942 Chain of Custody

14942

Chain of Custody Record

eurofins | Environment Testing

Client Contact: ~~Stephanie Stone~~ Adam Roy	Sampler: Caroline Belmowiz	Lab PM	Carrier Tracking No(s)	COC No: 620-12716-1718 2
Company: Nobis Engineering, Inc	Phone: 978-888-4404	E-Mail: CBelmowiz@nobis-group.com	State of Origin	Page: Page 2 of 4
Address: 585 Middlesex Street	PWSID	Analysis Requested		Job #:
City: Lowell	Due Date Requested:			
State, Zip: MA, 01851	TAT Requested (days): Standard			
Phone: 978-703-6014	Compliance Project: ✓ Yes △ No MASSDEP			
Email: AROY ~~cstone~~@nobis-group com	PO #:			
Project Name: S00001 005 LSM	WO #:			
Site: Lunenburg, MA	Project #:			
	SSOW#:			

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

	Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	VPH (MASSDEP)	EPH (MASSDEP)	MCP 14-Dissolved Metals	Total Number of containers	Special Instructions/Note:
	Preservation Code:											
-1	LM-MW106-102623	10/26/23	1335	G	Water	X					6	
-2	LM-MW107-102623	10/26/23	1200	G	Water	X					6	
-3	LM-MW108-102623	10/26/23	1005	G	Water	X	X				8	MS/MSD
-4	LM-FD01-102623	10/26/23	0800	G	Water	X					6	
-5	Trip Blank				Water						2	
					Water							
					Water							
					Water							
					Water							
					Water							
					Water							

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: email EQuIS EDD to AROY@nobis-group.com

Empty Kit Relinquished by		Date		Time		Method of Shipment:	
Relinquished by:		Date/Time: 10/27/23 1130	Company: Nobis	Received by:		Date/Time: 10/27/23 1130	Company: ENE
Relinquished by:		Date/Time: 10/27/23 1642	Company: ENE	Received by:		Date/Time: 10/27/23 1642	Company: ENE
Relinquished by:		Date/Time:	Company:	Received by:		Date/Time:	Company:

Custody Seals Intact: △ Yes △ No | Custody Seal No

Cooler Temperature(s) °C and Other Remarks: 1.6 to.2 1.8 #6 / 1.4 to.2 1.6 #6

Ver: 06/08/2021

Page 43 of 44

11/13/2023

Login Sample Receipt Checklist

Client: Nobis Engineering, Inc.

Job Number: 620-14942-1

Login Number: 14942
List Number: 1
Creator: Makhoul, Elie

List Source: Eurofins New England

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

PREPARED FOR

Attn: Adam Roy
Nobis Engineering, Inc.
585 Middlesex Street
Lowell, Massachusetts 01851

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JOB DESCRIPTION

Former L&M - Lunenburg MA

JOB NUMBER

620-15085-1

Eurofins New England
646 Camp Ave
North Kingstown RI 02852

See page two for job notes and contact information.

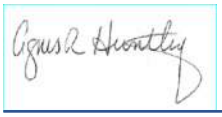
my EOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northeast, LLC Project Manager.

Authorization



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Authorized for release by
Agnes Huntley, Project Manager
Agnes.Huntley@et.eurofinsus.com
(401)372-3482

Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
State Forms 5
MCP Checklist 5
Case Narrative 6
Detection Summary 7
Client Sample Results 8
Surrogate Summary 13
QC Sample Results 14
QC Association Summary 20
Lab Chronicle 22
Certification Summary 23
Method Summary 25
Sample Summary 26
Chain of Custody 27
Receipt Checklists 28

Definitions/Glossary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-15085-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
S1-	Surrogate recovery exceeds control limits, low biased.

GC Semi VOA

Qualifier	Qualifier Description
S1-	Surrogate recovery exceeds control limits, low biased.

Metals

Qualifier	Qualifier Description
^3+	Reporting Limit Check Standard is outside acceptance limits, high biased
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

MassDEP Analytical Protocol Certfication Form

Laboratory Name: Eurofins New England | Project #: 620-15085-1

Project Location: Former L&M - Lunenburg MA | RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
620-15085-1, 620-15085-2

Matrices: ☐ Groundwater/Surface Water ☑ Soil/Sediment ☐ Drinking Water ☐ Air ☐ Other:

CAM Protocol (check all that apply below:)

8260 VOC CAM II A ☐	7470/7471 Hg CAM III B ☑	MassDEP VPH (GC/PID/FID) CAM IV A ☑	8082 PCB CAM V A ☑	9014 Total Cyanide/PAC CAM VI A ☐	6860 Perchlorate CAM VIII B ☐
8270 SVOC CAM II B ☐	7010 Metals CAM III C ☐	MassDEP VPH (GC/MS) CAM IV C ☐	8081 Pesticides CAM V B ☐	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
6010 Metals CAM III A ☑	6020 Metals CAM III D ☐	MassDEP EPH CAM IV B ☑	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes ☐ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☑ Yes ☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes ☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☑ Yes ☐ No
E	VPH, EPH, APH, and TO-15 only a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☑ Yes ☐ No ☐ Yes ☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☑ Yes ☐ No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☑ Yes ☐ No[1]

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☐ Yes ☑ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes ☐ No[1]

1 All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature: Agnes R Huntley **Position:** Project Manager

Printed Name: Agnes Huntley **Date:** 11/14/2023

Job ID: 620-15085-1

Laboratory: Eurofins New England

Narrative

Job Narrative
620-15085-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 11/3/2023 4:13 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.0°C

GC VOA
Method MAVPH2.1: Surrogate recovery for the following sample was outside control limits: HYDLIFT-0608 (620-15085-1). Evidence of matrix interferences is not obvious. Sample reanalyzed for matrix interference confirmation.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA
Method MAEPH2.1: Surrogate recovery for the following samples were outside control limits: HYDLIFT-0608 (620-15085-1) and HOLDTANK-0410 (620-15085-2). Evidence of pattern interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

PCBs
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
Method 6010MCP: The low level check standard recovery associated with batch 620-28770 is outside the acceptance criteria for the following analyte(s): Zinc. All associated field samples have the analyte in quantities greater than 10x the reporting limit (RL), therefore the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-15085-1

Client Sample ID: HYDLIFT-0608 — Lab Sample ID: 620-15085-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C9-C18 Aliphatics	52		7.0	7.0	mg/Kg	1	☼	MAEPH2.1	Total/NA
C19-C36 Aliphatics	880		7.0	7.0	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics	1500		7.0	7.0	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	1500		7.0	7.0	mg/Kg	1	☼	MAEPH2.1	Total/NA
Antimony	0.54	J	5.2	0.39	mg/Kg	1	☼	6010D	Total/NA
Arsenic	4.1		1.6	0.20	mg/Kg	1	☼	6010D	Total/NA
Barium	19		1.0	0.12	mg/Kg	1	☼	6010D	Total/NA
Chromium	9.5		1.0	0.14	mg/Kg	1	☼	6010D	Total/NA
Lead	7.0		1.6	0.22	mg/Kg	1	☼	6010D	Total/NA
Nickel	7.4		1.0	0.12	mg/Kg	1	☼	6010D	Total/NA
Vanadium	7.5		1.6	0.28	mg/Kg	1	☼	6010D	Total/NA
Zinc	33	^3+	3.1	0.81	mg/Kg	1	☼	6010D	Total/NA

Client Sample ID: HOLDTANK-0410 — Lab Sample ID: 620-15085-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C5-C8 Aliphatics (adjusted)	15		5.3	5.3	mg/Kg	1	☼	MAVPH2.1	Total/NA
C9-C12 Aliphatics (adjusted)	78		5.3	5.3	mg/Kg	1	☼	MAVPH2.1	Total/NA
C9-C10 Aromatics	76		5.3	5.3	mg/Kg	1	☼	MAVPH2.1	Total/NA
C5-C8 Aliphatics (unadjusted)	15		5.3	5.3	mg/Kg	1	☼	MAVPH2.1	Total/NA
C9-C12 Aliphatics (unadjusted)	160		5.3	5.3	mg/Kg	1	☼	MAVPH2.1	Total/NA
Ethylbenzene	0.45		0.26	0.26	mg/Kg	1	☼	MAVPH2.1	Total/NA
Naphthalene	6.4		1.1	1.1	mg/Kg	1	☼	MAVPH2.1	Total/NA
Toluene	0.28		0.26	0.26	mg/Kg	1	☼	MAVPH2.1	Total/NA
m,p-Xylene	1.2		0.53	0.53	mg/Kg	1	☼	MAVPH2.1	Total/NA
o-Xylene	1.2		0.26	0.26	mg/Kg	1	☼	MAVPH2.1	Total/NA
Xylenes, Total	2.4		0.79	0.79	mg/Kg	1	☼	MAVPH2.1	Total/NA
C9-C18 Aliphatics	51		7.2	7.2	mg/Kg	1	☼	MAEPH2.1	Total/NA
C19-C36 Aliphatics	380		7.2	7.2	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics	310		7.2	7.2	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	310		7.2	7.2	mg/Kg	1	☼	MAEPH2.1	Total/NA
Naphthalene	1.3		0.36	0.36	mg/Kg	1	☼	MAEPH2.1	Total/NA
2-Methylnaphthalene	3.5		0.36	0.36	mg/Kg	1	☼	MAEPH2.1	Total/NA
Phenanthrene	0.53		0.36	0.36	mg/Kg	1	☼	MAEPH2.1	Total/NA
Antimony	1.6	J	5.2	0.39	mg/Kg	1	☼	6010D	Total/NA
Arsenic	4.6		1.6	0.20	mg/Kg	1	☼	6010D	Total/NA
Barium	49		1.0	0.12	mg/Kg	1	☼	6010D	Total/NA
Cadmium	0.073	J	0.52	0.027	mg/Kg	1	☼	6010D	Total/NA
Chromium	16		1.0	0.14	mg/Kg	1	☼	6010D	Total/NA
Lead	14		1.6	0.22	mg/Kg	1	☼	6010D	Total/NA
Nickel	9.6		1.0	0.12	mg/Kg	1	☼	6010D	Total/NA
Vanadium	25		1.6	0.28	mg/Kg	1	☼	6010D	Total/NA
Zinc	31	^3+	3.1	0.80	mg/Kg	1	☼	6010D	Total/NA
Mercury	0.013	J	0.067	0.011	mg/Kg	1	☼	7471A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: HYDLIFT-0608

Date Collected: 10/31/23 09:10
Date Received: 11/03/23 16:13

Lab Sample ID: 620-15085-1

Matrix: Solid
Percent Solids: 93.3

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		6.6	6.6	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1
C9-C12 Aliphatics (adjusted)	ND		6.6	6.6	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1
C9-C10 Aromatics	ND		6.6	6.6	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1
C5-C8 Aliphatics (unadjusted)	ND		6.6	6.6	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1
C9-C12 Aliphatics (unadjusted)	ND		6.6	6.6	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1
Benzene	ND		0.33	0.33	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1
Ethylbenzene	ND		0.33	0.33	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1
Methyl tert-butyl ether	ND		0.066	0.066	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1
Naphthalene	ND		1.3	1.3	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1
Toluene	ND		0.33	0.33	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1
m,p-Xylene	ND		0.66	0.66	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1
o-Xylene	ND		0.33	0.33	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1
Xylenes, Total	ND		0.99	0.99	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*23*	*S1-*	*70 - 130*	*11/09/23 14:14*	*11/09/23 20:04*	*1*
2,5-Dibromotoluene (pid)	*18*	*S1-*	*70 - 130*	*11/09/23 14:14*	*11/09/23 20:04*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		6.6	6.6	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1
C9-C12 Aliphatics (adjusted)	ND		6.6	6.6	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1
C9-C10 Aromatics	ND		6.6	6.6	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1
C5-C8 Aliphatics (unadjusted)	ND		6.6	6.6	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1
C9-C12 Aliphatics (unadjusted)	ND		6.6	6.6	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1
Benzene	ND		0.33	0.33	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1
Ethylbenzene	ND		0.33	0.33	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1
Methyl tert-butyl ether	ND		0.066	0.066	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1
Naphthalene	ND		1.3	1.3	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1
Toluene	ND		0.33	0.33	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1
m,p-Xylene	ND		0.66	0.66	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1
o-Xylene	ND		0.33	0.33	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1
Xylenes, Total	ND		0.99	0.99	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*7*	*S1-*	*70 - 130*	*11/09/23 14:14*	*11/10/23 14:05*	*1*
2,5-Dibromotoluene (pid)	*6*	*S1-*	*70 - 130*	*11/09/23 14:14*	*11/10/23 14:05*	*1*

Method: MA DEP 8082 - Polychlorinated Biphenyls (GC/ECD)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		21	15	ug/Kg	☼	11/07/23 13:04	11/09/23 02:11	1
PCB-1221	ND		21	6.3	ug/Kg	☼	11/07/23 13:04	11/09/23 02:11	1
PCB-1232	ND		21	5.9	ug/Kg	☼	11/07/23 13:04	11/09/23 02:11	1
PCB-1242	ND		21	3.4	ug/Kg	☼	11/07/23 13:04	11/09/23 02:11	1
PCB-1248	ND		21	6.7	ug/Kg	☼	11/07/23 13:04	11/09/23 02:11	1
PCB-1254	ND		21	17	ug/Kg	☼	11/07/23 13:04	11/09/23 02:11	1
PCB-1262	ND		21	5.0	ug/Kg	☼	11/07/23 13:04	11/09/23 02:11	1
PCB-1260	ND		21	4.6	ug/Kg	☼	11/07/23 13:04	11/09/23 02:11	1
PCB-1268	ND		21	4.6	ug/Kg	☼	11/07/23 13:04	11/09/23 02:11	1

Client Sample ID: HYDLIFT-0608

Date Collected: 10/31/23 09:10
Date Received: 11/03/23 16:13

Lab Sample ID: 620-15085-1

Matrix: Solid
Percent Solids: 93.3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	79		30 - 150	11/07/23 13:04	11/09/23 02:11	1
Tetrachloro-m-xylene	91		30 - 150	11/07/23 13:04	11/09/23 02:11	1
DCB Decachlorobiphenyl (Surr)	116		30 - 150	11/07/23 13:04	11/09/23 02:11	1
DCB Decachlorobiphenyl (Surr)	100		30 - 150	11/07/23 13:04	11/09/23 02:11	1

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	**52**		7.0	7.0	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
C19-C36 Aliphatics	**880**		7.0	7.0	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
C11-C22 Aromatics	**1500**		7.0	7.0	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
C11-C22 Aromatics (Adjusted)	**1500**		7.0	7.0	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Naphthalene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
2-Methylnaphthalene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Acenaphthylene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Acenaphthene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Fluorene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Phenanthrene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Anthracene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Fluoranthene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Pyrene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Benzo[a]anthracene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Chrysene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Benzo[b]fluoranthene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Benzo[k]fluoranthene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Benzo[a]pyrene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Indeno[1,2,3-cd]pyrene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Dibenz(a,h)anthracene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Benzo[g,h,i]perylene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctadecane (Surr)	5	S1-	40 - 140	11/07/23 09:19	11/08/23 22:04	1
o-Terphenyl (Surr)	27	S1-	40 - 140	11/07/23 09:19	11/08/23 22:04	1
2-Fluorobiphenyl (Surr)	66		40 - 140	11/07/23 09:19	11/08/23 22:04	1

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.54**	**J**	5.2	0.39	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1
Arsenic	**4.1**		1.6	0.20	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1
Barium	**19**		1.0	0.12	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1
Beryllium	ND		0.52	0.026	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1
Cadmium	ND		0.52	0.027	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1
Chromium	**9.5**		1.0	0.14	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1
Lead	**7.0**		1.6	0.22	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1
Nickel	**7.4**		1.0	0.12	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1
Selenium	ND		1.6	0.30	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1
Silver	ND		1.6	0.17	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1
Thallium	ND		3.1	1.1	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1
Vanadium	**7.5**		1.6	0.28	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1
Zinc	**33**	**^3+**	3.1	0.81	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1

Client Sample Results

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-15085-1

Client Sample ID: HYDLIFT-0608
Date Collected: 10/31/23 09:10
Date Received: 11/03/23 16:13

Lab Sample ID: 620-15085-1
Matrix: Solid
Percent Solids: 93.3

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.066	0.011	mg/Kg	☼	11/07/23 13:04	11/08/23 12:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	6.7		0.1	0.1	%			11/06/23 14:14	1
Percent Solids (EPA Moisture)	93.3		0.1	0.1	%			11/06/23 14:14	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-15085-1

Client Sample ID: HOLDTANK-0410

Date Collected: 11/01/23 14:45
Date Received: 11/03/23 16:13

Lab Sample ID: 620-15085-2

Matrix: Solid
Percent Solids: 91.2

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	15		5.3	5.3	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1
C9-C12 Aliphatics (adjusted)	78		5.3	5.3	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1
C9-C10 Aromatics	76		5.3	5.3	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1
C5-C8 Aliphatics (unadjusted)	15		5.3	5.3	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1
C9-C12 Aliphatics (unadjusted)	160		5.3	5.3	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1
Benzene	ND		0.26	0.26	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1
Ethylbenzene	0.45		0.26	0.26	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1
Methyl tert-butyl ether	ND		0.053	0.053	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1
Naphthalene	6.4		1.1	1.1	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1
Toluene	0.28		0.26	0.26	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1
m,p-Xylene	1.2		0.53	0.53	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1
o-Xylene	1.2		0.26	0.26	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1
Xylenes, Total	2.4		0.79	0.79	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*95*		*70 - 130*	*11/09/23 14:14*	*11/09/23 20:40*	*1*
2,5-Dibromotoluene (pid)	*90*		*70 - 130*	*11/09/23 14:14*	*11/09/23 20:40*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	51		7.2	7.2	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
C19-C36 Aliphatics	380		7.2	7.2	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
C11-C22 Aromatics	310		7.2	7.2	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
C11-C22 Aromatics (Adjusted)	310		7.2	7.2	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Naphthalene	1.3		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
2-Methylnaphthalene	3.5		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Acenaphthylene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Acenaphthene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Fluorene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Phenanthrene	0.53		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Anthracene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Fluoranthene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Pyrene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Benzo[a]anthracene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Chrysene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Benzo[b]fluoranthene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Benzo[k]fluoranthene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Benzo[a]pyrene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Indeno[1,2,3-cd]pyrene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Dibenz(a,h)anthracene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Benzo[g,h,i]perylene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*35*	*S1-*	*40 - 140*	*11/07/23 09:19*	*11/08/23 22:31*	*1*
o-Terphenyl (Surr)	*59*		*40 - 140*	*11/07/23 09:19*	*11/08/23 22:31*	*1*
2-Fluorobiphenyl (Surr)	*132*		*40 - 140*	*11/07/23 09:19*	*11/08/23 22:31*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.6	J	5.2	0.39	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1

Client Sample ID: HOLDTANK-0410

Date Collected: 11/01/23 14:45
Date Received: 11/03/23 16:13

Lab Sample ID: 620-15085-2

Matrix: Solid
Percent Solids: 91.2

Method: SW846 6010D - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.6		1.6	0.20	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1
Barium	49		1.0	0.12	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1
Beryllium	ND		0.52	0.026	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1
Cadmium	0.073	J	0.52	0.027	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1
Chromium	16		1.0	0.14	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1
Lead	14		1.6	0.22	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1
Nickel	9.6		1.0	0.12	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1
Selenium	ND		1.6	0.30	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1
Silver	ND		1.6	0.17	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1
Thallium	ND		3.1	1.1	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1
Vanadium	25		1.6	0.28	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1
Zinc	31	^3+	3.1	0.80	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.013	J	0.067	0.011	mg/Kg	☼	11/07/23 13:09	11/08/23 12:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	8.8		0.1	0.1	%			11/06/23 14:14	1
Percent Solids (EPA Moisture)	91.2		0.1	0.1	%			11/06/23 14:14	1

Surrogate Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-15085-1

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		25DBTf1	25DBTp1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
620-15085-1	HYDLIFT-0608	23 S1-	18 S1-
620-15085-1 - RA	HYDLIFT-0608	7 S1-	6 S1-
620-15085-2	HOLDTANK-0410	95	90
LCS 620-28924/1-A	Lab Control Sample	98	98
LCSD 620-28924/2-A	Lab Control Sample Dup	96	96
MB 620-28924/3-A	Method Blank	89	92

Surrogate Legend

25DBTf = 2,5-Dibromotoluene (fid)
25DBTp = 2,5-Dibromotoluene (pid)

Method: 8082 - Polychlorinated Biphenyls (GC/ECD)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TCX1	TCX2	DCB1	DCB2
Lab Sample ID	Client Sample ID	(30-150)	(30-150)	(30-150)	(30-150)
620-15085-1	HYDLIFT-0608	79	91	116	100
LCS 620-28771/7-A	Lab Control Sample	86	87	128	103
LCSD 620-28771/8-A	Lab Control Sample Dup	85	87	135	111
MB 620-28771/1-A	Method Blank	70	72	111	92

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		1COD1	OTPH1	FBP1
Lab Sample ID	Client Sample ID	(40-140)	(40-140)	(40-140)
620-15085-1	HYDLIFT-0608	5 S1-	27 S1-	66
620-15085-2	HOLDTANK-0410	35 S1-	59	132
LCS 620-28761/2-B	Lab Control Sample	50	81	111
LCSD 620-28761/3-B	Lab Control Sample Dup	59	93	127
MB 620-28761/1-B	Method Blank	45	67	91

Surrogate Legend

1COD = 1-Chlorooctadecane (Surr)
OTPH = o-Terphenyl (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-28924/3-A
Matrix: Solid
Analysis Batch: 28871

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28924

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		5.0	5.0	mg/Kg		11/09/23 14:14	11/09/23 19:29	1
C9-C12 Aliphatics (adjusted)	ND		5.0	5.0	mg/Kg		11/09/23 14:14	11/09/23 19:29	1
C9-C10 Aromatics	ND		5.0	5.0	mg/Kg		11/09/23 14:14	11/09/23 19:29	1
C5-C8 Aliphatics (unadjusted)	ND		5.0	5.0	mg/Kg		11/09/23 14:14	11/09/23 19:29	1
C9-C12 Aliphatics (unadjusted)	ND		5.0	5.0	mg/Kg		11/09/23 14:14	11/09/23 19:29	1
Benzene	ND		0.25	0.25	mg/Kg		11/09/23 14:14	11/09/23 19:29	1
Ethylbenzene	ND		0.25	0.25	mg/Kg		11/09/23 14:14	11/09/23 19:29	1
Methyl tert-butyl ether	ND		0.050	0.050	mg/Kg		11/09/23 14:14	11/09/23 19:29	1
Naphthalene	ND		1.0	1.0	mg/Kg		11/09/23 14:14	11/09/23 19:29	1
Toluene	ND		0.25	0.25	mg/Kg		11/09/23 14:14	11/09/23 19:29	1
m,p-Xylene	ND		0.50	0.50	mg/Kg		11/09/23 14:14	11/09/23 19:29	1
o-Xylene	ND		0.25	0.25	mg/Kg		11/09/23 14:14	11/09/23 19:29	1
Xylenes, Total	ND		0.75	0.75	mg/Kg		11/09/23 14:14	11/09/23 19:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*89*		*70 - 130*	*11/09/23 14:14*	*11/09/23 19:29*	*1*
2,5-Dibromotoluene (pid)	*92*		*70 - 130*	*11/09/23 14:14*	*11/09/23 19:29*	*1*

Lab Sample ID: LCS 620-28924/1-A
Matrix: Solid
Analysis Batch: 28871

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28924

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C10 Aromatics	1.00	ND		mg/Kg		104	70 - 130
C5-C8 Aliphatics (unadjusted)	3.00	ND		mg/Kg		97	70 - 130
C9-C12 Aliphatics (unadjusted)	3.00	ND		mg/Kg		99	70 - 130
Benzene	1.00	1.01		mg/Kg		101	70 - 130
Ethylbenzene	1.00	1.04		mg/Kg		104	70 - 130
Methyl tert-butyl ether	1.00	1.02		mg/Kg		102	70 - 130
Naphthalene	1.00	1.01		mg/Kg		101	70 - 130
Toluene	1.00	1.03		mg/Kg		103	70 - 130
m,p-Xylene	2.00	2.10		mg/Kg		105	70 - 130
o-Xylene	1.00	1.04		mg/Kg		104	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*98*		*70 - 130*
2,5-Dibromotoluene (pid)	*98*		*70 - 130*

Lab Sample ID: LCSD 620-28924/2-A
Matrix: Solid
Analysis Batch: 28871

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28924

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics	1.00	ND		mg/Kg		104	70 - 130	1	25
C5-C8 Aliphatics (unadjusted)	3.00	ND		mg/Kg		97	70 - 130	1	25
C9-C12 Aliphatics (unadjusted)	3.00	ND		mg/Kg		101	70 - 130	2	25
Benzene	1.00	1.02		mg/Kg		102	70 - 130	1	25
Ethylbenzene	1.00	1.04		mg/Kg		104	70 - 130	0	25

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-28924/2-A
Matrix: Solid
Analysis Batch: 28871

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28924

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methyl tert-butyl ether			1.00	1.01		mg/Kg		101	70 - 130	0	25
Naphthalene			1.00	1.04		mg/Kg		104	70 - 130	3	25
Toluene			1.00	1.02		mg/Kg		102	70 - 130	0	25
m,p-Xylene			2.00	2.10		mg/Kg		105	70 - 130	0	25
o-Xylene			1.00	1.04		mg/Kg		104	70 - 130	0	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*96*		*70 - 130*
2,5-Dibromotoluene (pid)	*96*		*70 - 130*

Method: 8082 - Polychlorinated Biphenyls (GC/ECD)

Lab Sample ID: MB 620-28771/1-A
Matrix: Solid
Analysis Batch: 28791

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28771

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		20	14	ug/Kg		11/07/23 13:04	11/09/23 01:02	1
PCB-1221	ND		20	5.9	ug/Kg		11/07/23 13:04	11/09/23 01:02	1
PCB-1232	ND		20	5.5	ug/Kg		11/07/23 13:04	11/09/23 01:02	1
PCB-1242	ND		20	3.2	ug/Kg		11/07/23 13:04	11/09/23 01:02	1
PCB-1248	ND		20	6.3	ug/Kg		11/07/23 13:04	11/09/23 01:02	1
PCB-1254	ND		20	16	ug/Kg		11/07/23 13:04	11/09/23 01:02	1
PCB-1262	ND		20	4.7	ug/Kg		11/07/23 13:04	11/09/23 01:02	1
PCB-1260	ND		20	4.3	ug/Kg		11/07/23 13:04	11/09/23 01:02	1
PCB-1268	ND		20	4.3	ug/Kg		11/07/23 13:04	11/09/23 01:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*70*		*30 - 150*	*11/07/23 13:04*	*11/09/23 01:02*	*1*
Tetrachloro-m-xylene	*72*		*30 - 150*	*11/07/23 13:04*	*11/09/23 01:02*	*1*
DCB Decachlorobiphenyl (Surr)	*111*		*30 - 150*	*11/07/23 13:04*	*11/09/23 01:02*	*1*
DCB Decachlorobiphenyl (Surr)	*92*		*30 - 150*	*11/07/23 13:04*	*11/09/23 01:02*	*1*

Lab Sample ID: LCS 620-28771/7-A
Matrix: Solid
Analysis Batch: 28791

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28771

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
PCB-1016			167	146		ug/Kg		87	40 - 140
PCB-1016			167	146		ug/Kg		87	40 - 140
PCB-1260			167	148		ug/Kg		89	40 - 140
PCB-1260			167	148		ug/Kg		89	40 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*86*		*30 - 150*
Tetrachloro-m-xylene	*87*		*30 - 150*
DCB Decachlorobiphenyl (Surr)	*128*		*30 - 150*
DCB Decachlorobiphenyl (Surr)	*103*		*30 - 150*

Method: 8082 - Polychlorinated Biphenyls (GC/ECD)

Lab Sample ID: LCSD 620-28771/8-A
Matrix: Solid
Analysis Batch: 28791

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28771

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
PCB-1016			167	152		ug/Kg		91	40 - 140	4	30
PCB-1016			167	152		ug/Kg		91	40 - 140	4	30
PCB-1260			167	160		ug/Kg		96	40 - 140	8	30
PCB-1260			167	159		ug/Kg		96	40 - 140	8	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*85*		*30 - 150*
Tetrachloro-m-xylene	*87*		*30 - 150*
DCB Decachlorobiphenyl (Surr)	*135*		*30 - 150*
DCB Decachlorobiphenyl (Surr)	*111*		*30 - 150*

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-28761/1-B
Matrix: Solid
Analysis Batch: 28787

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28761

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		6.7	6.7	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
C19-C36 Aliphatics	ND		6.7	6.7	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
C11-C22 Aromatics	ND		6.7	6.7	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
C11-C22 Aromatics (Adjusted)	ND		6.7	6.7	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Naphthalene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
2-Methylnaphthalene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Acenaphthylene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Acenaphthene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Fluorene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Phenanthrene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Anthracene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Fluoranthene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Pyrene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Benzo[a]anthracene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Chrysene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Benzo[b]fluoranthene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Benzo[k]fluoranthene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Benzo[a]pyrene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Indeno[1,2,3-cd]pyrene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Dibenz(a,h)anthracene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Benzo[g,h,i]perylene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*45*		*40 - 140*	*11/07/23 09:19*	*11/08/23 20:16*	*1*
o-Terphenyl (Surr)	*67*		*40 - 140*	*11/07/23 09:19*	*11/08/23 20:16*	*1*
2-Fluorobiphenyl (Surr)	*91*		*40 - 140*	*11/07/23 09:19*	*11/08/23 20:16*	*1*

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCS 620-28761/2-B
Matrix: Solid
Analysis Batch: 28787

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28761

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C18 Aliphatics			8.00	ND		mg/Kg		45	40 - 140		
C19-C36 Aliphatics			10.7	8.72		mg/Kg		82	40 - 140		
C11-C22 Aromatics			22.7	20.7		mg/Kg		91	40 - 140		
Naphthalene			1.33	0.693		mg/Kg		52	40 - 140		
2-Methylnaphthalene			1.33	1.18		mg/Kg		88	40 - 140		
Acenaphthylene			1.33	0.877		mg/Kg		66	40 - 140		
Acenaphthene			1.33	0.895		mg/Kg		67	40 - 140		
Fluorene			1.33	0.706		mg/Kg		53	40 - 140		
Phenanthrene			1.33	0.900		mg/Kg		68	40 - 140		
Anthracene			1.33	0.794		mg/Kg		60	40 - 140		
Fluoranthene			1.33	1.12		mg/Kg		84	40 - 140		
Pyrene			1.33	1.20		mg/Kg		90	40 - 140		
Benzo[a]anthracene			1.33	0.878		mg/Kg		66	40 - 140		
Chrysene			1.33	1.24		mg/Kg		93	40 - 140		
Benzo[b]fluoranthene			1.33	0.924		mg/Kg		69	40 - 140		
Benzo[k]fluoranthene			1.33	1.31		mg/Kg		99	40 - 140		
Benzo[a]pyrene			1.33	1.13		mg/Kg		84	40 - 140		
Indeno[1,2,3-cd]pyrene			1.33	0.788		mg/Kg		59	40 - 140		
Dibenz(a,h)anthracene			1.33	1.11		mg/Kg		83	40 - 140		
Benzo[g,h,i]perylene			1.33	1.08		mg/Kg		81	40 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*50*		*40 - 140*
o-Terphenyl (Surr)	*81*		*40 - 140*
2-Fluorobiphenyl (Surr)	*111*		*40 - 140*

Lab Sample ID: LCSD 620-28761/3-B
Matrix: Solid
Analysis Batch: 28787

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28761

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics			8.00	ND		mg/Kg		40	40 - 140	11	25
C19-C36 Aliphatics			10.7	7.93		mg/Kg		74	40 - 140	9	25
C11-C22 Aromatics			22.7	24.7		mg/Kg		109	40 - 140	17	25
Naphthalene			1.33	0.889		mg/Kg		67	40 - 140	25	25
2-Methylnaphthalene			1.33	1.38		mg/Kg		104	40 - 140	16	25
Acenaphthylene			1.33	1.05		mg/Kg		79	40 - 140	18	25
Acenaphthene			1.33	1.11		mg/Kg		83	40 - 140	21	25
Fluorene			1.33	0.866		mg/Kg		65	40 - 140	20	25
Phenanthrene			1.33	1.04		mg/Kg		78	40 - 140	15	25
Anthracene			1.33	0.960		mg/Kg		72	40 - 140	19	25
Fluoranthene			1.33	1.30		mg/Kg		97	40 - 140	15	25
Pyrene			1.33	1.34		mg/Kg		100	40 - 140	10	25
Benzo[a]anthracene			1.33	1.08		mg/Kg		81	40 - 140	21	25
Chrysene			1.33	1.34		mg/Kg		101	40 - 140	8	25
Benzo[b]fluoranthene			1.33	1.02		mg/Kg		77	40 - 140	10	25
Benzo[k]fluoranthene			1.33	1.52		mg/Kg		114	40 - 140	15	25
Benzo[a]pyrene			1.33	1.20		mg/Kg		90	40 - 140	6	25

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-28761/3-B
Matrix: Solid
Analysis Batch: 28787

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28761

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Indeno[1,2,3-cd]pyrene			1.33	1.00		mg/Kg		75	40 - 140	24	25
Dibenz(a,h)anthracene			1.33	1.34		mg/Kg		101	40 - 140	19	25
Benzo[g,h,i]perylene			1.33	1.37		mg/Kg		103	40 - 140	24	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*59*		*40 - 140*
o-Terphenyl (Surr)	*93*		*40 - 140*
2-Fluorobiphenyl (Surr)	*127*		*40 - 140*

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 620-28725/1-A
Matrix: Solid
Analysis Batch: 28770

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28725

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		4.7	0.35	mg/Kg		11/06/23 13:39	11/07/23 10:56	1
Arsenic	ND		1.4	0.18	mg/Kg		11/06/23 13:39	11/07/23 10:56	1
Barium	ND		0.93	0.11	mg/Kg		11/06/23 13:39	11/07/23 10:56	1
Beryllium	ND		0.47	0.023	mg/Kg		11/06/23 13:39	11/07/23 10:56	1
Cadmium	ND		0.47	0.024	mg/Kg		11/06/23 13:39	11/07/23 10:56	1
Chromium	ND		0.93	0.12	mg/Kg		11/06/23 13:39	11/07/23 10:56	1
Lead	ND		1.4	0.20	mg/Kg		11/06/23 13:39	11/07/23 10:56	1
Nickel	ND		0.93	0.11	mg/Kg		11/06/23 13:39	11/07/23 10:56	1
Selenium	ND		1.4	0.27	mg/Kg		11/06/23 13:39	11/07/23 10:56	1
Silver	ND		1.4	0.15	mg/Kg		11/06/23 13:39	11/07/23 10:56	1
Thallium	ND		2.8	1.0	mg/Kg		11/06/23 13:39	11/07/23 10:56	1
Vanadium	ND		1.4	0.25	mg/Kg		11/06/23 13:39	11/07/23 10:56	1
Zinc	ND	^3+	2.8	0.72	mg/Kg		11/06/23 13:39	11/07/23 10:56	1

Lab Sample ID: LCSSRM 620-28725/2-A
Matrix: Solid
Analysis Batch: 28770

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28725

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits		
Antimony			270	124		mg/Kg		45.9	3.3 - 103.3		
Arsenic			218	168		mg/Kg		77.2	67.0 - 98.6		
Barium			388	366		mg/Kg		94.3	74.5 - 107.7		
Beryllium			165	153		mg/Kg		92.8	76.4 - 108.5		
Cadmium			118	102		mg/Kg		86.2	73.6 - 105.1		
Chromium			255	230		mg/Kg		90.0	74.1 - 107.8		
Lead			155	139		mg/Kg		89.8	76.8 - 110.3		
Nickel			120	106		mg/Kg		88.6	74.3 - 105.8		

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCSSRM 620-28725/2-A
Matrix: Solid
Analysis Batch: 28770

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28725

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Selenium	107	90.0		mg/Kg		84.1	70.9 - 109.3
Silver	51.0	43.3		mg/Kg		85.0	73.7 - 111.8
Thallium	188	166		mg/Kg		88.3	73.9 - 108.5
Vanadium	133	122		mg/Kg		91.8	69.1 - 108.3
Zinc	406	357	^3+	mg/Kg		87.8	72.9 - 109.1

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 620-28772/1-A
Matrix: Solid
Analysis Batch: 28817

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28772

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.064	0.011	mg/Kg		11/07/23 13:04	11/08/23 11:35	1

Lab Sample ID: LCSSRM 620-28772/2-A ^10
Matrix: Solid
Analysis Batch: 28817

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28772

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	17.1	9.56		mg/Kg		55.9	33.1 - 86.5

QC Association Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-15085-1

GC VOA

Analysis Batch: 28871

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-1	HYDLIFT-0608	Total/NA	Solid	MAVPH2.1	28924
620-15085-1 - RA	HYDLIFT-0608	Total/NA	Solid	MAVPH2.1	28924
620-15085-2	HOLDTANK-0410	Total/NA	Solid	MAVPH2.1	28924
MB 620-28924/3-A	Method Blank	Total/NA	Solid	MAVPH2.1	28924
LCS 620-28924/1-A	Lab Control Sample	Total/NA	Solid	MAVPH2.1	28924
LCSD 620-28924/2-A	Lab Control Sample Dup	Total/NA	Solid	MAVPH2.1	28924

Prep Batch: 28924

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-1 - RA	HYDLIFT-0608	Total/NA	Solid	5035	
620-15085-1	HYDLIFT-0608	Total/NA	Solid	5035	
620-15085-2	HOLDTANK-0410	Total/NA	Solid	5035	
MB 620-28924/3-A	Method Blank	Total/NA	Solid	5035	
LCS 620-28924/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 620-28924/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

GC Semi VOA

Prep Batch: 28761

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-1	HYDLIFT-0608	Total/NA	Solid	3546	
620-15085-2	HOLDTANK-0410	Total/NA	Solid	3546	
MB 620-28761/1-B	Method Blank	Total/NA	Solid	3546	
LCS 620-28761/2-B	Lab Control Sample	Total/NA	Solid	3546	
LCSD 620-28761/3-B	Lab Control Sample Dup	Total/NA	Solid	3546	

Prep Batch: 28771

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-1	HYDLIFT-0608	Total/NA	Solid	3546	
MB 620-28771/1-A	Method Blank	Total/NA	Solid	3546	
LCS 620-28771/7-A	Lab Control Sample	Total/NA	Solid	3546	
LCSD 620-28771/8-A	Lab Control Sample Dup	Total/NA	Solid	3546	

Analysis Batch: 28787

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-1	HYDLIFT-0608	Total/NA	Solid	MAEPH2.1	28809
620-15085-2	HOLDTANK-0410	Total/NA	Solid	MAEPH2.1	28809
MB 620-28761/1-B	Method Blank	Total/NA	Solid	MAEPH2.1	28809
LCS 620-28761/2-B	Lab Control Sample	Total/NA	Solid	MAEPH2.1	28809
LCSD 620-28761/3-B	Lab Control Sample Dup	Total/NA	Solid	MAEPH2.1	28809

Analysis Batch: 28791

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-1	HYDLIFT-0608	Total/NA	Solid	8082	28771
MB 620-28771/1-A	Method Blank	Total/NA	Solid	8082	28771
LCS 620-28771/7-A	Lab Control Sample	Total/NA	Solid	8082	28771
LCSD 620-28771/8-A	Lab Control Sample Dup	Total/NA	Solid	8082	28771

Fraction Batch: 28809

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-1	HYDLIFT-0608	Total/NA	Solid	MA EPH Frac	28761

GC Semi VOA (Continued)

Fraction Batch: 28809 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-2	HOLDTANK-0410	Total/NA	Solid	MA EPH Frac	28761
MB 620-28761/1-B	Method Blank	Total/NA	Solid	MA EPH Frac	28761
LCS 620-28761/2-B	Lab Control Sample	Total/NA	Solid	MA EPH Frac	28761
LCSD 620-28761/3-B	Lab Control Sample Dup	Total/NA	Solid	MA EPH Frac	28761

Metals

Prep Batch: 28725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-1	HYDLIFT-0608	Total/NA	Solid	3050B	
620-15085-2	HOLDTANK-0410	Total/NA	Solid	3050B	
MB 620-28725/1-A	Method Blank	Total/NA	Solid	3050B	
LCSSRM 620-28725/2-A	Lab Control Sample	Total/NA	Solid	3050B	

Analysis Batch: 28770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-1	HYDLIFT-0608	Total/NA	Solid	6010D	28725
620-15085-2	HOLDTANK-0410	Total/NA	Solid	6010D	28725
MB 620-28725/1-A	Method Blank	Total/NA	Solid	6010D	28725
LCSSRM 620-28725/2-A	Lab Control Sample	Total/NA	Solid	6010D	28725

Prep Batch: 28772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-1	HYDLIFT-0608	Total/NA	Solid	7471B	
620-15085-2	HOLDTANK-0410	Total/NA	Solid	7471B	
MB 620-28772/1-A	Method Blank	Total/NA	Solid	7471B	
LCSSRM 620-28772/2-A ^10	Lab Control Sample	Total/NA	Solid	7471B	

Analysis Batch: 28817

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-1	HYDLIFT-0608	Total/NA	Solid	7471A	28772
620-15085-2	HOLDTANK-0410	Total/NA	Solid	7471A	28772
MB 620-28772/1-A	Method Blank	Total/NA	Solid	7471A	28772
LCSSRM 620-28772/2-A ^10	Lab Control Sample	Total/NA	Solid	7471A	28772

General Chemistry

Analysis Batch: 28726

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-1	HYDLIFT-0608	Total/NA	Solid	Moisture	
620-15085-2	HOLDTANK-0410	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-15085-1

Client Sample ID: HYDLIFT-0608
Date Collected: 10/31/23 09:10
Date Received: 11/03/23 16:13

Lab Sample ID: 620-15085-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	28726	ODO	EET NE	11/06/23 14:14

Client Sample ID: HYDLIFT-0608
Date Collected: 10/31/23 09:10
Date Received: 11/03/23 16:13

Lab Sample ID: 620-15085-1
Matrix: Solid
Percent Solids: 93.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			28924	BMH	EET NE	11/09/23 14:14
Total/NA	Analysis	MAVPH2.1		1	28871	BMH	EET NE	11/09/23 20:04
Total/NA	Prep	5035	RA		28924	BMH	EET NE	11/09/23 14:14
Total/NA	Analysis	MAVPH2.1	RA	1	28871	BMH	EET NE	11/10/23 14:05
Total/NA	Prep	3546			28771	JAC	EET NE	11/07/23 13:04
Total/NA	Analysis	8082		1	28791	SFL	EET NE	11/09/23 02:11
Total/NA	Prep	3546			28761	JAC	EET NE	11/07/23 09:19
Total/NA	Fraction	MA EPH Frac			28809	JJB	EET NE	11/08/23 10:17
Total/NA	Analysis	MAEPH2.1		1	28787	JS	EET NE	11/08/23 22:04
Total/NA	Prep	3050B			28725	ODO	EET NE	11/06/23 13:39
Total/NA	Analysis	6010D		1	28770	PRB	EET NE	11/07/23 11:38
Total/NA	Prep	7471B			28772	ODO	EET NE	11/07/23 13:04
Total/NA	Analysis	7471A		1	28817	PRB	EET NE	11/08/23 12:07

Client Sample ID: HOLDTANK-0410
Date Collected: 11/01/23 14:45
Date Received: 11/03/23 16:13

Lab Sample ID: 620-15085-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	28726	ODO	EET NE	11/06/23 14:14

Client Sample ID: HOLDTANK-0410
Date Collected: 11/01/23 14:45
Date Received: 11/03/23 16:13

Lab Sample ID: 620-15085-2
Matrix: Solid
Percent Solids: 91.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			28924	BMH	EET NE	11/09/23 14:14
Total/NA	Analysis	MAVPH2.1		1	28871	BMH	EET NE	11/09/23 20:40
Total/NA	Prep	3546			28761	JAC	EET NE	11/07/23 09:19
Total/NA	Fraction	MA EPH Frac			28809	JJB	EET NE	11/08/23 10:17
Total/NA	Analysis	MAEPH2.1		1	28787	JS	EET NE	11/08/23 22:31
Total/NA	Prep	3050B			28725	ODO	EET NE	11/06/23 13:39
Total/NA	Analysis	6010D		1	28770	PRB	EET NE	11/07/23 11:43
Total/NA	Prep	7471B			28772	ODO	EET NE	11/07/23 13:09
Total/NA	Analysis	7471A		1	28817	PRB	EET NE	11/08/23 12:09

Laboratory References:
EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-15085-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Massachusetts	State	M-RI907	06-30-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6010D	3050B	Solid	Antimony
6010D	3050B	Solid	Arsenic
6010D	3050B	Solid	Barium
6010D	3050B	Solid	Beryllium
6010D	3050B	Solid	Cadmium
6010D	3050B	Solid	Chromium
6010D	3050B	Solid	Lead
6010D	3050B	Solid	Nickel
6010D	3050B	Solid	Selenium
6010D	3050B	Solid	Silver
6010D	3050B	Solid	Thallium
6010D	3050B	Solid	Vanadium
6010D	3050B	Solid	Zinc
7471A	7471B	Solid	Mercury
8082	3546	Solid	PCB-1016
8082	3546	Solid	PCB-1221
8082	3546	Solid	PCB-1232
8082	3546	Solid	PCB-1242
8082	3546	Solid	PCB-1248
8082	3546	Solid	PCB-1254
8082	3546	Solid	PCB-1260
8082	3546	Solid	PCB-1262
8082	3546	Solid	PCB-1268
MAEPH2.1	3546	Solid	2-Methylnaphthalene
MAEPH2.1	3546	Solid	Acenaphthene
MAEPH2.1	3546	Solid	Acenaphthylene
MAEPH2.1	3546	Solid	Anthracene
MAEPH2.1	3546	Solid	Benzo[a]anthracene
MAEPH2.1	3546	Solid	Benzo[a]pyrene
MAEPH2.1	3546	Solid	Benzo[b]fluoranthene
MAEPH2.1	3546	Solid	Benzo[g,h,i]perylene
MAEPH2.1	3546	Solid	Benzo[k]fluoranthene
MAEPH2.1	3546	Solid	C11-C22 Aromatics
MAEPH2.1	3546	Solid	C11-C22 Aromatics (Adjusted)
MAEPH2.1	3546	Solid	C19-C36 Aliphatics
MAEPH2.1	3546	Solid	C9-C18 Aliphatics
MAEPH2.1	3546	Solid	Chrysene
MAEPH2.1	3546	Solid	Dibenz(a,h)anthracene
MAEPH2.1	3546	Solid	Fluoranthene
MAEPH2.1	3546	Solid	Fluorene
MAEPH2.1	3546	Solid	Indeno[1,2,3-cd]pyrene
MAEPH2.1	3546	Solid	Naphthalene
MAEPH2.1	3546	Solid	Phenanthrene
MAEPH2.1	3546	Solid	Pyrene
MAVPH2.1	5035	Solid	Benzene

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-15085-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
MAVPH2.1	5035	Solid	C5-C8 Aliphatics (adjusted)
MAVPH2.1	5035	Solid	C5-C8 Aliphatics (unadjusted)
MAVPH2.1	5035	Solid	C9-C10 Aromatics
MAVPH2.1	5035	Solid	C9-C12 Aliphatics (adjusted)
MAVPH2.1	5035	Solid	C9-C12 Aliphatics (unadjusted)
MAVPH2.1	5035	Solid	Ethylbenzene
MAVPH2.1	5035	Solid	m,p-Xylene
MAVPH2.1	5035	Solid	Methyl tert-butyl ether
MAVPH2.1	5035	Solid	Naphthalene
MAVPH2.1	5035	Solid	o-Xylene
MAVPH2.1	5035	Solid	Toluene
MAVPH2.1	5035	Solid	Xylenes, Total
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

Method Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-15085-1

Method	Method Description	Protocol	Laboratory
MAVPH2.1	Massachusetts - Volatile Petroleum Hydrocarbons (GC)	MA DEP	EET NE
8082	Polychlorinated Biphenyls (GC/ECD)	MA DEP	EET NE
MAEPH2.1	Massachusetts - Extractable Petroleum Hydrocarbons (GC)	MA DEP	EET NE
6010D	Metals (ICP)	SW846	EET NE
7471A	Mercury (CVAA)	SW846	EET NE
Moisture	Percent Moisture	EPA	EET NE
3050B	Preparation, Metals	SW846	EET NE
3546	Microwave Extraction	SW846	EET NE
5035	Closed System Purge and Trap	SW846	EET NE
7471B	Preparation, Mercury	SW846	EET NE
MA EPH Frac	Massachusetts - Extractable Petroleum Hydrocarbon Fractionation	MA DEP	EET NE

Protocol References:

EPA = US Environmental Protection Agency

MA DEP = Massachusetts Department Of Environmental Protection

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Sample Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-15085-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
620-15085-1	HYDLIFT-0608	Solid	10/31/23 09:10	11/03/23 16:13
620-15085-2	HOLDTANK-0410	Solid	11/01/23 14:45	11/03/23 16:13

620-15085 Chain of Custody

15085

Chain of Custody Record

eurofins | Environment Testing

Client Information	Sampler: P. Moran	Lab PM	Carrier Tracking No(s)	COC No: 620-12716-1718 1
Client Contact: ~~Stephanie Stone~~ Adam Roy	Phone	E-Mail	State of Origin: MA	Page: Page 1 of 4
Company: Nobis Engineering, Inc	PWSID			Job #:

Address: 585 Middlesex Street	Due Date Requested:	
City: Lowell	TAT Requested (days): standard	
State, Zip: MA, 01851	Compliance Project: Δ Yes Δ No	
Phone	PO #:	
Email: ~~sstone@nobis-group.com~~ aroy@nobis-group.com	WO #:	
Project Name: S00001 005	Project #:	
Site: Former L&M	SSOW#:	

Analysis Requested

Preservation Codes:

A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Y - Trizma; Z - other (specify)

Other:

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	VPH	EPH	MCP Metals	PCBs												Total Number of containers	Special Instructions/Note:
	Preservation Code:					N	N	F	I	I	*													
1	HYDLIFT-0608	10/31/23	0910	C	Solid	N	N	X	X	X	X												4	
2	HOLDTANK-0410	11/1/23	1445	C	Solid	N	N	X	X	X													3	
					Solid																			
					Solid																			
					Solid																			
					Solid																			
					Solid																			
					Solid																			
					Solid																			
					Solid																			
					Water																			

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested. I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: Email EDD to aroy@nobis-group.com

Empty Kit Relinquished by	Date	Time	Method of Shipment:

Relinquished by:	Date/Time: 11/3/23 11:53	Company	Received by:	Date/Time: 11/3/23 1153	Company: EA
Relinquished by:	Date/Time: 11/3/23 16:13	Company: EA	Received by:	Date/Time: 11/3/23 16:13	Company: Eurofins
Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company

Custody Seals Intact. Δ Yes Δ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks: 3.8-0.2 4.0-0.6

Ver: 06/08/2021

Page 27 of 28

11/14/2023

Login Sample Receipt Checklist

Client: Nobis Engineering, Inc.

Job Number: 620-15085-1

Login Number: 15085
List Number: 1
Creator: Makhoul, Elie

List Source: Eurofins New England

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX D

BORING LOG

Project: Former L&M

Location: Lunenburg, MA

Nobis Project No.: S00001.005

Boring No.: **B/MW - 106**

Boring Location: B/MW - 106

Checked by:

Date Start: October 12, 2023

Date Finish: October 12, 2023

Contractor: Geosearch, Inc.

Driller: E. Belsky

Nobis Rep.: C. Odell

Rig Type / Model: Geoprobe / 7822 DT

Hammer Type: N/A

Hammer Hoist: N/A

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)	N/A	1.75 x 60
Advancement	Direct Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
▼ 10/12/23	00:00	15			

Depth (ft.)	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	WELL DETAIL	NOTES
1	S1	18	0-5		0				S-1A (12"): Light Brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt. Dry.	Concrete road box	
2									S-1B (2"): Dark Brown, fine to coarse SAND, trace fine Gravel, trace Silt. Dry. S-1C (2"): Light Brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt. Dry.		
3											
4											
5										Filter Sand	
6	S2	17	5-10		0				S-2A (7"): Light Brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt. Dry. S-2B (6"): Dark Brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt. Dry. S-2C (2"): White, fine to coarse SAND, trace fine Gravel, trace Silt. Dry. S-2D (2"): Dark Brown, fine to coarse SAND, little fine to coarse Gravel, trace Silt. Dry.		
7					0.2						
8					0.3						
9										Bentonite chips	
10								SAND			
11	S3	30	10-15		143.3				S-3A (8"): Dark Brown, fine to medium SAND. Strong Petroleum Odor. S-3B (12"): Black, fine SAND, little Clayey Silt. Dry. Strong Petroleum Odor.		
12					159.8						
13					486.8				S-3C (10"): Dark gray, fine SAND, little Silt, trace Clay. Dry. Strong Petroleum Odor.		
14											
15					73.4	▼				Filter sand	
16	S4	52	15-20		56.3				S-4A (21"): Black, fine SAND, some Silt. Wet. Strong Petroleum Odor.	0.010 inch slotted PVC	
17					17.2						
18					5.6				S-4B (14"): Gray, fine to coarse SAND, trace Silt. Wet. Strong Petroleum Odor.		
19									S-4C (17"): Light brown, fine to coarse SAND, trace Silt. Moist. Strong Petroleum Odor.		
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

Boring terminated at 20 feet.

1) Observed a strong petroleum ordor at S3 and S4
2) FD associated with B/MW - 106

Soil descriptions, and lithology, are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

BOREHOLE LOG - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 11/29/23 12:55 - J:\S00001.000-START 2022 CONTRACT - TO 01 - TBAS\S00001.05_FORMER L&M\TECHNICAL_DATA\GINT\FORMER L&M BORING LOGS.GPJ

BORING LOG

Project: Former L&M

Location: Lunenburg, MA

Nobis Project No.: S00001.005

Boring No.: **B/MW - 107**

Boring Location: B/MW-107

Checked by:

Date Start: October 12, 2023

Date Finish: October 12, 2023

Contractor: Geosearch, Inc.

Driller: E. Belsky

Nobis Rep.: C. Odell

Rig Type / Model: Geoprobe / 7822 DT

Hammer Type: N/A

Hammer Hoist: N/A

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)	N/A	1.75 x 60
Advancement	Direct Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
▼ 10/12/23	00:00	11			

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	WELL DETAIL	NOTES
1	S1	29	0-10		1.7				S-1A (3"): Light brown, fine SAND, some fine to coarse Gravel. Dry. S-1B (26"): Light brown, fine to coarse SAND, trace Silt. Dry.	Concrete road box	
2					0.3						
3											
4											
5										Filter Sand	
6											
7								SAND			
8											
9										Bentonite chips	
10											
11	S2	37	10-15		44.4 2	▼			S-2A (5"): Brown, fine to medium SAND, trace Silt. Dry. S-2B (7"): Brown, fine to medium SAND, trace Silt. Wet.		
12									S-2C (8"): Brown, coarse SAND, trace Silt. Wet.		
13									S-2D (11"): Black, fine to coarse GRAVEL, little fine to coarse Sand. Wet.		
14								GRAVEL			
15										Filter sand	
16	S3	59	15-20		0.4				S-3A (11"): Black, coarse SAND, trace fine Gravel, trace Silt. Moist.	0.010 inch slotted PVC	
17									S-3B (25"): Black, fine SAND, little Silt, trace Clay. Dry.		
18								SAND			
19									S-3C (17"): Black, fine to coarse SAND, trace Silt. Moist.		
20								CLAYEY SILT	S-3D (5"): Black, Clayey SILT. Dry.		

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:

Boring terminated at 20 feet.

Soil descriptions, and lithology, are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

BOREHOLE LOG - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 11/29/23 12:55 - J:\S00001.000-START 2022 CONTRACT - TO 01 - TBAS\S00001.05_FORMER L&M\TECHNICAL_DATA\GINT\FORMER L&M BORING LOGS.GPJ

BORING LOG

Project: Former L&M

Location: Lunenburg, MA

Nobis Project No.: S00001.005

Boring No.: **B/MW - 108**

Boring Location: B/MW-108

Checked by:

Date Start: October 12, 2023

Date Finish: October 12, 2023

Contractor: Geosearch, Inc.

Driller: E. Belsky

Nobis Rep.: C. Odell

Rig Type / Model: Geoprobe / 7822 DT

Hammer Type: N/A

Hammer Hoist: N/A

Ground Surface Elev.:

Datum:

	Drilling Method	Sampler
Type	Geoprobe	Macro-Core Liners
Size ID (in.)	N/A	1.75 x 60
Advancement	Direct Push	Push

Groundwater Observations

Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
▼ 10/12/23	00:00	15			

Depth (ft.)	SAMPLE INFORMATION Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.	PID (ppm)	Ground Water	LITHOLOGY Graphic	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	WELL DETAIL	NOTES
1	S1	18	0-10		0.4				S-1A (18"): Light brown, fine to coarse SAND, trace fine Gravel, trace Silt. Dry.	Concrete road box	
2					0.4						
3											
4											
5								SAND		Filter Sand	
6											
7											
8											
9										Bentonite chips	
10											
11	S2	34	10-15		0.3			CLAYEY SILT	S-2A (6"): Dark brown, Clayey SILT. Moist.		
12									S-2B (10"): Brown, CLAY & SILT. Moist.		
13									S-2C (11"): Light brown, fine to medium SAND, trace fine Gravel, trace Silt. Dry.		
14									S-2D (7"): Brown, fine to medium SAND, little fine to coarse Gravel, trace Silt. Dry.		
15						▼				Filter sand	
16	S3	46	15-20		0.2			SAND	S-3A (18"): Light brown, fine to coarse SAND, trace Silt. Wet.	0.010 inch slotted PVC	
17									S-3B (8"): Light brown, fine to coarse SAND, trace Silt. Moist.		
18									S-3C (9"): Light brown, fine to coarse SAND, trace fine Gravel, trace Silt. Wet.		
19									S-3D (9"): Light brown, fine to coarse SAND, trace fine Gravel, trace Silt. Moist.		
20											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES: Boring terminated at 20 feet.

Soil descriptions, and lithology, are based on visual classifications and should be considered approximate. Stratification lines are approximate boundaries between stratums; transitions may be gradual.

BOREHOLE LOG - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 11/29/23 12:55 - J:\S00001.000-START 2022 CONTRACT - TO 01 - TBAS\S00001.05_FORMER L&M\TECHNICAL_DATA\GINT\FORMER L&M BORING LOGS.GPJ

APPENDIX E

October 2, 2023
Nobis File No. S00001.05

Ms. Katy Deng
USEPA – Region 1
Land, Chemicals, and Redevelopment Division
5 Post Office Square, Suite 100
Boston, MA 02109-3912

Re: USEPA Contract No. 68HE0122D0001
USEPA Task Order No. 68HE0122F0044
Targeted Brownfields Assessment (TBA)
Former L&M Service Station Site
Lunenburg, Massachusetts
Sample Delivery Group (SDG) No. 620115501
Eurofins New England, North Kingstown, RI

Tier 1 Stage 2A Organic and Inorganic Data Review:

Volatile Petroleum Hydrocarbons (VPH by MassDEP-VPH), Extractable Petroleum Hydrocarbons (EPH by MassDEP-EPH), Massachusetts Contingency Plan (MCP) Metals (MCP-14 Metals by 6020B/7470A)

5/Groundwater Samples: LM-GW-B/MW105-051723, LM-GW-B/MW102-051723, LM-FD-051723, LM-GW-B/MW101-051723, LM-GW-B/MW104-051723
1/Field Duplicate Pair: LM-GW-B/MW102-051723 / LM-FD-051723
1/Aqueous Trip Blank: LM-TB-051723

Dear Ms. Deng:

Nobis Group (Nobis), under a USEPA contract as a subcontractor to KGSNE JV, LLC, performed a Tier 1 Stage 2A manual data review (S2AVM) on the organic and inorganic analytical data for the samples listed above. The samples were collected by Nobis at the Former L&M Service Station Site located in Lunenburg, Massachusetts on May 17, 2023. The samples were analyzed for VPHs by MassDEP-VPH, EPHs by MassDEP-EPH, and MCP-14 Metals by EPA Methods 6010D/7470A by Eurofins New England in North Kingstown, RI.

The Tier 1 Stage 2A manual data review was performed in accordance with the Region 1 - EPA New England Environmental Data Review Supplement for Region 1 Data Review Elements and Superfund Specific Guidance/Procedures (September 2020); USEPA's National Functional Guidelines for Organic Superfund Methods Data Review (November 2020); USEPA's National Functional Guidelines for Inorganic Superfund Methods Data Review (November 2020); the Program Quality Assurance Project Plan (Program QAPP) dated October 2022, and the Quality Assurance Project Plan Addendum (QAPPA) (May 2023) for the Former L&M Service Station Site, which appends the October 2022 Program QAPP.

The data were evaluated based on the following parameters:

* • Overall Evaluation of Data and Potential Usability Issues
* • Data Completeness
* • Preservation and Technical Holding Times

Nobis Group®
585 Middlesex Street
Lowell, MA 01851
T (978) 683-0891

*	•	Blanks
*	•	Surrogates (organic analyses only)
NA	•	Internal Standards
	•	Matrix Spike Analysis
*	•	Laboratory Duplicates
*	•	Laboratory Control Samples (LCS)
*	•	Field Duplicates
*	•	ICP Serial Dilutions (metals only)
NA	•	Performance Evaluation (PE) Samples
NA	•	Target Analyte Identification
*	•	Reported Quantitation Limits

* All criteria were met for this parameter or did not require qualification.
NA – Not applicable.

Overall Evaluation of Data and Potential Usability Issues

The site sampling objectives are:

- Characterize in-situ soil based on AOCs identified by Fuss & O'Neill in November 2020 Phase I for the presence of possible site-related contamination.
- Evaluate groundwater elevation.
- Evaluate presence/absence of groundwater contamination related to site.

The data meet the project quality criteria and can be used without restriction except as summarized below. The attachments provide details and supporting documentation.

MassDEP-VPH:
Results were qualified for MS/MSD recoveries.

MassDEP-EPH:
Results were qualified for MS/MSD recoveries.

MCP-14 Metals and Mercury:
Qualification of the data was not required.

Please contact Linda Terzis at lterzis@nobis-group.com should you have any questions or comments regarding this information.

Sincerely,

NOBIS GROUP®

Linda Terzis
Data Validator

Gary Glennon
Data Validator

Tables: Data Summary Tables – Tier 1 Stage 2A (S2AVM) Validated Data
Data Qualification Actions Table

Attachments: Data Review Checklist
Support Documentation
COC

cc: Denis McGrath (Nobis Group)
Adam Roy (Nobis Group)

DATA SUMMARY TABLE

Analysis		EPH in Groundwater				
Lab Sample ID		620-11550-1	620-11550-2	620-11550-3	620-11550-4	620-11550-5
Field Sample ID		LM-GW-B/MW105-051723	LM-GW-B/MW102-051723	LM-FD-051723	LM-GW-B/MW101-051723	LM-GW-B/MW104-051723
Sample Type		N	N	FD	N	N
Parent Sample ID				LM-GW-B/MW102-051723		
Sample Date	**Units**	05/17/23	05/17/23	05/17/23	05/17/23	05/17/23
2-Methylnaphthalene	ug/L	0.95 UJ	2.3 J	2.8 J	1 UJ	1 UJ
Acenaphthene	ug/L	0.95 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Acenaphthylene	ug/L	0.95 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Anthracene	ug/L	0.95 U	1 U	1 U	1 U	1 U
Benzo(a)anthracene	ug/L	0.95 U	1 U	1 U	1 U	1 U
Benzo(a)pyrene	ug/L	0.19 U	0.2 U	0.2 U	0.2 U	0.2 U
Benzo(b)fluoranthene	ug/L	0.95 U	1 U	1 U	1 U	1 U
Benzo(g,h,i)perylene	ug/L	0.95 U	1 U	1 U	1 U	1 U
Benzo(k)fluoranthene	ug/L	0.95 U	1 U	1 U	1 U	1 U
C11-C22 Aromatics	ug/L	95 U	100	110	100 U	100 U
C11-C22 Aromatics (adjusted)	ug/L	95 U	100 U	100 U	100 U	100 U
C19-C36 Aliphatics	ug/L	95 U	100 U	100 U	100 U	100 U
C9-C18 Aliphatics	ug/L	95 U	100 U	100 U	100 U	100 U
Chrysene	ug/L	0.95 U	1 U	1 U	1 U	1 U
Dibenz(a,h)anthracene	ug/L	0.48 U	0.5 U	0.5 U	0.5 U	0.5 U
Fluoranthene	ug/L	0.95 U	1 U	1 U	1 U	1 U
Fluorene	ug/L	0.95 U	1 U	1 U	1 U	1 U
Indeno(1,2,3-cd)pyrene	ug/L	0.48 U	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene	ug/L	0.95 UJ	28 J	33 J	1 UJ	1 UJ
Phenanthrene	ug/L	0.95 U	1 U	1 U	1 U	1 U
Pyrene	ug/L	0.95 U	1 U	1 U	1 U	1 U

DATA SUMMARY TABLE

Analysis		Dissolved Metals in Groundwater				
Lab Sample ID		620-11550-1	620-11550-2	620-11550-3	620-11550-4	620-11550-5
Field Sample ID		LM-GW-B/MW105-051723	LM-GW-B/MW102-051723	LM-FD-051723	LM-GW-B/MW101-051723	LM-GW-B/MW104-051723
Sample Type		N	N	FD	N	N
Parent Sample ID				LM-GW-B/MW102-051723		
Sample Date	**Units**	05/17/23	05/17/23	05/17/23	05/17/23	05/17/23
Antimony	mg/L	0.0045	0.0049	0.0051	0.0028	0.0053
Arsenic	mg/L	0.004 U	0.025	0.026	0.004 U	0.0081
Barium	mg/L	0.23	0.12	0.12	0.28	0.069
Beryllium	mg/L	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Cadmium	mg/L	0.0025 U	0.0025 U	0.0025 U	0.0011	0.0025 U
Chromium	mg/L	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Lead	mg/L	0.0075 U	0.0075 U	0.0075 U	0.06	0.0075 U
Mercury	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	mg/L	0.0009	0.0024	0.0027	0.0069	0.015
Selenium	mg/L	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
Silver	mg/L	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Thallium	mg/L	0.005 U	0.005 U	0.005 U	0.005 U	0.0027
Vanadium	mg/L	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Zinc	mg/L	0.0026	0.0021	0.0035	0.2	0.14

DATA SUMMARY TABLE

Analysis		VPH in Groundwater				
Lab Sample ID		620-11550-1	620-11550-2	620-11550-3	620-11550-4	620-11550-5
Field Sample ID		LM-GW-B/MW105-051723	LM-GW-B/MW102-051723	LM-FD-051723	LM-GW-B/MW101-051723	LM-GW-B/MW104-051723
Sample Type		N	N	FD	N	N
Parent Sample ID				LM-GW-B/MW102-051723		
Sample Date	**Units**	05/17/23	05/17/23	05/17/23	05/17/23	05/17/23
Benzene	ug/L	5 U	12	12	5 U	5 U
C5-C8 Aliphatics (adjusted)	ug/L	100 U	560	600	100 U	100 U
C5-C8 Aliphatics (unadjusted)	ug/L	100 UJ	580 J	610 J	100 UJ	100 UJ
C9-C10 Aromatics	ug/L	100 UJ	2000 J	2000 J	100 UJ	100 UJ
C9-C12 Aliphatics (adjusted)	ug/L	100 U	3000	3000	100 U	100 U
C9-C12 Aliphatics (unadjusted)	ug/L	100 UJ	6800 J	7000 J	100 UJ	100 UJ
Ethylbenzene	ug/L	5 U	490	500	5 U	5 U
m,p-Xylene	ug/L	10 U	1400	1500	10 U	10 U
Methyl tert-butyl ether	ug/L	5 U	5 U	5 U	5 U	5 U
Naphthalene	ug/L	5 U	77	76	5 U	5 U
o-Xylene	ug/L	5 U	5 U	5 U	5 U	5 U
Toluene	ug/L	5 U	5 U	5 U	5 U	5 U
Xylene (total)	ug/L	15 U	1400	1500	15 U	15 U

DATA SUMMARY TABLE

Analysis		VPH in Water Quality Control Matrix
Lab Sample ID		620-11550-6
Field Sample ID		LM-TB-051723
Sample Type		TB
Parent Sample ID		
Sample Date	**Units**	05/17/23
Benzene	ug/L	5 U
C5-C8 Aliphatics (adjusted)	ug/L	100 U
C5-C8 Aliphatics (unadjusted)	ug/L	100 U
C9-C10 Aromatics	ug/L	100 U
C9-C12 Aliphatics (adjusted)	ug/L	100 U
C9-C12 Aliphatics (unadjusted)	ug/L	100 U
Ethylbenzene	ug/L	5 U
m,p-Xylene	ug/L	10 U
Methyl tert-butyl ether	ug/L	5 U
Naphthalene	ug/L	5 U
o-Xylene	ug/L	5 U
Toluene	ug/L	5 U
Xylene (total)	ug/L	15 U

Data Review Qualification Actions
Former L&M Service Station
SDG 620115501

Parameter	Analyte	Samples	Evaluation Criteria	Action Needed	Comments
MassDEP-VPH					
	C9-C10 aromatics, C5-C8 aliphatics (unadjusted), C9-C12 aliphatics (unadjusted)	LM-GW-B/MW105-051723, LM-GW-B/MW102-051723, LM-FD-051723, LM-GW-B/MW101-051723, LM-GW-B/MW104-051723	MS/MSD recovery	J / UJ	
MassDEP-EPH					
	Naphthalene, 2-methylnaphthalene, acenaphthene, acenaphthylene	LM-GW-B/MW105-051723, LM-GW-B/MW102-051723, LM-FD-051723, LM-GW-B/MW101-051723, LM-GW-B/MW104-051723	MS/MSD recovery	J / UJ	
MCP-14 Metals / Mercury					
	Qualification of the data was not required.				

Tier 1/Stage 2A Data Review Checklist

Project: Former L&M Service Station, Lunenburg, Massachusetts
Targeted Brownfields Assessment (TBA)
Project #: S00001.05
Case#: NA
Date: 09/07/2023
Methods: Volatile Petroleum Hydrocarbons (VPH) (MassDEP-VPH)
Extractable Petroleum Hydrocarbons (EPH) (MassDEP-EPH)
Massachusetts Contingency Plan (MCP) Metals (MCP-14 Metals by 6010D/7470A)

Laboratory: Eurofins New England Laboratory, North Kingstown, RI
SDG: 620115501
Reviewer: Linda Terzis

1. **Case Narrative and Data Package Completeness (COC and Analyte List Review)**
Five (5) groundwater samples, including one field duplicate sample, were listed on the COC for SDG 620115501. One trip blank sample was also included on the COC. The samples were collected on 05/17/2023 and received at the Eurofins New England Laboratory on 05/18/2023 at 2.8 °C.

Sample ID	Laboratory ID	Analyses
LM-GW-B/MW105-051723	620-11550-1	MassDEP-VPH, MassDEP-EPH, MCP-14 Metals/Mercury
LM-GW-B/MW102-051723	620-11550-2	
LM-FD-051723	620-11550-3	
LM-GW-B/MW101-051723	620-11550-4	
LM-GW-B/MW104-051723	620-11550-5	
LM-TB-051723	620-11550-6	MassDEP-VPH

The data were evaluated using the site-specific Quality Assurance Project Plan Addendum (QAPPA) (dated May 2023) and the Program QAPP (dated October 2022). Both were prepared by KGSNE, LLC. The QAPPA appends and incorporates by reference the procedures and quality control measures detailed in the Program QAPP (October 2022). Therefore, site data for this SDG were evaluated using both the QAPPA of May 2023 and the Program QAPP dated October 2022. The Massachusetts Compendium of Analytical Methods (CAM) and/or SW-846 Methods were used to perform the analyses. Therefore, site data were also evaluated using CAM quality control (QC) limits, where applicable.

The analyte lists reported by the laboratory were compared to the required analyte lists per Table 4 (groundwater) in the QAPPA (May 2023) for the site. Results for all requested analytes were reported and no inconsistencies were noted.

2. **Holding Time and Sample Preservation Compliance**

Receipt temperatures are acceptable (≤ 6°), as specified in the QAPPA (May 2023).

MassDEP-VPH: Holding time criteria (analyzed within 14 days) met.

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Lowell, MA 01851
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MassDEP-EPH: Holding time criteria (extracted within 14 days and analyzed within 40 days of extraction) met.

MCP-14 Metals/Mercury: Holding time criteria (analyzed within 28 days for mercury; within 180 days for all other analytes) were met.

3. Calibration Issues

Not assessed for S2AVM data review.

4. Laboratory and Field Blanks

MassDEP-VPH: Results for the VPH laboratory method blanks and the trip blank (LM-TB-051723) were non-detect. No blank actions are required.

MassDEP-EPH: Results for the EPH laboratory method blanks were non-detect. No blank actions are required.

MCP-14 Metals/Mercury: Results for the metals and mercury laboratory method blanks are non-detect. No blank actions are required.

An equipment blank was not submitted with the samples of this SDG. No actions are required.

5. Interference Check Sample (metals only)

Not assessed for S2AVM data review.

6. Surrogates

The Program QAPP (October 2022) was used to evaluate site data for surrogate recovery. If no Program QAPP-specific recovery limits were available for a surrogate, the MCP CAM recovery limits were used.

MassDEP-VPH: Percent surrogate recoveries for the samples were within the Program QAPP limits of 70-130%. No actions are required.

MassDEP-EPH: Percent surrogate recoveries for the samples were within the Program QAPP limits of 40-140%. No actions are required.

MCP-14 Metals/Mercury: Not applicable for this analysis.

7. Laboratory Control Samples

MassDEP-VPH: The percent recoveries in the VPH LCS/LCSD pairs met the Program QAPP recovery limits of 70-130% and RPDs ≤ 25%. No actions are required.

MassDEP-EPH: The percent recoveries in the EPH LCS/LCSD pairs met the Program QAPP recovery limits of 40-140% and RPD limits of ≤ 25% except for the RPD for naphthalene in LCS/LCSD pair 620-22911/4-B and 5B, where the RPD exceeded 25% (32%). This LCS pair is associated with sample LM-GW-B/MW104-051723 (620-11550-5). Naphthalene was not detected in the sample. Based on the National Functional Guidelines (NFGs, 2020) for SVOCs, the naphthalene result in the sample is accepted unqualified. No actions are required.

MCP-14 Metals/Mercury: Percent recoveries and RPDs for all metals and mercury LCS/LCSD analyses were within the QAPP limits of 80-120% and ≤ 20%, respectively. No actions are required.

8. Matrix Spikes

Based on the Region I EPA New England Environmental Data Review Supplement (Region I Supplement, 2020), MS/MSD qualifications are applied to all field samples with similar matrix, unless otherwise noted.

MassDEP-VPH: MS/MSD analyses were performed on sample LM-GW-B/MW104-051723 (620-11550-5). Recoveries and RPDs met the Program QAPP limits of 70-130% recovery and ≤ 50% RPD except for the recoveries of C9-C10 aromatics, which was reported as spiked but not detected in both the MS and MSD analyses, and the recoveries of C5-C8 aliphatics (unadjusted) and C9-C12 aliphatics (unadjusted), which were also reported as spiked, but with results > spiking level. Percent recoveries were not calculated by the laboratory for these ranges. Results for the parent sample were all non-detect. The laboratory's case narrative indicates the recovery failures are due to the way the entire baseline is integrated for samples versus for QC samples (sum of peaks). Professional judgement was used to qualify detected and non-detect results for C9-C10 aromatics, C5-C8 aliphatics (unadjusted), and C9-C12 aliphatics (unadjusted) as estimated (J/UJ) in all groundwater samples due to baseline integration preventing calculation of meaningful recoveries for these ranges. LCS/LCSD recoveries are acceptable as noted above.

MassDEP-EPH: MS/MSD analyses were performed on sample LM-GW-B/MW104-051723 (620-11550-5). Recoveries for naphthalene, 2-methylnaphthalene, acenaphthene, and acenaphthylene were below the QAPP limits of 40-140% in the MS and/or MSD analyses. Results for these compounds were non-detect in the parent sample. Based on the NFGs (2020) for SVOCs, detected and non-detect results for these compounds are qualified as estimated (J/UJ) in all groundwater samples due to the low MS and/or MSD recoveries. RPDs met the QAPP limits of ≤ 50%.

The laboratory indicated that the MS/MSD samples for the analyses of C9-C18 aliphatics, C19-36 aliphatics, and C11-C22 aromatics (adjusted and unadjusted) were inadvertently spiked at an incorrect spiking level resulting in low recoveries. The laboratory did not calculate percent recoveries for these hydrocarbon ranges. Results of the MS/MSD analyses for these ranges were not used to evaluate the samples of this SDG since recoveries were not meaningful. No actions are taken.

MCP-14 Metals/Mercury: MS/MSD analyses for MCP-14 metals and mercury were performed on sample LM-GW-B/MW104-051723 (620-11550-5). Recoveries and RPDs met the Program QAPP limits of 75-125% recovery and ≤ 20% RPD. No actions are required.

9. Laboratory Duplicates (metals only)

MCP-14 Metals/Mercury: Laboratory duplicate analysis was performed on sample LM-GW-B/MW104-051723 (620-11550-5). The QAPP duplicate criterion (≤ 20% RPD) was met for all detected analytes. Mercury results were non-detect for both the sample and duplicate analyses. Laboratory duplicate precision is acceptable and no actions are required.

10. **Serial Dilution (metals only)**

    MCP-14 Metals/Mercury: A serial dilution analysis was not performed for this SDG. The Massachusetts CAM requires a serial dilution analysis on samples used for MS/MSD analyses where analytes are detected at > 50x RL. MS/MSD analyses were performed on sample LM-GW-B/MW104-051723 (620-11550-5). Detected analyte results were < 50x RL in this sample and no actions are required.

11. **Field Duplicate Precision**

    Acceptable field duplicate precision is an RPD of ≤ 30% for results > 5x RL and an absolute difference < 2x RL for results < 5x RL, based on the EPA Region I Supplement (2020).

    Based on the Region I Supplement (2020), qualifications are applied to all field samples with similar matrix, unless otherwise indicated.

    Field duplicate pair LM-GW-B/MW102-051723 (620-11550-2) / LM-FD-051723 (620-11550-3) is associated with the groundwater samples of this SDG.

    Field duplicate precision criteria were met for the VPH, EPH, and metals analytical parameters and no actions are required.

12. **Internal Standards**

    Not assessed for S2AVM data review.

13. **Dual Column Precision (PCBs only)**

    Not applicable for this SDG.

14. **Performance Evaluation Samples**

    Performance Evaluation (PE) samples were not included in this SDG.

15. **Reporting Limits**

    RLs for non-detect results for VPH, EPH, and metals/mercury analyses met the project action levels (PALs) for the site.

16. **Other**

    EPA Region I Supplement (2020) criterion for percent solids content (> 30%) not applicable for groundwater samples.

    Overall bias is considered indeterminate when cumulative nonconformances do not show a consistent bias or in cases of the presence of conflicting high and low biases.

Field Duplicate Evaluation

SDG: 620115501 VPH

Analyte	Original Result (ug/L)	Qual	Duplicate Result (ug/L)	Qual	RPD ≤ 30%	Abs Diff	Comment
Sample ID	**LM-GW-B/MW102-051723**		**LM-FD-051723**				
	620-11550-2		**620-11550-3**				
Benzene	12		12		0.00	0.0	Ok - abs diff < 2x RL
C5-C8 Aliphatics (adjusted)	560		600		6.90		Ok - RPD < 30%
C5-C8 Aliphatics (unadjusted)	580		610		5.04		Ok - RPD < 30%
C9-C10 Aromatics	2000		2000		0.00	0.0	Ok - abs diff < 2x RL
C9-C12 Aliphatics (adjusted)	3000		3000		0.00	0.00	Ok - abs diff < 2x RL
C9-C12 Aliphatics (unadjusted)	6800		7000		2.90		Ok - RPD < 30%
Ethylbenzene	490		500		2.02		Ok - RPD < 30%
m,p-Xylene	1400		1500		6.90		Ok - RPD < 30%
Methyl tert-butyl ether	5	U	5	U	0.00		Ok - both ND
Naphthalene	77		76		-1.31		Ok - RPD < 30%
o-Xylene	5	U	5	U	0.00		Ok - both ND
Toluene	5	U	5	U	0.00		Ok - both ND

Field Duplicate Evaluation

SDG: 620115501 EPH

Analyte	Original Result (ug/L)	Qual	Duplicate Result (ugL)	Qual	RPD ≤ 30%	Abs Diff	Comment
Sample ID	**LM-GW-B/MW102-051723**		**LM-FD-051723**				
	620-11550-2		**620-11550-3**				
2-Methylnaphthalene	2.3		2.8		19.61	0.50	Ok - abs diff < 2x RL
Acenaphthene	1	U	1	U	0.00		Ok - both ND
Acenaphthylene	1	U	1	U	0.00		Ok - both ND
Anthracene	1	U	1	U	0.00		Ok - both ND
Benzo(a)anthracene	1	U	1	U	0.00		Ok - both ND
Benzo(a)pyrene	0.2	U	0.2	U	0.00		Ok - both ND
Benzo(b)fluoranthene	1	U	1	U	0.00		Ok - both ND
Benzo(g,h,i)perylene	1	U	1	U	0.00		Ok - both ND
Benzo(k)fluoranthene	1	U	1	U	0.00		Ok - both ND
C11-C22 Aromatics	100		110		9.52	10	Ok - abs diff < 2x RL
C11-C22 Aromatics (adjusted)	100	U	100	U	0.00		Ok - both ND
C19-C36 Aliphatics	100	U	100	U	0.00		Ok - both ND
C9-C18 Aliphatics	100	U	100	U	0.00		Ok - both ND
Chrysene	1	U	1	U	0.00		Ok - both ND
Dibenz(a,h)anthracene	0.5	U	0.5	U	0.00		Ok - both ND
Fluoranthene	1	U	1	U	0.00		Ok - both ND
Fluorene	1	U	1	U	0.00		Ok - both ND
Indeno(1,2,3-cd)pyrene	0.5	U	0.5	U	0.00		Ok - both ND
Naphthalene	28		33		16.39		Ok - RPD < 30%
Phenanthrene	1	U	1	U	0.00		Ok - both ND
Pyrene	1	U	1	U	0.00		Ok - both ND

Field Duplicate Evaluation

SDG: 620115501 METALS

Analyte	Original Result (mg/L)	Qual	Duplicate Result (mg/L)	Qual	RPD ≤ 30%	Abs Diff	Comment
Sample ID	**LM-GW-B/MW102-051723**		**LM-FD-051723**				
	620-11550-2		**620-11550-3**				
Antimony	0.0049		0.0051		4.0	0.0002	Ok - abs diff < 2x RL
Arsenic	0.025		0.026		3.9		Ok - RPD < 30%
Barium	0.12		0.12		0.0		Ok - RPD < 30%
Beryllium	0.002	U	0.002	U	0.0		Ok - both ND
Cadmium	0.0025	U	0.0025	U	0.0		Ok - both ND
Chromium	0.005	U	0.005	U	0.0		Ok - both ND
Lead	0.0075	U	0.0075	U	0.0		Ok - both ND
Mercury	0.0002	U	0.0002	U	0.0		Ok - both ND
Nickel	0.0024		0.0027		11.8	0.0003	Ok - abs diff < 2x RL
Selenium	0.015	U	0.015	U	0.0		Ok - both ND
Silver	0.005	U	0.005	U	0.0		Ok - both ND
Thallium	0.005	U	0.005	U	0.0		Ok - both ND
Vanadium	0.005	U	0.005	U	0.0		Ok - both ND
Zinc	0.0021		0.0035		50.0	0.0014	Ok - abs diff < 2x RL

11550

620-11550 Chain of Custody

Testing

Page 1 of 2

CHAIN OF CUSTODY RECORD

☐ Almgren Drive
Agawam, MA 01001
(413) 789-9018

☐ 46 Camp Avenue
N Kingstown, RI 02852
(401) 732-3400

Special Handling:

☐ TAT - Date Needed: Standard

All TATs subject to laboratory approval
Min 24-hr notification needed for rushes
Samples disposed after 30 days unless otherwise instructed.

Report To: aroy@nobis-group com
Adam Roy
Telephone #:
Project Mgr:

Invoice To: ap@nobis-group com
P O No:
Quote #:

Project No: S00001 005/400
Site Name: Former L&M
Location: Lunenburg State: MA
Sampler(s): B Fortier (978) 399-9651

F=Field Filtered 1=Na_2S2O_3 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
7=CH3OH 8=$NaHSO_4$ 9=Deionized Water 10=H_3PO_4 11= 12=

DW=Drinking Water GW=Groundwater SW=Surface Water WW=Waste Water
O=Oil SO=Soil SL=Sludge A=Indoor/Ambient Air SG=Soil Gas
X1= X2= X3=

G= Grab C=Compsite

List Preservative Code below:

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	Containers: # of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Analysis: VPH MassDEP	EPH MassDEP	MCP 14 Dissolved Metals 6010/7471						Check if chlorinated	QA/QC Reporting Notes:
										2	2	4							
01	LM-GW-B/MW105-051723	5/17/2023	10 55 AM	G	GW	3	2		1	x	x	x						☐	Metals are field filtered
02	LM-GW-B/MW102-051723	5/17/2023	12 40 PM	G	GW	3	2		1	x	x	x						☐	Metals are field filtered
03	LM-FD-051723	5/17/2023	8 00 AM	G	GW	3	2		1	x	x	x						☐	Metals are field filtered
04	LM-GW-B/MW101-051723	5/17/2023	1 00 PM	G	GW	3	2		1	x	x	x						☐	Metals are field filtered
05	LM-GW-B/MW104-051723	5/17/2023	10 45 AM	G	GW	9	6		3	x	x	x						☐	MS/MSD, Metals are field filtered
06	LM-TB-051723	5/17/2023	2 00 PM	G	GW	2				x								☐	
																		☐	
																		☐	
																		☐	
																		☐	

QA/QC Reporting Level
☐ Level I ☐ Level II
☐ Level III ☐ Level IV
☐ Other
State-specific reporting standards
MA MCP

Relinquished by:	Received by:	Date:	Time:
		5/17/23	17:10
		5/18/23	16:31

Temp °C
Observed: 2.5
Correction Factor: -0.2
Corrected: 2.3
IR ID #: 6

☑ EDD format: Equis EDD
☑ E-mail to: aroy@nobis-group com

Condition upon receipt: Custody Seals. ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☐ Iced ☑ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

5/30/2023

ANALYTICAL REPORT

PREPARED FOR

Attn: Adam Roy
Nobis Engineering, Inc.
585 Middlesex Street
Lowell, Massachusetts 01851

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JOB DESCRIPTION

Former L&M - Lunenburg MA

JOB NUMBER

620-11550-1

Eurofins New England
646 Camp Ave
North Kingstown RI 02852

See page two for job notes and contact information.

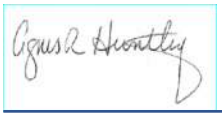
my EOL

Job Notes

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The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northeast, LLC Project Manager.

Authorization



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Authorized for release by
Agnes Huntley, Project Manager
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(401)372-3482

Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
State Forms 5
MCP Checklist 5
Case Narrative 6
Detection Summary 7
Client Sample Results 9
Surrogate Summary 20
QC Sample Results 22
QC Association Summary 35
Lab Chronicle 39
Certification Summary 41
Method Summary 43
Sample Summary 44
Chain of Custody 45
Receipt Checklists 46

Definitions/Glossary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
F1	MS and/or MSD recovery exceeds control limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

MassDEP Analytical Protocol Certfication Form

Laboratory Name: Eurofins New England | Project #: 620-11550-1

Project Location: Former L&M - Lunenburg MA | RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
620-11550-1 through 620-11550-6

Matrices: ☑ Groundwater/Surface Water ☐ Soil/Sediment ☐ Drinking Water ☐ Air ☐ Other:

CAM Protocol (check all that apply below:)

8260 VOC CAM II A ☐	7470/7471 Hg CAM III B ☑	MassDEP VPH (GC/PID/FID) CAM IV A ☑	8082 PCB CAM V A ☐	9014 Total Cyanide/PAC CAM VI A ☐	6860 Perchlorate CAM VIII B ☐
8270 SVOC CAM II B ☐	7010 Metals CAM III C ☐	MassDEP VPH (GC/MS) CAM IV C ☐	8081 Pesticides CAM V B ☐	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
6010 Metals CAM III A ☑	6020 Metals CAM III D ☐	MassDEP EPH CAM IV B ☑	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes ☐ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☑ Yes ☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes ☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☑ Yes ☐ No
E	VPH, EPH, APH, and TO-15 only a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☑ Yes ☐ No ☐ Yes ☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☑ Yes ☐ No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☑ Yes ☐ No[1]

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☑ Yes ☐ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes ☐ No[1]

1 All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature: Agnes R Huntley **Position:** Project Manager

Printed Name: Agnes Huntley **Date:** 05/30/2023

Job ID: 620-11550-1

Laboratory: Eurofins New England

Narrative

Job Narrative
620-11550-1

Receipt
The samples were received on 5/18/2023 4:31 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.8º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA
Method EPH: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 620-22911 and 620-22956 and analytical batch 620-23053 recovered outside control limits for the following analytes: Naphthalene. The individual percent recoveries are within acceptance limits.

Method EPH: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 620-22769 and 620-22824 and analytical batch 620-22894 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA
Method MAVPH2.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 620-22877 were outside control limits for the following ranges: C9-C10 Aromatics, C5-C8 Aliphatics (unadjusted), C9-C12 Aliphatics (unadjusted). This is due to the summation of peaks including baseline for client samples.The associated laboratory control sample (LCS) recovery is within acceptance limits; therefor, the data have been reported and qualified.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA
Method MAEPH2.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 620-22769 and 620-22824 and analytical batch 620-22850 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

Method MAEPH2.1: The matrix spike and matrix spike duplicate were inadvertently spiked at the EPH MS spike amount, resulting in a low recovery.

LM-GW-B/MW104-051723 (620-11550-5[MS]) and LM-GW-B/MW104-051723 (620-11550-5[MSD])

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Client Sample ID: LM-GW-B/MW105-051723 — Lab Sample ID: 620-11550-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.0045		0.0060	0.0016	mg/L	1		6010D	Dissolved
Barium	0.23		0.0050	0.00070	mg/L	1		6010D	Dissolved
Nickel	0.00090		0.0050	0.00087	mg/L	1		6010D	Dissolved
Zinc	0.0026		0.025	0.0016	mg/L	1		6010D	Dissolved

Client Sample ID: LM-GW-B/MW102-051723 — Lab Sample ID: 620-11550-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	28		1.0	0.23	ug/L	1		EPH	Total/NA
2-Methylnaphthalene	2.3		1.0	0.29	ug/L	1		EPH	Total/NA
C5-C8 Aliphatics (adjusted)	560		100	100	ug/L	1		MAVPH2.1	Total/NA
C5-C8 Aliphatics (unadjusted)	580		100	100	ug/L	1		MAVPH2.1	Total/NA
Benzene	12		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
Naphthalene	77		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
C9-C12 Aliphatics (adjusted) - DL	3000		1000	1000	ug/L	10		MAVPH2.1	Total/NA
C9-C10 Aromatics - DL	2000		1000	1000	ug/L	10		MAVPH2.1	Total/NA
C9-C12 Aliphatics (unadjusted) - DL	6800		1000	1000	ug/L	10		MAVPH2.1	Total/NA
Ethylbenzene - DL	490		50	50	ug/L	10		MAVPH2.1	Total/NA
m,p-Xylene - DL	1400		100	100	ug/L	10		MAVPH2.1	Total/NA
Xylenes, Total - DL	1400		150	150	ug/L	10		MAVPH2.1	Total/NA
C11-C22 Aromatics	100		100	100	ug/L	1		MAEPH2.1	Total/NA
Antimony	0.0049		0.0060	0.0016	mg/L	1		6010D	Dissolved
Arsenic	0.025		0.0040	0.0014	mg/L	1		6010D	Dissolved
Barium	0.12		0.0050	0.00070	mg/L	1		6010D	Dissolved
Nickel	0.0024		0.0050	0.00087	mg/L	1		6010D	Dissolved
Zinc	0.0021		0.025	0.0016	mg/L	1		6010D	Dissolved

Client Sample ID: LM-FD-051723 — Lab Sample ID: 620-11550-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	33		1.0	0.23	ug/L	1		EPH	Total/NA
2-Methylnaphthalene	2.8		1.0	0.29	ug/L	1		EPH	Total/NA
C5-C8 Aliphatics (adjusted)	600		100	100	ug/L	1		MAVPH2.1	Total/NA
C5-C8 Aliphatics (unadjusted)	610		100	100	ug/L	1		MAVPH2.1	Total/NA
Benzene	12		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
Naphthalene	76		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
C9-C12 Aliphatics (adjusted) - DL	3000		1000	1000	ug/L	10		MAVPH2.1	Total/NA
C9-C10 Aromatics - DL	2000		1000	1000	ug/L	10		MAVPH2.1	Total/NA
C9-C12 Aliphatics (unadjusted) - DL	7000		1000	1000	ug/L	10		MAVPH2.1	Total/NA
Ethylbenzene - DL	500		50	50	ug/L	10		MAVPH2.1	Total/NA
m,p-Xylene - DL	1500		100	100	ug/L	10		MAVPH2.1	Total/NA
Xylenes, Total - DL	1500		150	150	ug/L	10		MAVPH2.1	Total/NA
C11-C22 Aromatics	110		100	100	ug/L	1		MAEPH2.1	Total/NA
Antimony	0.0051		0.0060	0.0016	mg/L	1		6010D	Dissolved
Arsenic	0.026		0.0040	0.0014	mg/L	1		6010D	Dissolved
Barium	0.12		0.0050	0.00070	mg/L	1		6010D	Dissolved
Nickel	0.0027		0.0050	0.00087	mg/L	1		6010D	Dissolved
Zinc	0.0035		0.025	0.0016	mg/L	1		6010D	Dissolved

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Client Sample ID: LM-GW-B/MW101-051723 — Lab Sample ID: 620-11550-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.0028		0.0060	0.0016	mg/L	1		6010D	Dissolved
Barium	0.28		0.0050	0.00070	mg/L	1		6010D	Dissolved
Cadmium	0.0011		0.0025	0.00036	mg/L	1		6010D	Dissolved
Lead	0.060		0.0075	0.0062	mg/L	1		6010D	Dissolved
Nickel	0.0069		0.0050	0.00087	mg/L	1		6010D	Dissolved
Zinc	0.20		0.025	0.0016	mg/L	1		6010D	Dissolved

Client Sample ID: LM-GW-B/MW104-051723 — Lab Sample ID: 620-11550-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.0053		0.0060	0.0016	mg/L	1		6010D	Dissolved
Arsenic	0.0081		0.0040	0.0014	mg/L	1		6010D	Dissolved
Barium	0.069		0.0050	0.00070	mg/L	1		6010D	Dissolved
Nickel	0.015		0.0050	0.00087	mg/L	1		6010D	Dissolved
Thallium	0.0027		0.0050	0.0021	mg/L	1		6010D	Dissolved
Zinc	0.14		0.025	0.0016	mg/L	1		6010D	Dissolved

Client Sample ID: LM-TB-051723 — Lab Sample ID: 620-11550-6

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: LM-GW-B/MW105-051723 Lab Sample ID: 620-11550-1

Date Collected: 05/17/23 10:55 **Matrix: Water**
Date Received: 05/18/23 16:31

Method: MA DEP EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.95	0.22	ug/L		05/19/23 09:53	05/23/23 11:56	1
2-Methylnaphthalene	ND		0.95	0.28	ug/L		05/19/23 09:53	05/23/23 11:56	1
Acenaphthylene	ND		0.95	0.37	ug/L		05/19/23 09:53	05/23/23 11:56	1
Acenaphthene	ND		0.95	0.18	ug/L		05/19/23 09:53	05/23/23 11:56	1
Fluorene	ND		0.95	0.37	ug/L		05/19/23 09:53	05/23/23 11:56	1
Phenanthrene	ND		0.95	0.16	ug/L		05/19/23 09:53	05/23/23 11:56	1
Anthracene	ND		0.95	0.15	ug/L		05/19/23 09:53	05/23/23 11:56	1
Fluoranthene	ND		0.95	0.14	ug/L		05/19/23 09:53	05/23/23 11:56	1
Pyrene	ND		0.95	0.14	ug/L		05/19/23 09:53	05/23/23 11:56	1
Benzo[a]anthracene	ND		0.95	0.067	ug/L		05/19/23 09:53	05/23/23 11:56	1
Chrysene	ND		0.95	0.13	ug/L		05/19/23 09:53	05/23/23 11:56	1
Benzo[b]fluoranthene	ND		0.95	0.14	ug/L		05/19/23 09:53	05/23/23 11:56	1
Benzo[k]fluoranthene	ND		0.95	0.23	ug/L		05/19/23 09:53	05/23/23 11:56	1
Benzo[a]pyrene	ND		0.19	0.15	ug/L		05/19/23 09:53	05/23/23 11:56	1
Indeno[1,2,3-cd]pyrene	ND		0.48	0.44	ug/L		05/19/23 09:53	05/23/23 11:56	1
Dibenz(a,h)anthracene	ND		0.48	0.20	ug/L		05/19/23 09:53	05/23/23 11:56	1
Benzo[g,h,i]perylene	ND		0.95	0.16	ug/L		05/19/23 09:53	05/23/23 11:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*72*		*40 - 140*	*05/19/23 09:53*	*05/23/23 11:56*	*1*
2-Fluorobiphenyl (Surr)	*97*		*40 - 140*	*05/19/23 09:53*	*05/23/23 11:56*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			05/23/23 20:34	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			05/23/23 20:34	1
C9-C10 Aromatics	ND		100	100	ug/L			05/23/23 20:34	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			05/23/23 20:34	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			05/23/23 20:34	1
Benzene	ND		5.0	5.0	ug/L			05/23/23 20:34	1
Ethylbenzene	ND		5.0	5.0	ug/L			05/23/23 20:34	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			05/23/23 20:34	1
Naphthalene	ND		5.0	5.0	ug/L			05/23/23 20:34	1
Toluene	ND		5.0	5.0	ug/L			05/23/23 20:34	1
m,p-Xylene	ND		10	10	ug/L			05/23/23 20:34	1
o-Xylene	ND		5.0	5.0	ug/L			05/23/23 20:34	1
Xylenes, Total	ND		15	15	ug/L			05/23/23 20:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*95*		*70 - 130*		*05/23/23 20:34*	*1*
2,5-Dibromotoluene (pid)	*96*		*70 - 130*		*05/23/23 20:34*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		95	95	ug/L		05/19/23 09:53	05/22/23 21:10	1
C19-C36 Aliphatics	ND		95	95	ug/L		05/19/23 09:53	05/22/23 21:10	1
C11-C22 Aromatics	ND		95	95	ug/L		05/19/23 09:53	05/22/23 21:10	1
C11-C22 Aromatics (Adjusted)	ND		95	95	ug/L		05/19/23 09:53	05/22/23 21:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*53*		*40 - 140*	*05/19/23 09:53*	*05/22/23 21:10*	*1*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Client Sample ID: LM-GW-B/MW105-051723
Date Collected: 05/17/23 10:55
Date Received: 05/18/23 16:31

Lab Sample ID: 620-11550-1
Matrix: Water

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*59*		*40 - 140*	*05/19/23 09:53*	*05/22/23 21:10*	*1*
2-Fluorobiphenyl (Surr)	*85*		*40 - 140*	*05/19/23 09:53*	*05/22/23 21:10*	*1*

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0045**		0.0060	0.0016	mg/L		05/19/23 09:48	05/22/23 13:52	1
Arsenic	ND		0.0040	0.0014	mg/L		05/19/23 09:48	05/22/23 13:52	1
Barium	**0.23**		0.0050	0.00070	mg/L		05/19/23 09:48	05/22/23 13:52	1
Beryllium	ND		0.0020	0.00028	mg/L		05/19/23 09:48	05/22/23 13:52	1
Cadmium	ND		0.0025	0.00036	mg/L		05/19/23 09:48	05/22/23 13:52	1
Chromium	ND		0.0050	0.00093	mg/L		05/19/23 09:48	05/22/23 13:52	1
Lead	ND		0.0075	0.0062	mg/L		05/19/23 09:48	05/22/23 13:52	1
Nickel	**0.00090**		0.0050	0.00087	mg/L		05/19/23 09:48	05/22/23 13:52	1
Selenium	ND		0.015	0.0042	mg/L		05/19/23 09:48	05/22/23 13:52	1
Silver	ND		0.0050	0.00062	mg/L		05/19/23 09:48	05/22/23 13:52	1
Thallium	ND		0.0050	0.0021	mg/L		05/19/23 09:48	05/22/23 13:52	1
Vanadium	ND		0.0050	0.0011	mg/L		05/19/23 09:48	05/22/23 13:52	1
Zinc	**0.0026**		0.025	0.0016	mg/L		05/19/23 09:48	05/22/23 13:52	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		05/19/23 10:03	05/19/23 15:12	1

Client Sample ID: LM-GW-B/MW102-051723

Date Collected: 05/17/23 12:40
Date Received: 05/18/23 16:31

Lab Sample ID: 620-11550-2
Matrix: Water

Method: MA DEP EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**28**		1.0	0.23	ug/L		05/19/23 09:53	05/23/23 12:19	1
2-Methylnaphthalene	**2.3**		1.0	0.29	ug/L		05/19/23 09:53	05/23/23 12:19	1
Acenaphthylene	ND		1.0	0.39	ug/L		05/19/23 09:53	05/23/23 12:19	1
Acenaphthene	ND		1.0	0.19	ug/L		05/19/23 09:53	05/23/23 12:19	1
Fluorene	ND		1.0	0.39	ug/L		05/19/23 09:53	05/23/23 12:19	1
Phenanthrene	ND		1.0	0.17	ug/L		05/19/23 09:53	05/23/23 12:19	1
Anthracene	ND		1.0	0.15	ug/L		05/19/23 09:53	05/23/23 12:19	1
Fluoranthene	ND		1.0	0.15	ug/L		05/19/23 09:53	05/23/23 12:19	1
Pyrene	ND		1.0	0.14	ug/L		05/19/23 09:53	05/23/23 12:19	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		05/19/23 09:53	05/23/23 12:19	1
Chrysene	ND		1.0	0.14	ug/L		05/19/23 09:53	05/23/23 12:19	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		05/19/23 09:53	05/23/23 12:19	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		05/19/23 09:53	05/23/23 12:19	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		05/19/23 09:53	05/23/23 12:19	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		05/19/23 09:53	05/23/23 12:19	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		05/19/23 09:53	05/23/23 12:19	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		05/19/23 09:53	05/23/23 12:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*73*		*40 - 140*	*05/19/23 09:53*	*05/23/23 12:19*	*1*
2-Fluorobiphenyl (Surr)	*88*		*40 - 140*	*05/19/23 09:53*	*05/23/23 12:19*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	**560**		100	100	ug/L			05/24/23 03:36	1
C5-C8 Aliphatics (unadjusted)	**580**		100	100	ug/L			05/24/23 03:36	1
Benzene	**12**		5.0	5.0	ug/L			05/24/23 03:36	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			05/24/23 03:36	1
Naphthalene	**77**		5.0	5.0	ug/L			05/24/23 03:36	1
Toluene	ND		5.0	5.0	ug/L			05/24/23 03:36	1
o-Xylene	ND		5.0	5.0	ug/L			05/24/23 03:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*113*		*70 - 130*		*05/24/23 03:36*	*1*
2,5-Dibromotoluene (pid)	*107*		*70 - 130*		*05/24/23 03:36*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C12 Aliphatics (adjusted)	**3000**		1000	1000	ug/L			05/24/23 15:00	10
C9-C10 Aromatics	**2000**		1000	1000	ug/L			05/24/23 15:00	10
C9-C12 Aliphatics (unadjusted)	**6800**		1000	1000	ug/L			05/24/23 15:00	10
Ethylbenzene	**490**		50	50	ug/L			05/24/23 15:00	10
m,p-Xylene	**1400**		100	100	ug/L			05/24/23 15:00	10
Xylenes, Total	**1400**		150	150	ug/L			05/24/23 15:00	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*99*		*70 - 130*		*05/24/23 15:00*	*10*
2,5-Dibromotoluene (pid)	*98*		*70 - 130*		*05/24/23 15:00*	*10*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Client Sample ID: LM-GW-B/MW102-051723

Lab Sample ID: 620-11550-2

Date Collected: 05/17/23 12:40

Matrix: Water

Date Received: 05/18/23 16:31

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		100	100	ug/L		05/19/23 09:53	05/22/23 21:39	1
C19-C36 Aliphatics	ND		100	100	ug/L		05/19/23 09:53	05/22/23 21:39	1
C11-C22 Aromatics	**100**		100	100	ug/L		05/19/23 09:53	05/22/23 21:39	1
C11-C22 Aromatics (Adjusted)	ND		100	100	ug/L		05/19/23 09:53	05/22/23 21:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*56*		*40 - 140*	*05/19/23 09:53*	*05/22/23 21:39*	*1*
o-Terphenyl (Surr)	*62*		*40 - 140*	*05/19/23 09:53*	*05/22/23 21:39*	*1*
2-Fluorobiphenyl (Surr)	*79*		*40 - 140*	*05/19/23 09:53*	*05/22/23 21:39*	*1*

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0049**		0.0060	0.0016	mg/L		05/19/23 09:48	05/22/23 13:58	1
Arsenic	**0.025**		0.0040	0.0014	mg/L		05/19/23 09:48	05/22/23 13:58	1
Barium	**0.12**		0.0050	0.00070	mg/L		05/19/23 09:48	05/22/23 13:58	1
Beryllium	ND		0.0020	0.00028	mg/L		05/19/23 09:48	05/22/23 13:58	1
Cadmium	ND		0.0025	0.00036	mg/L		05/19/23 09:48	05/22/23 13:58	1
Chromium	ND		0.0050	0.00093	mg/L		05/19/23 09:48	05/22/23 13:58	1
Lead	ND		0.0075	0.0062	mg/L		05/19/23 09:48	05/22/23 13:58	1
Nickel	**0.0024**		0.0050	0.00087	mg/L		05/19/23 09:48	05/22/23 13:58	1
Selenium	ND		0.015	0.0042	mg/L		05/19/23 09:48	05/22/23 13:58	1
Silver	ND		0.0050	0.00062	mg/L		05/19/23 09:48	05/22/23 13:58	1
Thallium	ND		0.0050	0.0021	mg/L		05/19/23 09:48	05/22/23 13:58	1
Vanadium	ND		0.0050	0.0011	mg/L		05/19/23 09:48	05/22/23 13:58	1
Zinc	**0.0021**		0.025	0.0016	mg/L		05/19/23 09:48	05/22/23 13:58	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		05/19/23 10:03	05/19/23 15:14	1

Client Sample ID: LM-FD-051723

Date Collected: 05/17/23 08:00
Date Received: 05/18/23 16:31

Lab Sample ID: 620-11550-3

Matrix: Water

Method: MA DEP EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**33**		1.0	0.23	ug/L		05/19/23 09:53	05/23/23 12:42	1
2-Methylnaphthalene	**2.8**		1.0	0.29	ug/L		05/19/23 09:53	05/23/23 12:42	1
Acenaphthylene	ND		1.0	0.39	ug/L		05/19/23 09:53	05/23/23 12:42	1
Acenaphthene	ND		1.0	0.19	ug/L		05/19/23 09:53	05/23/23 12:42	1
Fluorene	ND		1.0	0.39	ug/L		05/19/23 09:53	05/23/23 12:42	1
Phenanthrene	ND		1.0	0.17	ug/L		05/19/23 09:53	05/23/23 12:42	1
Anthracene	ND		1.0	0.15	ug/L		05/19/23 09:53	05/23/23 12:42	1
Fluoranthene	ND		1.0	0.15	ug/L		05/19/23 09:53	05/23/23 12:42	1
Pyrene	ND		1.0	0.14	ug/L		05/19/23 09:53	05/23/23 12:42	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		05/19/23 09:53	05/23/23 12:42	1
Chrysene	ND		1.0	0.14	ug/L		05/19/23 09:53	05/23/23 12:42	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		05/19/23 09:53	05/23/23 12:42	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		05/19/23 09:53	05/23/23 12:42	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		05/19/23 09:53	05/23/23 12:42	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		05/19/23 09:53	05/23/23 12:42	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		05/19/23 09:53	05/23/23 12:42	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		05/19/23 09:53	05/23/23 12:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*62*		*40 - 140*	*05/19/23 09:53*	*05/23/23 12:42*	*1*
2-Fluorobiphenyl (Surr)	*101*		*40 - 140*	*05/19/23 09:53*	*05/23/23 12:42*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	**600**		100	100	ug/L			05/24/23 03:01	1
C5-C8 Aliphatics (unadjusted)	**610**		100	100	ug/L			05/24/23 03:01	1
Benzene	**12**		5.0	5.0	ug/L			05/24/23 03:01	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			05/24/23 03:01	1
Naphthalene	**76**		5.0	5.0	ug/L			05/24/23 03:01	1
Toluene	ND		5.0	5.0	ug/L			05/24/23 03:01	1
o-Xylene	ND		5.0	5.0	ug/L			05/24/23 03:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*112*		*70 - 130*		*05/24/23 03:01*	*1*
2,5-Dibromotoluene (pid)	*111*		*70 - 130*		*05/24/23 03:01*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C12 Aliphatics (adjusted)	**3000**		1000	1000	ug/L			05/24/23 15:35	10
C9-C10 Aromatics	**2000**		1000	1000	ug/L			05/24/23 15:35	10
C9-C12 Aliphatics (unadjusted)	**7000**		1000	1000	ug/L			05/24/23 15:35	10
Ethylbenzene	**500**		50	50	ug/L			05/24/23 15:35	10
m,p-Xylene	**1500**		100	100	ug/L			05/24/23 15:35	10
Xylenes, Total	**1500**		150	150	ug/L			05/24/23 15:35	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*101*		*70 - 130*		*05/24/23 15:35*	*10*
2,5-Dibromotoluene (pid)	*99*		*70 - 130*		*05/24/23 15:35*	*10*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Client Sample ID: LM-FD-051723

Date Collected: 05/17/23 08:00
Date Received: 05/18/23 16:31

Lab Sample ID: 620-11550-3

Matrix: Water

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		100	100	ug/L		05/19/23 09:53	05/22/23 22:09	1
C19-C36 Aliphatics	ND		100	100	ug/L		05/19/23 09:53	05/22/23 22:09	1
C11-C22 Aromatics	**110**		100	100	ug/L		05/19/23 09:53	05/22/23 22:09	1
C11-C22 Aromatics (Adjusted)	ND		100	100	ug/L		05/19/23 09:53	05/22/23 22:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*50*		*40 - 140*	*05/19/23 09:53*	*05/22/23 22:09*	*1*
o-Terphenyl (Surr)	*51*		*40 - 140*	*05/19/23 09:53*	*05/22/23 22:09*	*1*
2-Fluorobiphenyl (Surr)	*79*		*40 - 140*	*05/19/23 09:53*	*05/22/23 22:09*	*1*

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0051**		0.0060	0.0016	mg/L		05/19/23 09:48	05/22/23 14:04	1
Arsenic	**0.026**		0.0040	0.0014	mg/L		05/19/23 09:48	05/22/23 14:04	1
Barium	**0.12**		0.0050	0.00070	mg/L		05/19/23 09:48	05/22/23 14:04	1
Beryllium	ND		0.0020	0.00028	mg/L		05/19/23 09:48	05/22/23 14:04	1
Cadmium	ND		0.0025	0.00036	mg/L		05/19/23 09:48	05/22/23 14:04	1
Chromium	ND		0.0050	0.00093	mg/L		05/19/23 09:48	05/22/23 14:04	1
Lead	ND		0.0075	0.0062	mg/L		05/19/23 09:48	05/22/23 14:04	1
Nickel	**0.0027**		0.0050	0.00087	mg/L		05/19/23 09:48	05/22/23 14:04	1
Selenium	ND		0.015	0.0042	mg/L		05/19/23 09:48	05/22/23 14:04	1
Silver	ND		0.0050	0.00062	mg/L		05/19/23 09:48	05/22/23 14:04	1
Thallium	ND		0.0050	0.0021	mg/L		05/19/23 09:48	05/22/23 14:04	1
Vanadium	ND		0.0050	0.0011	mg/L		05/19/23 09:48	05/22/23 14:04	1
Zinc	**0.0035**		0.025	0.0016	mg/L		05/19/23 09:48	05/22/23 14:04	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		05/19/23 10:03	05/19/23 15:16	1

Client Sample ID: LM-GW-B/MW101-051723
Date Collected: 05/17/23 13:00
Date Received: 05/18/23 16:31

Lab Sample ID: 620-11550-4
Matrix: Water

Method: MA DEP EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.0	0.23	ug/L		05/19/23 09:53	05/24/23 09:51	1
2-Methylnaphthalene	ND		1.0	0.29	ug/L		05/19/23 09:53	05/24/23 09:51	1
Acenaphthylene	ND		1.0	0.39	ug/L		05/19/23 09:53	05/24/23 09:51	1
Acenaphthene	ND		1.0	0.19	ug/L		05/19/23 09:53	05/24/23 09:51	1
Fluorene	ND		1.0	0.39	ug/L		05/19/23 09:53	05/24/23 09:51	1
Phenanthrene	ND		1.0	0.17	ug/L		05/19/23 09:53	05/24/23 09:51	1
Anthracene	ND		1.0	0.15	ug/L		05/19/23 09:53	05/24/23 09:51	1
Fluoranthene	ND		1.0	0.15	ug/L		05/19/23 09:53	05/24/23 09:51	1
Pyrene	ND		1.0	0.14	ug/L		05/19/23 09:53	05/24/23 09:51	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		05/19/23 09:53	05/24/23 09:51	1
Chrysene	ND		1.0	0.14	ug/L		05/19/23 09:53	05/24/23 09:51	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		05/19/23 09:53	05/24/23 09:51	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		05/19/23 09:53	05/24/23 09:51	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		05/19/23 09:53	05/24/23 09:51	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		05/19/23 09:53	05/24/23 09:51	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		05/19/23 09:53	05/24/23 09:51	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		05/19/23 09:53	05/24/23 09:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*49*		*40 - 140*	*05/19/23 09:53*	*05/24/23 09:51*	*1*
2-Fluorobiphenyl (Surr)	*72*		*40 - 140*	*05/19/23 09:53*	*05/24/23 09:51*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			05/23/23 21:10	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			05/23/23 21:10	1
C9-C10 Aromatics	ND		100	100	ug/L			05/23/23 21:10	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			05/23/23 21:10	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			05/23/23 21:10	1
Benzene	ND		5.0	5.0	ug/L			05/23/23 21:10	1
Ethylbenzene	ND		5.0	5.0	ug/L			05/23/23 21:10	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			05/23/23 21:10	1
Naphthalene	ND		5.0	5.0	ug/L			05/23/23 21:10	1
Toluene	ND		5.0	5.0	ug/L			05/23/23 21:10	1
m,p-Xylene	ND		10	10	ug/L			05/23/23 21:10	1
o-Xylene	ND		5.0	5.0	ug/L			05/23/23 21:10	1
Xylenes, Total	ND		15	15	ug/L			05/23/23 21:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*98*		*70 - 130*		*05/23/23 21:10*	*1*
2,5-Dibromotoluene (pid)	*101*		*70 - 130*		*05/23/23 21:10*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		100	100	ug/L		05/19/23 09:53	05/23/23 17:01	1
C19-C36 Aliphatics	ND		100	100	ug/L		05/19/23 09:53	05/23/23 17:01	1
C11-C22 Aromatics	ND		100	100	ug/L		05/19/23 09:53	05/23/23 17:01	1
C11-C22 Aromatics (Adjusted)	ND		100	100	ug/L		05/19/23 09:53	05/23/23 17:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*41*		*40 - 140*	*05/19/23 09:53*	*05/23/23 17:01*	*1*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Client Sample ID: LM-GW-B/MW101-051723

Lab Sample ID: 620-11550-4

Date Collected: 05/17/23 13:00

Matrix: Water

Date Received: 05/18/23 16:31

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*40*		*40 - 140*	*05/19/23 09:53*	*05/23/23 17:01*	*1*
2-Fluorobiphenyl (Surr)	*60*		*40 - 140*	*05/19/23 09:53*	*05/23/23 17:01*	*1*

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0028**		0.0060	0.0016	mg/L		05/19/23 09:48	05/22/23 14:10	1
Arsenic	ND		0.0040	0.0014	mg/L		05/19/23 09:48	05/22/23 14:10	1
Barium	**0.28**		0.0050	0.00070	mg/L		05/19/23 09:48	05/22/23 14:10	1
Beryllium	ND		0.0020	0.00028	mg/L		05/19/23 09:48	05/22/23 14:10	1
Cadmium	**0.0011**		0.0025	0.00036	mg/L		05/19/23 09:48	05/22/23 14:10	1
Chromium	ND		0.0050	0.00093	mg/L		05/19/23 09:48	05/22/23 14:10	1
Lead	**0.060**		0.0075	0.0062	mg/L		05/19/23 09:48	05/22/23 14:10	1
Nickel	**0.0069**		0.0050	0.00087	mg/L		05/19/23 09:48	05/22/23 14:10	1
Selenium	ND		0.015	0.0042	mg/L		05/19/23 09:48	05/22/23 14:10	1
Silver	ND		0.0050	0.00062	mg/L		05/19/23 09:48	05/22/23 14:10	1
Thallium	ND		0.0050	0.0021	mg/L		05/19/23 09:48	05/22/23 14:10	1
Vanadium	ND		0.0050	0.0011	mg/L		05/19/23 09:48	05/22/23 14:10	1
Zinc	**0.20**		0.025	0.0016	mg/L		05/19/23 09:48	05/22/23 14:10	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		05/19/23 10:03	05/19/23 15:18	1

Client Sample ID: LM-GW-B/MW104-051723

Date Collected: 05/17/23 10:45
Date Received: 05/18/23 16:31

Lab Sample ID: 620-11550-5

Matrix: Water

Method: MA DEP EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND	F1 *1	1.0	0.23	ug/L		05/24/23 11:41	05/30/23 12:54	1
2-Methylnaphthalene	ND	F1	1.0	0.29	ug/L		05/24/23 11:41	05/30/23 12:54	1
Acenaphthylene	ND	F1	1.0	0.39	ug/L		05/24/23 11:41	05/30/23 12:54	1
Acenaphthene	ND	F1	1.0	0.19	ug/L		05/24/23 11:41	05/30/23 12:54	1
Fluorene	ND		1.0	0.39	ug/L		05/24/23 11:41	05/30/23 12:54	1
Phenanthrene	ND		1.0	0.17	ug/L		05/24/23 11:41	05/30/23 12:54	1
Anthracene	ND		1.0	0.15	ug/L		05/24/23 11:41	05/30/23 12:54	1
Fluoranthene	ND		1.0	0.15	ug/L		05/24/23 11:41	05/30/23 12:54	1
Pyrene	ND		1.0	0.14	ug/L		05/24/23 11:41	05/30/23 12:54	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		05/24/23 11:41	05/30/23 12:54	1
Chrysene	ND		1.0	0.14	ug/L		05/24/23 11:41	05/30/23 12:54	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		05/24/23 11:41	05/30/23 12:54	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		05/24/23 11:41	05/30/23 12:54	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		05/24/23 11:41	05/30/23 12:54	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		05/24/23 11:41	05/30/23 12:54	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		05/24/23 11:41	05/30/23 12:54	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		05/24/23 11:41	05/30/23 12:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*74*		*40 - 140*	*05/24/23 11:41*	*05/30/23 12:54*	*1*
2-Fluorobiphenyl (Surr)	*98*		*40 - 140*	*05/24/23 11:41*	*05/30/23 12:54*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			05/23/23 18:48	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			05/23/23 18:48	1
C9-C10 Aromatics	ND		100	100	ug/L			05/23/23 18:48	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			05/23/23 18:48	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			05/23/23 18:48	1
Benzene	ND		5.0	5.0	ug/L			05/23/23 18:48	1
Ethylbenzene	ND		5.0	5.0	ug/L			05/23/23 18:48	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			05/23/23 18:48	1
Naphthalene	ND		5.0	5.0	ug/L			05/23/23 18:48	1
Toluene	ND		5.0	5.0	ug/L			05/23/23 18:48	1
m,p-Xylene	ND		10	10	ug/L			05/23/23 18:48	1
o-Xylene	ND		5.0	5.0	ug/L			05/23/23 18:48	1
Xylenes, Total	ND		15	15	ug/L			05/23/23 18:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*95*		*70 - 130*		*05/23/23 18:48*	*1*
2,5-Dibromotoluene (pid)	*96*		*70 - 130*		*05/23/23 18:48*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		100	100	ug/L		05/24/23 11:41	05/25/23 14:11	1
C19-C36 Aliphatics	ND		100	100	ug/L		05/24/23 11:41	05/25/23 14:11	1
C11-C22 Aromatics	ND		100	100	ug/L		05/24/23 11:41	05/25/23 14:11	1
C11-C22 Aromatics (Adjusted)	ND		100	100	ug/L		05/24/23 11:41	05/25/23 14:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*65*		*40 - 140*	*05/24/23 11:41*	*05/25/23 14:11*	*1*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Client Sample ID: LM-GW-B/MW104-051723
Date Collected: 05/17/23 10:45
Date Received: 05/18/23 16:31

Lab Sample ID: 620-11550-5
Matrix: Water

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*71*		*40 - 140*	*05/24/23 11:41*	*05/25/23 14:11*	*1*
2-Fluorobiphenyl (Surr)	*95*		*40 - 140*	*05/24/23 11:41*	*05/25/23 14:11*	*1*

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0053**		0.0060	0.0016	mg/L		05/19/23 09:48	05/22/23 12:58	1
Arsenic	**0.0081**		0.0040	0.0014	mg/L		05/19/23 09:48	05/22/23 12:58	1
Barium	**0.069**		0.0050	0.00070	mg/L		05/19/23 09:48	05/22/23 12:58	1
Beryllium	ND		0.0020	0.00028	mg/L		05/19/23 09:48	05/22/23 12:58	1
Cadmium	ND		0.0025	0.00036	mg/L		05/19/23 09:48	05/22/23 12:58	1
Chromium	ND		0.0050	0.00093	mg/L		05/19/23 09:48	05/22/23 12:58	1
Lead	ND		0.0075	0.0062	mg/L		05/19/23 09:48	05/22/23 12:58	1
Nickel	**0.015**		0.0050	0.00087	mg/L		05/19/23 09:48	05/22/23 12:58	1
Selenium	ND		0.015	0.0042	mg/L		05/19/23 09:48	05/22/23 12:58	1
Silver	ND		0.0050	0.00062	mg/L		05/19/23 09:48	05/22/23 12:58	1
Thallium	**0.0027**		0.0050	0.0021	mg/L		05/19/23 09:48	05/22/23 12:58	1
Vanadium	ND		0.0050	0.0011	mg/L		05/19/23 09:48	05/22/23 12:58	1
Zinc	**0.14**		0.025	0.0016	mg/L		05/19/23 09:48	05/22/23 12:58	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		05/19/23 10:03	05/19/23 15:25	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Client Sample ID: LM-TB-051723
Date Collected: 05/17/23 14:00
Date Received: 05/18/23 16:31

Lab Sample ID: 620-11550-6
Matrix: Water

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			05/23/23 17:03	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			05/23/23 17:03	1
C9-C10 Aromatics	ND		100	100	ug/L			05/23/23 17:03	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			05/23/23 17:03	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			05/23/23 17:03	1
Benzene	ND		5.0	5.0	ug/L			05/23/23 17:03	1
Ethylbenzene	ND		5.0	5.0	ug/L			05/23/23 17:03	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			05/23/23 17:03	1
Naphthalene	ND		5.0	5.0	ug/L			05/23/23 17:03	1
Toluene	ND		5.0	5.0	ug/L			05/23/23 17:03	1
m,p-Xylene	ND		10	10	ug/L			05/23/23 17:03	1
o-Xylene	ND		5.0	5.0	ug/L			05/23/23 17:03	1
Xylenes, Total	ND		15	15	ug/L			05/23/23 17:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*91*		*70 - 130*		*05/23/23 17:03*	*1*
2,5-Dibromotoluene (pid)	*92*		*70 - 130*		*05/23/23 17:03*	*1*

Surrogate Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH (40-140)	FBP (40-140)
620-11550-1	LM-GW-B/MW105-051723	72	97
620-11550-2	LM-GW-B/MW102-051723	73	88
620-11550-3	LM-FD-051723	62	101
620-11550-4	LM-GW-B/MW101-051723	49	72
620-11550-5	LM-GW-B/MW104-051723	74	98
620-11550-5 MS	LM-GW-B/MW104-051723	59	94
620-11550-5 MSD	LM-GW-B/MW104-051723	72	100
LCS 620-22769/4-B	Lab Control Sample	89	99
LCS 620-22911/4-B	Lab Control Sample	74	99
LCSD 620-22769/5-B	Lab Control Sample Dup	89	99
LCSD 620-22911/5-B	Lab Control Sample Dup	73	102
MB 620-22769/1-B	Method Blank	54	67
MB 620-22911/1-B	Method Blank	68	93

Surrogate Legend

OTPH = o-Terphenyl (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	25DBTf1 (70-130)	25DBTp1 (70-130)
620-11550-1	LM-GW-B/MW105-051723	95	96
620-11550-2	LM-GW-B/MW102-051723	113	107
620-11550-2 - DL	LM-GW-B/MW102-051723	99	98
620-11550-3	LM-FD-051723	112	111
620-11550-3 - DL	LM-FD-051723	101	99
620-11550-4	LM-GW-B/MW101-051723	98	101
620-11550-5	LM-GW-B/MW104-051723	95	96
620-11550-5 MS	LM-GW-B/MW104-051723	93	95
620-11550-5 MSD	LM-GW-B/MW104-051723	95	96
620-11550-6	LM-TB-051723	91	92
LCS 620-22877/3	Lab Control Sample	97	99
LCS 620-22907/3	Lab Control Sample	100	100
LCSD 620-22877/4	Lab Control Sample Dup	97	99
LCSD 620-22907/4	Lab Control Sample Dup	100	100
MB 620-22877/5	Method Blank	97	99
MB 620-22907/5	Method Blank	100	100

Surrogate Legend

25DBTf = 2,5-Dibromotoluene (fid)
25DBTp = 2,5-Dibromotoluene (pid)

Surrogate Summary

Client: Nobis Engineering, Inc. Job ID: 620-11550-1
Project/Site: Former L&M - Lunenburg MA

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	1COD1 (40-140)	OTPH1 (40-140)	FBP1 (40-140)
620-11550-1	LM-GW-B/MW105-051723	53	59	85
620-11550-2	LM-GW-B/MW102-051723	56	62	79
620-11550-3	LM-FD-051723	50	51	79
620-11550-4	LM-GW-B/MW101-051723	41	40	60
620-11550-5	LM-GW-B/MW104-051723	65	71	95
620-11550-5 MS	LM-GW-B/MW104-051723	50	49	78
620-11550-5 MSD	LM-GW-B/MW104-051723	55	52	78
LCS 620-22769/2-B	Lab Control Sample	69	66	81
LCS 620-22911/2-B	Lab Control Sample	68	66	96
LCSD 620-22769/3-B	Lab Control Sample Dup	65	64	84
LCSD 620-22911/3-B	Lab Control Sample Dup	69	65	94
MB 620-22769/1-B	Method Blank	56	47	63
MB 620-22911/1-B	Method Blank	62	63	88

Surrogate Legend

1COD = 1-Chlorooctadecane (Surr)
OTPH = o-Terphenyl (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Lab Sample ID: MB 620-22769/1-B
Matrix: Water
Analysis Batch: 22859

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 22769

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.0	0.23	ug/L		05/19/23 09:53	05/23/23 10:48	1
2-Methylnaphthalene	ND		1.0	0.29	ug/L		05/19/23 09:53	05/23/23 10:48	1
Acenaphthylene	ND		1.0	0.39	ug/L		05/19/23 09:53	05/23/23 10:48	1
Acenaphthene	ND		1.0	0.19	ug/L		05/19/23 09:53	05/23/23 10:48	1
Fluorene	ND		1.0	0.39	ug/L		05/19/23 09:53	05/23/23 10:48	1
Phenanthrene	ND		1.0	0.17	ug/L		05/19/23 09:53	05/23/23 10:48	1
Anthracene	ND		1.0	0.15	ug/L		05/19/23 09:53	05/23/23 10:48	1
Fluoranthene	ND		1.0	0.15	ug/L		05/19/23 09:53	05/23/23 10:48	1
Pyrene	ND		1.0	0.14	ug/L		05/19/23 09:53	05/23/23 10:48	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		05/19/23 09:53	05/23/23 10:48	1
Chrysene	ND		1.0	0.14	ug/L		05/19/23 09:53	05/23/23 10:48	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		05/19/23 09:53	05/23/23 10:48	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		05/19/23 09:53	05/23/23 10:48	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		05/19/23 09:53	05/23/23 10:48	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		05/19/23 09:53	05/23/23 10:48	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		05/19/23 09:53	05/23/23 10:48	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		05/19/23 09:53	05/23/23 10:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*54*		*40 - 140*	*05/19/23 09:53*	*05/23/23 10:48*	*1*
2-Fluorobiphenyl (Surr)	*67*		*40 - 140*	*05/19/23 09:53*	*05/23/23 10:48*	*1*

Lab Sample ID: LCS 620-22769/4-B
Matrix: Water
Analysis Batch: 22859

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22769

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Naphthalene	5.00	2.52		ug/L		50	40 - 140
2-Methylnaphthalene	5.00	2.50		ug/L		50	40 - 140
Acenaphthylene	5.00	2.51		ug/L		50	40 - 140
Acenaphthene	5.00	2.52		ug/L		50	40 - 140
Fluorene	5.00	2.60		ug/L		52	40 - 140
Phenanthrene	5.00	2.94		ug/L		59	40 - 140
Anthracene	5.00	2.84		ug/L		57	40 - 140
Fluoranthene	5.00	3.62		ug/L		72	40 - 140
Pyrene	5.00	3.53		ug/L		71	40 - 140
Benzo[a]anthracene	5.00	3.28		ug/L		66	40 - 140
Chrysene	5.00	3.41		ug/L		68	40 - 140
Benzo[b]fluoranthene	5.00	3.27		ug/L		65	40 - 140
Benzo[k]fluoranthene	5.00	4.04		ug/L		81	40 - 140
Benzo[a]pyrene	5.00	3.18		ug/L		64	40 - 140
Indeno[1,2,3-cd]pyrene	5.00	3.14		ug/L		63	40 - 140
Dibenz(a,h)anthracene	5.00	3.19		ug/L		64	40 - 140
Benzo[g,h,i]perylene	5.00	3.65		ug/L		73	40 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*89*		*40 - 140*
2-Fluorobiphenyl (Surr)	*99*		*40 - 140*

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Lab Sample ID: LCSD 620-22769/5-B
Matrix: Water
Analysis Batch: 22859

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 22769

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Naphthalene			5.00	2.44		ug/L		49	40 - 140	3	25
2-Methylnaphthalene			5.00	2.40		ug/L		48	40 - 140	4	25
Acenaphthylene			5.00	2.49		ug/L		50	40 - 140	1	25
Acenaphthene			5.00	2.55		ug/L		51	40 - 140	1	25
Fluorene			5.00	2.64		ug/L		53	40 - 140	2	25
Phenanthrene			5.00	2.89		ug/L		58	40 - 140	2	25
Anthracene			5.00	3.00		ug/L		60	40 - 140	5	25
Fluoranthene			5.00	3.65		ug/L		73	40 - 140	1	25
Pyrene			5.00	3.58		ug/L		72	40 - 140	1	25
Benzo[a]anthracene			5.00	3.37		ug/L		67	40 - 140	3	25
Chrysene			5.00	3.29		ug/L		66	40 - 140	4	25
Benzo[b]fluoranthene			5.00	3.65		ug/L		73	40 - 140	11	25
Benzo[k]fluoranthene			5.00	3.75		ug/L		75	40 - 140	8	25
Benzo[a]pyrene			5.00	3.21		ug/L		64	40 - 140	1	25
Indeno[1,2,3-cd]pyrene			5.00	3.22		ug/L		64	40 - 140	2	25
Dibenz(a,h)anthracene			5.00	3.26		ug/L		65	40 - 140	2	25
Benzo[g,h,i]perylene			5.00	3.75		ug/L		75	40 - 140	3	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*89*		*40 - 140*
2-Fluorobiphenyl (Surr)	*99*		*40 - 140*

Lab Sample ID: 620-11550-5 MS
Matrix: Water
Analysis Batch: 22894

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Total/NA
Prep Batch: 22769

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Naphthalene	ND	F1 *1	5.00	1.79	F1	ug/L		36	40 - 140
2-Methylnaphthalene	ND	F1	5.00	1.88	F1	ug/L		38	40 - 140
Acenaphthylene	ND	F1	5.00	1.89	F1	ug/L		38	40 - 140
Acenaphthene	ND	F1	5.00	2.13		ug/L		43	40 - 140
Fluorene	ND		5.00	2.15		ug/L		43	40 - 140
Phenanthrene	ND		5.00	2.47		ug/L		49	40 - 140
Anthracene	ND		5.00	2.64		ug/L		53	40 - 140
Fluoranthene	ND		5.00	3.03		ug/L		61	40 - 140
Pyrene	ND		5.00	2.98		ug/L		60	40 - 140
Benzo[a]anthracene	ND		5.00	2.69		ug/L		54	40 - 140
Chrysene	ND		5.00	2.92		ug/L		58	40 - 140
Benzo[b]fluoranthene	ND		5.00	2.41		ug/L		48	40 - 140
Benzo[k]fluoranthene	ND		5.00	3.39		ug/L		68	40 - 140
Benzo[a]pyrene	ND		5.00	2.45		ug/L		49	40 - 140
Indeno[1,2,3-cd]pyrene	ND		5.00	2.35		ug/L		47	40 - 140
Dibenz(a,h)anthracene	ND		5.00	2.46		ug/L		49	40 - 140
Benzo[g,h,i]perylene	ND		5.00	2.67		ug/L		53	40 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl (Surr)	*59*		*40 - 140*
2-Fluorobiphenyl (Surr)	*94*		*40 - 140*

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Lab Sample ID: 620-11550-5 MSD
Matrix: Water
Analysis Batch: 22894

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Total/NA
Prep Batch: 22769

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Naphthalene	ND	F1 *1	5.00	1.30	F1	ug/L		26	40 - 140	32	50
2-Methylnaphthalene	ND	F1	5.00	1.23	F1	ug/L		25	40 - 140	42	50
Acenaphthylene	ND	F1	5.00	1.81	F1	ug/L		36	40 - 140	5	50
Acenaphthene	ND	F1	5.00	1.90	F1	ug/L		38	40 - 140	11	50
Fluorene	ND		5.00	2.14		ug/L		43	40 - 140	1	50
Phenanthrene	ND		5.00	2.75		ug/L		55	40 - 140	11	50
Anthracene	ND		5.00	2.77		ug/L		55	40 - 140	5	50
Fluoranthene	ND		5.00	3.32		ug/L		66	40 - 140	9	50
Pyrene	ND		5.00	3.30		ug/L		66	40 - 140	10	50
Benzo[a]anthracene	ND		5.00	2.99		ug/L		60	40 - 140	10	50
Chrysene	ND		5.00	3.26		ug/L		65	40 - 140	11	50
Benzo[b]fluoranthene	ND		5.00	3.11		ug/L		62	40 - 140	25	50
Benzo[k]fluoranthene	ND		5.00	3.43		ug/L		69	40 - 140	1	50
Benzo[a]pyrene	ND		5.00	2.80		ug/L		56	40 - 140	13	50
Indeno[1,2,3-cd]pyrene	ND		5.00	2.73		ug/L		55	40 - 140	15	50
Dibenz(a,h)anthracene	ND		5.00	2.73		ug/L		55	40 - 140	10	50
Benzo[g,h,i]perylene	ND		5.00	3.04		ug/L		61	40 - 140	13	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*72*		*40 - 140*
2-Fluorobiphenyl (Surr)	*100*		*40 - 140*

Lab Sample ID: MB 620-22911/1-B
Matrix: Water
Analysis Batch: 23053

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 22911

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.0	0.23	ug/L		05/24/23 11:41	05/30/23 11:46	1
2-Methylnaphthalene	ND		1.0	0.29	ug/L		05/24/23 11:41	05/30/23 11:46	1
Acenaphthylene	ND		1.0	0.39	ug/L		05/24/23 11:41	05/30/23 11:46	1
Acenaphthene	ND		1.0	0.19	ug/L		05/24/23 11:41	05/30/23 11:46	1
Fluorene	ND		1.0	0.39	ug/L		05/24/23 11:41	05/30/23 11:46	1
Phenanthrene	ND		1.0	0.17	ug/L		05/24/23 11:41	05/30/23 11:46	1
Anthracene	ND		1.0	0.15	ug/L		05/24/23 11:41	05/30/23 11:46	1
Fluoranthene	ND		1.0	0.15	ug/L		05/24/23 11:41	05/30/23 11:46	1
Pyrene	ND		1.0	0.14	ug/L		05/24/23 11:41	05/30/23 11:46	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		05/24/23 11:41	05/30/23 11:46	1
Chrysene	ND		1.0	0.14	ug/L		05/24/23 11:41	05/30/23 11:46	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		05/24/23 11:41	05/30/23 11:46	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		05/24/23 11:41	05/30/23 11:46	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		05/24/23 11:41	05/30/23 11:46	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		05/24/23 11:41	05/30/23 11:46	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		05/24/23 11:41	05/30/23 11:46	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		05/24/23 11:41	05/30/23 11:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*68*		*40 - 140*	*05/24/23 11:41*	*05/30/23 11:46*	*1*
2-Fluorobiphenyl (Surr)	*93*		*40 - 140*	*05/24/23 11:41*	*05/30/23 11:46*	*1*

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Lab Sample ID: LCS 620-22911/4-B
Matrix: Water
Analysis Batch: 23053

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22911

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Naphthalene			5.00	2.26		ug/L		45	40 - 140		
2-Methylnaphthalene			5.00	2.55		ug/L		51	40 - 140		
Acenaphthylene			5.00	3.08		ug/L		62	40 - 140		
Acenaphthene			5.00	2.79		ug/L		56	40 - 140		
Fluorene			5.00	3.02		ug/L		60	40 - 140		
Phenanthrene			5.00	2.95		ug/L		59	40 - 140		
Anthracene			5.00	2.93		ug/L		59	40 - 140		
Fluoranthene			5.00	3.54		ug/L		71	40 - 140		
Pyrene			5.00	3.54		ug/L		71	40 - 140		
Benzo[a]anthracene			5.00	3.10		ug/L		62	40 - 140		
Chrysene			5.00	3.05		ug/L		61	40 - 140		
Benzo[b]fluoranthene			5.00	3.51		ug/L		70	40 - 140		
Benzo[k]fluoranthene			5.00	3.35		ug/L		67	40 - 140		
Benzo[a]pyrene			5.00	2.92		ug/L		58	40 - 140		
Indeno[1,2,3-cd]pyrene			5.00	3.14		ug/L		63	40 - 140		
Dibenz(a,h)anthracene			5.00	3.12		ug/L		62	40 - 140		
Benzo[g,h,i]perylene			5.00	3.70		ug/L		74	40 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*74*		*40 - 140*
2-Fluorobiphenyl (Surr)	*99*		*40 - 140*

Lab Sample ID: LCSD 620-22911/5-B
Matrix: Water
Analysis Batch: 23053

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 22911

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Naphthalene			5.00	3.11	*1	ug/L		62	40 - 140	32	25
2-Methylnaphthalene			5.00	3.08		ug/L		62	40 - 140	19	25
Acenaphthylene			5.00	3.23		ug/L		65	40 - 140	5	25
Acenaphthene			5.00	3.18		ug/L		64	40 - 140	13	25
Fluorene			5.00	3.05		ug/L		61	40 - 140	1	25
Phenanthrene			5.00	2.98		ug/L		60	40 - 140	1	25
Anthracene			5.00	2.88		ug/L		58	40 - 140	2	25
Fluoranthene			5.00	3.38		ug/L		68	40 - 140	5	25
Pyrene			5.00	3.35		ug/L		67	40 - 140	6	25
Benzo[a]anthracene			5.00	3.13		ug/L		63	40 - 140	1	25
Chrysene			5.00	3.24		ug/L		65	40 - 140	6	25
Benzo[b]fluoranthene			5.00	3.48		ug/L		70	40 - 140	1	25
Benzo[k]fluoranthene			5.00	3.95		ug/L		79	40 - 140	16	25
Benzo[a]pyrene			5.00	3.14		ug/L		63	40 - 140	7	25
Indeno[1,2,3-cd]pyrene			5.00	3.32		ug/L		66	40 - 140	5	25
Dibenz(a,h)anthracene			5.00	3.36		ug/L		67	40 - 140	7	25
Benzo[g,h,i]perylene			5.00	3.86		ug/L		77	40 - 140	4	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*73*		*40 - 140*
2-Fluorobiphenyl (Surr)	*102*		*40 - 140*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-22877/5
Matrix: Water
Analysis Batch: 22877

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			05/23/23 14:54	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			05/23/23 14:54	1
C9-C10 Aromatics	ND		100	100	ug/L			05/23/23 14:54	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			05/23/23 14:54	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			05/23/23 14:54	1
Benzene	ND		5.0	5.0	ug/L			05/23/23 14:54	1
Ethylbenzene	ND		5.0	5.0	ug/L			05/23/23 14:54	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			05/23/23 14:54	1
Naphthalene	ND		5.0	5.0	ug/L			05/23/23 14:54	1
Toluene	ND		5.0	5.0	ug/L			05/23/23 14:54	1
m,p-Xylene	ND		10	10	ug/L			05/23/23 14:54	1
o-Xylene	ND		5.0	5.0	ug/L			05/23/23 14:54	1
Xylenes, Total	ND		15	15	ug/L			05/23/23 14:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*97*		*70 - 130*		*05/23/23 14:54*	*1*
2,5-Dibromotoluene (pid)	*99*		*70 - 130*		*05/23/23 14:54*	*1*

Lab Sample ID: LCS 620-22877/3
Matrix: Water
Analysis Batch: 22877

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C10 Aromatics	20.0	ND		ug/L		110	70 - 130
C5-C8 Aliphatics (unadjusted)	60.0	ND		ug/L		99	70 - 130
C9-C12 Aliphatics (unadjusted)	60.0	ND		ug/L		100	70 - 130
Benzene	20.0	20.3		ug/L		102	70 - 130
Ethylbenzene	20.0	21.4		ug/L		107	70 - 130
Methyl tert-butyl ether	20.0	20.2		ug/L		101	70 - 130
Naphthalene	20.0	21.3		ug/L		107	70 - 130
Toluene	20.0	21.2		ug/L		106	70 - 130
m,p-Xylene	40.0	44.0		ug/L		110	70 - 130
o-Xylene	20.0	22.0		ug/L		110	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*97*		*70 - 130*
2,5-Dibromotoluene (pid)	*99*		*70 - 130*

Lab Sample ID: LCSD 620-22877/4
Matrix: Water
Analysis Batch: 22877

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics	20.0	ND		ug/L		107	70 - 130	3	25
C5-C8 Aliphatics (unadjusted)	60.0	ND		ug/L		98	70 - 130	2	25
C9-C12 Aliphatics (unadjusted)	60.0	ND		ug/L		96	70 - 130	3	25
Benzene	20.0	19.7		ug/L		99	70 - 130	3	25
Ethylbenzene	20.0	20.9		ug/L		104	70 - 130	3	25

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-22877/4
Matrix: Water
Analysis Batch: 22877

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methyl tert-butyl ether			20.0	19.9		ug/L		100	70 - 130	1	25
Naphthalene			20.0	21.5		ug/L		108	70 - 130	1	25
Toluene			20.0	20.4		ug/L		102	70 - 130	4	25
m,p-Xylene			40.0	42.7		ug/L		107	70 - 130	3	25
o-Xylene			20.0	21.6		ug/L		108	70 - 130	2	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*97*		*70 - 130*
2,5-Dibromotoluene (pid)	*99*		*70 - 130*

Lab Sample ID: 620-11550-5 MS
Matrix: Water
Analysis Batch: 22877

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C10 Aromatics	ND		20.3	ND		ug/L		NC	70 - 130		
C5-C8 Aliphatics (unadjusted)	ND		61.0	137		ug/L		NC	70 - 130		
C9-C12 Aliphatics (unadjusted)	ND		61.0	277		ug/L		NC	70 - 130		
Benzene	ND		20.3	20.8		ug/L		102	70 - 130		
Ethylbenzene	ND		20.3	22.1		ug/L		109	70 - 130		
Methyl tert-butyl ether	ND		20.3	19.9		ug/L		98	70 - 130		
Naphthalene	ND		20.3	20.4		ug/L		100	70 - 130		
Toluene	ND		20.3	21.5		ug/L		106	70 - 130		
m,p-Xylene	ND		40.7	45.0		ug/L		111	70 - 130		
o-Xylene	ND		20.3	22.3		ug/L		109	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*93*		*70 - 130*
2,5-Dibromotoluene (pid)	*95*		*70 - 130*

Lab Sample ID: 620-11550-5 MSD
Matrix: Water
Analysis Batch: 22877

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics	ND		20.3	ND		ug/L		NC	70 - 130	NC	30
C5-C8 Aliphatics (unadjusted)	ND		61.0	149		ug/L		NC	70 - 130	9	30
C9-C12 Aliphatics (unadjusted)	ND		61.0	303		ug/L		NC	70 - 130	9	30
Benzene	ND		20.3	23.0		ug/L		113	70 - 130	10	30
Ethylbenzene	ND		20.3	24.4		ug/L		120	70 - 130	10	30
Methyl tert-butyl ether	ND		20.3	22.0		ug/L		108	70 - 130	10	30
Naphthalene	ND		20.3	22.9		ug/L		113	70 - 130	12	30
Toluene	ND		20.3	23.7		ug/L		117	70 - 130	10	30
m,p-Xylene	ND		40.7	50.1		ug/L		123	70 - 130	11	30
o-Xylene	ND		20.3	24.7		ug/L		121	70 - 130	10	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*95*		*70 - 130*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: 620-11550-5 MSD
Matrix: Water
Analysis Batch: 22877

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Total/NA

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,5-Dibromotoluene (pid)	*96*		*70 - 130*

Lab Sample ID: MB 620-22907/5
Matrix: Water
Analysis Batch: 22907

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			05/24/23 13:14	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			05/24/23 13:14	1
C9-C10 Aromatics	ND		100	100	ug/L			05/24/23 13:14	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			05/24/23 13:14	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			05/24/23 13:14	1
Benzene	ND		5.0	5.0	ug/L			05/24/23 13:14	1
Ethylbenzene	ND		5.0	5.0	ug/L			05/24/23 13:14	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			05/24/23 13:14	1
Naphthalene	ND		5.0	5.0	ug/L			05/24/23 13:14	1
Toluene	ND		5.0	5.0	ug/L			05/24/23 13:14	1
m,p-Xylene	ND		10	10	ug/L			05/24/23 13:14	1
o-Xylene	ND		5.0	5.0	ug/L			05/24/23 13:14	1
Xylenes, Total	ND		15	15	ug/L			05/24/23 13:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*100*		*70 - 130*		*05/24/23 13:14*	*1*
2,5-Dibromotoluene (pid)	*100*		*70 - 130*		*05/24/23 13:14*	*1*

Lab Sample ID: LCS 620-22907/3
Matrix: Water
Analysis Batch: 22907

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C10 Aromatics	20.0	ND		ug/L		109	70 - 130
C5-C8 Aliphatics (unadjusted)	60.0	ND		ug/L		97	70 - 130
C9-C12 Aliphatics (unadjusted)	60.0	ND		ug/L		97	70 - 130
Benzene	20.0	19.7		ug/L		99	70 - 130
Ethylbenzene	20.0	20.9		ug/L		105	70 - 130
Methyl tert-butyl ether	20.0	19.9		ug/L		100	70 - 130
Naphthalene	20.0	21.3		ug/L		107	70 - 130
Toluene	20.0	20.2		ug/L		101	70 - 130
m,p-Xylene	40.0	42.9		ug/L		107	70 - 130
o-Xylene	20.0	21.6		ug/L		108	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*100*		*70 - 130*
2,5-Dibromotoluene (pid)	*100*		*70 - 130*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-22907/4
Matrix: Water
Analysis Batch: 22907

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics			20.0	ND		ug/L		111	70 - 130	2	25
C5-C8 Aliphatics (unadjusted)			60.0	ND		ug/L		97	70 - 130	0	25
C9-C12 Aliphatics (unadjusted)			60.0	ND		ug/L		97	70 - 130	0	25
Benzene			20.0	19.7		ug/L		98	70 - 130	0	25
Ethylbenzene			20.0	21.2		ug/L		106	70 - 130	1	25
Methyl tert-butyl ether			20.0	20.3		ug/L		102	70 - 130	2	25
Naphthalene			20.0	22.2		ug/L		111	70 - 130	4	25
Toluene			20.0	20.4		ug/L		102	70 - 130	1	25
m,p-Xylene			40.0	43.4		ug/L		108	70 - 130	1	25
o-Xylene			20.0	21.7		ug/L		108	70 - 130	0	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*100*		*70 - 130*
2,5-Dibromotoluene (pid)	*100*		*70 - 130*

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-22769/1-B
Matrix: Water
Analysis Batch: 22799

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 22769

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		100	100	ug/L		05/19/23 09:53	05/22/23 19:41	1
C19-C36 Aliphatics	ND		100	100	ug/L		05/19/23 09:53	05/22/23 19:41	1
C11-C22 Aromatics	ND		100	100	ug/L		05/19/23 09:53	05/22/23 19:41	1
C11-C22 Aromatics (Adjusted)	ND		100	100	ug/L		05/19/23 09:53	05/22/23 19:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*56*		*40 - 140*	*05/19/23 09:53*	*05/22/23 19:41*	*1*
o-Terphenyl (Surr)	*47*		*40 - 140*	*05/19/23 09:53*	*05/22/23 19:41*	*1*
2-Fluorobiphenyl (Surr)	*63*		*40 - 140*	*05/19/23 09:53*	*05/22/23 19:41*	*1*

Lab Sample ID: LCS 620-22769/2-B
Matrix: Water
Analysis Batch: 22799

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22769

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C18 Aliphatics			120	ND		ug/L		60	40 - 140		
C19-C36 Aliphatics			160	122		ug/L		76	40 - 140		
C11-C22 Aromatics			340	266		ug/L		78	40 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*69*		*40 - 140*
o-Terphenyl (Surr)	*66*		*40 - 140*
2-Fluorobiphenyl (Surr)	*81*		*40 - 140*

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-22769/3-B
Matrix: Water
Analysis Batch: 22799

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 22769

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics			120	ND		ug/L		58	40 - 140	3	25
C19-C36 Aliphatics			160	126		ug/L		78	40 - 140	3	25
C11-C22 Aromatics			340	274		ug/L		81	40 - 140	3	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*65*		*40 - 140*
o-Terphenyl (Surr)	*64*		*40 - 140*
2-Fluorobiphenyl (Surr)	*84*		*40 - 140*

Lab Sample ID: 620-11550-5 MS
Matrix: Water
Analysis Batch: 22850

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Total/NA
Prep Batch: 22769

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C18 Aliphatics	ND		30.0	ND		ug/L		NC	40 - 140		
C19-C36 Aliphatics	ND		40.0	ND		ug/L		NC	40 - 140		
C11-C22 Aromatics	ND		85.0	ND		ug/L		NC	40 - 140		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*50*		*40 - 140*
o-Terphenyl (Surr)	*49*		*40 - 140*
2-Fluorobiphenyl (Surr)	*78*		*40 - 140*

Lab Sample ID: 620-11550-5 MSD
Matrix: Water
Analysis Batch: 22850

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Total/NA
Prep Batch: 22769

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics	ND		30.0	ND		ug/L		NC	40 - 140	NC	50
C19-C36 Aliphatics	ND		40.0	ND		ug/L		NC	40 - 140	NC	50
C11-C22 Aromatics	ND		85.0	ND		ug/L		NC	40 - 140	NC	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*55*		*40 - 140*
o-Terphenyl (Surr)	*52*		*40 - 140*
2-Fluorobiphenyl (Surr)	*78*		*40 - 140*

Lab Sample ID: MB 620-22911/1-B
Matrix: Water
Analysis Batch: 22945

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 22911

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		100	100	ug/L		05/24/23 11:41	05/25/23 12:41	1
C19-C36 Aliphatics	ND		100	100	ug/L		05/24/23 11:41	05/25/23 12:41	1
C11-C22 Aromatics	ND		100	100	ug/L		05/24/23 11:41	05/25/23 12:41	1
C11-C22 Aromatics (Adjusted)	ND		100	100	ug/L		05/24/23 11:41	05/25/23 12:41	1

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: MB 620-22911/1-B
Matrix: Water
Analysis Batch: 22945

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 22911

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctadecane (Surr)	62		40 - 140	05/24/23 11:41	05/25/23 12:41	1
o-Terphenyl (Surr)	63		40 - 140	05/24/23 11:41	05/25/23 12:41	1
2-Fluorobiphenyl (Surr)	88		40 - 140	05/24/23 11:41	05/25/23 12:41	1

Lab Sample ID: LCS 620-22911/2-B
Matrix: Water
Analysis Batch: 22945

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22911

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C18 Aliphatics			120	ND		ug/L		49	40 - 140		
C19-C36 Aliphatics			160	ND		ug/L		61	40 - 140		
C11-C22 Aromatics			340	245		ug/L		72	40 - 140		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctadecane (Surr)	68		40 - 140
o-Terphenyl (Surr)	66		40 - 140
2-Fluorobiphenyl (Surr)	96		40 - 140

Lab Sample ID: LCSD 620-22911/3-B
Matrix: Water
Analysis Batch: 22945

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 22911

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics			120	ND		ug/L		43	40 - 140	13	25
C19-C36 Aliphatics			160	ND		ug/L		56	40 - 140	9	25
C11-C22 Aromatics			340	249		ug/L		73	40 - 140	1	25

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctadecane (Surr)	69		40 - 140
o-Terphenyl (Surr)	65		40 - 140
2-Fluorobiphenyl (Surr)	94		40 - 140

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 620-22768/1-A
Matrix: Water
Analysis Batch: 22844

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 22768

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.012	0.0032	mg/L		05/19/23 09:48	05/22/23 12:41	1
Arsenic	ND		0.0080	0.0028	mg/L		05/19/23 09:48	05/22/23 12:41	1
Barium	ND		0.010	0.0014	mg/L		05/19/23 09:48	05/22/23 12:41	1
Beryllium	ND		0.0040	0.00056	mg/L		05/19/23 09:48	05/22/23 12:41	1
Cadmium	ND		0.0050	0.00071	mg/L		05/19/23 09:48	05/22/23 12:41	1
Chromium	ND		0.010	0.0019	mg/L		05/19/23 09:48	05/22/23 12:41	1
Lead	ND		0.015	0.012	mg/L		05/19/23 09:48	05/22/23 12:41	1
Nickel	ND		0.010	0.0017	mg/L		05/19/23 09:48	05/22/23 12:41	1
Selenium	ND		0.030	0.0083	mg/L		05/19/23 09:48	05/22/23 12:41	1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: MB 620-22768/1-A
Matrix: Water
Analysis Batch: 22844

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 22768

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.010	0.0012	mg/L		05/19/23 09:48	05/22/23 12:41	1
Thallium	ND		0.010	0.0042	mg/L		05/19/23 09:48	05/22/23 12:41	1
Vanadium	ND		0.010	0.0022	mg/L		05/19/23 09:48	05/22/23 12:41	1
Zinc	ND		0.050	0.0032	mg/L		05/19/23 09:48	05/22/23 12:41	1

Lab Sample ID: LCS 620-22768/2-A
Matrix: Water
Analysis Batch: 22844

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22768

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	2.50	2.56		mg/L		102	80 - 120
Arsenic	2.50	2.64		mg/L		106	80 - 120
Barium	2.50	2.36		mg/L		94	80 - 120
Beryllium	2.50	2.67		mg/L		107	80 - 120
Cadmium	2.50	2.64		mg/L		105	80 - 120
Chromium	2.50	2.56		mg/L		102	80 - 120
Lead	2.50	2.34		mg/L		94	80 - 120
Nickel	2.50	2.58		mg/L		103	80 - 120
Selenium	2.50	2.70		mg/L		108	80 - 120
Silver	2.50	2.48		mg/L		99	80 - 120
Thallium	2.50	2.61		mg/L		104	80 - 120
Vanadium	2.50	2.53		mg/L		101	80 - 120
Zinc	2.50	2.67		mg/L		107	80 - 120

Lab Sample ID: LCSD 620-22768/3-A
Matrix: Water
Analysis Batch: 22844

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 22768

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	2.50	2.50		mg/L		100	80 - 120	2	20
Arsenic	2.50	2.58		mg/L		103	80 - 120	2	20
Barium	2.50	2.35		mg/L		94	80 - 120	1	20
Beryllium	2.50	2.65		mg/L		106	80 - 120	1	20
Cadmium	2.50	2.58		mg/L		103	80 - 120	2	20
Chromium	2.50	2.53		mg/L		101	80 - 120	1	20
Lead	2.50	2.30		mg/L		92	80 - 120	2	20
Nickel	2.50	2.52		mg/L		101	80 - 120	2	20
Selenium	2.50	2.64		mg/L		106	80 - 120	2	20
Silver	2.50	2.45		mg/L		98	80 - 120	1	20
Thallium	2.50	2.55		mg/L		102	80 - 120	2	20
Vanadium	2.50	2.49		mg/L		100	80 - 120	1	20
Zinc	2.50	2.61		mg/L		104	80 - 120	2	20

Lab Sample ID: 620-11550-5 MS
Matrix: Water
Analysis Batch: 22844

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Dissolved
Prep Batch: 22768

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0053		2.50	2.53		mg/L		101	75 - 125

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 620-11550-5 MS
Matrix: Water
Analysis Batch: 22844

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Dissolved
Prep Batch: 22768

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.0081		2.50	2.68		mg/L		107	75 - 125
Barium	0.069		2.50	2.44		mg/L		95	75 - 125
Beryllium	ND		2.50	2.74		mg/L		109	75 - 125
Cadmium	ND		2.50	2.48		mg/L		99	75 - 125
Chromium	ND		2.50	2.52		mg/L		101	75 - 125
Lead	ND		2.50	2.13		mg/L		85	75 - 125
Nickel	0.015		2.50	2.38		mg/L		95	75 - 125
Selenium	ND		2.50	2.67		mg/L		107	75 - 125
Silver	ND		2.50	2.57		mg/L		103	75 - 125
Thallium	0.0027		2.50	2.44		mg/L		97	75 - 125
Vanadium	ND		2.50	2.57		mg/L		103	75 - 125
Zinc	0.14		2.50	2.67		mg/L		101	75 - 125

Lab Sample ID: 620-11550-5 MSD
Matrix: Water
Analysis Batch: 22844

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Dissolved
Prep Batch: 22768

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	0.0053		2.50	2.53		mg/L		101	75 - 125	0	20
Arsenic	0.0081		2.50	2.70		mg/L		108	75 - 125	1	20
Barium	0.069		2.50	2.44		mg/L		95	75 - 125	0	20
Beryllium	ND		2.50	2.72		mg/L		109	75 - 125	0	20
Cadmium	ND		2.50	2.51		mg/L		100	75 - 125	1	20
Chromium	ND		2.50	2.51		mg/L		100	75 - 125	1	20
Lead	ND		2.50	2.14		mg/L		85	75 - 125	0	20
Nickel	0.015		2.50	2.41		mg/L		96	75 - 125	1	20
Selenium	ND		2.50	2.67		mg/L		107	75 - 125	0	20
Silver	ND		2.50	2.54		mg/L		102	75 - 125	1	20
Thallium	0.0027		2.50	2.47		mg/L		99	75 - 125	1	20
Vanadium	ND		2.50	2.55		mg/L		102	75 - 125	1	20
Zinc	0.14		2.50	2.70		mg/L		102	75 - 125	1	20

Lab Sample ID: 620-11550-5 DU
Matrix: Water
Analysis Batch: 22844

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Dissolved
Prep Batch: 22768

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	0.0053		0.00555		mg/L		5	20
Arsenic	0.0081		0.00760		mg/L		6	20
Barium	0.069		0.0696		mg/L		0.4	20
Beryllium	ND		ND		mg/L		NC	20
Cadmium	ND		ND		mg/L		NC	20
Chromium	ND		ND		mg/L		NC	20
Lead	ND		ND		mg/L		NC	20
Nickel	0.015		0.0152		mg/L		2	20
Selenium	ND		ND		mg/L		NC	20
Silver	ND		ND		mg/L		NC	20
Thallium	0.0027		ND		mg/L		NC	20
Vanadium	ND		ND		mg/L		NC	20

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 620-11550-5 DU
Matrix: Water
Analysis Batch: 22844

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Dissolved
Prep Batch: 22768

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Zinc	0.14		0.142		mg/L		0.3	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 620-22770/1-A
Matrix: Water
Analysis Batch: 22788

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 22770

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		05/19/23 10:03	05/19/23 15:00	1

Lab Sample ID: LCS 620-22770/2-A
Matrix: Water
Analysis Batch: 22788

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22770

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00519		mg/L		104	85 - 115

Lab Sample ID: LCSD 620-22770/3-A
Matrix: Water
Analysis Batch: 22788

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 22770

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.00500	0.00510		mg/L		102	85 - 115	2	20

Lab Sample ID: 620-11550-5 MS
Matrix: Water
Analysis Batch: 22788

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Dissolved
Prep Batch: 22770

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		0.00500	0.00520		mg/L		104	80 - 120

Lab Sample ID: 620-11550-5 MSD
Matrix: Water
Analysis Batch: 22788

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Dissolved
Prep Batch: 22770

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		0.00500	0.00511		mg/L		102	80 - 120	2	20

Lab Sample ID: 620-11550-5 DU
Matrix: Water
Analysis Batch: 22788

Client Sample ID: LM-GW-B/MW104-051723
Prep Type: Dissolved
Prep Batch: 22770

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Mercury	ND		ND		mg/L		NC	20

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Prep Batch: 22769

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-1	LM-GW-B/MW105-051723	Total/NA	Water	3510C	
620-11550-2	LM-GW-B/MW102-051723	Total/NA	Water	3510C	
620-11550-3	LM-FD-051723	Total/NA	Water	3510C	
620-11550-4	LM-GW-B/MW101-051723	Total/NA	Water	3510C	
MB 620-22769/1-B	Method Blank	Total/NA	Water	3510C	
LCS 620-22769/4-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 620-22769/5-B	Lab Control Sample Dup	Total/NA	Water	3510C	
620-11550-5 MS	LM-GW-B/MW104-051723	Total/NA	Water	3510C	
620-11550-5 MSD	LM-GW-B/MW104-051723	Total/NA	Water	3510C	

Fraction Batch: 22824

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-1	LM-GW-B/MW105-051723	Total/NA	Water	MA EPH Frac	22769
620-11550-2	LM-GW-B/MW102-051723	Total/NA	Water	MA EPH Frac	22769
620-11550-3	LM-FD-051723	Total/NA	Water	MA EPH Frac	22769
620-11550-4	LM-GW-B/MW101-051723	Total/NA	Water	MA EPH Frac	22769
MB 620-22769/1-B	Method Blank	Total/NA	Water	MA EPH Frac	22769
LCS 620-22769/4-B	Lab Control Sample	Total/NA	Water	MA EPH Frac	22769
LCSD 620-22769/5-B	Lab Control Sample Dup	Total/NA	Water	MA EPH Frac	22769
620-11550-5 MS	LM-GW-B/MW104-051723	Total/NA	Water	MA EPH Frac	22769
620-11550-5 MSD	LM-GW-B/MW104-051723	Total/NA	Water	MA EPH Frac	22769

Analysis Batch: 22859

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-1	LM-GW-B/MW105-051723	Total/NA	Water	EPH	22824
620-11550-2	LM-GW-B/MW102-051723	Total/NA	Water	EPH	22824
620-11550-3	LM-FD-051723	Total/NA	Water	EPH	22824
MB 620-22769/1-B	Method Blank	Total/NA	Water	EPH	22824
LCS 620-22769/4-B	Lab Control Sample	Total/NA	Water	EPH	22824
LCSD 620-22769/5-B	Lab Control Sample Dup	Total/NA	Water	EPH	22824

Analysis Batch: 22894

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-4	LM-GW-B/MW101-051723	Total/NA	Water	EPH	22824
620-11550-5 MS	LM-GW-B/MW104-051723	Total/NA	Water	EPH	22824
620-11550-5 MSD	LM-GW-B/MW104-051723	Total/NA	Water	EPH	22824

Prep Batch: 22911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-5	LM-GW-B/MW104-051723	Total/NA	Water	3510C	
MB 620-22911/1-B	Method Blank	Total/NA	Water	3510C	
LCS 620-22911/4-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 620-22911/5-B	Lab Control Sample Dup	Total/NA	Water	3510C	

Fraction Batch: 22956

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-5	LM-GW-B/MW104-051723	Total/NA	Water	MA EPH Frac	22911
MB 620-22911/1-B	Method Blank	Total/NA	Water	MA EPH Frac	22911
LCS 620-22911/4-B	Lab Control Sample	Total/NA	Water	MA EPH Frac	22911
LCSD 620-22911/5-B	Lab Control Sample Dup	Total/NA	Water	MA EPH Frac	22911

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Analysis Batch: 23053

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-5	LM-GW-B/MW104-051723	Total/NA	Water	EPH	22956
MB 620-22911/1-B	Method Blank	Total/NA	Water	EPH	22956
LCS 620-22911/4-B	Lab Control Sample	Total/NA	Water	EPH	22956
LCSD 620-22911/5-B	Lab Control Sample Dup	Total/NA	Water	EPH	22956

GC VOA

Analysis Batch: 22877

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-1	LM-GW-B/MW105-051723	Total/NA	Water	MAVPH2.1	
620-11550-2	LM-GW-B/MW102-051723	Total/NA	Water	MAVPH2.1	
620-11550-3	LM-FD-051723	Total/NA	Water	MAVPH2.1	
620-11550-4	LM-GW-B/MW101-051723	Total/NA	Water	MAVPH2.1	
620-11550-5	LM-GW-B/MW104-051723	Total/NA	Water	MAVPH2.1	
620-11550-6	LM-TB-051723	Total/NA	Water	MAVPH2.1	
MB 620-22877/5	Method Blank	Total/NA	Water	MAVPH2.1	
LCS 620-22877/3	Lab Control Sample	Total/NA	Water	MAVPH2.1	
LCSD 620-22877/4	Lab Control Sample Dup	Total/NA	Water	MAVPH2.1	
620-11550-5 MS	LM-GW-B/MW104-051723	Total/NA	Water	MAVPH2.1	
620-11550-5 MSD	LM-GW-B/MW104-051723	Total/NA	Water	MAVPH2.1	

Analysis Batch: 22907

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-2 - DL	LM-GW-B/MW102-051723	Total/NA	Water	MAVPH2.1	
620-11550-3 - DL	LM-FD-051723	Total/NA	Water	MAVPH2.1	
MB 620-22907/5	Method Blank	Total/NA	Water	MAVPH2.1	
LCS 620-22907/3	Lab Control Sample	Total/NA	Water	MAVPH2.1	
LCSD 620-22907/4	Lab Control Sample Dup	Total/NA	Water	MAVPH2.1	

GC Semi VOA

Prep Batch: 22769

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-1	LM-GW-B/MW105-051723	Total/NA	Water	3510C	
620-11550-2	LM-GW-B/MW102-051723	Total/NA	Water	3510C	
620-11550-3	LM-FD-051723	Total/NA	Water	3510C	
620-11550-4	LM-GW-B/MW101-051723	Total/NA	Water	3510C	
MB 620-22769/1-B	Method Blank	Total/NA	Water	3510C	
LCS 620-22769/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 620-22769/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	
620-11550-5 MS	LM-GW-B/MW104-051723	Total/NA	Water	3510C	
620-11550-5 MSD	LM-GW-B/MW104-051723	Total/NA	Water	3510C	

Analysis Batch: 22799

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-1	LM-GW-B/MW105-051723	Total/NA	Water	MAEPH2.1	22824
620-11550-2	LM-GW-B/MW102-051723	Total/NA	Water	MAEPH2.1	22824
620-11550-3	LM-FD-051723	Total/NA	Water	MAEPH2.1	22824
MB 620-22769/1-B	Method Blank	Total/NA	Water	MAEPH2.1	22824
LCS 620-22769/2-B	Lab Control Sample	Total/NA	Water	MAEPH2.1	22824
LCSD 620-22769/3-B	Lab Control Sample Dup	Total/NA	Water	MAEPH2.1	22824

GC Semi VOA

Fraction Batch: 22824

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-1	LM-GW-B/MW105-051723	Total/NA	Water	MA EPH Frac	22769
620-11550-2	LM-GW-B/MW102-051723	Total/NA	Water	MA EPH Frac	22769
620-11550-3	LM-FD-051723	Total/NA	Water	MA EPH Frac	22769
620-11550-4	LM-GW-B/MW101-051723	Total/NA	Water	MA EPH Frac	22769
MB 620-22769/1-B	Method Blank	Total/NA	Water	MA EPH Frac	22769
LCS 620-22769/2-B	Lab Control Sample	Total/NA	Water	MA EPH Frac	22769
LCSD 620-22769/3-B	Lab Control Sample Dup	Total/NA	Water	MA EPH Frac	22769
620-11550-5 MS	LM-GW-B/MW104-051723	Total/NA	Water	MA EPH Frac	22769
620-11550-5 MSD	LM-GW-B/MW104-051723	Total/NA	Water	MA EPH Frac	22769

Analysis Batch: 22850

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-4	LM-GW-B/MW101-051723	Total/NA	Water	MAEPH2.1	22824
620-11550-5 MS	LM-GW-B/MW104-051723	Total/NA	Water	MAEPH2.1	22824
620-11550-5 MSD	LM-GW-B/MW104-051723	Total/NA	Water	MAEPH2.1	22824

Prep Batch: 22911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-5	LM-GW-B/MW104-051723	Total/NA	Water	3510C	
MB 620-22911/1-B	Method Blank	Total/NA	Water	3510C	
LCS 620-22911/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 620-22911/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 22945

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-5	LM-GW-B/MW104-051723	Total/NA	Water	MAEPH2.1	22956
MB 620-22911/1-B	Method Blank	Total/NA	Water	MAEPH2.1	22956
LCS 620-22911/2-B	Lab Control Sample	Total/NA	Water	MAEPH2.1	22956
LCSD 620-22911/3-B	Lab Control Sample Dup	Total/NA	Water	MAEPH2.1	22956

Fraction Batch: 22956

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-5	LM-GW-B/MW104-051723	Total/NA	Water	MA EPH Frac	22911
MB 620-22911/1-B	Method Blank	Total/NA	Water	MA EPH Frac	22911
LCS 620-22911/2-B	Lab Control Sample	Total/NA	Water	MA EPH Frac	22911
LCSD 620-22911/3-B	Lab Control Sample Dup	Total/NA	Water	MA EPH Frac	22911

Metals

Prep Batch: 22768

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-1	LM-GW-B/MW105-051723	Dissolved	Water	3005A	
620-11550-2	LM-GW-B/MW102-051723	Dissolved	Water	3005A	
620-11550-3	LM-FD-051723	Dissolved	Water	3005A	
620-11550-4	LM-GW-B/MW101-051723	Dissolved	Water	3005A	
620-11550-5	LM-GW-B/MW104-051723	Dissolved	Water	3005A	
MB 620-22768/1-A	Method Blank	Total/NA	Water	3005A	
LCS 620-22768/2-A	Lab Control Sample	Total/NA	Water	3005A	
LCSD 620-22768/3-A	Lab Control Sample Dup	Total/NA	Water	3005A	
620-11550-5 MS	LM-GW-B/MW104-051723	Dissolved	Water	3005A	
620-11550-5 MSD	LM-GW-B/MW104-051723	Dissolved	Water	3005A	

Metals (Continued)

Prep Batch: 22768 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-5 DU	LM-GW-B/MW104-051723	Dissolved	Water	3005A	

Prep Batch: 22770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-1	LM-GW-B/MW105-051723	Dissolved	Water	7470A	
620-11550-2	LM-GW-B/MW102-051723	Dissolved	Water	7470A	
620-11550-3	LM-FD-051723	Dissolved	Water	7470A	
620-11550-4	LM-GW-B/MW101-051723	Dissolved	Water	7470A	
620-11550-5	LM-GW-B/MW104-051723	Dissolved	Water	7470A	
MB 620-22770/1-A	Method Blank	Total/NA	Water	7470A	
LCS 620-22770/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 620-22770/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	
620-11550-5 MS	LM-GW-B/MW104-051723	Dissolved	Water	7470A	
620-11550-5 MSD	LM-GW-B/MW104-051723	Dissolved	Water	7470A	
620-11550-5 DU	LM-GW-B/MW104-051723	Dissolved	Water	7470A	

Analysis Batch: 22788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-1	LM-GW-B/MW105-051723	Dissolved	Water	7470A	22770
620-11550-2	LM-GW-B/MW102-051723	Dissolved	Water	7470A	22770
620-11550-3	LM-FD-051723	Dissolved	Water	7470A	22770
620-11550-4	LM-GW-B/MW101-051723	Dissolved	Water	7470A	22770
620-11550-5	LM-GW-B/MW104-051723	Dissolved	Water	7470A	22770
MB 620-22770/1-A	Method Blank	Total/NA	Water	7470A	22770
LCS 620-22770/2-A	Lab Control Sample	Total/NA	Water	7470A	22770
LCSD 620-22770/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	22770
620-11550-5 MS	LM-GW-B/MW104-051723	Dissolved	Water	7470A	22770
620-11550-5 MSD	LM-GW-B/MW104-051723	Dissolved	Water	7470A	22770
620-11550-5 DU	LM-GW-B/MW104-051723	Dissolved	Water	7470A	22770

Analysis Batch: 22844

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11550-1	LM-GW-B/MW105-051723	Dissolved	Water	6010D	22768
620-11550-2	LM-GW-B/MW102-051723	Dissolved	Water	6010D	22768
620-11550-3	LM-FD-051723	Dissolved	Water	6010D	22768
620-11550-4	LM-GW-B/MW101-051723	Dissolved	Water	6010D	22768
620-11550-5	LM-GW-B/MW104-051723	Dissolved	Water	6010D	22768
MB 620-22768/1-A	Method Blank	Total/NA	Water	6010D	22768
LCS 620-22768/2-A	Lab Control Sample	Total/NA	Water	6010D	22768
LCSD 620-22768/3-A	Lab Control Sample Dup	Total/NA	Water	6010D	22768
620-11550-5 MS	LM-GW-B/MW104-051723	Dissolved	Water	6010D	22768
620-11550-5 MSD	LM-GW-B/MW104-051723	Dissolved	Water	6010D	22768
620-11550-5 DU	LM-GW-B/MW104-051723	Dissolved	Water	6010D	22768

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Client Sample ID: LM-GW-B/MW105-051723

Lab Sample ID: 620-11550-1

Date Collected: 05/17/23 10:55

Matrix: Water

Date Received: 05/18/23 16:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			22769	AAH	EET NE	05/19/23 09:53
Total/NA	Fraction	MA EPH Frac			22824	BJJ	EET NE	05/22/23 14:23
Total/NA	Analysis	EPH		1	22859	JS	EET NE	05/23/23 11:56
Total/NA	Analysis	MAVPH2.1		1	22877	BMH	EET NE	05/23/23 20:34
Total/NA	Prep	3510C			22769	AAH	EET NE	05/19/23 09:53
Total/NA	Fraction	MA EPH Frac			22824	BJJ	EET NE	05/22/23 14:23
Total/NA	Analysis	MAEPH2.1		1	22799	JS	EET NE	05/22/23 21:10
Dissolved	Prep	3005A			22768	PRB	EET NE	05/19/23 09:48
Dissolved	Analysis	6010D		1	22844	JPC	EET NE	05/22/23 13:52
Dissolved	Prep	7470A			22770	PRB	EET NE	05/19/23 10:03
Dissolved	Analysis	7470A		1	22788	PRB	EET NE	05/19/23 15:12

Client Sample ID: LM-GW-B/MW102-051723

Lab Sample ID: 620-11550-2

Date Collected: 05/17/23 12:40

Matrix: Water

Date Received: 05/18/23 16:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			22769	AAH	EET NE	05/19/23 09:53
Total/NA	Fraction	MA EPH Frac			22824	BJJ	EET NE	05/22/23 14:23
Total/NA	Analysis	EPH		1	22859	JS	EET NE	05/23/23 12:19
Total/NA	Analysis	MAVPH2.1		1	22877	BMH	EET NE	05/24/23 03:36
Total/NA	Analysis	MAVPH2.1	DL	10	22907	BMH	EET NE	05/24/23 15:00
Total/NA	Prep	3510C			22769	AAH	EET NE	05/19/23 09:53
Total/NA	Fraction	MA EPH Frac			22824	BJJ	EET NE	05/22/23 14:23
Total/NA	Analysis	MAEPH2.1		1	22799	JS	EET NE	05/22/23 21:39
Dissolved	Prep	3005A			22768	PRB	EET NE	05/19/23 09:48
Dissolved	Analysis	6010D		1	22844	JPC	EET NE	05/22/23 13:58
Dissolved	Prep	7470A			22770	PRB	EET NE	05/19/23 10:03
Dissolved	Analysis	7470A		1	22788	PRB	EET NE	05/19/23 15:14

Client Sample ID: LM-FD-051723

Lab Sample ID: 620-11550-3

Date Collected: 05/17/23 08:00

Matrix: Water

Date Received: 05/18/23 16:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			22769	AAH	EET NE	05/19/23 09:53
Total/NA	Fraction	MA EPH Frac			22824	BJJ	EET NE	05/22/23 14:23
Total/NA	Analysis	EPH		1	22859	JS	EET NE	05/23/23 12:42
Total/NA	Analysis	MAVPH2.1		1	22877	BMH	EET NE	05/24/23 03:01
Total/NA	Analysis	MAVPH2.1	DL	10	22907	BMH	EET NE	05/24/23 15:35
Total/NA	Prep	3510C			22769	AAH	EET NE	05/19/23 09:53
Total/NA	Fraction	MA EPH Frac			22824	BJJ	EET NE	05/22/23 14:23
Total/NA	Analysis	MAEPH2.1		1	22799	JS	EET NE	05/22/23 22:09
Dissolved	Prep	3005A			22768	PRB	EET NE	05/19/23 09:48
Dissolved	Analysis	6010D		1	22844	JPC	EET NE	05/22/23 14:04

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Client Sample ID: LM-FD-051723

Lab Sample ID: 620-11550-3

Date Collected: 05/17/23 08:00

Matrix: Water

Date Received: 05/18/23 16:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Dissolved	Prep	7470A			22770	PRB	EET NE	05/19/23 10:03
Dissolved	Analysis	7470A		1	22788	PRB	EET NE	05/19/23 15:16

Client Sample ID: LM-GW-B/MW101-051723

Lab Sample ID: 620-11550-4

Date Collected: 05/17/23 13:00

Matrix: Water

Date Received: 05/18/23 16:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			22769	AAH	EET NE	05/19/23 09:53
Total/NA	Fraction	MA EPH Frac			22824	BJJ	EET NE	05/22/23 14:23
Total/NA	Analysis	EPH		1	22894	JS	EET NE	05/24/23 09:51
Total/NA	Analysis	MAVPH2.1		1	22877	BMH	EET NE	05/23/23 21:10
Total/NA	Prep	3510C			22769	AAH	EET NE	05/19/23 09:53
Total/NA	Fraction	MA EPH Frac			22824	BJJ	EET NE	05/22/23 14:23
Total/NA	Analysis	MAEPH2.1		1	22850	JS	EET NE	05/23/23 17:01
Dissolved	Prep	3005A			22768	PRB	EET NE	05/19/23 09:48
Dissolved	Analysis	6010D		1	22844	JPC	EET NE	05/22/23 14:10
Dissolved	Prep	7470A			22770	PRB	EET NE	05/19/23 10:03
Dissolved	Analysis	7470A		1	22788	PRB	EET NE	05/19/23 15:18

Client Sample ID: LM-GW-B/MW104-051723

Lab Sample ID: 620-11550-5

Date Collected: 05/17/23 10:45

Matrix: Water

Date Received: 05/18/23 16:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			22911	AAH	EET NE	05/24/23 11:41
Total/NA	Fraction	MA EPH Frac			22956	BMS	EET NE	05/25/23 10:50
Total/NA	Analysis	EPH		1	23053	JS	EET NE	05/30/23 12:54
Total/NA	Analysis	MAVPH2.1		1	22877	BMH	EET NE	05/23/23 18:48
Total/NA	Prep	3510C			22911	AAH	EET NE	05/24/23 11:41
Total/NA	Fraction	MA EPH Frac			22956	BMS	EET NE	05/25/23 10:50
Total/NA	Analysis	MAEPH2.1		1	22945	JS	EET NE	05/25/23 14:11
Dissolved	Prep	3005A			22768	PRB	EET NE	05/19/23 09:48
Dissolved	Analysis	6010D		1	22844	JPC	EET NE	05/22/23 12:58
Dissolved	Prep	7470A			22770	PRB	EET NE	05/19/23 10:03
Dissolved	Analysis	7470A		1	22788	PRB	EET NE	05/19/23 15:25

Client Sample ID: LM-TB-051723

Lab Sample ID: 620-11550-6

Date Collected: 05/17/23 14:00

Matrix: Water

Date Received: 05/18/23 16:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	MAVPH2.1		1	22877	BMH	EET NE	05/23/23 17:03

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-11550-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Massachusetts	State	M-RI907	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6010D	3005A	Water	Antimony
6010D	3005A	Water	Arsenic
6010D	3005A	Water	Barium
6010D	3005A	Water	Beryllium
6010D	3005A	Water	Cadmium
6010D	3005A	Water	Chromium
6010D	3005A	Water	Lead
6010D	3005A	Water	Nickel
6010D	3005A	Water	Selenium
6010D	3005A	Water	Silver
6010D	3005A	Water	Thallium
6010D	3005A	Water	Vanadium
6010D	3005A	Water	Zinc
7470A	7470A	Water	Mercury
EPH	3510C	Water	2-Methylnaphthalene
EPH	3510C	Water	Acenaphthene
EPH	3510C	Water	Acenaphthylene
EPH	3510C	Water	Anthracene
EPH	3510C	Water	Benzo[a]anthracene
EPH	3510C	Water	Benzo[a]pyrene
EPH	3510C	Water	Benzo[b]fluoranthene
EPH	3510C	Water	Benzo[g,h,i]perylene
EPH	3510C	Water	Benzo[k]fluoranthene
EPH	3510C	Water	Chrysene
EPH	3510C	Water	Dibenz(a,h)anthracene
EPH	3510C	Water	Fluoranthene
EPH	3510C	Water	Fluorene
EPH	3510C	Water	Indeno[1,2,3-cd]pyrene
EPH	3510C	Water	Naphthalene
EPH	3510C	Water	Phenanthrene
EPH	3510C	Water	Pyrene
MAEPH2.1	3510C	Water	C11-C22 Aromatics
MAEPH2.1	3510C	Water	C11-C22 Aromatics (Adjusted)
MAEPH2.1	3510C	Water	C19-C36 Aliphatics
MAEPH2.1	3510C	Water	C9-C18 Aliphatics
MAVPH2.1		Water	Benzene
MAVPH2.1		Water	C5-C8 Aliphatics (adjusted)
MAVPH2.1		Water	C5-C8 Aliphatics (unadjusted)
MAVPH2.1		Water	C9-C10 Aromatics
MAVPH2.1		Water	C9-C12 Aliphatics (adjusted)
MAVPH2.1		Water	C9-C12 Aliphatics (unadjusted)
MAVPH2.1		Water	Ethylbenzene
MAVPH2.1		Water	m,p-Xylene
MAVPH2.1		Water	Methyl tert-butyl ether
MAVPH2.1		Water	Naphthalene

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-11550-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
MAVPH2.1		Water	o-Xylene
MAVPH2.1		Water	Toluene
MAVPH2.1		Water	Xylenes, Total

Method Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Method	Method Description	Protocol	Laboratory
EPH	Extractable Petroleum Hydrocarbons (GC/MS)	MA DEP	EET NE
MAVPH2.1	Massachusetts - Volatile Petroleum Hydrocarbons (GC)	MA DEP	EET NE
MAEPH2.1	Massachusetts - Extractable Petroleum Hydrocarbons (GC)	MA DEP	EET NE
6010D	Metals (ICP)	SW846	EET NE
7470A	Mercury (CVAA)	SW846	EET NE
3005A	Preparation, Total Metals	SW846	EET NE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET NE
5030C	Purge and Trap	SW846	EET NE
7470A	Preparation, Mercury	SW846	EET NE
MA EPH Frac	Massachusetts - Extractable Petroleum Hydrocarbon Fractionation	MA DEP	EET NE

Protocol References:

MA DEP = Massachusetts Department Of Environmental Protection

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Sample Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11550-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
620-11550-1	LM-GW-B/MW105-051723	Water	05/17/23 10:55	05/18/23 16:31
620-11550-2	LM-GW-B/MW102-051723	Water	05/17/23 12:40	05/18/23 16:31
620-11550-3	LM-FD-051723	Water	05/17/23 08:00	05/18/23 16:31
620-11550-4	LM-GW-B/MW101-051723	Water	05/17/23 13:00	05/18/23 16:31
620-11550-5	LM-GW-B/MW104-051723	Water	05/17/23 10:45	05/18/23 16:31
620-11550-6	LM-TB-051723	Water	05/17/23 14:00	05/18/23 16:31

11550

620-11550 Chain of Custody

Testing

Page 1 of 2

CHAIN OF CUSTODY RECORD

☐ Almgren Drive
Agawam, MA 01001
(413) 789-9018

☐ 46 Camp Avenue
N Kingstown, RI 02852
(401) 732-3400

Special Handling:

☐ TAT - Date Needed: Standard

All TATs subject to laboratory approval
Min 24-hr notification needed for rushes
Samples disposed after 30 days unless otherwise instructed.

Report To: aroy@nobis-group com
Adam Roy
Telephone #:
Project Mgr:

Invoice To: ap@nobis-group com
P O No:
Quote #:

Project No: S00001 005/400
Site Name: Former L&M
Location: Lunenburg State: MA
Sampler(s): B Fortier (978) 399-9651

F=Field Filtered 1=Na_2S2O_3 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
7=CH3OH 8=$NaHSO_4$ 9=Deionized Water 10=H_3PO_4 11= 12=

DW=Drinking Water GW=Groundwater SW=Surface Water WW=Waste Water
O=Oil SO=Soil SL=Sludge A=Indoor/Ambient Air SG=Soil Gas
X1= X2= X3=

G= Grab C=Compsite

List Preservative Code below:

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	Containers: # of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Analysis: VPH MassDEP	EPH MassDEP	MCP 14 Dissolved Metals 6010/7471						Check if chlorinated	QA/QC Reporting Notes:
										2	2	4							
01	LM-GW-B/MW105-051723	5/17/2023	10 55 AM	G	GW	3	2		1	x	x	x						☐	Metals are field filtered
02	LM-GW-B/MW102-051723	5/17/2023	12 40 PM	G	GW	3	2		1	x	x	x						☐	Metals are field filtered
03	LM-FD-051723	5/17/2023	8 00 AM	G	GW	3	2		1	x	x	x						☐	Metals are field filtered
04	LM-GW-B/MW101-051723	5/17/2023	1 00 PM	G	GW	3	2		1	x	x	x						☐	Metals are field filtered
05	LM-GW-B/MW104-051723	5/17/2023	10 45 AM	G	GW	9	6		3	x	x	x						☐	MS/MSD, Metals are field filtered
06	LM-TB-051723	5/17/2023	2 00 PM	G	GW	2				x								☐	
																		☐	
																		☐	
																		☐	
																		☐	

QA/QC Reporting Level
☐ Level I ☐ Level II
☐ Level III ☐ Level IV
☐ Other
State-specific reporting standards
MA MCP

Relinquished by:	Received by:	Date:	Time:
		5/17/23	17:10
		5/18/23	16:31

Temp °C
Observed: 2.5
Correction Factor: -0.2
Corrected: 2.3
IR ID #: 6

☑ EDD format: Equis EDD
☑ E-mail to: aroy@nobis-group com

Condition upon receipt: Custody Seals. ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☐ Iced ☑ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

5/30/2023

Login Sample Receipt Checklist

Client: Nobis Engineering, Inc.

Job Number: 620-11550-1

Login Number: 11550
List Number: 1
Creator: Makhoul, Elie

List Source: Eurofins New England

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

October 2, 2023
Nobis File No. S00001.05

Ms. Katy Deng
USEPA – Region 1
Land, Chemicals, and Redevelopment Division
5 Post Office Square, Suite 100
Boston, MA 02109-3912

Re: USEPA Contract No. 68HE0122D0001
USEPA Task Order No. 68HE0122F0044
Targeted Brownfields Assessment (TBA)
Former L&M Service Station Site
Lunenburg, Massachusetts
Sample Delivery Group (SDG) No. 620117361
Eurofins New England, North Kingstown, RI

Tier 1 Stage 2A Organic and Inorganic Data Review:

Volatile Petroleum Hydrocarbons (VPH by MassDEP-VPH), Extractable Petroleum Hydrocarbons (EPH by MassDEP-EPH), Massachusetts Contingency Plan (MCP) Metals (MCP-14 Metals by 6020B/7470A)

5/Soil Samples: LM-SO-UST01-052523, LM-SO-UST02-052523, LM-SO-UST03-052523, SO-FD-01, LM-SO-PI-052523
1/Field Duplicate Pair: LM-SO-UST02-052523 / SO-FD-01

Dear Ms. Deng:

Nobis Group (Nobis), under a USEPA contract as a subcontractor to KGSNE JV, LLC, performed a Tier 1 Stage 2A manual data review (S2AVM) on the organic and inorganic analytical data for the samples listed above. The samples were collected by Nobis at the Former L&M Service Station Site located in Lunenburg, Massachusetts on May 25, 2023. The samples were analyzed for VPHs by MassDEP-VPH, EPHs by MassDEP-EPH, and MCP-14 Metals by EPA Methods 6010D/7470A by Eurofins New England in North Kingstown, RI.

The Tier 1 Stage 2A manual data review was performed in accordance with the Region 1 - EPA New England Environmental Data Review Supplement for Region 1 Data Review Elements and Superfund Specific Guidance/Procedures (September 2020); USEPA's National Functional Guidelines for Organic Superfund Methods Data Review (November 2020); USEPA's National Functional Guidelines for Inorganic Superfund Methods Data Review (November 2020); the Program Quality Assurance Project Plan (Program QAPP) dated October 2022, and the Quality Assurance Project Plan Addendum (QAPPA) (May 2023) for the Former L&M Service Station Site, which appends the October 2022 Program QAPP.

The data were evaluated based on the following parameters:

* • Overall Evaluation of Data and Potential Usability Issues
* • Data Completeness
* • Preservation and Technical Holding Times
• Blanks

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*	•	Surrogates (organic analyses only)
NA	•	Internal Standards
	•	Matrix Spike Analysis
*	•	Laboratory Duplicates
	•	Laboratory Control Samples (LCS)
	•	Field Duplicates
	•	ICP Serial Dilutions (metals only)
NA	•	Performance Evaluation (PE) Samples
NA	•	Target Analyte Identification
*	•	Reported Quantitation Limits

* All criteria were met for this parameter or did not require qualification.
NA – Not applicable.

Overall Evaluation of Data and Potential Usability Issues

The site sampling objectives are:

- Characterize in-situ soil based on AOCs identified by Fuss & O'Neill in November 2020 Phase I for the presence of possible site-related contamination.
- Evaluate groundwater elevation.
- Evaluate presence/absence of groundwater contamination related to site.

The data meet the project quality criteria and can be used without restriction except as summarized below. The attachments provide details and supporting documentation.

MassDEP-VPH:
Results were qualified for laboratory blank contamination.

MassDEP-EPH:
Results were qualified for MS/MSD recovery.

MCP-14 Metals and Mercury:
Results were qualified for serial dilution performance, field duplicate imprecision, and LCS/LCSD and MS/MSD recovery exceedances.

Please contact Linda Terzis at lterzis@nobis-group.com should you have any questions or comments regarding this information.

Sincerely,

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Linda Terzis
Data Validator

Gary Glennon
Data Validator

Tables: Data Summary Tables – Tier 1 Stage 2A (S2AVM) Validated Data
Data Qualification Actions Table

Attachments: Data Review Checklist
Support Documentation
COC

cc: Denis McGrath (Nobis Group)
Adam Roy (Nobis Group)

DATA SUMMARY TABLE

Analysis		EPH in Soil				
Lab Sample ID		620-11736-1	620-11736-2	620-11736-3	620-11736-4	620-11736-5
Field Sample ID		LM-SO-UST01-052523	LM-SO-UST02-052523	LM-SO-UST03-052523	SO-FD-01	LM-SO-PI-052523
Sample Type		N	N	N	FD	N
Parent Sample ID						
Sample Date	**Units**	05/25/23	05/25/23	05/25/23	05/25/23	05/25/23
2-Methylnaphthalene	mg/kg	0.36 U	0.4 U	0.34 U	0.4 U	0.35 U
Acenaphthene	mg/kg	0.36 U	0.4 U	0.34 U	0.4 U	0.35 U
Acenaphthylene	mg/kg	0.36 U	0.4 U	0.34 U	0.4 U	0.35 U
Anthracene	mg/kg	0.36 U	0.4 U	0.34 U	0.4 U	0.35 U
Benzo(a)anthracene	mg/kg	0.36 U	0.4 U	0.34 U	0.4 U	0.35 U
Benzo(a)pyrene	mg/kg	0.36 U	0.4 U	0.34 U	0.4 U	0.35 U
Benzo(b)fluoranthene	mg/kg	0.36 U	0.4 U	0.34 U	0.4 U	0.35 U
Benzo(g,h,i)perylene	mg/kg	0.36 U	0.4 U	0.34 U	0.4 U	0.35 U
Benzo(k)fluoranthene	mg/kg	0.36 U	0.4 U	0.34 U	0.4 U	0.35 U
C11-C22 Aromatics	mg/kg	12	8 U	12	8 U	33
C11-C22 Aromatics (adjusted)	mg/kg	11	8 U	11	8 U	32
C19-C36 Aliphatics	mg/kg	16 J	8 UJ	19 J	8 UJ	58
C9-C18 Aliphatics	mg/kg	7.2 U	8 U	6.9 U	8 U	7.1 U
Chrysene	mg/kg	0.36 U	0.4 U	0.34 U	0.4 U	0.35 U
Dibenz(a,h)anthracene	mg/kg	0.36 U	0.4 U	0.34 U	0.4 U	0.35 U
Fluoranthene	mg/kg	0.63	0.44	0.64	0.45	0.44
Fluorene	mg/kg	0.36 U	0.4 U	0.34 U	0.4 U	0.35 U
Indeno(1,2,3-cd)pyrene	mg/kg	0.36 U	0.4 U	0.34 U	0.4 U	0.35 U
Naphthalene	mg/kg	0.36 U	0.4 U	0.34 U	0.4 U	0.35 U
Phenanthrene	mg/kg	0.36 U	0.4 U	0.34 U	0.4 U	0.35 U
Pyrene	mg/kg	0.36 U	0.4 U	0.34 U	0.4 U	0.35 U

DATA SUMMARY TABLE

Analysis		Metals in Soil				
Lab Sample ID		620-11736-1	620-11736-2	620-11736-3	620-11736-4	620-11736-5
Field Sample ID		LM-SO-UST01-052523	LM-SO-UST02-052523	LM-SO-UST03-052523	SO-FD-01	LM-SO-PI-052523
Sample Type		N	N	N	FD	N
Parent Sample ID						
Sample Date	**Units**	05/25/23	05/25/23	05/25/23	05/25/23	05/25/23
Antimony	mg/kg	1.3 J	1.5 J	0.81 J	1.7 J	0.94 J
Arsenic	mg/kg	21	52	12	53	16
Barium	mg/kg	50 J	54 J	66 J	57 J	44
Beryllium	mg/kg	0.33 J	0.26 J	0.42 J	0.3 J	0.24 J
Cadmium	mg/kg	0.54 U	0.62 U	0.51 U	0.54 U	0.034 J
Chromium	mg/kg	27	34	27	34	20
Lead	mg/kg	28	29	32	47	60
Mercury	mg/kg	0.025 J	0.054 U	0.069	0.012 J	0.062
Nickel	mg/kg	20	23	19	24	16
Selenium	mg/kg	1.6 U	1.8 U	1.5 U	1.6 U	1.4 U
Silver	mg/kg	1.6 U	1.8 U	1.5 U	1.6 U	1.4 U
Thallium	mg/kg	3.2 U	3.7 U	3.1 U	3.2 U	2.8 U
Vanadium	mg/kg	21	25	22	27	17
Zinc	mg/kg	64 J	150 J	47 J	86 J	150

DATA SUMMARY TABLE

Analysis		VPH in Soil				
Lab Sample ID		620-11736-1	620-11736-2	620-11736-3	620-11736-4	620-11736-5
Field Sample ID		LM-SO-UST01-052523	LM-SO-UST02-052523	LM-SO-UST03-052523	SO-FD-01	LM-SO-PI-052523
Sample Type		N	N	N	FD	N
Parent Sample ID						
Sample Date	**Units**	05/25/23	05/25/23	05/25/23	05/25/23	05/25/23
Benzene	mg/kg	0.013 U	0.018 U	0.015 U	0.016 U	0.013 J
C5-C8 Aliphatics (adjusted)	mg/kg	0.2	0.091 U	0.073 U	0.079 U	0.34
C5-C8 Aliphatics (unadjusted)	mg/kg	0.21	0.091 U	0.073 U	0.079 U	0.48
C9-C10 Aromatics	mg/kg	0.3	0.034 J	0.024 J	0.019 J	0.17
C9-C12 Aliphatics (adjusted)	mg/kg	0.29	0.091 U	0.073 U	0.079 U	0.11
C9-C12 Aliphatics (unadjusted)	mg/kg	0.62	0.072 J	0.055 J	0.049 J	0.38
Ethylbenzene	mg/kg	0.0069 J	0.0049 J	0.015 U	0.016 U	0.013 J
m,p-Xylene	mg/kg	0.02 J	0.016 J	0.0066 J	0.01 J	0.051
Methyl tert-butyl ether	mg/kg	0.013 U	0.057 J+	0.015 U	0.053 J+	0.088 J+
Naphthalene	mg/kg	0.012 J	0.018 U	0.015 U	0.016 U	0.014 U
o-Xylene	mg/kg	0.0048 J	0.0091 J	0.0043 J	0.0066 J	0.032
Toluene	mg/kg	0.0082 J	0.016 J	0.0056 J	0.011 J	0.04

Data Review Qualification Actions
Former L&M Service Station
SDG 620117361

Parameter	Analyte	Samples	Evaluation Criteria	Action Needed	Comments
MassDEP-VPH					
	Methyl tert-butyl ether	LM-SO-UST01-052523, LM-SO-UST03-052523	Laboratory blank contamination	RL (U)	
	Methyl tert-butyl ether	LM-SO-UST02-052523, SO-FD-01, LM-SO-PI-052523	Laboratory blank contamination	J+	
MassDEP-EPH					
	C19-C36 aliphatic hydrocarbons	LM-SO-UST01-052523, LM-SO-UST02-052523, LM-SO-UST03-052523, SO-FD-01	MSD recovery	J / UJ	
MCP-14 Metals / Mercury					
	Antimony	All soil samples.	LCS/LCSD recovery	J-	Final qual is J, indeterminate bias, since detections are < RL.
	Barium	LM-SO-UST01-052523, LM-SO-UST02-052523, LM-SO-UST03-052523, SO-FD-01	MS/MSD recovery	J-	Final qual is J, indeterminate bias, due to serial dilution qualification.
	Barium	LM-SO-UST01-052523, LM-SO-UST02-052523, LM-SO-UST03-052523, SO-FD-01	Serial dilution	J	
	Zinc	LM-SO-UST01-052523, LM-SO-UST02-052523, LM-SO-UST03-052523, SO-FD-01	Field duplicate imprecision	J	

Tier 1/Stage 2A Data Review Checklist

Project: Former L&M Service Station, Lunenburg, Massachusetts
Targeted Brownfields Assessment (TBA)
Project #: S00001.05
Case#: NA
Date: 09/10/2023
Methods: Volatile Petroleum Hydrocarbons (VPH) (MassDEP-VPH)
Extractable Petroleum Hydrocarbons (EPH) (MassDEP-EPH)
Massachusetts Contingency Plan (MCP) Metals (MCP-14 Metals by 6010D/7470A)

Laboratory: Eurofins New England Laboratory, North Kingstown, RI
SDG: 620117361
Reviewer: Linda Terzis

1. **Case Narrative and Data Package Completeness (COC and Analyte List Review)**
Five (5) soil samples, including one field duplicate sample, were listed on the COC for SDG 620117361. The samples were collected on 05/25/2023 and received at the Eurofins New England Laboratory on 05/26/2023 at a maximum temperature of 3.6 °C.

Sample ID	Laboratory ID	Analyses
LM-SO-UST01-052523	620-11736-1	MassDEP-VPH, MassDEP-EPH, MCP-14 Metals/Mercury
LM-SO-UST02-052523	620-11736-2	
LM-SO-UST03-052523	620-11736-3	
SO-FD-01	620-11736-4	
LM-SO-PI-052523	620-11736-5	

The data were evaluated using the site-specific Quality Assurance Project Plan Addendum (QAPPA) (dated May 2023) and the Program QAPP (dated October 2022). Both were prepared by KGSNE, LLC. The QAPPA appends and incorporates by reference the procedures and quality control measures detailed in the Program QAPP (October 2022). Therefore, site data for this SDG were evaluated using both the QAPPA of May 2023 and the Program QAPP dated October 2022. The Massachusetts Compendium of Analytical Methods (CAM) and/or SW-846 Methods were used to perform the analyses. Therefore, site data were also evaluated using CAM quality control (QC) limits, where applicable.

The analyte lists reported by the laboratory were compared to the required analyte lists per Table 3 (soil) in the QAPPA (May 2023) for the site. Results for all requested analytes were reported and no inconsistencies were noted.

2. **Holding Time and Sample Preservation Compliance**

Receipt temperatures are acceptable (≤ 6°), as specified in the QAPPA (May 2023).

MassDEP-VPH: Holding time criteria (analyzed within 14 days) met.

MassDEP-EPH: Holding time criteria (extracted within 14 days and analyzed within 40 days of extraction) met.

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MCP-14 Metals/Mercury: Holding time criteria (analyzed within 28 days for mercury; within 180 days for all other analytes) were met.

3. Calibration Issues

Not assessed for S2AVM data review.

4. Laboratory and Field Blanks

MassDEP-VPH: Results for the VPH laboratory method blank were non-detect except for methyl tert-butyl ether, which was detected at < RL.

Methyl tert-butyl ether was detected in samples LM-SO-UST01-052523 (620-11736-1) and LM-SO-UST03-052523 (620-11736-3) at < reporting limit (RL). Professional judgement based on the NFGs (2020) for the VOC analysis was used to qualify the detected results for methyl tert-butyl ether as non-detect at the reporting limit (RL) (RL [U]) in samples LM-SO-UST01-052523 and LM-SO-UST03-052523 due to laboratory blank contamination.

Methyl tert-butyl ether was detected in samples LM-SO-UST02-052523 (620-11736-2), SO-FD-01 (620-11736-4), and LM-SO-PI-052523 (620-11736-5) at concentrations > RL but < 10x the blank level. Detected results for methyl tert-butyl ether are qualified as estimated with a potential high bias (J+) in samples LM-SO-UST02-052523, SO-FD-01, and LM-SO-PI-052523 due to laboratory blank contamination.

MassDEP-EPH: Results for the EPH laboratory method blanks were non-detect. No blank actions are required.

MCP-14 Metals/Mercury: Results for the metals and mercury method blanks were non-detect. No blank actions are required.

An equipment blank was not submitted with the samples of this SDG. No actions are required.

5. Interference Check Sample (metals only)

Not assessed for S2AVM data review.

6. Surrogates

The Program QAPP (October 2022) was used to evaluate site data for surrogate recovery. If no Program QAPP-specific recovery limits were available for a surrogate, the MCP CAM recovery limits were used.

MassDEP-VPH: Percent surrogate recoveries for the samples were within the Program QAPP limits of 70-130%. No actions are required.

MassDEP-EPH: Percent surrogate recoveries for the samples were within the Program QAPP limits of 40-140%. No actions are required.

MCP-14 Metals/Mercury: Not applicable for this analysis.

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7. Laboratory Control Samples

MassDEP-VPH: The percent recoveries in the VPH LCS/LCSD pair met the Program QAPP recovery limits of 70-130% and RPDs ≤ 25%. No actions are required.

MassDEP-EPH: The percent recoveries in the EPH LCS/LCSD pairs met the Program QAPP recovery limits of 40-140%. RPDs met the QAPP limit of ≤ 25% except for benzo(k)fluoranthene where the RPD was > 25%. Results for benzo(k)fluoranthene were non-detect in all soil samples. Professional judgement based on the NFGs (2020) for SVOCs was used to accept the non-detect benzo(k)fluoranthene results unqualified.

MCP-14 Metals/Mercury: Percent recoveries and RPDs for the metals and mercury LCS/LCSD analyses were within the QAPP limits of 80-120% and ≤ 30%, respectively, except for antimony, which was recovered below 80-120% in the LCS and LCSD analyses. Antimony was detected at concentrations < RL in the soil samples. Based on the NFGs (2020), the detected results are qualified as estimated with a potential low bias (J-) in all soil samples. Note that the final qualifier is estimated (J), with an indeterminate bias, since the sample results are < RL.

8. Matrix Spikes

Based on the Region I EPA New England Environmental Data Review Supplement (Region I Supplement, 2020), MS/MSD qualifications are applied to all field samples with similar matrix, unless otherwise noted.

MassDEP-VPH: MS/MSD analyses were performed on sample LM-SO-UST03-052523 (620-11736-3). Recoveries and RPDs met the Program QAPP limits of 70-130% recovery and ≤ 50% RPD. No actions are required.

MassDEP-EPH: MS/MSD analyses were performed on sample LM-SO-UST03-052523 (620-11736-3). The recovery of C19-C36 aliphatic hydrocarbons was below the Program QAPP limits of 40-140% in the MSD analysis. Based on the NFGs (2020) for SVOCs, the detected and non-detect results for C19-C36 aliphatic hydrocarbons are qualified as estimated (J/UJ) in all “UST” soil samples (LM-SO-UST01-052523 [620-11736-1], LM-SO-UST02-052523 [620-11736-2], LM-SO-UST03-052523 [620-11736-3], and SO-FD-01 [620-11736-4]) due to the low recovery. RPDs met the QAPP limits of ≤ 50%.

MCP-14 Metals/Mercury: MS/MSD analyses for MCP-14 metals and mercury were performed on sample LM-SO-UST03-052523 (620-11736-3). Recoveries and RPDs met the Program QAPP limits of 75-125% recovery and ≤ 35% RPD except for the recoveries of barium, which were recovered below the 75-125% limits in the MS and MSD analyses. Barium was detected in all soil samples. Based on the NFGs (2020), the detected barium results are qualified as estimated with a potential low bias (J-) in all “UST” soil samples ((LM-SO-UST01-052523 [620-11736-1], LM-SO-UST02-052523 [620-11736-2], LM-SO-UST03-052523 [620-11736-3], and SO-FD-01 [620-11736-4]) due to the low recovery. Note that the final qualifier is estimated (J), with an indeterminate bias, due to subsequent qualifications for serial dilution performance.

9. Laboratory Duplicates (metals only)

MCP-14 Metals/Mercury: A laboratory duplicate analysis was performed on sample LM-SO-UST03-052523 (620-11736-3). The QAPP duplicate criterion (≤ 35% RPD for soil samples) was met for all detected metals analytes and mercury.

10. Serial Dilution (metals only)

A serial dilution analysis was not performed for this SDG. The Massachusetts CAM requires a serial dilution analysis on samples used for MS/MSD analyses where analytes are detected at > 50x RL. MS/MSD analyses were performed on sample LM-SO-UST03-052523 (620-11736-3). Detected metals and mercury results were < 50x RL in this sample except for barium, which was present at > 50x RL. Based on the NFGs (2020), the detected results for barium are qualified as estimated (J) in all "UST" soil samples ((LM-SO-UST01-052523 [620-11736-1], LM-SO-UST02-052523 [620-11736-2], LM-SO-UST03-052523 [620-11736-3], and SO-FD-01 [620-11736-4]) due to a serial dilution analysis not being performed for this analyte.

11. Field Duplicate Precision

Acceptable field duplicate precision is an RPD of ≤ 50% for results > 5x RL and an absolute difference < 4x RL for results < 5x RL, based on the EPA Region I Supplement (2020).

Based on the Region I Supplement (2020), qualifications are applied to all field samples with similar matrix, unless otherwise indicated.

Field duplicate pair LM-SO-UST02-0525 / SO-FD-01 is associated with the soil samples of this SDG.

Field duplicate precision criteria were met for the VPH and EPH analyses. The RPD was > 50% for zinc results > 5x RL. Based on the EPA Region I Supplement (2020), detected results for zinc were qualified as estimated (J) in all soil samples from the "UST" locations due to field duplicate imprecision.

12. Internal Standards

Not assessed for S2AVM data review.

13. Dual Column Precision (PCBs only)

Not applicable for this SDG.

14. Performance Evaluation Samples

Performance Evaluation (PE) samples were not included in this SDG.

15. Reporting Limits

RLs for non-detect results for VPH, EPH, and metals/mercury analyses met the project action levels (PALs) for the site.

16. Other

EPA Region I Supplement (2020) criterion for percent solids content (> 30%) was met for all soil samples.

Overall bias is considered indeterminate when cumulative nonconformances do not show a consistent bias or in cases of the presence of conflicting high and low biases.

Field Duplicate Evaluation

SDG: 620117361 VPH

Analyte	Original Result (mg/kg)	Qual	Duplicate Result (mg/kg)	Qual	RPD ≤ 50%	Abs Diff	Comment
Sample ID	**LM-SO-UST02-052523**		**SO-FD-01**				
	620-11736-2		**620-11736-4**				
Benzene	0.018	U	0.016	U	-11.76		Ok - both ND
C5-C8 Aliphatics (adjusted)	0.091	U	0.079	U	-14.12		Ok - both ND
C5-C8 Aliphatics (unadjusted)	0.091	U	0.079	U	-14.12		Ok - both ND
C9-C10 Aromatics	0.034	J	0.019	J	-56.60		Ok - both < RL
C9-C12 Aliphatics (adjusted)	0.091	U	0.079	U	-14.12		Ok - both ND
C9-C12 Aliphatics (unadjusted)	0.072	J	0.049	J	-38.02		Ok - both RL
Ethylbenzene	0.0049	J	0.016	U	106.22		Ok - ND and < RL
m,p-Xylene	0.016	J	0.01	J	-46.15		Ok - both < RL
Methyl tert-butyl ether	0.057		0.053		-7.27	-0.004	Ok - abs diff < 4x RL
Naphthalene	0.018	U	0.016	U	-11.76		Ok - both ND
o-Xylene	0.0091	J	0.0066	J	-31.85		Ok - both < RL
Toluene	0.016	J	0.011	J	-37.04		Ok - both < RL

Field Duplicate Evaluation

SDG: 620117361 EPH

Analyte	Original Result (mg/kg)	Qual	Duplicate Result (mg/kg)	Qual	RPD ≤ 50%	Abs Diff	Comment
Sample ID	**LM-SO-UST02-052523**		**SO-FD-01**				
	620-11736-2		**620-11736-4**				
2-Methylnaphthalene	0.4	U	0.4	U	0.00		Ok - both ND
Acenaphthene	0.4	U	0.4	U	0.00		Ok - both ND
Acenaphthylene	0.4	U	0.4	U	0.00		Ok - both ND
Anthracene	0.4	U	0.4	U	0.00		Ok - both ND
Benzo(a)anthracene	0.4	U	0.4	U	0.00		Ok - both ND
Benzo(a)pyrene	0.4	U	0.4	U	0.00		Ok - both ND
Benzo(b)fluoranthene	0.4	U	0.4	U	0.00		Ok - both ND
Benzo(g,h,i)perylene	0.4	U	0.4	U	0.00		Ok - both ND
Benzo(k)fluoranthene	0.4	U	0.4	U	0.00		Ok - both ND
C11-C22 Aromatics	8	U	8	U	0.00		Ok - both ND
C11-C22 Aromatics (adjusted)	8	U	8	U	0.00		Ok - both ND
C19-C36 Aliphatics	8	U	8	U	0.00		Ok - both ND
C9-C18 Aliphatics	8	U	8	U	0.00		Ok - both ND
Chrysene	0.4	U	0.4	U	0.00		Ok - both ND
Dibenz(a,h)anthracene	0.4	U	0.4	U	0.00		Ok - both ND
Fluoranthene	0.44		0.45		2.25	0.01	Ok - abs diff < 4x RL
Fluorene	0.4	U	0.4	U	0.00		Ok - both ND
Indeno(1,2,3-cd)pyrene	0.4	U	0.4	U	0.00		Ok - both ND
Naphthalene	0.4	U	0.4	U	0.00		Ok - both ND
Phenanthrene	0.4	U	0.4	U	0.00		Ok - both ND
Pyrene	0.4	U	0.4	U	0.00		Ok - both ND

Field Duplicate Evaluation

SDG: 620117631 METALS

Analyte	Original Result (mg/kg)	Qual	Duplicate Result (mg/kg)	Qual	RPD ≤ 50%	Abs Diff	Comment
Sample ID	**LM-SO-UST02-052523**		**SO-FD-01**				
	620-11736-2		**620-11736-4**				
Antimony	1.5	J	1.7	J	12.5		Ok - both < RL
Arsenic	52		53		1.9		Ok - RPD < 50%
Barium	54		57		5.4		Ok - RPD < 50%
Beryllium	0.26	J	0.3	J	14.3		Ok - both < RL
Cadmium	0.62	U	0.54	U	-13.8		Ok - both ND
Chromium	34		34		0.00		Ok - RPD < 50%
Lead	29		47		47.4		Ok - RPD < 50%
Mercury	0.054	U	0.012	J	-127.3		Ok - ND and < RL
Nickel	23		24		4.3		Ok - RPD < 50%
Selenium	1.8	U	1.6	U	-11.8		Ok - both ND
Silver	1.8	U	1.6	U	-11.8		Ok - both ND
Thallium	3.7	U	3.2	U	-14.5		Ok - both ND
Vanadium	25		27		7.7		Ok - RPD < 50%
Zinc	150		86		-54.2		**J both - RPD > 50%**

620-11736 Chain of Custody

11736

Chain of Custody Record

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Client Contact: Bridget Fortier	Sampler: S. Stone	Lab PM: A. Ray	Carrier Tracking No(s):	COC No: 620-10175-1337 1
Company: Nobis Engineering, Inc	Phone: 774-245-3607	E-Mail: aray@nobis-group.com	State of Origin:	Page: Page 1 of 2
Address: 585 Middlesex Street	PWSID:			Job #:
City: Lowell	Due Date Requested:			
State, Zip: MA, 01851	TAT Requested (days): standard 10 day			
Phone:	Compliance Project: Δ Yes Δ No			
Email: bfortier@nobis-group.com	PO #:			
Project Name: Former L&M	WO #:			
Site:	Project #: 50000001.005/406			
	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

	Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Preservation Code:	UPH	EDD, MADEP (CAM)	Total Number of containers	Special Instructions/Note:
01	LM-SO-UST01-052523	5-25-23	1210	C	Solid			F	X	X		
02	LM-SO-UST02-052523		1750	C	Solid				X	X		
03	LM-SO-UST03-052523		1630	C	Solid		Y		X	X		MS/MSD
04	SO-FD-01		800	C	Solid				X	X		
05	LM-SO-01-052523		1650	G	Solid				X	X		
					Solid							
					Solid							
					Solid							
					Solid							
					Solid							
					Solid							

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested. I, II, III, IV, Other (specify): EDD report PDF & email

Special Instructions/QC Requirements: MADEP CAM METHOD required

Empty Kit Relinquished by: | Date: | Time | Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1		5-26-23 1135			5/26/23 1135	ENE
2		5/26/23 1659			5/26/23 16:59	ENE
3						

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 3.4 +0.2 = 3.6 #6

Ver: 06/08/2021

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Adam Roy
Nobis Engineering, Inc.
585 Middlesex Street
Lowell, Massachusetts 01851

Generated 6/7/2023 4:43:59 PM

JOB DESCRIPTION

Former L&M - Lunenburg MA

JOB NUMBER

620-11736-1

Eurofins New England
646 Camp Ave
North Kingstown RI 02852

See page two for job notes and contact information.

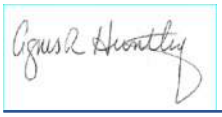
myEOL

Job Notes

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The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northeast, LLC Project Manager.

Authorization



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Authorized for release by
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(401)372-3482

Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
Case Narrative 5
Detection Summary 6
Client Sample Results 9
Surrogate Summary 19
QC Sample Results 20
QC Association Summary 29
Lab Chronicle 32
Certification Summary 35
Method Summary 37
Sample Summary 38
Chain of Custody 39
Receipt Checklists 41

Definitions/Glossary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
F1	MS and/or MSD recovery exceeds control limits.

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F3	Duplicate RPD exceeds the control limit
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL, and the absolute difference between results is < the upper reporting limits for both.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 620-11736-1

Laboratory: Eurofins New England

Narrative

Job Narrative
620-11736-1

Receipt
The samples were received on 5/26/2023 4:59 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.6º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA
Method MAVPH: The method blank for preparation batch 480-671326 and analytical batch 480-671344 contained Methyl tert-butyl ether above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA
Method MAEPH2.1: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 620-23055 and 620-23114 and analytical batch 620-23095 recovered outside control limits for the following analytes: Benzo[k]fluoranthene. The individual percent recoveries are within acceptance limits.

Method MAEPH2.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 620-23055 and 620-23114 and analytical batch 620-23139 were outside control limits for C9-C18 Aliphatics. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Methods 6010, 6010D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 620-23032 and analytical batch 620-23088 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

Methods 7471A, 7471B: The sample duplicate (DUP) precision for preparation batch 620-23034 and analytical batch 620-23098 was outside control limits. Sample matrix interference is suspected.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
Method Moisture: The sample duplicate (DUP) precision for analytical batch 620-23159 was outside control limits. Sample non-homogeneity is suspected.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Client Sample ID: LM-SO-UST01-052523 — Lab Sample ID: 620-11736-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C5-C8 Aliphatics (adjusted)	0.20		0.065	0.033	mg/Kg	1		MA VPH SUM	Total/NA
C9-C12 Aliphatics (adjusted)	0.29		0.065	0.028	mg/Kg	1		MA VPH SUM	Total/NA
Ethylbenzene	0.0069	J	0.013	0.0026	mg/Kg	1	☼	MAVPH	Total/NA
Methyl tert-butyl ether	0.0043	J B	0.013	0.0026	mg/Kg	1	☼	MAVPH	Total/NA
m,p-Xylene	0.020	J	0.026	0.0026	mg/Kg	1	☼	MAVPH	Total/NA
Naphthalene	0.012	J	0.013	0.0088	mg/Kg	1	☼	MAVPH	Total/NA
o-Xylene	0.0048	J	0.013	0.0026	mg/Kg	1	☼	MAVPH	Total/NA
Toluene	0.0082	J	0.013	0.0026	mg/Kg	1	☼	MAVPH	Total/NA
C5-C8 Aliphatics (unadjusted)	0.21		0.065	0.033	mg/Kg	1	☼	MAVPH	Total/NA
C9-C10 Aromatics	0.30		0.065	0.0091	mg/Kg	1	☼	MAVPH	Total/NA
C9-C12 Aliphatics (unadjusted)	0.62		0.065	0.028	mg/Kg	1	☼	MAVPH	Total/NA
C19-C36 Aliphatics	16		7.2	7.2	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics	12		7.2	7.2	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	11		7.2	7.2	mg/Kg	1	☼	MAEPH2.1	Total/NA
Fluoranthene	0.63		0.36	0.36	mg/Kg	1	☼	MAEPH2.1	Total/NA
Antimony	1.3	J	5.4	0.41	mg/Kg	1	☼	6010D	Total/NA
Arsenic	21		1.6	0.20	mg/Kg	1	☼	6010D	Total/NA
Barium	50		1.1	0.13	mg/Kg	1	☼	6010D	Total/NA
Beryllium	0.33	J	0.54	0.027	mg/Kg	1	☼	6010D	Total/NA
Chromium	27		1.1	0.14	mg/Kg	1	☼	6010D	Total/NA
Lead	28		1.6	0.23	mg/Kg	1	☼	6010D	Total/NA
Nickel	20		1.1	0.12	mg/Kg	1	☼	6010D	Total/NA
Vanadium	21		1.6	0.29	mg/Kg	1	☼	6010D	Total/NA
Zinc	64		3.2	0.83	mg/Kg	1	☼	6010D	Total/NA
Mercury	0.025	J	0.054	0.0091	mg/Kg	1	☼	7471A	Total/NA

Client Sample ID: LM-SO-UST02-052523 — Lab Sample ID: 620-11736-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.0049	J	0.018	0.0036	mg/Kg	1	☼	MAVPH	Total/NA
Methyl tert-butyl ether	0.057	B	0.018	0.0036	mg/Kg	1	☼	MAVPH	Total/NA
m,p-Xylene	0.016	J	0.036	0.0036	mg/Kg	1	☼	MAVPH	Total/NA
o-Xylene	0.0091	J	0.018	0.0036	mg/Kg	1	☼	MAVPH	Total/NA
Toluene	0.016	J	0.018	0.0036	mg/Kg	1	☼	MAVPH	Total/NA
C9-C10 Aromatics	0.034	J	0.091	0.013	mg/Kg	1	☼	MAVPH	Total/NA
C9-C12 Aliphatics (unadjusted)	0.072	J	0.091	0.039	mg/Kg	1	☼	MAVPH	Total/NA
Fluoranthene	0.44		0.40	0.40	mg/Kg	1	☼	MAEPH2.1	Total/NA
Antimony	1.5	J	6.2	0.46	mg/Kg	1	☼	6010D	Total/NA
Arsenic	52		1.8	0.23	mg/Kg	1	☼	6010D	Total/NA
Barium	54		1.2	0.15	mg/Kg	1	☼	6010D	Total/NA
Beryllium	0.26	J	0.62	0.031	mg/Kg	1	☼	6010D	Total/NA
Chromium	34		1.2	0.16	mg/Kg	1	☼	6010D	Total/NA
Lead	29		1.8	0.26	mg/Kg	1	☼	6010D	Total/NA
Nickel	23		1.2	0.14	mg/Kg	1	☼	6010D	Total/NA
Vanadium	25		1.8	0.33	mg/Kg	1	☼	6010D	Total/NA
Zinc	150		3.7	0.95	mg/Kg	1	☼	6010D	Total/NA

Client Sample ID: LM-SO-UST03-052523 — Lab Sample ID: 620-11736-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	0.011	J B	0.015	0.0029	mg/Kg	1	☼	MAVPH	Total/NA
m,p-Xylene	0.0066	J	0.029	0.0029	mg/Kg	1	☼	MAVPH	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins New England

Client Sample ID: LM-SO-UST03-052523 (Continued) — Lab Sample ID: 620-11736-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
o-Xylene	0.0043	J	0.015	0.0029	mg/Kg	1	☼	MAVPH	Total/NA
Toluene	0.0056	J	0.015	0.0029	mg/Kg	1	☼	MAVPH	Total/NA
C9-C10 Aromatics	0.024	J	0.073	0.010	mg/Kg	1	☼	MAVPH	Total/NA
C9-C12 Aliphatics (unadjusted)	0.055	J	0.073	0.031	mg/Kg	1	☼	MAVPH	Total/NA
C19-C36 Aliphatics	19	F1	6.9	6.9	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics	12		6.9	6.9	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	11		6.9	6.9	mg/Kg	1	☼	MAEPH2.1	Total/NA
Fluoranthene	0.64		0.34	0.34	mg/Kg	1	☼	MAEPH2.1	Total/NA
Antimony	0.81	J	5.1	0.38	mg/Kg	1	☼	6010D	Total/NA
Arsenic	12		1.5	0.19	mg/Kg	1	☼	6010D	Total/NA
Barium	66	F1	1.0	0.12	mg/Kg	1	☼	6010D	Total/NA
Beryllium	0.42	J	0.51	0.026	mg/Kg	1	☼	6010D	Total/NA
Chromium	27		1.0	0.14	mg/Kg	1	☼	6010D	Total/NA
Lead	32		1.5	0.22	mg/Kg	1	☼	6010D	Total/NA
Nickel	19		1.0	0.12	mg/Kg	1	☼	6010D	Total/NA
Vanadium	22		1.5	0.27	mg/Kg	1	☼	6010D	Total/NA
Zinc	47		3.1	0.79	mg/Kg	1	☼	6010D	Total/NA
Mercury	0.069		0.045	0.0076	mg/Kg	1	☼	7471A	Total/NA

Client Sample ID: SO-FD-01 — Lab Sample ID: 620-11736-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	0.053	B	0.016	0.0032	mg/Kg	1	☼	MAVPH	Total/NA
m,p-Xylene	0.010	J	0.032	0.0032	mg/Kg	1	☼	MAVPH	Total/NA
o-Xylene	0.0066	J	0.016	0.0032	mg/Kg	1	☼	MAVPH	Total/NA
Toluene	0.011	J	0.016	0.0032	mg/Kg	1	☼	MAVPH	Total/NA
C9-C10 Aromatics	0.019	J	0.079	0.011	mg/Kg	1	☼	MAVPH	Total/NA
C9-C12 Aliphatics (unadjusted)	0.049	J	0.079	0.034	mg/Kg	1	☼	MAVPH	Total/NA
Fluoranthene	0.45		0.40	0.40	mg/Kg	1	☼	MAEPH2.1	Total/NA
Antimony	1.7	J	5.4	0.40	mg/Kg	1	☼	6010D	Total/NA
Arsenic	53		1.6	0.20	mg/Kg	1	☼	6010D	Total/NA
Barium	57		1.1	0.13	mg/Kg	1	☼	6010D	Total/NA
Beryllium	0.30	J	0.54	0.027	mg/Kg	1	☼	6010D	Total/NA
Chromium	34		1.1	0.14	mg/Kg	1	☼	6010D	Total/NA
Lead	47		1.6	0.23	mg/Kg	1	☼	6010D	Total/NA
Nickel	24		1.1	0.12	mg/Kg	1	☼	6010D	Total/NA
Vanadium	27		1.6	0.29	mg/Kg	1	☼	6010D	Total/NA
Zinc	86		3.2	0.83	mg/Kg	1	☼	6010D	Total/NA
Mercury	0.012	J	0.052	0.0087	mg/Kg	1	☼	7471A	Total/NA

Client Sample ID: LM-SO-P1-052523 — Lab Sample ID: 620-11736-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C5-C8 Aliphatics (adjusted)	0.34		0.070	0.036	mg/Kg	1		MA VPH SUM	Total/NA
C9-C12 Aliphatics (adjusted)	0.11		0.070	0.030	mg/Kg	1		MA VPH SUM	Total/NA
Benzene	0.013	J	0.014	0.0028	mg/Kg	1	☼	MAVPH	Total/NA
Ethylbenzene	0.013	J	0.014	0.0028	mg/Kg	1	☼	MAVPH	Total/NA
Methyl tert-butyl ether	0.088	B	0.014	0.0028	mg/Kg	1	☼	MAVPH	Total/NA
m,p-Xylene	0.051		0.028	0.0028	mg/Kg	1	☼	MAVPH	Total/NA
o-Xylene	0.032		0.014	0.0028	mg/Kg	1	☼	MAVPH	Total/NA
Toluene	0.040		0.014	0.0028	mg/Kg	1	☼	MAVPH	Total/NA
C5-C8 Aliphatics (unadjusted)	0.48		0.070	0.036	mg/Kg	1	☼	MAVPH	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: LM-SO-P1-052523 (Continued)

Lab Sample ID: 620-11736-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C9-C10 Aromatics	0.17		0.070	0.0098	mg/Kg	1	☼	MAVPH	Total/NA
C9-C12 Aliphatics (unadjusted)	0.38		0.070	0.030	mg/Kg	1	☼	MAVPH	Total/NA
C19-C36 Aliphatics	58		7.1	7.1	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics	33		7.1	7.1	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	32		7.1	7.1	mg/Kg	1	☼	MAEPH2.1	Total/NA
Fluoranthene	0.44		0.35	0.35	mg/Kg	1	☼	MAEPH2.1	Total/NA
Antimony	0.94	J	4.7	0.36	mg/Kg	1	☼	6010D	Total/NA
Arsenic	16		1.4	0.18	mg/Kg	1	☼	6010D	Total/NA
Barium	44		0.95	0.11	mg/Kg	1	☼	6010D	Total/NA
Beryllium	0.24	J	0.47	0.024	mg/Kg	1	☼	6010D	Total/NA
Cadmium	0.034	J	0.47	0.025	mg/Kg	1	☼	6010D	Total/NA
Chromium	20		0.95	0.13	mg/Kg	1	☼	6010D	Total/NA
Lead	60		1.4	0.20	mg/Kg	1	☼	6010D	Total/NA
Nickel	16		0.95	0.11	mg/Kg	1	☼	6010D	Total/NA
Vanadium	17		1.4	0.25	mg/Kg	1	☼	6010D	Total/NA
Zinc	150		2.8	0.74	mg/Kg	1	☼	6010D	Total/NA
Mercury	0.062		0.044	0.0074	mg/Kg	1	☼	7471A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: LM-SO-UST01-052523 Lab Sample ID: 620-11736-1

Date Collected: 05/25/23 12:10 **Matrix: Solid**
Date Received: 05/26/23 16:59 **Percent Solids: 90.3**

Method: MA DEP MA VPH SUM - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	**0.20**		0.065	0.033	mg/Kg			06/02/23 10:41	1
C9-C12 Aliphatics (adjusted)	**0.29**		0.065	0.028	mg/Kg			06/02/23 10:41	1

Method: MA DEP MAVPH - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.013	0.0026	mg/Kg	☼	05/31/23 07:06	05/31/23 10:03	1
Ethylbenzene	**0.0069**	**J**	0.013	0.0026	mg/Kg	☼	05/31/23 07:06	05/31/23 10:03	1
Methyl tert-butyl ether	**0.0043**	**J B**	0.013	0.0026	mg/Kg	☼	05/31/23 07:06	05/31/23 10:03	1
m,p-Xylene	**0.020**	**J**	0.026	0.0026	mg/Kg	☼	05/31/23 07:06	05/31/23 10:03	1
Naphthalene	**0.012**	**J**	0.013	0.0088	mg/Kg	☼	05/31/23 07:06	05/31/23 10:03	1
o-Xylene	**0.0048**	**J**	0.013	0.0026	mg/Kg	☼	05/31/23 07:06	05/31/23 10:03	1
Toluene	**0.0082**	**J**	0.013	0.0026	mg/Kg	☼	05/31/23 07:06	05/31/23 10:03	1
C5-C8 Aliphatics (unadjusted)	**0.21**		0.065	0.033	mg/Kg	☼	05/31/23 07:06	05/31/23 10:03	1
C9-C10 Aromatics	**0.30**		0.065	0.0091	mg/Kg	☼	05/31/23 07:06	05/31/23 10:03	1
C9-C12 Aliphatics (unadjusted)	**0.62**		0.065	0.028	mg/Kg	☼	05/31/23 07:06	05/31/23 10:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*103*		*70 - 130*	*05/31/23 07:06*	*05/31/23 10:03*	*1*
a,a,a-Trifluorotoluene (pid)	*94*		*70 - 130*	*05/31/23 07:06*	*05/31/23 10:03*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		7.2	7.2	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
C19-C36 Aliphatics	**16**		7.2	7.2	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
C11-C22 Aromatics	**12**		7.2	7.2	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
C11-C22 Aromatics (Adjusted)	**11**		7.2	7.2	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Naphthalene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
2-Methylnaphthalene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Acenaphthylene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Acenaphthene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Fluorene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Phenanthrene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Anthracene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Fluoranthene	**0.63**		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Pyrene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Benzo[a]anthracene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Chrysene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Benzo[b]fluoranthene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Benzo[k]fluoranthene	ND	*1	0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Benzo[a]pyrene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Indeno[1,2,3-cd]pyrene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Dibenz(a,h)anthracene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1
Benzo[g,h,i]perylene	ND		0.36	0.36	mg/Kg	☼	05/30/23 10:20	06/01/23 18:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*60*		*40 - 140*	*05/30/23 10:20*	*06/01/23 18:20*	*1*
o-Terphenyl (Surr)	*69*		*40 - 140*	*05/30/23 10:20*	*06/01/23 18:20*	*1*
2-Fluorobiphenyl (Surr)	*94*		*40 - 140*	*05/30/23 10:20*	*06/01/23 18:20*	*1*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Client Sample ID: LM-SO-UST01-052523

Date Collected: 05/25/23 12:10
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-1

Matrix: Solid
Percent Solids: 90.3

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.3	J	5.4	0.41	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1
Arsenic	21		1.6	0.20	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1
Barium	50		1.1	0.13	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1
Beryllium	0.33	J	0.54	0.027	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1
Cadmium	ND		0.54	0.028	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1
Chromium	27		1.1	0.14	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1
Lead	28		1.6	0.23	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1
Nickel	20		1.1	0.12	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1
Selenium	ND		1.6	0.31	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1
Silver	ND		1.6	0.17	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1
Thallium	ND		3.2	1.2	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1
Vanadium	21		1.6	0.29	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1
Zinc	64		3.2	0.83	mg/Kg	☼	05/30/23 07:41	05/30/23 17:51	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.025	J	0.054	0.0091	mg/Kg	☼	05/30/23 08:08	05/30/23 13:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	9.7		0.1	0.1	%			06/01/23 10:58	1
Percent Solids (EPA Moisture)	90.3		0.1	0.1	%			06/01/23 10:58	1

Client Sample ID: LM-SO-UST02-052523 Lab Sample ID: 620-11736-2

Date Collected: 05/25/23 17:50 **Matrix: Solid**
Date Received: 05/26/23 16:59 **Percent Solids: 79.9**

Method: MA DEP MA VPH SUM - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		0.091	0.047	mg/Kg			06/02/23 10:41	1
C9-C12 Aliphatics (adjusted)	ND		0.091	0.039	mg/Kg			06/02/23 10:41	1

Method: MA DEP MAVPH - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.018	0.0036	mg/Kg	☼	05/31/23 07:06	05/31/23 10:44	1
Ethylbenzene	**0.0049**	**J**	0.018	0.0036	mg/Kg	☼	05/31/23 07:06	05/31/23 10:44	1
Methyl tert-butyl ether	**0.057**	**B**	0.018	0.0036	mg/Kg	☼	05/31/23 07:06	05/31/23 10:44	1
m,p-Xylene	**0.016**	**J**	0.036	0.0036	mg/Kg	☼	05/31/23 07:06	05/31/23 10:44	1
Naphthalene	ND		0.018	0.012	mg/Kg	☼	05/31/23 07:06	05/31/23 10:44	1
o-Xylene	**0.0091**	**J**	0.018	0.0036	mg/Kg	☼	05/31/23 07:06	05/31/23 10:44	1
Toluene	**0.016**	**J**	0.018	0.0036	mg/Kg	☼	05/31/23 07:06	05/31/23 10:44	1
C5-C8 Aliphatics (unadjusted)	ND		0.091	0.047	mg/Kg	☼	05/31/23 07:06	05/31/23 10:44	1
C9-C10 Aromatics	**0.034**	**J**	0.091	0.013	mg/Kg	☼	05/31/23 07:06	05/31/23 10:44	1
C9-C12 Aliphatics (unadjusted)	**0.072**	**J**	0.091	0.039	mg/Kg	☼	05/31/23 07:06	05/31/23 10:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*104*		*70 - 130*	*05/31/23 07:06*	*05/31/23 10:44*	*1*
a,a,a-Trifluorotoluene (pid)	*95*		*70 - 130*	*05/31/23 07:06*	*05/31/23 10:44*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		8.0	8.0	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
C19-C36 Aliphatics	ND		8.0	8.0	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
C11-C22 Aromatics	ND		8.0	8.0	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
C11-C22 Aromatics (Adjusted)	ND		8.0	8.0	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Naphthalene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
2-Methylnaphthalene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Acenaphthylene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Acenaphthene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Fluorene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Phenanthrene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Anthracene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Fluoranthene	**0.44**		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Pyrene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Benzo[a]anthracene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Chrysene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Benzo[b]fluoranthene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Benzo[k]fluoranthene	ND	*1	0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Benzo[a]pyrene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Indeno[1,2,3-cd]pyrene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Dibenz(a,h)anthracene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1
Benzo[g,h,i]perylene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 18:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*53*		*40 - 140*	*05/30/23 10:20*	*06/01/23 18:49*	*1*
o-Terphenyl (Surr)	*58*		*40 - 140*	*05/30/23 10:20*	*06/01/23 18:49*	*1*
2-Fluorobiphenyl (Surr)	*88*		*40 - 140*	*05/30/23 10:20*	*06/01/23 18:49*	*1*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Client Sample ID: LM-SO-UST02-052523

Date Collected: 05/25/23 17:50
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-2

Matrix: Solid
Percent Solids: 79.9

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.5	J	6.2	0.46	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1
Arsenic	52		1.8	0.23	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1
Barium	54		1.2	0.15	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1
Beryllium	0.26	J	0.62	0.031	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1
Cadmium	ND		0.62	0.032	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1
Chromium	34		1.2	0.16	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1
Lead	29		1.8	0.26	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1
Nickel	23		1.2	0.14	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1
Selenium	ND		1.8	0.35	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1
Silver	ND		1.8	0.20	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1
Thallium	ND		3.7	1.4	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1
Vanadium	25		1.8	0.33	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1
Zinc	150		3.7	0.95	mg/Kg	☼	05/30/23 07:41	05/30/23 17:57	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.054	0.0089	mg/Kg	☼	05/30/23 08:08	05/30/23 13:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	20.1		0.1	0.1	%			06/01/23 10:58	1
Percent Solids (EPA Moisture)	79.9		0.1	0.1	%			06/01/23 10:58	1

Client Sample ID: LM-SO-UST03-052523 Lab Sample ID: 620-11736-3

Date Collected: 05/25/23 16:30 **Matrix: Solid**
Date Received: 05/26/23 16:59 **Percent Solids: 91.2**

Method: MA DEP MA VPH SUM - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		0.073	0.037	mg/Kg			06/02/23 10:41	1
C9-C12 Aliphatics (adjusted)	ND		0.073	0.031	mg/Kg			06/02/23 10:41	1

Method: MA DEP MAVPH - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.015	0.0029	mg/Kg	☼	05/31/23 07:06	05/31/23 11:25	1
Ethylbenzene	ND		0.015	0.0029	mg/Kg	☼	05/31/23 07:06	05/31/23 11:25	1
Methyl tert-butyl ether	**0.011**	**J B**	0.015	0.0029	mg/Kg	☼	05/31/23 07:06	05/31/23 11:25	1
m,p-Xylene	**0.0066**	**J**	0.029	0.0029	mg/Kg	☼	05/31/23 07:06	05/31/23 11:25	1
Naphthalene	ND		0.015	0.0099	mg/Kg	☼	05/31/23 07:06	05/31/23 11:25	1
o-Xylene	**0.0043**	**J**	0.015	0.0029	mg/Kg	☼	05/31/23 07:06	05/31/23 11:25	1
Toluene	**0.0056**	**J**	0.015	0.0029	mg/Kg	☼	05/31/23 07:06	05/31/23 11:25	1
C5-C8 Aliphatics (unadjusted)	ND		0.073	0.037	mg/Kg	☼	05/31/23 07:06	05/31/23 11:25	1
C9-C10 Aromatics	**0.024**	**J**	0.073	0.010	mg/Kg	☼	05/31/23 07:06	05/31/23 11:25	1
C9-C12 Aliphatics (unadjusted)	**0.055**	**J**	0.073	0.031	mg/Kg	☼	05/31/23 07:06	05/31/23 11:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*102*		*70 - 130*	*05/31/23 07:06*	*05/31/23 11:25*	*1*
a,a,a-Trifluorotoluene (pid)	*93*		*70 - 130*	*05/31/23 07:06*	*05/31/23 11:25*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND	F1	6.9	6.9	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
C19-C36 Aliphatics	**19**	**F1**	6.9	6.9	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
C11-C22 Aromatics	**12**		6.9	6.9	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
C11-C22 Aromatics (Adjusted)	**11**		6.9	6.9	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Naphthalene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
2-Methylnaphthalene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Acenaphthylene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Acenaphthene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Fluorene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Phenanthrene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Anthracene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Fluoranthene	**0.64**		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Pyrene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Benzo[a]anthracene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Chrysene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Benzo[b]fluoranthene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Benzo[k]fluoranthene	ND	*1	0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Benzo[a]pyrene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Indeno[1,2,3-cd]pyrene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Dibenz(a,h)anthracene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1
Benzo[g,h,i]perylene	ND		0.34	0.34	mg/Kg	☼	05/30/23 10:20	06/01/23 19:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*55*		*40 - 140*	*05/30/23 10:20*	*06/01/23 19:18*	*1*
o-Terphenyl (Surr)	*64*		*40 - 140*	*05/30/23 10:20*	*06/01/23 19:18*	*1*
2-Fluorobiphenyl (Surr)	*103*		*40 - 140*	*05/30/23 10:20*	*06/01/23 19:18*	*1*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Client Sample ID: LM-SO-UST03-052523

Date Collected: 05/25/23 16:30
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-3

Matrix: Solid
Percent Solids: 91.2

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.81	J	5.1	0.38	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1
Arsenic	12		1.5	0.19	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1
Barium	66	F1	1.0	0.12	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1
Beryllium	0.42	J	0.51	0.026	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1
Cadmium	ND		0.51	0.026	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1
Chromium	27		1.0	0.14	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1
Lead	32		1.5	0.22	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1
Nickel	19		1.0	0.12	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1
Selenium	ND		1.5	0.29	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1
Silver	ND		1.5	0.16	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1
Thallium	ND		3.1	1.1	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1
Vanadium	22		1.5	0.27	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1
Zinc	47		3.1	0.79	mg/Kg	☼	05/30/23 07:41	05/30/23 18:03	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.069		0.045	0.0076	mg/Kg	☼	05/30/23 08:08	05/30/23 14:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	8.8		0.1	0.1	%			06/01/23 10:58	1
Percent Solids (EPA Moisture)	91.2		0.1	0.1	%			06/01/23 10:58	1

Client Sample ID: SO-FD-01

Date Collected: 05/25/23 08:00
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-4

Matrix: Solid
Percent Solids: 81.2

Method: MA DEP MA VPH SUM - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		0.079	0.041	mg/Kg			06/02/23 10:41	1
C9-C12 Aliphatics (adjusted)	ND		0.079	0.034	mg/Kg			06/02/23 10:41	1

Method: MA DEP MAVPH - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.016	0.0032	mg/Kg	☼	05/31/23 07:06	05/31/23 12:05	1
Ethylbenzene	ND		0.016	0.0032	mg/Kg	☼	05/31/23 07:06	05/31/23 12:05	1
Methyl tert-butyl ether	**0.053**	**B**	0.016	0.0032	mg/Kg	☼	05/31/23 07:06	05/31/23 12:05	1
m,p-Xylene	**0.010**	**J**	0.032	0.0032	mg/Kg	☼	05/31/23 07:06	05/31/23 12:05	1
Naphthalene	ND		0.016	0.011	mg/Kg	☼	05/31/23 07:06	05/31/23 12:05	1
o-Xylene	**0.0066**	**J**	0.016	0.0032	mg/Kg	☼	05/31/23 07:06	05/31/23 12:05	1
Toluene	**0.011**	**J**	0.016	0.0032	mg/Kg	☼	05/31/23 07:06	05/31/23 12:05	1
C5-C8 Aliphatics (unadjusted)	ND		0.079	0.041	mg/Kg	☼	05/31/23 07:06	05/31/23 12:05	1
C9-C10 Aromatics	**0.019**	**J**	0.079	0.011	mg/Kg	☼	05/31/23 07:06	05/31/23 12:05	1
C9-C12 Aliphatics (unadjusted)	**0.049**	**J**	0.079	0.034	mg/Kg	☼	05/31/23 07:06	05/31/23 12:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*103*		*70 - 130*	*05/31/23 07:06*	*05/31/23 12:05*	*1*
a,a,a-Trifluorotoluene (pid)	*94*		*70 - 130*	*05/31/23 07:06*	*05/31/23 12:05*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		8.0	8.0	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
C19-C36 Aliphatics	ND		8.0	8.0	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
C11-C22 Aromatics	ND		8.0	8.0	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
C11-C22 Aromatics (Adjusted)	ND		8.0	8.0	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Naphthalene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
2-Methylnaphthalene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Acenaphthylene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Acenaphthene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Fluorene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Phenanthrene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Anthracene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Fluoranthene	**0.45**		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Pyrene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Benzo[a]anthracene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Chrysene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Benzo[b]fluoranthene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Benzo[k]fluoranthene	ND	*1	0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Benzo[a]pyrene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Indeno[1,2,3-cd]pyrene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Dibenz(a,h)anthracene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1
Benzo[g,h,i]perylene	ND		0.40	0.40	mg/Kg	☼	05/30/23 10:20	06/01/23 20:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*57*		*40 - 140*	*05/30/23 10:20*	*06/01/23 20:46*	*1*
o-Terphenyl (Surr)	*60*		*40 - 140*	*05/30/23 10:20*	*06/01/23 20:46*	*1*
2-Fluorobiphenyl (Surr)	*102*		*40 - 140*	*05/30/23 10:20*	*06/01/23 20:46*	*1*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Client Sample ID: SO-FD-01

Date Collected: 05/25/23 08:00
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-4

Matrix: Solid
Percent Solids: 81.2

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.7	J	5.4	0.40	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1
Arsenic	53		1.6	0.20	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1
Barium	57		1.1	0.13	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1
Beryllium	0.30	J	0.54	0.027	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1
Cadmium	ND		0.54	0.028	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1
Chromium	34		1.1	0.14	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1
Lead	47		1.6	0.23	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1
Nickel	24		1.1	0.12	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1
Selenium	ND		1.6	0.31	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1
Silver	ND		1.6	0.17	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1
Thallium	ND		3.2	1.2	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1
Vanadium	27		1.6	0.29	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1
Zinc	86		3.2	0.83	mg/Kg	☼	05/30/23 07:41	05/30/23 18:39	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.012	J	0.052	0.0087	mg/Kg	☼	05/30/23 08:08	05/30/23 14:14	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	18.8		0.1	0.1	%			06/01/23 10:58	1
Percent Solids (EPA Moisture)	81.2		0.1	0.1	%			06/01/23 10:58	1

Client Sample ID: LM-SO-P1-052523

Date Collected: 05/25/23 16:50
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-5

Matrix: Solid
Percent Solids: 92.2

Method: MA DEP MA VPH SUM - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	**0.34**		0.070	0.036	mg/Kg			06/02/23 10:41	1
C9-C12 Aliphatics (adjusted)	**0.11**		0.070	0.030	mg/Kg			06/02/23 10:41	1

Method: MA DEP MAVPH - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.013**	**J**	0.014	0.0028	mg/Kg	☼	05/31/23 07:06	05/31/23 12:45	1
Ethylbenzene	**0.013**	**J**	0.014	0.0028	mg/Kg	☼	05/31/23 07:06	05/31/23 12:45	1
Methyl tert-butyl ether	**0.088**	**B**	0.014	0.0028	mg/Kg	☼	05/31/23 07:06	05/31/23 12:45	1
m,p-Xylene	**0.051**		0.028	0.0028	mg/Kg	☼	05/31/23 07:06	05/31/23 12:45	1
Naphthalene	ND		0.014	0.0095	mg/Kg	☼	05/31/23 07:06	05/31/23 12:45	1
o-Xylene	**0.032**		0.014	0.0028	mg/Kg	☼	05/31/23 07:06	05/31/23 12:45	1
Toluene	**0.040**		0.014	0.0028	mg/Kg	☼	05/31/23 07:06	05/31/23 12:45	1
C5-C8 Aliphatics (unadjusted)	**0.48**		0.070	0.036	mg/Kg	☼	05/31/23 07:06	05/31/23 12:45	1
C9-C10 Aromatics	**0.17**		0.070	0.0098	mg/Kg	☼	05/31/23 07:06	05/31/23 12:45	1
C9-C12 Aliphatics (unadjusted)	**0.38**		0.070	0.030	mg/Kg	☼	05/31/23 07:06	05/31/23 12:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*105*		*70 - 130*	*05/31/23 07:06*	*05/31/23 12:45*	*1*
a,a,a-Trifluorotoluene (pid)	*95*		*70 - 130*	*05/31/23 07:06*	*05/31/23 12:45*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		7.1	7.1	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
C19-C36 Aliphatics	**58**		7.1	7.1	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
C11-C22 Aromatics	**33**		7.1	7.1	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
C11-C22 Aromatics (Adjusted)	**32**		7.1	7.1	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Naphthalene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
2-Methylnaphthalene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Acenaphthylene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Acenaphthene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Fluorene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Phenanthrene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Anthracene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Fluoranthene	**0.44**		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Pyrene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Benzo[a]anthracene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Chrysene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Benzo[b]fluoranthene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Benzo[k]fluoranthene	ND	*1	0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Benzo[a]pyrene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Indeno[1,2,3-cd]pyrene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Dibenz(a,h)anthracene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1
Benzo[g,h,i]perylene	ND		0.35	0.35	mg/Kg	☼	05/30/23 10:20	06/01/23 21:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*51*		*40 - 140*	*05/30/23 10:20*	*06/01/23 21:15*	*1*
o-Terphenyl (Surr)	*56*		*40 - 140*	*05/30/23 10:20*	*06/01/23 21:15*	*1*
2-Fluorobiphenyl (Surr)	*92*		*40 - 140*	*05/30/23 10:20*	*06/01/23 21:15*	*1*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Client Sample ID: LM-SO-P1-052523

Date Collected: 05/25/23 16:50
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-5

Matrix: Solid
Percent Solids: 92.2

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.94	J	4.7	0.36	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1
Arsenic	16		1.4	0.18	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1
Barium	44		0.95	0.11	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1
Beryllium	0.24	J	0.47	0.024	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1
Cadmium	0.034	J	0.47	0.025	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1
Chromium	20		0.95	0.13	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1
Lead	60		1.4	0.20	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1
Nickel	16		0.95	0.11	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1
Selenium	ND		1.4	0.27	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1
Silver	ND		1.4	0.15	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1
Thallium	ND		2.8	1.0	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1
Vanadium	17		1.4	0.25	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1
Zinc	150		2.8	0.74	mg/Kg	☼	05/30/23 07:41	05/30/23 18:45	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.062		0.044	0.0074	mg/Kg	☼	05/30/23 08:08	05/30/23 14:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	7.8		0.1	0.1	%			06/01/23 10:58	1
Percent Solids (EPA Moisture)	92.2		0.1	0.1	%			06/01/23 10:58	1

Surrogate Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Method: MAVPH - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		TFT-F1	TFT-P2
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
620-11736-1	LM-SO-UST01-052523	103	94
620-11736-2	LM-SO-UST02-052523	104	95
620-11736-3	LM-SO-UST03-052523	102	93
620-11736-3 MS	LM-SO-UST03-052523	102	95
620-11736-3 MSD	LM-SO-UST03-052523	103	96
620-11736-4	SO-FD-01	103	94
620-11736-5	LM-SO-P1-052523	105	95
LCS 480-671326/2-A	Lab Control Sample	103	95
LCSD 480-671326/3-A	Lab Control Sample Dup	99	92
MB 480-671326/1-A	Method Blank	113	103

Surrogate Legend

TFT-F = a,a,a-Trifluorotoluene (fid)
TFT-P = a,a,a-Trifluorotoluene (pid)

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		1COD1	OTPH1	FBP1
Lab Sample ID	Client Sample ID	(40-140)	(40-140)	(40-140)
620-11736-1	LM-SO-UST01-052523	60	69	94
620-11736-2	LM-SO-UST02-052523	53	58	88
620-11736-3	LM-SO-UST03-052523	55	64	103
620-11736-3 MS	LM-SO-UST03-052523	77	89	127
620-11736-3 MSD	LM-SO-UST03-052523	68	70	101
620-11736-4	SO-FD-01	57	60	102
620-11736-5	LM-SO-P1-052523	51	56	92
LCS 620-23055/2-B	Lab Control Sample	77	66	103
LCSD 620-23055/3-B	Lab Control Sample Dup	70	67	104
MB 620-23055/1-B	Method Blank	65	60	106

Surrogate Legend

1COD = 1-Chlorooctadecane (Surr)
OTPH = o-Terphenyl (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Method: MAVPH - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 480-671326/1-A
Matrix: Solid
Analysis Batch: 671344

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 671326

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.050	0.010	mg/Kg		05/31/23 07:06	05/31/23 08:02	1
Ethylbenzene	ND		0.050	0.010	mg/Kg		05/31/23 07:06	05/31/23 08:02	1
Methyl tert-butyl ether	0.0110	J	0.050	0.010	mg/Kg		05/31/23 07:06	05/31/23 08:02	1
m,p-Xylene	ND		0.10	0.010	mg/Kg		05/31/23 07:06	05/31/23 08:02	1
Naphthalene	ND		0.050	0.034	mg/Kg		05/31/23 07:06	05/31/23 08:02	1
o-Xylene	ND		0.050	0.010	mg/Kg		05/31/23 07:06	05/31/23 08:02	1
Toluene	ND		0.050	0.010	mg/Kg		05/31/23 07:06	05/31/23 08:02	1
C5-C8 Aliphatics (unadjusted)	ND		0.25	0.13	mg/Kg		05/31/23 07:06	05/31/23 08:02	1
C9-C10 Aromatics	ND		0.25	0.035	mg/Kg		05/31/23 07:06	05/31/23 08:02	1
C9-C12 Aliphatics (unadjusted)	ND		0.25	0.11	mg/Kg		05/31/23 07:06	05/31/23 08:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*113*		*70 - 130*	*05/31/23 07:06*	*05/31/23 08:02*	*1*
a,a,a-Trifluorotoluene (pid)	*103*		*70 - 130*	*05/31/23 07:06*	*05/31/23 08:02*	*1*

Lab Sample ID: LCS 480-671326/2-A
Matrix: Solid
Analysis Batch: 671344

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 671326

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	2.50	2.25		mg/Kg		90	70 - 130
Ethylbenzene	2.50	2.32		mg/Kg		93	70 - 130
Methyl tert-butyl ether	2.50	2.01		mg/Kg		80	70 - 130
m,p-Xylene	5.00	4.54		mg/Kg		91	70 - 130
Naphthalene	2.50	2.14		mg/Kg		85	70 - 130
o-Xylene	2.50	2.25		mg/Kg		90	70 - 130
Toluene	2.50	2.24		mg/Kg		90	70 - 130
C5-C8 Aliphatics (unadjusted)	7.50	8.06		mg/Kg		107	70 - 130
C9-C10 Aromatics	2.50	2.46		mg/Kg		99	70 - 130
C9-C12 Aliphatics (unadjusted)	7.50	8.39		mg/Kg		112	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (fid)	*103*		*70 - 130*
a,a,a-Trifluorotoluene (pid)	*95*		*70 - 130*

Lab Sample ID: LCSD 480-671326/3-A
Matrix: Solid
Analysis Batch: 671344

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 671326

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	2.50	2.19		mg/Kg		87	70 - 130	3	25
Ethylbenzene	2.50	2.26		mg/Kg		90	70 - 130	3	25
Methyl tert-butyl ether	2.50	1.97		mg/Kg		79	70 - 130	2	25
m,p-Xylene	5.00	4.42		mg/Kg		88	70 - 130	3	25
Naphthalene	2.50	2.12		mg/Kg		85	70 - 130	1	25
o-Xylene	2.50	2.21		mg/Kg		88	70 - 130	2	25
Toluene	2.50	2.18		mg/Kg		87	70 - 130	3	25
C5-C8 Aliphatics (unadjusted)	7.50	7.74		mg/Kg		103	70 - 130	4	25

Method: MAVPH - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 480-671326/3-A
Matrix: Solid
Analysis Batch: 671344

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 671326

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics			2.50	2.39		mg/Kg		96	70 - 130	3	25
C9-C12 Aliphatics (unadjusted)			7.50	8.09		mg/Kg		108	70 - 130	4	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (fid)	*99*		*70 - 130*
a,a,a-Trifluorotoluene (pid)	*92*		*70 - 130*

Lab Sample ID: 620-11736-3 MS
Matrix: Solid
Analysis Batch: 671344

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 671326

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	ND		0.696	0.639		mg/Kg	☼	92	70 - 130
Ethylbenzene	ND		0.696	0.648		mg/Kg	☼	93	70 - 130
Methyl tert-butyl ether	0.011	J B	0.696	0.582		mg/Kg	☼	82	70 - 130
m,p-Xylene	0.0066	J	1.39	1.29		mg/Kg	☼	92	70 - 130
Naphthalene	ND		0.696	0.586		mg/Kg	☼	84	70 - 130
o-Xylene	0.0043	J	0.696	0.635		mg/Kg	☼	91	70 - 130
Toluene	0.0056	J	0.696	0.634		mg/Kg	☼	90	70 - 130
C5-C8 Aliphatics (unadjusted)	ND		2.09	2.25		mg/Kg	☼	108	70 - 130
C9-C10 Aromatics	0.024	J	0.696	0.722		mg/Kg	☼	100	70 - 130
C9-C12 Aliphatics (unadjusted)	0.055	J	2.09	2.47		mg/Kg	☼	116	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (fid)	*102*		*70 - 130*
a,a,a-Trifluorotoluene (pid)	*95*		*70 - 130*

Lab Sample ID: 620-11736-3 MSD
Matrix: Solid
Analysis Batch: 671344

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 671326

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.687	0.632		mg/Kg	☼	92	70 - 130	1	50
Ethylbenzene	ND		0.687	0.647		mg/Kg	☼	94	70 - 130	0	50
Methyl tert-butyl ether	0.011	J B	0.687	0.577		mg/Kg	☼	82	70 - 130	1	50
m,p-Xylene	0.0066	J	1.37	1.28		mg/Kg	☼	93	70 - 130	1	50
Naphthalene	ND		0.687	0.572		mg/Kg	☼	83	70 - 130	2	50
o-Xylene	0.0043	J	0.687	0.629		mg/Kg	☼	91	70 - 130	1	50
Toluene	0.0056	J	0.687	0.632		mg/Kg	☼	91	70 - 130	0	50
C5-C8 Aliphatics (unadjusted)	ND		2.06	2.15		mg/Kg	☼	104	70 - 130	4	50
C9-C10 Aromatics	0.024	J	0.687	0.720		mg/Kg	☼	101	70 - 130	0	50
C9-C12 Aliphatics (unadjusted)	0.055	J	2.06	2.47		mg/Kg	☼	117	70 - 130	0	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene (fid)	*103*		*70 - 130*
a,a,a-Trifluorotoluene (pid)	*96*		*70 - 130*

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-23055/1-B
Matrix: Solid
Analysis Batch: 23095

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23055

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		6.7	6.7	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
C19-C36 Aliphatics	ND		6.7	6.7	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
C11-C22 Aromatics	ND		6.7	6.7	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
C11-C22 Aromatics (Adjusted)	ND		6.7	6.7	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Naphthalene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
2-Methylnaphthalene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Acenaphthylene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Acenaphthene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Fluorene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Phenanthrene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Anthracene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Fluoranthene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Pyrene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Benzo[a]anthracene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Chrysene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Benzo[b]fluoranthene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Benzo[k]fluoranthene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Benzo[a]pyrene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Indeno[1,2,3-cd]pyrene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Dibenz(a,h)anthracene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1
Benzo[g,h,i]perylene	ND		0.33	0.33	mg/Kg		05/30/23 10:20	05/31/23 13:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*65*		*40 - 140*	*05/30/23 10:20*	*05/31/23 13:14*	*1*
o-Terphenyl (Surr)	*60*		*40 - 140*	*05/30/23 10:20*	*05/31/23 13:14*	*1*
2-Fluorobiphenyl (Surr)	*106*		*40 - 140*	*05/30/23 10:20*	*05/31/23 13:14*	*1*

Lab Sample ID: LCS 620-23055/2-B
Matrix: Solid
Analysis Batch: 23095

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23055

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C18 Aliphatics	8.00	ND		mg/Kg		57	40 - 140
C19-C36 Aliphatics	10.7	8.17		mg/Kg		77	40 - 140
C11-C22 Aromatics	22.7	17.2		mg/Kg		76	40 - 140
Naphthalene	1.33	0.912		mg/Kg		68	40 - 140
2-Methylnaphthalene	1.33	0.917		mg/Kg		69	40 - 140
Acenaphthylene	1.33	0.907		mg/Kg		68	40 - 140
Acenaphthene	1.33	0.871		mg/Kg		65	40 - 140
Fluorene	1.33	0.881		mg/Kg		66	40 - 140
Phenanthrene	1.33	0.793		mg/Kg		59	40 - 140
Anthracene	1.33	0.938		mg/Kg		70	40 - 140
Fluoranthene	1.33	1.56		mg/Kg		117	40 - 140
Pyrene	1.33	1.01		mg/Kg		76	40 - 140
Benzo[a]anthracene	1.33	0.882		mg/Kg		66	40 - 140
Chrysene	1.33	1.04		mg/Kg		78	40 - 140
Benzo[b]fluoranthene	1.33	0.857		mg/Kg		64	40 - 140
Benzo[k]fluoranthene	1.33	1.40		mg/Kg		105	40 - 140

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCS 620-23055/2-B
Matrix: Solid
Analysis Batch: 23095

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23055

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]pyrene	1.33	0.966		mg/Kg		72	40 - 140
Indeno[1,2,3-cd]pyrene	1.33	0.974		mg/Kg		73	40 - 140
Dibenz(a,h)anthracene	1.33	0.993		mg/Kg		75	40 - 140
Benzo[g,h,i]perylene	1.33	1.12		mg/Kg		84	40 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*77*		*40 - 140*
o-Terphenyl (Surr)	*66*		*40 - 140*
2-Fluorobiphenyl (Surr)	*103*		*40 - 140*

Lab Sample ID: LCSD 620-23055/3-B
Matrix: Solid
Analysis Batch: 23095

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23055

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics	8.00	ND		mg/Kg		49	40 - 140	16	25
C19-C36 Aliphatics	10.7	7.04		mg/Kg		66	40 - 140	15	25
C11-C22 Aromatics	22.7	17.1		mg/Kg		75	40 - 140	1	25
Naphthalene	1.33	0.921		mg/Kg		69	40 - 140	1	25
2-Methylnaphthalene	1.33	0.915		mg/Kg		69	40 - 140	0	25
Acenaphthylene	1.33	0.898		mg/Kg		67	40 - 140	1	25
Acenaphthene	1.33	0.866		mg/Kg		65	40 - 140	1	25
Fluorene	1.33	0.874		mg/Kg		66	40 - 140	1	25
Phenanthrene	1.33	0.793		mg/Kg		59	40 - 140	0	25
Anthracene	1.33	0.935		mg/Kg		70	40 - 140	0	25
Fluoranthene	1.33	1.40		mg/Kg		105	40 - 140	10	25
Pyrene	1.33	1.02		mg/Kg		76	40 - 140	0	25
Benzo[a]anthracene	1.33	0.892		mg/Kg		67	40 - 140	1	25
Chrysene	1.33	0.987		mg/Kg		74	40 - 140	6	25
Benzo[b]fluoranthene	1.33	0.980		mg/Kg		74	40 - 140	13	25
Benzo[k]fluoranthene	1.33	0.910	*1	mg/Kg		68	40 - 140	42	25
Benzo[a]pyrene	1.33	1.08		mg/Kg		81	40 - 140	12	25
Indeno[1,2,3-cd]pyrene	1.33	0.973		mg/Kg		73	40 - 140	0	25
Dibenz(a,h)anthracene	1.33	0.994		mg/Kg		75	40 - 140	0	25
Benzo[g,h,i]perylene	1.33	1.12		mg/Kg		84	40 - 140	0	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*70*		*40 - 140*
o-Terphenyl (Surr)	*67*		*40 - 140*
2-Fluorobiphenyl (Surr)	*104*		*40 - 140*

Lab Sample ID: 620-11736-3 MS
Matrix: Solid
Analysis Batch: 23364

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 23055

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C18 Aliphatics	ND	F1	8.59	6.41		mg/Kg	☼	75	40 - 140
C19-C36 Aliphatics	19	F1	11.5	25.4		mg/Kg	☼	53	40 - 140

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: 620-11736-3 MS
Matrix: Solid
Analysis Batch: 23364

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 23055

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
C11-C22 Aromatics	12		24.4	36.5		mg/Kg	☼	103	40 - 140
Naphthalene	ND		1.43	1.04		mg/Kg	☼	72	40 - 140
2-Methylnaphthalene	ND		1.43	1.09		mg/Kg	☼	76	40 - 140
Acenaphthylene	ND		1.43	1.13		mg/Kg	☼	79	40 - 140
Acenaphthene	ND		1.43	1.09		mg/Kg	☼	76	40 - 140
Fluorene	ND		1.43	1.14		mg/Kg	☼	80	40 - 140
Phenanthrene	ND		1.43	1.19		mg/Kg	☼	83	40 - 140
Anthracene	ND		1.43	1.28		mg/Kg	☼	89	40 - 140
Fluoranthene	0.64		1.43	1.82		mg/Kg	☼	82	40 - 140
Pyrene	ND		1.43	1.59		mg/Kg	☼	111	40 - 140
Benzo[a]anthracene	ND		1.43	1.25		mg/Kg	☼	87	40 - 140
Chrysene	ND		1.43	1.52		mg/Kg	☼	106	40 - 140
Benzo[b]fluoranthene	ND		1.43	1.38		mg/Kg	☼	97	40 - 140
Benzo[k]fluoranthene	ND	*1	1.43	1.37		mg/Kg	☼	95	40 - 140
Benzo[a]pyrene	ND		1.43	1.57		mg/Kg	☼	110	40 - 140
Indeno[1,2,3-cd]pyrene	ND		1.43	1.48		mg/Kg	☼	103	40 - 140
Dibenz(a,h)anthracene	ND		1.43	1.77		mg/Kg	☼	123	40 - 140
Benzo[g,h,i]perylene	ND		1.43	1.54		mg/Kg	☼	107	40 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*77*		*40 - 140*
o-Terphenyl (Surr)	*89*		*40 - 140*
2-Fluorobiphenyl (Surr)	*127*		*40 - 140*

Lab Sample ID: 620-11736-3 MSD
Matrix: Solid
Analysis Batch: 23139

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 23055

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics	ND	F1	8.70	4.26		mg/Kg	☼	49	40 - 140	NC	50
C19-C36 Aliphatics	19	F1	11.6	23.8	F1	mg/Kg	☼	38	40 - 140	7	50
C11-C22 Aromatics	12		24.6	29.5		mg/Kg	☼	73	40 - 140	21	50
Naphthalene	ND		1.45	0.858		mg/Kg	☼	59	40 - 140	19	50
2-Methylnaphthalene	ND		1.45	0.867		mg/Kg	☼	60	40 - 140	23	50
Acenaphthylene	ND		1.45	0.916		mg/Kg	☼	63	40 - 140	21	50
Acenaphthene	ND		1.45	0.868		mg/Kg	☼	60	40 - 140	22	50
Fluorene	ND		1.45	0.921		mg/Kg	☼	64	40 - 140	21	50
Phenanthrene	ND		1.45	0.984		mg/Kg	☼	68	40 - 140	19	50
Anthracene	ND		1.45	0.988		mg/Kg	☼	68	40 - 140	26	50
Fluoranthene	0.64		1.45	1.75		mg/Kg	☼	77	40 - 140	4	50
Pyrene	ND		1.45	1.22		mg/Kg	☼	84	40 - 140	26	50
Benzo[a]anthracene	ND		1.45	1.02		mg/Kg	☼	70	40 - 140	20	50
Chrysene	ND		1.45	1.24		mg/Kg	☼	85	40 - 140	20	50
Benzo[b]fluoranthene	ND		1.45	1.02		mg/Kg	☼	71	40 - 140	30	50
Benzo[k]fluoranthene	ND	*1	1.45	0.999		mg/Kg	☼	69	40 - 140	31	50
Benzo[a]pyrene	ND		1.45	1.17		mg/Kg	☼	81	40 - 140	30	50
Indeno[1,2,3-cd]pyrene	ND		1.45	1.21		mg/Kg	☼	84	40 - 140	20	50
Dibenz(a,h)anthracene	ND		1.45	1.26		mg/Kg	☼	87	40 - 140	33	50

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: 620-11736-3 MSD
Matrix: Solid
Analysis Batch: 23139

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 23055

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzo[g,h,i]perylene	ND		1.45	1.76		mg/Kg	☼	121	40 - 140	14	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*68*		*40 - 140*
o-Terphenyl (Surr)	*70*		*40 - 140*
2-Fluorobiphenyl (Surr)	*101*		*40 - 140*

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 620-23032/1-A
Matrix: Solid
Analysis Batch: 23088

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23032

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		5.0	0.38	mg/Kg		05/30/23 07:41	05/30/23 17:27	1
Arsenic	ND		1.5	0.19	mg/Kg		05/30/23 07:41	05/30/23 17:27	1
Barium	ND		1.0	0.12	mg/Kg		05/30/23 07:41	05/30/23 17:27	1
Beryllium	ND		0.50	0.025	mg/Kg		05/30/23 07:41	05/30/23 17:27	1
Cadmium	ND		0.50	0.026	mg/Kg		05/30/23 07:41	05/30/23 17:27	1
Chromium	ND		1.0	0.13	mg/Kg		05/30/23 07:41	05/30/23 17:27	1
Lead	ND		1.5	0.21	mg/Kg		05/30/23 07:41	05/30/23 17:27	1
Nickel	ND		1.0	0.12	mg/Kg		05/30/23 07:41	05/30/23 17:27	1
Selenium	ND		1.5	0.29	mg/Kg		05/30/23 07:41	05/30/23 17:27	1
Silver	ND		1.5	0.16	mg/Kg		05/30/23 07:41	05/30/23 17:27	1
Thallium	ND		3.0	1.1	mg/Kg		05/30/23 07:41	05/30/23 17:27	1
Vanadium	ND		1.5	0.27	mg/Kg		05/30/23 07:41	05/30/23 17:27	1
Zinc	ND		3.0	0.77	mg/Kg		05/30/23 07:41	05/30/23 17:27	1

Lab Sample ID: LCDSRM 620-23032/3-A
Matrix: Solid
Analysis Batch: 23088

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23032

Analyte			Spike Added	LCDSRM Result	LCDSRM Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony			225	78.5		mg/Kg		35.0	10.0 - 139.2	1	20
Arsenic			189	166		mg/Kg		88.1	65.6 - 122.1	3	20
Barium			311	284		mg/Kg		91.5	69.5 - 115.9	0	20
Beryllium			82.1	69.9		mg/Kg		85.2	69.7 - 116.0	1	20
Cadmium			239	184		mg/Kg		76.8	67.2 - 111.7	5	20
Chromium			210	183		mg/Kg		87.1	64.5 - 119.8	1	20
Lead			261	218		mg/Kg		83.4	70.4 - 120.0	4	20
Nickel			181	150		mg/Kg		82.9	63.1 - 117.1	1	20
Selenium			233	192		mg/Kg		82.2	62.2 - 118.3	3	20

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCDSRM 620-23032/3-A
Matrix: Solid
Analysis Batch: 23088

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23032

Analyte	Spike Added	LCDSRM Result	LCDSRM Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Silver	69.7	59.6		mg/Kg		85.5	66.5 - 121.7	2	20
Thallium	86.0	72.6		mg/Kg		84.4	58.9 - 122.6	7	20
Vanadium	218	195		mg/Kg		89.3	68.0 - 114.2	2	20
Zinc	234	202		mg/Kg		86.2	64.9 - 120.7	2	20

Lab Sample ID: LCSSRM 620-23032/2-A
Matrix: Solid
Analysis Batch: 23088

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23032

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	212	77.4		mg/Kg		36.5	10.0 - 139.2
Arsenic	178	171		mg/Kg		96.1	65.6 - 122.1
Barium	293	285		mg/Kg		97.1	69.5 - 115.9
Beryllium	77.5	70.5		mg/Kg		91.1	69.7 - 116.0
Cadmium	226	193		mg/Kg		85.4	67.2 - 111.7
Chromium	198	185		mg/Kg		93.4	64.5 - 119.8
Lead	247	227		mg/Kg		92.0	70.4 - 120.0
Nickel	171	151		mg/Kg		88.5	63.1 - 117.1
Selenium	220	198		mg/Kg		89.8	62.2 - 118.3
Silver	65.8	60.5		mg/Kg		92.0	66.5 - 121.7
Thallium	81.2	77.8		mg/Kg		95.8	58.9 - 122.6
Vanadium	206	198		mg/Kg		96.2	68.0 - 114.2
Zinc	221	206		mg/Kg		93.4	64.9 - 120.7

Lab Sample ID: 620-11736-3 MS
Matrix: Solid
Analysis Batch: 23088

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 23032

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.81	J	116	118		mg/Kg	☼	101	75 - 125
Arsenic	12		116	118		mg/Kg	☼	91	75 - 125
Barium	66	F1	116	137	F1	mg/Kg	☼	61	75 - 125
Beryllium	0.42	J	116	105		mg/Kg	☼	90	75 - 125
Cadmium	ND		116	97.3		mg/Kg	☼	84	75 - 125
Chromium	27		116	128		mg/Kg	☼	86	75 - 125
Lead	32		116	126		mg/Kg	☼	80	75 - 125

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 620-11736-3 MS
Matrix: Solid
Analysis Batch: 23088

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 23032

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nickel	19		116	113		mg/Kg	☼	80	75 - 125
Selenium	ND		116	100		mg/Kg	☼	86	75 - 125
Silver	ND		116	94.3		mg/Kg	☼	81	75 - 125
Thallium	ND		116	112		mg/Kg	☼	96	75 - 125
Vanadium	22		116	127		mg/Kg	☼	90	75 - 125
Zinc	47		116	139		mg/Kg	☼	79	75 - 125

Lab Sample ID: 620-11736-3 MSD
Matrix: Solid
Analysis Batch: 23088

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 23032

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	0.81	J	129	130		mg/Kg	☼	100	75 - 125	10	20
Arsenic	12		129	131		mg/Kg	☼	92	75 - 125	10	20
Barium	66	F1	129	136	F1	mg/Kg	☼	54	75 - 125	1	20
Beryllium	0.42	J	129	116		mg/Kg	☼	89	75 - 125	10	20
Cadmium	ND		129	111		mg/Kg	☼	86	75 - 125	13	20
Chromium	27		129	138		mg/Kg	☼	85	75 - 125	8	20
Lead	32		129	139		mg/Kg	☼	83	75 - 125	10	20
Nickel	19		129	125		mg/Kg	☼	82	75 - 125	10	20
Selenium	ND		129	115		mg/Kg	☼	89	75 - 125	13	20
Silver	ND		129	108		mg/Kg	☼	84	75 - 125	14	20
Thallium	ND		129	126		mg/Kg	☼	98	75 - 125	12	20
Vanadium	22		129	136		mg/Kg	☼	88	75 - 125	7	20
Zinc	47		129	161		mg/Kg	☼	88	75 - 125	14	20

Lab Sample ID: 620-11736-3 DU
Matrix: Solid
Analysis Batch: 23088

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 23032

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	0.81	J	0.905	J	mg/Kg	☼	11	20
Arsenic	12		11.7		mg/Kg	☼	0.8	20
Barium	66	F1	63.2		mg/Kg	☼	4	20
Beryllium	0.42	J	0.412	J	mg/Kg	☼	0.7	20
Cadmium	ND		ND		mg/Kg	☼	NC	20
Chromium	27		27.8		mg/Kg	☼	2	20
Lead	32		26.0	F3	mg/Kg	☼	22	20
Nickel	19		18.8		mg/Kg	☼	2	20
Selenium	ND		ND		mg/Kg	☼	NC	20
Silver	ND		ND		mg/Kg	☼	NC	20
Thallium	ND		ND		mg/Kg	☼	NC	20
Vanadium	22		24.2		mg/Kg	☼	9	20
Zinc	47		46.7		mg/Kg	☼	1	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 620-23034/1-A
Matrix: Solid
Analysis Batch: 23098

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23034

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.050	0.0083	mg/Kg		05/30/23 08:08	05/30/23 13:09	1

Lab Sample ID: LCDSRM 620-23034/3-A ^10
Matrix: Solid
Analysis Batch: 23098

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23034

Analyte			Spike Added	LCDSRM Result	LCDSRM Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury			18.2	21.2		mg/Kg		116.6	59.9 - 140.1	4	

Lab Sample ID: LCSSRM 620-23034/2-A ^10
Matrix: Solid
Analysis Batch: 23098

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23034

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			18.2	20.3		mg/Kg		111.7	59.9 - 140.1		

Lab Sample ID: 620-11736-3 MS
Matrix: Solid
Analysis Batch: 23098

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 23034

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury	0.069		0.201	0.321		mg/Kg	☼	125	75 - 125		

Lab Sample ID: 620-11736-3 MSD
Matrix: Solid
Analysis Batch: 23098

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 23034

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.069		0.219	0.338		mg/Kg	☼	123	75 - 125	5	20

Lab Sample ID: 620-11736-3 DU
Matrix: Solid
Analysis Batch: 23098

Client Sample ID: LM-SO-UST03-052523
Prep Type: Total/NA
Prep Batch: 23034

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Mercury	0.069		0.0884	F5	mg/Kg	☼	24	20

GC VOA

Prep Batch: 671326

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11736-1	LM-SO-UST01-052523	Total/NA	Solid	5035A_H	
620-11736-2	LM-SO-UST02-052523	Total/NA	Solid	5035A_H	
620-11736-3	LM-SO-UST03-052523	Total/NA	Solid	5035A_H	
620-11736-4	SO-FD-01	Total/NA	Solid	5035A_H	
620-11736-5	LM-SO-P1-052523	Total/NA	Solid	5035A_H	
MB 480-671326/1-A	Method Blank	Total/NA	Solid	5035A_H	
LCS 480-671326/2-A	Lab Control Sample	Total/NA	Solid	5035A_H	
LCSD 480-671326/3-A	Lab Control Sample Dup	Total/NA	Solid	5035A_H	
620-11736-3 MS	LM-SO-UST03-052523	Total/NA	Solid	5035A_H	
620-11736-3 MSD	LM-SO-UST03-052523	Total/NA	Solid	5035A_H	

Analysis Batch: 671344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11736-1	LM-SO-UST01-052523	Total/NA	Solid	MAVPH	671326
620-11736-2	LM-SO-UST02-052523	Total/NA	Solid	MAVPH	671326
620-11736-3	LM-SO-UST03-052523	Total/NA	Solid	MAVPH	671326
620-11736-4	SO-FD-01	Total/NA	Solid	MAVPH	671326
620-11736-5	LM-SO-P1-052523	Total/NA	Solid	MAVPH	671326
MB 480-671326/1-A	Method Blank	Total/NA	Solid	MAVPH	671326
LCS 480-671326/2-A	Lab Control Sample	Total/NA	Solid	MAVPH	671326
LCSD 480-671326/3-A	Lab Control Sample Dup	Total/NA	Solid	MAVPH	671326
620-11736-3 MS	LM-SO-UST03-052523	Total/NA	Solid	MAVPH	671326
620-11736-3 MSD	LM-SO-UST03-052523	Total/NA	Solid	MAVPH	671326

Analysis Batch: 671728

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11736-1	LM-SO-UST01-052523	Total/NA	Solid	MA VPH SUM	
620-11736-2	LM-SO-UST02-052523	Total/NA	Solid	MA VPH SUM	
620-11736-3	LM-SO-UST03-052523	Total/NA	Solid	MA VPH SUM	
620-11736-4	SO-FD-01	Total/NA	Solid	MA VPH SUM	
620-11736-5	LM-SO-P1-052523	Total/NA	Solid	MA VPH SUM	

GC Semi VOA

Prep Batch: 23055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11736-1	LM-SO-UST01-052523	Total/NA	Solid	3546	
620-11736-2	LM-SO-UST02-052523	Total/NA	Solid	3546	
620-11736-3	LM-SO-UST03-052523	Total/NA	Solid	3546	
620-11736-4	SO-FD-01	Total/NA	Solid	3546	
620-11736-5	LM-SO-P1-052523	Total/NA	Solid	3546	
MB 620-23055/1-B	Method Blank	Total/NA	Solid	3546	
LCS 620-23055/2-B	Lab Control Sample	Total/NA	Solid	3546	
LCSD 620-23055/3-B	Lab Control Sample Dup	Total/NA	Solid	3546	
620-11736-3 MS	LM-SO-UST03-052523	Total/NA	Solid	3546	
620-11736-3 MSD	LM-SO-UST03-052523	Total/NA	Solid	3546	

Analysis Batch: 23095

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 620-23055/1-B	Method Blank	Total/NA	Solid	MAEPH2.1	23114
LCS 620-23055/2-B	Lab Control Sample	Total/NA	Solid	MAEPH2.1	23114

GC Semi VOA (Continued)

Analysis Batch: 23095 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 620-23055/3-B	Lab Control Sample Dup	Total/NA	Solid	MAEPH2.1	23114

Fraction Batch: 23114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11736-1	LM-SO-UST01-052523	Total/NA	Solid	MA EPH Frac	23055
620-11736-2	LM-SO-UST02-052523	Total/NA	Solid	MA EPH Frac	23055
620-11736-3	LM-SO-UST03-052523	Total/NA	Solid	MA EPH Frac	23055
620-11736-4	SO-FD-01	Total/NA	Solid	MA EPH Frac	23055
620-11736-5	LM-SO-P1-052523	Total/NA	Solid	MA EPH Frac	23055
MB 620-23055/1-B	Method Blank	Total/NA	Solid	MA EPH Frac	23055
LCS 620-23055/2-B	Lab Control Sample	Total/NA	Solid	MA EPH Frac	23055
LCSD 620-23055/3-B	Lab Control Sample Dup	Total/NA	Solid	MA EPH Frac	23055
620-11736-3 MS	LM-SO-UST03-052523	Total/NA	Solid	MA EPH Frac	23055
620-11736-3 MSD	LM-SO-UST03-052523	Total/NA	Solid	MA EPH Frac	23055

Analysis Batch: 23139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11736-1	LM-SO-UST01-052523	Total/NA	Solid	MAEPH2.1	23114
620-11736-2	LM-SO-UST02-052523	Total/NA	Solid	MAEPH2.1	23114
620-11736-3	LM-SO-UST03-052523	Total/NA	Solid	MAEPH2.1	23114
620-11736-4	SO-FD-01	Total/NA	Solid	MAEPH2.1	23114
620-11736-5	LM-SO-P1-052523	Total/NA	Solid	MAEPH2.1	23114
620-11736-3 MSD	LM-SO-UST03-052523	Total/NA	Solid	MAEPH2.1	23114

Analysis Batch: 23364

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11736-3 MS	LM-SO-UST03-052523	Total/NA	Solid	MAEPH2.1	23114

Metals

Prep Batch: 23032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11736-1	LM-SO-UST01-052523	Total/NA	Solid	3050B	
620-11736-2	LM-SO-UST02-052523	Total/NA	Solid	3050B	
620-11736-3	LM-SO-UST03-052523	Total/NA	Solid	3050B	
620-11736-4	SO-FD-01	Total/NA	Solid	3050B	
620-11736-5	LM-SO-P1-052523	Total/NA	Solid	3050B	
MB 620-23032/1-A	Method Blank	Total/NA	Solid	3050B	
LCDSRM 620-23032/3-A	Lab Control Sample Dup	Total/NA	Solid	3050B	
LCSSRM 620-23032/2-A	Lab Control Sample	Total/NA	Solid	3050B	
620-11736-3 MS	LM-SO-UST03-052523	Total/NA	Solid	3050B	
620-11736-3 MSD	LM-SO-UST03-052523	Total/NA	Solid	3050B	
620-11736-3 DU	LM-SO-UST03-052523	Total/NA	Solid	3050B	

Prep Batch: 23034

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11736-1	LM-SO-UST01-052523	Total/NA	Solid	7471B	
620-11736-2	LM-SO-UST02-052523	Total/NA	Solid	7471B	
620-11736-3	LM-SO-UST03-052523	Total/NA	Solid	7471B	
620-11736-4	SO-FD-01	Total/NA	Solid	7471B	
620-11736-5	LM-SO-P1-052523	Total/NA	Solid	7471B	

Metals (Continued)

Prep Batch: 23034 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 620-23034/1-A	Method Blank	Total/NA	Solid	7471B	
LCDSRM 620-23034/3-A ^10	Lab Control Sample Dup	Total/NA	Solid	7471B	
LCSSRM 620-23034/2-A ^10	Lab Control Sample	Total/NA	Solid	7471B	
620-11736-3 MS	LM-SO-UST03-052523	Total/NA	Solid	7471B	
620-11736-3 MSD	LM-SO-UST03-052523	Total/NA	Solid	7471B	
620-11736-3 DU	LM-SO-UST03-052523	Total/NA	Solid	7471B	

Analysis Batch: 23088

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11736-1	LM-SO-UST01-052523	Total/NA	Solid	6010D	23032
620-11736-2	LM-SO-UST02-052523	Total/NA	Solid	6010D	23032
620-11736-3	LM-SO-UST03-052523	Total/NA	Solid	6010D	23032
620-11736-4	SO-FD-01	Total/NA	Solid	6010D	23032
620-11736-5	LM-SO-P1-052523	Total/NA	Solid	6010D	23032
MB 620-23032/1-A	Method Blank	Total/NA	Solid	6010D	23032
LCDSRM 620-23032/3-A	Lab Control Sample Dup	Total/NA	Solid	6010D	23032
LCSSRM 620-23032/2-A	Lab Control Sample	Total/NA	Solid	6010D	23032
620-11736-3 MS	LM-SO-UST03-052523	Total/NA	Solid	6010D	23032
620-11736-3 MSD	LM-SO-UST03-052523	Total/NA	Solid	6010D	23032
620-11736-3 DU	LM-SO-UST03-052523	Total/NA	Solid	6010D	23032

Analysis Batch: 23098

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11736-1	LM-SO-UST01-052523	Total/NA	Solid	7471A	23034
620-11736-2	LM-SO-UST02-052523	Total/NA	Solid	7471A	23034
620-11736-3	LM-SO-UST03-052523	Total/NA	Solid	7471A	23034
620-11736-4	SO-FD-01	Total/NA	Solid	7471A	23034
620-11736-5	LM-SO-P1-052523	Total/NA	Solid	7471A	23034
MB 620-23034/1-A	Method Blank	Total/NA	Solid	7471A	23034
LCDSRM 620-23034/3-A ^10	Lab Control Sample Dup	Total/NA	Solid	7471A	23034
LCSSRM 620-23034/2-A ^10	Lab Control Sample	Total/NA	Solid	7471A	23034
620-11736-3 MS	LM-SO-UST03-052523	Total/NA	Solid	7471A	23034
620-11736-3 MSD	LM-SO-UST03-052523	Total/NA	Solid	7471A	23034
620-11736-3 DU	LM-SO-UST03-052523	Total/NA	Solid	7471A	23034

General Chemistry

Analysis Batch: 23159

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11736-1	LM-SO-UST01-052523	Total/NA	Solid	Moisture	
620-11736-2	LM-SO-UST02-052523	Total/NA	Solid	Moisture	
620-11736-3	LM-SO-UST03-052523	Total/NA	Solid	Moisture	
620-11736-4	SO-FD-01	Total/NA	Solid	Moisture	
620-11736-5	LM-SO-P1-052523	Total/NA	Solid	Moisture	
620-11736-3 MS	LM-SO-UST03-052523	Total/NA	Solid	Moisture	
620-11736-3 MSD	LM-SO-UST03-052523	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Client Sample ID: LM-SO-UST01-052523

Lab Sample ID: 620-11736-1

Date Collected: 05/25/23 12:10

Matrix: Solid

Date Received: 05/26/23 16:59

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	MA VPH SUM		1	671728	MAN	EET BUF	06/02/23 10:41
Total/NA	Analysis	Moisture		1	23159	MJH	EET NE	06/01/23 10:58

Client Sample ID: LM-SO-UST01-052523

Lab Sample ID: 620-11736-1

Date Collected: 05/25/23 12:10

Matrix: Solid

Date Received: 05/26/23 16:59

Percent Solids: 90.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035A_H			671326	JLS	EET BUF	05/31/23 07:06
Total/NA	Analysis	MAVPH		1	671344	JLS	EET BUF	05/31/23 10:03
Total/NA	Prep	3546			23055	JAC	EET NE	05/30/23 10:20
Total/NA	Fraction	MA EPH Frac			23114	BJJ	EET NE	05/31/23 11:25
Total/NA	Analysis	MAEPH2.1		1	23139	BJJ	EET NE	06/01/23 18:20
Total/NA	Prep	3050B			23032	PRB	EET NE	05/30/23 07:41
Total/NA	Analysis	6010D		1	23088	JPC	EET NE	05/30/23 17:51
Total/NA	Prep	7471B			23034	PRB	EET NE	05/30/23 08:08
Total/NA	Analysis	7471A		1	23098	PRB	EET NE	05/30/23 13:51

Client Sample ID: LM-SO-UST02-052523

Lab Sample ID: 620-11736-2

Date Collected: 05/25/23 17:50

Matrix: Solid

Date Received: 05/26/23 16:59

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	MA VPH SUM		1	671728	MAN	EET BUF	06/02/23 10:41
Total/NA	Analysis	Moisture		1	23159	MJH	EET NE	06/01/23 10:58

Client Sample ID: LM-SO-UST02-052523

Lab Sample ID: 620-11736-2

Date Collected: 05/25/23 17:50

Matrix: Solid

Date Received: 05/26/23 16:59

Percent Solids: 79.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035A_H			671326	JLS	EET BUF	05/31/23 07:06
Total/NA	Analysis	MAVPH		1	671344	JLS	EET BUF	05/31/23 10:44
Total/NA	Prep	3546			23055	JAC	EET NE	05/30/23 10:20
Total/NA	Fraction	MA EPH Frac			23114	BJJ	EET NE	05/31/23 11:25
Total/NA	Analysis	MAEPH2.1		1	23139	BJJ	EET NE	06/01/23 18:49
Total/NA	Prep	3050B			23032	PRB	EET NE	05/30/23 07:41
Total/NA	Analysis	6010D		1	23088	JPC	EET NE	05/30/23 17:57
Total/NA	Prep	7471B			23034	PRB	EET NE	05/30/23 08:08
Total/NA	Analysis	7471A		1	23098	PRB	EET NE	05/30/23 13:53

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Client Sample ID: LM-SO-UST03-052523
Date Collected: 05/25/23 16:30
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	MA VPH SUM		1	671728	MAN	EET BUF	06/02/23 10:41
Total/NA	Analysis	Moisture		1	23159	MJH	EET NE	06/01/23 10:58

Client Sample ID: LM-SO-UST03-052523
Date Collected: 05/25/23 16:30
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-3
Matrix: Solid
Percent Solids: 91.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035A_H			671326	JLS	EET BUF	05/31/23 07:06
Total/NA	Analysis	MAVPH		1	671344	JLS	EET BUF	05/31/23 11:25
Total/NA	Prep	3546			23055	JAC	EET NE	05/30/23 10:20
Total/NA	Fraction	MA EPH Frac			23114	BJJ	EET NE	05/31/23 11:25
Total/NA	Analysis	MAEPH2.1		1	23139	BJJ	EET NE	06/01/23 19:18
Total/NA	Prep	3050B			23032	PRB	EET NE	05/30/23 07:41
Total/NA	Analysis	6010D		1	23088	JPC	EET NE	05/30/23 18:03
Total/NA	Prep	7471B			23034	PRB	EET NE	05/30/23 08:08
Total/NA	Analysis	7471A		1	23098	PRB	EET NE	05/30/23 14:01

Client Sample ID: SO-FD-01
Date Collected: 05/25/23 08:00
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	MA VPH SUM		1	671728	MAN	EET BUF	06/02/23 10:41
Total/NA	Analysis	Moisture		1	23159	MJH	EET NE	06/01/23 10:58

Client Sample ID: SO-FD-01
Date Collected: 05/25/23 08:00
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-4
Matrix: Solid
Percent Solids: 81.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035A_H			671326	JLS	EET BUF	05/31/23 07:06
Total/NA	Analysis	MAVPH		1	671344	JLS	EET BUF	05/31/23 12:05
Total/NA	Prep	3546			23055	JAC	EET NE	05/30/23 10:20
Total/NA	Fraction	MA EPH Frac			23114	BJJ	EET NE	05/31/23 11:25
Total/NA	Analysis	MAEPH2.1		1	23139	BJJ	EET NE	06/01/23 20:46
Total/NA	Prep	3050B			23032	PRB	EET NE	05/30/23 07:41
Total/NA	Analysis	6010D		1	23088	JPC	EET NE	05/30/23 18:39
Total/NA	Prep	7471B			23034	PRB	EET NE	05/30/23 08:08
Total/NA	Analysis	7471A		1	23098	PRB	EET NE	05/30/23 14:14

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Client Sample ID: LM-SO-P1-052523

Date Collected: 05/25/23 16:50
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-5

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	MA VPH SUM		1	671728	MAN	EET BUF	06/02/23 10:41
Total/NA	Analysis	Moisture		1	23159	MJH	EET NE	06/01/23 10:58

Client Sample ID: LM-SO-P1-052523

Date Collected: 05/25/23 16:50
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11736-5

Matrix: Solid
Percent Solids: 92.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035A_H			671326	JLS	EET BUF	05/31/23 07:06
Total/NA	Analysis	MAVPH		1	671344	JLS	EET BUF	05/31/23 12:45
Total/NA	Prep	3546			23055	JAC	EET NE	05/30/23 10:20
Total/NA	Fraction	MA EPH Frac			23114	BJJ	EET NE	05/31/23 11:25
Total/NA	Analysis	MAEPH2.1		1	23139	BJJ	EET NE	06/01/23 21:15
Total/NA	Prep	3050B			23032	PRB	EET NE	05/30/23 07:41
Total/NA	Analysis	6010D		1	23088	JPC	EET NE	05/30/23 18:45
Total/NA	Prep	7471B			23034	PRB	EET NE	05/30/23 08:08
Total/NA	Analysis	7471A		1	23098	PRB	EET NE	05/30/23 14:16

Laboratory References:

EET BUF = Eurofins Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600
EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-11736-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Massachusetts	State	M-RI907	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6010D	3050B	Solid	Antimony
6010D	3050B	Solid	Arsenic
6010D	3050B	Solid	Barium
6010D	3050B	Solid	Beryllium
6010D	3050B	Solid	Cadmium
6010D	3050B	Solid	Chromium
6010D	3050B	Solid	Lead
6010D	3050B	Solid	Nickel
6010D	3050B	Solid	Selenium
6010D	3050B	Solid	Silver
6010D	3050B	Solid	Thallium
6010D	3050B	Solid	Vanadium
6010D	3050B	Solid	Zinc
7471A	7471B	Solid	Mercury
MAEPH2.1	3546	Solid	2-Methylnaphthalene
MAEPH2.1	3546	Solid	Acenaphthene
MAEPH2.1	3546	Solid	Acenaphthylene
MAEPH2.1	3546	Solid	Anthracene
MAEPH2.1	3546	Solid	Benzo[a]anthracene
MAEPH2.1	3546	Solid	Benzo[a]pyrene
MAEPH2.1	3546	Solid	Benzo[b]fluoranthene
MAEPH2.1	3546	Solid	Benzo[g,h,i]perylene
MAEPH2.1	3546	Solid	Benzo[k]fluoranthene
MAEPH2.1	3546	Solid	C11-C22 Aromatics
MAEPH2.1	3546	Solid	C11-C22 Aromatics (Adjusted)
MAEPH2.1	3546	Solid	C19-C36 Aliphatics
MAEPH2.1	3546	Solid	C9-C18 Aliphatics
MAEPH2.1	3546	Solid	Chrysene
MAEPH2.1	3546	Solid	Dibenz(a,h)anthracene
MAEPH2.1	3546	Solid	Fluoranthene
MAEPH2.1	3546	Solid	Fluorene
MAEPH2.1	3546	Solid	Indeno[1,2,3-cd]pyrene
MAEPH2.1	3546	Solid	Naphthalene
MAEPH2.1	3546	Solid	Phenanthrene
MAEPH2.1	3546	Solid	Pyrene
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

Laboratory: Eurofins Buffalo

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-0686	07-06-22 *
Connecticut	State	PH-0568	03-31-24
Florida	NELAP	E87672	06-30-23
Georgia	State	10026 (NY)	03-31-24

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-11736-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins Buffalo (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Georgia	State Program	N/A	03-31-09 *
Georgia (DW)	State	956	03-31-23 *
Illinois	NELAP	200003	09-30-23
Iowa	State	374	03-01-23 *
Iowa	State Program	374	03-01-09 *
Kansas	NELAP	E-10187	02-01-24
Kentucky (DW)	State	90029	01-01-24
Kentucky (UST)	State	30	04-01-23 *
Kentucky (WW)	State	KY90029	12-31-23
Louisiana	NELAP	02031	06-30-23
Louisiana (All)	NELAP	02031	06-30-23
Maine	State	NY00044	12-04-24
Maryland	State	294	03-31-23 *
Massachusetts	State	M-NY044	06-30-23
Michigan	State	9937	03-31-23 *
Michigan	State Program	9937	04-01-09 *
New Hampshire	NELAP	2973	09-11-19 *
New Hampshire	NELAP	2337	11-17-23
New Jersey	NELAP	NY455	06-30-23
New York	NELAP	10026	03-31-24
Pennsylvania	NELAP	68-00281	07-31-23
Rhode Island	State	LAO00328	12-30-23
Texas	NELAP	T104704412-18-10	07-31-23
USDA	US Federal Programs	P330-18-00039	03-25-24
Virginia	NELAP	460185	09-14-23
Washington	State	C784	02-10-23 *
Wisconsin	State	998310390	08-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Method	Method Description	Protocol	Laboratory
MA VPH SUM	Massachusetts - Volatile Petroleum Hydrocarbons (GC)	MA DEP	EET BUF
MAVPH	Massachusetts - Volatile Petroleum Hydrocarbons (GC)	MA DEP	EET BUF
MAEPH2.1	Massachusetts - Extractable Petroleum Hydrocarbons (GC)	MA DEP	EET NE
6010D	Metals (ICP)	SW846	EET NE
7471A	Mercury (CVAA)	SW846	EET NE
Moisture	Percent Moisture	EPA	EET NE
3050B	Preparation, Metals	SW846	EET NE
3546	Microwave Extraction	SW846	EET NE
5035A_H	Closed System Purge and Trap	SW846	EET BUF
7471B	Preparation, Mercury	SW846	EET NE
MA EPH Frac	Massachusetts - Extractable Petroleum Hydrocarbon Fractionation	MA DEP	EET NE

Protocol References:

EPA = US Environmental Protection Agency

MA DEP = Massachusetts Department Of Environmental Protection

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET BUF = Eurofins Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Sample Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11736-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
620-11736-1	LM-SO-UST01-052523	Solid	05/25/23 12:10	05/26/23 16:59
620-11736-2	LM-SO-UST02-052523	Solid	05/25/23 17:50	05/26/23 16:59
620-11736-3	LM-SO-UST03-052523	Solid	05/25/23 16:30	05/26/23 16:59
620-11736-4	SO-FD-01	Solid	05/25/23 08:00	05/26/23 16:59
620-11736-5	LM-SO-P1-052523	Solid	05/25/23 16:50	05/26/23 16:59

620-11736 Chain of Custody

11736

Chain of Custody Record

eurofins | Environment Testing

Client Contact: Bridget Fortier	Sampler: S. Stone	Lab PM: A. Ray	Carrier Tracking No(s):	COC No: 620-10175-1337 1
Company: Nobis Engineering, Inc	Phone: 774-245-3607	E-Mail: aray@nobis-group.com	State of Origin:	Page: Page 1 of 2
Address: 585 Middlesex Street	PWSID:			Job #:
City: Lowell	Due Date Requested:			
State, Zip: MA, 01851	TAT Requested (days): standard 10 day			
Phone:	Compliance Project: Δ Yes Δ No			
Email: bfortier@nobis-group.com	PO #:			
Project Name: Former L&M	WO #:			
Site:	Project #: 50000001.005/406			
	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

	Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Preservation Code:	UPH	EDD, MADEP (CAM)	Total Number of containers	Special Instructions/Note:
01	LM-SO-UST01-052523	5-25-23	1210	C	Solid			F	X	X		
02	LM-SO-UST02-052523		1750	C	Solid				X	X		
03	LM-SO-UST03-052523		1630	C	Solid		Y		X	X		MS/MSD
04	SO-FD-01		800	C	Solid				X	X		
05	LM-SO-01-052523		1650	G	Solid				X	X		
					Solid							
					Solid							
					Solid							
					Solid							
					Solid							
					Solid							

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested. I, II, III, IV, Other (specify): EDD report PDF & email

Special Instructions/QC Requirements: MADEP CAM METHOD required

Empty Kit Relinquished by: | Date: | Time | Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1		5-26-23 1135			5/26/23 1135	ENE
2		5/26/23 1659			5/26/23 16:59	ENE
3						

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 3.4 +0.2 = 3.6 #6

Ver: 06/08/2021

Eurofins New England
646 Camp Ave
North Kingstown, RI 02852
Phone: 413-789-9018

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Huntley, Agnes R	Carrier Tracking No(s):	COC No: 620-9727.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Agnes.Huntley@et.eurofinsus.com	State of Origin: Massachusetts	Page: Page 1 of 1
Company: Eurofins Environment Testing Northeast,		Accreditations Required (See note): State - Massachusetts		Job #: 620-11736-1
Address: 10 Hazelwood Drive, ,	Due Date Requested: 6/1/2023			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228-2298	PO #:			
Phone: 716-691-2600(Tel) 716-691-7991(Fax)	WO #:			
Email:	Project #: 62002215			
Project Name: Former L&M - Lunenburg MA	SSOW#:			
Site:				

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	MAVPH/5035A_M_Calc (MOD) Standard Targets and Carbon Ranges	MAVPH_SUM/ MAVPH Adjusted Range Calculation	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
LM-SO-UST01-052523 (620-11736-1)	5/25/23	Eastern		Solid			X	X	1	
LM-SO-UST02-052523 (620-11736-2)	5/25/23	Eastern		Solid			X	X	1	
LM-SO-UST03-052523 (620-11736-3)	5/25/23	Eastern		Solid			X	X	1	
LM-SO-UST03-052523 (620-11736-3MS)	5/25/23	Eastern	MS	Solid			X	X	1	
LM-SO-UST03-052523 (620-11736-3MSD)	5/25/23	Eastern	MSD	Solid			X	X	1	
SO-FD-01 (620-11736-4)	5/25/23	Eastern		Solid			X	X	1	
LM-SO-P1-052523 (620-11736-5)	5/25/23	Eastern		Solid			X	X	1	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northeast, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northeast, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northeast, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northeast, LLC.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by:	Date/Time: 5/26/23 17:17	Company: ENE	Received by:	Date/Time: 5/27/23 1000	Company: TVT
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 2.9# ICE

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Nobis Engineering, Inc.

Job Number: 620-11736-1

Login Number: 11736
List Number: 1
Creator: Makhoul, Elie

List Source: Eurofins New England

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Nobis Engineering, Inc.

Job Number: 620-11736-1

Login Number: 11736
List Number: 2
Creator: Kolb, Chris M

List Source: Eurofins Buffalo
List Creation: 05/30/23 02:03 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.9 ir gun #1 ice
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	True	

October 2, 2023
Nobis File No. S00001.05

Ms. Katy Deng
USEPA – Region 1
Land, Chemicals, and Redevelopment Division
5 Post Office Square, Suite 100
Boston, MA 02109-3912

Re: USEPA Contract No. 68HE0122D0001
USEPA Task Order No. 68HE0122F0044
Targeted Brownfields Assessment (TBA)
Former L&M Service Station Site
Lunenburg, Massachusetts
Sample Delivery Group (SDG) No. 620117371
Eurofins New England, North Kingstown, RI

Tier 1 Stage 2A Organic and Inorganic Data Review:

Volatile Petroleum Hydrocarbons (VPH by MassDEP-VPH), Extractable Petroleum Hydrocarbons (EPH by MassDEP-EPH), Massachusetts Contingency Plan (MCP) Metals (MCP-14 Metals by 6020B/7470A)

2/Groundwater Samples: LM-GW-UST01-052523, LM-GW-UST02-052523
1/Aqueous Trip Blank: TB-01-052523

Dear Ms. Deng:

Nobis Group (Nobis), under a USEPA contract as a subcontractor to KGSNE JV, LLC, performed a Tier 1 Stage 2A manual data review (S2AVM) on the organic and inorganic analytical data for the samples listed above. The samples were collected by Nobis at the Former L&M Service Station Site located in Lunenburg, Massachusetts on May 25, 2023. The samples were analyzed for VPHs by MassDEP-VPH, EPHs by MassDEP-EPH, and MCP-14 Metals by EPA Methods 6010D/7470A by Eurofins New England in North Kingstown, RI.

The Tier 1 Stage 2A manual data review was performed in accordance with the Region 1 - EPA New England Environmental Data Review Supplement for Region 1 Data Review Elements and Superfund Specific Guidance/Procedures (September 2020); USEPA's National Functional Guidelines for Organic Superfund Methods Data Review (November 2020); USEPA's National Functional Guidelines for Inorganic Superfund Methods Data Review (November 2020); the Program Quality Assurance Project Plan (Program QAPP) dated October 2022, and the Quality Assurance Project Plan Addendum (QAPPA) (May 2023) for the Former L&M Service Station Site, which appends the October 2022 Program QAPP.

The data were evaluated based on the following parameters:

* • Overall Evaluation of Data and Potential Usability Issues
* • Data Completeness
* • Preservation and Technical Holding Times
• Blanks
• Surrogates (organic analyses only)

Nobis Group®
585 Middlesex Street
Lowell, MA 01851
T (978) 683-0891

NA	•	Internal Standards
*	•	Matrix Spike Analysis
*	•	Laboratory Duplicates
*	•	Laboratory Control Samples (LCS)
NA	•	Field Duplicates
*	•	ICP Serial Dilutions (metals only)
NA	•	Performance Evaluation (PE) Samples
NA	•	Target Analyte Identification
*	•	Reported Quantitation Limits

* All criteria were met for this parameter or did not require qualification.
NA – Not applicable.

Overall Evaluation of Data and Potential Usability Issues

The site sampling objectives are:

- Characterize in-situ soil based on AOCs identified by Fuss & O'Neill in November 2020 Phase I for the presence of possible site-related contamination.
- Evaluate groundwater elevation.
- Evaluate presence/absence of groundwater contamination related to site.

The data meet the project quality criteria and can be used without restriction except as summarized below. The attachments provide details and supporting documentation.

MassDEP-VPH:
Qualification of the data was not required.

MassDEP-EPH:
Results were qualified for surrogate recovery.

MCP-14 Metals and Mercury:
Results were qualified for laboratory blank contamination.

Please contact Linda Terzis at lterzis@nobis-group.com should you have any questions or comments regarding this information.

Sincerely,

NOBIS GROUP®

Linda Terzis
Data Validator

Gary Glennon
Data Validator

Tables: Data Summary Tables – Tier 1 Stage 2A (S2AVM) Validated Data
Data Qualification Actions Table

Attachments: Data Review Checklist
Support Documentation
COC

cc: Denis McGrath (Nobis Group)
Adam Roy (Nobis Group)

DATA SUMMARY TABLE

Analysis		EPH in Groundwater	
Lab Sample ID		620-11737-1	620-11737-2
Field Sample ID		LM-GW-UST01-052523	LM-GW-UST02-052523
Sample Type		N	N
Parent Sample ID			
Sample Date	**Units**	05/25/23	05/25/23
2-Methylnaphthalene	ug/L	46	5.9
Acenaphthene	ug/L	1.1 U	1.1 U
Acenaphthylene	ug/L	1.1 U	1.1 U
Anthracene	ug/L	1.1 U	1.1 U
Benzo(a)anthracene	ug/L	0.15 J	1.1 U
Benzo(a)pyrene	ug/L	0.17 J	0.22 U
Benzo(b)fluoranthene	ug/L	0.19 J	1.1 U
Benzo(g,h,i)perylene	ug/L	0.3 J	1.1 U
Benzo(k)fluoranthene	ug/L	1.1 U	1.1 U
C11-C22 Aromatics	ug/L	290	110 U
C11-C22 Aromatics (adjusted)	ug/L	180	110 U
C19-C36 Aliphatics	ug/L	110 J-	110 U
C9-C18 Aliphatics	ug/L	230 J-	110 U
Chrysene	ug/L	0.19 J	1.1 U
Dibenz(a,h)anthracene	ug/L	0.53 U	0.56 U
Fluoranthene	ug/L	0.27 J	1.1 U
Fluorene	ug/L	1.1 U	1.1 U
Indeno(1,2,3-cd)pyrene	ug/L	0.53 U	0.56 U
Naphthalene	ug/L	60	17
Phenanthrene	ug/L	1.1 U	1.1 U
Pyrene	ug/L	0.23 J	1.1 U

DATA SUMMARY TABLE

Analysis		Dissolved Metals in Groundwater	
Lab Sample ID		620-11737-1	620-11737-2
Field Sample ID		LM-GW-UST01-052523	LM-GW-UST02-052523
Sample Type		N	N
Parent Sample ID			
Sample Date	**Units**	05/25/23	05/25/23
Antimony	mg/L	0.0051 J	0.0039 J
Arsenic	mg/L	0.032	0.011
Barium	mg/L	0.056	0.049
Beryllium	mg/L	0.002 U	0.002 U
Cadmium	mg/L	0.0025 U	0.00045 J
Chromium	mg/L	0.005 U	0.005 U
Lead	mg/L	0.013	0.0085
Mercury	mg/L	0.0002 U	0.0002 U
Nickel	mg/L	0.011	0.01
Selenium	mg/L	0.015 U	0.015 U
Silver	mg/L	0.005 U	0.005 U
Thallium	mg/L	0.0022 J	0.005 U
Vanadium	mg/L	0.0037 J	0.0022 J
Zinc	mg/L	0.033 J+	0.042 J+

DATA SUMMARY TABLE

Analysis		VPH in Groundwater	
Lab Sample ID		620-11737-1	620-11737-2
Field Sample ID		LM-GW-UST01-052523	LM-GW-UST02-052523
Sample Type		N	N
Parent Sample ID			
Sample Date	**Units**	05/25/23	05/25/23
Benzene	ug/L	13	76
C5-C8 Aliphatics (adjusted)	ug/L	1000 U	2000 U
C5-C8 Aliphatics (unadjusted)	ug/L	1200	2800
C9-C10 Aromatics	ug/L	4400	890
C9-C12 Aliphatics (adjusted)	ug/L	3600	2000 U
C9-C12 Aliphatics (unadjusted)	ug/L	9100	3900
Ethylbenzene	ug/L	120	170
m,p-Xylene	ug/L	720	570
Methyl tert-butyl ether	ug/L	810	2300
Naphthalene	ug/L	120	62
o-Xylene	ug/L	87	280
Toluene	ug/L	170	680
Xylene (total)	ug/L	880	850

DATA SUMMARY TABLE

Analysis		VPH in Water Quality Control Matrix
Lab Sample ID		620-11737-3
Field Sample ID		TB-01-052523
Sample Type		TB
Parent Sample ID		
Sample Date	**Units**	05/25/23
Benzene	ug/L	5 U
C5-C8 Aliphatics (adjusted)	ug/L	100 U
C5-C8 Aliphatics (unadjusted)	ug/L	100 U
C9-C10 Aromatics	ug/L	100 U
C9-C12 Aliphatics (adjusted)	ug/L	100 U
C9-C12 Aliphatics (unadjusted)	ug/L	100 U
Ethylbenzene	ug/L	5 U
m,p-Xylene	ug/L	10 U
Methyl tert-butyl ether	ug/L	5 U
Naphthalene	ug/L	5 U
o-Xylene	ug/L	5 U
Toluene	ug/L	5 U
Xylene (total)	ug/L	15 U

Data Review Qualification Actions
Former L&M Service Station
SDG 620117371

Parameter	Analyte	Samples	Evaluation Criteria	Action Needed	Comments
MassDEP-VPH					
	Qualification of the data was not required.				
MassDEP-EPH					
	C9-C18 and C19-C36 aliphatics	LM-GW-UST01-052523	Surrogate recovery	J-	
MCP-14 Metals / Mercury					
	Chromium	LM-GW-UST01-052523, LM-GW-UST02-052523	Laboratory blank contamination	RL (U)	
	Silver	LM-GW-UST02-052523	Laboratory blank contamination	RL (U)	
	Zinc	LM-GW-UST01-052523, LM-GW-UST02-052523	Laboratory blank contamination	J+	

Tier 1/Stage 2A Data Review Checklist

Project: Former L&M Service Station, Lunenburg, Massachusetts
Targeted Brownfields Assessment (TBA)
Project #: S00001.05
Case#: NA
Date: 09/08/2023
Methods: Volatile Petroleum Hydrocarbons (VPH) (MassDEP-VPH)
Extractable Petroleum Hydrocarbons (EPH) (MassDEP-EPH)
Massachusetts Contingency Plan (MCP) Metals (MCP-14 Metals by 6010D/7470A)

Laboratory: Eurofins New England Laboratory, North Kingstown, RI
SDG: 620117371
Reviewer: Linda Terzis

1. **Case Narrative and Data Package Completeness (COC and Analyte List Review)**
Two (2) groundwater samples and one trip blank sample were listed on the COC for SDG 620117371. The samples were collected on 05/25/2023 and received at the Eurofins New England Laboratory on 05/26/2023 at a maximum temperature of 3.6 °C.

Sample ID	Laboratory ID	Analyses
LM-GW-UST01-052523	620-11737-1	MassDEP-VPH, MassDEP-EPH, MCP-14 Metals/Mercury
LM-GW-UST02-052523	620-11737-2	
TB-01-052523	620-11737-3	MassDEP-VPH

The data were evaluated using the site-specific Quality Assurance Project Plan Addendum (QAPPA) (dated May 2023) and the Program QAPP (dated October 2022). Both were prepared by KGSNE, LLC. The QAPPA appends and incorporates by reference the procedures and quality control measures detailed in the Program QAPP (October 2022). Therefore, site data for this SDG were evaluated using both the QAPPA of May 2023 and the Program QAPP dated October 2022. The Massachusetts Compendium of Analytical Methods (CAM) and/or SW-846 Methods were used to perform the analyses. Therefore, site data were also evaluated using CAM quality control (QC) limits, where applicable.

The analyte lists reported by the laboratory were compared to the required analyte lists per Table 4 (groundwater) in the QAPPA (May 2023) for the site. Results for all requested analytes were reported and no inconsistencies were noted.

2. **Holding Time and Sample Preservation Compliance**

Receipt temperatures are acceptable (≤ 6°), as specified in the QAPPA (May 2023).

MassDEP-VPH: Holding time criteria (analyzed within 14 days) met.

MassDEP-EPH: Holding time criteria (extracted within 14 days and analyzed within 40 days of extraction) met.

MCP-14 Metals/Mercury: Holding time criteria (analyzed within 28 days for mercury; within 180 days for all other analytes) were met.

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Lowell, MA 01851
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3. **Calibration Issues**

Not assessed for S2AVM data review.

4. **Laboratory and Field Blanks**

MassDEP-VPH: Results for the VPH laboratory method blanks and the trip blank (TB-01-052523) were non-detect. No blank actions are required.

MassDEP-EPH: Results for the EPH laboratory method blanks were non-detect. No blank actions are required.

MCP-14 Metals/Mercury: Barium, chromium, silver, and zinc were detected in the method blank associated with the groundwater samples. Detected concentrations were < reporting limit (RL).

Barium was detected in the groundwater samples at > RL and > 10x the blank level. Based on the NFGs (2020), no action is taken for barium.

Chromium was detected in the groundwater samples at < RL and < 10x the blank concentration. Based on the NFGs (2020), the detected results for chromium and silver are qualified as non-detect at the RL (RL [U]) in both groundwater samples.

Silver was detected in sample LM-GW-UST02-052523 (620-11737-2) at < RL and < 10x the blank concentration. Based on the NFGs (2020), the detected result for silver is qualified as non-detect at the RL (RL [U]) in sample LM-GW-UST02-052523.

Zinc was detected in the groundwater samples at > RL and < 10x the blank concentration. Based on the NFGs (2020), the detected results for zinc are qualified as estimated with a potential high bias (J+) in both groundwater samples.

Results for mercury in the laboratory method blanks were non-detect. No blank actions are required.

An equipment blank was not submitted with the samples of this SDG. No actions are required.

5. **Interference Check Sample (metals only)**

Not assessed for S2AVM data review.

6. **Surrogates**

The Program QAPP (October 2022) was used to evaluate site data for surrogate recovery. If no Program QAPP-specific recovery limits were available for a surrogate, the MCP CAM recovery limits were used.

MassDEP-VPH: Percent surrogate recoveries for the samples were within the Program QAPP limits of 70-130%. No actions are required.

MassDEP-EPH: Percent surrogate recoveries for the samples were within the Program QAPP limits of 40-140% except for the recovery the surrogate 1-chlorooctadecane in sample LM-GW-UST01-052523 (620-11737-1) which was recovered at 34%. As noted in Table IV B-2 of the MCP CAM for the EPH method, 1-chlorooctadecane is associated with C9-C18 and C19-C36 aliphatic

hydrocarbons. C9-C18 and C19-C36 aliphatics were detected in the sample. Professional judgement based on the NFGs (2020) for SVOCs was used to qualify the detected results for C9-C18 and C19-C36 aliphatic hydrocarbons as estimated with a potential low bias (J-) in sample LM-GW-UST01-052523 (620-11737-1) due to low surrogate recovery.

MCP-14 Metals/Mercury: Not applicable for this analysis.

7. Laboratory Control Samples

MassDEP-VPH: The percent recoveries in the VPH LCS/LCSD pairs met the Program QAPP recovery limits of 70-130% and RPDs ≤ 25%. No actions are required.

MassDEP-EPH: The percent recoveries in the EPH LCS/LCSD pairs met the Program QAPP recovery limits of 40-140% and RPDs ≤ 25%. No actions are required.

MCP-14 Metals/Mercury: Percent recoveries and RPDs for all metals and mercury LCS/LCSD analyses were within the QAPP limits of 80-120% and ≤ 20%, respectively. No actions are required.

8. Matrix Spikes

Based on the Region I EPA New England Environmental Data Review Supplement (Region I Supplement, 2020), MS/MSD qualifications are applied to all field samples with similar matrix, unless otherwise noted.

MassDEP-VPH: MS/MSD analyses were not performed for the VPH analysis. No actions are required.

MassDEP-EPH: MS/MSD analyses were not performed for the EPH analysis. No actions are required.

MCP-14 Metals/Mercury: MS/MSD analyses for MCP-14 metals and mercury were performed on sample LM-GW-UST01-052523 (620-11737-1). Recoveries and RPDs met the Program QAPP limits of 75-125% recovery and ≤ 20% RPD. No actions are required.

9. Laboratory Duplicates (metals only)

MCP-14 Metals/Mercury: Laboratory duplicate analysis was performed on sample LM-GW-UST01-052523 (620-11737-1). The QAPP duplicate criterion (≤ 20% RPD) was met for all detected analytes. Mercury results were non-detect for both the sample and duplicate analyses. Laboratory duplicate precision is acceptable and no actions are required.

10. Serial Dilution (metals only)

MCP-14 Metals/Mercury: A serial dilution analysis was not performed for this SDG. The Massachusetts CAM requires a serial dilution analysis on samples used for MS/MSD analyses where analytes are detected at > 50x RL. MS/MSD analyses were performed on sample LM-GW-UST01-052523 (620-11737-1). Detected analyte results were < 50x RL in this sample and no actions are required.

11. **Field Duplicate Precision**

    Acceptable field duplicate precision is an RPD of ≤ 30% for results > 5x RL and an absolute difference < 2x RL for results < 5x RL, based on the EPA Region I Supplement (2020).

    Based on the Region I Supplement (2020), qualifications are applied to all field samples with similar matrix, unless otherwise indicated.

    A field duplicate pair was not submitted with the samples of this SDG. No actions are required.

12. **Internal Standards**

    Not assessed for S2AVM data review.

13. **Dual Column Precision (PCBs only)**

    Not applicable for this SDG.

14. **Performance Evaluation Samples**

    Performance Evaluation (PE) samples were not included in this SDG.

15. **Reporting Limits**

    RLs for non-detect results for VPH, EPH, and metals/mercury analyses met the project action levels (PALs) for the site.

16. **Other**

    EPA Region I Supplement (2020) criterion for percent solids content (> 30%) not applicable for groundwater samples.

    Overall bias is considered indeterminate when cumulative nonconformances do not show a consistent bias or in cases of the presence of conflicting high and low biases.

11737

620-11737 Chain of Custody

Chain of Custody Record

eurofins | Environment Testing

Client Contact: Bridget Fortier	Sampler: S. Stone	Lab PM: A. Ray	Carrier Tracking No(s):	COC No: 620-10175-1337 2
Company: Nobis Engineering, Inc	Phone: 774-245-3612	E-Mail: araya@nobis-group.com	State of Origin:	Page: Page 2 of 2
Address: 585 Middlesex Street	PWSID:			Job #:
City: Lowell	Due Date Requested:			
State, Zip: MA, 01851	TAT Requested (days): standard 10 day			
Phone:	Compliance Project: Δ Yes Δ No			
Email: bfortier@nobis-group.com	PO #:			
Project Name: Former L&M	WO #:			
Site:	Project #: 50000101.005/400			
	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	VOC	GDH, ~~Metals~~	Metals (Filtered)	Trip Blank	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	A	A	D	A	X	
LM-GW-UST01-0525-23	5-25-23	1130	G	Water	✓	X	X	X				
LM-GW-UST02-0525-23	5-25-23	1710	G	Water	✓	X	X	X				
TB-01-052523	5-25-23	1600	G	Water						X		
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								

Page 32 of 33

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested I, II, III, IV, Other (specify): EDD report PDF email

Special Instructions/QC Requirements: MADEP CAM methods required

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by:		Date/Time: 5-26-23 1135	Company	Received by:		Date/Time: 5/26/23 1135	Company
Relinquished by:		Date/Time: 5/26/23 16:59	Company	Received by:		Date/Time: 5/26/23 16:59	Company: CHC
Relinquished by:		Date/Time	Company	Received by:		Date/Time	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No :

Cooler Temperature(s) °C and Other Remarks: 3.4 to 3.6 #6

6/5/2023

Ver: 06/08/2021

ANALYTICAL REPORT

PREPARED FOR

Attn: Adam Roy
Nobis Engineering, Inc.
585 Middlesex Street
Lowell, Massachusetts 01851

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JOB DESCRIPTION

Former L&M - Lunenburg MA

JOB NUMBER

620-11737-1

Eurofins New England
646 Camp Ave
North Kingstown RI 02852

See page two for job notes and contact information.

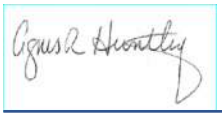
my EOL

Job Notes

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Authorization



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Authorized for release by
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Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
State Forms 5
MCP Checklist 5
Case Narrative 6
Detection Summary 7
Client Sample Results 9
Surrogate Summary 14
QC Sample Results 15
QC Association Summary 24
Lab Chronicle 27
Certification Summary 28
Method Summary 30
Sample Summary 31
Chain of Custody 32
Receipt Checklists 33

Definitions/Glossary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11737-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
S1-	Surrogate recovery exceeds control limits, low biased.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

MassDEP Analytical Protocol Certfication Form

Laboratory Name: Eurofins New England | Project #: 620-11737-1

Project Location: Former L&M - Lunenburg MA | RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
620-11737-1 through 620-11737-3

Matrices: ☑ Groundwater/Surface Water ☐ Soil/Sediment ☐ Drinking Water ☐ Air ☐ Other:

CAM Protocol (check all that apply below:)

8260 VOC CAM II A ☐	7470/7471 Hg CAM III B ☑	MassDEP VPH (GC/PID/FID) CAM IV A ☑	8082 PCB CAM V A ☐	9014 Total Cyanide/PAC CAM VI A ☐	6860 Perchlorate CAM VIII B ☐
8270 SVOC CAM II B ☐	7010 Metals CAM III C ☐	MassDEP VPH (GC/MS) CAM IV C ☐	8081 Pesticides CAM V B ☐	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
6010 Metals CAM III A ☑	6020 Metals CAM III D ☐	MassDEP EPH CAM IV B ☑	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes ☐ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☑ Yes ☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes ☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☑ Yes ☐ No
E	VPH, EPH, APH, and TO-15 only a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☑ Yes ☐ No ☐ Yes ☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☑ Yes ☐ No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☐ Yes ☑ No[1]

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☑ Yes ☐ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes ☐ No[1]

1 All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature: Agnes R Huntley **Position:** Project Manager

Printed Name: Agnes Huntley **Date:** 06/05/2023

Job ID: 620-11737-1

Laboratory: Eurofins New England

Narrative

Job Narrative
620-11737-1

Receipt
The samples were received on 5/26/2023 4:59 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.6º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA
Method MAVPH2.1: The following sample was diluted due to the nature of the sample matrix: LM-GW-UST02-0525-23 (620-11737-2). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA
Method MAEPH2.1: Surrogate recovery for the following sample was outside control limits: LM-GW-UST01-0525-23 (620-11737-1). Evidence of matrix interference is present in the extraction process; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11737-1

Client Sample ID: LM-GW-UST01-0525-23 — Lab Sample ID: 620-11737-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	60		5.3	1.2	ug/L	5		EPH	Total/NA
2-Methylnaphthalene	46		1.1	0.31	ug/L	1		EPH	Total/NA
Fluoranthene	0.27	J	1.1	0.16	ug/L	1		EPH	Total/NA
Pyrene	0.23	J	1.1	0.15	ug/L	1		EPH	Total/NA
Benzo[a]anthracene	0.15	J	1.1	0.074	ug/L	1		EPH	Total/NA
Chrysene	0.19	J	1.1	0.15	ug/L	1		EPH	Total/NA
Benzo[b]fluoranthene	0.19	J	1.1	0.16	ug/L	1		EPH	Total/NA
Benzo[a]pyrene	0.17	J	0.21	0.17	ug/L	1		EPH	Total/NA
Benzo[g,h,i]perylene	0.30	J	1.1	0.18	ug/L	1		EPH	Total/NA
Benzene	13		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
Ethylbenzene	120		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
Naphthalene	120		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
Toluene	170		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
o-Xylene	87		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
C9-C12 Aliphatics (adjusted) - DL	3600		1000	1000	ug/L	10		MAVPH2.1	Total/NA
C9-C10 Aromatics - DL	4400		1000	1000	ug/L	10		MAVPH2.1	Total/NA
C5-C8 Aliphatics (unadjusted) - DL	1200		1000	1000	ug/L	10		MAVPH2.1	Total/NA
C9-C12 Aliphatics (unadjusted) - DL	9100		1000	1000	ug/L	10		MAVPH2.1	Total/NA
Methyl tert-butyl ether - DL	810		50	50	ug/L	10		MAVPH2.1	Total/NA
m,p-Xylene - DL	720		100	100	ug/L	10		MAVPH2.1	Total/NA
Xylenes, Total - DL	880		150	150	ug/L	10		MAVPH2.1	Total/NA
C9-C18 Aliphatics	230		110	110	ug/L	1		MAEPH2.1	Total/NA
C19-C36 Aliphatics	110		110	110	ug/L	1		MAEPH2.1	Total/NA
C11-C22 Aromatics	290		110	110	ug/L	1		MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	180		110	110	ug/L	1		MAEPH2.1	Total/NA
Antimony	0.0051	J	0.0060	0.0016	mg/L	1		6010D	Dissolved
Arsenic	0.032		0.0040	0.0014	mg/L	1		6010D	Dissolved
Barium	0.056		0.0050	0.00070	mg/L	1		6010D	Dissolved
Chromium	0.0043		0.0050	0.00093	mg/L	1		6010D	Dissolved
Lead	0.013		0.0075	0.0062	mg/L	1		6010D	Dissolved
Nickel	0.011		0.0050	0.00087	mg/L	1		6010D	Dissolved
Thallium	0.0022	J	0.0050	0.0021	mg/L	1		6010D	Dissolved
Vanadium	0.0037	J	0.0050	0.0011	mg/L	1		6010D	Dissolved
Zinc	0.033		0.025	0.0016	mg/L	1		6010D	Dissolved

Client Sample ID: LM-GW-UST02-0525-23 — Lab Sample ID: 620-11737-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	17		1.1	0.26	ug/L	1		EPH	Total/NA
2-Methylnaphthalene	5.9		1.1	0.32	ug/L	1		EPH	Total/NA
C9-C10 Aromatics	890		500	500	ug/L	5		MAVPH2.1	Total/NA
Benzene	76		25	25	ug/L	5		MAVPH2.1	Total/NA
Ethylbenzene	170		25	25	ug/L	5		MAVPH2.1	Total/NA
Naphthalene	62		25	25	ug/L	5		MAVPH2.1	Total/NA
Toluene	680		25	25	ug/L	5		MAVPH2.1	Total/NA
m,p-Xylene	570		50	50	ug/L	5		MAVPH2.1	Total/NA
o-Xylene	280		25	25	ug/L	5		MAVPH2.1	Total/NA
Xylenes, Total	850		75	75	ug/L	5		MAVPH2.1	Total/NA
C5-C8 Aliphatics (unadjusted) - DL	2800		2000	2000	ug/L	20		MAVPH2.1	Total/NA
C9-C12 Aliphatics (unadjusted) - DL	3900		2000	2000	ug/L	20		MAVPH2.1	Total/NA
Methyl tert-butyl ether - DL	2300		100	100	ug/L	20		MAVPH2.1	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11737-1

Client Sample ID: LM-GW-UST02-0525-23 (Continued)

Lab Sample ID: 620-11737-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.0039	J	0.0060	0.0016	mg/L	1		6010D	Dissolved
Arsenic	0.011		0.0040	0.0014	mg/L	1		6010D	Dissolved
Barium	0.049		0.0050	0.00070	mg/L	1		6010D	Dissolved
Cadmium	0.00045	J	0.0025	0.00036	mg/L	1		6010D	Dissolved
Chromium	0.0027		0.0050	0.00093	mg/L	1		6010D	Dissolved
Lead	0.0085		0.0075	0.0062	mg/L	1		6010D	Dissolved
Nickel	0.010		0.0050	0.00087	mg/L	1		6010D	Dissolved
Silver	0.00080		0.0050	0.00062	mg/L	1		6010D	Dissolved
Vanadium	0.0022	J	0.0050	0.0011	mg/L	1		6010D	Dissolved
Zinc	0.042		0.025	0.0016	mg/L	1		6010D	Dissolved

Client Sample ID: TB-01-052523

Lab Sample ID: 620-11737-3

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: LM-GW-UST01-0525-23

Date Collected: 05/25/23 11:30
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11737-1
Matrix: Water

Method: MA DEP EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**60**		5.3	1.2	ug/L		05/30/23 14:16	06/05/23 14:25	5
2-Methylnaphthalene	**46**		1.1	0.31	ug/L		05/30/23 14:16	06/05/23 13:40	1
Acenaphthylene	ND		1.1	0.41	ug/L		05/30/23 14:16	06/05/23 13:40	1
Acenaphthene	ND		1.1	0.20	ug/L		05/30/23 14:16	06/05/23 13:40	1
Fluorene	ND		1.1	0.41	ug/L		05/30/23 14:16	06/05/23 13:40	1
Phenanthrene	ND		1.1	0.18	ug/L		05/30/23 14:16	06/05/23 13:40	1
Anthracene	ND		1.1	0.16	ug/L		05/30/23 14:16	06/05/23 13:40	1
Fluoranthene	**0.27**	**J**	1.1	0.16	ug/L		05/30/23 14:16	06/05/23 13:40	1
Pyrene	**0.23**	**J**	1.1	0.15	ug/L		05/30/23 14:16	06/05/23 13:40	1
Benzo[a]anthracene	**0.15**	**J**	1.1	0.074	ug/L		05/30/23 14:16	06/05/23 13:40	1
Chrysene	**0.19**	**J**	1.1	0.15	ug/L		05/30/23 14:16	06/05/23 13:40	1
Benzo[b]fluoranthene	**0.19**	**J**	1.1	0.16	ug/L		05/30/23 14:16	06/05/23 13:40	1
Benzo[k]fluoranthene	ND		1.1	0.25	ug/L		05/30/23 14:16	06/05/23 13:40	1
Benzo[a]pyrene	**0.17**	**J**	0.21	0.17	ug/L		05/30/23 14:16	06/05/23 13:40	1
Indeno[1,2,3-cd]pyrene	ND		0.53	0.49	ug/L		05/30/23 14:16	06/05/23 13:40	1
Dibenz(a,h)anthracene	ND		0.53	0.23	ug/L		05/30/23 14:16	06/05/23 13:40	1
Benzo[g,h,i]perylene	**0.30**	**J**	1.1	0.18	ug/L		05/30/23 14:16	06/05/23 13:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*62*		*40 - 140*	*05/30/23 14:16*	*06/05/23 13:40*	*1*
o-Terphenyl (Surr)	*48*		*40 - 140*	*05/30/23 14:16*	*06/05/23 14:25*	*5*
2-Fluorobiphenyl (Surr)	*106*		*40 - 140*	*05/30/23 14:16*	*06/05/23 13:40*	*1*
2-Fluorobiphenyl (Surr)	*76*		*40 - 140*	*05/30/23 14:16*	*06/05/23 14:25*	*5*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**13**		5.0	5.0	ug/L			05/30/23 23:26	1
Ethylbenzene	**120**		5.0	5.0	ug/L			05/30/23 23:26	1
Naphthalene	**120**		5.0	5.0	ug/L			05/30/23 23:26	1
Toluene	**170**		5.0	5.0	ug/L			05/30/23 23:26	1
o-Xylene	**87**		5.0	5.0	ug/L			05/30/23 23:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*114*		*70 - 130*		*05/30/23 23:26*	*1*
2,5-Dibromotoluene (pid)	*109*		*70 - 130*		*05/30/23 23:26*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		1000	1000	ug/L			05/31/23 16:57	10
C9-C12 Aliphatics (adjusted)	**3600**		1000	1000	ug/L			05/31/23 16:57	10
C9-C10 Aromatics	**4400**		1000	1000	ug/L			05/31/23 16:57	10
C5-C8 Aliphatics (unadjusted)	**1200**		1000	1000	ug/L			05/31/23 16:57	10
C9-C12 Aliphatics (unadjusted)	**9100**		1000	1000	ug/L			05/31/23 16:57	10
Methyl tert-butyl ether	**810**		50	50	ug/L			05/31/23 16:57	10
m,p-Xylene	**720**		100	100	ug/L			05/31/23 16:57	10
Xylenes, Total	**880**		150	150	ug/L			05/31/23 16:57	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*99*		*70 - 130*		*05/31/23 16:57*	*10*
2,5-Dibromotoluene (pid)	*95*		*70 - 130*		*05/31/23 16:57*	*10*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11737-1

Client Sample ID: LM-GW-UST01-0525-23

Lab Sample ID: 620-11737-1

Date Collected: 05/25/23 11:30

Matrix: Water

Date Received: 05/26/23 16:59

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	230		110	110	ug/L		05/30/23 14:16	06/01/23 14:42	1
C19-C36 Aliphatics	110		110	110	ug/L		05/30/23 14:16	06/01/23 14:42	1
C11-C22 Aromatics	290		110	110	ug/L		05/30/23 14:16	06/01/23 14:42	1
C11-C22 Aromatics (Adjusted)	180		110	110	ug/L		05/30/23 14:16	06/01/23 14:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*34*	*S1-*	*40 - 140*	*05/30/23 14:16*	*06/01/23 14:42*	*1*
o-Terphenyl (Surr)	*50*		*40 - 140*	*05/30/23 14:16*	*06/01/23 14:42*	*1*
2-Fluorobiphenyl (Surr)	*83*		*40 - 140*	*05/30/23 14:16*	*06/01/23 14:42*	*1*

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.0051	J	0.0060	0.0016	mg/L		05/30/23 09:06	05/31/23 14:29	1
Arsenic	0.032		0.0040	0.0014	mg/L		05/30/23 09:06	05/31/23 14:29	1
Barium	0.056		0.0050	0.00070	mg/L		05/30/23 09:06	05/31/23 14:29	1
Beryllium	ND		0.0020	0.00028	mg/L		05/30/23 09:06	05/31/23 14:29	1
Cadmium	ND		0.0025	0.00036	mg/L		05/30/23 09:06	05/31/23 14:29	1
Chromium	0.0043		0.0050	0.00093	mg/L		05/30/23 09:06	05/31/23 14:29	1
Lead	0.013		0.0075	0.0062	mg/L		05/30/23 09:06	05/31/23 14:29	1
Nickel	0.011		0.0050	0.00087	mg/L		05/30/23 09:06	05/31/23 14:29	1
Selenium	ND		0.015	0.0042	mg/L		05/30/23 09:06	05/31/23 14:29	1
Silver	ND		0.0050	0.00062	mg/L		05/30/23 09:06	05/31/23 14:29	1
Thallium	0.0022	J	0.0050	0.0021	mg/L		05/30/23 09:06	05/31/23 14:29	1
Vanadium	0.0037	J	0.0050	0.0011	mg/L		05/30/23 09:06	05/31/23 14:29	1
Zinc	0.033		0.025	0.0016	mg/L		05/30/23 09:06	05/31/23 14:29	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		05/30/23 10:37	06/02/23 13:26	1

Client Sample ID: LM-GW-UST02-0525-23

Date Collected: 05/25/23 17:10
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11737-2

Matrix: Water

Method: MA DEP EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**17**		1.1	0.26	ug/L		05/30/23 14:16	06/05/23 14:02	1
2-Methylnaphthalene	**5.9**		1.1	0.32	ug/L		05/30/23 14:16	06/05/23 14:02	1
Acenaphthylene	ND		1.1	0.43	ug/L		05/30/23 14:16	06/05/23 14:02	1
Acenaphthene	ND		1.1	0.21	ug/L		05/30/23 14:16	06/05/23 14:02	1
Fluorene	ND		1.1	0.43	ug/L		05/30/23 14:16	06/05/23 14:02	1
Phenanthrene	ND		1.1	0.19	ug/L		05/30/23 14:16	06/05/23 14:02	1
Anthracene	ND		1.1	0.17	ug/L		05/30/23 14:16	06/05/23 14:02	1
Fluoranthene	ND		1.1	0.17	ug/L		05/30/23 14:16	06/05/23 14:02	1
Pyrene	ND		1.1	0.16	ug/L		05/30/23 14:16	06/05/23 14:02	1
Benzo[a]anthracene	ND		1.1	0.078	ug/L		05/30/23 14:16	06/05/23 14:02	1
Chrysene	ND		1.1	0.16	ug/L		05/30/23 14:16	06/05/23 14:02	1
Benzo[b]fluoranthene	ND		1.1	0.17	ug/L		05/30/23 14:16	06/05/23 14:02	1
Benzo[k]fluoranthene	ND		1.1	0.26	ug/L		05/30/23 14:16	06/05/23 14:02	1
Benzo[a]pyrene	ND		0.22	0.18	ug/L		05/30/23 14:16	06/05/23 14:02	1
Indeno[1,2,3-cd]pyrene	ND		0.56	0.51	ug/L		05/30/23 14:16	06/05/23 14:02	1
Dibenz(a,h)anthracene	ND		0.56	0.24	ug/L		05/30/23 14:16	06/05/23 14:02	1
Benzo[g,h,i]perylene	ND		1.1	0.19	ug/L		05/30/23 14:16	06/05/23 14:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*67*		*40 - 140*	*05/30/23 14:16*	*06/05/23 14:02*	*1*
2-Fluorobiphenyl (Surr)	*101*		*40 - 140*	*05/30/23 14:16*	*06/05/23 14:02*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C10 Aromatics	**890**		500	500	ug/L			05/31/23 01:11	5
Benzene	**76**		25	25	ug/L			05/31/23 01:11	5
Ethylbenzene	**170**		25	25	ug/L			05/31/23 01:11	5
Naphthalene	**62**		25	25	ug/L			05/31/23 01:11	5
Toluene	**680**		25	25	ug/L			05/31/23 01:11	5
m,p-Xylene	**570**		50	50	ug/L			05/31/23 01:11	5
o-Xylene	**280**		25	25	ug/L			05/31/23 01:11	5
Xylenes, Total	**850**		75	75	ug/L			05/31/23 01:11	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*97*		*70 - 130*		*05/31/23 01:11*	*5*
2,5-Dibromotoluene (pid)	*93*		*70 - 130*		*05/31/23 01:11*	*5*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		2000	2000	ug/L			05/31/23 16:22	20
C9-C12 Aliphatics (adjusted)	ND		2000	2000	ug/L			05/31/23 16:22	20
C5-C8 Aliphatics (unadjusted)	**2800**		2000	2000	ug/L			05/31/23 16:22	20
C9-C12 Aliphatics (unadjusted)	**3900**		2000	2000	ug/L			05/31/23 16:22	20
Methyl tert-butyl ether	**2300**		100	100	ug/L			05/31/23 16:22	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*95*		*70 - 130*		*05/31/23 16:22*	*20*
2,5-Dibromotoluene (pid)	*95*		*70 - 130*		*05/31/23 16:22*	*20*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11737-1

Client Sample ID: LM-GW-UST02-0525-23

Lab Sample ID: 620-11737-2

Date Collected: 05/25/23 17:10

Matrix: Water

Date Received: 05/26/23 16:59

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		110	110	ug/L		05/30/23 14:16	06/01/23 15:11	1
C19-C36 Aliphatics	ND		110	110	ug/L		05/30/23 14:16	06/01/23 15:11	1
C11-C22 Aromatics	ND		110	110	ug/L		05/30/23 14:16	06/01/23 15:11	1
C11-C22 Aromatics (Adjusted)	ND		110	110	ug/L		05/30/23 14:16	06/01/23 15:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*48*		*40 - 140*	*05/30/23 14:16*	*06/01/23 15:11*	*1*
o-Terphenyl (Surr)	*56*		*40 - 140*	*05/30/23 14:16*	*06/01/23 15:11*	*1*
2-Fluorobiphenyl (Surr)	*94*		*40 - 140*	*05/30/23 14:16*	*06/01/23 15:11*	*1*

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0039**	**J**	0.0060	0.0016	mg/L		05/30/23 09:06	05/31/23 15:17	1
Arsenic	**0.011**		0.0040	0.0014	mg/L		05/30/23 09:06	05/31/23 15:17	1
Barium	**0.049**		0.0050	0.00070	mg/L		05/30/23 09:06	05/31/23 15:17	1
Beryllium	ND		0.0020	0.00028	mg/L		05/30/23 09:06	05/31/23 15:17	1
Cadmium	**0.00045**	**J**	0.0025	0.00036	mg/L		05/30/23 09:06	05/31/23 15:17	1
Chromium	**0.0027**		0.0050	0.00093	mg/L		05/30/23 09:06	05/31/23 15:17	1
Lead	**0.0085**		0.0075	0.0062	mg/L		05/30/23 09:06	05/31/23 15:17	1
Nickel	**0.010**		0.0050	0.00087	mg/L		05/30/23 09:06	05/31/23 15:17	1
Selenium	ND		0.015	0.0042	mg/L		05/30/23 09:06	05/31/23 15:17	1
Silver	**0.00080**		0.0050	0.00062	mg/L		05/30/23 09:06	05/31/23 15:17	1
Thallium	ND		0.0050	0.0021	mg/L		05/30/23 09:06	05/31/23 15:17	1
Vanadium	**0.0022**	**J**	0.0050	0.0011	mg/L		05/30/23 09:06	05/31/23 15:17	1
Zinc	**0.042**		0.025	0.0016	mg/L		05/30/23 09:06	05/31/23 15:17	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		05/30/23 10:37	06/02/23 13:34	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11737-1

Client Sample ID: TB-01-052523

Date Collected: 05/25/23 16:00
Date Received: 05/26/23 16:59

Lab Sample ID: 620-11737-3

Matrix: Water

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			05/30/23 15:51	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			05/30/23 15:51	1
C9-C10 Aromatics	ND		100	100	ug/L			05/30/23 15:51	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			05/30/23 15:51	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			05/30/23 15:51	1
Benzene	ND		5.0	5.0	ug/L			05/30/23 15:51	1
Ethylbenzene	ND		5.0	5.0	ug/L			05/30/23 15:51	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			05/30/23 15:51	1
Naphthalene	ND		5.0	5.0	ug/L			05/30/23 15:51	1
Toluene	ND		5.0	5.0	ug/L			05/30/23 15:51	1
m,p-Xylene	ND		10	10	ug/L			05/30/23 15:51	1
o-Xylene	ND		5.0	5.0	ug/L			05/30/23 15:51	1
Xylenes, Total	ND		15	15	ug/L			05/30/23 15:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*92*		*70 - 130*		*05/30/23 15:51*	*1*
2,5-Dibromotoluene (pid)	*93*		*70 - 130*		*05/30/23 15:51*	*1*

Surrogate Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11737-1

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
		OTPH	FBP
Lab Sample ID	Client Sample ID	(40-140)	(40-140)
620-11737-1	LM-GW-UST01-0525-23	62	106
620-11737-1	LM-GW-UST01-0525-23	48	76
620-11737-2	LM-GW-UST02-0525-23	67	101
LCS 620-23074/4-B	Lab Control Sample	74	113
LCSD 620-23074/5-B	Lab Control Sample Dup	70	96
MB 620-23074/1-B	Method Blank	70	106

Surrogate Legend

OTPH = o-Terphenyl (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
		25DBTf1	25DBTp1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
620-11737-1	LM-GW-UST01-0525-23	114	109
620-11737-1 - DL	LM-GW-UST01-0525-23	99	95
620-11737-2	LM-GW-UST02-0525-23	97	93
620-11737-2 - DL	LM-GW-UST02-0525-23	95	95
620-11737-3	TB-01-052523	92	93
LCS 620-23050/3	Lab Control Sample	96	95
LCS 620-23107/3	Lab Control Sample	99	97
LCSD 620-23050/4	Lab Control Sample Dup	97	96
LCSD 620-23107/4	Lab Control Sample Dup	99	98
MB 620-23050/5	Method Blank	96	96
MB 620-23107/5	Method Blank	100	99

Surrogate Legend

25DBTf = 2,5-Dibromotoluene (fid)
25DBTp = 2,5-Dibromotoluene (pid)

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)		
		1COD1	OTPH1	FBP1
Lab Sample ID	Client Sample ID	(40-140)	(40-140)	(40-140)
620-11737-1	LM-GW-UST01-0525-23	34 S1-	50	83
620-11737-2	LM-GW-UST02-0525-23	48	56	94
LCS 620-23074/2-B	Lab Control Sample	73	54	79
LCSD 620-23074/3-B	Lab Control Sample Dup	74	60	91
MB 620-23074/1-B	Method Blank	70	60	91

Surrogate Legend

1COD = 1-Chlorooctadecane (Surr)
OTPH = o-Terphenyl (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Lab Sample ID: MB 620-23074/1-B
Matrix: Water
Analysis Batch: 23261

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23074

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.0	0.23	ug/L		05/30/23 14:16	06/05/23 12:32	1
2-Methylnaphthalene	ND		1.0	0.29	ug/L		05/30/23 14:16	06/05/23 12:32	1
Acenaphthylene	ND		1.0	0.39	ug/L		05/30/23 14:16	06/05/23 12:32	1
Acenaphthene	ND		1.0	0.19	ug/L		05/30/23 14:16	06/05/23 12:32	1
Fluorene	ND		1.0	0.39	ug/L		05/30/23 14:16	06/05/23 12:32	1
Phenanthrene	ND		1.0	0.17	ug/L		05/30/23 14:16	06/05/23 12:32	1
Anthracene	ND		1.0	0.15	ug/L		05/30/23 14:16	06/05/23 12:32	1
Fluoranthene	ND		1.0	0.15	ug/L		05/30/23 14:16	06/05/23 12:32	1
Pyrene	ND		1.0	0.14	ug/L		05/30/23 14:16	06/05/23 12:32	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		05/30/23 14:16	06/05/23 12:32	1
Chrysene	ND		1.0	0.14	ug/L		05/30/23 14:16	06/05/23 12:32	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		05/30/23 14:16	06/05/23 12:32	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		05/30/23 14:16	06/05/23 12:32	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		05/30/23 14:16	06/05/23 12:32	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		05/30/23 14:16	06/05/23 12:32	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		05/30/23 14:16	06/05/23 12:32	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		05/30/23 14:16	06/05/23 12:32	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*70*		*40 - 140*	*05/30/23 14:16*	*06/05/23 12:32*	*1*
2-Fluorobiphenyl (Surr)	*106*		*40 - 140*	*05/30/23 14:16*	*06/05/23 12:32*	*1*

Lab Sample ID: LCS 620-23074/4-B
Matrix: Water
Analysis Batch: 23261

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23074

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Naphthalene	5.00	2.96		ug/L		59	40 - 140
2-Methylnaphthalene	5.00	2.92		ug/L		58	40 - 140
Acenaphthylene	5.00	3.16		ug/L		63	40 - 140
Acenaphthene	5.00	3.11		ug/L		62	40 - 140
Fluorene	5.00	3.01		ug/L		60	40 - 140
Phenanthrene	5.00	3.13		ug/L		63	40 - 140
Anthracene	5.00	3.01		ug/L		60	40 - 140
Fluoranthene	5.00	3.55		ug/L		71	40 - 140
Pyrene	5.00	3.48		ug/L		70	40 - 140
Benzo[a]anthracene	5.00	3.40		ug/L		68	40 - 140
Chrysene	5.00	3.48		ug/L		70	40 - 140
Benzo[b]fluoranthene	5.00	3.29		ug/L		66	40 - 140
Benzo[k]fluoranthene	5.00	3.82		ug/L		76	40 - 140
Benzo[a]pyrene	5.00	3.20		ug/L		64	40 - 140
Indeno[1,2,3-cd]pyrene	5.00	3.37		ug/L		67	40 - 140
Dibenz(a,h)anthracene	5.00	3.41		ug/L		68	40 - 140
Benzo[g,h,i]perylene	5.00	3.97		ug/L		79	40 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*74*		*40 - 140*
2-Fluorobiphenyl (Surr)	*113*		*40 - 140*

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Lab Sample ID: LCSD 620-23074/5-B
Matrix: Water
Analysis Batch: 23261

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23074

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Naphthalene			5.00	2.56		ug/L		51	40 - 140	14	25
2-Methylnaphthalene			5.00	2.47		ug/L		49	40 - 140	17	25
Acenaphthylene			5.00	2.75		ug/L		55	40 - 140	14	25
Acenaphthene			5.00	2.65		ug/L		53	40 - 140	16	25
Fluorene			5.00	2.85		ug/L		57	40 - 140	6	25
Phenanthrene			5.00	2.75		ug/L		55	40 - 140	13	25
Anthracene			5.00	2.67		ug/L		53	40 - 140	12	25
Fluoranthene			5.00	3.15		ug/L		63	40 - 140	12	25
Pyrene			5.00	3.15		ug/L		63	40 - 140	10	25
Benzo[a]anthracene			5.00	2.76		ug/L		55	40 - 140	21	25
Chrysene			5.00	2.82		ug/L		56	40 - 140	21	25
Benzo[b]fluoranthene			5.00	3.11		ug/L		62	40 - 140	6	25
Benzo[k]fluoranthene			5.00	3.66		ug/L		73	40 - 140	4	25
Benzo[a]pyrene			5.00	2.84		ug/L		57	40 - 140	12	25
Indeno[1,2,3-cd]pyrene			5.00	2.84		ug/L		57	40 - 140	17	25
Dibenz(a,h)anthracene			5.00	2.85		ug/L		57	40 - 140	18	25
Benzo[g,h,i]perylene			5.00	3.25		ug/L		65	40 - 140	20	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*70*		*40 - 140*
2-Fluorobiphenyl (Surr)	*96*		*40 - 140*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-23050/5
Matrix: Water
Analysis Batch: 23050

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			05/30/23 13:36	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			05/30/23 13:36	1
C9-C10 Aromatics	ND		100	100	ug/L			05/30/23 13:36	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			05/30/23 13:36	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			05/30/23 13:36	1
Benzene	ND		5.0	5.0	ug/L			05/30/23 13:36	1
Ethylbenzene	ND		5.0	5.0	ug/L			05/30/23 13:36	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			05/30/23 13:36	1
Naphthalene	ND		5.0	5.0	ug/L			05/30/23 13:36	1
Toluene	ND		5.0	5.0	ug/L			05/30/23 13:36	1
m,p-Xylene	ND		10	10	ug/L			05/30/23 13:36	1
o-Xylene	ND		5.0	5.0	ug/L			05/30/23 13:36	1
Xylenes, Total	ND		15	15	ug/L			05/30/23 13:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*96*		*70 - 130*		*05/30/23 13:36*	*1*
2,5-Dibromotoluene (pid)	*96*		*70 - 130*		*05/30/23 13:36*	*1*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCS 620-23050/3
Matrix: Water
Analysis Batch: 23050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C10 Aromatics			20.0	ND		ug/L		109	70 - 130		
C5-C8 Aliphatics (unadjusted)			60.0	ND		ug/L		99	70 - 130		
C9-C12 Aliphatics (unadjusted)			60.0	ND		ug/L		98	70 - 130		
Benzene			20.0	20.0		ug/L		100	70 - 130		
Ethylbenzene			20.0	21.2		ug/L		106	70 - 130		
Methyl tert-butyl ether			20.0	20.0		ug/L		100	70 - 130		
Naphthalene			20.0	20.5		ug/L		103	70 - 130		
Toluene			20.0	20.5		ug/L		102	70 - 130		
m,p-Xylene			40.0	43.5		ug/L		109	70 - 130		
o-Xylene			20.0	21.7		ug/L		108	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*96*		*70 - 130*
2,5-Dibromotoluene (pid)	*95*		*70 - 130*

Lab Sample ID: LCSD 620-23050/4
Matrix: Water
Analysis Batch: 23050

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics			20.0	ND		ug/L		109	70 - 130	0	25
C5-C8 Aliphatics (unadjusted)			60.0	ND		ug/L		97	70 - 130	2	25
C9-C12 Aliphatics (unadjusted)			60.0	ND		ug/L		95	70 - 130	3	25
Benzene			20.0	20.0		ug/L		100	70 - 130	0	25
Ethylbenzene			20.0	21.0		ug/L		105	70 - 130	1	25
Methyl tert-butyl ether			20.0	19.5		ug/L		98	70 - 130	2	25
Naphthalene			20.0	20.6		ug/L		103	70 - 130	0	25
Toluene			20.0	20.4		ug/L		102	70 - 130	1	25
m,p-Xylene			40.0	42.7		ug/L		107	70 - 130	2	25
o-Xylene			20.0	21.5		ug/L		108	70 - 130	1	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*97*		*70 - 130*
2,5-Dibromotoluene (pid)	*96*		*70 - 130*

Lab Sample ID: MB 620-23107/5
Matrix: Water
Analysis Batch: 23107

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			05/31/23 13:03	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			05/31/23 13:03	1
C9-C10 Aromatics	ND		100	100	ug/L			05/31/23 13:03	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			05/31/23 13:03	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			05/31/23 13:03	1
Benzene	ND		5.0	5.0	ug/L			05/31/23 13:03	1
Ethylbenzene	ND		5.0	5.0	ug/L			05/31/23 13:03	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			05/31/23 13:03	1

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: MB 620-23107/5
Matrix: Water
Analysis Batch: 23107

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		5.0	5.0	ug/L			05/31/23 13:03	1
Toluene	ND		5.0	5.0	ug/L			05/31/23 13:03	1
m,p-Xylene	ND		10	10	ug/L			05/31/23 13:03	1
o-Xylene	ND		5.0	5.0	ug/L			05/31/23 13:03	1
Xylenes, Total	ND		15	15	ug/L			05/31/23 13:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*100*		*70 - 130*		*05/31/23 13:03*	*1*
2,5-Dibromotoluene (pid)	*99*		*70 - 130*		*05/31/23 13:03*	*1*

Lab Sample ID: LCS 620-23107/3
Matrix: Water
Analysis Batch: 23107

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C10 Aromatics	20.0	ND		ug/L		110	70 - 130
C5-C8 Aliphatics (unadjusted)	60.0	ND		ug/L		98	70 - 130
C9-C12 Aliphatics (unadjusted)	60.0	ND		ug/L		96	70 - 130
Benzene	20.0	19.9		ug/L		100	70 - 130
Ethylbenzene	20.0	21.3		ug/L		107	70 - 130
Methyl tert-butyl ether	20.0	20.3		ug/L		102	70 - 130
Naphthalene	20.0	21.7		ug/L		109	70 - 130
Toluene	20.0	20.6		ug/L		103	70 - 130
m,p-Xylene	40.0	43.6		ug/L		109	70 - 130
o-Xylene	20.0	21.9		ug/L		109	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*99*		*70 - 130*
2,5-Dibromotoluene (pid)	*97*		*70 - 130*

Lab Sample ID: LCSD 620-23107/4
Matrix: Water
Analysis Batch: 23107

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics	20.0	ND		ug/L		110	70 - 130	0	25
C5-C8 Aliphatics (unadjusted)	60.0	ND		ug/L		96	70 - 130	2	25
C9-C12 Aliphatics (unadjusted)	60.0	ND		ug/L		93	70 - 130	3	25
Benzene	20.0	20.0		ug/L		100	70 - 130	0	25
Ethylbenzene	20.0	21.1		ug/L		105	70 - 130	1	25
Methyl tert-butyl ether	20.0	20.2		ug/L		101	70 - 130	1	25
Naphthalene	20.0	21.7		ug/L		108	70 - 130	0	25
Toluene	20.0	20.5		ug/L		102	70 - 130	0	25
m,p-Xylene	40.0	43.3		ug/L		108	70 - 130	1	25
o-Xylene	20.0	21.6		ug/L		108	70 - 130	1	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*99*		*70 - 130*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-23107/4
Matrix: Water
Analysis Batch: 23107

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2,5-Dibromotoluene (pid)	98		70 - 130

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-23074/1-B
Matrix: Water
Analysis Batch: 23139

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23074

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		100	100	ug/L		05/30/23 14:16	06/01/23 13:13	1
C19-C36 Aliphatics	ND		100	100	ug/L		05/30/23 14:16	06/01/23 13:13	1
C11-C22 Aromatics	ND		100	100	ug/L		05/30/23 14:16	06/01/23 13:13	1
C11-C22 Aromatics (Adjusted)	ND		100	100	ug/L		05/30/23 14:16	06/01/23 13:13	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctadecane (Surr)	70		40 - 140	05/30/23 14:16	06/01/23 13:13	1
o-Terphenyl (Surr)	60		40 - 140	05/30/23 14:16	06/01/23 13:13	1
2-Fluorobiphenyl (Surr)	91		40 - 140	05/30/23 14:16	06/01/23 13:13	1

Lab Sample ID: LCS 620-23074/2-B
Matrix: Water
Analysis Batch: 23139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23074

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C18 Aliphatics			120	ND		ug/L		41	40 - 140		
C19-C36 Aliphatics			160	ND		ug/L		57	40 - 140		
C11-C22 Aromatics			340	212		ug/L		62	40 - 140		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctadecane (Surr)	73		40 - 140
o-Terphenyl (Surr)	54		40 - 140
2-Fluorobiphenyl (Surr)	79		40 - 140

Lab Sample ID: LCSD 620-23074/3-B
Matrix: Water
Analysis Batch: 23139

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23074

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics			120	ND		ug/L		43	40 - 140	6	25
C19-C36 Aliphatics			160	ND		ug/L		56	40 - 140	3	25
C11-C22 Aromatics			340	253		ug/L		74	40 - 140	18	25

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctadecane (Surr)	74		40 - 140
o-Terphenyl (Surr)	60		40 - 140
2-Fluorobiphenyl (Surr)	91		40 - 140

Method: 6010D - Metals (ICP)

Lab Sample ID: LCS 620-23040/2-A
Matrix: Water
Analysis Batch: 23156

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23040

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	2.50	2.76		mg/L		110	80 - 120
Arsenic	2.50	2.36		mg/L		94	80 - 120
Barium	2.50	2.38		mg/L		95	80 - 120
Beryllium	2.50	2.51		mg/L		100	80 - 120
Cadmium	2.50	2.74		mg/L		110	80 - 120
Chromium	2.50	2.50		mg/L		100	80 - 120
Lead	2.50	2.59		mg/L		104	80 - 120
Nickel	2.50	2.52		mg/L		101	80 - 120
Selenium	2.50	2.79		mg/L		112	80 - 120
Silver	2.50	2.36		mg/L		95	80 - 120
Thallium	2.50	2.55		mg/L		102	80 - 120
Vanadium	2.50	2.45		mg/L		98	80 - 120
Zinc	2.50	2.59		mg/L		103	80 - 120

Lab Sample ID: LCSD 620-23040/3-A
Matrix: Water
Analysis Batch: 23156

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23040

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	2.50	2.75		mg/L		110	80 - 120	0	20
Arsenic	2.50	2.39		mg/L		96	80 - 120	1	20
Barium	2.50	2.37		mg/L		95	80 - 120	0	20
Beryllium	2.50	2.51		mg/L		101	80 - 120	0	20
Cadmium	2.50	2.73		mg/L		109	80 - 120	0	20
Chromium	2.50	2.50		mg/L		100	80 - 120	0	20
Lead	2.50	2.59		mg/L		104	80 - 120	0	20
Nickel	2.50	2.53		mg/L		101	80 - 120	0	20
Selenium	2.50	2.80		mg/L		112	80 - 120	0	20
Silver	2.50	2.37		mg/L		95	80 - 120	0	20
Thallium	2.50	2.56		mg/L		102	80 - 120	1	20
Vanadium	2.50	2.47		mg/L		99	80 - 120	0	20
Zinc	2.50	2.59		mg/L		103	80 - 120	0	20

Lab Sample ID: MB 620-23100/1-A
Matrix: Water
Analysis Batch: 23156

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23100

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.012	0.0032	mg/L		05/31/23 10:04	05/31/23 13:36	1
Arsenic	ND		0.0080	0.0028	mg/L		05/31/23 10:04	05/31/23 13:36	1
Barium	0.00170	J	0.010	0.0014	mg/L		05/31/23 10:04	05/31/23 13:36	1
Beryllium	ND		0.0040	0.00056	mg/L		05/31/23 10:04	05/31/23 13:36	1
Cadmium	ND		0.0050	0.00071	mg/L		05/31/23 10:04	05/31/23 13:36	1
Chromium	0.00360	J	0.010	0.0019	mg/L		05/31/23 10:04	05/31/23 13:36	1
Lead	ND		0.015	0.012	mg/L		05/31/23 10:04	05/31/23 13:36	1
Nickel	ND		0.010	0.0017	mg/L		05/31/23 10:04	05/31/23 13:36	1
Selenium	ND		0.030	0.0083	mg/L		05/31/23 10:04	05/31/23 13:36	1
Silver	0.00190	J	0.010	0.0012	mg/L		05/31/23 10:04	05/31/23 13:36	1
Thallium	ND		0.010	0.0042	mg/L		05/31/23 10:04	05/31/23 13:36	1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: MB 620-23100/1-A
Matrix: Water
Analysis Batch: 23156

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23100

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vanadium	ND		0.010	0.0022	mg/L		05/31/23 10:04	05/31/23 13:36	1
Zinc	0.00610	J	0.050	0.0032	mg/L		05/31/23 10:04	05/31/23 13:36	1

Lab Sample ID: 620-11737-1 MS
Matrix: Water
Analysis Batch: 23156

Client Sample ID: LM-GW-UST01-0525-23
Prep Type: Dissolved
Prep Batch: 23040

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0051	J	2.50	2.79		mg/L		112	75 - 125
Arsenic	0.032		2.50	2.38		mg/L		94	75 - 125
Barium	0.056		2.50	2.43		mg/L		95	75 - 125
Beryllium	ND		2.50	2.46		mg/L		98	75 - 125
Cadmium	ND		2.50	2.67		mg/L		107	75 - 125
Chromium	0.0043		2.50	2.45		mg/L		98	75 - 125
Lead	0.013		2.50	2.53		mg/L		101	75 - 125
Nickel	0.011		2.50	2.46		mg/L		98	75 - 125
Selenium	ND		2.50	2.79		mg/L		112	75 - 125
Silver	ND		2.50	2.35		mg/L		94	75 - 125
Thallium	0.0022	J	2.50	2.51		mg/L		100	75 - 125
Vanadium	0.0037	J	2.50	2.44		mg/L		97	75 - 125
Zinc	0.033		2.50	2.54		mg/L		100	75 - 125

Lab Sample ID: 620-11737-1 MSD
Matrix: Water
Analysis Batch: 23156

Client Sample ID: LM-GW-UST01-0525-23
Prep Type: Dissolved
Prep Batch: 23040

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	0.0051	J	2.50	2.80		mg/L		112	75 - 125	0	20
Arsenic	0.032		2.50	2.43		mg/L		96	75 - 125	2	20
Barium	0.056		2.50	2.44		mg/L		95	75 - 125	0	20
Beryllium	ND		2.50	2.50		mg/L		100	75 - 125	2	20
Cadmium	ND		2.50	2.71		mg/L		108	75 - 125	1	20
Chromium	0.0043		2.50	2.48		mg/L		99	75 - 125	1	20
Lead	0.013		2.50	2.55		mg/L		102	75 - 125	1	20
Nickel	0.011		2.50	2.49		mg/L		99	75 - 125	1	20
Selenium	ND		2.50	2.82		mg/L		113	75 - 125	1	20
Silver	ND		2.50	2.38		mg/L		95	75 - 125	1	20
Thallium	0.0022	J	2.50	2.55		mg/L		102	75 - 125	2	20
Vanadium	0.0037	J	2.50	2.47		mg/L		99	75 - 125	1	20
Zinc	0.033		2.50	2.58		mg/L		102	75 - 125	2	20

Lab Sample ID: 620-11737-1 DU
Matrix: Water
Analysis Batch: 23156

Client Sample ID: LM-GW-UST01-0525-23
Prep Type: Dissolved
Prep Batch: 23040

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	0.0051	J	0.00580	J	mg/L		13	20
Arsenic	0.032		0.0298		mg/L		7	20
Barium	0.056		0.0560		mg/L		0.8	20

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 620-11737-1 DU
Matrix: Water
Analysis Batch: 23156

Client Sample ID: LM-GW-UST01-0525-23
Prep Type: Dissolved
Prep Batch: 23040

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Beryllium	ND		ND		mg/L		NC	20
Cadmium	ND		ND		mg/L		NC	20
Chromium	0.0043		0.00415	J	mg/L		4	20
Lead	0.013		0.0131		mg/L		2	20
Nickel	0.011		0.0116		mg/L		1	20
Selenium	ND		ND		mg/L		NC	20
Silver	ND		0.000750	J	mg/L		NC	20
Thallium	0.0022	J	0.00215	J	mg/L		2	20
Vanadium	0.0037	J	0.00350	J	mg/L		4	20
Zinc	0.033		0.0333		mg/L		1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 620-23056/1-A
Matrix: Water
Analysis Batch: 23226

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23056

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		05/30/23 10:37	06/02/23 13:10	1

Lab Sample ID: LCS 620-23056/2-A
Matrix: Water
Analysis Batch: 23226

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23056

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00548		mg/L		110	85 - 115

Lab Sample ID: LCSD 620-23056/3-A
Matrix: Water
Analysis Batch: 23226

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23056

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.00500	0.00534		mg/L		107	85 - 115	3	20

Lab Sample ID: 620-11737-1 MS
Matrix: Water
Analysis Batch: 23226

Client Sample ID: LM-GW-UST01-0525-23
Prep Type: Dissolved
Prep Batch: 23056

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		0.00500	0.00575		mg/L		115	80 - 120

Lab Sample ID: 620-11737-1 MSD
Matrix: Water
Analysis Batch: 23226

Client Sample ID: LM-GW-UST01-0525-23
Prep Type: Dissolved
Prep Batch: 23056

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		0.00500	0.00576		mg/L		115	80 - 120	0	20

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11737-1

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 620-11737-1 DU
Matrix: Water
Analysis Batch: 23226

Client Sample ID: LM-GW-UST01-0525-23
Prep Type: Dissolved
Prep Batch: 23056

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Mercury	ND			ND		mg/L				NC	20

GC/MS Semi VOA

Prep Batch: 23074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11737-1	LM-GW-UST01-0525-23	Total/NA	Water	3510C	
620-11737-2	LM-GW-UST02-0525-23	Total/NA	Water	3510C	
MB 620-23074/1-B	Method Blank	Total/NA	Water	3510C	
LCS 620-23074/4-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 620-23074/5-B	Lab Control Sample Dup	Total/NA	Water	3510C	

Fraction Batch: 23131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11737-1	LM-GW-UST01-0525-23	Total/NA	Water	MA EPH Frac	23074
620-11737-2	LM-GW-UST02-0525-23	Total/NA	Water	MA EPH Frac	23074
MB 620-23074/1-B	Method Blank	Total/NA	Water	MA EPH Frac	23074
LCS 620-23074/4-B	Lab Control Sample	Total/NA	Water	MA EPH Frac	23074
LCSD 620-23074/5-B	Lab Control Sample Dup	Total/NA	Water	MA EPH Frac	23074

Analysis Batch: 23261

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11737-1	LM-GW-UST01-0525-23	Total/NA	Water	EPH	23131
620-11737-1	LM-GW-UST01-0525-23	Total/NA	Water	EPH	23131
620-11737-2	LM-GW-UST02-0525-23	Total/NA	Water	EPH	23131
MB 620-23074/1-B	Method Blank	Total/NA	Water	EPH	23131
LCS 620-23074/4-B	Lab Control Sample	Total/NA	Water	EPH	23131
LCSD 620-23074/5-B	Lab Control Sample Dup	Total/NA	Water	EPH	23131

GC VOA

Analysis Batch: 23050

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11737-1	LM-GW-UST01-0525-23	Total/NA	Water	MAVPH2.1	
620-11737-2	LM-GW-UST02-0525-23	Total/NA	Water	MAVPH2.1	
620-11737-3	TB-01-052523	Total/NA	Water	MAVPH2.1	
MB 620-23050/5	Method Blank	Total/NA	Water	MAVPH2.1	
LCS 620-23050/3	Lab Control Sample	Total/NA	Water	MAVPH2.1	
LCSD 620-23050/4	Lab Control Sample Dup	Total/NA	Water	MAVPH2.1	

Analysis Batch: 23107

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11737-1 - DL	LM-GW-UST01-0525-23	Total/NA	Water	MAVPH2.1	
620-11737-2 - DL	LM-GW-UST02-0525-23	Total/NA	Water	MAVPH2.1	
MB 620-23107/5	Method Blank	Total/NA	Water	MAVPH2.1	
LCS 620-23107/3	Lab Control Sample	Total/NA	Water	MAVPH2.1	
LCSD 620-23107/4	Lab Control Sample Dup	Total/NA	Water	MAVPH2.1	

GC Semi VOA

Prep Batch: 23074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11737-1	LM-GW-UST01-0525-23	Total/NA	Water	3510C	
620-11737-2	LM-GW-UST02-0525-23	Total/NA	Water	3510C	
MB 620-23074/1-B	Method Blank	Total/NA	Water	3510C	
LCS 620-23074/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 620-23074/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	

GC Semi VOA

Fraction Batch: 23131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11737-1	LM-GW-UST01-0525-23	Total/NA	Water	MA EPH Frac	23074
620-11737-2	LM-GW-UST02-0525-23	Total/NA	Water	MA EPH Frac	23074
MB 620-23074/1-B	Method Blank	Total/NA	Water	MA EPH Frac	23074
LCS 620-23074/2-B	Lab Control Sample	Total/NA	Water	MA EPH Frac	23074
LCSD 620-23074/3-B	Lab Control Sample Dup	Total/NA	Water	MA EPH Frac	23074

Analysis Batch: 23139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11737-1	LM-GW-UST01-0525-23	Total/NA	Water	MAEPH2.1	23131
620-11737-2	LM-GW-UST02-0525-23	Total/NA	Water	MAEPH2.1	23131
MB 620-23074/1-B	Method Blank	Total/NA	Water	MAEPH2.1	23131
LCS 620-23074/2-B	Lab Control Sample	Total/NA	Water	MAEPH2.1	23131
LCSD 620-23074/3-B	Lab Control Sample Dup	Total/NA	Water	MAEPH2.1	23131

Metals

Prep Batch: 23040

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11737-1	LM-GW-UST01-0525-23	Dissolved	Water	3005A	
620-11737-2	LM-GW-UST02-0525-23	Dissolved	Water	3005A	
LCS 620-23040/2-A	Lab Control Sample	Total/NA	Water	3005A	
LCSD 620-23040/3-A	Lab Control Sample Dup	Total/NA	Water	3005A	
620-11737-1 MS	LM-GW-UST01-0525-23	Dissolved	Water	3005A	
620-11737-1 MSD	LM-GW-UST01-0525-23	Dissolved	Water	3005A	
620-11737-1 DU	LM-GW-UST01-0525-23	Dissolved	Water	3005A	

Prep Batch: 23056

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11737-1	LM-GW-UST01-0525-23	Dissolved	Water	7470A	
620-11737-2	LM-GW-UST02-0525-23	Dissolved	Water	7470A	
MB 620-23056/1-A	Method Blank	Total/NA	Water	7470A	
LCS 620-23056/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 620-23056/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	
620-11737-1 MS	LM-GW-UST01-0525-23	Dissolved	Water	7470A	
620-11737-1 MSD	LM-GW-UST01-0525-23	Dissolved	Water	7470A	
620-11737-1 DU	LM-GW-UST01-0525-23	Dissolved	Water	7470A	

Prep Batch: 23100

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 620-23100/1-A	Method Blank	Total/NA	Water	3005A	

Analysis Batch: 23156

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11737-1	LM-GW-UST01-0525-23	Dissolved	Water	6010D	23040
620-11737-2	LM-GW-UST02-0525-23	Dissolved	Water	6010D	23040
MB 620-23100/1-A	Method Blank	Total/NA	Water	6010D	23100
LCS 620-23040/2-A	Lab Control Sample	Total/NA	Water	6010D	23040
LCSD 620-23040/3-A	Lab Control Sample Dup	Total/NA	Water	6010D	23040
620-11737-1 MS	LM-GW-UST01-0525-23	Dissolved	Water	6010D	23040
620-11737-1 MSD	LM-GW-UST01-0525-23	Dissolved	Water	6010D	23040
620-11737-1 DU	LM-GW-UST01-0525-23	Dissolved	Water	6010D	23040

QC Association Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11737-1

Metals

Analysis Batch: 23226

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11737-1	LM-GW-UST01-0525-23	Dissolved	Water	7470A	23056
620-11737-2	LM-GW-UST02-0525-23	Dissolved	Water	7470A	23056
MB 620-23056/1-A	Method Blank	Total/NA	Water	7470A	23056
LCS 620-23056/2-A	Lab Control Sample	Total/NA	Water	7470A	23056
LCSD 620-23056/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	23056
620-11737-1 MS	LM-GW-UST01-0525-23	Dissolved	Water	7470A	23056
620-11737-1 MSD	LM-GW-UST01-0525-23	Dissolved	Water	7470A	23056
620-11737-1 DU	LM-GW-UST01-0525-23	Dissolved	Water	7470A	23056

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11737-1

Client Sample ID: LM-GW-UST01-0525-23

Lab Sample ID: 620-11737-1

Date Collected: 05/25/23 11:30

Matrix: Water

Date Received: 05/26/23 16:59

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			23074	AAH	EET NE	05/30/23 14:16
Total/NA	Fraction	MA EPH Frac			23131	BJJ	EET NE	05/31/23 16:59
Total/NA	Analysis	EPH		1	23261	BJJ	EET NE	06/05/23 13:40
Total/NA	Prep	3510C			23074	AAH	EET NE	05/30/23 14:16
Total/NA	Fraction	MA EPH Frac			23131	BJJ	EET NE	05/31/23 16:59
Total/NA	Analysis	EPH		5	23261	BJJ	EET NE	06/05/23 14:25
Total/NA	Analysis	MAVPH2.1		1	23050	BMH	EET NE	05/30/23 23:26
Total/NA	Analysis	MAVPH2.1	DL	10	23107	BMH	EET NE	05/31/23 16:57
Total/NA	Prep	3510C			23074	AAH	EET NE	05/30/23 14:16
Total/NA	Fraction	MA EPH Frac			23131	BJJ	EET NE	05/31/23 16:59
Total/NA	Analysis	MAEPH2.1		1	23139	BJJ	EET NE	06/01/23 14:42
Dissolved	Prep	3005A			23040	PRB	EET NE	05/30/23 09:06
Dissolved	Analysis	6010D		1	23156	JPC	EET NE	05/31/23 14:29
Dissolved	Prep	7470A			23056	PRB	EET NE	05/30/23 10:37
Dissolved	Analysis	7470A		1	23226	PRB	EET NE	06/02/23 13:26

Client Sample ID: LM-GW-UST02-0525-23

Lab Sample ID: 620-11737-2

Date Collected: 05/25/23 17:10

Matrix: Water

Date Received: 05/26/23 16:59

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			23074	AAH	EET NE	05/30/23 14:16
Total/NA	Fraction	MA EPH Frac			23131	BJJ	EET NE	05/31/23 16:59
Total/NA	Analysis	EPH		1	23261	BJJ	EET NE	06/05/23 14:02
Total/NA	Analysis	MAVPH2.1		5	23050	BMH	EET NE	05/31/23 01:11
Total/NA	Analysis	MAVPH2.1	DL	20	23107	BMH	EET NE	05/31/23 16:22
Total/NA	Prep	3510C			23074	AAH	EET NE	05/30/23 14:16
Total/NA	Fraction	MA EPH Frac			23131	BJJ	EET NE	05/31/23 16:59
Total/NA	Analysis	MAEPH2.1		1	23139	BJJ	EET NE	06/01/23 15:11
Dissolved	Prep	3005A			23040	PRB	EET NE	05/30/23 09:06
Dissolved	Analysis	6010D		1	23156	JPC	EET NE	05/31/23 15:17
Dissolved	Prep	7470A			23056	PRB	EET NE	05/30/23 10:37
Dissolved	Analysis	7470A		1	23226	PRB	EET NE	06/02/23 13:34

Client Sample ID: TB-01-052523

Lab Sample ID: 620-11737-3

Date Collected: 05/25/23 16:00

Matrix: Water

Date Received: 05/26/23 16:59

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	MAVPH2.1		1	23050	BMH	EET NE	05/30/23 15:51

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-11737-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Massachusetts	State	M-RI907	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6010D	3005A	Water	Antimony
6010D	3005A	Water	Arsenic
6010D	3005A	Water	Barium
6010D	3005A	Water	Beryllium
6010D	3005A	Water	Cadmium
6010D	3005A	Water	Chromium
6010D	3005A	Water	Lead
6010D	3005A	Water	Nickel
6010D	3005A	Water	Selenium
6010D	3005A	Water	Silver
6010D	3005A	Water	Thallium
6010D	3005A	Water	Vanadium
6010D	3005A	Water	Zinc
7470A	7470A	Water	Mercury
EPH	3510C	Water	2-Methylnaphthalene
EPH	3510C	Water	Acenaphthene
EPH	3510C	Water	Acenaphthylene
EPH	3510C	Water	Anthracene
EPH	3510C	Water	Benzo[a]anthracene
EPH	3510C	Water	Benzo[a]pyrene
EPH	3510C	Water	Benzo[b]fluoranthene
EPH	3510C	Water	Benzo[g,h,i]perylene
EPH	3510C	Water	Benzo[k]fluoranthene
EPH	3510C	Water	Chrysene
EPH	3510C	Water	Dibenz(a,h)anthracene
EPH	3510C	Water	Fluoranthene
EPH	3510C	Water	Fluorene
EPH	3510C	Water	Indeno[1,2,3-cd]pyrene
EPH	3510C	Water	Naphthalene
EPH	3510C	Water	Phenanthrene
EPH	3510C	Water	Pyrene
MAEPH2.1	3510C	Water	C11-C22 Aromatics
MAEPH2.1	3510C	Water	C11-C22 Aromatics (Adjusted)
MAEPH2.1	3510C	Water	C19-C36 Aliphatics
MAEPH2.1	3510C	Water	C9-C18 Aliphatics
MAVPH2.1		Water	Benzene
MAVPH2.1		Water	C5-C8 Aliphatics (adjusted)
MAVPH2.1		Water	C5-C8 Aliphatics (unadjusted)
MAVPH2.1		Water	C9-C10 Aromatics
MAVPH2.1		Water	C9-C12 Aliphatics (adjusted)
MAVPH2.1		Water	C9-C12 Aliphatics (unadjusted)
MAVPH2.1		Water	Ethylbenzene
MAVPH2.1		Water	m,p-Xylene
MAVPH2.1		Water	Methyl tert-butyl ether
MAVPH2.1		Water	Naphthalene

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-11737-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
MAVPH2.1		Water	o-Xylene
MAVPH2.1		Water	Toluene
MAVPH2.1		Water	Xylenes, Total

Method Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11737-1

Method	Method Description	Protocol	Laboratory
EPH	Extractable Petroleum Hydrocarbons (GC/MS)	MA DEP	EET NE
MAVPH2.1	Massachusetts - Volatile Petroleum Hydrocarbons (GC)	MA DEP	EET NE
MAEPH2.1	Massachusetts - Extractable Petroleum Hydrocarbons (GC)	MA DEP	EET NE
6010D	Metals (ICP)	SW846	EET NE
7470A	Mercury (CVAA)	SW846	EET NE
3005A	Preparation, Total Metals	SW846	EET NE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET NE
5030C	Purge and Trap	SW846	EET NE
7470A	Preparation, Mercury	SW846	EET NE
MA EPH Frac	Massachusetts - Extractable Petroleum Hydrocarbon Fractionation	MA DEP	EET NE

Protocol References:

MA DEP = Massachusetts Department Of Environmental Protection

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Sample Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11737-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
620-11737-1	LM-GW-UST01-0525-23	Water	05/25/23 11:30	05/26/23 16:59
620-11737-2	LM-GW-UST02-0525-23	Water	05/25/23 17:10	05/26/23 16:59
620-11737-3	TB-01-052523	Water	05/25/23 16:00	05/26/23 16:59

11737

620-11737 Chain of Custody

Chain of Custody Record

eurofins | Environment Testing

Client Contact: Bridget Fortier	Sampler: S. Stone	Lab PM: A. Ray	Carrier Tracking No(s):	COC No: 620-10175-1337 2
Company: Nobis Engineering, Inc	Phone: 774-245-3612	E-Mail: araya@nobis-group.com	State of Origin:	Page: Page 2 of 2
Address: 585 Middlesex Street	PWSID:			Job #:
City: Lowell	Due Date Requested:			
State, Zip: MA, 01851	TAT Requested (days): standard 10 day			
Phone:	Compliance Project: Δ Yes Δ No			
Email: bfortier@nobis-group.com	PO #:			
Project Name: Former L&M	WO #:			
Site:	Project #: 50000101.005/400			
	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	VOC	GDH, ~~Metals~~	Metals (Filtered)	Trip Blank	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	A	A	D	A	X	
LM-GW-UST01-0525-23	5-25-23	1130	G	Water	✓	X	X	X				
LM-GW-UST02-0525-23	5-25-23	1710	G	Water	✓	X	X	X				
TB-01-052523	5-25-23	1600	G	Water						X		
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								

Page 32 of 33

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested I, II, III, IV, Other (specify): EDD report PDF email

Special Instructions/QC Requirements: MADEP CAM methods required

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by:		Date/Time: 5-26-23 1135	Company	Received by:		Date/Time: 5/26/23 1135	Company
Relinquished by:		Date/Time: 5/26/23 16:59	Company	Received by:		Date/Time: 5/26/23 16:59	Company: CHC
Relinquished by:		Date/Time	Company	Received by:		Date/Time	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No :

Cooler Temperature(s) °C and Other Remarks: 3.4 to 3.6 #6

6/5/2023

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Nobis Engineering, Inc.

Job Number: 620-11737-1

Login Number: 11737
List Number: 1
Creator: Makhoul, Elie

List Source: Eurofins New England

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

October 2, 2023
Nobis File No. S00001.05

Ms. Katy Deng
USEPA – Region 1
Land, Chemicals, and Redevelopment Division
5 Post Office Square, Suite 100
Boston, MA 02109-3912

Re: USEPA Contract No. 68HE0122D0001
USEPA Task Order No. 68HE0122F0044
Targeted Brownfields Assessment (TBA)
Former L&M Service Station Site
Lunenburg, Massachusetts
Sample Delivery Group (SDG) No. 620117781
Eurofins New England, North Kingstown, RI
Phoenix Environmental Laboratories, Inc., Manchester, CT (reactive cyanide and reactive sulfide)

Tier 1 Stage 2A Organic and Inorganic Data Review:

Volatile Organic Compounds (VOCs by 8260C), Semivolatile Organic Compounds (SVOCs by 8270D), Pesticides (8081B), Polychlorinated Biphenyls (PCBs by 8082), RCRA-8 Metals (6010D/7471A), Toxicity Characteristic Leaching Procedure (TCLP) RCRA-8 Metals (1311/601D/7470A), Total Extractable Petroleum Hydrocarbons (ETPH by 8100), General Chemistry Parameters (Specific Conductance [SM 2510B], Ignitability [1030], Reactive Cyanide [9014/9034], Reactive Sulfide [9034], Corrosivity [9045D])

2/Soil Samples: LM-SO-SD01-053123, LM-SO-SD02-053123

Dear Ms. Deng:

Nobis Group (Nobis), under a USEPA contract as a subcontractor to KGSNE JV, LLC, performed a Tier 1 Stage 2A manual data review (S2AVM) on the organic and inorganic analytical data for the samples listed above. The samples were collected by Nobis at the Former L&M Service Station Site located in Lunenburg, Massachusetts on May 31, 2023. The samples were analyzed for VOCs by 8260C, SVOCs by 8270D, Pesticides by 8081B, PCBs by 8082, RCRA-8 Metals by 6010D/7471A, TCLP RCRA-8 Metals by 1311/6010D/7470A, ETPH by 8100, Specific Conductance by Standard Method 2510B, Ignitability by 1020, and Corrosivity by 9045D by Eurofins New England in North Kingstown, RI. Reactive cyanide and Reactive Sulfide analyses were performed by Phoenix Environmental Laboratories, Inc. in Manchester, CT under sub-contract to Eurofins New England.

The Tier 1 Stage 2A manual data review was performed in accordance with the Region 1 - EPA New England Environmental Data Review Supplement for Region I Data Review Elements and Superfund Specific Guidance/Procedures (September 2020); USEPA's National Functional Guidelines for Organic Superfund Methods Data Review (November 2020); USEPA's National Functional Guidelines for Inorganic Superfund Methods Data Review (November 2020); the Program Quality Assurance Project Plan (Program QAPP) dated October 2022, and the Quality Assurance Project Plan Addendum (QAPPA) (May 2023) for the Former L&M Service Station Site, which appends the October 2022 Program QAPP.

Nobis Group®
585 Middlesex Street
Lowell, MA 01851
T (978) 683-0891

The data were evaluated based on the following parameters:

*	•	Overall Evaluation of Data and Potential Usability Issues
	•	Data Completeness
	•	Preservation and Technical Holding Times
*	•	Blanks
*	•	Surrogates (organic analyses only)
NA	•	Internal Standards
*	•	Matrix Spike Analysis
	•	Laboratory Duplicates
	•	Laboratory Control Samples (LCS)
NA	•	Field Duplicates
NA	•	ICP Serial Dilutions (metals only)
NA	•	Performance Evaluation (PE) Samples
NA	•	Target Analyte Identification
*	•	Reported Quantitation Limits

* All criteria were met for this parameter or did not require qualification.
NA – Not applicable.

Overall Evaluation of Data and Potential Usability Issues

The site sampling objectives are:

- Characterize in-situ soil based on AOCs identified by Fuss & O'Neill in November 2020 Phase I for the presence of possible site-related contamination.
- Evaluate groundwater elevation.
- Evaluate presence/absence of groundwater contamination related to site.

Note that the laboratory inadvertently reported results for total extractable petroleum hydrocarbons (ETPH) (i.e., DRO C9-C36) by SW-846 Method 8100 rather than results for total petroleum hydrocarbon (TPH) by Method 8015, as indicated in the QAPPA. Site objectives may be impacted.

Results for bis(-chloroisopropyl)ether (2,2'-oxybis(1-chloropropane)) and N-nitrosodimethylamine were rejected (R) in both samples due to low LCS/LCSD recovery.

The remaining data meet the project quality criteria and can be used without restriction except as summarized below. The attachments provide details and supporting documentation.

VOCs:
Results were qualified for LCS recovery.

SVOCS:
Results were rejected for LCS recovery. Results were also qualified for LCS recovery.

Pesticides:
Qualification of the data was not required.

PCBs:
Qualification of the data was not required.

RCRA-8 Metals:
Results were qualified for LCS recovery.

TCLP RCRA-8 Metals:
Qualification of the data was not required.

ETPH:
Qualification of the data was not required.

General Chemistry Parameters:
Results were qualified for holding time exceedance and laboratory duplicate imprecision.

Please contact Linda Terzis at lterzis@nobis-group.com should you have any questions or comments regarding this information.

Sincerely,

NOBIS GROUP®

Linda Terzis
Data Validator

Gary Glennon
Data Validator

Tables: Data Summary Tables – Tier 1 Stage 2A (S2AVM) Validated Data
Data Qualification Actions Table

Attachments: Data Review Checklist
Support Documentation
COC

cc: Denis McGrath (Nobis Group)
Adam Roy (Nobis Group)

DATA SUMMARY TABLE

Analysis		Metals in Soil	
Lab Sample ID		620-11778-1	620-11778-2
Field Sample ID		LM-SO-SD01-053123	LM-SO-SD02-053123
Sample Type		N	N
Parent Sample ID			
Sample Date	**Units**	05/31/23	05/31/23
Arsenic	mg/kg	22	15
Barium	mg/kg	42	33
Cadmium	mg/kg	0.76 UJ	0.92 UJ
Chromium	mg/kg	21	18
Lead	mg/kg	29	20
Mercury	mg/kg	0.056	0.035
Selenium	mg/kg	2.3 UJ	2.8 UJ
Silver	mg/kg	2.3 U	2.8 U

DATA SUMMARY TABLE

Analysis		Pesticides/PCBs in Soil	
Lab Sample ID		620-11778-1	620-11778-2
Field Sample ID		LM-SO-SD01-053123	LM-SO-SD02-053123
Sample Type		N	N
Parent Sample ID			
Sample Date	**Units**	05/31/23	05/31/23
4,4'-DDD	ug/kg	8.5 U	8.4 U
4,4'-DDE	ug/kg	8.5 U	8.4 U
4,4'-DDT	ug/kg	1.7	1.7
Alachlor	ug/kg	5.3 U	5.2 U
Aldrin	ug/kg	5.3 U	5.2 U
alpha-BHC	ug/kg	5.3 U	5.2 U
Aroclor 1016	ug/kg	35 U	35 U
Aroclor 1221	ug/kg	35 U	35 U
Aroclor 1232	ug/kg	35 U	35 U
Aroclor 1242	ug/kg	35 U	35 U
Aroclor 1248	ug/kg	35 U	35 U
Aroclor 1254	ug/kg	35 U	35 U
Aroclor 1260	ug/kg	35 U	35 U
Aroclor 1262	ug/kg	35 U	35 U
Aroclor 1268	ug/kg	35 U	35 U
beta-BHC	ug/kg	5.3 U	5.2 U
cis-Chlordane	ug/kg	5.3 U	5.2 U
delta-BHC	ug/kg	5.3 U	5.2 U
Dieldrin	ug/kg	5.3 U	5.2 U
Endosulfan I	ug/kg	5.3 U	5.2 U
Endosulfan II	ug/kg	8.5 U	8.4 U

DATA SUMMARY TABLE

Analysis		Pesticides/PCBs in Soil	
Lab Sample ID		620-11778-1	620-11778-2
Field Sample ID		LM-SO-SD01-053123	LM-SO-SD02-053123
Sample Type		N	N
Parent Sample ID			
Sample Date	**Units**	05/31/23	05/31/23
Endosulfan Sulfate	ug/kg	8.5 U	8.4 U
Endrin	ug/kg	8.5 U	8.4 U
Endrin Aldehyde	ug/kg	8.5 U	8.4 U
Endrin Ketone	ug/kg	8.5 U	8.4 U
gamma-BHC (Lindane)	ug/kg	2.1 U	2.1 U
Heptachlor	ug/kg	5.3 U	5.2 U
Heptachlor Epoxide	ug/kg	5.3 U	5.2 U
Methoxychlor	ug/kg	8.5 U	8.4 U
Toxaphene	ug/kg	110 U	100 U
trans-Chlordane	ug/kg	5.3 U	5.2 U

DATA SUMMARY TABLE

Analysis		Semivolatiles in Soil	
Lab Sample ID		620-11778-1	620-11778-2
Field Sample ID		LM-SO-SD01-053123	LM-SO-SD02-053123
Sample Type		N	N
Parent Sample ID			
Sample Date	**Units**	05/31/23	05/31/23
1,2,4,5-Tetrachlorobenzene	ug/kg	350 U	700 U
1,2,4-Trichlorobenzene	ug/kg	350 U	700 U
1,2-Dichlorobenzene	ug/kg	350 U	700 U
1,3-Dichlorobenzene	ug/kg	350 U	700 U
1,4-Dichlorobenzene	ug/kg	350 U	700 U
2,2'-Oxybis(1-chloropropane)	ug/kg	R	R
2,4,5-Trichlorophenol	ug/kg	350 U	700 U
2,4,6-Trichlorophenol	ug/kg	180 U	350 U
2,4-Dichlorophenol	ug/kg	180 U	350 U
2,4-Dimethylphenol	ug/kg	350 U	700 U
2,4-Dinitrophenol	ug/kg	350 U	700 U
2,4-Dinitrotoluene	ug/kg	180 U	350 U
2,6-Dinitrotoluene	ug/kg	180 U	350 U
2-Chloronaphthalene	ug/kg	350 U	700 U
2-Chlorophenol	ug/kg	180 U	350 U
2-Methylnaphthalene	ug/kg	71 U	140 U
2-Methylphenol	ug/kg	350 U	700 U
2-Nitroaniline	ug/kg	350 U	700 U
2-Nitrophenol	ug/kg	180 U	350 U
3 & 4 Methylphenol	ug/kg	350 U	700 U
3,3'-Dichlorobenzidine	ug/kg	350 U	700 U

DATA SUMMARY TABLE

Analysis		Semivolatiles in Soil	
Lab Sample ID		620-11778-1	620-11778-2
Field Sample ID		LM-SO-SD01-053123	LM-SO-SD02-053123
Sample Type		N	N
Parent Sample ID			
Sample Date	**Units**	05/31/23	05/31/23
3-Nitroaniline	ug/kg	350 U	700 U
4,6-Dinitro-2-methylphenol	ug/kg	350 U	700 U
4-Bromophenyl-phenylether	ug/kg	350 U	700 U
4-Chloro-3-methylphenol	ug/kg	350 U	700 U
4-Chloroaniline	ug/kg	180 U	350 U
4-Chlorophenyl-phenylether	ug/kg	350 U	700 U
4-Nitroaniline	ug/kg	180 U	350 U
4-Nitrophenol	ug/kg	350 U	700 U
Acenaphthene	ug/kg	71 U	140 U
Acenaphthylene	ug/kg	71 U	140 U
Acetophenone	ug/kg	180 U	350 U
Aniline	ug/kg	350 U	700 U
Anthracene	ug/kg	71 U	140 U
Azobenzene	ug/kg	350 U	700 U
Benzidine	ug/kg	700 U	1400 U
Benzo(a)anthracene	ug/kg	65	86
Benzo(a)pyrene	ug/kg	69	140 U
Benzo(b)fluoranthene	ug/kg	71	140 U
Benzo(g,h,i)perylene	ug/kg	58	140 U
Benzo(k)fluoranthene	ug/kg	78	110
Benzoic Acid	ug/kg	350 U	700 U

DATA SUMMARY TABLE

Analysis		Semivolatiles in Soil	
Lab Sample ID		620-11778-1	620-11778-2
Field Sample ID		LM-SO-SD01-053123	LM-SO-SD02-053123
Sample Type		N	N
Parent Sample ID			
Sample Date	**Units**	05/31/23	05/31/23
Benzyl Alcohol	ug/kg	350 U	700 U
Bis(2-chloroethoxy)methane	ug/kg	350 UJ	700 UJ
Bis(2-chloroethyl)ether	ug/kg	180 UJ	350 UJ
Bis(2-ethylhexyl)phthalate	ug/kg	180 U	350 U
Butylbenzylphthalate	ug/kg	350 U	700 U
Carbazole	ug/kg	180 U	350 U
Chrysene	ug/kg	74	98
Dibenz(a,h)anthracene	ug/kg	71 U	140 U
Dibenzofuran	ug/kg	180 U	350 U
Diethylphthalate	ug/kg	350 U	700 U
Dimethylphthalate	ug/kg	350 U	700 U
Di-N-Butylphthalate	ug/kg	350 U	700 U
Di-N-Octyl Phthalate	ug/kg	350 U	700 U
Fluoranthene	ug/kg	110	130
Fluorene	ug/kg	71 U	140 U
Hexachlorobenzene	ug/kg	180 U	350 U
Hexachlorobutadiene	ug/kg	180 U	350 U
Hexachlorocyclopentadiene	ug/kg	180 U	350 U
Hexachloroethane	ug/kg	180 U	350 U
Indeno(1,2,3-cd)pyrene	ug/kg	71 U	140 U
Isophorone	ug/kg	180 U	350 U

DATA SUMMARY TABLE

Analysis		Semivolatiles in Soil	
Lab Sample ID		620-11778-1	620-11778-2
Field Sample ID		LM-SO-SD01-053123	LM-SO-SD02-053123
Sample Type		N	N
Parent Sample ID			
Sample Date	**Units**	05/31/23	05/31/23
Naphthalene	ug/kg	71 U	140 U
Naphthalene, 1-methyl-	ug/kg	71 U	140 U
Nitrobenzene	ug/kg	180 U	350 U
N-Nitrosodimethylamine (NDMA)	ug/kg	R	R
N-Nitroso-di-n-propylamine (NDPA)	ug/kg	180 UJ	350 UJ
N-Nitrosodiphenylamine	ug/kg	350 U	700 U
Pentachloronitrobenzene	ug/kg	350 U	700 U
Pentachlorophenol	ug/kg	350 U	700 U
Phenanthrene	ug/kg	41	140 U
Phenol	ug/kg	350 U	700 U
Pyrene	ug/kg	120	130
Pyridine	ug/kg	350 U	700 U

DATA SUMMARY TABLE

Analysis		TCLP Metals in Soil	
Lab Sample ID		620-11778-1	620-11778-2
Field Sample ID		LM-SO-SD01-053123	LM-SO-SD02-053123
Sample Type		N	N
Parent Sample ID			
Sample Date	**Units**	05/31/23	05/31/23
Arsenic	mg/L	0.0045	0.0032
Barium	mg/L	0.38	0.23
Cadmium	mg/L	0.0011	0.0011
Chromium	mg/L	0.0078	0.0032
Lead	mg/L	0.024	0.052
Mercury	mg/L	0.0002 U	0.0002 U
Selenium	mg/L	0.03 U	0.03 U
Silver	mg/L	0.01 U	0.01 U

DATA SUMMARY TABLE

Analysis		Volatiles in Soil	
Lab Sample ID		620-11778-1	620-11778-2
Field Sample ID		LM-SO-SD01-053123	LM-SO-SD02-053123
Sample Type		N	N
Parent Sample ID			
Sample Date	**Units**	05/31/23	05/31/23
1,1,1,2-Tetrachloroethane	ug/kg	1.7 U	1.6 U
1,1,1-Trichloroethane	ug/kg	1.7 U	1.6 U
1,1,2,2-Tetrachloroethane	ug/kg	1.7 U	1.6 U
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/kg	1.7 U	1.6 U
1,1,2-Trichloroethane	ug/kg	1.7 U	1.6 U
1,1-Dichloroethane	ug/kg	1.7 U	1.6 U
1,1-Dichloroethene	ug/kg	1.7 U	1.6 U
1,1-Dichloropropene	ug/kg	1.7 U	1.6 U
1,2,3-Trichlorobenzene	ug/kg	1.7 U	1.6 U
1,2,3-Trichloropropane	ug/kg	1.7 U	1.6 U
1,2,4-Trichlorobenzene	ug/kg	1.7 U	1.6 U
1,2,4-Trimethylbenzene	ug/kg	1.7 U	1.6 U
1,2-Dibromo-3-chloropropane	ug/kg	3.5 U	3.2 U
1,2-Dibromoethane	ug/kg	1.7 U	1.6 U
1,2-Dichlorobenzene	ug/kg	1.7 U	1.6 U
1,2-Dichloroethane	ug/kg	1.7 U	1.6 U
1,2-Dichloropropane	ug/kg	1.7 U	1.6 U
1,3,5-Trichlorobenzene	ug/kg	1.7 U	1.6 U
1,3,5-Trimethylbenzene	ug/kg	1.7 U	1.6 U
1,3-Dichlorobenzene	ug/kg	1.7 U	1.6 U
1,3-Dichloropropane	ug/kg	1.7 U	1.6 U

DATA SUMMARY TABLE

Analysis		Volatiles in Soil	
Lab Sample ID		620-11778-1	620-11778-2
Field Sample ID		LM-SO-SD01-053123	LM-SO-SD02-053123
Sample Type		N	N
Parent Sample ID			
Sample Date	**Units**	05/31/23	05/31/23
1,3-Dichloropropene	ug/kg	1.7 U	1.6 U
1,4-Dichlorobenzene	ug/kg	1.7 U	1.6 U
1,4-Dioxane	ug/kg	35 U	32 U
2,2-Dichloropropane	ug/kg	1.7 U	1.6 U
2-Butanone	ug/kg	3.5 U	3.2 U
2-Chlorotoluene	ug/kg	1.7 U	1.6 U
2-Hexanone	ug/kg	3.5 U	3.2 U
4-Chlorotoluene	ug/kg	1.7 U	1.6 U
4-Isopropyltoluene	ug/kg	1.7 U	1.6 U
4-Methyl-2-pentanone	ug/kg	3.5 U	3.2 U
Acetone	ug/kg	11	16 U
Acrylonitrile	ug/kg	1.7 U	1.6 U
Benzene	ug/kg	1.7 U	1.6 U
Bromobenzene	ug/kg	1.7 U	1.6 U
Bromochloromethane	ug/kg	1.7 U	1.6 U
Bromodichloromethane	ug/kg	1.7 U	1.6 U
Bromoform	ug/kg	1.7 U	1.6 U
Bromomethane	ug/kg	3.5 U	3.2 U
Carbon disulfide	ug/kg	3.5 U	3.2 U
Carbon tetrachloride	ug/kg	1.7 U	1.6 U
Chlorobenzene	ug/kg	1.7 U	1.6 U

DATA SUMMARY TABLE

Analysis		Volatiles in Soil	
Lab Sample ID		620-11778-1	620-11778-2
Field Sample ID		LM-SO-SD01-053123	LM-SO-SD02-053123
Sample Type		N	N
Parent Sample ID			
Sample Date	**Units**	05/31/23	05/31/23
Chloroethane	ug/kg	3.5 U	3.2 U
Chloroform	ug/kg	1.7 U	1.6 U
Chloromethane	ug/kg	3.5 U	3.2 U
cis-1,2-Dichloroethene	ug/kg	1.7 U	1.6 U
cis-1,3-Dichloropropene	ug/kg	1.7 U	1.6 U
Dibromochloromethane	ug/kg	1.7 U	1.6 U
Dibromomethane	ug/kg	1.7 U	1.6 U
Dichlorodifluoromethane	ug/kg	3.5 U	3.2 U
Diethyl ether	ug/kg	1.7 U	1.6 U
Diisopropyl Ether	ug/kg	1.7 U	1.6 U
Ethanol	ug/kg	350 UJ	320 UJ
Ethylbenzene	ug/kg	1.7 U	1.6 U
Hexachlorobutadiene	ug/kg	3.5 U	3.2 U
Isopropylbenzene	ug/kg	1.7 U	1.6 U
m,p-Xylene	ug/kg	1.7 U	1.6 U
Methyl tert-butyl ether	ug/kg	1.7	2.6
Methylene chloride	ug/kg	3.5 U	3.2 U
Naphthalene	ug/kg	1.7 U	1.6 U
n-Butylbenzene	ug/kg	3.5 U	3.2 U
n-Propylbenzene	ug/kg	1.7 U	1.6 U
o-Xylene	ug/kg	1.7 U	1.6 U

DATA SUMMARY TABLE

Analysis		Volatiles in Soil	
Lab Sample ID		620-11778-1	620-11778-2
Field Sample ID		LM-SO-SD01-053123	LM-SO-SD02-053123
Sample Type		N	N
Parent Sample ID			
Sample Date	**Units**	05/31/23	05/31/23
sec-Butylbenzene	ug/kg	1.7 U	1.6 U
Styrene	ug/kg	1.7 U	1.6 U
tert-Amyl methyl ether	ug/kg	1.7 U	1.6 U
tert-Butyl Alcohol	ug/kg	35 U	32 U
Tert-Butyl Ethyl Ether	ug/kg	1.7 U	1.6 U
tert-Butylbenzene	ug/kg	1.7 U	1.6 U
Tetrachloroethene	ug/kg	1.7 U	1.6 U
Tetrahydrofuran	ug/kg	3.5 U	3.2 U
Toluene	ug/kg	1.7 U	1.6 U
trans-1,2-Dichloroethene	ug/kg	1.7 U	1.6 U
trans-1,3-Dichloropropene	ug/kg	1.7 U	1.6 U
trans-1,4-Dichlorobutene	ug/kg	8.7 U	8.1 U
Trichloroethene	ug/kg	1.7 U	1.6 U
Trichlorofluoromethane	ug/kg	1.7 U	1.6 U
Vinyl chloride	ug/kg	1.7 U	1.6 U
Xylene (total)	ug/kg	5.2 U	4.8 U

DATA SUMMARY TABLE

Analysis		General Chemistry in Soil	
Lab Sample ID		620-11778-1	620-11778-2
Field Sample ID		LM-SO-SD01-053123	LM-SO-SD02-053123
Sample Type		N	N
Parent Sample ID			
Sample Date	**Units**	05/31/23	05/31/23
Diesel Range Organics (C9-C36)	mg/kg	93	410
Ignitability	None	0 U	0 U
pH	S.U.	6.8 J	7 J
Reactive Cyanide	mg/kg	5 U	5 U
Reactive Sulfide	mg/kg	20 U	20 U
Specific Conductance	uS/cm	1900 J	200 J
Temperature	deg C	28.5	28.5

Data Review Qualification Actions
Former L&M Service Station
SDG 620117781

Parameter	Analyte	Samples	Evaluation Criteria	Action Needed	Comments
VOCs					
	Ethanol	LM-SO-SD01-053123, LM-SO-SD02-053123	LCSD recovery	UJ	
SVOCs					
	bis(2-Chloroisopropyl)ether, N-nitrosodimethylamine	LM-SO-SD01-053123, LM-SO-SD02-053123	LCS/LCSD recovery	R	
	bis(2-Chloroethoxy)methane, bis(2-chloroethyl)ether, and N-nitrosodi-n-propylamine	LM-SO-SD01-053123, LM-SO-SD02-053123	LCSD recovery	UJ	
Pesticides					
	Qualification of the data was not required.				
PCBs					
	Qualification of the data was not required.				
ETPH					
	Qualification of the data was not required.				
RCRA-8 Metals					
	Cadmium, selenium	LM-SO-SD01-053123, LM-SO-SD02-053123	LCS/LCSD recovery	UJ	
TCLP RCRA-8 Metals					
	Qualification of the data was not required.				
General Chemistry (specific conductance, flashpoint, reactive cyanide, reactive sulfide, corrosivity)					
	Corrosivity (pH)	SD02-053123	Holding time	J	
	Specific conductivity	SD02-053123	Laboratory duplicate	J	

Tier 1/Stage 2A Data Review Checklist

Project: Former L&M Service Station, Lunenburg, Massachusetts
Targeted Brownfields Assessment (TBA)
Project #: S00001.05
Case#: NA
Date: 09/11/2023
Methods: Volatile Organic Compounds (VOCs by 8260C)
Semivolatile Organic Compounds (SVOCs by 8270D)
Pesticides (8081B)
Polychlorinated Biphenyls (PCBs by 8082)
RCRA-8 Metals (6010D/7471A)
Toxicity Characteristic Leaching Procedure (TCLP) RCRA-8 Metals (1311/6010D/7470A)
Total Extractable Petroleum Hydrocarbons (ETPH by Method 8100)
General Chemistry Parameters (Specific Conductance [SM 2510B], Ignitability [1030], Reactive Cyanide [9014/9034], Reactive Sulfide [9034], Corrosivity [9045D]

Laboratory: Eurofins New England Laboratory, North Kingstown, RI
Phoenix Environmental Laboratories, Inc., Manchester, CT (reactive cyanide and reactive sulfide analyses)
SDG: 620117781
Reviewer: Linda Terzis

1. **Case Narrative and Data Package Completeness (COC and Analyte List Review)**
Two (2) soil samples were listed on the COC for SDG 620117781. The samples were collected on 05/31/2023 and received at the Eurofins New England Laboratory on 05/31/2023 at a maximum temperature of 4.6 °C.

Sample ID	Laboratory ID	Analyses
LM-SO-SD01-053123	620-11778-1	VOCs, SVOCs, Pesticides, PCBs, RCRA-8 Metals, TCLP RCRA-8 Metals, ETPH, Specific Conductance, Ignitability, Reactive Cyanide, Reactive Sulfide, Corrosivity
LM-SO-SD02-053123	620-11778-2	

Note that the COC also includes an additional sample for VPH, EPH, and MCP metals analyses. Results for these analyses are reported in SDG 620117782. The review for this SDG (620117781) is limited to the samples and analyses listed above.

The data were evaluated using the site-specific Quality Assurance Project Plan Addendum (QAPPA) (dated May 2023) and the Program QAPP (dated October 2022). Both were prepared by KGSNE, LLC. The QAPPA appends and incorporates by reference the procedures and quality control measures detailed in the Program QAPP (October 2022). Therefore, site data for this SDG were evaluated using both the QAPPA of May 2023 and the Program QAPP dated October 2022. The Massachusetts Compendium of Analytical Methods (CAM) and/or SW-846 Methods were used to perform the analyses. Therefore, site data were also evaluated using CAM quality control (QC) limits, where applicable.

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The analyte lists reported by the laboratory were compared to the required analyte lists per Table 3 (soil) in the QAPPA (May 2023) for the site. Results for all requested analytes were reported with the following inconsistencies noted below.

SVOCs: Results were reported for all requested SVOCs except for 1,4-dioxane and 1,1'-biphenyl. Site objectives may be impacted.

Pesticides: Results for hexachlorobenzene were reported with the SVOC results rather than the pesticide results. No actions are required.

TPH: The laboratory inadvertently reported results for total extractable petroleum hydrocarbons (ETPH) (i.e., DRO C9-C36) by SW-846 Method 8100 rather than results for total petroleum hydrocarbons (TPH) by Method 8015, as indicated in the QAPPA. Site objectives may be impacted.

2. Holding Time and Sample Preservation Compliance

Receipt temperatures are acceptable (≤ 6°), as specified in the QAPPA (May 2023).

VOCs: Holding time criteria (analyzed within 14 days) met.

SVOCs: Holding time criteria (extracted within 14 days and analyzed within 40 days of extraction) met.

Pesticides: Holding time criteria (extracted within 14 days and analyzed within 40 days of extraction) met.

PCBs: Holding time criteria (extracted within 14 days and analyzed within 40 days of extraction) met.

ETPH: Holding time criteria (extracted within 14 days and analyzed within 40 days of extraction) met.

RCRA 8 Metals: Holding time criteria (analyzed within 28 days for mercury; within 180 days for all other analytes) were met.

TCLP RCRA Metals: Holding time criteria (analyzed within 28 days for mercury; within 180 days for all other analytes) were met.

Specific Conductance: Holding time criteria (analyzed within 14 days) met.

Ignitability: Holding time criteria (analyzed within 14 days) met.

Reactive Cyanide: Holding time criteria (analyzed within 14 days) met.

Reactive Sulfide: Holding time criteria (analyzed within 14 days) met.

Corrosivity: The holding time criteria in the QAPPA for the corrosivity test is listed as "as soon as possible" (ASAP). The ASAP criterion is generally considered to be within 15 minutes for NPDES compliance purposes. For RCRA compliance purposes, EPA expects that the pH of collected samples would be analyzed within a few hours of laboratory receipt, and not the next day

(https://www.epa.gov/hw-sw846/holding-time-preservation#:~:text=Methods%209040%20and%209045%20for,(pH)%20as%2015%20minutes). The samples were received at the laboratory on 05/31/2023 at 13:30 and the pH test was conducted on 06/01/2023 at 14:14 for both samples. Therefore, professional judgement was used to qualify the corrosivity results for samples LM-SO-SD01-053123 (620-11778-1) and LM-SO-SD02-053123 (620-11778-2) as estimated (J) due to holding time exceedance.

3. **Calibration Issues**

Not assessed for S2AVM data review.

4. **Laboratory and Field Blanks**

VOCs: Results for the VOC laboratory method blank were non-detect. No blank actions are required.

SVOCs: Results for the SVOC laboratory method blank were non-detect. No blank actions are required.

Pesticides: Results for the pesticides laboratory method blank were non-detect. No blank actions are required.

PCBs: Results for the PCB laboratory method blanks were non-detect. No blank actions are required.

ETPH: Results for the ETPH laboratory method blank were non-detect. No blank actions are required.

RCRA-8 Metals: Results for the metals and mercury laboratory method blanks were non-detect. No blank actions are required.

TCLP RCRA-8 Metals: Results for the TCLP RCRA-8 metals and mercury laboratory method and leachate blanks are non-detect. No blank actions are required.

General Chemistry Parameters: Laboratory blanks are associated with the specific conductance, reactive cyanide, and reactive sulfide tests. Results for these blanks are all non-detect. No blank actions are required.

An equipment blank was not submitted with the samples of this SDG. No actions are required.

5. **Interference Check Sample (metals only)**

Not assessed for S2AVM data review.

6. **Surrogates**

The Program QAPP (October 2022) was used to evaluate site data for surrogate recovery. If no Program QAPP-specific recovery limits were available for a surrogate, the MCP CAM recovery limits were used.

VOCs: Percent surrogate recoveries met the Program QAPP limits of 70-130%. No actions are required.

SVOC: Percent surrogate recoveries were within the Program QAPP limits of 30-130%. No actions are required.

Pesticides: Percent surrogate recoveries were within the Program QAPP limits of 30-150%. No actions are required.

PCBs: Percent surrogate recoveries were within the Program QAPP limits of 30-150%. No actions are required.

ETPH: Percent surrogate recoveries for the ETPH analysis were within the Program QAPP limits of 40-140% for DRO. No actions are required.

Surrogate recovery is not applicable for the RCRA-8 metals, TCLP RCRA-8 metals, and general chemistry parameters.

7. Laboratory Control Samples

VOCs: The percent recoveries in the VPH LCS/LCSD pair met the Program QAPP limits of 70-130% recovery (or 40-160% for compounds considered difficult to recover per the MassDEP CAM 8260B method) and RPDs ≤ 20% except for the recovery of ethanol, which was below the 70-130% limits (69%) in the LCSD analysis. Based on the NFGs (2020) guidance for MS/MSDs, the non-detect results for ethanol are qualified as estimated (UJ) in both soil samples due to the low LCSD recovery. RPDs all met the Program QAPP limit of ≤ 20%.

The recoveries for bromomethane and dichlorodifluoromethane exceeded 70-130% limits. These compounds are considered potentially difficult to recover compounds and were therefore evaluated using the 40-160% recovery limits. The recoveries were within 40-160% and no actions are required for these compound results.

SVOCs: The percent recoveries for bis(2-chloroisopropyl)ether and N-nitrosodimethylamine are below the 40-140% limits for base/neutral compounds in the LCS and LCSD pair associated with the samples of this SDG. Based on the NFGs (2020), the non-detect results for bis(2-chloroisopropyl)ether (i.e., 2,2'-oxybis(1-chloropropane)) and N-nitrosodimethylamine are rejected (R) in both soil samples. Data are not usable for site decision-making purposes.

The recoveries for bis(2-chloroethoxy)methane, bis(2-chloroethyl)ether, and N-nitrosodi-n-propylamine were below the 40-140% limits for base/neutral compounds in the LCSD analysis of the LCS/LCSD pair. Results for these compounds were non-detect in the samples. Professional judgement was used to qualify the non-detect results for bis(2-chloroethoxy)methane, bis(2-chloroethyl)ether, and N-nitrosodi-n-propylamine as estimated (UJ), rather than rejected (R), in both soil samples since the recoveries in the LCS were acceptable for all three compounds.

Recoveries for hexachlorocyclopentadiene and hexachlorobenzene exceeded the 40-140% limits for base/neutral compounds (143% in the LCS and 144% in the LCSD, respectively). Results for these compounds were non-detect in the samples. Based on the NFGs (2020), the non-detect results for hexachlorocyclopentadiene and hexachlorobenzene are accepted unqualified in both soil samples since the potential bias is high.

The recovery for benzidine was within the 40-140% limits for base/neutral compounds in the LCS analysis but exceeded the calibration range in the LCSD analysis. An RPD was not calculated.

Results for benzidine were non-detect in the samples. Based on the NFGs (2020), the non-detect results for benzidine are accepted unqualified since the potential bias is high.
Pesticides: Percent recoveries and RPDs for the pesticides LCS/LCSD analyses were within the QAPP recovery limits of 40-140% and RPD ≤ 30%. No actions are required.

PCBs: Percent recoveries and RPDs for the PCB LCS/LCSD analyses were within the QAPP recovery limits of 40-140% and RPD ≤ 30%. No actions are required.

ETPH: Percent recoveries and the RPD for the laboratory's ETPH LCS/LCSD pair met the criteria for the DRO analysis (60-140% recovery and RPD ≤ 50%) as specified in the QAPPA. No actions are required.

RCRA-8 Metals: The recoveries of cadmium and selenium were below the 80-120% recovery limits in the LCS and/or LCSD analyses associated with the samples. Recoveries and RPDs for all other metal analytes and mercury met the QAPP limits. Cadmium and selenium were non-detect in the samples. Based on the NFGs (2020), the non-detect results for cadmium and selenium are qualified as estimated (UJ) in both samples due to the low recoveries.

TCLP RCRA-8 Metals: The recoveries and RPDs for all metal analytes and mercury met the QAPP recovery limits of 80-120% and RPDs ≤ 20%. No actions are required.

General Chemistry Parameters: Recoveries for specific conductivity, ignitability, reactive cyanide, and reactive sulfide tests were within laboratory limits. No action is required.

8. Matrix Spikes

Based on the Region I EPA New England Environmental Data Review Supplement (Region I Supplement, 2020), MS/MSD qualifications are applied to all field samples with similar matrix, unless otherwise noted.

MS/MSD analyses were performed for the total mercury and TCLP RCRA-8 metals analyses only.

RCRA-8 Metals: MS/MSD analyses were performed for mercury on sample LM-SO-SD01-053123 (620-11778-1). MS/MSD results met the QAPP limits of 75-125% recovery and RPD ≤ 35%. No actions are required.

TCLP RCRA-8 Metals: MS/MSD analyses were performed for TCLP RCRA-8 metals on sample LM-SO-SD02-053123 (620-11778-2). MS/MSD results met the QAPP limits of 75-125% recovery and RPD ≤ 35%. No actions are required.

9. Laboratory Duplicates (metals only)

RCRA-8 Metals: A laboratory duplicate analysis was performed for mercury on sample LM-SO-SD01-053123 (620-11778-1). The RPD was not calculated since the sample result was < 5x RL and the duplicate result was < RL. No actions are required.

TCLP RCRA-8 Metals: A laboratory duplicate analysis was performed for TCLP RCRA-8 metals on sample LM-SO-SD02-053123 (620-11778-2). RPDs for detected results met the QAPP limit of ≤ 35%. No actions are required.

General Chemistry Parameters: Laboratory duplicate analyses were performed for specific conductivity, ignitability, and corrosivity.

The laboratory duplicate analysis for specific conductivity was performed on sample LM-SO-SD02-053123 (620-11778-2). The RPD (40%) exceeded the laboratory limit of ≤ 5%. The sample and duplicate sample results are > 5x RL. Professional judgment was used to qualify the detected results for specific conductivity as estimated (J) in both soil samples, based on the NFGs for inorganic analyses.

The laboratory duplicate analysis for ignitability was performed on sample LM-SO-SD01-053123 (620-11778-1) and the laboratory duplicate analysis for corrosivity was performed on sample LM-SO-SD02-053123 (620-11778-2). Laboratory duplicate results for both analyses met the laboratory limits and no action is required.

10. Serial Dilution (metals only)

A serial dilution analysis was not performed for this SDG. No actions are required.

11. Field Duplicate Precision

Acceptable field duplicate precision is an RPD of ≤ 50% for results > 5x RL and an absolute difference < 4x RL for results < 5x RL, based on the EPA Region I Supplement (2020).

Based on the Region I Supplement (2020), qualifications are applied to all field samples with similar matrix, unless otherwise indicated.

A field duplicate sample was not submitted with the samples of this SDG. No action is required.

12. Internal Standards

Not assessed for S2AVM data review.

13. Dual Column Precision (Pesticides and PCBs only)

The laboratory did not report RPDs for dual column results for the pesticide or PCB analyses. The MassDEP CAM for pesticide and PCB methods indicate that the laboratory must qualify and/or note in the case narrative if an RPD between the dual column results exceeds 40%. There is no indication in the laboratory report that any RPD exceeded 40%. No actions are required.

14. Performance Evaluation Samples

Performance Evaluation (PE) samples were not included in this SDG.

15. Reporting Limits

Project action levels (PALs) for the site are limited to the VPH, EPH, and metals/mercury analyses, per the QAPPA. Therefore, there were no PALs associated with the analyses of this SDG.

16. Other

EPA Region I Supplement (2020) criterion for percent solids content (> 30%) was met for the soil samples.

Overall bias is considered indeterminate when cumulative nonconformances do not show a consistent bias or in cases of the presence of conflicting high and low biases.

11778

Chain of Custody Record

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	Sampler: S Stone	Lab PM	Carrier Tracking No(s)	COC No: 620-10175-1337 3
Bridget Fortier	Phone	E-Mail: arcyn@nobis-group.com	State of Origin: MA	Page: Page ~~3 of 3~~ 1 of 1
Company: Nobis Engineering, Inc	PWSID			Job #:

Address: 585 Middlesex Street	Due Date Requested: 6/2-23	
City: Lowell	TAT Requested (days): LM-SO-SD01-053123]2 day; LM-SO-SD02-053123	
State, Zip: MA, 01851	Compliance Project: Δ Yes Δ No	
Phone	PO #:	
Email: bfortier@nobis-group com	WO #:	
Project Name: Former L&M	Project #: 50000105/400	
Site: Former L&M	SSOW#:	

Analysis Requested

Preservation Codes:

A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Y - Trizma; Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	VPH	EPH, metals, % moisture	VOCs LL	VOCs HL	SVOCs, pest, PCBs & TPH	Total & TCLP RCRA	Spec. Cond, Flashpoint, Reactivity	Total Number of containers	Special Instructions/Note:
			Preservation Code:				F		J	F					
				Water											
				Solid											
				Water											
LM-SO-SD01-053123	5-31-23	750	C	Soil					X	X	X	X	X		
LM-SO-SD02-053123	5-31-23	810	C	Soil					X	X	X	X	X		
LM-SO-UST04-053023	5-30-23	1330	C	Soil			X	X							

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	**Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)**: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested I, II, III, IV, Other (specify): EDD PDF and email	Special Instructions/QC Requirements: MCP CAM Methods; LM-SO-UST04-053023 is standard TAT

Empty Kit Relinquished by	Date:	Time	Method of Shipment:

Relinquished by:	Date/Time: 5-31-23 10:55	Company	Received by:	Date/Time: 5/31/23 10:55	Company
Relinquished by:	Date/Time: 5/31/23	Company	Received by:	Date/Time: 5/31/23 13:30	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No..
Cooler Temperature(s) °C and Other Remarks: 0.9 +0.2 -0.6 IR#5	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Adam Roy
Nobis Engineering, Inc.
585 Middlesex Street
Lowell, Massachusetts 01851

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JOB DESCRIPTION

Former L&M - Lunenburg MA

JOB NUMBER

620-11778-1

Eurofins New England
646 Camp Ave
North Kingstown RI 02852

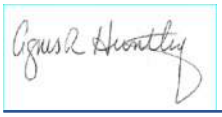
See page two for job notes and contact information.

Job Notes

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Authorization



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Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
State Forms 6
    MCP Checklist 6
Case Narrative 7
Detection Summary 9
Client Sample Results 11
Surrogate Summary 23
QC Sample Results 25
QC Association Summary 47
Lab Chronicle 52
Certification Summary 54
Method Summary 59
Sample Summary 60
Chain of Custody 61
Receipt Checklists 62

Definitions/Glossary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL, and the absolute difference between results is < the upper reporting limits for both.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
F3	Duplicate RPD exceeds the control limit

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

MassDEP Analytical Protocol Certfication Form

Laboratory Name: Eurofins New England | Project #: 620-11778-1

Project Location: Former L&M - Lunenburg MA | RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
620-11778-1, 620-11778-2

Matrices: ☑ Groundwater/Surface Water ☑ Soil/Sediment ☐ Drinking Water ☐ Air ☐ Other:

CAM Protocol (check all that apply below:)

8260 VOC CAM II A ☑	7470/7471 Hg CAM III B ☑	MassDEP VPH (GC/PID/FID) CAM IV A ☐	8082 PCB CAM V A ☑	9014 Total Cyanide/PAC CAM VI A ☐	6860 Perchlorate CAM VIII B ☐
8270 SVOC CAM II B ☑	7010 Metals CAM III C ☐	MassDEP VPH (GC/MS) CAM IV C ☐	8081 Pesticides CAM V B ☑	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
6010 Metals CAM III A ☑	6020 Metals CAM III D ☐	MassDEP EPH CAM IV B ☐	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes ☐ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☑ Yes ☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes ☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☑ Yes ☐ No
E	VPH, EPH, APH, and TO-15 only a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes ☐ No ☐ Yes ☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☑ Yes ☐ No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☐ Yes ☑ No[1]

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☐ Yes ☑ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☐ Yes ☑ No[1]

1 All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature: Agnes R Huntley **Position:** Project Manager

Printed Name: Agnes Huntley **Date:** 06/05/2023

Job ID: 620-11778-1

Laboratory: Eurofins New England

Narrative

Job Narrative
620-11778-1

Receipt
The samples were received on 5/31/2023 1:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.6º C.

GC/MS VOA
Method 8260C: The large number of analytes included in the continuing calibration verification (CCV) gives a high probability that one or more analytes will be outside acceptance criteria. As indicated in the reference method, analysis may proceed as long as no more than 20% of the analytes of interest are outside the method-defined %D criteria. Affected analyte (high bias): Dichlorodifluoromethane. (CCVIS 620-23153/3)

Method 8260C: The laboratory control sample (LCS) for preparation batch 620-23152 and analytical batch 620-23153 recovered outside control limits for the following analytes: Dichlorodifluoromethane and Ethanol, which have been identified as poor performing analytes when analyzed using this method. According to MCP requirements, poor performers are allowed to recover within 40-160%; therefore, re-extraction/re-analysis was not performed. These results have been reported and qualified.

Method 8260C: The laboratory control sample duplicate (LCSD) for preparation batch 620-23152 and analytical batch 620-23153 recovered outside control limits for the following analytes: Dichlorodifluoromethane and Bromomethane, which have been identified as poor performing analytes when analyzed using this method. According to MCP requirements, poor performers are allowed to recover within 40-160%; therefore, re-extraction/re-analysis was not performed. These results have been reported and qualified.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA
Method 8270D: The large number of analytes included in the continuing calibration verification (CCV) (CCVIS 620-23208/3) gives a high probability that one or more analytes will be outside acceptance criteria. As indicated in the MCP method, analysis may proceed as long as no more than 20% of the analytes of interest are outside the method-defined %D criteria. Benzidine.

Method 8270D: The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 620-23157 and analytical batch 620-23208 recovered outside control limits for the following analytes: bis (2-chloroisopropyl) ether and N-Nitrosodimethylamine. MCP allows for <10% of analytes to fall outside of control limits. The affected target analytes recovered within acceptance limits >10%; therefore, demonstrates the analytical system had sufficient sensitivity to detect the compounds had they been present. Since the affected target compounds were not detected in the samples, the data have been reported and qualified.

Method 8270D: The laboratory control sample (LCS) for preparation batch 620-23157 and analytical batch 620-23208 recovered outside control limits for the following analyte: Hexachlorocyclopentadiene. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported.

Method 8270D: The laboratory control sample duplicate (LCSD) for preparation batch 620-23157 and analytical batch 620-23208 recovered outside control limits for the following analytes: Bis(2-chloroethoxy)methane, Bis(2-chloroethyl)ether, Hexachlorobenzene and N-Nitrosodi-n-propylamine. The affected target analytes recovered within acceptance limits in the LCS, therefore the data have been reported.

Method 8270D: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 620-23157 and analytical batch 620-23208 recovered outside control limits for the following analytes: N-Nitrosodimethylamine. The individual percent recoveries are within acceptance criteria.

Method 8270D: The laboratory control sample duplicate (LCSD) for preparation batch 620-23157 and analytical batch 620-23208 recovered above the upper calibration limit for the following analyte: Benzidine. This analyte was biased high in the LCSD and was not detected in the associated samples; therefore, the data have been reported. The analyte recovered within calibration limits in the LCS.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 620-11778-1 (Continued)

Laboratory: Eurofins New England (Continued)

GC Semi VOA
Method 8082: The following samples exhibited elevated noise or matrix interferences for one or more analytes causing elevation of the detection limit (EDL): LM-SO-SD01-053123 (620-11778-1) and LM-SO-SD02-053123 (620-11778-2) . The reporting limit (RL) for the affected analytes has been raised to be equal to the EDL.

Method 8081B: The continuing calibration verification (CCV) associated with batch 620-23216 recovered outside acceptance criteria, low biased, for Endrin on the confirmation column. The analyte passes within method criteria on the primary column, thus all data was reported off the primary column.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method SM 2510B: The sample duplicate (DUP) precision for preparation batch 620-23168 and analytical batch 620-23175 was outside control limits. Sample non-homogeneity is suspected.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract Work
Methods Reactive Cyanide, Reactive Sulfide: These methods were subcontracted to Phoenix Environmental Laboratories, Inc.. The subcontract laboratory certifications are different from that of the facility issuing the final report.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Client Sample ID: LM-SO-SD01-053123 — Lab Sample ID: 620-11778-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	11	J	17	3.9	ug/Kg	1	☼	8260C	Total/NA
Methyl tert-butyl ether	1.7		1.7	1.0	ug/Kg	1	☼	8260C	Total/NA
Benzo[a]anthracene	65	J	71	40	ug/Kg	1	☼	8270D	Total/NA
Benzo[a]pyrene	69	J	71	51	ug/Kg	1	☼	8270D	Total/NA
Benzo[b]fluoranthene	71		71	59	ug/Kg	1	☼	8270D	Total/NA
Benzo[g,h,i]perylene	58	J	71	55	ug/Kg	1	☼	8270D	Total/NA
Benzo[k]fluoranthene	78		71	55	ug/Kg	1	☼	8270D	Total/NA
Chrysene	74		71	40	ug/Kg	1	☼	8270D	Total/NA
Fluoranthene	110		71	42	ug/Kg	1	☼	8270D	Total/NA
Phenanthrene	41	J	71	40	ug/Kg	1	☼	8270D	Total/NA
Pyrene	120		71	39	ug/Kg	1	☼	8270D	Total/NA
4,4'-DDT	1.7	J	8.5	0.85	ug/Kg	1	☼	8081B	Total/NA
TEPH (C9-C36)	93		14	12	mg/Kg	1	☼	8100	Total/NA
Arsenic	22		2.3	0.29	mg/Kg	1	☼	6010D	Total/NA
Barium	42		1.5	0.18	mg/Kg	1	☼	6010D	Total/NA
Chromium	21		1.5	0.20	mg/Kg	1	☼	6010D	Total/NA
Lead	29		2.3	0.32	mg/Kg	1	☼	6010D	Total/NA
Arsenic	0.0045	J	0.0080	0.0028	mg/L	1		6010D	TCLP
Barium	0.38		0.010	0.0014	mg/L	1		6010D	TCLP
Cadmium	0.0011	J	0.0050	0.00071	mg/L	1		6010D	TCLP
Chromium	0.0078	J	0.010	0.0019	mg/L	1		6010D	TCLP
Lead	0.024		0.015	0.012	mg/L	1		6010D	TCLP
Mercury	0.056		0.053	0.0088	mg/Kg	1	☼	7471A	Total/NA
Ignitability	negative				NONE	1		1030	Total/NA
pH	6.8				SU	1		9045D	Soluble
Temperature	28.5				Degrees C	1		9045D	Soluble
Specific Conductance	1900		10	10	uS/cm	1		SM 2510B	Soluble

Client Sample ID: LM-SO-SD02-053123 — Lab Sample ID: 620-11778-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	2.6		1.6	0.93	ug/Kg	1	☼	8260C	Total/NA
Benzo[a]anthracene	86	J	140	79	ug/Kg	1	☼	8270D	Total/NA
Benzo[k]fluoranthene	110	J	140	110	ug/Kg	1	☼	8270D	Total/NA
Chrysene	98	J	140	80	ug/Kg	1	☼	8270D	Total/NA
Fluoranthene	130	J	140	83	ug/Kg	1	☼	8270D	Total/NA
Pyrene	130	J	140	78	ug/Kg	1	☼	8270D	Total/NA
4,4'-DDT	1.7	J	8.4	0.84	ug/Kg	1	☼	8081B	Total/NA
TEPH (C9-C36)	410		27	23	mg/Kg	1	☼	8100	Total/NA
Arsenic	15		2.8	0.35	mg/Kg	1	☼	6010D	Total/NA
Barium	33		1.8	0.22	mg/Kg	1	☼	6010D	Total/NA
Chromium	18		1.8	0.25	mg/Kg	1	☼	6010D	Total/NA
Lead	20		2.8	0.39	mg/Kg	1	☼	6010D	Total/NA
Arsenic	0.0032	J	0.0080	0.0028	mg/L	1		6010D	TCLP
Barium	0.23		0.010	0.0014	mg/L	1		6010D	TCLP
Cadmium	0.0011	J	0.0050	0.00071	mg/L	1		6010D	TCLP
Chromium	0.0032	J	0.010	0.0019	mg/L	1		6010D	TCLP
Lead	0.052		0.015	0.012	mg/L	1		6010D	TCLP
Mercury	0.035	J	0.052	0.0086	mg/Kg	1	☼	7471A	Total/NA
Ignitability	negative				NONE	1		1030	Total/NA
pH	7.0				SU	1		9045D	Soluble

This Detection Summary does not include radiochemical test results.

Client Sample ID: LM-SO-SD02-053123 (Continued)

Lab Sample ID: 620-11778-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Temperature	28.5				Degrees C	1		9045D	Soluble
Specific Conductance	200		10	10	uS/cm	1		SM 2510B	Soluble

This Detection Summary does not include radiochemical test results.

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Client Sample ID: LM-SO-SD01-053123
Date Collected: 05/31/23 07:50
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-1
Matrix: Solid
Percent Solids: 93.9

Method: MA DEP 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichlorotrifluoroethane (Freon 113)	ND		1.7	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Acetone	**11**	**J**	17	3.9	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Acrylonitrile	ND		1.7	1.0	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Benzene	ND		1.7	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Bromobenzene	ND		1.7	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Bromochloromethane	ND		1.7	0.99	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Bromodichloromethane	ND		1.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Bromoform	ND		1.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Bromomethane	ND	*+	3.5	2.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
2-Butanone (MEK)	ND		3.5	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
n-Butylbenzene	ND		3.5	1.9	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
sec-Butylbenzene	ND		1.7	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
tert-Butylbenzene	ND		1.7	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Carbon disulfide	ND		3.5	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Carbon tetrachloride	ND		1.7	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Chlorobenzene	ND		1.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Chloroethane	ND		3.5	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Chloroform	ND		1.7	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Chloromethane	ND		3.5	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
2-Chlorotoluene	ND		1.7	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
4-Chlorotoluene	ND		1.7	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,2-Dibromo-3-Chloropropane	ND		3.5	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Dibromochloromethane	ND		1.7	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,2-Dibromoethane (EDB)	ND		1.7	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Dibromomethane	ND		1.7	1.0	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,2-Dichlorobenzene	ND		1.7	1.6	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,3-Dichlorobenzene	ND		1.7	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,4-Dichlorobenzene	ND		1.7	1.6	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Dichlorodifluoromethane (Freon 12)	ND	*+	3.5	0.93	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,1-Dichloroethane	ND		1.7	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,2-Dichloroethane	ND		1.7	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,1-Dichloroethene	ND		1.7	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
cis-1,2-Dichloroethene	ND		1.7	1.0	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
trans-1,2-Dichloroethene	ND		1.7	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,2-Dichloropropane	ND		1.7	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,3-Dichloropropane	ND		1.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
2,2-Dichloropropane	ND		1.7	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,1-Dichloropropene	ND		1.7	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
cis-1,3-Dichloropropene	ND		1.7	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
trans-1,3-Dichloropropene	ND		1.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Ethylbenzene	ND		1.7	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Hexachlorobutadiene	ND		3.5	1.7	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
2-Hexanone (MBK)	ND		3.5	1.0	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Isopropylbenzene	ND		1.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
4-Isopropyltoluene	ND		1.7	1.7	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Methyl tert-butyl ether	**1.7**		1.7	1.0	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
4-Methyl-2-pentanone (MIBK)	ND		3.5	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Methylene Chloride	ND		3.5	0.93	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Naphthalene	ND		1.7	1.6	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1

Client Sample ID: LM-SO-SD01-053123
Date Collected: 05/31/23 07:50
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-1
Matrix: Solid
Percent Solids: 93.9

Method: MA DEP 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-Propylbenzene	ND		1.7	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Styrene	ND		1.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,1,1,2-Tetrachloroethane	ND		1.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,1,2,2-Tetrachloroethane	ND		1.7	1.6	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Tetrachloroethene	ND		1.7	0.96	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Toluene	ND		1.7	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,2,3-Trichlorobenzene	ND		1.7	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,2,4-Trichlorobenzene	ND		1.7	1.6	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,3,5-Trichlorobenzene	ND		1.7	1.6	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,1,1-Trichloroethane	ND		1.7	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,1,2-Trichloroethane	ND		1.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Trichloroethene	ND		1.7	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Trichlorofluoromethane (Freon 11)	ND		1.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,2,3-Trichloropropane	ND		1.7	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,2,4-Trimethylbenzene	ND		1.7	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,3,5-Trimethylbenzene	ND		1.7	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Vinyl chloride	ND		1.7	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
m,p-Xylene	ND		1.7	2.4	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
o-Xylene	ND		1.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Tetrahydrofuran	ND		3.5	0.88	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Ethyl ether	ND		1.7	0.91	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Tert-amyl methyl ether	ND		1.7	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Ethyl tert-butyl ether	ND		1.7	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
di-Isopropyl ether	ND		1.7	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
tert-Butanol	ND		35	9.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,4-Dioxane	ND		35	11	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
trans-1,4-Dichloro-2-butene	ND		8.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Ethanol	ND	*-	350	22	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
1,3-Dichloropropene, Total	ND		1.7	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1
Xylenes, Total	ND		5.2	1.7	ug/Kg	☼	06/01/23 13:00	06/01/23 15:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*	*06/01/23 13:00*	*06/01/23 15:48*	*1*
Toluene-d8 (Surr)	*105*		*70 - 130*	*06/01/23 13:00*	*06/01/23 15:48*	*1*
1,2-Dichloroethane-d4 (Surr)	*108*		*70 - 130*	*06/01/23 13:00*	*06/01/23 15:48*	*1*
Dibromofluoromethane (Surr)	*104*		*70 - 130*	*06/01/23 13:00*	*06/01/23 15:48*	*1*

Method: MA DEP 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	ND		350	62	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
1,2,4-Trichlorobenzene	ND		350	80	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
1,2-Dichlorobenzene	ND		350	68	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
1,3-Dichlorobenzene	ND		350	85	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
1,4-Dichlorobenzene	ND		350	83	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
1-Methylnaphthalene	ND		71	59	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
2,4,5-Trichlorophenol	ND		350	40	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
2,4,6-Trichlorophenol	ND		180	43	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
2,4-Dichlorophenol	ND		180	71	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
2,4-Dimethylphenol	ND		350	51	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
2,4-Dinitrophenol	ND		350	92	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1

Client Sample ID: LM-SO-SD01-053123

Date Collected: 05/31/23 07:50
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-1

Matrix: Solid
Percent Solids: 93.9

Method: MA DEP 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dinitrotoluene	ND		180	42	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
2,6-Dinitrotoluene	ND		180	42	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
2-Chloronaphthalene	ND		350	81	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
2-Chlorophenol	ND		180	73	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
2-Methylnaphthalene	ND		71	52	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
2-Methylphenol	ND		350	51	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
2-Nitroaniline	ND		350	33	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
2-Nitrophenol	ND		180	63	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
3 & 4 Methylphenol	ND		350	66	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
3,3'-Dichlorobenzidine	ND		350	58	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
3-Nitroaniline	ND		350	31	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
4,6-Dinitro-2-methylphenol	ND		350	63	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
4-Bromophenyl phenyl ether	ND		350	40	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
4-Chloro-3-methylphenol	ND		350	69	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
4-Chloroaniline	ND		180	27	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
4-Chlorophenyl phenyl ether	ND		350	37	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
4-Nitroaniline	ND		180	56	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
4-Nitrophenol	ND		350	120	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Acenaphthene	ND		71	57	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Acenaphthylene	ND		71	47	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Acetophenone	ND		180	43	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Aniline	ND		350	27	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Anthracene	ND		71	41	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Azobenzene/Diphenyldiazene	ND		350	60	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Benzidine	ND		700	100	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Benzo[a]anthracene	**65**	**J**	71	40	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Benzo[a]pyrene	**69**	**J**	71	51	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Benzo[b]fluoranthene	**71**		71	59	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Benzo[g,h,i]perylene	**58**	**J**	71	55	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Benzo[k]fluoranthene	**78**		71	55	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Benzoic acid	ND		350	240	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Benzyl alcohol	ND		350	64	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Bis(2-chloroethoxy)methane	ND	*-	350	61	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Bis(2-chloroethyl)ether	ND	*-	180	58	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
bis (2-chloroisopropyl) ether	ND	*-	180	79	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Bis(2-ethylhexyl) phthalate	ND		180	45	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Butyl benzyl phthalate	ND		350	35	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Carbazole	ND		180	46	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Chrysene	**74**		71	40	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Dibenz(a,h)anthracene	ND		71	54	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Dibenzofuran	ND		180	61	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Diethyl phthalate	ND		350	38	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Dimethyl phthalate	ND		350	46	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Di-n-butyl phthalate	ND		350	37	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Di-n-octyl phthalate	ND		350	58	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Fluoranthene	**110**		71	42	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Fluorene	ND		71	65	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Hexachlorobenzene	ND	*+	180	49	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Hexachlorobutadiene	ND		180	88	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1

Client Sample ID: LM-SO-SD01-053123
Date Collected: 05/31/23 07:50
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-1
Matrix: Solid
Percent Solids: 93.9

Method: MA DEP 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachlorocyclopentadiene	ND	*+	180	68	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Hexachloroethane	ND		180	70	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Indeno[1,2,3-cd]pyrene	ND		71	60	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Isophorone	ND		180	49	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Naphthalene	ND		71	68	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Nitrobenzene	ND		180	82	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
N-Nitrosodimethylamine	ND	*- *1	180	47	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
N-Nitrosodi-n-propylamine	ND	*-	180	71	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
N-Nitrosodiphenylamine	ND		350	45	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Pentachloronitrobenzene	ND		350	55	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Pentachlorophenol	ND		350	140	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Phenanthrene	**41**	**J**	71	40	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Phenol	ND		350	72	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Pyrene	**120**		71	39	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1
Pyridine	ND		350	83	ug/Kg	☼	06/01/23 10:46	06/02/23 15:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*51*		*30 - 130*	*06/01/23 10:46*	*06/02/23 15:20*	*1*
2-Fluorophenol (Surr)	*52*		*15 - 110*	*06/01/23 10:46*	*06/02/23 15:20*	*1*
Nitrobenzene-d5 (Surr)	*44*		*30 - 130*	*06/01/23 10:46*	*06/02/23 15:20*	*1*
Phenol-d5 (Surr)	*50*		*15 - 110*	*06/01/23 10:46*	*06/02/23 15:20*	*1*
2,4,6-Tribromophenol (Surr)	*50*		*15 - 110*	*06/01/23 10:46*	*06/02/23 15:20*	*1*
Terphenyl-d14	*49*		*30 - 130*	*06/01/23 10:46*	*06/02/23 15:20*	*1*

Method: MA DEP 8081B - Organochlorine Pesticides (GC/ECD)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		5.3	1.1	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
beta-BHC	ND		5.3	0.95	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
delta-BHC	ND		5.3	1.1	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
gamma-BHC (Lindane)	ND		2.1	1.1	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Heptachlor	ND		5.3	1.1	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Aldrin	ND		5.3	1.0	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Heptachlor epoxide	ND		5.3	1.3	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Endosulfan I	ND		5.3	1.3	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Dieldrin	ND		5.3	1.1	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
4,4'-DDE	ND		8.5	1.3	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Endrin	ND		8.5	1.7	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Endosulfan II	ND		8.5	1.3	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
4,4'-DDD	ND		8.5	1.6	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Endosulfan sulfate	ND		8.5	1.6	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
4,4'-DDT	**1.7**	**J**	8.5	0.85	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Methoxychlor	ND		8.5	1.5	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Endrin ketone	ND		8.5	1.2	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Endrin aldehyde	ND		8.5	1.7	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
cis-Chlordane	ND		5.3	1.3	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
trans-Chlordane	ND		5.3	1.3	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Toxaphene	ND		110	75	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1
Alachlor	ND		5.3	1.2	ug/Kg	☼	06/01/23 09:22	06/02/23 19:31	1

Client Sample ID: LM-SO-SD01-053123

Date Collected: 05/31/23 07:50
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-1

Matrix: Solid
Percent Solids: 93.9

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*48*		*30 - 150*	*06/01/23 09:22*	*06/02/23 19:31*	*1*
Tetrachloro-m-xylene	*54*		*30 - 150*	*06/01/23 09:22*	*06/02/23 19:31*	*1*
DCB Decachlorobiphenyl (Surr)	*60*		*30 - 150*	*06/01/23 09:22*	*06/02/23 19:31*	*1*
DCB Decachlorobiphenyl (Surr)	*56*		*30 - 150*	*06/01/23 09:22*	*06/02/23 19:31*	*1*

Method: MA DEP 8082 - Polychlorinated Biphenyls (GC/ECD)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		35	35	ug/Kg	☼	06/01/23 09:22	06/01/23 16:23	1
PCB-1221	ND		35	35	ug/Kg	☼	06/01/23 09:22	06/01/23 16:23	1
PCB-1232	ND		35	35	ug/Kg	☼	06/01/23 09:22	06/01/23 16:23	1
PCB-1242	ND		35	35	ug/Kg	☼	06/01/23 09:22	06/01/23 16:23	1
PCB-1248	ND		35	35	ug/Kg	☼	06/01/23 09:22	06/01/23 16:23	1
PCB-1254	ND		35	35	ug/Kg	☼	06/01/23 09:22	06/01/23 16:23	1
PCB-1262	ND		35	35	ug/Kg	☼	06/01/23 09:22	06/01/23 16:23	1
PCB-1260	ND		35	35	ug/Kg	☼	06/01/23 09:22	06/01/23 16:23	1
PCB-1268	ND		35	35	ug/Kg	☼	06/01/23 09:22	06/01/23 16:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*91*		*30 - 150*	*06/01/23 09:22*	*06/01/23 16:23*	*1*
Tetrachloro-m-xylene	*86*		*30 - 150*	*06/01/23 09:22*	*06/01/23 16:23*	*1*
DCB Decachlorobiphenyl (Surr)	*95*		*30 - 150*	*06/01/23 09:22*	*06/01/23 16:23*	*1*
DCB Decachlorobiphenyl (Surr)	*101*		*30 - 150*	*06/01/23 09:22*	*06/01/23 16:23*	*1*

Method: SW846 8100 - Polynuclear Aromatic Hydrocarbons (PAHs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TEPH (C9-C36)	**93**		14	12	mg/Kg	☼	06/01/23 14:23	06/02/23 14:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*78*		*40 - 140*	*06/01/23 14:23*	*06/02/23 14:21*	*1*
o-Terphenyl (Surr)	*57*		*40 - 140*	*06/01/23 14:23*	*06/02/23 14:21*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**22**		2.3	0.29	mg/Kg	☼	05/31/23 14:15	06/01/23 12:54	1
Barium	**42**		1.5	0.18	mg/Kg	☼	05/31/23 14:15	06/01/23 12:54	1
Cadmium	ND		0.76	0.039	mg/Kg	☼	05/31/23 14:15	06/01/23 12:54	1
Chromium	**21**		1.5	0.20	mg/Kg	☼	05/31/23 14:15	06/01/23 12:54	1
Lead	**29**		2.3	0.32	mg/Kg	☼	05/31/23 14:15	06/01/23 12:54	1
Selenium	ND		2.3	0.44	mg/Kg	☼	05/31/23 14:15	06/01/23 12:54	1
Silver	ND		2.3	0.25	mg/Kg	☼	05/31/23 14:15	06/01/23 12:54	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0045**	**J**	0.0080	0.0028	mg/L		06/01/23 10:53	06/01/23 14:51	1
Barium	**0.38**		0.010	0.0014	mg/L		06/01/23 10:53	06/01/23 14:51	1
Cadmium	**0.0011**	**J**	0.0050	0.00071	mg/L		06/01/23 10:53	06/01/23 14:51	1
Chromium	**0.0078**	**J**	0.010	0.0019	mg/L		06/01/23 10:53	06/01/23 14:51	1
Lead	**0.024**		0.015	0.012	mg/L		06/01/23 10:53	06/01/23 14:51	1
Selenium	ND		0.030	0.0083	mg/L		06/01/23 10:53	06/01/23 14:51	1
Silver	ND		0.010	0.0012	mg/L		06/01/23 10:53	06/01/23 14:51	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Client Sample ID: LM-SO-SD01-053123

Date Collected: 05/31/23 07:50
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-1

Matrix: Solid
Percent Solids: 93.9

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		06/02/23 07:19	06/02/23 14:22	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.056**		0.053	0.0088	mg/Kg	☼	06/01/23 09:40	06/02/23 12:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability (SW846 1030)	**negative**				NONE			06/01/23 15:23	1
Percent Moisture (EPA Moisture)	**6.1**		0.1	0.1	%			06/01/23 11:46	1
Percent Solids (EPA Moisture)	**93.9**		0.1	0.1	%			06/01/23 11:46	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9045D)	**6.8**				SU			06/01/23 14:14	1
Temperature (SW846 9045D)	**28.5**				Degrees C			06/01/23 14:14	1
Specific Conductance (SM 2510B)	**1900**		10	10	uS/cm			06/01/23 14:51	1

Method: Reactive Cyanide - SW846 9014/9034 Reactivity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Reactivity Cyanide	ND		5		mg/Kg		06/01/23 17:09	06/01/23 16:15	1

Method: Reactive Sulfide - SW846 9034 – Reactive Sulfide

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Reactivity Sulfide	ND		20		mg/Kg		06/01/23 00:00	06/01/23 17:09	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Client Sample ID: LM-SO-SD02-053123

Date Collected: 05/31/23 08:10
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-2

Matrix: Solid
Percent Solids: 93.7

Method: MA DEP 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichlorotrifluoroethane (Freon 113)	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Acetone	ND		16	3.6	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Acrylonitrile	ND		1.6	0.97	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Benzene	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Bromobenzene	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Bromochloromethane	ND		1.6	0.92	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Bromodichloromethane	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Bromoform	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Bromomethane	ND	*+	3.2	2.0	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
2-Butanone (MEK)	ND		3.2	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
n-Butylbenzene	ND		3.2	1.7	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
sec-Butylbenzene	ND		1.6	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
tert-Butylbenzene	ND		1.6	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Carbon disulfide	ND		3.2	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Carbon tetrachloride	ND		1.6	1.0	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Chlorobenzene	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Chloroethane	ND		3.2	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Chloroform	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Chloromethane	ND		3.2	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
2-Chlorotoluene	ND		1.6	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
4-Chlorotoluene	ND		1.6	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,2-Dibromo-3-Chloropropane	ND		3.2	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Dibromochloromethane	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,2-Dibromoethane (EDB)	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Dibromomethane	ND		1.6	0.95	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,2-Dichlorobenzene	ND		1.6	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,3-Dichlorobenzene	ND		1.6	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,4-Dichlorobenzene	ND		1.6	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Dichlorodifluoromethane (Freon 12)	ND	*+	3.2	0.87	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,1-Dichloroethane	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,2-Dichloroethane	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,1-Dichloroethene	ND		1.6	0.99	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
cis-1,2-Dichloroethene	ND		1.6	0.93	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
trans-1,2-Dichloroethene	ND		1.6	1.0	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,2-Dichloropropane	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,3-Dichloropropane	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
2,2-Dichloropropane	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,1-Dichloropropene	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
cis-1,3-Dichloropropene	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
trans-1,3-Dichloropropene	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Ethylbenzene	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Hexachlorobutadiene	ND		3.2	1.6	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
2-Hexanone (MBK)	ND		3.2	0.95	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Isopropylbenzene	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
4-Isopropyltoluene	ND		1.6	1.6	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Methyl tert-butyl ether	**2.6**		1.6	0.93	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
4-Methyl-2-pentanone (MIBK)	ND		3.2	1.0	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Methylene Chloride	ND		3.2	0.87	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Naphthalene	ND		1.6	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1

Client Sample ID: LM-SO-SD02-053123
Date Collected: 05/31/23 08:10
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-2
Matrix: Solid
Percent Solids: 93.7

Method: MA DEP 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-Propylbenzene	ND		1.6	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Styrene	ND		1.6	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,1,1,2-Tetrachloroethane	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,1,2,2-Tetrachloroethane	ND		1.6	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Tetrachloroethene	ND		1.6	0.90	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Toluene	ND		1.6	1.0	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,2,3-Trichlorobenzene	ND		1.6	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,2,4-Trichlorobenzene	ND		1.6	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,3,5-Trichlorobenzene	ND		1.6	1.5	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,1,1-Trichloroethane	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,1,2-Trichloroethane	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Trichloroethene	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Trichlorofluoromethane (Freon 11)	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,2,3-Trichloropropane	ND		1.6	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,2,4-Trimethylbenzene	ND		1.6	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,3,5-Trimethylbenzene	ND		1.6	1.4	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Vinyl chloride	ND		1.6	0.99	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
m,p-Xylene	ND		1.6	2.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
o-Xylene	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Tetrahydrofuran	ND		3.2	0.82	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Ethyl ether	ND		1.6	0.85	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Tert-amyl methyl ether	ND		1.6	1.3	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Ethyl tert-butyl ether	ND		1.6	1.1	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
di-Isopropyl ether	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
tert-Butanol	ND		32	8.7	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,4-Dioxane	ND		32	10	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
trans-1,4-Dichloro-2-butene	ND		8.1	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Ethanol	ND	*-	320	20	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
1,3-Dichloropropene, Total	ND		1.6	1.2	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1
Xylenes, Total	ND		4.8	1.6	ug/Kg	☼	06/01/23 13:00	06/01/23 16:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*	*06/01/23 13:00*	*06/01/23 16:13*	*1*
Toluene-d8 (Surr)	*106*		*70 - 130*	*06/01/23 13:00*	*06/01/23 16:13*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*	*06/01/23 13:00*	*06/01/23 16:13*	*1*
Dibromofluoromethane (Surr)	*117*		*70 - 130*	*06/01/23 13:00*	*06/01/23 16:13*	*1*

Method: MA DEP 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	ND		700	120	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
1,2,4-Trichlorobenzene	ND		700	160	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
1,2-Dichlorobenzene	ND		700	130	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
1,3-Dichlorobenzene	ND		700	170	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
1,4-Dichlorobenzene	ND		700	160	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
1-Methylnaphthalene	ND		140	120	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
2,4,5-Trichlorophenol	ND		700	80	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
2,4,6-Trichlorophenol	ND		350	86	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
2,4-Dichlorophenol	ND		350	140	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
2,4-Dimethylphenol	ND		700	100	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
2,4-Dinitrophenol	ND		700	180	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Client Sample ID: LM-SO-SD02-053123
Date Collected: 05/31/23 08:10
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-2
Matrix: Solid
Percent Solids: 93.7

Method: MA DEP 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dinitrotoluene	ND		350	83	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
2,6-Dinitrotoluene	ND		350	83	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
2-Chloronaphthalene	ND		700	160	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
2-Chlorophenol	ND		350	140	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
2-Methylnaphthalene	ND		140	100	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
2-Methylphenol	ND		700	100	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
2-Nitroaniline	ND		700	67	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
2-Nitrophenol	ND		350	130	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
3 & 4 Methylphenol	ND		700	130	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
3,3'-Dichlorobenzidine	ND		700	120	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
3-Nitroaniline	ND		700	62	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
4,6-Dinitro-2-methylphenol	ND		700	130	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
4-Bromophenyl phenyl ether	ND		700	79	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
4-Chloro-3-methylphenol	ND		700	140	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
4-Chloroaniline	ND		350	54	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
4-Chlorophenyl phenyl ether	ND		700	75	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
4-Nitroaniline	ND		350	110	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
4-Nitrophenol	ND		700	240	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Acenaphthene	ND		140	110	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Acenaphthylene	ND		140	93	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Acetophenone	ND		350	86	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Aniline	ND		700	54	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Anthracene	ND		140	82	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Azobenzene/Diphenyldiazene	ND		700	120	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Benzidine	ND		1400	210	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Benzo[a]anthracene	**86**	**J**	140	79	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Benzo[a]pyrene	ND		140	100	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Benzo[b]fluoranthene	ND		140	120	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Benzo[g,h,i]perylene	ND		140	110	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Benzo[k]fluoranthene	**110**	**J**	140	110	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Benzoic acid	ND		700	480	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Benzyl alcohol	ND		700	130	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Bis(2-chloroethoxy)methane	ND	*-	700	120	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Bis(2-chloroethyl)ether	ND	*-	350	120	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
bis (2-chloroisopropyl) ether	ND	*-	350	160	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Bis(2-ethylhexyl) phthalate	ND		350	90	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Butyl benzyl phthalate	ND		700	70	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Carbazole	ND		350	93	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Chrysene	**98**	**J**	140	80	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Dibenz(a,h)anthracene	ND		140	110	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Dibenzofuran	ND		350	120	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Diethyl phthalate	ND		700	77	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Dimethyl phthalate	ND		700	91	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Di-n-butyl phthalate	ND		700	75	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Di-n-octyl phthalate	ND		700	120	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Fluoranthene	**130**	**J**	140	83	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Fluorene	ND		140	130	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Hexachlorobenzene	ND	*+	350	98	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Hexachlorobutadiene	ND		350	180	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Client Sample ID: LM-SO-SD02-053123

Date Collected: 05/31/23 08:10
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-2

Matrix: Solid
Percent Solids: 93.7

Method: MA DEP 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachlorocyclopentadiene	ND	*+	350	140	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Hexachloroethane	ND		350	140	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Indeno[1,2,3-cd]pyrene	ND		140	120	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Isophorone	ND		350	97	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Naphthalene	ND		140	140	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Nitrobenzene	ND		350	160	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
N-Nitrosodimethylamine	ND	*- *1	350	93	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
N-Nitrosodi-n-propylamine	ND	*-	350	140	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
N-Nitrosodiphenylamine	ND		700	89	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Pentachloronitrobenzene	ND		700	110	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Pentachlorophenol	ND		700	290	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Phenanthrene	ND		140	80	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Phenol	ND		700	140	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Pyrene	**130**	**J**	140	78	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1
Pyridine	ND		700	170	ug/Kg	☼	06/01/23 10:46	06/02/23 15:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*77*		*30 - 130*	*06/01/23 10:46*	*06/02/23 15:45*	*1*
2-Fluorophenol (Surr)	*80*		*15 - 110*	*06/01/23 10:46*	*06/02/23 15:45*	*1*
Nitrobenzene-d5 (Surr)	*71*		*30 - 130*	*06/01/23 10:46*	*06/02/23 15:45*	*1*
Phenol-d5 (Surr)	*76*		*15 - 110*	*06/01/23 10:46*	*06/02/23 15:45*	*1*
2,4,6-Tribromophenol (Surr)	*79*		*15 - 110*	*06/01/23 10:46*	*06/02/23 15:45*	*1*
Terphenyl-d14	*70*		*30 - 130*	*06/01/23 10:46*	*06/02/23 15:45*	*1*

Method: MA DEP 8081B - Organochlorine Pesticides (GC/ECD)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		5.2	1.1	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
beta-BHC	ND		5.2	0.93	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
delta-BHC	ND		5.2	1.1	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
gamma-BHC (Lindane)	ND		2.1	1.1	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Heptachlor	ND		5.2	1.1	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Aldrin	ND		5.2	1.0	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Heptachlor epoxide	ND		5.2	1.2	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Endosulfan I	ND		5.2	1.3	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Dieldrin	ND		5.2	1.1	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
4,4'-DDE	ND		8.4	1.3	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Endrin	ND		8.4	1.7	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Endosulfan II	ND		8.4	1.3	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
4,4'-DDD	ND		8.4	1.6	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Endosulfan sulfate	ND		8.4	1.6	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
4,4'-DDT	**1.7**	**J**	8.4	0.84	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Methoxychlor	ND		8.4	1.5	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Endrin ketone	ND		8.4	1.2	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Endrin aldehyde	ND		8.4	1.7	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
cis-Chlordane	ND		5.2	1.3	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
trans-Chlordane	ND		5.2	1.3	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Toxaphene	ND		100	74	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1
Alachlor	ND		5.2	1.2	ug/Kg	☼	06/01/23 09:23	06/02/23 19:47	1

Client Sample ID: LM-SO-SD02-053123

Date Collected: 05/31/23 08:10
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-2

Matrix: Solid
Percent Solids: 93.7

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*69*		*30 - 150*	*06/01/23 09:23*	*06/02/23 19:47*	*1*
Tetrachloro-m-xylene	*73*		*30 - 150*	*06/01/23 09:23*	*06/02/23 19:47*	*1*
DCB Decachlorobiphenyl (Surr)	*77*		*30 - 150*	*06/01/23 09:23*	*06/02/23 19:47*	*1*
DCB Decachlorobiphenyl (Surr)	*80*		*30 - 150*	*06/01/23 09:23*	*06/02/23 19:47*	*1*

Method: MA DEP 8082 - Polychlorinated Biphenyls (GC/ECD)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		35	35	ug/Kg	☼	06/01/23 09:23	06/01/23 16:40	1
PCB-1221	ND		35	35	ug/Kg	☼	06/01/23 09:23	06/01/23 16:40	1
PCB-1232	ND		35	35	ug/Kg	☼	06/01/23 09:23	06/01/23 16:40	1
PCB-1242	ND		35	35	ug/Kg	☼	06/01/23 09:23	06/01/23 16:40	1
PCB-1248	ND		35	35	ug/Kg	☼	06/01/23 09:23	06/01/23 16:40	1
PCB-1254	ND		35	35	ug/Kg	☼	06/01/23 09:23	06/01/23 16:40	1
PCB-1262	ND		35	35	ug/Kg	☼	06/01/23 09:23	06/01/23 16:40	1
PCB-1260	ND		35	35	ug/Kg	☼	06/01/23 09:23	06/01/23 16:40	1
PCB-1268	ND		35	35	ug/Kg	☼	06/01/23 09:23	06/01/23 16:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*113*		*30 - 150*	*06/01/23 09:23*	*06/01/23 16:40*	*1*
Tetrachloro-m-xylene	*107*		*30 - 150*	*06/01/23 09:23*	*06/01/23 16:40*	*1*
DCB Decachlorobiphenyl (Surr)	*125*		*30 - 150*	*06/01/23 09:23*	*06/01/23 16:40*	*1*
DCB Decachlorobiphenyl (Surr)	*121*		*30 - 150*	*06/01/23 09:23*	*06/01/23 16:40*	*1*

Method: SW846 8100 - Polynuclear Aromatic Hydrocarbons (PAHs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TEPH (C9-C36)	**410**		27	23	mg/Kg	☼	06/01/23 14:23	06/02/23 14:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*98*		*40 - 140*	*06/01/23 14:23*	*06/02/23 14:43*	*1*
o-Terphenyl (Surr)	*65*		*40 - 140*	*06/01/23 14:23*	*06/02/23 14:43*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**15**		2.8	0.35	mg/Kg	☼	05/31/23 14:15	06/01/23 13:00	1
Barium	**33**		1.8	0.22	mg/Kg	☼	05/31/23 14:15	06/01/23 13:00	1
Cadmium	ND		0.92	0.048	mg/Kg	☼	05/31/23 14:15	06/01/23 13:00	1
Chromium	**18**		1.8	0.25	mg/Kg	☼	05/31/23 14:15	06/01/23 13:00	1
Lead	**20**		2.8	0.39	mg/Kg	☼	05/31/23 14:15	06/01/23 13:00	1
Selenium	ND		2.8	0.53	mg/Kg	☼	05/31/23 14:15	06/01/23 13:00	1
Silver	ND		2.8	0.30	mg/Kg	☼	05/31/23 14:15	06/01/23 13:00	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0032**	**J**	0.0080	0.0028	mg/L		06/01/23 10:53	06/01/23 14:21	1
Barium	**0.23**		0.010	0.0014	mg/L		06/01/23 10:53	06/01/23 14:21	1
Cadmium	**0.0011**	**J**	0.0050	0.00071	mg/L		06/01/23 10:53	06/01/23 14:21	1
Chromium	**0.0032**	**J**	0.010	0.0019	mg/L		06/01/23 10:53	06/01/23 14:21	1
Lead	**0.052**		0.015	0.012	mg/L		06/01/23 10:53	06/01/23 14:21	1
Selenium	ND		0.030	0.0083	mg/L		06/01/23 10:53	06/01/23 14:21	1
Silver	ND		0.010	0.0012	mg/L		06/01/23 10:53	06/01/23 14:21	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Client Sample ID: LM-SO-SD02-053123

Date Collected: 05/31/23 08:10
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-2

Matrix: Solid
Percent Solids: 93.7

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		06/02/23 07:19	06/02/23 14:24	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.035**	**J**	0.052	0.0086	mg/Kg	☼	06/01/23 09:40	06/02/23 12:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability (SW846 1030)	**negative**				NONE			06/01/23 15:23	1
Percent Moisture (EPA Moisture)	**6.3**		0.1	0.1	%			06/01/23 11:46	1
Percent Solids (EPA Moisture)	**93.7**		0.1	0.1	%			06/01/23 11:46	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9045D)	**7.0**				SU			06/01/23 14:14	1
Temperature (SW846 9045D)	**28.5**				Degrees C			06/01/23 14:14	1
Specific Conductance (SM 2510B)	**200**		10	10	uS/cm			06/01/23 14:51	1

Method: Reactive Cyanide - SW846 9014/9034 Reactivity

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Reactivity Cyanide	ND		5		mg/Kg		06/01/23 17:09	06/01/23 16:16	1

Method: Reactive Sulfide - SW846 9034 – Reactive Sulfide

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Reactivity Sulfide	ND		20		mg/Kg		06/01/23 00:00	06/01/23 17:09	1

Surrogate Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Method: 8260C - Volatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		BFB	TOL	DCA	DBFM
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)	(70-130)
620-11778-1	LM-SO-SD01-053123	109	105	108	104
620-11778-2	LM-SO-SD02-053123	105	106	98	117
LCS 620-23152/1-A	Lab Control Sample	106	104	94	104
LCSD 620-23152/2-A	Lab Control Sample Dup	106	105	93	102
MB 620-23152/3-A	Method Blank	106	104	95	101

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		FBP	2FP	NBZ	PHL	TBP	TPHL
Lab Sample ID	Client Sample ID	(30-130)	(15-110)	(30-130)	(15-110)	(15-110)	(30-130)
620-11778-1	LM-SO-SD01-053123	51	52	44	50	50	49
620-11778-2	LM-SO-SD02-053123	77	80	71	76	79	70
LCS 620-23157/2-A	Lab Control Sample	84	90	87	86	97	82
LCSD 620-23157/3-A	Lab Control Sample Dup	77	71	78	71	99	86
MB 620-23157/1-A	Method Blank	80	93	81	86	83	81

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TBP = 2,4,6-Tribromophenol (Surr)
TPHL = Terphenyl-d14

Method: 8081B - Organochlorine Pesticides (GC/ECD)

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TCX1	TCX2	DCB1	DCB2
Lab Sample ID	Client Sample ID	(30-150)	(30-150)	(30-150)	(30-150)
620-11778-1	LM-SO-SD01-053123	48	54	60	56
620-11778-2	LM-SO-SD02-053123	69	73	77	80
LCS 620-23137/2-A	Lab Control Sample	89	96	101	92
LCSD 620-23137/3-A	Lab Control Sample Dup	91	95	99	93
MB 620-23137/1-A	Method Blank	83	88	114	88

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

Surrogate Summary

Client: Nobis Engineering, Inc. Job ID: 620-11778-1
Project/Site: Former L&M - Lunenburg MA

Method: 8082 - Polychlorinated Biphenyls (GC/ECD)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TCX1	TCX2	DCB1	DCB2
Lab Sample ID	Client Sample ID	(30-150)	(30-150)	(30-150)	(30-150)
620-11778-1	LM-SO-SD01-053123	91	86	95	101
620-11778-2	LM-SO-SD02-053123	113	107	125	121
LCS 620-23137/4-A	Lab Control Sample	112	105	136	138
LCSD 620-23137/5-A	Lab Control Sample Dup	122	115	143	131
MB 620-23137/1-A	Method Blank	114	109	123	125

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

Method: 8100 - Polynuclear Aromatic Hydrocarbons (PAHs) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		1COD	OTPH
Lab Sample ID	Client Sample ID	(40-140)	(40-140)
620-11778-1	LM-SO-SD01-053123	78	57
620-11778-2	LM-SO-SD02-053123	98	65
LCS 620-23173/2-A	Lab Control Sample	63	67
LCSD 620-23173/3-A	Lab Control Sample Dup	62	62
MB 620-23173/1-A	Method Blank	79	56

Surrogate Legend

1COD = 1-Chlorooctadecane (Surr)
OTPH = o-Terphenyl (Surr)

Method: 8260C - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 620-23152/3-A
Matrix: Solid
Analysis Batch: 23153

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23152

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichlorotrifluoroethane (Freon 113)	ND		5.0	3.3	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Acetone	ND		50	11	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Acrylonitrile	ND		5.0	3.0	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Benzene	ND		5.0	3.3	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Bromobenzene	ND		5.0	3.3	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Bromochloromethane	ND		5.0	2.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Bromodichloromethane	ND		5.0	3.7	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Bromoform	ND		5.0	3.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Bromomethane	ND		10	6.2	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
2-Butanone (MEK)	ND		10	4.0	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
n-Butylbenzene	ND		10	5.4	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
sec-Butylbenzene	ND		5.0	4.0	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
tert-Butylbenzene	ND		5.0	3.9	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Carbon disulfide	ND		10	3.5	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Carbon tetrachloride	ND		5.0	3.2	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Chlorobenzene	ND		5.0	3.7	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Chloroethane	ND		10	3.7	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Chloroform	ND		5.0	3.4	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Chloromethane	ND		10	3.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
2-Chlorotoluene	ND		5.0	4.0	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
4-Chlorotoluene	ND		5.0	4.3	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,2-Dibromo-3-Chloropropane	ND		10	4.2	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Dibromochloromethane	ND		5.0	3.3	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,2-Dibromoethane (EDB)	ND		5.0	3.6	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Dibromomethane	ND		5.0	2.9	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,2-Dichlorobenzene	ND		5.0	4.6	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,3-Dichlorobenzene	ND		5.0	4.0	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,4-Dichlorobenzene	ND		5.0	4.7	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Dichlorodifluoromethane (Freon 12)	ND		10	2.7	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,1-Dichloroethane	ND		5.0	3.4	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,2-Dichloroethane	ND		5.0	3.4	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,1-Dichloroethene	ND		5.0	3.1	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
cis-1,2-Dichloroethene	ND		5.0	2.9	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
trans-1,2-Dichloroethene	ND		5.0	3.1	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,2-Dichloropropane	ND		5.0	3.3	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,3-Dichloropropane	ND		5.0	3.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
2,2-Dichloropropane	ND		5.0	3.5	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,1-Dichloropropene	ND		5.0	3.4	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
cis-1,3-Dichloropropene	ND		5.0	3.3	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
trans-1,3-Dichloropropene	ND		5.0	3.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Ethylbenzene	ND		5.0	3.6	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Hexachlorobutadiene	ND		10	5.0	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
2-Hexanone (MBK)	ND		10	2.9	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Isopropylbenzene	ND		5.0	3.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
4-Isopropyltoluene	ND		5.0	4.9	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Methyl tert-butyl ether	ND		5.0	2.9	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
4-Methyl-2-pentanone (MIBK)	ND		10	3.2	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Methylene Chloride	ND		10	2.7	ug/Kg		06/01/23 09:52	06/01/23 14:07	1

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 620-23152/3-A
Matrix: Solid
Analysis Batch: 23153

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23152

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		5.0	4.5	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
N-Propylbenzene	ND		5.0	4.2	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Styrene	ND		5.0	3.9	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,1,1,2-Tetrachloroethane	ND		5.0	3.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,1,2,2-Tetrachloroethane	ND		5.0	4.6	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Tetrachloroethene	ND		5.0	2.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Toluene	ND		5.0	3.2	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,2,3-Trichlorobenzene	ND		5.0	4.2	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,2,4-Trichlorobenzene	ND		5.0	4.6	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,3,5-Trichlorobenzene	ND		5.0	4.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,1,1-Trichloroethane	ND		5.0	3.4	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,1,2-Trichloroethane	ND		5.0	3.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Trichloroethene	ND		5.0	3.4	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Trichlorofluoromethane (Freon 11)	ND		5.0	3.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,2,3-Trichloropropane	ND		5.0	4.4	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,2,4-Trimethylbenzene	ND		5.0	4.2	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,3,5-Trimethylbenzene	ND		5.0	4.3	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Vinyl chloride	ND		5.0	3.1	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
m,p-Xylene	ND		5.0	6.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
o-Xylene	ND		5.0	3.7	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Tetrahydrofuran	ND		10	2.5	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Ethyl ether	ND		5.0	2.6	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Tert-amyl methyl ether	ND		5.0	4.0	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Ethyl tert-butyl ether	ND		5.0	3.3	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
di-Isopropyl ether	ND		5.0	3.6	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
tert-Butanol	ND		100	27	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,4-Dioxane	ND		100	31	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
trans-1,4-Dichloro-2-butene	ND		25	3.7	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Ethanol	ND		1000	62	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
1,3-Dichloropropene, Total	ND		5.0	3.8	ug/Kg		06/01/23 09:52	06/01/23 14:07	1
Xylenes, Total	ND		15	5.0	ug/Kg		06/01/23 09:52	06/01/23 14:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*	*06/01/23 09:52*	*06/01/23 14:07*	*1*
Toluene-d8 (Surr)	*104*		*70 - 130*	*06/01/23 09:52*	*06/01/23 14:07*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 130*	*06/01/23 09:52*	*06/01/23 14:07*	*1*
Dibromofluoromethane (Surr)	*101*		*70 - 130*	*06/01/23 09:52*	*06/01/23 14:07*	*1*

Lab Sample ID: LCS 620-23152/1-A
Matrix: Solid
Analysis Batch: 23153

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23152

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,2-Trichlorotrifluoroethane (Freon 113)	20.0	17.5		ug/Kg		87	70 - 130
Acetone	20.0	17.6	J	ug/Kg		88	70 - 130
Acrylonitrile	20.0	16.8		ug/Kg		84	70 - 130
Benzene	20.0	17.6		ug/Kg		88	70 - 130
Bromobenzene	20.0	16.2		ug/Kg		81	70 - 130

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 620-23152/1-A
Matrix: Solid
Analysis Batch: 23153

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23152

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bromochloromethane	20.0	18.3		ug/Kg		92	70 - 130
Bromodichloromethane	20.0	16.9		ug/Kg		85	70 - 130
Bromoform	20.0	15.7		ug/Kg		79	70 - 130
Bromomethane	20.0	26.9	*+	ug/Kg		135	70 - 130
2-Butanone (MEK)	20.0	17.1		ug/Kg		86	70 - 130
n-Butylbenzene	20.0	14.2		ug/Kg		71	70 - 130
sec-Butylbenzene	20.0	16.1		ug/Kg		80	70 - 130
tert-Butylbenzene	20.0	18.4		ug/Kg		92	70 - 130
Carbon disulfide	20.0	17.8		ug/Kg		89	70 - 130
Carbon tetrachloride	20.0	18.6		ug/Kg		93	70 - 130
Chlorobenzene	20.0	15.3		ug/Kg		76	70 - 130
Chloroethane	20.0	18.5		ug/Kg		93	70 - 130
Chloroform	20.0	17.2		ug/Kg		86	70 - 130
Chloromethane	20.0	22.5		ug/Kg		113	70 - 130
2-Chlorotoluene	20.0	16.2		ug/Kg		81	70 - 130
4-Chlorotoluene	20.0	15.5		ug/Kg		78	70 - 130
1,2-Dibromo-3-Chloropropane	20.0	14.9		ug/Kg		75	70 - 130
Dibromochloromethane	20.0	16.7		ug/Kg		84	70 - 130
1,2-Dibromoethane (EDB)	20.0	16.9		ug/Kg		85	70 - 130
Dibromomethane	20.0	17.0		ug/Kg		85	70 - 130
1,2-Dichlorobenzene	20.0	15.0		ug/Kg		75	70 - 130
1,3-Dichlorobenzene	20.0	16.6		ug/Kg		83	70 - 130
1,4-Dichlorobenzene	20.0	14.7		ug/Kg		74	70 - 130
Dichlorodifluoromethane (Freon 12)	20.0	26.7	*+	ug/Kg		134	70 - 130
1,1-Dichloroethane	20.0	17.5		ug/Kg		87	70 - 130
1,2-Dichloroethane	20.0	17.0		ug/Kg		85	70 - 130
1,1-Dichloroethene	20.0	18.1		ug/Kg		90	70 - 130
cis-1,2-Dichloroethene	20.0	17.8		ug/Kg		89	70 - 130
trans-1,2-Dichloroethene	20.0	18.1		ug/Kg		90	70 - 130
1,2-Dichloropropane	20.0	17.1		ug/Kg		85	70 - 130
1,3-Dichloropropane	20.0	16.7		ug/Kg		84	70 - 130
2,2-Dichloropropane	20.0	18.7		ug/Kg		94	70 - 130
1,1-Dichloropropene	20.0	18.0		ug/Kg		90	70 - 130
cis-1,3-Dichloropropene	20.0	17.0		ug/Kg		85	70 - 130
trans-1,3-Dichloropropene	20.0	16.9		ug/Kg		84	70 - 130
Ethylbenzene	20.0	15.0		ug/Kg		75	70 - 130
Hexachlorobutadiene	20.0	17.7		ug/Kg		89	70 - 130
2-Hexanone (MBK)	20.0	17.0		ug/Kg		85	70 - 130
Isopropylbenzene	20.0	15.8		ug/Kg		79	70 - 130
4-Isopropyltoluene	20.0	14.8		ug/Kg		74	70 - 130
Methyl tert-butyl ether	20.0	17.3		ug/Kg		86	70 - 130
4-Methyl-2-pentanone (MIBK)	20.0	16.8		ug/Kg		84	70 - 130
Methylene Chloride	20.0	16.4		ug/Kg		82	70 - 130
Naphthalene	20.0	17.3		ug/Kg		87	70 - 130
N-Propylbenzene	20.0	15.5		ug/Kg		77	70 - 130
Styrene	20.0	15.2		ug/Kg		76	70 - 130
1,1,1,2-Tetrachloroethane	20.0	15.5		ug/Kg		77	70 - 130
1,1,2,2-Tetrachloroethane	20.0	14.7		ug/Kg		73	70 - 130

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 620-23152/1-A
Matrix: Solid
Analysis Batch: 23153

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23152

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Tetrachloroethene	20.0	19.2		ug/Kg		96	70 - 130
Toluene	20.0	17.3		ug/Kg		87	70 - 130
1,2,3-Trichlorobenzene	20.0	18.7		ug/Kg		93	70 - 130
1,2,4-Trichlorobenzene	20.0	20.3		ug/Kg		102	70 - 130
1,3,5-Trichlorobenzene	20.0	17.2		ug/Kg		86	70 - 130
1,1,1-Trichloroethane	20.0	18.1		ug/Kg		91	70 - 130
1,1,2-Trichloroethane	20.0	16.6		ug/Kg		83	70 - 130
Trichloroethene	20.0	17.9		ug/Kg		90	70 - 130
Trichlorofluoromethane (Freon 11)	20.0	18.6		ug/Kg		93	70 - 130
1,2,3-Trichloropropane	20.0	15.1		ug/Kg		76	70 - 130
1,2,4-Trimethylbenzene	20.0	15.8		ug/Kg		79	70 - 130
1,3,5-Trimethylbenzene	20.0	15.7		ug/Kg		79	70 - 130
Vinyl chloride	20.0	19.6		ug/Kg		98	70 - 130
m,p-Xylene	20.0	15.5		ug/Kg		78	70 - 130
o-Xylene	20.0	15.3		ug/Kg		77	70 - 130
Tetrahydrofuran	20.0	14.6		ug/Kg		73	70 - 130
Ethyl ether	20.0	16.2		ug/Kg		81	70 - 130
Tert-amyl methyl ether	20.0	17.6		ug/Kg		88	70 - 130
Ethyl tert-butyl ether	20.0	17.3		ug/Kg		86	70 - 130
di-Isopropyl ether	20.0	17.2		ug/Kg		86	70 - 130
tert-Butanol	200	167		ug/Kg		83	70 - 130
1,4-Dioxane	200	171		ug/Kg		86	70 - 130
trans-1,4-Dichloro-2-butene	20.0	15.1	J	ug/Kg		76	70 - 130
Ethanol	400	311	J	ug/Kg		78	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*
Toluene-d8 (Surr)	*104*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 130*
Dibromofluoromethane (Surr)	*104*		*70 - 130*

Lab Sample ID: LCSD 620-23152/2-A
Matrix: Solid
Analysis Batch: 23153

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23152

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,2-Trichlorotrifluoroethane (Freon 113)	20.0	17.9		ug/Kg		90	70 - 130	2	30
Acetone	20.0	15.6	J	ug/Kg		78	70 - 130	12	30
Acrylonitrile	20.0	16.3		ug/Kg		81	70 - 130	3	30
Benzene	20.0	18.2		ug/Kg		91	70 - 130	3	30
Bromobenzene	20.0	16.9		ug/Kg		85	70 - 130	4	30
Bromochloromethane	20.0	19.0		ug/Kg		95	70 - 130	4	30
Bromodichloromethane	20.0	17.8		ug/Kg		89	70 - 130	5	30
Bromoform	20.0	16.7		ug/Kg		84	70 - 130	6	30
Bromomethane	20.0	26.0		ug/Kg		130	70 - 130	3	30
2-Butanone (MEK)	20.0	17.4		ug/Kg		87	70 - 130	2	30
n-Butylbenzene	20.0	15.1		ug/Kg		76	70 - 130	6	30

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 620-23152/2-A
Matrix: Solid
Analysis Batch: 23153

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23152

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
sec-Butylbenzene	20.0	16.9		ug/Kg		84	70 - 130	5	30
tert-Butylbenzene	20.0	19.4		ug/Kg		97	70 - 130	5	30
Carbon disulfide	20.0	17.7		ug/Kg		88	70 - 130	1	30
Carbon tetrachloride	20.0	18.8		ug/Kg		94	70 - 130	1	30
Chlorobenzene	20.0	16.1		ug/Kg		81	70 - 130	5	30
Chloroethane	20.0	18.6		ug/Kg		93	70 - 130	0	30
Chloroform	20.0	17.7		ug/Kg		89	70 - 130	3	30
Chloromethane	20.0	21.7		ug/Kg		109	70 - 130	4	30
2-Chlorotoluene	20.0	16.8		ug/Kg		84	70 - 130	4	30
4-Chlorotoluene	20.0	16.2		ug/Kg		81	70 - 130	4	30
1,2-Dibromo-3-Chloropropane	20.0	15.2		ug/Kg		76	70 - 130	2	30
Dibromochloromethane	20.0	17.9		ug/Kg		89	70 - 130	7	30
1,2-Dibromoethane (EDB)	20.0	18.4		ug/Kg		92	70 - 130	9	30
Dibromomethane	20.0	18.0		ug/Kg		90	70 - 130	6	30
1,2-Dichlorobenzene	20.0	15.6		ug/Kg		78	70 - 130	4	30
1,3-Dichlorobenzene	20.0	17.5		ug/Kg		88	70 - 130	6	30
1,4-Dichlorobenzene	20.0	15.6		ug/Kg		78	70 - 130	6	30
Dichlorodifluoromethane (Freon 12)	20.0	26.3	*+	ug/Kg		132	70 - 130	2	30
1,1-Dichloroethane	20.0	18.0		ug/Kg		90	70 - 130	3	30
1,2-Dichloroethane	20.0	18.0		ug/Kg		90	70 - 130	6	30
1,1-Dichloroethene	20.0	17.9		ug/Kg		89	70 - 130	1	30
cis-1,2-Dichloroethene	20.0	18.5		ug/Kg		92	70 - 130	4	30
trans-1,2-Dichloroethene	20.0	18.6		ug/Kg		93	70 - 130	3	30
1,2-Dichloropropane	20.0	17.9		ug/Kg		89	70 - 130	5	30
1,3-Dichloropropane	20.0	17.7		ug/Kg		88	70 - 130	6	30
2,2-Dichloropropane	20.0	18.9		ug/Kg		94	70 - 130	1	30
1,1-Dichloropropene	20.0	18.7		ug/Kg		93	70 - 130	4	30
cis-1,3-Dichloropropene	20.0	18.2		ug/Kg		91	70 - 130	7	30
trans-1,3-Dichloropropene	20.0	17.9		ug/Kg		89	70 - 130	6	30
Ethylbenzene	20.0	15.9		ug/Kg		79	70 - 130	6	30
Hexachlorobutadiene	20.0	18.9		ug/Kg		95	70 - 130	7	30
2-Hexanone (MBK)	20.0	17.2		ug/Kg		86	70 - 130	1	30
Isopropylbenzene	20.0	16.5		ug/Kg		83	70 - 130	4	30
4-Isopropyltoluene	20.0	15.6		ug/Kg		78	70 - 130	5	30
Methyl tert-butyl ether	20.0	18.4		ug/Kg		92	70 - 130	6	30
4-Methyl-2-pentanone (MIBK)	20.0	17.0		ug/Kg		85	70 - 130	1	30
Methylene Chloride	20.0	16.8		ug/Kg		84	70 - 130	3	30
Naphthalene	20.0	17.8		ug/Kg		89	70 - 130	3	30
N-Propylbenzene	20.0	16.2		ug/Kg		81	70 - 130	5	30
Styrene	20.0	15.8		ug/Kg		79	70 - 130	4	30
1,1,1,2-Tetrachloroethane	20.0	16.2		ug/Kg		81	70 - 130	5	30
1,1,2,2-Tetrachloroethane	20.0	15.5		ug/Kg		77	70 - 130	5	30
Tetrachloroethene	20.0	19.8		ug/Kg		99	70 - 130	3	30
Toluene	20.0	18.1		ug/Kg		91	70 - 130	4	30
1,2,3-Trichlorobenzene	20.0	19.3		ug/Kg		96	70 - 130	3	30
1,2,4-Trichlorobenzene	20.0	21.1		ug/Kg		106	70 - 130	4	30
1,3,5-Trichlorobenzene	20.0	18.2		ug/Kg		91	70 - 130	6	30
1,1,1-Trichloroethane	20.0	18.6		ug/Kg		93	70 - 130	3	30

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 620-23152/2-A
Matrix: Solid
Analysis Batch: 23153

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23152

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,2-Trichloroethane			20.0	17.5		ug/Kg		88	70 - 130	5	30
Trichloroethene			20.0	18.5		ug/Kg		92	70 - 130	3	30
Trichlorofluoromethane (Freon 11)			20.0	17.3		ug/Kg		86	70 - 130	8	30
1,2,3-Trichloropropane			20.0	15.3		ug/Kg		77	70 - 130	1	30
1,2,4-Trimethylbenzene			20.0	16.6		ug/Kg		83	70 - 130	5	30
1,3,5-Trimethylbenzene			20.0	16.5		ug/Kg		83	70 - 130	5	30
Vinyl chloride			20.0	19.2		ug/Kg		96	70 - 130	2	30
m,p-Xylene			20.0	16.2		ug/Kg		81	70 - 130	4	30
o-Xylene			20.0	16.2		ug/Kg		81	70 - 130	5	30
Tetrahydrofuran			20.0	15.8		ug/Kg		79	70 - 130	7	30
Ethyl ether			20.0	16.9		ug/Kg		85	70 - 130	4	30
Tert-amyl methyl ether			20.0	18.7		ug/Kg		94	70 - 130	6	30
Ethyl tert-butyl ether			20.0	18.0		ug/Kg		90	70 - 130	4	30
di-Isopropyl ether			20.0	17.9		ug/Kg		89	70 - 130	4	30
tert-Butanol			200	168		ug/Kg		84	70 - 130	1	30
1,4-Dioxane			200	189		ug/Kg		94	70 - 130	10	30
trans-1,4-Dichloro-2-butene			20.0	15.8	J	ug/Kg		79	70 - 130	4	30
Ethanol			400	275	J *-	ug/Kg		69	70 - 130	12	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*
Toluene-d8 (Surr)	*105*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 130*
Dibromofluoromethane (Surr)	*102*		*70 - 130*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 620-23157/1-A
Matrix: Solid
Analysis Batch: 23208

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23157

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	ND		330	59	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
1,2,4-Trichlorobenzene	ND		330	76	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
1,2-Dichlorobenzene	ND		330	64	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
1,3-Dichlorobenzene	ND		330	80	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
1,4-Dichlorobenzene	ND		330	78	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
1-Methylnaphthalene	ND		67	56	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
2,4,5-Trichlorophenol	ND		330	38	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
2,4,6-Trichlorophenol	ND		170	41	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
2,4-Dichlorophenol	ND		170	67	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
2,4-Dimethylphenol	ND		330	48	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
2,4-Dinitrophenol	ND		330	87	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
2,4-Dinitrotoluene	ND		170	39	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
2,6-Dinitrotoluene	ND		170	39	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
2-Chloronaphthalene	ND		330	76	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
2-Chlorophenol	ND		170	68	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
2-Methylnaphthalene	ND		67	49	ug/Kg		06/01/23 10:46	06/02/23 14:03	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 620-23157/1-A
Matrix: Solid
Analysis Batch: 23208

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23157

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylphenol	ND		330	48	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
2-Nitroaniline	ND		330	31	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
2-Nitrophenol	ND		170	59	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
3 & 4 Methylphenol	ND		330	63	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
3,3'-Dichlorobenzidine	ND		330	55	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
3-Nitroaniline	ND		330	30	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
4,6-Dinitro-2-methylphenol	ND		330	59	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
4-Bromophenyl phenyl ether	ND		330	37	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
4-Chloro-3-methylphenol	ND		330	65	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
4-Chloroaniline	ND		170	25	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
4-Chlorophenyl phenyl ether	ND		330	35	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
4-Nitroaniline	ND		170	53	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
4-Nitrophenol	ND		330	120	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Acenaphthene	ND		67	53	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Acenaphthylene	ND		67	44	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Acetophenone	ND		170	41	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Aniline	ND		330	25	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Anthracene	ND		67	39	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Azobenzene/Diphenyldiazene	ND		330	56	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Benzidine	ND		660	98	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Benzo[a]anthracene	ND		67	38	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Benzo[a]pyrene	ND		67	48	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Benzo[b]fluoranthene	ND		67	55	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Benzo[g,h,i]perylene	ND		67	52	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Benzo[k]fluoranthene	ND		67	52	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Benzoic acid	ND		330	230	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Benzyl alcohol	ND		330	60	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Bis(2-chloroethoxy)methane	ND		330	57	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Bis(2-chloroethyl)ether	ND		170	55	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
bis (2-chloroisopropyl) ether	ND		170	74	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Bis(2-ethylhexyl) phthalate	ND		170	43	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Butyl benzyl phthalate	ND		330	33	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Carbazole	ND		170	44	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Chrysene	ND		67	38	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Dibenz(a,h)anthracene	ND		67	51	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Dibenzofuran	ND		170	58	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Diethyl phthalate	ND		330	36	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Dimethyl phthalate	ND		330	43	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Di-n-butyl phthalate	ND		330	35	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Di-n-octyl phthalate	ND		330	55	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Fluoranthene	ND		67	39	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Fluorene	ND		67	61	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Hexachlorobenzene	ND		170	46	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Hexachlorobutadiene	ND		170	83	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Hexachlorocyclopentadiene	ND		170	64	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Hexachloroethane	ND		170	66	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Indeno[1,2,3-cd]pyrene	ND		67	57	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Isophorone	ND		170	46	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Naphthalene	ND		67	64	ug/Kg		06/01/23 10:46	06/02/23 14:03	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 620-23157/1-A
Matrix: Solid
Analysis Batch: 23208

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23157

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrobenzene	ND		170	77	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
N-Nitrosodimethylamine	ND		170	44	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
N-Nitrosodi-n-propylamine	ND		170	67	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
N-Nitrosodiphenylamine	ND		330	42	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Pentachloronitrobenzene	ND		330	52	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Pentachlorophenol	ND		330	140	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Phenanthrene	ND		67	38	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Phenol	ND		330	68	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Pyrene	ND		67	37	ug/Kg		06/01/23 10:46	06/02/23 14:03	1
Pyridine	ND		330	78	ug/Kg		06/01/23 10:46	06/02/23 14:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*80*		*30 - 130*	*06/01/23 10:46*	*06/02/23 14:03*	*1*
2-Fluorophenol (Surr)	*93*		*15 - 110*	*06/01/23 10:46*	*06/02/23 14:03*	*1*
Nitrobenzene-d5 (Surr)	*81*		*30 - 130*	*06/01/23 10:46*	*06/02/23 14:03*	*1*
Phenol-d5 (Surr)	*86*		*15 - 110*	*06/01/23 10:46*	*06/02/23 14:03*	*1*
2,4,6-Tribromophenol (Surr)	*83*		*15 - 110*	*06/01/23 10:46*	*06/02/23 14:03*	*1*
Terphenyl-d14	*81*		*30 - 130*	*06/01/23 10:46*	*06/02/23 14:03*	*1*

Lab Sample ID: LCS 620-23157/2-A
Matrix: Solid
Analysis Batch: 23208

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23157

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2,4,5-Tetrachlorobenzene	1670	1370		ug/Kg		82	40 - 140
1,2,4-Trichlorobenzene	1670	2120		ug/Kg		127	40 - 140
1,2-Dichlorobenzene	1670	1970		ug/Kg		118	40 - 140
1,3-Dichlorobenzene	1670	1980		ug/Kg		119	40 - 140
1,4-Dichlorobenzene	1670	1990		ug/Kg		119	40 - 140
1-Methylnaphthalene	1670	1380		ug/Kg		83	40 - 140
2,4,5-Trichlorophenol	1670	1340		ug/Kg		80	30 - 130
2,4,6-Trichlorophenol	1670	1350		ug/Kg		81	30 - 130
2,4-Dichlorophenol	1670	1300		ug/Kg		78	30 - 130
2,4-Dimethylphenol	1670	1210		ug/Kg		73	30 - 130
2,4-Dinitrophenol	1670	1090		ug/Kg		65	30 - 130
2,4-Dinitrotoluene	1670	2290		ug/Kg		137	40 - 140
2,6-Dinitrotoluene	1670	2260		ug/Kg		136	40 - 140
2-Chloronaphthalene	1670	2210		ug/Kg		133	40 - 140
2-Chlorophenol	1670	1270		ug/Kg		76	30 - 130
2-Methylnaphthalene	1670	2280		ug/Kg		137	40 - 140
2-Methylphenol	1670	1230		ug/Kg		74	30 - 130
2-Nitroaniline	1670	1430		ug/Kg		86	40 - 140
2-Nitrophenol	1670	1300		ug/Kg		78	30 - 130
3 & 4 Methylphenol	1670	1280		ug/Kg		77	30 - 130
3,3'-Dichlorobenzidine	1670	1960		ug/Kg		118	40 - 140
3-Nitroaniline	1670	1100		ug/Kg		66	40 - 140
4,6-Dinitro-2-methylphenol	1670	1180		ug/Kg		71	30 - 130
4-Bromophenyl phenyl ether	1670	786		ug/Kg		47	40 - 140

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 620-23157/2-A
Matrix: Solid
Analysis Batch: 23208

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23157

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
4-Chloro-3-methylphenol	1670	1330		ug/Kg		80	30 - 130
4-Chloroaniline	1670	875		ug/Kg		53	40 - 140
4-Chlorophenyl phenyl ether	1670	791		ug/Kg		47	40 - 140
4-Nitroaniline	1670	1510		ug/Kg		91	40 - 140
4-Nitrophenol	1670	1430		ug/Kg		86	30 - 130
Acenaphthene	1670	1350		ug/Kg		81	40 - 140
Acenaphthylene	1670	1320		ug/Kg		79	40 - 140
Acetophenone	1670	1300		ug/Kg		78	40 - 140
Aniline	1670	1060		ug/Kg		64	40 - 140
Anthracene	1670	1560		ug/Kg		93	40 - 140
Azobenzene/Diphenyldiazene	1670	1260		ug/Kg		76	40 - 140
Benzidine	1670	1440		ug/Kg		86	40 - 140
Benzo[a]anthracene	1670	1590		ug/Kg		96	40 - 140
Benzo[a]pyrene	1670	1530		ug/Kg		92	40 - 140
Benzo[b]fluoranthene	1670	1480		ug/Kg		89	40 - 140
Benzo[g,h,i]perylene	1670	1560		ug/Kg		93	40 - 140
Benzo[k]fluoranthene	1670	1410		ug/Kg		84	40 - 140
Benzoic acid	1670	495		ug/Kg		30	30 - 130
Benzyl alcohol	1670	1770		ug/Kg		106	40 - 140
Bis(2-chloroethoxy)methane	1670	673		ug/Kg		40	40 - 140
Bis(2-chloroethyl)ether	1670	691		ug/Kg		41	40 - 140
bis (2-chloroisopropyl) ether	1670	626	*-	ug/Kg		38	40 - 140
Bis(2-ethylhexyl) phthalate	1670	857		ug/Kg		51	40 - 140
Butyl benzyl phthalate	1670	846		ug/Kg		51	40 - 140
Carbazole	1670	1480		ug/Kg		89	40 - 140
Chrysene	1670	1540		ug/Kg		92	40 - 140
Dibenz(a,h)anthracene	1670	1570		ug/Kg		94	40 - 140
Dibenzofuran	1670	2240		ug/Kg		134	40 - 140
Diethyl phthalate	1670	795		ug/Kg		48	40 - 140
Dimethyl phthalate	1670	787		ug/Kg		47	40 - 140
Di-n-butyl phthalate	1670	856		ug/Kg		51	40 - 140
Di-n-octyl phthalate	1670	858		ug/Kg		51	40 - 140
Fluoranthene	1670	1530		ug/Kg		92	40 - 140
Fluorene	1670	1450		ug/Kg		87	40 - 140
Hexachlorobenzene	1670	2310		ug/Kg		139	40 - 140
Hexachlorobutadiene	1670	1890		ug/Kg		113	40 - 140
Hexachlorocyclopentadiene	1670	2380	*+	ug/Kg		143	40 - 140
Hexachloroethane	1670	1950		ug/Kg		117	40 - 140
Indeno[1,2,3-cd]pyrene	1670	1550		ug/Kg		93	40 - 140
Isophorone	1670	1820		ug/Kg		109	40 - 140
Naphthalene	1670	1380		ug/Kg		83	40 - 140
Nitrobenzene	1670	2150		ug/Kg		129	40 - 140
N-Nitrosodimethylamine	1670	607	*-	ug/Kg		36	40 - 140
N-Nitrosodi-n-propylamine	1670	732		ug/Kg		44	40 - 140
N-Nitrosodiphenylamine	1670	888		ug/Kg		53	40 - 140
Pentachloronitrobenzene	1670	1540		ug/Kg		92	40 - 140
Pentachlorophenol	1670	1170		ug/Kg		70	30 - 130
Phenanthrene	1670	1460		ug/Kg		87	40 - 140
Phenol	1670	1260		ug/Kg		76	40 - 140

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 620-23157/2-A
Matrix: Solid
Analysis Batch: 23208

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23157

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Pyrene			1670	1600		ug/Kg		96	40 - 140		
Pyridine			1670	861		ug/Kg		52	40 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*84*		*30 - 130*
2-Fluorophenol (Surr)	*90*		*15 - 110*
Nitrobenzene-d5 (Surr)	*87*		*30 - 130*
Phenol-d5 (Surr)	*86*		*15 - 110*
2,4,6-Tribromophenol (Surr)	*97*		*15 - 110*
Terphenyl-d14	*82*		*30 - 130*

Lab Sample ID: LCSD 620-23157/3-A
Matrix: Solid
Analysis Batch: 23208

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23157

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2,4,5-Tetrachlorobenzene			1670	1200		ug/Kg		72	40 - 140	13	30
1,2,4-Trichlorobenzene			1670	1790		ug/Kg		108	40 - 140	17	30
1,2-Dichlorobenzene			1670	1690		ug/Kg		102	40 - 140	15	30
1,3-Dichlorobenzene			1670	1660		ug/Kg		100	40 - 140	17	30
1,4-Dichlorobenzene			1670	1690		ug/Kg		101	40 - 140	16	30
1-Methylnaphthalene			1670	1230		ug/Kg		74	40 - 140	12	30
2,4,5-Trichlorophenol			1670	1330		ug/Kg		80	30 - 130	0	30
2,4,6-Trichlorophenol			1670	1330		ug/Kg		80	30 - 130	1	30
2,4-Dichlorophenol			1670	1240		ug/Kg		74	30 - 130	5	30
2,4-Dimethylphenol			1670	1070		ug/Kg		64	30 - 130	12	30
2,4-Dinitrophenol			1670	1120		ug/Kg		67	30 - 130	3	30
2,4-Dinitrotoluene			1670	2050		ug/Kg		123	40 - 140	11	30
2,6-Dinitrotoluene			1670	2280		ug/Kg		137	40 - 140	1	30
2-Chloronaphthalene			1670	1980		ug/Kg		119	40 - 140	11	30
2-Chlorophenol			1670	1050		ug/Kg		63	30 - 130	19	30
2-Methylnaphthalene			1670	1990		ug/Kg		119	40 - 140	14	30
2-Methylphenol			1670	1090		ug/Kg		66	30 - 130	12	30
2-Nitroaniline			1670	1430		ug/Kg		86	40 - 140	0	30
2-Nitrophenol			1670	1120		ug/Kg		67	30 - 130	15	30
3 & 4 Methylphenol			1670	1160		ug/Kg		70	30 - 130	10	30
3,3'-Dichlorobenzidine			1670	2240		ug/Kg		134	40 - 140	13	30
3-Nitroaniline			1670	1220		ug/Kg		73	40 - 140	11	30
4,6-Dinitro-2-methylphenol			1670	1210		ug/Kg		73	30 - 130	3	30
4-Bromophenyl phenyl ether			1670	800		ug/Kg		48	40 - 140	2	30
4-Chloro-3-methylphenol			1670	1270		ug/Kg		76	30 - 130	5	30
4-Chloroaniline			1670	1030		ug/Kg		62	40 - 140	16	30
4-Chlorophenyl phenyl ether			1670	668		ug/Kg		40	40 - 140	17	30
4-Nitroaniline			1670	1390		ug/Kg		83	40 - 140	8	30
4-Nitrophenol			1670	1340		ug/Kg		80	30 - 130	7	30
Acenaphthene			1670	1290		ug/Kg		77	40 - 140	5	30
Acenaphthylene			1670	1230		ug/Kg		74	40 - 140	7	30
Acetophenone			1670	1160		ug/Kg		69	40 - 140	12	30

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 620-23157/3-A
Matrix: Solid
Analysis Batch: 23208

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23157

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Aniline			1670	972		ug/Kg		58	40 - 140	9	30
Anthracene			1670	1600		ug/Kg		96	40 - 140	3	30
Azobenzene/Diphenyldiazene			1670	1260		ug/Kg		76	40 - 140	0	30
Benzidine			1670	NQ	E	ug/Kg		NaN	40 - 140	NaN	30
Benzo[a]anthracene			1670	1700		ug/Kg		102	40 - 140	6	30
Benzo[a]pyrene			1670	1600		ug/Kg		96	40 - 140	4	30
Benzo[b]fluoranthene			1670	1530		ug/Kg		92	40 - 140	3	30
Benzo[g,h,i]perylene			1670	1670		ug/Kg		100	40 - 140	7	30
Benzo[k]fluoranthene			1670	1500		ug/Kg		90	40 - 140	6	30
Benzoic acid			1670	651		ug/Kg		39	30 - 130	27	30
Benzyl alcohol			1670	1570		ug/Kg		94	40 - 140	12	30
Bis(2-chloroethoxy)methane			1670	611	*-	ug/Kg		37	40 - 140	10	30
Bis(2-chloroethyl)ether			1670	565	*-	ug/Kg		34	40 - 140	20	30
bis (2-chloroisopropyl) ether			1670	525	*-	ug/Kg		32	40 - 140	17	30
Bis(2-ethylhexyl) phthalate			1670	898		ug/Kg		54	40 - 140	5	30
Butyl benzyl phthalate			1670	895		ug/Kg		54	40 - 140	6	30
Carbazole			1670	1580		ug/Kg		95	40 - 140	6	30
Chrysene			1670	1610		ug/Kg		97	40 - 140	5	30
Dibenz(a,h)anthracene			1670	1670		ug/Kg		100	40 - 140	6	30
Dibenzofuran			1670	1910		ug/Kg		115	40 - 140	16	30
Diethyl phthalate			1670	702		ug/Kg		42	40 - 140	12	30
Dimethyl phthalate			1670	811		ug/Kg		49	40 - 140	3	30
Di-n-butyl phthalate			1670	909		ug/Kg		55	40 - 140	6	30
Di-n-octyl phthalate			1670	901		ug/Kg		54	40 - 140	5	30
Fluoranthene			1670	1620		ug/Kg		97	40 - 140	6	30
Fluorene			1670	1240		ug/Kg		74	40 - 140	16	30
Hexachlorobenzene			1670	2400	*+	ug/Kg		144	40 - 140	4	30
Hexachlorobutadiene			1670	1700		ug/Kg		102	40 - 140	10	30
Hexachlorocyclopentadiene			1670	2030		ug/Kg		122	40 - 140	15	30
Hexachloroethane			1670	1670		ug/Kg		100	40 - 140	16	30
Indeno[1,2,3-cd]pyrene			1670	1650		ug/Kg		99	40 - 140	6	30
Isophorone			1670	1570		ug/Kg		94	40 - 140	14	30
Naphthalene			1670	1190		ug/Kg		71	40 - 140	15	30
Nitrobenzene			1670	1930		ug/Kg		116	40 - 140	11	30
N-Nitrosodimethylamine			1670	441	*- *1	ug/Kg		26	40 - 140	32	30
N-Nitrosodi-n-propylamine			1670	643	*-	ug/Kg		39	40 - 140	13	30
N-Nitrosodiphenylamine			1670	909		ug/Kg		55	40 - 140	2	30
Pentachloronitrobenzene			1670	1610		ug/Kg		96	40 - 140	4	30
Pentachlorophenol			1670	1250		ug/Kg		75	30 - 130	6	30
Phenanthrene			1670	1490		ug/Kg		89	40 - 140	2	30
Phenol			1670	1060		ug/Kg		64	40 - 140	17	30
Pyrene			1670	1640		ug/Kg		99	40 - 140	3	30
Pyridine			1670	697		ug/Kg		42	40 - 140	21	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*77*		*30 - 130*
2-Fluorophenol (Surr)	*71*		*15 - 110*
Nitrobenzene-d5 (Surr)	*78*		*30 - 130*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 620-23157/3-A
Matrix: Solid
Analysis Batch: 23208

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23157

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Phenol-d5 (Surr)	*71*		*15 - 110*
2,4,6-Tribromophenol (Surr)	*99*		*15 - 110*
Terphenyl-d14	*86*		*30 - 130*

Method: 8081B - Organochlorine Pesticides (GC/ECD)

Lab Sample ID: MB 620-23137/1-A
Matrix: Solid
Analysis Batch: 23216

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23137

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		5.0	1.1	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
beta-BHC	ND		5.0	0.89	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
delta-BHC	ND		5.0	1.0	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
gamma-BHC (Lindane)	ND		2.0	1.0	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Heptachlor	ND		5.0	1.0	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Aldrin	ND		5.0	0.98	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Heptachlor epoxide	ND		5.0	1.2	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Endosulfan I	ND		5.0	1.3	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Dieldrin	ND		5.0	1.0	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
4,4'-DDE	ND		8.0	1.2	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Endrin	ND		8.0	1.6	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Endosulfan II	ND		8.0	1.3	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
4,4'-DDD	ND		8.0	1.5	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Endosulfan sulfate	ND		8.0	1.5	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
4,4'-DDT	ND		8.0	0.80	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Methoxychlor	ND		8.0	1.4	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Endrin ketone	ND		8.0	1.1	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Endrin aldehyde	ND		8.0	1.6	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
cis-Chlordane	ND		5.0	1.2	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
trans-Chlordane	ND		5.0	1.2	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Toxaphene	ND		100	71	ug/Kg		06/01/23 09:22	06/02/23 17:23	1
Alachlor	ND		5.0	1.1	ug/Kg		06/01/23 09:22	06/02/23 17:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*83*		*30 - 150*	*06/01/23 09:22*	*06/02/23 17:23*	*1*
Tetrachloro-m-xylene	*88*		*30 - 150*	*06/01/23 09:22*	*06/02/23 17:23*	*1*
DCB Decachlorobiphenyl (Surr)	*114*		*30 - 150*	*06/01/23 09:22*	*06/02/23 17:23*	*1*
DCB Decachlorobiphenyl (Surr)	*88*		*30 - 150*	*06/01/23 09:22*	*06/02/23 17:23*	*1*

Lab Sample ID: LCS 620-23137/2-A
Matrix: Solid
Analysis Batch: 23216

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23137

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
alpha-BHC	13.4	10.5		ug/Kg		78	40 - 140
alpha-BHC	13.4	11.1		ug/Kg		83	40 - 140
beta-BHC	13.3	10.8		ug/Kg		81	40 - 140

Method: 8081B - Organochlorine Pesticides (GC/ECD) (Continued)

Lab Sample ID: LCS 620-23137/2-A
Matrix: Solid
Analysis Batch: 23216

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23137

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
beta-BHC	13.3	11.8		ug/Kg		88	40 - 140
delta-BHC	13.4	8.01		ug/Kg		60	40 - 140
delta-BHC	13.4	8.99		ug/Kg		67	40 - 140
gamma-BHC (Lindane)	13.5	10.3		ug/Kg		77	40 - 140
gamma-BHC (Lindane)	13.5	10.9		ug/Kg		81	40 - 140
Heptachlor	13.4	10.6		ug/Kg		80	40 - 140
Heptachlor	13.4	11.2		ug/Kg		84	40 - 140
Aldrin	13.4	9.69		ug/Kg		73	40 - 140
Aldrin	13.4	10.5		ug/Kg		79	40 - 140
Heptachlor epoxide	13.3	9.64		ug/Kg		72	40 - 140
Heptachlor epoxide	13.3	10.1		ug/Kg		76	40 - 140
Endosulfan I	13.3	10.6		ug/Kg		79	40 - 140
Endosulfan I	13.3	10.4		ug/Kg		78	40 - 140
Dieldrin	13.4	10.3		ug/Kg		77	40 - 140
Dieldrin	13.4	10.5		ug/Kg		79	40 - 140
4,4'-DDE	13.4	10.0		ug/Kg		75	40 - 140
4,4'-DDE	13.4	10.8		ug/Kg		80	40 - 140
Endrin	13.4	12.3		ug/Kg		92	40 - 140
Endrin	13.4	11.7		ug/Kg		88	40 - 140
Endosulfan II	13.3	10.5		ug/Kg		79	40 - 140
Endosulfan II	13.3	10.9		ug/Kg		82	40 - 140
4,4'-DDD	13.4	10.1		ug/Kg		76	40 - 140
4,4'-DDD	13.4	10.9		ug/Kg		81	40 - 140
Endosulfan sulfate	13.4	10.7		ug/Kg		79	40 - 140
Endosulfan sulfate	13.4	10.9		ug/Kg		81	40 - 140
4,4'-DDT	13.5	12.4		ug/Kg		92	40 - 140
4,4'-DDT	13.5	13.0		ug/Kg		97	40 - 140
Methoxychlor	13.3	12.6		ug/Kg		94	40 - 140
Methoxychlor	13.3	13.4		ug/Kg		101	40 - 140
Endrin ketone	13.4	10.2		ug/Kg		76	40 - 140
Endrin ketone	13.4	11.3		ug/Kg		84	40 - 140
Endrin aldehyde	13.4	8.46		ug/Kg		63	40 - 140
Endrin aldehyde	13.4	9.24		ug/Kg		69	40 - 140
cis-Chlordane	13.4	10.1		ug/Kg		75	40 - 140
cis-Chlordane	13.4	10.1		ug/Kg		75	40 - 140
trans-Chlordane	13.4	9.91		ug/Kg		74	40 - 140
trans-Chlordane	13.4	10.3		ug/Kg		77	40 - 140
Alachlor	13.4	11.2		ug/Kg		84	40 - 140
Alachlor	13.4	12.4		ug/Kg		93	40 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*89*		*30 - 150*
Tetrachloro-m-xylene	*96*		*30 - 150*
DCB Decachlorobiphenyl (Surr)	*101*		*30 - 150*
DCB Decachlorobiphenyl (Surr)	*92*		*30 - 150*

Method: 8081B - Organochlorine Pesticides (GC/ECD) (Continued)

Lab Sample ID: LCSD 620-23137/3-A
Matrix: Solid
Analysis Batch: 23216

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23137

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
alpha-BHC			13.4	10.7		ug/Kg		80	40 - 140	3	30
alpha-BHC			13.4	11.4		ug/Kg		85	40 - 140	3	30
beta-BHC			13.3	11.1		ug/Kg		83	40 - 140	3	30
beta-BHC			13.3	12.2		ug/Kg		92	40 - 140	4	30
delta-BHC			13.4	8.26		ug/Kg		62	40 - 140	3	30
delta-BHC			13.4	10.3		ug/Kg		77	40 - 140	14	30
gamma-BHC (Lindane)			13.5	10.6		ug/Kg		79	40 - 140	3	30
gamma-BHC (Lindane)			13.5	11.3		ug/Kg		84	40 - 140	3	30
Heptachlor			13.4	11.0		ug/Kg		82	40 - 140	3	30
Heptachlor			13.4	11.4		ug/Kg		85	40 - 140	1	30
Aldrin			13.4	9.91		ug/Kg		74	40 - 140	2	30
Aldrin			13.4	10.5		ug/Kg		79	40 - 140	0	30
Heptachlor epoxide			13.3	9.84		ug/Kg		74	40 - 140	2	30
Heptachlor epoxide			13.3	10.3		ug/Kg		77	40 - 140	2	30
Endosulfan I			13.3	10.7		ug/Kg		80	40 - 140	1	30
Endosulfan I			13.3	10.7		ug/Kg		80	40 - 140	3	30
Dieldrin			13.4	10.3		ug/Kg		77	40 - 140	0	30
Dieldrin			13.4	10.5		ug/Kg		79	40 - 140	0	30
4,4'-DDE			13.4	10.1		ug/Kg		75	40 - 140	1	30
4,4'-DDE			13.4	10.9		ug/Kg		81	40 - 140	1	30
Endrin			13.4	12.1		ug/Kg		91	40 - 140	1	30
Endrin			13.4	11.6		ug/Kg		87	40 - 140	1	30
Endosulfan II			13.3	10.5		ug/Kg		79	40 - 140	0	30
Endosulfan II			13.3	11.0		ug/Kg		82	40 - 140	1	30
4,4'-DDD			13.4	10.2		ug/Kg		76	40 - 140	1	30
4,4'-DDD			13.4	11.0		ug/Kg		82	40 - 140	1	30
Endosulfan sulfate			13.4	10.9		ug/Kg		81	40 - 140	2	30
Endosulfan sulfate			13.4	11.1		ug/Kg		82	40 - 140	1	30
4,4'-DDT			13.5	12.6		ug/Kg		93	40 - 140	1	30
4,4'-DDT			13.5	13.0		ug/Kg		96	40 - 140	0	30
Methoxychlor			13.3	12.7		ug/Kg		95	40 - 140	1	30
Methoxychlor			13.3	13.7		ug/Kg		103	40 - 140	2	30
Endrin ketone			13.4	10.5		ug/Kg		78	40 - 140	3	30
Endrin ketone			13.4	11.5		ug/Kg		86	40 - 140	2	30
Endrin aldehyde			13.4	8.68		ug/Kg		65	40 - 140	3	30
Endrin aldehyde			13.4	9.40		ug/Kg		70	40 - 140	2	30
cis-Chlordane			13.4	10.2		ug/Kg		76	40 - 140	1	30
cis-Chlordane			13.4	10.3		ug/Kg		77	40 - 140	2	30
trans-Chlordane			13.4	10.1		ug/Kg		75	40 - 140	2	30
trans-Chlordane			13.4	10.5		ug/Kg		79	40 - 140	2	30
Alachlor			13.4	11.7		ug/Kg		87	40 - 140	4	30
Alachlor			13.4	12.1		ug/Kg		91	40 - 140	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*91*		*30 - 150*
Tetrachloro-m-xylene	*95*		*30 - 150*
DCB Decachlorobiphenyl (Surr)	*99*		*30 - 150*
DCB Decachlorobiphenyl (Surr)	*93*		*30 - 150*

Method: 8082 - Polychlorinated Biphenyls (GC/ECD)

Lab Sample ID: MB 620-23137/1-A
Matrix: Solid
Analysis Batch: 23154

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23137

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		20	14	ug/Kg		06/01/23 09:22	06/01/23 15:31	1
PCB-1221	ND		20	5.9	ug/Kg		06/01/23 09:22	06/01/23 15:31	1
PCB-1232	ND		20	5.5	ug/Kg		06/01/23 09:22	06/01/23 15:31	1
PCB-1242	ND		20	3.2	ug/Kg		06/01/23 09:22	06/01/23 15:31	1
PCB-1248	ND		20	6.3	ug/Kg		06/01/23 09:22	06/01/23 15:31	1
PCB-1254	ND		20	16	ug/Kg		06/01/23 09:22	06/01/23 15:31	1
PCB-1262	ND		20	4.7	ug/Kg		06/01/23 09:22	06/01/23 15:31	1
PCB-1260	ND		20	4.3	ug/Kg		06/01/23 09:22	06/01/23 15:31	1
PCB-1268	ND		20	4.3	ug/Kg		06/01/23 09:22	06/01/23 15:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*114*		*30 - 150*	*06/01/23 09:22*	*06/01/23 15:31*	*1*
Tetrachloro-m-xylene	*109*		*30 - 150*	*06/01/23 09:22*	*06/01/23 15:31*	*1*
DCB Decachlorobiphenyl (Surr)	*123*		*30 - 150*	*06/01/23 09:22*	*06/01/23 15:31*	*1*
DCB Decachlorobiphenyl (Surr)	*125*		*30 - 150*	*06/01/23 09:22*	*06/01/23 15:31*	*1*

Lab Sample ID: LCS 620-23137/4-A
Matrix: Solid
Analysis Batch: 23154

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23137

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
PCB-1016			167	186		ug/Kg		111	40 - 140		
PCB-1016			167	168		ug/Kg		101	40 - 140		
PCB-1260			167	208		ug/Kg		125	40 - 140		
PCB-1260			167	219		ug/Kg		132	40 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*112*		*30 - 150*
Tetrachloro-m-xylene	*105*		*30 - 150*
DCB Decachlorobiphenyl (Surr)	*136*		*30 - 150*
DCB Decachlorobiphenyl (Surr)	*138*		*30 - 150*

Lab Sample ID: LCSD 620-23137/5-A
Matrix: Solid
Analysis Batch: 23154

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23137

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
PCB-1016			167	213		ug/Kg		128	40 - 140	14	30
PCB-1016			167	221		ug/Kg		133	40 - 140	28	30
PCB-1260			167	227		ug/Kg		136	40 - 140	8	30
PCB-1260			167	226		ug/Kg		136	40 - 140	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*122*		*30 - 150*
Tetrachloro-m-xylene	*115*		*30 - 150*
DCB Decachlorobiphenyl (Surr)	*143*		*30 - 150*
DCB Decachlorobiphenyl (Surr)	*131*		*30 - 150*

Method: 8100 - Polynuclear Aromatic Hydrocarbons (PAHs) (GC)

Lab Sample ID: MB 620-23173/1-A
Matrix: Solid
Analysis Batch: 23204

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23173

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TEPH (C9-C36)	ND		13	11	mg/Kg		06/01/23 14:23	06/02/23 13:13	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*79*		*40 - 140*	*06/01/23 14:23*	*06/02/23 13:13*	*1*
o-Terphenyl (Surr)	*56*		*40 - 140*	*06/01/23 14:23*	*06/02/23 13:13*	*1*

Lab Sample ID: LCS 620-23173/2-A
Matrix: Solid
Analysis Batch: 23204

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23173

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
TEPH (C9-C36)			340	247		mg/Kg		73	20 - 106		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*63*		*40 - 140*
o-Terphenyl (Surr)	*67*		*40 - 140*

Lab Sample ID: LCSD 620-23173/3-A
Matrix: Solid
Analysis Batch: 23204

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23173

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
TEPH (C9-C36)			340	236		mg/Kg		69	20 - 106	4	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*62*		*40 - 140*
o-Terphenyl (Surr)	*62*		*40 - 140*

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 620-23122/1-A
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23122

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.7	0.22	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Barium	ND		1.1	0.13	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Cadmium	ND		0.57	0.030	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Chromium	ND		1.1	0.15	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Lead	ND		1.7	0.24	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Selenium	ND		1.7	0.33	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Silver	ND		1.7	0.19	mg/Kg		05/31/23 14:15	06/01/23 11:12	1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCDSRM 620-23122/3-A
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23122

Analyte	Spike Added	LCDSRM Result	LCDSRM Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	195	160		mg/Kg		82.2	65.6 - 122.1	4	20
Barium	321	286		mg/Kg		89.0	69.5 - 115.9	0	20
Cadmium	247	170		mg/Kg		68.8	67.2 - 111.7	9	20
Chromium	217	182		mg/Kg		84.0	64.5 - 119.8	5	20
Lead	270	216		mg/Kg		80.0	70.4 - 120.0	4	20
Selenium	241	183		mg/Kg		75.8	62.2 - 118.3	6	20
Silver	72.0	64.6		mg/Kg		89.7	66.5 - 121.7	8	20

Lab Sample ID: LCSSRM 620-23122/2-A
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23122

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	195	167		mg/Kg		85.4	65.6 - 122.1
Barium	321	287		mg/Kg		89.4	69.5 - 115.9
Cadmium	247	186		mg/Kg		75.4	67.2 - 111.7
Chromium	217	192		mg/Kg		88.5	64.5 - 119.8
Lead	270	226		mg/Kg		83.7	70.4 - 120.0
Selenium	241	193		mg/Kg		80.3	62.2 - 118.3
Silver	72.0	59.7		mg/Kg		82.9	66.5 - 121.7

Lab Sample ID: MB 620-23158/1-A
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23158

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0080	0.0028	mg/L		06/01/23 10:53	06/01/23 13:58	1
Barium	ND		0.010	0.0014	mg/L		06/01/23 10:53	06/01/23 13:58	1
Cadmium	ND		0.0050	0.00071	mg/L		06/01/23 10:53	06/01/23 13:58	1
Chromium	ND		0.010	0.0019	mg/L		06/01/23 10:53	06/01/23 13:58	1
Lead	ND		0.015	0.012	mg/L		06/01/23 10:53	06/01/23 13:58	1
Selenium	ND		0.030	0.0083	mg/L		06/01/23 10:53	06/01/23 13:58	1
Silver	ND		0.010	0.0012	mg/L		06/01/23 10:53	06/01/23 13:58	1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCS 620-23158/2-A
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23158

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	2.50	2.20		mg/L		88	80 - 120
Barium	2.50	2.29		mg/L		92	80 - 120
Cadmium	2.50	2.05		mg/L		82	80 - 120
Chromium	2.50	2.24		mg/L		90	80 - 120
Lead	2.50	2.16		mg/L		86	80 - 120
Selenium	2.50	2.21		mg/L		88	80 - 120
Silver	2.50	2.45		mg/L		98	80 - 120

Lab Sample ID: LCSD 620-23158/3-A
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23158

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	2.50	2.34		mg/L		94	80 - 120	6	20
Barium	2.50	2.40		mg/L		96	80 - 120	5	20
Cadmium	2.50	2.17		mg/L		87	80 - 120	6	20
Chromium	2.50	2.38		mg/L		95	80 - 120	6	20
Lead	2.50	2.30		mg/L		92	80 - 120	6	20
Selenium	2.50	2.35		mg/L		94	80 - 120	6	20
Silver	2.50	2.61		mg/L		104	80 - 120	6	20

Lab Sample ID: LB 620-23125/1-B
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 23158

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0080	0.0028	mg/L		06/01/23 10:53	06/01/23 14:04	1
Barium	ND		0.010	0.0014	mg/L		06/01/23 10:53	06/01/23 14:04	1
Cadmium	ND		0.0050	0.00071	mg/L		06/01/23 10:53	06/01/23 14:04	1
Chromium	ND		0.010	0.0019	mg/L		06/01/23 10:53	06/01/23 14:04	1
Lead	ND		0.015	0.012	mg/L		06/01/23 10:53	06/01/23 14:04	1
Selenium	ND		0.030	0.0083	mg/L		06/01/23 10:53	06/01/23 14:04	1
Silver	ND		0.010	0.0012	mg/L		06/01/23 10:53	06/01/23 14:04	1

Lab Sample ID: 620-11778-2 MS
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: LM-SO-SD02-053123
Prep Type: TCLP
Prep Batch: 23158

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.0032	J	2.50	2.67		mg/L		107	75 - 125
Barium	0.23		2.50	2.67		mg/L		98	75 - 125
Cadmium	0.0011	J	2.50	2.33		mg/L		93	75 - 125
Chromium	0.0032	J	2.50	2.50		mg/L		100	75 - 125
Lead	0.052		2.50	2.33		mg/L		91	75 - 125
Selenium	ND		2.50	2.76		mg/L		111	75 - 125
Silver	ND		2.50	2.78		mg/L		111	75 - 125

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 620-11778-2 MSD
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: LM-SO-SD02-053123
Prep Type: TCLP
Prep Batch: 23158

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	0.0032	J	2.50	2.56		mg/L		102	75 - 125	4	20
Barium	0.23		2.50	2.62		mg/L		96	75 - 125	2	20
Cadmium	0.0011	J	2.50	2.19		mg/L		87	75 - 125	6	20
Chromium	0.0032	J	2.50	2.41		mg/L		96	75 - 125	4	20
Lead	0.052		2.50	2.22		mg/L		87	75 - 125	5	20
Selenium	ND		2.50	2.64		mg/L		105	75 - 125	5	20
Silver	ND		2.50	2.73		mg/L		109	75 - 125	2	20

Lab Sample ID: 620-11778-2 DU
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: LM-SO-SD02-053123
Prep Type: TCLP
Prep Batch: 23158

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	0.0032	J	0.00330	J	mg/L		3	20
Barium	0.23		0.238		mg/L		4	20
Cadmium	0.0011	J	0.00105	J	mg/L		2	20
Chromium	0.0032	J	0.00330	J	mg/L		3	20
Lead	0.052		0.0601		mg/L		14	20
Selenium	ND		ND		mg/L		NC	20
Silver	ND		ND		mg/L		NC	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 620-23193/1-A
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23193

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		06/02/23 07:19	06/02/23 14:14	1

Lab Sample ID: LCS 620-23193/2-A
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23193

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00509		mg/L		102	85 - 115

Lab Sample ID: LCSD 620-23193/3-A
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23193

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.00500	0.00498		mg/L		100	85 - 115	2	20

Lab Sample ID: LB 620-23125/1-C
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 23193

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		06/02/23 07:19	06/02/23 14:20	1

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 620-23147/1-A
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23147

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.050	0.0083	mg/Kg		06/01/23 09:40	06/02/23 12:01	1

Lab Sample ID: LCDSRM 620-23147/3-A
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23147

Analyte			Spike Added	LCDSRM Result	LCDSRM Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury			18.2	19.7		mg/Kg		108.1	59.9 - 140.1	1	

Lab Sample ID: LCSSRM 620-23147/2-A
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23147

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			18.2	19.6		mg/Kg		107.5	59.9 - 140.1		

Lab Sample ID: 620-11778-1 MS
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: LM-SO-SD01-053123
Prep Type: Total/NA
Prep Batch: 23147

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury	0.056		0.214	0.309		mg/Kg	☼	118	75 - 125		

Lab Sample ID: 620-11778-1 MSD
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: LM-SO-SD01-053123
Prep Type: Total/NA
Prep Batch: 23147

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.056		0.206	0.286		mg/Kg	☼	112	75 - 125	8	20

Lab Sample ID: 620-11778-1 DU
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: LM-SO-SD01-053123
Prep Type: Total/NA
Prep Batch: 23147

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Mercury	0.056			0.0337	J F5	mg/Kg	☼			50	20

Method: 1030 - Ignitability, Solids

Lab Sample ID: 620-11778-1 DU
Matrix: Solid
Analysis Batch: 23180

Client Sample ID: LM-SO-SD01-053123
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Ignitability	negative			negative		NONE				NC	35

Method: 9045D - pH

Lab Sample ID: LCDSRM 620-23172/3
Matrix: Solid
Analysis Batch: 23172

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCDSRM Result	LCDSRM Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
pH			6.00	6.0		SU		99.5	97.5 - 102.5	0	20

Lab Sample ID: LCSSRM 620-23172/2
Matrix: Solid
Analysis Batch: 23172

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits		
pH			6.00	6.0		SU		99.7	97.5 - 102.5		

Lab Sample ID: MB 620-23168/1-A
Matrix: Solid
Analysis Batch: 23172

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.2				SU			06/01/23 14:14	1
Temperature	28.5				Degrees C			06/01/23 14:14	1

Lab Sample ID: 620-11778-2 DU
Matrix: Solid
Analysis Batch: 23172

Client Sample ID: LM-SO-SD02-053123
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.0			7.1		SU				1	5
Temperature	28.5			28.5		Degrees C				0	5

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: LCDSRM 620-23175/3
Matrix: Solid
Analysis Batch: 23175

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCDSRM Result	LCDSRM Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Specific Conductance			1410	1380		uS/cm		97.3	95.0 - 105.0	0	20

Lab Sample ID: LCSSRM 620-23175/2
Matrix: Solid
Analysis Batch: 23175

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits		
Specific Conductance			1410	1380		uS/cm		97.5	95.0 - 105.0		

Lab Sample ID: MB 620-23168/1-A
Matrix: Solid
Analysis Batch: 23175

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		10	10	uS/cm			06/01/23 14:51	1

Method: SM 2510B - Conductivity, Specific Conductance (Continued)

Lab Sample ID: 620-11778-2 DU
Matrix: Solid
Analysis Batch: 23175

Client Sample ID: LM-SO-SD02-053123
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Specific Conductance	200			136	F3	uS/cm				40	5

Method: Reactive Cyanide - SW846 9014/9034 Reactivity

Lab Sample ID: CO14857-BLK
Matrix: SOLID
Analysis Batch: 680267A

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 680267A_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Reactivity Cyanide	ND		5		mg/Kg		06/01/23 00:00	06/01/23 15:54	5

Lab Sample ID: CO14857-LCS
Matrix: SOLID
Analysis Batch: 680267A

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 680267A_P

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Reactivity Cyanide			0.5	0.4840		mg/Kg		96.8	80 - 120		

Method: Reactive Sulfide - SW846 9034 – Reactive Sulfide

Lab Sample ID: CO14857-BLK
Matrix: SOLID
Analysis Batch: 680267B

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 680267B_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Reactivity Sulfide	ND		20		mg/Kg		06/01/23 00:00	06/01/23 17:09	1

Lab Sample ID: CO14857-LCS
Matrix: SOLID
Analysis Batch: 680267B

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 680267B_P

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Reactivity Sulfide			40	0		mg/Kg		95.5	80 - 120		

QC Association Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

GC/MS VOA

Pre Prep Batch: 23132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	Frozen Preserve	
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	Frozen Preserve	

Prep Batch: 23152

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	5035	23132
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	5035	23132
MB 620-23152/3-A	Method Blank	Total/NA	Solid	5035	
LCS 620-23152/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 620-23152/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 23153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	8260C	23152
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	8260C	23152
MB 620-23152/3-A	Method Blank	Total/NA	Solid	8260C	23152
LCS 620-23152/1-A	Lab Control Sample	Total/NA	Solid	8260C	23152
LCSD 620-23152/2-A	Lab Control Sample Dup	Total/NA	Solid	8260C	23152

GC/MS Semi VOA

Prep Batch: 23157

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	3546	
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	3546	
MB 620-23157/1-A	Method Blank	Total/NA	Solid	3546	
LCS 620-23157/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCSD 620-23157/3-A	Lab Control Sample Dup	Total/NA	Solid	3546	

Analysis Batch: 23208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	8270D	23157
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	8270D	23157
MB 620-23157/1-A	Method Blank	Total/NA	Solid	8270D	23157
LCS 620-23157/2-A	Lab Control Sample	Total/NA	Solid	8270D	23157
LCSD 620-23157/3-A	Lab Control Sample Dup	Total/NA	Solid	8270D	23157

GC Semi VOA

Prep Batch: 23137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	3546	
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	3546	
MB 620-23137/1-A	Method Blank	Total/NA	Solid	3546	
LCS 620-23137/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 620-23137/4-A	Lab Control Sample	Total/NA	Solid	3546	
LCSD 620-23137/3-A	Lab Control Sample Dup	Total/NA	Solid	3546	
LCSD 620-23137/5-A	Lab Control Sample Dup	Total/NA	Solid	3546	

GC Semi VOA

Analysis Batch: 23154

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	8082	23137
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	8082	23137
MB 620-23137/1-A	Method Blank	Total/NA	Solid	8082	23137
LCS 620-23137/4-A	Lab Control Sample	Total/NA	Solid	8082	23137
LCSD 620-23137/5-A	Lab Control Sample Dup	Total/NA	Solid	8082	23137

Prep Batch: 23173

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	3546	
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	3546	
MB 620-23173/1-A	Method Blank	Total/NA	Solid	3546	
LCS 620-23173/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCSD 620-23173/3-A	Lab Control Sample Dup	Total/NA	Solid	3546	

Analysis Batch: 23204

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	8100	23173
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	8100	23173
MB 620-23173/1-A	Method Blank	Total/NA	Solid	8100	23173
LCS 620-23173/2-A	Lab Control Sample	Total/NA	Solid	8100	23173
LCSD 620-23173/3-A	Lab Control Sample Dup	Total/NA	Solid	8100	23173

Analysis Batch: 23216

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	8081B	23137
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	8081B	23137
MB 620-23137/1-A	Method Blank	Total/NA	Solid	8081B	23137
LCS 620-23137/2-A	Lab Control Sample	Total/NA	Solid	8081B	23137
LCSD 620-23137/3-A	Lab Control Sample Dup	Total/NA	Solid	8081B	23137

Metals

Prep Batch: 23122

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	3050B	
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	3050B	
MB 620-23122/1-A	Method Blank	Total/NA	Solid	3050B	
LCDSRM 620-23122/3-A	Lab Control Sample Dup	Total/NA	Solid	3050B	
LCSSRM 620-23122/2-A	Lab Control Sample	Total/NA	Solid	3050B	

Leach Batch: 23125

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	TCLP	Solid	1311	
620-11778-2	LM-SO-SD02-053123	TCLP	Solid	1311	
LB 620-23125/1-B	Method Blank	TCLP	Solid	1311	
LB 620-23125/1-C	Method Blank	TCLP	Solid	1311	
620-11778-2 MS	LM-SO-SD02-053123	TCLP	Solid	1311	
620-11778-2 MSD	LM-SO-SD02-053123	TCLP	Solid	1311	
620-11778-2 DU	LM-SO-SD02-053123	TCLP	Solid	1311	

Metals

Prep Batch: 23147

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	7471B	
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	7471B	
MB 620-23147/1-A	Method Blank	Total/NA	Solid	7471B	
LCDSRM 620-23147/3-A	Lab Control Sample Dup	Total/NA	Solid	7471B	
LCSSRM 620-23147/2-A	Lab Control Sample	Total/NA	Solid	7471B	
620-11778-1 MS	LM-SO-SD01-053123	Total/NA	Solid	7471B	
620-11778-1 MSD	LM-SO-SD01-053123	Total/NA	Solid	7471B	
620-11778-1 DU	LM-SO-SD01-053123	Total/NA	Solid	7471B	

Prep Batch: 23158

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	TCLP	Solid	3010A	23125
620-11778-2	LM-SO-SD02-053123	TCLP	Solid	3010A	23125
LB 620-23125/1-B	Method Blank	TCLP	Solid	3010A	23125
MB 620-23158/1-A	Method Blank	Total/NA	Solid	3010A	
LCS 620-23158/2-A	Lab Control Sample	Total/NA	Solid	3010A	
LCSD 620-23158/3-A	Lab Control Sample Dup	Total/NA	Solid	3010A	
620-11778-2 MS	LM-SO-SD02-053123	TCLP	Solid	3010A	23125
620-11778-2 MSD	LM-SO-SD02-053123	TCLP	Solid	3010A	23125
620-11778-2 DU	LM-SO-SD02-053123	TCLP	Solid	3010A	23125

Analysis Batch: 23183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	TCLP	Solid	6010D	23158
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	6010D	23122
620-11778-2	LM-SO-SD02-053123	TCLP	Solid	6010D	23158
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	6010D	23122
LB 620-23125/1-B	Method Blank	TCLP	Solid	6010D	23158
MB 620-23122/1-A	Method Blank	Total/NA	Solid	6010D	23122
MB 620-23158/1-A	Method Blank	Total/NA	Solid	6010D	23158
LCDSRM 620-23122/3-A	Lab Control Sample Dup	Total/NA	Solid	6010D	23122
LCS 620-23158/2-A	Lab Control Sample	Total/NA	Solid	6010D	23158
LCSD 620-23158/3-A	Lab Control Sample Dup	Total/NA	Solid	6010D	23158
LCSSRM 620-23122/2-A	Lab Control Sample	Total/NA	Solid	6010D	23122
620-11778-2 MS	LM-SO-SD02-053123	TCLP	Solid	6010D	23158
620-11778-2 MSD	LM-SO-SD02-053123	TCLP	Solid	6010D	23158
620-11778-2 DU	LM-SO-SD02-053123	TCLP	Solid	6010D	23158

Prep Batch: 23193

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	TCLP	Solid	7470A	23125
620-11778-2	LM-SO-SD02-053123	TCLP	Solid	7470A	23125
LB 620-23125/1-C	Method Blank	TCLP	Solid	7470A	23125
MB 620-23193/1-A	Method Blank	Total/NA	Solid	7470A	
LCS 620-23193/2-A	Lab Control Sample	Total/NA	Solid	7470A	
LCSD 620-23193/3-A	Lab Control Sample Dup	Total/NA	Solid	7470A	

Analysis Batch: 23226

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	TCLP	Solid	7470A	23193
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	7471A	23147

Metals (Continued)

Analysis Batch: 23226 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-2	LM-SO-SD02-053123	TCLP	Solid	7470A	23193
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	7471A	23147
LB 620-23125/1-C	Method Blank	TCLP	Solid	7470A	23193
MB 620-23147/1-A	Method Blank	Total/NA	Solid	7471A	23147
MB 620-23193/1-A	Method Blank	Total/NA	Solid	7470A	23193
LCDSRM 620-23147/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	23147
LCS 620-23193/2-A	Lab Control Sample	Total/NA	Solid	7470A	23193
LCSD 620-23193/3-A	Lab Control Sample Dup	Total/NA	Solid	7470A	23193
LCSSRM 620-23147/2-A	Lab Control Sample	Total/NA	Solid	7471A	23147
620-11778-1 MS	LM-SO-SD01-053123	Total/NA	Solid	7471A	23147
620-11778-1 MSD	LM-SO-SD01-053123	Total/NA	Solid	7471A	23147
620-11778-1 DU	LM-SO-SD01-053123	Total/NA	Solid	7471A	23147

General Chemistry

Analysis Batch: 23163

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	Moisture	
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	Moisture	

Leach Batch: 23168

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Soluble	Solid	DI Leach	
620-11778-2	LM-SO-SD02-053123	Soluble	Solid	DI Leach	
MB 620-23168/1-A	Method Blank	Soluble	Solid	DI Leach	
620-11778-2 DU	LM-SO-SD02-053123	Soluble	Solid	DI Leach	

Analysis Batch: 23172

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Soluble	Solid	9045D	23168
620-11778-2	LM-SO-SD02-053123	Soluble	Solid	9045D	23168
MB 620-23168/1-A	Method Blank	Soluble	Solid	9045D	23168
LCDSRM 620-23172/3	Lab Control Sample Dup	Total/NA	Solid	9045D	
LCSSRM 620-23172/2	Lab Control Sample	Total/NA	Solid	9045D	
620-11778-2 DU	LM-SO-SD02-053123	Soluble	Solid	9045D	23168

Analysis Batch: 23175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Soluble	Solid	SM 2510B	23168
620-11778-2	LM-SO-SD02-053123	Soluble	Solid	SM 2510B	23168
MB 620-23168/1-A	Method Blank	Soluble	Solid	SM 2510B	23168
LCDSRM 620-23175/3	Lab Control Sample Dup	Total/NA	Solid	SM 2510B	
LCSSRM 620-23175/2	Lab Control Sample	Total/NA	Solid	SM 2510B	
620-11778-2 DU	LM-SO-SD02-053123	Soluble	Solid	SM 2510B	23168

Analysis Batch: 23180

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	1030	
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	1030	
620-11778-1 DU	LM-SO-SD01-053123	Total/NA	Solid	1030	

Subcontract

Analysis Batch: 680267A

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	Reactive Cyanide	680267A_P
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	Reactive Cyanide	680267A_P
CO14857-BLK	Method Blank	Total/NA	SOLID	Reactive Cyanide	680267A_P
CO14857-LCS	Lab Control Sample	Total/NA	SOLID	Reactive Cyanide	680267A_P

Analysis Batch: 680267B

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	Reactive Sulfide	680267B_P
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	Reactive Sulfide	680267B_P
CO14857-BLK	Method Blank	Total/NA	SOLID	Reactive Sulfide	680267B_P
CO14857-LCS	Lab Control Sample	Total/NA	SOLID	Reactive Sulfide	680267B_P

Prep Batch: 680267A_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	SW846 7.3.3.1/90	
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	SW846 7.3.3.1/90	
CO14857-BLK	Method Blank	Total/NA	SOLID	SW846 7.3.3.1/90	
CO14857-LCS	Lab Control Sample	Total/NA	SOLID	SW846 7.3.3.1/90	

Prep Batch: 680267B_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-1	LM-SO-SD01-053123	Total/NA	Solid	SW846 7.3.3.1/90	
620-11778-2	LM-SO-SD02-053123	Total/NA	Solid	SW846 7.3.3.1/90	
CO14857-BLK	Method Blank	Total/NA	SOLID	SW846 7.3.3.1/90	
CO14857-LCS	Lab Control Sample	Total/NA	SOLID	SW846 7.3.3.1/90	

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Client Sample ID: LM-SO-SD01-053123

Lab Sample ID: 620-11778-1

Date Collected: 05/31/23 07:50

Matrix: Solid

Date Received: 05/31/23 13:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			23125	PRB	EET NE	05/31/23 14:46 - 06/01/23 08:30 [1]
TCLP	Prep	3010A			23158	PRB	EET NE	06/01/23 10:53
TCLP	Analysis	6010D		1	23183	JPC	EET NE	06/01/23 14:51
TCLP	Leach	1311			23125	PRB	EET NE	05/31/23 14:46 - 06/01/23 08:30 [1]
TCLP	Prep	7470A			23193	PRB	EET NE	06/02/23 07:19
TCLP	Analysis	7470A		1	23226	PRB	EET NE	06/02/23 14:22
Total/NA	Analysis	1030		1	23180	MJH	EET NE	06/01/23 15:23
Soluble	Leach	DI Leach			23168	MJH	EET NE	06/01/23 12:50
Soluble	Analysis	9045D		1	23172	MJH	EET NE	06/01/23 14:14
Total/NA	Analysis	Moisture		1	23163	MJH	EET NE	06/01/23 11:46
Soluble	Leach	DI Leach			23168	MJH	EET NE	06/01/23 12:50
Soluble	Analysis	SM 2510B		1	23175	MJH	EET NE	06/01/23 14:51
Total/NA	Analysis	Reactive Cyanide		1	680267A	CT007	PEL, Inc	06/01/23 16:15
Total/NA	Prep	SW846 7.3.3.1/90		1	680267A_P		PEL, Inc	06/01/23 17:09
Total/NA	Prep	SW846 7.3.3.1/90		1	680267B_P		PEL, Inc	06/01/23 00:00
Total/NA	Analysis	Reactive Sulfide		1	680267B	CT007	PEL, Inc	06/01/23 17:09

Client Sample ID: LM-SO-SD01-053123

Lab Sample ID: 620-11778-1

Date Collected: 05/31/23 07:50

Matrix: Solid

Date Received: 05/31/23 13:30

Percent Solids: 93.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Pre Prep	Frozen Preserve			23132	KFS	EET NE	05/31/23 19:52
Total/NA	Prep	5035			23152	CLR	EET NE	06/01/23 13:00
Total/NA	Analysis	8260C		1	23153	CLR	EET NE	06/01/23 15:48
Total/NA	Prep	3546			23157	JAC	EET NE	06/01/23 10:46
Total/NA	Analysis	8270D		1	23208	JS	EET NE	06/02/23 15:20
Total/NA	Prep	3546			23137	JAC	EET NE	06/01/23 09:22
Total/NA	Analysis	8081B		1	23216	SFL	EET NE	06/02/23 19:31
Total/NA	Prep	3546			23137	JAC	EET NE	06/01/23 09:22
Total/NA	Analysis	8082		1	23154	SFL	EET NE	06/01/23 16:23
Total/NA	Prep	3546			23173	JAC	EET NE	06/01/23 14:23
Total/NA	Analysis	8100		1	23204	JS	EET NE	06/02/23 14:21
Total/NA	Prep	3050B			23122	PRB	EET NE	05/31/23 14:15
Total/NA	Analysis	6010D		1	23183	JPC	EET NE	06/01/23 12:54
Total/NA	Prep	7471B			23147	PRB	EET NE	06/01/23 09:40
Total/NA	Analysis	7471A		1	23226	PRB	EET NE	06/02/23 12:07

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Client Sample ID: LM-SO-SD02-053123

Date Collected: 05/31/23 08:10
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			23125	PRB	EET NE	05/31/23 14:46 - 06/01/23 08:30 [1]
TCLP	Prep	3010A			23158	PRB	EET NE	06/01/23 10:53
TCLP	Analysis	6010D		1	23183	JPC	EET NE	06/01/23 14:21
TCLP	Leach	1311			23125	PRB	EET NE	05/31/23 14:46 - 06/01/23 08:30 [1]
TCLP	Prep	7470A			23193	PRB	EET NE	06/02/23 07:19
TCLP	Analysis	7470A		1	23226	PRB	EET NE	06/02/23 14:24
Total/NA	Analysis	1030		1	23180	MJH	EET NE	06/01/23 15:23
Soluble	Leach	DI Leach			23168	MJH	EET NE	06/01/23 12:50
Soluble	Analysis	9045D		1	23172	MJH	EET NE	06/01/23 14:14
Total/NA	Analysis	Moisture		1	23163	MJH	EET NE	06/01/23 11:46
Soluble	Leach	DI Leach			23168	MJH	EET NE	06/01/23 12:50
Soluble	Analysis	SM 2510B		1	23175	MJH	EET NE	06/01/23 14:51
Total/NA	Analysis	Reactive Cyanide		1	680267A	CT007	PEL, Inc	06/01/23 16:16
Total/NA	Prep	SW846 7.3.3.1/90		1	680267A_P		PEL, Inc	06/01/23 17:09
Total/NA	Prep	SW846 7.3.3.1/90		1	680267B_P		PEL, Inc	06/01/23 00:00
Total/NA	Analysis	Reactive Sulfide		1	680267B	CT007	PEL, Inc	06/01/23 17:09

Client Sample ID: LM-SO-SD02-053123

Date Collected: 05/31/23 08:10
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-2

Matrix: Solid
Percent Solids: 93.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Pre Prep	Frozen Preserve			23132	KFS	EET NE	05/31/23 19:52
Total/NA	Prep	5035			23152	CLR	EET NE	06/01/23 13:00
Total/NA	Analysis	8260C		1	23153	CLR	EET NE	06/01/23 16:13
Total/NA	Prep	3546			23157	JAC	EET NE	06/01/23 10:46
Total/NA	Analysis	8270D		1	23208	JS	EET NE	06/02/23 15:45
Total/NA	Prep	3546			23137	JAC	EET NE	06/01/23 09:23
Total/NA	Analysis	8081B		1	23216	SFL	EET NE	06/02/23 19:47
Total/NA	Prep	3546			23137	JAC	EET NE	06/01/23 09:23
Total/NA	Analysis	8082		1	23154	SFL	EET NE	06/01/23 16:40
Total/NA	Prep	3546			23173	JAC	EET NE	06/01/23 14:23
Total/NA	Analysis	8100		1	23204	JS	EET NE	06/02/23 14:43
Total/NA	Prep	3050B			23122	PRB	EET NE	05/31/23 14:15
Total/NA	Analysis	6010D		1	23183	JPC	EET NE	06/01/23 13:00
Total/NA	Prep	7471B			23147	PRB	EET NE	06/01/23 09:40
Total/NA	Analysis	7471A		1	23226	PRB	EET NE	06/02/23 12:16

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

PEL, Inc = Phoenix Environmental Laboratories, Inc., 587 East Middle Turnpike, Manchester, CT 06040, TEL (860)645-8726

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-11778-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Massachusetts	State	M-RI907	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
1030		Solid	Ignitability
6010D	3010A	Solid	Arsenic
6010D	3010A	Solid	Barium
6010D	3010A	Solid	Cadmium
6010D	3010A	Solid	Chromium
6010D	3010A	Solid	Lead
6010D	3010A	Solid	Selenium
6010D	3010A	Solid	Silver
6010D	3050B	Solid	Arsenic
6010D	3050B	Solid	Barium
6010D	3050B	Solid	Cadmium
6010D	3050B	Solid	Chromium
6010D	3050B	Solid	Lead
6010D	3050B	Solid	Selenium
6010D	3050B	Solid	Silver
7470A	7470A	Solid	Mercury
7471A	7471B	Solid	Mercury
8081B	3546	Solid	4,4'-DDD
8081B	3546	Solid	4,4'-DDE
8081B	3546	Solid	4,4'-DDT
8081B	3546	Solid	Alachlor
8081B	3546	Solid	Aldrin
8081B	3546	Solid	alpha-BHC
8081B	3546	Solid	beta-BHC
8081B	3546	Solid	cis-Chlordane
8081B	3546	Solid	delta-BHC
8081B	3546	Solid	Dieldrin
8081B	3546	Solid	Endosulfan I
8081B	3546	Solid	Endosulfan II
8081B	3546	Solid	Endosulfan sulfate
8081B	3546	Solid	Endrin
8081B	3546	Solid	Endrin aldehyde
8081B	3546	Solid	Endrin ketone
8081B	3546	Solid	gamma-BHC (Lindane)
8081B	3546	Solid	Heptachlor
8081B	3546	Solid	Heptachlor epoxide
8081B	3546	Solid	Methoxychlor
8081B	3546	Solid	Toxaphene
8081B	3546	Solid	trans-Chlordane
8082	3546	Solid	PCB-1016
8082	3546	Solid	PCB-1221
8082	3546	Solid	PCB-1232
8082	3546	Solid	PCB-1242
8082	3546	Solid	PCB-1248
8082	3546	Solid	PCB-1254

Laboratory: Eurofins New England (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8082	3546	Solid	PCB-1260
8082	3546	Solid	PCB-1262
8082	3546	Solid	PCB-1268
8100	3546	Solid	TEPH (C9-C36)
8260C	5035	Solid	1,1,1,2-Tetrachloroethane
8260C	5035	Solid	1,1,1-Trichloroethane
8260C	5035	Solid	1,1,2,2-Tetrachloroethane
8260C	5035	Solid	1,1,2-Trichloroethane
8260C	5035	Solid	1,1,2-Trichlorotrifluoroethane (Freon 113)
8260C	5035	Solid	1,1-Dichloroethane
8260C	5035	Solid	1,1-Dichloroethene
8260C	5035	Solid	1,1-Dichloropropene
8260C	5035	Solid	1,2,3-Trichlorobenzene
8260C	5035	Solid	1,2,3-Trichloropropane
8260C	5035	Solid	1,2,4-Trichlorobenzene
8260C	5035	Solid	1,2,4-Trimethylbenzene
8260C	5035	Solid	1,2-Dibromo-3-Chloropropane
8260C	5035	Solid	1,2-Dibromoethane (EDB)
8260C	5035	Solid	1,2-Dichlorobenzene
8260C	5035	Solid	1,2-Dichloroethane
8260C	5035	Solid	1,2-Dichloropropane
8260C	5035	Solid	1,3,5-Trichlorobenzene
8260C	5035	Solid	1,3,5-Trimethylbenzene
8260C	5035	Solid	1,3-Dichlorobenzene
8260C	5035	Solid	1,3-Dichloropropane
8260C	5035	Solid	1,3-Dichloropropene, Total
8260C	5035	Solid	1,4-Dichlorobenzene
8260C	5035	Solid	1,4-Dioxane
8260C	5035	Solid	2,2-Dichloropropane
8260C	5035	Solid	2-Butanone (MEK)
8260C	5035	Solid	2-Chlorotoluene
8260C	5035	Solid	2-Hexanone (MBK)
8260C	5035	Solid	4-Chlorotoluene
8260C	5035	Solid	4-Isopropyltoluene
8260C	5035	Solid	4-Methyl-2-pentanone (MIBK)
8260C	5035	Solid	Acetone
8260C	5035	Solid	Acrylonitrile
8260C	5035	Solid	Benzene
8260C	5035	Solid	Bromobenzene
8260C	5035	Solid	Bromochloromethane
8260C	5035	Solid	Bromodichloromethane
8260C	5035	Solid	Bromoform
8260C	5035	Solid	Bromomethane
8260C	5035	Solid	Carbon disulfide
8260C	5035	Solid	Carbon tetrachloride
8260C	5035	Solid	Chlorobenzene
8260C	5035	Solid	Chloroethane

Laboratory: Eurofins New England (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8260C	5035	Solid	Chloroform
8260C	5035	Solid	Chloromethane
8260C	5035	Solid	cis-1,2-Dichloroethene
8260C	5035	Solid	cis-1,3-Dichloropropene
8260C	5035	Solid	Dibromochloromethane
8260C	5035	Solid	Dibromomethane
8260C	5035	Solid	Dichlorodifluoromethane (Freon 12)
8260C	5035	Solid	di-Isopropyl ether
8260C	5035	Solid	Ethanol
8260C	5035	Solid	Ethyl ether
8260C	5035	Solid	Ethyl tert-butyl ether
8260C	5035	Solid	Ethylbenzene
8260C	5035	Solid	Hexachlorobutadiene
8260C	5035	Solid	Isopropylbenzene
8260C	5035	Solid	m,p-Xylene
8260C	5035	Solid	Methyl tert-butyl ether
8260C	5035	Solid	Methylene Chloride
8260C	5035	Solid	Naphthalene
8260C	5035	Solid	n-Butylbenzene
8260C	5035	Solid	N-Propylbenzene
8260C	5035	Solid	o-Xylene
8260C	5035	Solid	sec-Butylbenzene
8260C	5035	Solid	Styrene
8260C	5035	Solid	Tert-amyl methyl ether
8260C	5035	Solid	tert-Butanol
8260C	5035	Solid	tert-Butylbenzene
8260C	5035	Solid	Tetrachloroethene
8260C	5035	Solid	Tetrahydrofuran
8260C	5035	Solid	Toluene
8260C	5035	Solid	trans-1,2-Dichloroethene
8260C	5035	Solid	trans-1,3-Dichloropropene
8260C	5035	Solid	trans-1,4-Dichloro-2-butene
8260C	5035	Solid	Trichloroethene
8260C	5035	Solid	Trichlorofluoromethane (Freon 11)
8260C	5035	Solid	Vinyl chloride
8260C	5035	Solid	Xylenes, Total
8270D	3546	Solid	1,2,4,5-Tetrachlorobenzene
8270D	3546	Solid	1,2,4-Trichlorobenzene
8270D	3546	Solid	1,2-Dichlorobenzene
8270D	3546	Solid	1,3-Dichlorobenzene
8270D	3546	Solid	1,4-Dichlorobenzene
8270D	3546	Solid	1-Methylnaphthalene
8270D	3546	Solid	2,4,5-Trichlorophenol
8270D	3546	Solid	2,4,6-Trichlorophenol
8270D	3546	Solid	2,4-Dichlorophenol
8270D	3546	Solid	2,4-Dimethylphenol
8270D	3546	Solid	2,4-Dinitrophenol

Laboratory: Eurofins New England (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8270D	3546	Solid	2,4-Dinitrotoluene
8270D	3546	Solid	2,6-Dinitrotoluene
8270D	3546	Solid	2-Chloronaphthalene
8270D	3546	Solid	2-Chlorophenol
8270D	3546	Solid	2-Methylnaphthalene
8270D	3546	Solid	2-Methylphenol
8270D	3546	Solid	2-Nitroaniline
8270D	3546	Solid	2-Nitrophenol
8270D	3546	Solid	3 & 4 Methylphenol
8270D	3546	Solid	3,3'-Dichlorobenzidine
8270D	3546	Solid	3-Nitroaniline
8270D	3546	Solid	4,6-Dinitro-2-methylphenol
8270D	3546	Solid	4-Bromophenyl phenyl ether
8270D	3546	Solid	4-Chloro-3-methylphenol
8270D	3546	Solid	4-Chloroaniline
8270D	3546	Solid	4-Chlorophenyl phenyl ether
8270D	3546	Solid	4-Nitroaniline
8270D	3546	Solid	4-Nitrophenol
8270D	3546	Solid	Acenaphthene
8270D	3546	Solid	Acenaphthylene
8270D	3546	Solid	Acetophenone
8270D	3546	Solid	Aniline
8270D	3546	Solid	Anthracene
8270D	3546	Solid	Azobenzene/Diphenyldiazene
8270D	3546	Solid	Benzidine
8270D	3546	Solid	Benzo[a]anthracene
8270D	3546	Solid	Benzo[a]pyrene
8270D	3546	Solid	Benzo[b]fluoranthene
8270D	3546	Solid	Benzo[g,h,i]perylene
8270D	3546	Solid	Benzo[k]fluoranthene
8270D	3546	Solid	Benzoic acid
8270D	3546	Solid	Benzyl alcohol
8270D	3546	Solid	bis (2-chloroisopropyl) ether
8270D	3546	Solid	Bis(2-chloroethoxy)methane
8270D	3546	Solid	Bis(2-chloroethyl)ether
8270D	3546	Solid	Bis(2-ethylhexyl) phthalate
8270D	3546	Solid	Butyl benzyl phthalate
8270D	3546	Solid	Carbazole
8270D	3546	Solid	Chrysene
8270D	3546	Solid	Dibenz(a,h)anthracene
8270D	3546	Solid	Dibenzofuran
8270D	3546	Solid	Diethyl phthalate
8270D	3546	Solid	Dimethyl phthalate
8270D	3546	Solid	Di-n-butyl phthalate
8270D	3546	Solid	Di-n-octyl phthalate
8270D	3546	Solid	Fluoranthene
8270D	3546	Solid	Fluorene

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-11778-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8270D	3546	Solid	Hexachlorobenzene
8270D	3546	Solid	Hexachlorobutadiene
8270D	3546	Solid	Hexachlorocyclopentadiene
8270D	3546	Solid	Hexachloroethane
8270D	3546	Solid	Indeno[1,2,3-cd]pyrene
8270D	3546	Solid	Isophorone
8270D	3546	Solid	Naphthalene
8270D	3546	Solid	Nitrobenzene
8270D	3546	Solid	N-Nitrosodimethylamine
8270D	3546	Solid	N-Nitrosodi-n-propylamine
8270D	3546	Solid	N-Nitrosodiphenylamine
8270D	3546	Solid	Pentachloronitrobenzene
8270D	3546	Solid	Pentachlorophenol
8270D	3546	Solid	Phenanthrene
8270D	3546	Solid	Phenol
8270D	3546	Solid	Pyrene
8270D	3546	Solid	Pyridine
9045D		Solid	pH
9045D		Solid	Temperature
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids
SM 2510B		Solid	Specific Conductance

Method Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds (GC/MS)	MA DEP	EET NE
8270D	Semivolatile Organic Compounds (GC/MS)	MA DEP	EET NE
8081B	Organochlorine Pesticides (GC/ECD)	MA DEP	EET NE
8082	Polychlorinated Biphenyls (GC/ECD)	MA DEP	EET NE
8100	Polynuclear Aromatic Hydrocarbons (PAHs) (GC)	SW846	EET NE
6010D	Metals (ICP)	SW846	EET NE
7470A	Mercury (CVAA)	SW846	EET NE
7471A	Mercury (CVAA)	SW846	EET NE
1030	Ignitability, Solids	SW846	EET NE
9045D	pH	SW846	EET NE
Moisture	Percent Moisture	EPA	EET NE
SM 2510B	Conductivity, Specific Conductance	SM	EET NE
9014/9034	SW846 9014/9034 Reactivity	EPA	PEL, Inc
9034	SW846 9034 – Reactive Sulfide	SW846	PEL, Inc
1311	TCLP Extraction	SW846	EET NE
3010A	Preparation, Total Metals	SW846	EET NE
3050B	Preparation, Metals	SW846	EET NE
3546	Microwave Extraction	SW846	EET NE
5035	Closed System Purge and Trap	SW846	EET NE
7470A	Preparation, Mercury	SW846	EET NE
7471B	Preparation, Mercury	SW846	EET NE
DI Leach	Deionized Water Leaching Procedure	ASTM	EET NE
Frozen Preserve	Freezing Samples	None	EET NE

Protocol References:

ASTM = ASTM International
EPA = US Environmental Protection Agency
MA DEP = Massachusetts Department Of Environmental Protection
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018
PEL, Inc = Phoenix Environmental Laboratories, Inc., 587 East Middle Turnpike, Manchester, CT 06040, TEL (860)645-8726

Sample Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
620-11778-1	LM-SO-SD01-053123	Solid	05/31/23 07:50	05/31/23 13:30
620-11778-2	LM-SO-SD02-053123	Solid	05/31/23 08:10	05/31/23 13:30

11778

Chain of Custody Record

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	Sampler: S Stone	Lab PM	Carrier Tracking No(s)	COC No: 620-10175-1337 3
Bridget Fortier	Phone	E-Mail: arcyn@nobis-group.com	State of Origin: MA	Page: Page ~~3 of 3~~ 1 of 1
Company: Nobis Engineering, Inc	PWSID			Job #:

Address: 585 Middlesex Street	Due Date Requested: 6/2-23	
City: Lowell	TAT Requested (days): LM-SO-SD01-053123]2 day; LM-SO-SD02-053123	
State, Zip: MA, 01851	Compliance Project: Δ Yes Δ No	
Phone	PO #:	
Email: bfortier@nobis-group com	WO #:	
Project Name: Former L&M	Project #: 50000105/400	
Site: Former L&M	SSOW#:	

Analysis Requested

Preservation Codes:

A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Y - Trizma; Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	VPH	EPH, metals, % moisture	VOCs LL	VOCs HL	SVOCs, pest, PCBs & TPH	Total & TCLP RCRA	Spec. Cond, Flashpoint, Reactivity	Total Number of containers	Special Instructions/Note:
			Preservation Code:				F		J	F					
				Water											
				Solid											
				Water											
LM-SO-SD01-053123	5-31-23	750	C	Soil					X	X	X	X	X		
LM-SO-SD02-053123	5-31-23	810	C	Soil					X	X	X	X	X		
LM-SO-UST04-053023	5-30-23	1330	C	Soil			X	X							

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	**Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)**: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested I, II, III, IV, Other (specify): EDD PDF and email	Special Instructions/QC Requirements: MCP CAM Methods; LM-SO-UST04-053023 is standard TAT

Empty Kit Relinquished by	Date:	Time	Method of Shipment:

Relinquished by:	Date/Time: 5-31-23 10:55	Company	Received by:	Date/Time: 5/31/23 10:55	Company
Relinquished by:	Date/Time: 5/31/23	Company	Received by:	Date/Time: 5/31/23 13:30	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No..
Cooler Temperature(s) °C and Other Remarks: 0.9 +0.2 -0.6 IR#5	

Login Sample Receipt Checklist

Client: Nobis Engineering, Inc.

Job Number: 620-11778-1

Login Number: 11778
List Number: 1
Creator: Makhoul, Elie

List Source: Eurofins New England

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

October 2, 2023
Nobis File No. S00001.05

Ms. Katy Deng
USEPA – Region 1
Land, Chemicals, and Redevelopment Division
5 Post Office Square, Suite 100
Boston, MA 02109-3912

Re: USEPA Contract No. 68HE0122D0001
USEPA Task Order No. 68HE0122F0044
Targeted Brownfields Assessment (TBA)
Former L&M Service Station Site
Lunenburg, Massachusetts
Sample Delivery Group (SDG) No. 620117782
Eurofins New England, North Kingstown, RI

Tier 1 Stage 2A Organic and Inorganic Data Review:

Volatile Petroleum Hydrocarbons (VPH by MassDEP-VPH), Extractable Petroleum Hydrocarbons (EPH by MassDEP-EPH), Massachusetts Contingency Plan (MCP) Metals (MCP-14 Metals by 6020B/7470A)

1/Soil Sample: LM-SO-UST01-052523

Dear Ms. Deng:

Nobis Group (Nobis), under a USEPA contract as a subcontractor to KGSNE JV, LLC, performed a Tier 1 Stage 2A manual data review (S2AVM) on the organic and inorganic analytical data for the sample listed above. The sample was collected by Nobis at the Former L&M Service Station Site located in Lunenburg, Massachusetts on May 30, 2023. The sample was analyzed for VPHs by MassDEP-VPH, EPHs by MassDEP-EPH, and MCP-14 Metals by EPA Methods 6010D/7470A by Eurofins New England in North Kingstown, RI.

The Tier 1 Stage 2A manual data review was performed in accordance with the Region 1 - EPA New England Environmental Data Review Supplement for Region 1 Data Review Elements and Superfund Specific Guidance/Procedures (September 2020); USEPA's National Functional Guidelines for Organic Superfund Methods Data Review (November 2020); USEPA's National Functional Guidelines for Inorganic Superfund Methods Data Review (November 2020); the Program Quality Assurance Project Plan (Program QAPP) dated October 2022, and the Quality Assurance Project Plan Addendum (QAPPA) (May 2023) for the Former L&M Service Station Site, which appends the October 2022 Program QAPP.

The data were evaluated based on the following parameters:

*	• Overall Evaluation of Data and Potential Usability Issues
*	• Data Completeness
*	• Preservation and Technical Holding Times
*	• Blanks
*	• Surrogates (organic analyses only)
NA	• Internal Standards

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NA	•	Matrix Spike Analysis
NA	•	Laboratory Duplicates
	•	Laboratory Control Samples (LCS)
NA	•	Field Duplicates
NA	•	ICP Serial Dilutions (metals only)
NA	•	Performance Evaluation (PE) Samples
NA	•	Target Analyte Identification
*	•	Reported Quantitation Limits

* All criteria were met for this parameter or did not require qualification.
NA – Not applicable.

Overall Evaluation of Data and Potential Usability Issues

The site sampling objectives are:

- Characterize in-situ soil based on AOCs identified by Fuss & O'Neill in November 2020 Phase I for the presence of possible site-related contamination.
- Evaluate groundwater elevation.
- Evaluate presence/absence of groundwater contamination related to site.

Note that the COC includes additional samples and analyses than those listed above. Results for the analyses associated with the additional samples (LM-SO-SD01-053123 and LM-SO-SD02-053123) are located in SDG 620117781. This review (for SDG 620117782) is limited to the VPH, EPH, and the MCP-14 metals analytical results for sample LM-SO-UST01-05.

The data meet the project quality criteria and can be used without restriction except as summarized below. The attachments provide details and supporting documentation.

MassDEP-VPH:
Qualification of the data was not required.

MassDEP-EPH:
Qualification of the data was not required.

MCP-14 Metals and Mercury:
Results were qualified for LCS/LCSD recovery exceedances.

Please contact Linda Terzis at lterzis@nobis-group.com should you have any questions or comments regarding this information.

Sincerely,

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Linda Terzis
Data Validator

Gary Glennon
Data Validator

Tables: Data Summary Tables – Tier 1 Stage 2A (S2AVM) Validated Data
Data Qualification Actions Table

Attachments: Data Review Checklist
Support Documentation
COC

cc: Denis McGrath (Nobis Group)
Adam Roy (Nobis Group)

DATA SUMMARY TABLE

Analysis		EPH in Soil
Lab Sample ID		620-11778-3
Field Sample ID		LM-SO-UST04-053023
Sample Type		N
Parent Sample ID		
Sample Date	**Units**	05/30/23
2-Methylnaphthalene	mg/kg	4.8
Acenaphthene	mg/kg	0.36 U
Acenaphthylene	mg/kg	0.36 U
Anthracene	mg/kg	0.36 U
Benzo(a)anthracene	mg/kg	0.36 U
Benzo(a)pyrene	mg/kg	0.36 U
Benzo(b)fluoranthene	mg/kg	0.36 U
Benzo(g,h,i)perylene	mg/kg	0.36 U
Benzo(k)fluoranthene	mg/kg	0.36 U
C11-C22 Aromatics	mg/kg	250
C11-C22 Aromatics (adjusted)	mg/kg	240
C19-C36 Aliphatics	mg/kg	96
C9-C18 Aliphatics	mg/kg	240
Chrysene	mg/kg	0.36 U
Dibenz(a,h)anthracene	mg/kg	0.36 U
Fluoranthene	mg/kg	0.54
Fluorene	mg/kg	0.69
Indeno(1,2,3-cd)pyrene	mg/kg	0.36 U
Naphthalene	mg/kg	0.48
Phenanthrene	mg/kg	0.46
Pyrene	mg/kg	0.36 U

DATA SUMMARY TABLE

Analysis		Metals in Soil
Lab Sample ID		620-11778-3
Field Sample ID		LM-SO-UST04-053023
Sample Type		N
Parent Sample ID		
Sample Date	**Units**	05/30/23
Antimony	mg/kg	8.6 UJ
Arsenic	mg/kg	4.5
Barium	mg/kg	35
Beryllium	mg/kg	0.86 U
Cadmium	mg/kg	0.86 UJ
Chromium	mg/kg	10
Lead	mg/kg	56
Mercury	mg/kg	0.04 J
Nickel	mg/kg	8.2 J-
Selenium	mg/kg	2.6 UJ
Silver	mg/kg	2.6 U
Thallium	mg/kg	5.2 U
Vanadium	mg/kg	11
Zinc	mg/kg	36 J-

DATA SUMMARY TABLE

Analysis		VPH in Soil
Lab Sample ID		620-11778-3
Field Sample ID		LM-SO-UST04-053023
Sample Type		N
Parent Sample ID		
Sample Date	**Units**	05/30/23
Benzene	mg/kg	0.08 U
C5-C8 Aliphatics (adjusted)	mg/kg	1.6 U
C5-C8 Aliphatics (unadjusted)	mg/kg	1.6 U
C9-C10 Aromatics	mg/kg	1.6 U
C9-C12 Aliphatics (adjusted)	mg/kg	1.6 U
C9-C12 Aliphatics (unadjusted)	mg/kg	1.6 U
Ethylbenzene	mg/kg	0.08 U
m,p-Xylene	mg/kg	0.16 U
Methyl tert-butyl ether	mg/kg	0.016 U
Naphthalene	mg/kg	0.32 U
o-Xylene	mg/kg	0.08 U
Toluene	mg/kg	0.08 U
Xylene (total)	mg/kg	0.24 U

Data Review Qualification Actions
Former L&M Service Station
SDG 620117782

Parameter	Analyte	Samples	Evaluation Criteria	Action Needed	Comments
MassDEP-VPH					
	Qualification of the data was not required.				
MassDEP-EPH					
	Qualification of the data was not required.				
MCP-14 Metals / Mercury					
	Nickel, zinc	LM-SO-UST04-053023	LCS/LCSD recovery	J-	
	Antimony, cadmium, selenium	LM-SO-UST04-053023	LCS/LCSD recovery	UJ	

Tier 1/Stage 2A Data Review Checklist

Project: Former L&M Service Station, Lunenburg, Massachusetts
Targeted Brownfields Assessment (TBA)
Project #: S00001.05
Case#: NA
Date: 09/10/2023
Methods: Volatile Petroleum Hydrocarbons (VPH) (MassDEP-VPH)
Extractable Petroleum Hydrocarbons (EPH) (MassDEP-EPH)
Massachusetts Contingency Plan (MCP) Metals (MCP-14 Metals by 6010D/7470A)

Laboratory: Eurofins New England Laboratory, North Kingstown, RI
SDG: 620117782
Reviewer: Linda Terzis

1. **Case Narrative and Data Package Completeness (COC and Analyte List Review)**
One (1) soil sample was listed on the COC for SDG 620117782. The sample was collected on 05/30/2023 and received at the Eurofins New England Laboratory on 05/31/2023 at a maximum temperature of 4.6 °C.

Sample ID	Laboratory ID	Analyses
LM-SO-UST04-053023	620-11778-3	MassDEP-VPH, MassDEP-EPH, MCP-14 Metals/Mercury

Note that the COC includes additional samples and analyses than those listed above. Results for the analyses associated with the additional samples (LM-SO-SD01-053123 and LM-SO-SD02-053123) are located in SDG 620117781. The review for this SDG (620117782) is limited to the VPH, EPH, and the MCP-14 metals analytical results for sample LM-SO-UST04-053023.

The data were evaluated using the site-specific Quality Assurance Project Plan Addendum (QAPPA) (dated May 2023) and the Program QAPP (dated October 2022). Both were prepared by KGSNE, LLC. The QAPPA appends and incorporates by reference the procedures and quality control measures detailed in the Program QAPP (October 2022). Therefore, site data for this SDG were evaluated using both the QAPPA of May 2023 and the Program QAPP dated October 2022. The Massachusetts Compendium of Analytical Methods (CAM) and/or SW-846 Methods were used to perform the analyses. Therefore, site data were also evaluated using CAM quality control (QC) limits, where applicable.

The analyte lists reported by the laboratory were compared to the required analyte lists per Table 3 (soil) in the QAPPA (May 2023) for the site. Results for all requested analytes were reported and no inconsistencies were noted.

2. **Holding Time and Sample Preservation Compliance**

Receipt temperatures are acceptable (≤ 6°), as specified in the QAPPA (May 2023).

MassDEP-VPH: Holding time criteria (analyzed within 14 days) met.

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MassDEP-EPH: Holding time criteria (extracted within 14 days and analyzed within 40 days of extraction) met.

MCP-14 Metals/Mercury: Holding time criteria (analyzed within 28 days for mercury; within 180 days for all other analytes) were met.

3. Calibration Issues

Not assessed for S2AVM data review.

4. Laboratory and Field Blanks

MassDEP-VPH: Results for the VPH laboratory method blank were non-detect. No blank actions are required.

MassDEP-EPH: Results for the EPH laboratory method blank were non-detect. No blank actions are required.

MCP-14 Metals/Mercury: Results for the metals and mercury method blanks were non-detect. No blank actions are required.

An equipment blank was not submitted with the samples of this SDG. No actions are required.

5. Interference Check Sample (metals only)

Not assessed for S2AVM data review.

6. Surrogates

The Program QAPP (October 2022) was used to evaluate site data for surrogate recovery. If no Program QAPP-specific recovery limits were available for a surrogate, the MCP CAM recovery limits were used.

MassDEP-VPH: Percent surrogate recoveries for the FID and PID surrogate 2,5-dibromotoluene exceeded the Program QAPP limits of 70-130% (158% and 148%, respectively). Sample results for VPH target analytes and all hydrocarbon ranges are non-detect. Based on the CAM VPH method and the National Functional Guidelines (2020) for VOCs, the non-detect results in sample LM-SO-UST04-053023 (620-11778-3) are accepted unqualified since the potential bias is high.

MassDEP-EPH: Percent surrogate recoveries for the sample were within the Program QAPP limits of 40-140%. No actions are required.

MCP-14 Metals/Mercury: Not applicable for this analysis.

7. Laboratory Control Samples

MassDEP-VPH: The percent recoveries in the VPH LCS/LCSD pair met the Program QAPP recovery limits of 70-130% and RPDs ≤ 25%. No actions are required.

MassDEP-EPH: The percent recoveries in the EPH LCS/LCSD pairs met the Program QAPP recovery limits of 40-140%. RPDs met the QAPP limit of ≤ 25%. No actions are required.

MCP-14 Metals/Mercury: Percent recoveries and RPDs for the metals and mercury LCS/LCSD analyses were within the QAPP limits of 80-120% and ≤ 30%, respectively, except for the recoveries of antimony, cadmium, nickel, selenium, and zinc, which were recovered below 80-120% in the LCS and/or LCSD analyses. Based on the NFGs (2020), the detected results for nickel and zinc are qualified as estimated with a potential low bias (J-) and the non-detect results for antimony, cadmium, and selenium are qualified as estimated (UJ) in sample LM-SO-UST04-053023 (620-11778-3) due to the low recoveries.

8. Matrix Spikes

Based on the Region I EPA New England Environmental Data Review Supplement (Region I Supplement, 2020), MS/MSD qualifications are applied to all field samples with similar matrix, unless otherwise noted.

MS/MSD analyses were not requested for the sample of this SDG. No actions are required.

9. Laboratory Duplicates (metals only)

MCP-14 Metals/Mercury: A laboratory duplicate analysis was not required for this SDG. No actions are required.

10. Serial Dilution (metals only)

A serial dilution analysis was not performed for this SDG. No actions are required.

11. Field Duplicate Precision

Acceptable field duplicate precision is an RPD of ≤ 50% for results > 5x RL and an absolute difference < 4x RL for results < 5x RL, based on the EPA Region I Supplement (2020).

Based on the Region I Supplement (2020), qualifications are applied to all field samples with similar matrix, unless otherwise indicated.

A field duplicate sample was not collected with the sample of this SDG. No action is required.

12. Internal Standards

Not assessed for S2AVM data review.

13. Dual Column Precision (PCBs only)

Not applicable for this SDG.

14. Performance Evaluation Samples

Performance Evaluation (PE) samples were not included in this SDG.

15. Reporting Limits

RLs for non-detect results for VPH, EPH, and metals/mercury analyses met the project action levels (PALs) for the site.

16. Other

EPA Region I Supplement (2020) criterion for percent solids content (> 30%) was met for the soil sample.

Overall bias is considered indeterminate when cumulative nonconformances do not show a consistent bias or in cases of the presence of conflicting high and low biases.

10778

620-11778 Chain of Custody

Chain of Custody Record

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	Sampler: S Stone	Lab PM	Carrier Tracking No(s)	COC No: 620-10175-1337 3
Bridget Fortier	Phone	E-Mail: arcyn@nobis-group.com	State of Origin: MA	Page: Page ~~3 of 3~~ 1 of 1
Company: Nobis Engineering, Inc	PWSID			Job #:

Analysis Requested

Address: 585 Middlesex Street	Due Date Requested: 6/2-23
City: Lowell	TAT Requested (days): LM-SO-SD01-053123]2 day; LM-SO-SD02-053123
State, Zip: MA, 01851	Compliance Project: Δ Yes Δ No
Phone	PO #:
Email: bfortier@nobis-group com	WO #:
Project Name: Former L&M	Project #: 50000105/400
Site: Former L&M	SSOW#:

Preservation Codes:

A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Y - Trizma; Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	VPH	EPH, metals, % moisture	VOCs LL	VOCs HL	SVOCs, pest, PCBs & TPH	TCLP RCRA	Spec. Cond, Flashpoint, Reactivity	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	F		J	F				X	
				Water											
				Solid											
				Water											
LM-SO-SD01-053123	5-31-23	750	C	Soil					X	X	X	X	X		
LM-SO-SD02-053123	5-31-23	810	C	Soil					X	X	X	X	X		
LM-SO-UST04-053023	5-30-23	1330	C	Soil			X	X							

Page 23 of 24 5 02 03

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested I, II, III, IV, Other (specify): EDD PDF and Email

Special Instructions/QC Requirements: MCP CAM Methods; LM-SO-UST04-053023 is standard TAT

Empty Kit Relinquished by	Date:	Time	Method of Shipment:

Relinquished by:	Date/Time: 5-31-23 10:55	Company	Received by:	Date/Time: 5/31/23 10:55	Company
Relinquished by:	Date/Time: 5/31/23	Company	Received by:	Date/Time: 5/31/23 13:30	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No..

Cooler Temperature(s) °C and Other Remarks: 0.9 +0.2 -0.6 IR#5

6/7/2023

Ver: 06/08/2021

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Adam Roy
Nobis Engineering, Inc.
585 Middlesex Street
Lowell, Massachusetts 01851

Generated 6/7/2023 4:13:14 PM

JOB DESCRIPTION

Former L&M - Lunenburg MA

JOB NUMBER

620-11778-2

Eurofins New England
646 Camp Ave
North Kingstown RI 02852

See page two for job notes and contact information.

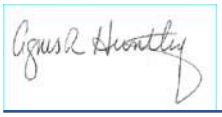
myEOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northeast, LLC Project Manager.

Authorization



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Authorized for release by
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Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
Case Narrative 5
Detection Summary 6
Client Sample Results 7
Surrogate Summary 9
QC Sample Results 10
QC Association Summary 16
Lab Chronicle 18
Certification Summary 19
Method Summary 21
Sample Summary 22
Chain of Custody 23
Receipt Checklists 24

Definitions/Glossary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-2

Qualifiers

GC VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-2

Job ID: 620-11778-2

Laboratory: Eurofins New England

Narrative

Job Narrative
620-11778-2

Receipt
The samples were received on 5/31/2023 1:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.6º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA
Method MAVPH2.1: Surrogate recoveries for the following sample was outside the upper control limit: LM-SO-UST04-053023 (620-11778-3). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed. In addition to the provided sample vials containing more than 5 grams of soil sample per 5mL of methanol (notated in the prep batch), sample matrix is suspected due to some visible noise in the baseline.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
Method 7471A: The matrix duplicate (DU) recoveries and precision for preparation batch 620-23147 and analytical batch 620-23226 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-2

Client Sample ID: LM-SO-UST04-053023

Lab Sample ID: 620-11778-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C9-C18 Aliphatics	240		7.2	7.2	mg/Kg	1	☼	MAEPH2.1	Total/NA
C19-C36 Aliphatics	96		7.2	7.2	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics	250		7.2	7.2	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	240		7.2	7.2	mg/Kg	1	☼	MAEPH2.1	Total/NA
Naphthalene	0.48		0.36	0.36	mg/Kg	1	☼	MAEPH2.1	Total/NA
2-Methylnaphthalene	4.8		0.36	0.36	mg/Kg	1	☼	MAEPH2.1	Total/NA
Fluorene	0.69		0.36	0.36	mg/Kg	1	☼	MAEPH2.1	Total/NA
Phenanthrene	0.46		0.36	0.36	mg/Kg	1	☼	MAEPH2.1	Total/NA
Fluoranthene	0.54		0.36	0.36	mg/Kg	1	☼	MAEPH2.1	Total/NA
Arsenic	4.5		2.6	0.33	mg/Kg	1	☼	6010D	Total/NA
Barium	35		1.7	0.20	mg/Kg	1	☼	6010D	Total/NA
Chromium	10		1.7	0.23	mg/Kg	1	☼	6010D	Total/NA
Lead	56		2.6	0.37	mg/Kg	1	☼	6010D	Total/NA
Nickel	8.2		1.7	0.20	mg/Kg	1	☼	6010D	Total/NA
Vanadium	11		2.6	0.46	mg/Kg	1	☼	6010D	Total/NA
Zinc	36		5.2	1.3	mg/Kg	1	☼	6010D	Total/NA
Mercury	0.040	J	0.052	0.0086	mg/Kg	1	☼	7471A	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-2

Client Sample ID: LM-SO-UST04-053023

Date Collected: 05/30/23 13:30
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-3

Matrix: Solid
Percent Solids: 90.9

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		1.6	1.6	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1
C9-C12 Aliphatics (adjusted)	ND		1.6	1.6	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1
C9-C10 Aromatics	ND		1.6	1.6	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1
C5-C8 Aliphatics (unadjusted)	ND		1.6	1.6	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1
C9-C12 Aliphatics (unadjusted)	ND		1.6	1.6	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1
Benzene	ND		0.080	0.080	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1
Ethylbenzene	ND		0.080	0.080	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1
Methyl tert-butyl ether	ND		0.016	0.016	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1
Naphthalene	ND		0.32	0.32	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1
Toluene	ND		0.080	0.080	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1
m,p-Xylene	ND		0.16	0.16	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1
o-Xylene	ND		0.080	0.080	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1
Xylenes, Total	ND		0.24	0.24	mg/Kg	☼	06/06/23 10:47	06/06/23 21:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*158*	*S1+*	*70 - 130*	*06/06/23 10:47*	*06/06/23 21:56*	*1*
2,5-Dibromotoluene (pid)	*148*	*S1+*	*70 - 130*	*06/06/23 10:47*	*06/06/23 21:56*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	**240**		7.2	7.2	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
C19-C36 Aliphatics	**96**		7.2	7.2	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
C11-C22 Aromatics	**250**		7.2	7.2	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
C11-C22 Aromatics (Adjusted)	**240**		7.2	7.2	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Naphthalene	**0.48**		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
2-Methylnaphthalene	**4.8**		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Acenaphthylene	ND		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Acenaphthene	ND		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Fluorene	**0.69**		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Phenanthrene	**0.46**		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Anthracene	ND		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Fluoranthene	**0.54**		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Pyrene	ND		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Benzo[a]anthracene	ND		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Chrysene	ND		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Benzo[b]fluoranthene	ND		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Benzo[k]fluoranthene	ND		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Benzo[a]pyrene	ND		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Indeno[1,2,3-cd]pyrene	ND		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Dibenz(a,h)anthracene	ND		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1
Benzo[g,h,i]perylene	ND		0.36	0.36	mg/Kg	☼	06/01/23 08:31	06/05/23 21:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*47*		*40 - 140*	*06/01/23 08:31*	*06/05/23 21:06*	*1*
o-Terphenyl (Surr)	*55*		*40 - 140*	*06/01/23 08:31*	*06/05/23 21:06*	*1*
2-Fluorobiphenyl (Surr)	*101*		*40 - 140*	*06/01/23 08:31*	*06/05/23 21:06*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		8.6	0.65	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1

Client Sample ID: LM-SO-UST04-053023

Date Collected: 05/30/23 13:30
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-3

Matrix: Solid
Percent Solids: 90.9

Method: SW846 6010D - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**4.5**		2.6	0.33	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1
Barium	**35**		1.7	0.20	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1
Beryllium	ND		0.86	0.043	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1
Cadmium	ND		0.86	0.045	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1
Chromium	**10**		1.7	0.23	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1
Lead	**56**		2.6	0.37	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1
Nickel	**8.2**		1.7	0.20	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1
Selenium	ND		2.6	0.49	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1
Silver	ND		2.6	0.28	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1
Thallium	ND		5.2	1.9	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1
Vanadium	**11**		2.6	0.46	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1
Zinc	**36**		5.2	1.3	mg/Kg	☼	05/31/23 14:15	06/01/23 13:06	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.040**	**J**	0.052	0.0086	mg/Kg	☼	06/01/23 09:40	06/02/23 12:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	**9.1**		0.1	0.1	%			06/01/23 11:46	1
Percent Solids (EPA Moisture)	**90.9**		0.1	0.1	%			06/01/23 11:46	1

Surrogate Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-2

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		25DBTf1	25DBTp1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
620-11778-3	LM-SO-UST04-053023	158 S1+	148 S1+
LCS 620-23366/1-A	Lab Control Sample	99	98
LCSD 620-23366/2-A	Lab Control Sample Dup	99	98
MB 620-23366/3-A	Method Blank	94	93

Surrogate Legend

25DBTf = 2,5-Dibromotoluene (fid)
25DBTp = 2,5-Dibromotoluene (pid)

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		1COD1	OTPH1	FBP1
Lab Sample ID	Client Sample ID	(40-140)	(40-140)	(40-140)
620-11778-3	LM-SO-UST04-053023	47	55	101
LCS 620-23135/2-B	Lab Control Sample	54	60	115
LCSD 620-23135/3-B	Lab Control Sample Dup	62	63	112
MB 620-23135/1-B	Method Blank	49	50	103

Surrogate Legend

1COD = 1-Chlorooctadecane (Surr)
OTPH = o-Terphenyl (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-23366/3-A
Matrix: Solid
Analysis Batch: 23320

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23366

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		5.0	5.0	mg/Kg		06/06/23 10:47	06/06/23 21:25	1
C9-C12 Aliphatics (adjusted)	ND		5.0	5.0	mg/Kg		06/06/23 10:47	06/06/23 21:25	1
C9-C10 Aromatics	ND		5.0	5.0	mg/Kg		06/06/23 10:47	06/06/23 21:25	1
C5-C8 Aliphatics (unadjusted)	ND		5.0	5.0	mg/Kg		06/06/23 10:47	06/06/23 21:25	1
C9-C12 Aliphatics (unadjusted)	ND		5.0	5.0	mg/Kg		06/06/23 10:47	06/06/23 21:25	1
Benzene	ND		0.25	0.25	mg/Kg		06/06/23 10:47	06/06/23 21:25	1
Ethylbenzene	ND		0.25	0.25	mg/Kg		06/06/23 10:47	06/06/23 21:25	1
Methyl tert-butyl ether	ND		0.050	0.050	mg/Kg		06/06/23 10:47	06/06/23 21:25	1
Naphthalene	ND		1.0	1.0	mg/Kg		06/06/23 10:47	06/06/23 21:25	1
Toluene	ND		0.25	0.25	mg/Kg		06/06/23 10:47	06/06/23 21:25	1
m,p-Xylene	ND		0.50	0.50	mg/Kg		06/06/23 10:47	06/06/23 21:25	1
o-Xylene	ND		0.25	0.25	mg/Kg		06/06/23 10:47	06/06/23 21:25	1
Xylenes, Total	ND		0.75	0.75	mg/Kg		06/06/23 10:47	06/06/23 21:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*94*		*70 - 130*	*06/06/23 10:47*	*06/06/23 21:25*	*1*
2,5-Dibromotoluene (pid)	*93*		*70 - 130*	*06/06/23 10:47*	*06/06/23 21:25*	*1*

Lab Sample ID: LCS 620-23366/1-A
Matrix: Solid
Analysis Batch: 23320

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23366

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C10 Aromatics	1.00	ND		mg/Kg		117	70 - 130
C5-C8 Aliphatics (unadjusted)	3.00	ND		mg/Kg		102	70 - 130
C9-C12 Aliphatics (unadjusted)	3.00	ND		mg/Kg		99	70 - 130
Benzene	1.00	1.06		mg/Kg		106	70 - 130
Ethylbenzene	1.00	1.06		mg/Kg		106	70 - 130
Methyl tert-butyl ether	1.00	1.09		mg/Kg		109	70 - 130
Naphthalene	1.00	1.04		mg/Kg		104	70 - 130
Toluene	1.00	1.06		mg/Kg		106	70 - 130
m,p-Xylene	2.00	2.14		mg/Kg		107	70 - 130
o-Xylene	1.00	1.03		mg/Kg		103	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*99*		*70 - 130*
2,5-Dibromotoluene (pid)	*98*		*70 - 130*

Lab Sample ID: LCSD 620-23366/2-A
Matrix: Solid
Analysis Batch: 23320

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23366

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics	1.00	ND		mg/Kg		113	70 - 130	3	25
C5-C8 Aliphatics (unadjusted)	3.00	ND		mg/Kg		101	70 - 130	1	25
C9-C12 Aliphatics (unadjusted)	3.00	ND		mg/Kg		97	70 - 130	2	25
Benzene	1.00	1.05		mg/Kg		105	70 - 130	2	25
Ethylbenzene	1.00	1.03		mg/Kg		103	70 - 130	4	25

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-23366/2-A
Matrix: Solid
Analysis Batch: 23320

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23366

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methyl tert-butyl ether			1.00	1.05		mg/Kg		105	70 - 130	4	25
Naphthalene			1.00	1.04		mg/Kg		104	70 - 130	0	25
Toluene			1.00	1.04		mg/Kg		104	70 - 130	2	25
m,p-Xylene			2.00	2.06		mg/Kg		103	70 - 130	4	25
o-Xylene			1.00	1.00		mg/Kg		100	70 - 130	3	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*99*		*70 - 130*
2,5-Dibromotoluene (pid)	*98*		*70 - 130*

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-23135/1-B
Matrix: Solid
Analysis Batch: 23246

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23135

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		6.7	6.7	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
C19-C36 Aliphatics	ND		6.7	6.7	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
C11-C22 Aromatics	ND		6.7	6.7	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
C11-C22 Aromatics (Adjusted)	ND		6.7	6.7	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Naphthalene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
2-Methylnaphthalene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Acenaphthylene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Acenaphthene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Fluorene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Phenanthrene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Anthracene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Fluoranthene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Pyrene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Benzo[a]anthracene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Chrysene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Benzo[b]fluoranthene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Benzo[k]fluoranthene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Benzo[a]pyrene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Indeno[1,2,3-cd]pyrene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Dibenz(a,h)anthracene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1
Benzo[g,h,i]perylene	ND		0.33	0.33	mg/Kg		06/01/23 08:31	06/05/23 18:39	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*49*		*40 - 140*	*06/01/23 08:31*	*06/05/23 18:39*	*1*
o-Terphenyl (Surr)	*50*		*40 - 140*	*06/01/23 08:31*	*06/05/23 18:39*	*1*
2-Fluorobiphenyl (Surr)	*103*		*40 - 140*	*06/01/23 08:31*	*06/05/23 18:39*	*1*

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCS 620-23135/2-B
Matrix: Solid
Analysis Batch: 23246

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23135

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C18 Aliphatics			8.00	ND		mg/Kg		42	40 - 140		
C19-C36 Aliphatics			10.7	ND		mg/Kg		49	40 - 140		
C11-C22 Aromatics			22.7	18.0		mg/Kg		79	40 - 140		
Naphthalene			1.33	0.842		mg/Kg		63	40 - 140		
2-Methylnaphthalene			1.33	0.826		mg/Kg		62	40 - 140		
Acenaphthylene			1.33	0.800		mg/Kg		60	40 - 140		
Acenaphthene			1.33	0.781		mg/Kg		59	40 - 140		
Fluorene			1.33	0.772		mg/Kg		58	40 - 140		
Phenanthrene			1.33	0.691		mg/Kg		52	40 - 140		
Anthracene			1.33	0.821		mg/Kg		62	40 - 140		
Fluoranthene			1.33	1.30		mg/Kg		97	40 - 140		
Pyrene			1.33	0.911		mg/Kg		68	40 - 140		
Benzo[a]anthracene			1.33	0.790		mg/Kg		59	40 - 140		
Chrysene			1.33	0.984		mg/Kg		74	40 - 140		
Benzo[b]fluoranthene			1.33	0.905		mg/Kg		68	40 - 140		
Benzo[k]fluoranthene			1.33	1.25		mg/Kg		93	40 - 140		
Benzo[a]pyrene			1.33	1.12		mg/Kg		84	40 - 140		
Indeno[1,2,3-cd]pyrene			1.33	0.896		mg/Kg		67	40 - 140		
Dibenz(a,h)anthracene			1.33	0.946		mg/Kg		71	40 - 140		
Benzo[g,h,i]perylene			1.33	1.18		mg/Kg		88	40 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*54*		*40 - 140*
o-Terphenyl (Surr)	*60*		*40 - 140*
2-Fluorobiphenyl (Surr)	*115*		*40 - 140*

Lab Sample ID: LCSD 620-23135/3-B
Matrix: Solid
Analysis Batch: 23246

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23135

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics			8.00	ND		mg/Kg		46	40 - 140	9	25
C19-C36 Aliphatics			10.7	ND		mg/Kg		51	40 - 140	6	25
C11-C22 Aromatics			22.7	17.2		mg/Kg		76	40 - 140	5	25
Naphthalene			1.33	0.900		mg/Kg		68	40 - 140	7	25
2-Methylnaphthalene			1.33	0.883		mg/Kg		66	40 - 140	7	25
Acenaphthylene			1.33	0.880		mg/Kg		66	40 - 140	10	25
Acenaphthene			1.33	0.843		mg/Kg		63	40 - 140	8	25
Fluorene			1.33	0.841		mg/Kg		63	40 - 140	9	25
Phenanthrene			1.33	0.733		mg/Kg		55	40 - 140	6	25
Anthracene			1.33	0.907		mg/Kg		68	40 - 140	10	25
Fluoranthene			1.33	1.32		mg/Kg		99	40 - 140	2	25
Pyrene			1.33	0.950		mg/Kg		71	40 - 140	4	25
Benzo[a]anthracene			1.33	0.831		mg/Kg		62	40 - 140	5	25
Chrysene			1.33	1.02		mg/Kg		77	40 - 140	4	25
Benzo[b]fluoranthene			1.33	0.866		mg/Kg		65	40 - 140	4	25
Benzo[k]fluoranthene			1.33	1.03		mg/Kg		77	40 - 140	19	25
Benzo[a]pyrene			1.33	1.12		mg/Kg		84	40 - 140	0	25

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-23135/3-B
Matrix: Solid
Analysis Batch: 23246

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23135

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Indeno[1,2,3-cd]pyrene			1.33	0.928		mg/Kg		70	40 - 140	4	25
Dibenz(a,h)anthracene			1.33	0.998		mg/Kg		75	40 - 140	5	25
Benzo[g,h,i]perylene			1.33	1.22		mg/Kg		91	40 - 140	3	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*62*		*40 - 140*
o-Terphenyl (Surr)	*63*		*40 - 140*
2-Fluorobiphenyl (Surr)	*112*		*40 - 140*

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 620-23122/1-A
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23122

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		5.7	0.43	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Arsenic	ND		1.7	0.22	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Barium	ND		1.1	0.13	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Beryllium	ND		0.57	0.029	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Cadmium	ND		0.57	0.030	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Chromium	ND		1.1	0.15	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Lead	ND		1.7	0.24	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Nickel	ND		1.1	0.13	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Selenium	ND		1.7	0.33	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Silver	ND		1.7	0.19	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Thallium	ND		3.4	1.3	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Vanadium	ND		1.7	0.30	mg/Kg		05/31/23 14:15	06/01/23 11:12	1
Zinc	ND		3.4	0.88	mg/Kg		05/31/23 14:15	06/01/23 11:12	1

Lab Sample ID: LCDSRM 620-23122/3-A
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23122

Analyte			Spike Added	LCDSRM Result	LCDSRM Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony			232	72.0		mg/Kg		31.0	10.0 - 139.2	0	20
Arsenic			195	160		mg/Kg		82.2	65.6 - 122.1	4	20
Barium			321	286		mg/Kg		89.0	69.5 - 115.9	0	20
Beryllium			84.8	73.8		mg/Kg		87.0	69.7 - 116.0	6	20
Cadmium			247	170		mg/Kg		68.8	67.2 - 111.7	9	20
Chromium			217	182		mg/Kg		84.0	64.5 - 119.8	5	20
Lead			270	216		mg/Kg		80.0	70.4 - 120.0	4	20
Nickel			187	143		mg/Kg		76.7	63.1 - 117.1	4	20

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCDSRM 620-23122/3-A
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23122

Analyte	Spike Added	LCDSRM Result	LCDSRM Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Selenium	241	183		mg/Kg		75.8	62.2 - 118.3	6	20
Silver	72.0	64.6		mg/Kg		89.7	66.5 - 121.7	8	20
Thallium	88.9	74.2		mg/Kg		83.5	58.9 - 122.6	9	20
Vanadium	225	203		mg/Kg		90.4	68.0 - 114.2	4	20
Zinc	242	188		mg/Kg		77.7	64.9 - 120.7	4	20

Lab Sample ID: LCSSRM 620-23122/2-A
Matrix: Solid
Analysis Batch: 23183

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23122

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	232	72.0		mg/Kg		31.0	10.0 - 139.2
Arsenic	195	167		mg/Kg		85.4	65.6 - 122.1
Barium	321	287		mg/Kg		89.4	69.5 - 115.9
Beryllium	84.8	78.5		mg/Kg		92.5	69.7 - 116.0
Cadmium	247	186		mg/Kg		75.4	67.2 - 111.7
Chromium	217	192		mg/Kg		88.5	64.5 - 119.8
Lead	270	226		mg/Kg		83.7	70.4 - 120.0
Nickel	187	150		mg/Kg		80.1	63.1 - 117.1
Selenium	241	193		mg/Kg		80.3	62.2 - 118.3
Silver	72.0	59.7		mg/Kg		82.9	66.5 - 121.7
Thallium	88.9	81.3		mg/Kg		91.5	58.9 - 122.6
Vanadium	225	212		mg/Kg		94.3	68.0 - 114.2
Zinc	242	195		mg/Kg		80.7	64.9 - 120.7

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 620-23147/1-A
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23147

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.050	0.0083	mg/Kg		06/01/23 09:40	06/02/23 12:01	1

Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: LCDSRM 620-23147/3-A
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23147

Analyte			Spike Added	LCDSRM Result	LCDSRM Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury			18.2	19.7		mg/Kg		108.1	59.9 - 140.1	1	20

Lab Sample ID: LCSSRM 620-23147/2-A
Matrix: Solid
Analysis Batch: 23226

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23147

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			18.2	19.6		mg/Kg		107.5	59.9 - 140.1		

QC Association Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-2

GC VOA

Analysis Batch: 23320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-3	LM-SO-UST04-053023	Total/NA	Solid	MAVPH2.1	23366
MB 620-23366/3-A	Method Blank	Total/NA	Solid	MAVPH2.1	23366
LCS 620-23366/1-A	Lab Control Sample	Total/NA	Solid	MAVPH2.1	23366
LCSD 620-23366/2-A	Lab Control Sample Dup	Total/NA	Solid	MAVPH2.1	23366

Prep Batch: 23366

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-3	LM-SO-UST04-053023	Total/NA	Solid	5035	
MB 620-23366/3-A	Method Blank	Total/NA	Solid	5035	
LCS 620-23366/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 620-23366/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

GC Semi VOA

Prep Batch: 23135

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-3	LM-SO-UST04-053023	Total/NA	Solid	3546	
MB 620-23135/1-B	Method Blank	Total/NA	Solid	3546	
LCS 620-23135/2-B	Lab Control Sample	Total/NA	Solid	3546	
LCSD 620-23135/3-B	Lab Control Sample Dup	Total/NA	Solid	3546	

Analysis Batch: 23246

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-3	LM-SO-UST04-053023	Total/NA	Solid	MAEPH2.1	23279
MB 620-23135/1-B	Method Blank	Total/NA	Solid	MAEPH2.1	23279
LCS 620-23135/2-B	Lab Control Sample	Total/NA	Solid	MAEPH2.1	23279
LCSD 620-23135/3-B	Lab Control Sample Dup	Total/NA	Solid	MAEPH2.1	23279

Fraction Batch: 23279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-3	LM-SO-UST04-053023	Total/NA	Solid	MA EPH Frac	23135
MB 620-23135/1-B	Method Blank	Total/NA	Solid	MA EPH Frac	23135
LCS 620-23135/2-B	Lab Control Sample	Total/NA	Solid	MA EPH Frac	23135
LCSD 620-23135/3-B	Lab Control Sample Dup	Total/NA	Solid	MA EPH Frac	23135

Metals

Prep Batch: 23122

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-3	LM-SO-UST04-053023	Total/NA	Solid	3050B	
MB 620-23122/1-A	Method Blank	Total/NA	Solid	3050B	
LCDSRM 620-23122/3-A	Lab Control Sample Dup	Total/NA	Solid	3050B	
LCSSRM 620-23122/2-A	Lab Control Sample	Total/NA	Solid	3050B	

Prep Batch: 23147

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-3	LM-SO-UST04-053023	Total/NA	Solid	7471B	
MB 620-23147/1-A	Method Blank	Total/NA	Solid	7471B	
LCDSRM 620-23147/3-A	Lab Control Sample Dup	Total/NA	Solid	7471B	
LCSSRM 620-23147/2-A	Lab Control Sample	Total/NA	Solid	7471B	

QC Association Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-2

Metals

Analysis Batch: 23183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-3	LM-SO-UST04-053023	Total/NA	Solid	6010D	23122
MB 620-23122/1-A	Method Blank	Total/NA	Solid	6010D	23122
LCDSRM 620-23122/3-A	Lab Control Sample Dup	Total/NA	Solid	6010D	23122
LCSSRM 620-23122/2-A	Lab Control Sample	Total/NA	Solid	6010D	23122

Analysis Batch: 23226

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-3	LM-SO-UST04-053023	Total/NA	Solid	7471A	23147
MB 620-23147/1-A	Method Blank	Total/NA	Solid	7471A	23147
LCDSRM 620-23147/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	23147
LCSSRM 620-23147/2-A	Lab Control Sample	Total/NA	Solid	7471A	23147

General Chemistry

Analysis Batch: 23163

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11778-3	LM-SO-UST04-053023	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-2

Client Sample ID: LM-SO-UST04-053023
Date Collected: 05/30/23 13:30
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	23163	MJH	EET NE	06/01/23 11:46

Client Sample ID: LM-SO-UST04-053023
Date Collected: 05/30/23 13:30
Date Received: 05/31/23 13:30

Lab Sample ID: 620-11778-3
Matrix: Solid
Percent Solids: 90.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			23366	BMH	EET NE	06/06/23 10:47
Total/NA	Analysis	MAVPH2.1		1	23320	BMH	EET NE	06/06/23 21:56
Total/NA	Prep	3546			23135	JAC	EET NE	06/01/23 08:31
Total/NA	Fraction	MA EPH Frac			23279	AAH	EET NE	06/05/23 15:02
Total/NA	Analysis	MAEPH2.1		1	23246	BJJ	EET NE	06/05/23 21:06
Total/NA	Prep	3050B			23122	PRB	EET NE	05/31/23 14:15
Total/NA	Analysis	6010D		1	23183	JPC	EET NE	06/01/23 13:06
Total/NA	Prep	7471B			23147	PRB	EET NE	06/01/23 09:40
Total/NA	Analysis	7471A		1	23226	PRB	EET NE	06/02/23 12:18

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-11778-2
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Massachusetts	State	M-RI907	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6010D	3050B	Solid	Antimony
6010D	3050B	Solid	Arsenic
6010D	3050B	Solid	Barium
6010D	3050B	Solid	Beryllium
6010D	3050B	Solid	Cadmium
6010D	3050B	Solid	Chromium
6010D	3050B	Solid	Lead
6010D	3050B	Solid	Nickel
6010D	3050B	Solid	Selenium
6010D	3050B	Solid	Silver
6010D	3050B	Solid	Thallium
6010D	3050B	Solid	Vanadium
6010D	3050B	Solid	Zinc
7471A	7471B	Solid	Mercury
MAEPH2.1	3546	Solid	2-Methylnaphthalene
MAEPH2.1	3546	Solid	Acenaphthene
MAEPH2.1	3546	Solid	Acenaphthylene
MAEPH2.1	3546	Solid	Anthracene
MAEPH2.1	3546	Solid	Benzo[a]anthracene
MAEPH2.1	3546	Solid	Benzo[a]pyrene
MAEPH2.1	3546	Solid	Benzo[b]fluoranthene
MAEPH2.1	3546	Solid	Benzo[g,h,i]perylene
MAEPH2.1	3546	Solid	Benzo[k]fluoranthene
MAEPH2.1	3546	Solid	C11-C22 Aromatics
MAEPH2.1	3546	Solid	C11-C22 Aromatics (Adjusted)
MAEPH2.1	3546	Solid	C19-C36 Aliphatics
MAEPH2.1	3546	Solid	C9-C18 Aliphatics
MAEPH2.1	3546	Solid	Chrysene
MAEPH2.1	3546	Solid	Dibenz(a,h)anthracene
MAEPH2.1	3546	Solid	Fluoranthene
MAEPH2.1	3546	Solid	Fluorene
MAEPH2.1	3546	Solid	Indeno[1,2,3-cd]pyrene
MAEPH2.1	3546	Solid	Naphthalene
MAEPH2.1	3546	Solid	Phenanthrene
MAEPH2.1	3546	Solid	Pyrene
MAVPH2.1	5035	Solid	Benzene
MAVPH2.1	5035	Solid	C5-C8 Aliphatics (adjusted)
MAVPH2.1	5035	Solid	C5-C8 Aliphatics (unadjusted)
MAVPH2.1	5035	Solid	C9-C10 Aromatics
MAVPH2.1	5035	Solid	C9-C12 Aliphatics (adjusted)
MAVPH2.1	5035	Solid	C9-C12 Aliphatics (unadjusted)
MAVPH2.1	5035	Solid	Ethylbenzene
MAVPH2.1	5035	Solid	m,p-Xylene
MAVPH2.1	5035	Solid	Methyl tert-butyl ether
MAVPH2.1	5035	Solid	Naphthalene

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-11778-2
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
MAVPH2.1	5035	Solid	o-Xylene
MAVPH2.1	5035	Solid	Toluene
MAVPH2.1	5035	Solid	Xylenes, Total
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

Method Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-2

Method	Method Description	Protocol	Laboratory
MAVPH2.1	Massachusetts - Volatile Petroleum Hydrocarbons (GC)	MA DEP	EET NE
MAEPH2.1	Massachusetts - Extractable Petroleum Hydrocarbons (GC)	MA DEP	EET NE
6010D	Metals (ICP)	SW846	EET NE
7471A	Mercury (CVAA)	SW846	EET NE
Moisture	Percent Moisture	EPA	EET NE
3050B	Preparation, Metals	SW846	EET NE
3546	Microwave Extraction	SW846	EET NE
5035	Closed System Purge and Trap	SW846	EET NE
7471B	Preparation, Mercury	SW846	EET NE
MA EPH Frac	Massachusetts - Extractable Petroleum Hydrocarbon Fractionation	MA DEP	EET NE

Protocol References:

EPA = US Environmental Protection Agency

MA DEP = Massachusetts Department Of Environmental Protection

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Sample Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11778-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
620-11778-3	LM-SO-UST04-053023	Solid	05/30/23 13:30	05/31/23 13:30

10778

620-11778 Chain of Custody

Chain of Custody Record

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	Sampler: S Stone	Lab PM	Carrier Tracking No(s)	COC No: 620-10175-1337 3
Bridget Fortier	Phone	E-Mail: arcyn@nobis-group.com	State of Origin: MA	Page: Page ~~3 of 3~~ 1 of 1
Company: Nobis Engineering, Inc	PWSID			Job #:

Analysis Requested

Address: 585 Middlesex Street	Due Date Requested: 6/2-23
City: Lowell	TAT Requested (days): LM-SO-SD01-053123]2 day; LM-SO-SD02-053123
State, Zip: MA, 01851	Compliance Project: Δ Yes Δ No
Phone	PO #:
Email: bfortier@nobis-group com	WO #:
Project Name: Former L&M	Project #: 50000105/400
Site: Former L&M	SSOW#:

Preservation Codes:

A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Y - Trizma; Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	VPH	EPH, metals, % moisture	VOCs LL	VOCs HL	SVOCs, pest, PCBs & TPH	TCLP RCRA	Spec. Cond, Flashpoint, Reactivity	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	F		J	F				X	
				Water											
				Solid											
				Water											
LM-SO-SD01-053123	5-31-23	750	C	Soil					X	X	X	X	X		
LM-SO-SD02-053123	5-31-23	810	C	Soil					X	X	X	X	X		
LM-SO-UST04-053023	5-30-23	1330	C	Soil			X	X							

Page 23 of 24 5 02 03

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested I, II, III, IV, Other (specify): EDD PDF and Email

Special Instructions/QC Requirements: MCP CAM Methods; LM-SO-UST04-053023 is standard TAT

Empty Kit Relinquished by	Date:	Time	Method of Shipment:

Relinquished by:	Date/Time: 5-31-23 10:55	Company	Received by:	Date/Time: 5/31/23 10:55	Company
Relinquished by:	Date/Time: 5/31/23	Company	Received by:	Date/Time: 5/31/23 13:30	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No..

Cooler Temperature(s) °C and Other Remarks: 0.9 +0.2 -0.6 IR#5

6/7/2023

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Nobis Engineering, Inc.

Job Number: 620-11778-2

Login Number: 11778
List Number: 1
Creator: Makhoul, Elie

List Source: Eurofins New England

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

October 2, 2023
Nobis File No. S00001.05

Ms. Katy Deng
USEPA – Region 1
Land, Chemicals, and Redevelopment Division
5 Post Office Square, Suite 100
Boston, MA 02109-3912

Re: USEPA Contract No. 68HE0122D0001
USEPA Task Order No. 68HE0122F0044
Targeted Brownfields Assessment (TBA)
Former L&M Service Station Site
Lunenburg, Massachusetts
Sample Delivery Group (SDG) No. 620118831
Eurofins New England, North Kingstown, RI

Tier 1 Stage 2A Organic and Inorganic Data Review:

Volatile Petroleum Hydrocarbons (VPH by MassDEP-VPH), Extractable Petroleum Hydrocarbons (EPH by MassDEP-EPH), Massachusetts Contingency Plan (MCP) Metals (MCP-14 Metals by 6020B/7470A)

1/Groundwater Sample: LM-GW-MW103-060223
1/Aqueous Trip Blank: TB01-060223

Dear Ms. Deng:

Nobis Group (Nobis), under a USEPA contract as a subcontractor to KGSNE JV, LLC, performed a Tier 1 Stage 2A manual data review (S2AVM) on the organic and inorganic analytical data for the samples listed above. The samples were collected by Nobis at the Former L&M Service Station Site located in Lunenburg, Massachusetts on June 2, 2023. The samples were analyzed for VPHs by MassDEP-VPH, EPHs by MassDEP-EPH, and MCP-14 Metals by EPA Methods 6010D/7470A by Eurofins New England in North Kingstown, RI.

The Tier 1 Stage 2A manual data review was performed in accordance with the Region 1 - EPA New England Environmental Data Review Supplement for Region 1 Data Review Elements and Superfund Specific Guidance/Procedures (September 2020); USEPA's National Functional Guidelines for Organic Superfund Methods Data Review (November 2020); USEPA's National Functional Guidelines for Inorganic Superfund Methods Data Review (November 2020); the Program Quality Assurance Project Plan (Program QAPP) dated October 2022, and the Quality Assurance Project Plan Addendum (QAPPA) (May 2023) for the Former L&M Service Station Site, which appends the October 2022 Program QAPP.

The data were evaluated based on the following parameters:

* • Overall Evaluation of Data and Potential Usability Issues
* • Data Completeness
* • Preservation and Technical Holding Times
* • Blanks
• Surrogates (organic analyses only)

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NA	•	Internal Standards
NA	•	Matrix Spike Analysis
NA	•	Laboratory Duplicates
*	•	Laboratory Control Samples (LCS)
NA	•	Field Duplicates
NA	•	ICP Serial Dilutions (metals only)
NA	•	Performance Evaluation (PE) Samples
NA	•	Target Analyte Identification
*	•	Reported Quantitation Limits

* All criteria were met for this parameter or did not require qualification.
NA – Not applicable.

Overall Evaluation of Data and Potential Usability Issues

The site sampling objectives are:

- Characterize in-situ soil based on AOCs identified by Fuss & O'Neill in November 2020 Phase I for the presence of possible site-related contamination.
- Evaluate groundwater elevation.
- Evaluate presence/absence of groundwater contamination related to site.

The data meet the project quality criteria and can be used without restriction except as summarized below. The attachments provide details and supporting documentation.

MassDEP-VPH:
Qualification of the data was not required.

MassDEP-EPH:
Results were qualified for surrogate recovery.

MCP-14 Metals and Mercury:
Qualification of the data was not required.

Please contact Linda Terzis at lterzis@nobis-group.com should you have any questions or comments regarding this information.

Sincerely,

NOBIS GROUP®

Linda Terzis
Data Validator

Gary Glennon
Data Validator

Tables: Data Summary Tables – Tier 1 Stage 2A (S2AVM) Validated Data
Data Qualification Actions Table

Attachments: Data Review Checklist
Support Documentation
COC

cc: Denis McGrath (Nobis Group)
Adam Roy (Nobis Group)

DATA SUMMARY TABLE

Analysis		EPH in Groundwater
Lab Sample ID		620-11883-1
Field Sample ID		LM-GW-MW103-060223
Sample Type		N
Parent Sample ID		
Sample Date	**Units**	06/02/23
2-Methylnaphthalene	ug/L	1.1 U
Acenaphthene	ug/L	1.1 U
Acenaphthylene	ug/L	1.1 U
Anthracene	ug/L	1.1 U
Benzo(a)anthracene	ug/L	1.1 U
Benzo(a)pyrene	ug/L	0.21 U
Benzo(b)fluoranthene	ug/L	1.1 U
Benzo(g,h,i)perylene	ug/L	1.1 U
Benzo(k)fluoranthene	ug/L	1.1 U
C11-C22 Aromatics	ug/L	110 U
C11-C22 Aromatics (adjusted)	ug/L	110 U
C19-C36 Aliphatics	ug/L	110 UJ
C9-C18 Aliphatics	ug/L	110 UJ
Chrysene	ug/L	1.1 U
Dibenz(a,h)anthracene	ug/L	0.53 U
Fluoranthene	ug/L	1.1 U
Fluorene	ug/L	1.1 U
Indeno(1,2,3-cd)pyrene	ug/L	0.53 U
Naphthalene	ug/L	1.1 U
Phenanthrene	ug/L	1.1 U
Pyrene	ug/L	1.1 U

DATA SUMMARY TABLE

Analysis		Metals in Groundwater
Lab Sample ID		620-11883-1
Field Sample ID		LM-GW-MW103-060223
Sample Type		N
Parent Sample ID		
Sample Date	**Units**	06/02/23
Antimony	mg/L	0.005
Arsenic	mg/L	0.0035
Barium	mg/L	0.24
Beryllium	mg/L	0.002 U
Cadmium	mg/L	0.0012
Chromium	mg/L	0.024
Lead	mg/L	0.041
Mercury	mg/L	0.0002 U
Nickel	mg/L	0.02
Selenium	mg/L	0.015 U
Silver	mg/L	0.005 U
Thallium	mg/L	0.005 U
Vanadium	mg/L	0.019
Zinc	mg/L	0.48

DATA SUMMARY TABLE

Analysis		VPH in Groundwater
Lab Sample ID		620-11883-1
Field Sample ID		LM-GW-MW103-060223
Sample Type		N
Parent Sample ID		
Sample Date	**Units**	06/02/23
Benzene	ug/L	5 U
C5-C8 Aliphatics (adjusted)	ug/L	100 U
C5-C8 Aliphatics (unadjusted)	ug/L	100 U
C9-C10 Aromatics	ug/L	100 U
C9-C12 Aliphatics (adjusted)	ug/L	100 U
C9-C12 Aliphatics (unadjusted)	ug/L	100 U
Ethylbenzene	ug/L	5 U
m,p-Xylene	ug/L	10 U
Methyl tert-butyl ether	ug/L	5 U
Naphthalene	ug/L	5 U
o-Xylene	ug/L	5 U
Toluene	ug/L	5 U
Xylene (total)	ug/L	15 U

DATA SUMMARY TABLE

Analysis		VPH in Water Quality Control Matrix
Lab Sample ID		620-11883-2
Field Sample ID		TB01-060223
Sample Type		TB
Parent Sample ID		
Sample Date	**Units**	06/02/23
Benzene	ug/L	5 U
C5-C8 Aliphatics (adjusted)	ug/L	100 U
C5-C8 Aliphatics (unadjusted)	ug/L	100 U
C9-C10 Aromatics	ug/L	100 U
C9-C12 Aliphatics (adjusted)	ug/L	100 U
C9-C12 Aliphatics (unadjusted)	ug/L	100 U
Ethylbenzene	ug/L	5 U
m,p-Xylene	ug/L	10 U
Methyl tert-butyl ether	ug/L	5 U
Naphthalene	ug/L	5 U
o-Xylene	ug/L	5 U
Toluene	ug/L	5 U
Xylene (total)	ug/L	15 U

Data Review Qualification Actions
Former L&M Service Station
SDG 620118831

Parameter	Analyte	Samples	Evaluation Criteria	Action Needed	Comments
MassDEP-VPH					
	Qualification of the data was not required.				
MassDEP-EPH					
	C9-C18 and C19-C36 aliphatics	LM-GW-MW103-060223	Surrogate recovery	UJ	
MCP-14 Metals / Mercury					
	Qualification of the data was not required.				

Tier 1/Stage 2A Data Review Checklist

Project: Former L&M Service Station, Lunenburg, Massachusetts
Targeted Brownfields Assessment (TBA)
Project #: S00001.05
Case#: NA
Date: 09/10/2023
Methods: Volatile Petroleum Hydrocarbons (VPH) (MassDEP-VPH)
Extractable Petroleum Hydrocarbons (EPH) (MassDEP-EPH)
Massachusetts Contingency Plan (MCP) Metals (MCP-14 Metals by 6010D/7470A)

Laboratory: Eurofins New England Laboratory, North Kingstown, RI
SDG: 620118831
Reviewer: Linda Terzis

1. **Case Narrative and Data Package Completeness (COC and Analyte List Review)**
One (1) groundwater sample and one trip blank sample were listed on the COC for SDG 620118831. The samples were collected on 06/02/2023 and received at the Eurofins New England Laboratory on 06/02/2023 at a maximum temperature of 2.4 °C.

Sample ID	Laboratory ID	Analyses
LM-GW-MW103-060223	620-11883-1	MassDEP-VPH, MassDEP-EPH, MCP-14 Metals/Mercury
TB01-060223	620-11883-2	MassDEP-VPH

The data were evaluated using the site-specific Quality Assurance Project Plan Addendum (QAPPA) (dated May 2023) and the Program QAPP (dated October 2022). Both were prepared by KGSNE, LLC. The QAPPA appends and incorporates by reference the procedures and quality control measures detailed in the Program QAPP (October 2022). Therefore, site data for this SDG were evaluated using both the QAPPA of May 2023 and the Program QAPP dated October 2022. The Massachusetts Compendium of Analytical Methods (CAM) and/or SW-846 Methods were used to perform the analyses. Therefore, site data were also evaluated using CAM quality control (QC) limits, where applicable.

The analyte lists reported by the laboratory were compared to the required analyte lists per Table 4 (groundwater) in the QAPPA (May 2023) for the site. Results for all requested analytes were reported and no inconsistencies were noted.

2. **Holding Time and Sample Preservation Compliance**

Receipt temperatures are acceptable (≤ 6°), as specified in the QAPPA (May 2023).

MassDEP-VPH: Holding time criteria (analyzed within 14 days) met.

MassDEP-EPH: Holding time criteria (extracted within 14 days and analyzed within 40 days of extraction) met.

MCP-14 Metals/Mercury: Holding time criteria (analyzed within 28 days for mercury; within 180 days for all other analytes) were met.

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3. **Calibration Issues**

Not assessed for S2AVM data review.

4. **Laboratory and Field Blanks**

MassDEP-VPH: Results for the VPH laboratory method blank and the trip blank (TB-01-0602223) were non-detect. No blank actions are required.

MassDEP-EPH: Results for the EPH laboratory method blanks were non-detect. No blank actions are required.

MCP-14 Metals/Mercury: Results for the metals and mercury method blanks were non-detect. No blank actions are required.

An equipment blank was not submitted with the samples of this SDG. No actions are required.

5. **Interference Check Sample (metals only)**

Not assessed for S2AVM data review.

6. **Surrogates**

The Program QAPP (October 2022) was used to evaluate site data for surrogate recovery. If no Program QAPP-specific recovery limits were available for a surrogate, the MCP CAM recovery limits were used.

MassDEP-VPH: Percent surrogate recoveries for the samples were within the Program QAPP limits of 70-130%. No actions are required.

MassDEP-EPH: Percent surrogate recoveries for the samples were within the Program QAPP limits of 40-140% except for the recovery the surrogate 1-chlorooctadecane in sample LM-GW-MW103-060223 (620-11883-1) which was recovered at 26%. As noted in Table IV B-2 of the MCP CAM for the EPH method, 1-chlorooctadecane is associated with C9-C18 and C19-C36 aliphatic hydrocarbons. C9-C18 and C19-C36 aliphatics were non-detect in the sample. Professional judgement based on the NFGs (2020) for SVOCs was used to qualify the non-detect results for C9-C18 and C19-C36 aliphatic hydrocarbons as estimated (UJ) in sample LM-GW-MW103-060223 (620-11883-1) due to low surrogate recovery.

MCP-14 Metals/Mercury: Not applicable for this analysis.

7. **Laboratory Control Samples**

MassDEP-VPH: The percent recoveries in the VPH LCS/LCSD pair met the Program QAPP recovery limits of 70-130% and RPDs ≤ 25%. No actions are required.

MassDEP-EPH: The percent recoveries in the EPH LCS/LCSD pairs met the Program QAPP recovery limits of 40-140%. RPDs met the QAPP limit of ≤ 25% except for 2-methylnaphthalene, acenaphthene, and benzo(g,h,i)perylene, where the RPDs were > 25%. The compounds were non-detected in the aqueous samples of this SDG. Based on the NFGs (2020) for SVOCs, the non-detect results are accepted unqualified.

MCP-14 Metals/Mercury: Percent recoveries and RPDs for the metals and mercury LCS/LCSD analyses were within the QAPP limits of 80-120% and ≤ 20%, respectively. No actions are required.

8. Matrix Spikes

Based on the Region I EPA New England Environmental Data Review Supplement (Region I Supplement, 2020), MS/MSD qualifications are applied to all field samples with similar matrix, unless otherwise noted.

MS/MSD analyses were not requested for the sample of this SDG. No actions are required.

9. Laboratory Duplicates (metals only)

MCP-14 Metals/Mercury: A Laboratory duplicate analysis was not performed for this SDG. No actions are required.

10. Serial Dilution (metals only)

MCP-14 Metals/Mercury: A serial dilution analysis was not performed for this SDG. No action is required.

11. Field Duplicate Precision

Acceptable field duplicate precision is an RPD of ≤ 30% for results > 5x RL and an absolute difference < 2x RL for results < 5x RL, based on the EPA Region I Supplement (2020).

Based on the Region I Supplement (2020), qualifications are applied to all field samples with similar matrix, unless otherwise indicated.

A field duplicate pair was not submitted with the samples of this SDG. No actions are required.

12. Internal Standards

Not assessed for S2AVM data review.

13. Dual Column Precision (PCBs only)

Not applicable for this SDG.

14. Performance Evaluation Samples

Performance Evaluation (PE) samples were not included in this SDG.

15. Reporting Limits

RLs for non-detect results for VPH, EPH, and metals/mercury analyses met the project action levels (PALs) for the site.

16. Other

EPA Region I Supplement (2020) criterion for percent solids content (> 30%) not applicable for groundwater samples.

Overall bias is considered indeterminate when cumulative nonconformances do not show a consistent bias or in cases of the presence of conflicting high and low biases.

11883

Chain of Custody Record

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	Sampler: S. Stone	Lab PM	Carrier Tracking No(s)	COC No: 620-10175-1337 2
Bridget Fortier	Phone	E-Mail: dru_Nobis-group.com	State of Origin	Page: Page 1 of 3
Company: Nobis Engineering, Inc	PWSID			Job #:

Analysis Requested

Address: 585 Middlesex Street	Due Date Requested:
City: Lowell	TAT Requested (days): Standard
State, Zip: MA, 01851	Compliance Project: Δ Yes Δ No
Phone	PO #:
Email: bfortier@nobis-group.com	WO #:
Project Name: Former L&M	Project #: 500001.005/406
Site: Former L&M	SSOW#:

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	VPH	Metals	EPH	Total Number of containers	Special Instructions/Note:
Preservation Code:							A	D	A		
01 LM-GW-MW103-060223	06-02-23	835	G	Water			X	X	X		metals could not be filtered
02 TB01-060223	06-02-23	1000	G	Water			X				trip blank
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested I, II, III, IV, Other (specify): EDD format PDF & email

Special Instructions/QC Requirements: MCP CAM metals; only 1 EPH due to volume

Empty Kit Relinquished by		Date		Time		Method of Shipment:	
Relinquished by:		Date/Time: 6-2-23 1305	Company: EA	Received by:		Date/Time: 6/2-23 1305	Company: EA
Relinquished by:		Date/Time: 6-2-23 1510	Company: EA	Received by:		Date/Time: 6/2/23 1510	Company: Eurofins
Relinquished by:		Date/Time.	Company	Received by:		Date/Time.	Company

Custody Seals Intact. Δ Yes Δ No | Custody Seal No .

Cooler Temperature(s) °C and Other Remarks: 2.2 +0.2 2.4 #8

Ver: 06/08/2021

ANALYTICAL REPORT

PREPARED FOR

Attn: Adam Roy
Nobis Engineering, Inc.
585 Middlesex Street
Lowell, Massachusetts 01851

Generated 6/16/2023 2:04:51 PM

JOB DESCRIPTION

Former L&M - Lunenburg MA

JOB NUMBER

620-11883-1

Eurofins New England
646 Camp Ave
North Kingstown RI 02852

See page two for job notes and contact information.

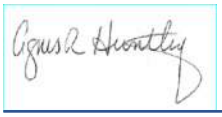
my EOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northeast, LLC Project Manager.

Authorization



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Authorized for release by
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Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
Case Narrative 5
Detection Summary 6
Client Sample Results 7
Surrogate Summary 10
QC Sample Results 11
QC Association Summary 17
Lab Chronicle 19
Certification Summary 20
Method Summary 22
Sample Summary 23
Chain of Custody 24
Receipt Checklists 25

Definitions/Glossary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11883-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.

GC Semi VOA

Qualifier	Qualifier Description
S1-	Surrogate recovery exceeds control limits, low biased.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11883-1

Job ID: 620-11883-1

Laboratory: Eurofins New England

Narrative

Job Narrative
620-11883-1

Receipt
The samples were received on 6/2/2023 3:10 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.4º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC/MS Semi VOA
Method EPH: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 620-23423 and 620-23465 and analytical batch 620-23645 recovered outside control limits for the following analytes: 2-Methylnaphthalene, Anthracene and Benzo[g,h,i]perylene. The individual percent recoveries are within acceptance criteria.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method MAEPH2.1: Surrogate recovery for the following sample was outside control limits: LM-GW-MW103-060223 (620-11883-1). Evidence of matrix interference was present and noted in the extraction process; therefore, re-extraction and/or re-analysis was not performed.

Method MAEPH2.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 620-23423 and 620-23465 and analytical batch 620-23496 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11883-1

Client Sample ID: LM-GW-MW103-060223 — Lab Sample ID: 620-11883-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.0050	J	0.0060	0.0016	mg/L	1		6010D	Total/NA
Arsenic	0.0035	J	0.0040	0.0014	mg/L	1		6010D	Total/NA
Barium	0.24		0.0050	0.00070	mg/L	1		6010D	Total/NA
Cadmium	0.0012	J	0.0025	0.00036	mg/L	1		6010D	Total/NA
Chromium	0.024		0.0050	0.00093	mg/L	1		6010D	Total/NA
Lead	0.041		0.0075	0.0062	mg/L	1		6010D	Total/NA
Nickel	0.020		0.0050	0.00087	mg/L	1		6010D	Total/NA
Vanadium	0.019		0.0050	0.0011	mg/L	1		6010D	Total/NA
Zinc	0.48		0.025	0.0016	mg/L	1		6010D	Total/NA

Client Sample ID: TB01-060223 — Lab Sample ID: 620-11883-2

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: LM-GW-MW103-060223

Date Collected: 06/02/23 08:35
Date Received: 06/02/23 15:10

Lab Sample ID: 620-11883-1

Matrix: Water

Method: MA DEP EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.1	0.25	ug/L		06/08/23 13:47	06/15/23 17:32	1
2-Methylnaphthalene	ND	*1	1.1	0.31	ug/L		06/08/23 13:47	06/15/23 17:32	1
Acenaphthylene	ND		1.1	0.41	ug/L		06/08/23 13:47	06/15/23 17:32	1
Acenaphthene	ND		1.1	0.20	ug/L		06/08/23 13:47	06/15/23 17:32	1
Fluorene	ND		1.1	0.41	ug/L		06/08/23 13:47	06/15/23 17:32	1
Phenanthrene	ND		1.1	0.18	ug/L		06/08/23 13:47	06/15/23 17:32	1
Anthracene	ND	*1	1.1	0.16	ug/L		06/08/23 13:47	06/15/23 17:32	1
Fluoranthene	ND		1.1	0.16	ug/L		06/08/23 13:47	06/15/23 17:32	1
Pyrene	ND		1.1	0.15	ug/L		06/08/23 13:47	06/15/23 17:32	1
Benzo[a]anthracene	ND		1.1	0.074	ug/L		06/08/23 13:47	06/15/23 17:32	1
Chrysene	ND		1.1	0.15	ug/L		06/08/23 13:47	06/15/23 17:32	1
Benzo[b]fluoranthene	ND		1.1	0.16	ug/L		06/08/23 13:47	06/15/23 17:32	1
Benzo[k]fluoranthene	ND		1.1	0.25	ug/L		06/08/23 13:47	06/15/23 17:32	1
Benzo[a]pyrene	ND		0.21	0.17	ug/L		06/08/23 13:47	06/15/23 17:32	1
Indeno[1,2,3-cd]pyrene	ND		0.53	0.49	ug/L		06/08/23 13:47	06/15/23 17:32	1
Dibenz(a,h)anthracene	ND		0.53	0.23	ug/L		06/08/23 13:47	06/15/23 17:32	1
Benzo[g,h,i]perylene	ND	*1	1.1	0.18	ug/L		06/08/23 13:47	06/15/23 17:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*42*		*40 - 140*	*06/08/23 13:47*	*06/15/23 17:32*	*1*
2-Fluorobiphenyl (Surr)	*102*		*40 - 140*	*06/08/23 13:47*	*06/15/23 17:32*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			06/06/23 02:40	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			06/06/23 02:40	1
C9-C10 Aromatics	ND		100	100	ug/L			06/06/23 02:40	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			06/06/23 02:40	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			06/06/23 02:40	1
Benzene	ND		5.0	5.0	ug/L			06/06/23 02:40	1
Ethylbenzene	ND		5.0	5.0	ug/L			06/06/23 02:40	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			06/06/23 02:40	1
Naphthalene	ND		5.0	5.0	ug/L			06/06/23 02:40	1
Toluene	ND		5.0	5.0	ug/L			06/06/23 02:40	1
m,p-Xylene	ND		10	10	ug/L			06/06/23 02:40	1
o-Xylene	ND		5.0	5.0	ug/L			06/06/23 02:40	1
Xylenes, Total	ND		15	15	ug/L			06/06/23 02:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*99*		*70 - 130*		*06/06/23 02:40*	*1*
2,5-Dibromotoluene (pid)	*93*		*70 - 130*		*06/06/23 02:40*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		110	110	ug/L		06/08/23 13:47	06/14/23 13:43	1
C19-C36 Aliphatics	ND		110	110	ug/L		06/08/23 13:47	06/14/23 13:43	1
C11-C22 Aromatics	ND		110	110	ug/L		06/08/23 13:47	06/14/23 13:43	1
C11-C22 Aromatics (Adjusted)	ND		110	110	ug/L		06/08/23 13:47	06/14/23 13:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*26*	*S1-*	*40 - 140*	*06/08/23 13:47*	*06/14/23 13:43*	*1*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11883-1

Client Sample ID: LM-GW-MW103-060223
Date Collected: 06/02/23 08:35
Date Received: 06/02/23 15:10

Lab Sample ID: 620-11883-1
Matrix: Water

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*42*		*40 - 140*	*06/08/23 13:47*	*06/14/23 13:43*	*1*
2-Fluorobiphenyl (Surr)	*99*		*40 - 140*	*06/08/23 13:47*	*06/14/23 13:43*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0050**	**J**	0.0060	0.0016	mg/L		06/05/23 07:49	06/07/23 12:55	1
Arsenic	**0.0035**	**J**	0.0040	0.0014	mg/L		06/05/23 07:49	06/07/23 12:55	1
Barium	**0.24**		0.0050	0.00070	mg/L		06/05/23 07:49	06/07/23 12:55	1
Beryllium	ND		0.0020	0.00028	mg/L		06/05/23 07:49	06/07/23 12:55	1
Cadmium	**0.0012**	**J**	0.0025	0.00036	mg/L		06/05/23 07:49	06/07/23 12:55	1
Chromium	**0.024**		0.0050	0.00093	mg/L		06/05/23 07:49	06/07/23 12:55	1
Lead	**0.041**		0.0075	0.0062	mg/L		06/05/23 07:49	06/07/23 12:55	1
Nickel	**0.020**		0.0050	0.00087	mg/L		06/05/23 07:49	06/07/23 12:55	1
Selenium	ND		0.015	0.0042	mg/L		06/05/23 07:49	06/07/23 12:55	1
Silver	ND		0.0050	0.00062	mg/L		06/05/23 07:49	06/07/23 12:55	1
Thallium	ND		0.0050	0.0021	mg/L		06/05/23 07:49	06/07/23 12:55	1
Vanadium	**0.019**		0.0050	0.0011	mg/L		06/05/23 07:49	06/07/23 12:55	1
Zinc	**0.48**		0.025	0.0016	mg/L		06/05/23 07:49	06/07/23 12:55	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		06/12/23 10:41	06/12/23 16:20	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11883-1

Client Sample ID: TB01-060223
Date Collected: 06/02/23 10:00
Date Received: 06/02/23 15:10

Lab Sample ID: 620-11883-2
Matrix: Water

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			06/05/23 17:52	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			06/05/23 17:52	1
C9-C10 Aromatics	ND		100	100	ug/L			06/05/23 17:52	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			06/05/23 17:52	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			06/05/23 17:52	1
Benzene	ND		5.0	5.0	ug/L			06/05/23 17:52	1
Ethylbenzene	ND		5.0	5.0	ug/L			06/05/23 17:52	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			06/05/23 17:52	1
Naphthalene	ND		5.0	5.0	ug/L			06/05/23 17:52	1
Toluene	ND		5.0	5.0	ug/L			06/05/23 17:52	1
m,p-Xylene	ND		10	10	ug/L			06/05/23 17:52	1
o-Xylene	ND		5.0	5.0	ug/L			06/05/23 17:52	1
Xylenes, Total	ND		15	15	ug/L			06/05/23 17:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*90*		*70 - 130*		*06/05/23 17:52*	*1*
2,5-Dibromotoluene (pid)	*86*		*70 - 130*		*06/05/23 17:52*	*1*

Surrogate Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11883-1

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH (40-140)	FBP (40-140)
620-11883-1	LM-GW-MW103-060223	42	102
LCS 620-23423/24-B	Lab Control Sample	64	101
LCSD 620-23423/25-B	Lab Control Sample Dup	72	95
MB 620-23423/1-B	Method Blank	60	115

Surrogate Legend

OTPH = o-Terphenyl (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	25DBTf1 (70-130)	25DBTp1 (70-130)
620-11883-1	LM-GW-MW103-060223	99	93
620-11883-2	TB01-060223	90	86
LCS 620-23260/4	Lab Control Sample	89	86
LCSD 620-23260/5	Lab Control Sample Dup	92	88
MB 620-23260/6	Method Blank	94	90

Surrogate Legend

25DBTf = 2,5-Dibromotoluene (fid)
25DBTp = 2,5-Dibromotoluene (pid)

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	1COD1 (40-140)	OTPH1 (40-140)	FBP1 (40-140)
620-11883-1	LM-GW-MW103-060223	26 S1-	42	99
LCS 620-23423/2-B	Lab Control Sample	61	75	120
LCSD 620-23423/3-B	Lab Control Sample Dup	76	72	115
MB 620-23423/1-B	Method Blank	68	67	110

Surrogate Legend

1COD = 1-Chlorooctadecane (Surr)
OTPH = o-Terphenyl (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11883-1

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Lab Sample ID: MB 620-23423/1-B
Matrix: Water
Analysis Batch: 23645

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23423

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.0	0.23	ug/L		06/08/23 13:47	06/15/23 16:25	1
2-Methylnaphthalene	ND		1.0	0.29	ug/L		06/08/23 13:47	06/15/23 16:25	1
Acenaphthylene	ND		1.0	0.39	ug/L		06/08/23 13:47	06/15/23 16:25	1
Acenaphthene	ND		1.0	0.19	ug/L		06/08/23 13:47	06/15/23 16:25	1
Fluorene	ND		1.0	0.39	ug/L		06/08/23 13:47	06/15/23 16:25	1
Phenanthrene	ND		1.0	0.17	ug/L		06/08/23 13:47	06/15/23 16:25	1
Anthracene	ND		1.0	0.15	ug/L		06/08/23 13:47	06/15/23 16:25	1
Fluoranthene	ND		1.0	0.15	ug/L		06/08/23 13:47	06/15/23 16:25	1
Pyrene	ND		1.0	0.14	ug/L		06/08/23 13:47	06/15/23 16:25	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		06/08/23 13:47	06/15/23 16:25	1
Chrysene	ND		1.0	0.14	ug/L		06/08/23 13:47	06/15/23 16:25	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		06/08/23 13:47	06/15/23 16:25	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		06/08/23 13:47	06/15/23 16:25	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		06/08/23 13:47	06/15/23 16:25	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		06/08/23 13:47	06/15/23 16:25	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		06/08/23 13:47	06/15/23 16:25	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		06/08/23 13:47	06/15/23 16:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*60*		*40 - 140*	*06/08/23 13:47*	*06/15/23 16:25*	*1*
2-Fluorobiphenyl (Surr)	*115*		*40 - 140*	*06/08/23 13:47*	*06/15/23 16:25*	*1*

Lab Sample ID: LCS 620-23423/24-B
Matrix: Water
Analysis Batch: 23645

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23423

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Naphthalene	5.00	1.99		ug/L		40	40 - 140
2-Methylnaphthalene	5.00	2.17		ug/L		43	40 - 140
Acenaphthylene	5.00	2.89		ug/L		58	40 - 140
Acenaphthene	5.00	2.39		ug/L		48	40 - 140
Fluorene	5.00	2.68		ug/L		54	40 - 140
Phenanthrene	5.00	2.66		ug/L		53	40 - 140
Anthracene	5.00	2.02		ug/L		40	40 - 140
Fluoranthene	5.00	3.33		ug/L		67	40 - 140
Pyrene	5.00	3.33		ug/L		67	40 - 140
Benzo[a]anthracene	5.00	3.58		ug/L		72	40 - 140
Chrysene	5.00	3.31		ug/L		66	40 - 140
Benzo[b]fluoranthene	5.00	3.77		ug/L		75	40 - 140
Benzo[k]fluoranthene	5.00	3.45		ug/L		69	40 - 140
Benzo[a]pyrene	5.00	3.30		ug/L		66	40 - 140
Indeno[1,2,3-cd]pyrene	5.00	3.31		ug/L		66	40 - 140
Dibenz(a,h)anthracene	5.00	3.27		ug/L		65	40 - 140
Benzo[g,h,i]perylene	5.00	3.59		ug/L		72	40 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*64*		*40 - 140*
2-Fluorobiphenyl (Surr)	*101*		*40 - 140*

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Lab Sample ID: LCSD 620-23423/25-B
Matrix: Water
Analysis Batch: 23645

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23423

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Naphthalene			5.00	2.31		ug/L		46	40 - 140	15	25
2-Methylnaphthalene			5.00	2.82	*1	ug/L		56	40 - 140	26	25
Acenaphthylene			5.00	3.03		ug/L		61	40 - 140	5	25
Acenaphthene			5.00	2.85		ug/L		57	40 - 140	17	25
Fluorene			5.00	2.64		ug/L		53	40 - 140	2	25
Phenanthrene			5.00	2.86		ug/L		57	40 - 140	7	25
Anthracene			5.00	3.00	*1	ug/L		60	40 - 140	39	25
Fluoranthene			5.00	3.76		ug/L		75	40 - 140	12	25
Pyrene			5.00	3.87		ug/L		77	40 - 140	15	25
Benzo[a]anthracene			5.00	3.94		ug/L		79	40 - 140	9	25
Chrysene			5.00	3.45		ug/L		69	40 - 140	4	25
Benzo[b]fluoranthene			5.00	4.24		ug/L		85	40 - 140	12	25
Benzo[k]fluoranthene			5.00	4.15		ug/L		83	40 - 140	18	25
Benzo[a]pyrene			5.00	3.65		ug/L		73	40 - 140	10	25
Indeno[1,2,3-cd]pyrene			5.00	4.24		ug/L		85	40 - 140	25	25
Dibenz(a,h)anthracene			5.00	4.22		ug/L		84	40 - 140	25	25
Benzo[g,h,i]perylene			5.00	4.66	*1	ug/L		93	40 - 140	26	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*72*		*40 - 140*
2-Fluorobiphenyl (Surr)	*95*		*40 - 140*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-23260/6
Matrix: Water
Analysis Batch: 23260

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			06/05/23 15:29	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			06/05/23 15:29	1
C9-C10 Aromatics	ND		100	100	ug/L			06/05/23 15:29	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			06/05/23 15:29	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			06/05/23 15:29	1
Benzene	ND		5.0	5.0	ug/L			06/05/23 15:29	1
Ethylbenzene	ND		5.0	5.0	ug/L			06/05/23 15:29	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			06/05/23 15:29	1
Naphthalene	ND		5.0	5.0	ug/L			06/05/23 15:29	1
Toluene	ND		5.0	5.0	ug/L			06/05/23 15:29	1
m,p-Xylene	ND		10	10	ug/L			06/05/23 15:29	1
o-Xylene	ND		5.0	5.0	ug/L			06/05/23 15:29	1
Xylenes, Total	ND		15	15	ug/L			06/05/23 15:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*94*		*70 - 130*		*06/05/23 15:29*	*1*
2,5-Dibromotoluene (pid)	*90*		*70 - 130*		*06/05/23 15:29*	*1*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCS 620-23260/4
Matrix: Water
Analysis Batch: 23260

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C10 Aromatics			20.0	ND		ug/L		112	70 - 130		
C5-C8 Aliphatics (unadjusted)			60.0	ND		ug/L		97	70 - 130		
C9-C12 Aliphatics (unadjusted)			60.0	ND		ug/L		98	70 - 130		
Benzene			20.0	19.3		ug/L		96	70 - 130		
Ethylbenzene			20.0	20.5		ug/L		103	70 - 130		
Methyl tert-butyl ether			20.0	18.5		ug/L		93	70 - 130		
Naphthalene			20.0	19.5		ug/L		97	70 - 130		
Toluene			20.0	19.9		ug/L		99	70 - 130		
m,p-Xylene			40.0	42.2		ug/L		106	70 - 130		
o-Xylene			20.0	21.3		ug/L		107	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*89*		*70 - 130*
2,5-Dibromotoluene (pid)	*86*		*70 - 130*

Lab Sample ID: LCSD 620-23260/5
Matrix: Water
Analysis Batch: 23260

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics			20.0	ND		ug/L		108	70 - 130	4	25
C5-C8 Aliphatics (unadjusted)			60.0	ND		ug/L		97	70 - 130	0	25
C9-C12 Aliphatics (unadjusted)			60.0	ND		ug/L		96	70 - 130	2	25
Benzene			20.0	19.2		ug/L		96	70 - 130	1	25
Ethylbenzene			20.0	20.6		ug/L		103	70 - 130	0	25
Methyl tert-butyl ether			20.0	19.2		ug/L		96	70 - 130	4	25
Naphthalene			20.0	19.1		ug/L		96	70 - 130	2	25
Toluene			20.0	20.0		ug/L		100	70 - 130	1	25
m,p-Xylene			40.0	42.3		ug/L		106	70 - 130	0	25
o-Xylene			20.0	21.3		ug/L		107	70 - 130	0	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*92*		*70 - 130*
2,5-Dibromotoluene (pid)	*88*		*70 - 130*

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-23423/1-B
Matrix: Water
Analysis Batch: 23496

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23423

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		100	100	ug/L		06/08/23 13:47	06/13/23 12:11	1
C19-C36 Aliphatics	ND		100	100	ug/L		06/08/23 13:47	06/13/23 12:11	1
C11-C22 Aromatics	ND		100	100	ug/L		06/08/23 13:47	06/13/23 12:11	1
C11-C22 Aromatics (Adjusted)	ND		100	100	ug/L		06/08/23 13:47	06/13/23 12:11	1

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: MB 620-23423/1-B
Matrix: Water
Analysis Batch: 23496

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23423

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctadecane (Surr)	68		40 - 140	06/08/23 13:47	06/13/23 12:11	1
o-Terphenyl (Surr)	67		40 - 140	06/08/23 13:47	06/13/23 12:11	1
2-Fluorobiphenyl (Surr)	110		40 - 140	06/08/23 13:47	06/13/23 12:11	1

Lab Sample ID: LCS 620-23423/2-B
Matrix: Water
Analysis Batch: 23496

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23423

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C18 Aliphatics			120	ND		ug/L		55	40 - 140		
C19-C36 Aliphatics			160	123		ug/L		77	40 - 140		
C11-C22 Aromatics			340	329		ug/L		97	40 - 140		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctadecane (Surr)	61		40 - 140
o-Terphenyl (Surr)	75		40 - 140
2-Fluorobiphenyl (Surr)	120		40 - 140

Lab Sample ID: LCSD 620-23423/3-B
Matrix: Water
Analysis Batch: 23496

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23423

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics			120	ND		ug/L		66	40 - 140	18	25
C19-C36 Aliphatics			160	120		ug/L		75	40 - 140	2	25
C11-C22 Aromatics			340	308		ug/L		91	40 - 140	7	25

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctadecane (Surr)	76		40 - 140
o-Terphenyl (Surr)	72		40 - 140
2-Fluorobiphenyl (Surr)	115		40 - 140

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 620-23239/1-A
Matrix: Water
Analysis Batch: 23376

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23239

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0060	0.0016	mg/L		06/05/23 07:45	06/07/23 09:59	1
Arsenic	ND		0.0040	0.0014	mg/L		06/05/23 07:45	06/07/23 09:59	1
Barium	ND		0.0050	0.00070	mg/L		06/05/23 07:45	06/07/23 09:59	1
Beryllium	ND		0.0020	0.00028	mg/L		06/05/23 07:45	06/07/23 09:59	1
Cadmium	ND		0.0025	0.00036	mg/L		06/05/23 07:45	06/07/23 09:59	1
Chromium	ND		0.0050	0.00093	mg/L		06/05/23 07:45	06/07/23 09:59	1
Lead	ND		0.0075	0.0062	mg/L		06/05/23 07:45	06/07/23 09:59	1
Nickel	ND		0.0050	0.00087	mg/L		06/05/23 07:45	06/07/23 09:59	1
Selenium	ND		0.015	0.0042	mg/L		06/05/23 07:45	06/07/23 09:59	1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: MB 620-23239/1-A
Matrix: Water
Analysis Batch: 23376

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23239

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.0050	0.00062	mg/L		06/05/23 07:45	06/07/23 09:59	1
Thallium	ND		0.0050	0.0021	mg/L		06/05/23 07:45	06/07/23 09:59	1
Vanadium	ND		0.0050	0.0011	mg/L		06/05/23 07:45	06/07/23 09:59	1
Zinc	ND		0.025	0.0016	mg/L		06/05/23 07:45	06/07/23 09:59	1

Lab Sample ID: LCS 620-23239/2-A
Matrix: Water
Analysis Batch: 23376

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23239

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	1.25	1.26		mg/L		101	80 - 120
Arsenic	1.25	1.27		mg/L		101	80 - 120
Barium	1.25	1.25		mg/L		100	80 - 120
Beryllium	1.25	1.27		mg/L		101	80 - 120
Cadmium	1.25	1.26		mg/L		101	80 - 120
Chromium	1.25	1.24		mg/L		99	80 - 120
Lead	1.25	1.27		mg/L		101	80 - 120
Nickel	1.25	1.26		mg/L		100	80 - 120
Selenium	1.25	1.33		mg/L		106	80 - 120
Silver	1.25	1.23		mg/L		98	80 - 120
Thallium	1.25	1.27		mg/L		101	80 - 120
Vanadium	1.25	1.26		mg/L		101	80 - 120
Zinc	1.25	1.29		mg/L		103	80 - 120

Lab Sample ID: LCSD 620-23239/3-A
Matrix: Water
Analysis Batch: 23376

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23239

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	1.25	1.26		mg/L		101	80 - 120	0	20
Arsenic	1.25	1.27		mg/L		102	80 - 120	0	20
Barium	1.25	1.25		mg/L		100	80 - 120	0	20
Beryllium	1.25	1.27		mg/L		102	80 - 120	0	20
Cadmium	1.25	1.26		mg/L		100	80 - 120	0	20
Chromium	1.25	1.24		mg/L		99	80 - 120	0	20
Lead	1.25	1.27		mg/L		101	80 - 120	0	20
Nickel	1.25	1.26		mg/L		100	80 - 120	0	20
Selenium	1.25	1.33		mg/L		106	80 - 120	0	20
Silver	1.25	1.23		mg/L		99	80 - 120	0	20
Thallium	1.25	1.27		mg/L		101	80 - 120	0	20
Vanadium	1.25	1.26		mg/L		101	80 - 120	0	20
Zinc	1.25	1.29		mg/L		103	80 - 120	0	20

QC Sample Results

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11883-1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 620-23514/1-A
Matrix: Water
Analysis Batch: 23549

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23514

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		06/12/23 10:41	06/12/23 16:05	1

Lab Sample ID: LCS 620-23514/2-A
Matrix: Water
Analysis Batch: 23549

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23514

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			0.00500	0.00490		mg/L		98	85 - 115		

Lab Sample ID: LCSD 620-23514/3-A
Matrix: Water
Analysis Batch: 23549

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 23514

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury			0.00500	0.00495		mg/L		99	85 - 115	1	20

QC Association Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11883-1

GC/MS Semi VOA

Prep Batch: 23423

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11883-1	LM-GW-MW103-060223	Total/NA	Water	3510C	
MB 620-23423/1-B	Method Blank	Total/NA	Water	3510C	
LCS 620-23423/24-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 620-23423/25-B	Lab Control Sample Dup	Total/NA	Water	3510C	

Fraction Batch: 23465

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11883-1	LM-GW-MW103-060223	Total/NA	Water	MA EPH Frac	23423
MB 620-23423/1-B	Method Blank	Total/NA	Water	MA EPH Frac	23423
LCS 620-23423/24-B	Lab Control Sample	Total/NA	Water	MA EPH Frac	23423
LCSD 620-23423/25-B	Lab Control Sample Dup	Total/NA	Water	MA EPH Frac	23423

Analysis Batch: 23645

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11883-1	LM-GW-MW103-060223	Total/NA	Water	EPH	23465
MB 620-23423/1-B	Method Blank	Total/NA	Water	EPH	23465
LCS 620-23423/24-B	Lab Control Sample	Total/NA	Water	EPH	23465
LCSD 620-23423/25-B	Lab Control Sample Dup	Total/NA	Water	EPH	23465

GC VOA

Analysis Batch: 23260

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11883-1	LM-GW-MW103-060223	Total/NA	Water	MAVPH2.1	
620-11883-2	TB01-060223	Total/NA	Water	MAVPH2.1	
MB 620-23260/6	Method Blank	Total/NA	Water	MAVPH2.1	
LCS 620-23260/4	Lab Control Sample	Total/NA	Water	MAVPH2.1	
LCSD 620-23260/5	Lab Control Sample Dup	Total/NA	Water	MAVPH2.1	

GC Semi VOA

Prep Batch: 23423

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11883-1	LM-GW-MW103-060223	Total/NA	Water	3510C	
MB 620-23423/1-B	Method Blank	Total/NA	Water	3510C	
LCS 620-23423/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 620-23423/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	

Fraction Batch: 23465

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11883-1	LM-GW-MW103-060223	Total/NA	Water	MA EPH Frac	23423
MB 620-23423/1-B	Method Blank	Total/NA	Water	MA EPH Frac	23423
LCS 620-23423/2-B	Lab Control Sample	Total/NA	Water	MA EPH Frac	23423
LCSD 620-23423/3-B	Lab Control Sample Dup	Total/NA	Water	MA EPH Frac	23423

Analysis Batch: 23496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 620-23423/1-B	Method Blank	Total/NA	Water	MAEPH2.1	23465
LCS 620-23423/2-B	Lab Control Sample	Total/NA	Water	MAEPH2.1	23465
LCSD 620-23423/3-B	Lab Control Sample Dup	Total/NA	Water	MAEPH2.1	23465

GC Semi VOA

Analysis Batch: 23595

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11883-1	LM-GW-MW103-060223	Total/NA	Water	MAEPH2.1	23465

Metals

Prep Batch: 23239

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11883-1	LM-GW-MW103-060223	Total/NA	Water	3005A	
MB 620-23239/1-A	Method Blank	Total/NA	Water	3005A	
LCS 620-23239/2-A	Lab Control Sample	Total/NA	Water	3005A	
LCSD 620-23239/3-A	Lab Control Sample Dup	Total/NA	Water	3005A	

Analysis Batch: 23376

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11883-1	LM-GW-MW103-060223	Total/NA	Water	6010D	23239
MB 620-23239/1-A	Method Blank	Total/NA	Water	6010D	23239
LCS 620-23239/2-A	Lab Control Sample	Total/NA	Water	6010D	23239
LCSD 620-23239/3-A	Lab Control Sample Dup	Total/NA	Water	6010D	23239

Prep Batch: 23514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11883-1	LM-GW-MW103-060223	Total/NA	Water	7470A	
MB 620-23514/1-A	Method Blank	Total/NA	Water	7470A	
LCS 620-23514/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 620-23514/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	

Analysis Batch: 23549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-11883-1	LM-GW-MW103-060223	Total/NA	Water	7470A	23514
MB 620-23514/1-A	Method Blank	Total/NA	Water	7470A	23514
LCS 620-23514/2-A	Lab Control Sample	Total/NA	Water	7470A	23514
LCSD 620-23514/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	23514

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11883-1

Client Sample ID: LM-GW-MW103-060223

Lab Sample ID: 620-11883-1

Date Collected: 06/02/23 08:35

Matrix: Water

Date Received: 06/02/23 15:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			23423	BMS	EET NE	06/08/23 13:47
Total/NA	Fraction	MA EPH Frac			23465	BMS	EET NE	06/09/23 11:38
Total/NA	Analysis	EPH		1	23645	JS	EET NE	06/15/23 17:32
Total/NA	Analysis	MAVPH2.1		1	23260	BMH	EET NE	06/06/23 02:40
Total/NA	Prep	3510C			23423	BMS	EET NE	06/08/23 13:47
Total/NA	Fraction	MA EPH Frac			23465	BMS	EET NE	06/09/23 11:38
Total/NA	Analysis	MAEPH2.1		1	23595	JS	EET NE	06/14/23 13:43
Total/NA	Prep	3005A			23239	PRB	EET NE	06/05/23 07:49
Total/NA	Analysis	6010D		1	23376	JPC	EET NE	06/07/23 12:55
Total/NA	Prep	7470A			23514	PRB	EET NE	06/12/23 10:41
Total/NA	Analysis	7470A		1	23549	PRB	EET NE	06/12/23 16:20

Client Sample ID: TB01-060223

Lab Sample ID: 620-11883-2

Date Collected: 06/02/23 10:00

Matrix: Water

Date Received: 06/02/23 15:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	MAVPH2.1		1	23260	BMH	EET NE	06/05/23 17:52

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-11883-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Massachusetts	State	M-RI907	06-30-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6010D	3005A	Water	Antimony
6010D	3005A	Water	Arsenic
6010D	3005A	Water	Barium
6010D	3005A	Water	Beryllium
6010D	3005A	Water	Cadmium
6010D	3005A	Water	Chromium
6010D	3005A	Water	Lead
6010D	3005A	Water	Nickel
6010D	3005A	Water	Selenium
6010D	3005A	Water	Silver
6010D	3005A	Water	Thallium
6010D	3005A	Water	Vanadium
6010D	3005A	Water	Zinc
7470A	7470A	Water	Mercury
EPH	3510C	Water	2-Methylnaphthalene
EPH	3510C	Water	Acenaphthene
EPH	3510C	Water	Acenaphthylene
EPH	3510C	Water	Anthracene
EPH	3510C	Water	Benzo[a]anthracene
EPH	3510C	Water	Benzo[a]pyrene
EPH	3510C	Water	Benzo[b]fluoranthene
EPH	3510C	Water	Benzo[g,h,i]perylene
EPH	3510C	Water	Benzo[k]fluoranthene
EPH	3510C	Water	Chrysene
EPH	3510C	Water	Dibenz(a,h)anthracene
EPH	3510C	Water	Fluoranthene
EPH	3510C	Water	Fluorene
EPH	3510C	Water	Indeno[1,2,3-cd]pyrene
EPH	3510C	Water	Naphthalene
EPH	3510C	Water	Phenanthrene
EPH	3510C	Water	Pyrene
MAEPH2.1	3510C	Water	C11-C22 Aromatics
MAEPH2.1	3510C	Water	C11-C22 Aromatics (Adjusted)
MAEPH2.1	3510C	Water	C19-C36 Aliphatics
MAEPH2.1	3510C	Water	C9-C18 Aliphatics
MAVPH2.1		Water	Benzene
MAVPH2.1		Water	C5-C8 Aliphatics (adjusted)
MAVPH2.1		Water	C5-C8 Aliphatics (unadjusted)
MAVPH2.1		Water	C9-C10 Aromatics
MAVPH2.1		Water	C9-C12 Aliphatics (adjusted)
MAVPH2.1		Water	C9-C12 Aliphatics (unadjusted)
MAVPH2.1		Water	Ethylbenzene
MAVPH2.1		Water	m,p-Xylene
MAVPH2.1		Water	Methyl tert-butyl ether
MAVPH2.1		Water	Naphthalene

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-11883-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
MAVPH2.1		Water	o-Xylene
MAVPH2.1		Water	Toluene
MAVPH2.1		Water	Xylenes, Total

Method Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11883-1

Method	Method Description	Protocol	Laboratory
EPH	Extractable Petroleum Hydrocarbons (GC/MS)	MA DEP	EET NE
MAVPH2.1	Massachusetts - Volatile Petroleum Hydrocarbons (GC)	MA DEP	EET NE
MAEPH2.1	Massachusetts - Extractable Petroleum Hydrocarbons (GC)	MA DEP	EET NE
6010D	Metals (ICP)	SW846	EET NE
7470A	Mercury (CVAA)	SW846	EET NE
3005A	Preparation, Total Metals	SW846	EET NE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET NE
5030C	Purge and Trap	SW846	EET NE
7470A	Preparation, Mercury	SW846	EET NE
MA EPH Frac	Massachusetts - Extractable Petroleum Hydrocarbon Fractionation	MA DEP	EET NE

Protocol References:

MA DEP = Massachusetts Department Of Environmental Protection

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Sample Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-11883-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
620-11883-1	LM-GW-MW103-060223	Water	06/02/23 08:35	06/02/23 15:10
620-11883-2	TB01-060223	Water	06/02/23 10:00	06/02/23 15:10

11883

Chain of Custody Record

eurofins | Environment Testing

	Sampler: S. Stone	Lab PM	Carrier Tracking No(s)	COC No: 620-10175-1337 2
Bridget Fortier	Phone	E-Mail: dru_Nobis-group.com	State of Origin	Page: Page 1 of 3
Company: Nobis Engineering, Inc	PWSID			Job #:

Analysis Requested

Address: 585 Middlesex Street	Due Date Requested:
City: Lowell	TAT Requested (days): Standard
State, Zip: MA, 01851	Compliance Project: Δ Yes Δ No
Phone	PO #:
Email: bfortier@nobis-group.com	WO #:
Project Name: Former L&M	Project #: 500001.005/406
Site: Former L&M	SSOW#:

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	VPH	Metals	EPH	Total Number of containers	Special Instructions/Note:
Preservation Code:							A	D	A		
01 LM-GW-MW103-060223	06-02-23	835	G	Water			X	X	X		metals could not be filtered
02 TB01-060223	06-02-23	1000	G	Water			X				trip blank
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested I, II, III, IV, Other (specify): EDD format PDF & email

Special Instructions/QC Requirements: MCP CAM metals; only 1 EPH due to volume

Empty Kit Relinquished by		Date		Time		Method of Shipment:	
Relinquished by:		Date/Time: 6-2-23 1305	Company: EA	Received by:		Date/Time: 6/2-23 1305	Company: EA
Relinquished by:		Date/Time: 6-2-23 1510	Company: EA	Received by:		Date/Time: 6/2/23 1510	Company: Eurofins
Relinquished by:		Date/Time.	Company	Received by:		Date/Time.	Company

Custody Seals Intact. Δ Yes Δ No | Custody Seal No .

Cooler Temperature(s) °C and Other Remarks: 2.2 +0.2 2.4 #8

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Nobis Engineering, Inc.

Job Number: 620-11883-1

Login Number: 11883
List Number: 1
Creator: Makhoul, Elie

List Source: Eurofins New England

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

January 15, 2024
Nobis File No. S00001.05

Ms. Katy Deng
USEPA – Region 1
Land, Chemicals, and Redevelopment Division
5 Post Office Square, Suite 100
Boston, MA 02109-3912

Re: USEPA Contract No. 68HE0122D0001
USEPA Task Order No. 68HE0122F0044
Targeted Brownfields Assessment (TBA)
Former L&M Service Station Site
Lunenburg, Massachusetts
Sample Delivery Group (SDG) No. 620145821
Eurofins New England, North Kingstown, RI

Tier 1 Stage 2A Organic and Inorganic Data Review:

Volatile Petroleum Hydrocarbons (VPH by MassDEP-VPH), Extractable Petroleum Hydrocarbons (EPH by MassDEP-EPH), Massachusetts Contingency Plan (MCP) Metals (MCP-14 Metals by 6010D/7471A)

4/Soil Samples: SO-B/MW-106-1015, SO-B/MW-107-1015, SO-B/MW-108-1518, SO-FD01-101223
1/Field Duplicate Pair: SO-B/MW-106-1015 / SO-FD01-101223
1/Trip Blank: TB01-101223

Dear Ms. Deng:

Nobis Group (Nobis), under a USEPA contract as a subcontractor to KGSNE JV, LLC, performed a Tier 1 Stage 2A manual data review (S2AVM) on the organic and inorganic analytical data for the samples listed above. The samples were collected by Nobis at the Former L&M Service Station Site located in Lunenburg, Massachusetts on October 12, 2023. The samples were analyzed for VPH by MassDEP-VPH, EPH by MassDEP-EPH, and MCP-14 Metals by 6010D/7471A by Eurofins New England in North Kingstown, RI.

The Tier 1 Stage 2A manual data review was performed in accordance with the Region 1 - EPA New England Environmental Data Review Supplement for Region I Data Review Elements and Superfund Specific Guidance/Procedures (September 2020); USEPA's National Functional Guidelines for Organic Superfund Methods Data Review (November 2020); USEPA's National Functional Guidelines for Inorganic Superfund Methods Data Review (November 2020); the Program Quality Assurance Project Plan (Program QAPP) dated October 2022, and the Quality Assurance Project Plan Addendum (QAPPA) (May 2023) for the Former L&M Service Station Site, which appends the October 2022 Program QAPP.

The data were evaluated based on the following parameters:

* • Overall Evaluation of Data and Potential Usability Issues
* • Data Completeness
* • Preservation and Technical Holding Times
* • Blanks

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*	•	Surrogates (organic analyses only)
NA	•	Internal Standards
	•	Matrix Spike Analysis
	•	Laboratory Duplicates
	•	Laboratory Control Samples (LCS)
	•	Field Duplicates
NA	•	ICP Serial Dilutions (metals only)
NA	•	Performance Evaluation (PE) Samples
*	•	Target Analyte Identification
	•	Reported Quantitation Limits

* All criteria were met for this parameter or did not require qualification.
NA – Not applicable.

Overall Evaluation of Data and Potential Usability Issues

The site sampling objectives are:

- Characterize in-situ soil based on AOCs identified by Fuss & O'Neill in November 2020 Phase I for the presence of possible site-related contamination.
- Evaluate groundwater elevation.
- Evaluate presence/absence of groundwater contamination related to site.

Note that non-detect reporting limits for the EPH dibenz(a,h)anthracene exceeded the project action limit (PAL) in samples SO-B/MW-106-1015 and SO-FD01-101223, where the RLs exceeded the PAL of 0.7 mg/kg (1 mg/kg and 1.1 mg/kg, respectively). The laboratory indicated that these samples required dilutions due to the matrix and a strong fuel odor.

The remaining data meet the project quality criteria and can be used without restriction except as summarized below. The attachments provide details and supporting documentation.

MassDEP-VPH:
Results were qualified for MS/MSD recovery and RPD exceedances and field duplicate imprecision.

MassDEP-EPH:
Results were qualified for MS/MSD recovery and RPD exceedances and field duplicate imprecision.

MCP-14 Metals:
Results were qualified for LCS recovery and laboratory duplicate imprecision.

Please contact Linda Terzis at lterzis@nobis-group.com should you have any questions or comments regarding this information.

Sincerely,

NOBIS GROUP®

Linda Terzis
Data Validator

Gary Glennon
Data Validator

Tables: Data Summary Tables – Tier 1 Stage 2A (S2AVM) Validated Data
Data Qualification Actions Table

Attachments: Data Review Checklist
Support Documentation
COC

cc: Denis McGrath (Nobis Group)
Adam Roy (Nobis Group)

DATA SUMMARY TABLE

Analysis		EPH in Soil			
Lab Sample ID		620-14582-1	620-14582-2	620-14582-3	620-14582-4
Field Sample ID		SO-B/MW-106-1015	SO-B/MW-107-1015	SO-B/MW-108-1518	SO-FD01-101223
Sample Type		N	N	N	FD
Parent Sample ID					SO-B/MW-106-1015
Sample Date	**Units**	10/12/23	10/12/23	10/12/23	10/12/23
2-Methylnaphthalene	mg/kg	1.8 J	0.39 UJ	0.38 UJ	6.3 J
Acenaphthene	mg/kg	1 U	0.39 U	0.38 U	1.1 U
Acenaphthylene	mg/kg	1 U	0.39 U	0.38 U	1.1 U
Anthracene	mg/kg	1 U	0.39 U	0.38 U	1.1 U
Benzo(a)anthracene	mg/kg	1 U	0.39 U	0.38 U	1.1 U
Benzo(a)pyrene	mg/kg	1 U	0.39 U	0.38 U	2
Benzo(b)fluoranthene	mg/kg	1 U	0.39 U	0.38 U	1.1 U
Benzo(g,h,i)perylene	mg/kg	1 U	0.39 U	0.38 U	1.1 U
Benzo(k)fluoranthene	mg/kg	1 U	0.39 U	0.38 U	1.1 U
C11-C22 Aromatics	mg/kg	47 J	11 J	7.6 UJ	140 J
C11-C22 Aromatics (adjusted)	mg/kg	44 J	11 J	7.6 UJ	130 J
C19-C36 Aliphatics	mg/kg	130 J	32 J	12 J	360 J
C9-C18 Aliphatics	mg/kg	60	7.7 U	7.6 U	93
Chrysene	mg/kg	1 U	0.39 U	0.38 U	1.1 U
Dibenz(a,h)anthracene	mg/kg	1 U	0.39 U	0.38 U	1.1 U
Fluoranthene	mg/kg	1 U	0.39 U	0.38 U	1.1 U
Fluorene	mg/kg	1 U	0.39 U	0.38 U	1.1 U
Indeno(1,2,3-cd)pyrene	mg/kg	1 U	0.39 U	0.38 U	1.1 U
Naphthalene	mg/kg	1.7	0.39 U	0.38 U	5.2
Phenanthrene	mg/kg	1 U	0.39 U	0.38 U	1.1 U
Pyrene	mg/kg	1 U	0.39 U	0.38 U	1.1 U

DATA SUMMARY TABLE

Analysis		Metals in Soil			
Lab Sample ID		620-14582-1	620-14582-2	620-14582-3	620-14582-4
Field Sample ID		SO-B/MW-106-1015	SO-B/MW-107-1015	SO-B/MW-108-1518	SO-FD01-101223
Sample Type		N	N	N	FD
Parent Sample ID					SO-B/MW-106-1015
Sample Date	**Units**	10/12/23	10/12/23	10/12/23	10/12/23
Antimony	mg/kg	1 J	0.93 J	1.2 J	0.95 J
Arsenic	mg/kg	8.9 J-	23 J-	27 J-	3.7 J-
Barium	mg/kg	54	29	34	56
Beryllium	mg/kg	0.46 U	0.46 U	0.56 U	0.49 U
Cadmium	mg/kg	0.46 U	0.027 J	0.035 J	0.49 U
Chromium	mg/kg	20	18	21	17
Lead	mg/kg	7.2	12	17	2.9
Mercury	mg/kg	0.04 UJ	0.023 J	0.032 UJ	0.03 J
Nickel	mg/kg	14	12	14	13
Selenium	mg/kg	1.4 U	1.4 U	1.7 U	1.5 U
Silver	mg/kg	1.4 U	1.4 U	1.7 U	1.5 U
Thallium	mg/kg	2.8 U	2.8 U	3.4 U	2.9 U
Vanadium	mg/kg	18	14	17	13
Zinc	mg/kg	22 J	56 J	79 J	14 J

DATA SUMMARY TABLE

Analysis		VPH in Soil			
Lab Sample ID		620-14582-1	620-14582-2	620-14582-3	620-14582-4
Field Sample ID		SO-B/MW-106-1015	SO-B/MW-107-1015	SO-B/MW-108-1518	SO-FD01-101223
Sample Type		N	N	N	FD
Parent Sample ID					SO-B/MW-106-1015
Sample Date	**Units**	10/12/23	10/12/23	10/12/23	10/12/23
Benzene	mg/kg	0.59 J	0.15 UJ	0.13 UJ	1.5 UJ
C5-C8 Aliphatics (adjusted)	mg/kg	340	3.6	4.3	500
C5-C8 Aliphatics (unadjusted)	mg/kg	340	3.9	4.6	500
C9-C10 Aromatics	mg/kg	210 J	16 J	18 J	460 J
C9-C12 Aliphatics (adjusted)	mg/kg	150 J	9.8 J	8.6 J	300 UJ
C9-C12 Aliphatics (unadjusted)	mg/kg	430 J	26 J	28 J	720 J
Ethylbenzene	mg/kg	12	0.15 U	0.18	14
m,p-Xylene	mg/kg	51	0.29 U	0.54	60
Methyl tert-butyl ether	mg/kg	0.23 J	0.31 J	0.34 J	0.3 UJ
Naphthalene	mg/kg	3.6 J	0.58 UJ	0.52 UJ	6.9 J
o-Xylene	mg/kg	4.6	0.17	0.24	4.7
Toluene	mg/kg	1.3 J	0.15 U	0.13 U	1.5 U
Xylene (total)	mg/kg	55	0.44 U	0.78	65

DATA SUMMARY TABLE

Analysis		VPH in Soil/Solid Quality Control Matrix
Lab Sample ID		620-14582-5
Field Sample ID		TB01-101223
Sample Type		TB
Parent Sample ID		
Sample Date	**Units**	10/12/23
Benzene	mg/kg	0.25 U
C5-C8 Aliphatics (adjusted)	mg/kg	5 U
C5-C8 Aliphatics (unadjusted)	mg/kg	5 U
C9-C10 Aromatics	mg/kg	5 U
C9-C12 Aliphatics (adjusted)	mg/kg	5 U
C9-C12 Aliphatics (unadjusted)	mg/kg	5 U
Ethylbenzene	mg/kg	0.25 U
m,p-Xylene	mg/kg	0.5 U
Methyl tert-butyl ether	mg/kg	0.05 U
Naphthalene	mg/kg	1 U
o-Xylene	mg/kg	0.25 U
Toluene	mg/kg	0.25 U
Xylene (total)	mg/kg	0.75 U

Data Review Qualification Actions
Former L&M Service Station
SDG 620145821

Parameter	Analyte	Samples	Evaluation Criteria	Action Needed	Comments
VPH					
	Benzene, C9-C12 aliphatics (adjusted), naphthalene	All soil samples	Field duplicate precision	J / UJ	
	C9-C10 Aromatics, C9-C12 aliphatics (unadjusted)	All soil samples	Field duplicate precision	J	
	Methyl tert-butyl ether	All soil samples	MS/MSD recovery	J / UJ	
	Benzene, toluene	SO-B/MW-106-1015	MS/MSD RPD	J	
EPH					
	2-Methylnaphthalene, C11-C22 aromatics, C11-C22 aromatics (adjusted)	All soil samples	Field duplicate precision	J / UJ	
	C19-C36 Aliphatics	All soil samples	Field duplicate precision	J	
	C19-C36 Aliphatics	All soil samples	MS/MSD recovery / RPD	J	
MCP-14 Metals					
	Antimony	All soil samples	LCS recovery	J-	Final qual J, indeterminate bias, all soil samples due to being < RL.
	Arsenic	All soil samples	LCS recovery	J-	
	Mercury	All soil samples	LCS recovery	J- / UJ	Final qual J, indeterminate bias, for detected results due to < RL.
	Zinc	All soil samples	Laboratory duplicate precision	J	

Tier 1/Stage 2A Data Review Checklist

Project: Former L&M Service Station, Lunenburg, Massachusetts
Targeted Brownfields Assessment (TBA)
Project #: S00001.05

Date: 01/03/2024

Methods: Volatile Petroleum Hydrocarbons (VPH) (MassDEP-VPH)
Extractable Petroleum Hydrocarbons (EPH) (MassDEP-EPH)
Massachusetts Contingency Plan (MCP) Metals (MCP-14 Metals by 6010D/7471A)

Laboratory: Eurofins New England Laboratory, North Kingstown, RI
Case: N/A
SDG: 620145821
Reviewer: Linda Terzis

1. **Case Narrative and Data Package Completeness (COC and Analyte List Review)**
Four (4) soil samples were listed on the COC for SDG 620145821. A trip blank was also included on the COC. The samples were collected on 10/12/2023 and received at the Eurofins New England Laboratory on 10/13/2023 at a maximum temperature of 5.8 °C.

Sample ID	Laboratory ID	Analyses
SO-B/MW-106-1015	620-14582-1	MassDEP-VPH, MassDEP-EPH, MCP-14 Metals/Mercury
SO-B/MW-107-1015	620-14582-2	MassDEP-VPH, MassDEP-EPH, MCP-14 Metals/Mercury
SO-B/MW-108-1518	620-14582-3	MassDEP-VPH, MassDEP-EPH, MCP-14 Metals/Mercury
SO-FD01-101223	620-14582-4	MassDEP-VPH, MassDEP-EPH, MCP-14 Metals/Mercury
TB01-101223	620-14582-5	MassDEP-VPH

The data were evaluated using the site-specific Quality Assurance Project Plan Addendum (QAPPA) (dated May 2023) and the Program QAPP (dated October 2022). Both were prepared by KGSNE, LLC. The QAPPA appends and incorporates by reference the procedures and quality control measures detailed in the Program QAPP (October 2022). Therefore, site data for this SDG were evaluated using both the QAPPA of May 2023 and the Program QAPP dated October 2022. The Massachusetts Compendium of Analytical Methods (CAM) and/or SW-846 Methods were used to perform the analyses. Therefore, site data were also evaluated using CAM quality control (QC) limits, where applicable.

The analyte lists reported by the laboratory were compared to the required analyte lists per Table 3 (soil) in the QAPPA (May 2023) for the site. Results for all requested analytes were reported and no inconsistencies were noted.

2. **Holding Time and Sample Preservation Compliance**

Receipt temperatures are acceptable (≤ 6°), as specified in the QAPPA (May 2023).

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MassDEP-VPH: Holding time criteria (analyzed within 14 days) met.

MassDEP-EPH: Holding time criteria (extracted within 14 days and analyzed within 40 days of extraction) met.

MCP-14 Metals/Mercury: Holding time criteria (analyzed within 28 days for mercury; within 180 days for all other analytes) were met.

3. Calibration Issues

Not assessed for S2AVM data review.

4. Laboratory and Field Blanks

MassDEP VPH: Results for the VPH laboratory method blank were non-detect. No blank actions are required.

MassDEP-EPH: Results for the EPH laboratory method blank were non-detect. No blank actions are required.

MCP-14 Metals/Mercury: Results for the metals and mercury laboratory method blanks were non-detect. No blank actions are required.

Field blanks were not submitted with the samples of this SDG. No actions are required.

5. Interference Check Sample (metals only)

Not assessed for S2AVM data review.

6. Surrogates

The Program QAPP (October 2022) was used to evaluate site data for surrogate recovery. If no Program QAPP-specific recovery limits were available for a surrogate, the MCP CAM recovery limits were used.

MassDEP-VPH: Percent recoveries for both surrogates were below the Program QAPP limits of 70-130% in samples SO-B/MW-106-1015 (620-14582-1) and SO-FD01-101223 (620-14582-4). The maximum surrogate recovery for these samples was 10%. The laboratory indicated these samples required dilutions due to the matrix and strong fuel odor. Additionally, initial sample volumes used in the analysis were reduced due to the matrix. The surrogates were diluted out by the dilutions. Percent surrogate recoveries were within the 70-130% limits for the remaining samples. No actions are required.

MassDEP-EPH: Surrogate recoveries in all samples were within the Program QAPP limits of 40-140%. No actions are required

Surrogate recovery is not applicable for the MCP-14 metals/mercury analysis.

7. Laboratory Control Samples

MassDEP-VPH: The results of the VPH LCS/LCSD pairs met the Program QAPP limits of 70-130% recovery and RPDs ≤ 25%. No actions are required.

MassDEP-EPH: The results of the EPH LCS/LCSD pair met the Program QAPP limits of 40-140% and RPDs ≤ 25%. No actions are required.

MCP-14 Metals/Mercury: The recoveries of antimony (37.7%), arsenic (75.8%), and mercury (64.2%) were below the 80-120% recovery limits in the LCS analyses associated with the samples. The Program QAPP and MCP CAM require that soil LCS/LCSD recoveries be "within vendor 95% confidence limits". Vendor limits were not presented in the laboratory report; therefore, the MassDEP CAM Method 6010D recovery limits for aqueous samples (80-120%) were conservatively used to evaluate the solid LCS results during this review.

Antimony was detected at concentrations below reporting limit (RL) in all soil samples. Based on the NFGs (2020), the detected results for antimony are qualified as estimated with a potential low bias (J-) in all soil samples due to the low LCS recovery. Note that the final qualification for the samples is estimated (J) with an indeterminate bias since sample results were < RL and estimated by the laboratory.

Arsenic was detected above the RL in all soil samples. Based on the NFGs (2020), the detected results for arsenic are qualified as estimated with a potential low bias (J-) in all soil samples due to the low LCS recovery.

The detect and non-detected results for mercury are qualified as estimated with a potential low bias (J-/UJ) in the samples due to the low LCS recovery. Note that the detected results for mercury are < RL. Therefore, the final qualifier for detected mercury results is estimated (J) with an indeterminate bias since results were < RL.

8. Matrix Spikes

Based on the Region I EPA New England Environmental Data Review Supplement (Region I Supplement, 2020), MS/MSD qualifications are applied to all field samples with similar matrix, unless otherwise noted.

MS/MSD analyses were performed on sample SO-B/MS-107-1015 (620-14582-2).

MassDEP-VPH: The recovery of methyl tert-butyl ether was below the Program QAPP limits of 70-130% in the MS analysis (63%). Professional judgment based on the NFG (2020) guidance for VOCs was used to qualify results for methyl tert-butyl ether as estimated (J/UJ) in all soil samples due to the low recovery in the MS analysis.

The laboratory reported negative percent recoveries for C9-C10 aromatic hydrocarbons and C9-C12 aliphatic hydrocarbons. These hydrocarbon ranges were present in the parent sample at concentrations > 4x the spiking level and therefore, meaningful recoveries could not be calculated. The RPDs for these ranges also exceeded the Program QAPP limit of 50%. No actions are taken.

The RPDs for benzene and toluene exceeded the Program QAPP limit of ≤ 50%. Based on the NFG (2020) guidance for VOCs, the detected results for benzene and toluene in sample SO-B/MW-106-1015 are qualified as estimated (J) and the non-detect results in the remaining soil samples are accepted unqualified.

MassDEP-EPH: The laboratory reported a negative percent recovery for C19-C36 aliphatic hydrocarbons in the MS analysis. The MSD recovery was within the Program QAPP limits of 40-140%. The RPD exceeded the Program QAPP limit of ≤ 50%. Results for C19-C36 aliphatic

hydrocarbons were detected in all soil samples. Professional judgement based on the NFG guidance for SVOCs (2020), was used to qualify the detected results for C19-C36 aliphatic hydrocarbons as estimated (J) in all soil samples due to the low recovery in the MS and the high RPD.

MCP-14 Metals/Mercury: Results for the metals/mercury MS/MSD analyses met the Program QAPP limits of 75-125% recovery and RPDs ≤ 35%. No actions are required.

9. Laboratory Duplicates (metals only)

MCP-14 Metals/Mercury: Laboratory duplicate analyses were performed on sample SO-B/MW-107-1015 (620-14582-2).

The laboratory duplicate criterion (≤ 35% RPD) was exceeded for antimony (RPD 37%) in sample SO-B/MS-107-1015. Original and duplicate sample results for antimony were < 5x RL. The absolute difference between the results was < RL. Based on the NFGs (2020), antimony results are accepted unqualified for laboratory duplicate performance. No action is taken.

The laboratory duplicate criterion of ≤ 35% was also exceeded for zinc (43%). Original and duplicate sample results for zinc were > 5x RL. Results for zinc were detected in all soil samples. Based on the NFGs (2020), detected results for zinc are qualified as estimated (J) due to laboratory duplicate imprecision.

Mercury results were below the RL in both the original and duplicate analyses. The RPD was < 35% (8%). No action is required.

10. Serial Dilution (metals only)

MCP-14 Metals/Mercury: A serial dilution analysis was not performed for this SDG. The Massachusetts CAM requires a serial dilution analysis on samples used for MS/MSD analyses where analytes are detected at > 50x RL. MS/MSD analyses were performed on sample SO-B/MS-107-1015 (620-14582-2). Detected analyte results were < 50x RL in this sample and no actions are required.

11. Field Duplicate Precision

Acceptable field duplicate precision is an RPD of ≤ 50% for results > 5x RL and an absolute difference < 4x RL for results < 5x RL, based on the EPA Region I Supplement (2020).

Based on the Region I Supplement (2020), qualifications are applied to all field samples with similar matrix, unless otherwise indicated.

Field duplicate pair SO-B/MW-106-1015 / SO-FD-01-101223 is associated with the soil samples of this SDG.

MassDEP-VPH: Absolute differences for the results for benzene and C9-C12 aliphatic hydrocarbons (adjusted) exceeded field duplicate precision criteria for results < 5x RL. Based on the EPA Region I Supplemental Guidance (2020), detected and non-detect results for benzene and C9-C12 aliphatic hydrocarbons are qualified as estimated (J/UJ) in all soil samples.

RPDs for C9-C10 aromatics, C9-C12 aliphatic hydrocarbons (unadjusted), and naphthalene exceeded field duplicate precision criteria for results > 5x RL. Based on the EPA Region I

Supplemental Guidance (2020), detected results for C9-C10 aromatic hydrocarbons and C9-C12 aliphatic hydrocarbons (unadjusted) are qualified as estimated (J) and detected and non-detect results for naphthalene are qualified as estimated (J/UJ) in all soil samples.
MassDEP-EPH: Absolute differences for the results for 2-methylnaphthalene and C11-C22 aromatic hydrocarbons (adjusted and unadjusted) exceeded field duplicate precision criteria for results < 5x RL. Based on the EPA Region I Supplemental Guidance (2020), detected and non-detect results for 2-methylnaphthalene and C11-C22 aromatic hydrocarbons (adjusted and unadjusted) are qualified as estimated (J/UJ) in all soil samples.

The RPD for C19-C36 aliphatic hydrocarbons exceeded field duplicate precision criteria for results > 5x RL. Based on the EPA Region I Supplemental Guidance (2020), The detected results for C19-C36 aliphatic hydrocarbons are qualified as estimated (J) in all soil samples.

MCP-14 Metals/Mercury: Field duplicate precision criteria were met for the metals and mercury analyses. No actions are required.

The laboratory's case narrative indicated dilutions and/or adjustments to initial sample volumes used during analysis were required for the field duplicate samples due to the matrix and strong fuel odors of the samples.

12. Internal Standards

Not assessed for S2AVM data review.

13. Dual Column Precision (PCBs only)

Not applicable to the analyses of this SDG.

14. Performance Evaluation Samples

Performance Evaluation (PE) samples were not included in this SDG.

15. Reporting Limits

Laboratory RLs for non-detect results met the project action levels (PALs) for the VPH, EPH, and MCP-14 metals analyses, as listed in Table 3 of the QAPPA, except for the RLs for the EPH dibenz(a,h)anthracene in samples SO-B/MW-106-1015 and SO-FD01-101223, where the RLs exceeded the PAL of 0.7 mg/kg (1 mg/kg and 1.1 mg/kg, respectively). As noted above, the laboratory has indicated that these samples required dilutions due to the matrix and a strong fuel odor.

16. Other

EPA Region I Supplement (2020) criterion for percent solids content (> 30%) was met for the soil samples.

Overall bias is considered indeterminate when cumulative nonconformances do not show a consistent bias or in cases of the presence of conflicting high and low biases.

Field Duplicate Evaluation

SDG: 620145821 VPH

Analyte	Original Result (mg/kg)	Qual	Duplicate Result (mg/kg)	Qual	RPD ≤ 50%	Abs Diff	Comment[1]
Sample ID	**SO-B/MW-106-1015**		**SO-FD01-101223**				
	620-14582-1		**620-14582-4**				
Benzene	0.59		1.5	U	87.08	0.9	**Abs diff > 4x RL (J/UJ)**
C5-C8 Aliphatics (adjusted)	340		500		38.10		Ok - RPD < 50%
C5-C8 Aliphatics (unadjusted)	340		500		38.10		Ok - RPD < 50%
C9-C10 Aromatics	210		460		74.63		**RPD > 50% (J)**
C9-C12 Aliphatics (adjusted)	150		300	U	66.67	150.00	**Abs diff > 4x RL (J/UJ)**
C9-C12 Aliphatics (unadjusted)	430		720		50.43		**RPD > 50% (J)**
Ethylbenzene	12		14		15.38		Ok - RPD < 50%
m,p-Xylene	51		60		16.22		Ok - RPD < 50%
Methyl tert-butyl ether	0.23		0.3	U	26.42	0.070	Ok - abs diff < 4x RL
Naphthalene	3.6		6.9		62.86		**RPD > 50% (J/UJ)**
o-Xylene	4.6		4.7		2.15		Ok - RPD < 50%
Toluene	1.3		1.5	U	14.29	0.2	Ok - abs diff < 4x RL

[1] - Actions apply to all samples based on the EPA Region I Supplemental Guidance (2020).

Field Duplicate Evaluation

SDG: 620145821 EPH

Analyte	Original Result (mg/kg)	Qual	Duplicate Result (mg/kg)	Qual	RPD ≤ 50%	Abs Diff	Comment[1]
Sample ID	**SO-B/MW-106-1015**		**SO-FD01-101223**				
	620-14582-1		**620-14582-4**				
2-Methylnaphthalene	1.8		6.3		111.11	4.50	**Abs diff > 4x RL (J/UJ)**
Acenaphthene	1	U	1.1	U	9.52		Ok - both ND
Acenaphthylene	1	U	1.1	U	9.52		Ok - both ND
Anthracene	1	U	1.1	U	9.52		Ok - both ND
Benzo(a)anthracene	1	U	1.1	U	9.52		Ok - both ND
Benzo(a)pyrene	1	U	2		66.67	1.00	Ok - abs diff < 4x RL
Benzo(b)fluoranthene	1	U	1.1	U	9.52		Ok - both ND
Benzo(g,h,i)perylene	1	U	1.1	U	9.52		Ok - both ND
Benzo(k)fluoranthene	1	U	1.1	U	9.52		Ok - both ND
C11-C22 Aromatics	47		140		99.47	93	**Abs diff > 4x RL (J/UJ)**
C11-C22 Aromatics (adjusted)	44		130		98.85	86	**Abs diff > 4x RL (J/UJ)**
C19-C36 Aliphatics	130		360		93.88		**RPD > 50% (J)**
C9-C18 Aliphatics	60		93		43.14	33	Ok - abs diff < 4x RL
Chrysene	1	U	1.1	U	9.52		Ok - both ND
Dibenz(a,h)anthracene	1	U	1.1	U	9.52		Ok - both ND
Fluoranthene	1	U	1.1	U	9.52		Ok - both ND
Fluorene	1	U	1.1	U	9.52		Ok - both ND
Indeno(1,2,3-cd)pyrene	1	U	1.1	U	9.52		Ok - both ND
Naphthalene	1.7		5.2		101.45	3.5	Ok - abs diff < 4x RL
Phenanthrene	1	U	1.1	U	9.52		Ok - both ND
Pyrene	1	U	1.1	U	9.52		Ok - both ND

[1] - Actions apply to all samples based on the EPA Region I Supplemental Guidance (2020).

Field Duplicate Evaluation

SDG: 620145821 METALS

Analyte	Original Result (mg/kg)	Qual	Duplicate Result (mg/kg)	Qual	RPD ≤ 50%	Abs Diff	Comment[1]
Sample ID	**SO-B/MW-106-1015**		**SO-FD01-101223**				
	620-14582-1		**620-14582-4**				
Antimony	1	J	0.95	J	-5.1		Ok - both < RL
Arsenic	8.9		3.7		-82.5	-5.20	Ok - abs diff < 4x RL
Barium	54		56		3.6		Ok - RPD < 50%
Beryllium	0.46	U	0.49	U	6.3		Ok - both ND
Cadmium	0.46	U	0.49	U	6.3		Ok - both ND
Chromium	20		17		-16.22		Ok - RPD < 50%
Lead	7.2		2.9		-85.1	-4.30	Ok - abs diff < 4x RL
Mercury	0.04	U	0.03	J	-28.6		Ok - ND and < RL
Nickel	14		13		-7.4		Ok - RPD < 50%
Selenium	1.4	U	1.5	U	6.9		Ok - both ND
Silver	1.4	U	1.5	U	6.9		Ok - both ND
Thallium	2.8	U	2.9	U	3.5		Ok - both ND
Vanadium	18		13		-32.3		Ok - RPD < 50%
Zinc	22		14		-44.4	-8	Ok - abs diff < 4x RL

[1] - Actions apply to all samples based on the EPA Region I Supplemental Guidance (2020).

620-14582 Chain of Custody

KFS 10/13

~~14582~~ 14582

Chain of Custody Record

eurofins | Environment Testing

Client Contact: ~~Stephanie Stone~~ Caitlin ODell	Sampler: C. Odell	Lab PM: A. Roy	Carrier Tracking No(s):	COC No: 620-12716-1718 3
Company: Nobis Engineering, Inc	Phone: 203-530-4433	E-Mail: aroy@nobis-group.com	State of Origin: MA	Page: ~~Page 3 of 4~~ 1 of 1
Address: 585 Middlesex Street	PWSID	Analysis Requested		Job #:
City: Lowell	Due Date Requested:			
State, Zip: MA, 01851	TAT Requested (days): Standard			
Phone: 203-530-4433	Compliance Project: X Yes △ No MA CAM			
Email: sstone@nobis-group com	PO #:			
Project Name: S00001 005 L$M Service Station	WO #:			
Site: Lunenburg, MA	Project #: S00001.05/400			
	SSOW#:			

Preservation Codes:

A - HCl, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other: ~~~~

	Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	EPH (MassDEP CAM)	Metals (MCP 14) (6010/7471)	VPH (MassDEP CAM)	% Moisture	Trip blank	Total Number of containers	Special Instructions/Note:
	Preservation Code:									F				
1	SO-B/MW-106-1015	10/12/23	0850	G	Water Solid								4	
2	SO-B/MW-107-1015	"	0930	"	Water Solid		X						12	MS/MSD
3	SO-B/MW-108-1518	"	1010	"	Water Solid								4	
4	SO-FD01-101223	"	0800	"	Water Solid								4	
5	TB01-101223	"	—		Solid							X	1	
					Solid									
					Solid									
					Solid									
					Solid									
					Solid									
					Solid									

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested I, II, III, IV, Other (specify): EDD Report, PDF, & email

Special Instructions/QC Requirements: email EDD to AROY@nobis-group.com; MADEP CAM methods required

Empty Kit Relinquished by:		Date		Time		Method of Shipment:	
Relinquished by: Caitlin ODell	Date/Time: 10/13/23 11:40	Company: Nobis	Received by:	Date/Time: 10/13/23 1140	Company: EA		
Relinquished by:	Date/Time: 10/13/23 17:11	Company: EA	Received by:	Date/Time: 10/13/23 17:11	Company:		
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:		

Custody Seals Intact: △ Yes △ No	Custody Seal No:	Cooler Temperature(s) °C and Other Remarks: 5.6 to 2.8 +3

Ver: 06/08/2021

Page 42 of 43

10/30/2023

ANALYTICAL REPORT

PREPARED FOR

Attn: Adam Roy
Nobis Engineering, Inc.
585 Middlesex Street
Lowell, Massachusetts 01851

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JOB DESCRIPTION

Former L&M - Lunenburg MA

JOB NUMBER

620-14582-1

Eurofins New England
646 Camp Ave
North Kingstown RI 02852

See page two for job notes and contact information.

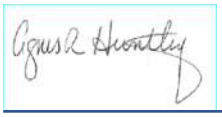
my EOL

Job Notes

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The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northeast, LLC Project Manager.

Authorization



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Authorized for release by
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Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
State Forms 6
    MCP Checklist 6
Case Narrative 7
Detection Summary 9
Client Sample Results 12
Surrogate Summary 21
QC Sample Results 22
QC Association Summary 32
Lab Chronicle 35
Certification Summary 38
Method Summary 40
Sample Summary 41
Chain of Custody 42
Receipt Checklists 43

Definitions/Glossary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
S1-	Surrogate recovery exceeds control limits, low biased.

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
F3	Duplicate RPD exceeds the control limit
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL, and the absolute difference between results is < the upper reporting limits for both.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TNTC	Too Numerous To Count

MassDEP Analytical Protocol Certfication Form

Laboratory Name: Eurofins New England | Project #: 620-14582-1

Project Location: Former L&M - Lunenburg MA | RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
620-14582-1 through 620-14582-5

Matrices: ☐ Groundwater/Surface Water ☑ Soil/Sediment ☐ Drinking Water ☐ Air ☐ Other:

CAM Protocol (check all that apply below:)

8260 VOC CAM II A ☐	7470/7471 Hg CAM III B ☑	MassDEP VPH (GC/PID/FID) CAM IV A ☑	8082 PCB CAM V A ☐	9014 Total Cyanide/PAC CAM VI A ☐	6860 Perchlorate CAM VIII B ☐
8270 SVOC CAM II B ☐	7010 Metals CAM III C ☐	MassDEP VPH (GC/MS) CAM IV C ☐	8081 Pesticides CAM V B ☐	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
6010 Metals CAM III A ☑	6020 Metals CAM III D ☐	MassDEP EPH CAM IV B ☑	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes ☐ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☑ Yes ☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes ☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☑ Yes ☐ No
E	VPH, EPH, APH, and TO-15 only a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☑ Yes ☐ No ☐ Yes ☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☑ Yes ☐ No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☐ Yes ☑ No[1]

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☐ Yes ☑ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes ☐ No[1]

1 All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature: Agnes R Huntley **Position:** Project Manager

Printed Name: Agnes Huntley **Date:** 10/30/2023

Job ID: 620-14582-1

Laboratory: Eurofins New England

Narrative

Job Narrative
620-14582-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 10/13/2023 5:11 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.8°C

GC VOA
Method MAVPH2.1: The following sample was diluted due to the nature of the sample matrix (strong odor) : SO-FD01-101223 (620-14582-4). Elevated reporting limits (RLs) are provided.

Method MAVPH2.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 620-28025 and analytical batch 620-27958 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

Method MAVPH2.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 620-28025 and analytical batch 620-27958 were outside control limits for one or more ranges due to the complete integration of the baseline in samples rather than the summation of peaks in QC samples. The associated laboratory control sample (LCS) recovery is within acceptance limits.

Method MAVPH2.1: The following samples required a dilution due to the nature of the sample matrix: SO-B/MW-106-1015 (620-14582-1) and SO-FD01-101223 (620-14582-4). Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA
Method MAEPH2.1: Due to the matrix and fuel odor, the initial volume used for the following samples deviated from the standard procedure: SO-B/MW-106-1015 (620-14582-1) and SO-FD01-101223 (620-14582-4). The reporting limits (RLs) have been adjusted proportionately.

Method MAEPH2.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 620-27844 and 620-27964 and analytical batch 620-28114 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
Method 7471MCP: The matrix spike duplicate (MSD) recoveries and precision for preparation batch 620-27974 and analytical batch 620-28044 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample / matrix spike(LCS/MS) precision was within acceptance limits.

Job ID: 620-14582-1 (Continued)

Laboratory: Eurofins New England (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Client Sample ID: SO-B/MW-106-1015 — Lab Sample ID: 620-14582-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.59		0.15	0.15	mg/Kg	1	☼	MAVPH2.1	Total/NA
Methyl tert-butyl ether	0.23		0.030	0.030	mg/Kg	1	☼	MAVPH2.1	Total/NA
Naphthalene	3.6		0.59	0.59	mg/Kg	1	☼	MAVPH2.1	Total/NA
Toluene	1.3		0.15	0.15	mg/Kg	1	☼	MAVPH2.1	Total/NA
o-Xylene	4.6		0.15	0.15	mg/Kg	1	☼	MAVPH2.1	Total/NA
C5-C8 Aliphatics (adjusted) - DL	340		30	30	mg/Kg	10	☼	MAVPH2.1	Total/NA
C9-C12 Aliphatics (adjusted) - DL	150		30	30	mg/Kg	10	☼	MAVPH2.1	Total/NA
C9-C10 Aromatics - DL	210		30	30	mg/Kg	10	☼	MAVPH2.1	Total/NA
C5-C8 Aliphatics (unadjusted) - DL	340		30	30	mg/Kg	10	☼	MAVPH2.1	Total/NA
C9-C12 Aliphatics (unadjusted) - DL	430		30	30	mg/Kg	10	☼	MAVPH2.1	Total/NA
Ethylbenzene - DL	12		1.5	1.5	mg/Kg	10	☼	MAVPH2.1	Total/NA
m,p-Xylene - DL	51		3.0	3.0	mg/Kg	10	☼	MAVPH2.1	Total/NA
Xylenes, Total - DL	55		4.5	4.5	mg/Kg	10	☼	MAVPH2.1	Total/NA
C9-C18 Aliphatics	60		20	20	mg/Kg	1	☼	MAEPH2.1	Total/NA
C19-C36 Aliphatics	130		20	20	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics	47		20	20	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	44		20	20	mg/Kg	1	☼	MAEPH2.1	Total/NA
Naphthalene	1.7		1.0	1.0	mg/Kg	1	☼	MAEPH2.1	Total/NA
2-Methylnaphthalene	1.8		1.0	1.0	mg/Kg	1	☼	MAEPH2.1	Total/NA
Antimony	1.0	J	4.6	0.35	mg/Kg	1	☼	6010D	Total/NA
Arsenic	8.9		1.4	0.18	mg/Kg	1	☼	6010D	Total/NA
Barium	54		0.92	0.11	mg/Kg	1	☼	6010D	Total/NA
Chromium	20		0.92	0.12	mg/Kg	1	☼	6010D	Total/NA
Lead	7.2		1.4	0.20	mg/Kg	1	☼	6010D	Total/NA
Nickel	14		0.92	0.11	mg/Kg	1	☼	6010D	Total/NA
Vanadium	18		1.4	0.25	mg/Kg	1	☼	6010D	Total/NA
Zinc	22		2.8	0.71	mg/Kg	1	☼	6010D	Total/NA

Client Sample ID: SO-B/MW-107-1015 — Lab Sample ID: 620-14582-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C5-C8 Aliphatics (adjusted)	3.6		2.9	2.9	mg/Kg	1	☼	MAVPH2.1	Total/NA
C9-C12 Aliphatics (adjusted)	9.8		2.9	2.9	mg/Kg	1	☼	MAVPH2.1	Total/NA
C9-C10 Aromatics	16	F2	2.9	2.9	mg/Kg	1	☼	MAVPH2.1	Total/NA
C5-C8 Aliphatics (unadjusted)	3.9	F1	2.9	2.9	mg/Kg	1	☼	MAVPH2.1	Total/NA
C9-C12 Aliphatics (unadjusted)	26	F2	2.9	2.9	mg/Kg	1	☼	MAVPH2.1	Total/NA
Methyl tert-butyl ether	0.31	F1	0.029	0.029	mg/Kg	1	☼	MAVPH2.1	Total/NA
o-Xylene	0.17	F2	0.15	0.15	mg/Kg	1	☼	MAVPH2.1	Total/NA
C19-C36 Aliphatics	32		7.7	7.7	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics	11		7.7	7.7	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	11		7.7	7.7	mg/Kg	1	☼	MAEPH2.1	Total/NA
Antimony	0.93	J	4.6	0.35	mg/Kg	1	☼	6010D	Total/NA
Arsenic	23		1.4	0.18	mg/Kg	1	☼	6010D	Total/NA
Barium	29		0.93	0.11	mg/Kg	1	☼	6010D	Total/NA
Cadmium	0.027	J	0.46	0.024	mg/Kg	1	☼	6010D	Total/NA
Chromium	18		0.93	0.12	mg/Kg	1	☼	6010D	Total/NA
Lead	12		1.4	0.20	mg/Kg	1	☼	6010D	Total/NA
Nickel	12		0.93	0.11	mg/Kg	1	☼	6010D	Total/NA
Vanadium	14		1.4	0.25	mg/Kg	1	☼	6010D	Total/NA
Zinc	56		2.8	0.72	mg/Kg	1	☼	6010D	Total/NA
Mercury	0.023	J F1 F2	0.030	0.0050	mg/Kg	1	☼	7471A	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Client Sample ID: SO-B/MW-108-1518

Lab Sample ID: 620-14582-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C5-C8 Aliphatics (adjusted)	4.3		2.6	2.6	mg/Kg	1	☼	MAVPH2.1	Total/NA
C9-C12 Aliphatics (adjusted)	8.6		2.6	2.6	mg/Kg	1	☼	MAVPH2.1	Total/NA
C9-C10 Aromatics	18		2.6	2.6	mg/Kg	1	☼	MAVPH2.1	Total/NA
C5-C8 Aliphatics (unadjusted)	4.6		2.6	2.6	mg/Kg	1	☼	MAVPH2.1	Total/NA
C9-C12 Aliphatics (unadjusted)	28		2.6	2.6	mg/Kg	1	☼	MAVPH2.1	Total/NA
Ethylbenzene	0.18		0.13	0.13	mg/Kg	1	☼	MAVPH2.1	Total/NA
Methyl tert-butyl ether	0.34		0.026	0.026	mg/Kg	1	☼	MAVPH2.1	Total/NA
m,p-Xylene	0.54		0.26	0.26	mg/Kg	1	☼	MAVPH2.1	Total/NA
o-Xylene	0.24		0.13	0.13	mg/Kg	1	☼	MAVPH2.1	Total/NA
Xylenes, Total	0.78		0.39	0.39	mg/Kg	1	☼	MAVPH2.1	Total/NA
C19-C36 Aliphatics	12		7.6	7.6	mg/Kg	1	☼	MAEPH2.1	Total/NA
Antimony	1.2	J	5.6	0.42	mg/Kg	1	☼	6010D	Total/NA
Arsenic	27		1.7	0.21	mg/Kg	1	☼	6010D	Total/NA
Barium	34		1.1	0.13	mg/Kg	1	☼	6010D	Total/NA
Cadmium	0.035	J	0.56	0.029	mg/Kg	1	☼	6010D	Total/NA
Chromium	21		1.1	0.15	mg/Kg	1	☼	6010D	Total/NA
Lead	17		1.7	0.24	mg/Kg	1	☼	6010D	Total/NA
Nickel	14		1.1	0.13	mg/Kg	1	☼	6010D	Total/NA
Vanadium	17		1.7	0.30	mg/Kg	1	☼	6010D	Total/NA
Zinc	79		3.4	0.87	mg/Kg	1	☼	6010D	Total/NA

Client Sample ID: SO-FD01-101223

Lab Sample ID: 620-14582-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	14		1.5	1.5	mg/Kg	10	☼	MAVPH2.1	Total/NA
Naphthalene	6.9		6.1	6.1	mg/Kg	10	☼	MAVPH2.1	Total/NA
m,p-Xylene	60		3.0	3.0	mg/Kg	10	☼	MAVPH2.1	Total/NA
o-Xylene	4.7		1.5	1.5	mg/Kg	10	☼	MAVPH2.1	Total/NA
Xylenes, Total	65		4.5	4.5	mg/Kg	10	☼	MAVPH2.1	Total/NA
C5-C8 Aliphatics (adjusted) - DL	500		300	300	mg/Kg	100	☼	MAVPH2.1	Total/NA
C9-C10 Aromatics - DL	460		300	300	mg/Kg	100	☼	MAVPH2.1	Total/NA
C5-C8 Aliphatics (unadjusted) - DL	500		300	300	mg/Kg	100	☼	MAVPH2.1	Total/NA
C9-C12 Aliphatics (unadjusted) - DL	720		300	300	mg/Kg	100	☼	MAVPH2.1	Total/NA
C9-C18 Aliphatics	93		22	22	mg/Kg	1	☼	MAEPH2.1	Total/NA
C19-C36 Aliphatics	360		22	22	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics	140		22	22	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	130		22	22	mg/Kg	1	☼	MAEPH2.1	Total/NA
Naphthalene	5.2		1.1	1.1	mg/Kg	1	☼	MAEPH2.1	Total/NA
2-Methylnaphthalene	6.3		1.1	1.1	mg/Kg	1	☼	MAEPH2.1	Total/NA
Benzo[a]pyrene	2.0		1.1	1.1	mg/Kg	1	☼	MAEPH2.1	Total/NA
Antimony	0.95	J	4.9	0.37	mg/Kg	1	☼	6010D	Total/NA
Arsenic	3.7		1.5	0.19	mg/Kg	1	☼	6010D	Total/NA
Barium	56		0.98	0.12	mg/Kg	1	☼	6010D	Total/NA
Chromium	17		0.98	0.13	mg/Kg	1	☼	6010D	Total/NA
Lead	2.9		1.5	0.21	mg/Kg	1	☼	6010D	Total/NA
Nickel	13		0.98	0.11	mg/Kg	1	☼	6010D	Total/NA
Vanadium	13		1.5	0.26	mg/Kg	1	☼	6010D	Total/NA
Zinc	14		2.9	0.76	mg/Kg	1	☼	6010D	Total/NA
Mercury	0.030	J	0.043	0.0072	mg/Kg	1	☼	7471A	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Client Sample ID: TB01-101223 **Lab Sample ID: 620-14582-5**

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: SO-B/MW-106-1015

Date Collected: 10/12/23 08:50
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-1

Matrix: Solid
Percent Solids: 86.2

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.59**		0.15	0.15	mg/Kg	☼	10/18/23 11:23	10/19/23 02:53	1
Methyl tert-butyl ether	**0.23**		0.030	0.030	mg/Kg	☼	10/18/23 11:23	10/19/23 02:53	1
Naphthalene	**3.6**		0.59	0.59	mg/Kg	☼	10/18/23 11:23	10/19/23 02:53	1
Toluene	**1.3**		0.15	0.15	mg/Kg	☼	10/18/23 11:23	10/19/23 02:53	1
o-Xylene	**4.6**		0.15	0.15	mg/Kg	☼	10/18/23 11:23	10/19/23 02:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*76*		*70 - 130*	*10/18/23 11:23*	*10/19/23 02:53*	*1*
2,5-Dibromotoluene (pid)	*76*		*70 - 130*	*10/18/23 11:23*	*10/19/23 02:53*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	**340**		30	30	mg/Kg	☼	10/18/23 11:23	10/25/23 01:10	10
C9-C12 Aliphatics (adjusted)	**150**		30	30	mg/Kg	☼	10/18/23 11:23	10/25/23 01:10	10
C9-C10 Aromatics	**210**		30	30	mg/Kg	☼	10/18/23 11:23	10/25/23 01:10	10
C5-C8 Aliphatics (unadjusted)	**340**		30	30	mg/Kg	☼	10/18/23 11:23	10/25/23 01:10	10
C9-C12 Aliphatics (unadjusted)	**430**		30	30	mg/Kg	☼	10/18/23 11:23	10/25/23 01:10	10
Ethylbenzene	**12**		1.5	1.5	mg/Kg	☼	10/18/23 11:23	10/25/23 01:10	10
m,p-Xylene	**51**		3.0	3.0	mg/Kg	☼	10/18/23 11:23	10/25/23 01:10	10
Xylenes, Total	**55**		4.5	4.5	mg/Kg	☼	10/18/23 11:23	10/25/23 01:10	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*10*	*S1-*	*70 - 130*	*10/18/23 11:23*	*10/25/23 01:10*	*10*
2,5-Dibromotoluene (pid)	*9*	*S1-*	*70 - 130*	*10/18/23 11:23*	*10/25/23 01:10*	*10*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	**60**		20	20	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
C19-C36 Aliphatics	**130**		20	20	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
C11-C22 Aromatics	**47**		20	20	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
C11-C22 Aromatics (Adjusted)	**44**		20	20	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Naphthalene	**1.7**		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
2-Methylnaphthalene	**1.8**		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Acenaphthylene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Acenaphthene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Fluorene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Phenanthrene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Anthracene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Fluoranthene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Pyrene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Benzo[a]anthracene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Chrysene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Benzo[b]fluoranthene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Benzo[k]fluoranthene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Benzo[a]pyrene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Indeno[1,2,3-cd]pyrene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Dibenz(a,h)anthracene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1
Benzo[g,h,i]perylene	ND		1.0	1.0	mg/Kg	☼	10/16/23 09:16	10/19/23 22:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*68*		*40 - 140*	*10/16/23 09:16*	*10/19/23 22:03*	*1*

Client Sample ID: SO-B/MW-106-1015

Date Collected: 10/12/23 08:50
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-1

Matrix: Solid
Percent Solids: 86.2

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*58*		*40 - 140*	*10/16/23 09:16*	*10/19/23 22:03*	*1*
2-Fluorobiphenyl (Surr)	*64*		*40 - 140*	*10/16/23 09:16*	*10/19/23 22:03*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**1.0**	**J**	4.6	0.35	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1
Arsenic	**8.9**		1.4	0.18	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1
Barium	**54**		0.92	0.11	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1
Beryllium	ND		0.46	0.023	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1
Cadmium	ND		0.46	0.024	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1
Chromium	**20**		0.92	0.12	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1
Lead	**7.2**		1.4	0.20	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1
Nickel	**14**		0.92	0.11	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1
Selenium	ND		1.4	0.26	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1
Silver	ND		1.4	0.15	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1
Thallium	ND		2.8	1.0	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1
Vanadium	**18**		1.4	0.25	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1
Zinc	**22**		2.8	0.71	mg/Kg	☼	10/16/23 11:07	10/17/23 17:09	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.040	0.0067	mg/Kg	☼	10/18/23 13:57	10/19/23 12:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	**13.8**		0.1	0.1	%			10/16/23 09:33	1
Percent Solids (EPA Moisture)	**86.2**		0.1	0.1	%			10/16/23 09:33	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Client Sample ID: SO-B/MW-107-1015

Date Collected: 10/12/23 09:30
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-2

Matrix: Solid
Percent Solids: 84.3

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	**3.6**		2.9	2.9	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1
C9-C12 Aliphatics (adjusted)	**9.8**		2.9	2.9	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1
C9-C10 Aromatics	**16**	**F2**	2.9	2.9	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1
C5-C8 Aliphatics (unadjusted)	**3.9**	**F1**	2.9	2.9	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1
C9-C12 Aliphatics (unadjusted)	**26**	**F2**	2.9	2.9	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1
Benzene	ND	F2	0.15	0.15	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1
Ethylbenzene	ND	F2	0.15	0.15	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1
Methyl tert-butyl ether	**0.31**	**F1**	0.029	0.029	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1
Naphthalene	ND	F1	0.58	0.58	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1
Toluene	ND	F2	0.15	0.15	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1
m,p-Xylene	ND		0.29	0.29	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1
o-Xylene	**0.17**	**F2**	0.15	0.15	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1
Xylenes, Total	ND	F2	0.44	0.44	mg/Kg	☼	10/18/23 11:23	10/18/23 19:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*89*		*70 - 130*	*10/18/23 11:23*	*10/18/23 19:44*	*1*
2,5-Dibromotoluene (pid)	*80*		*70 - 130*	*10/18/23 11:23*	*10/18/23 19:44*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		7.7	7.7	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
C19-C36 Aliphatics	**32**		7.7	7.7	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
C11-C22 Aromatics	**11**		7.7	7.7	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
C11-C22 Aromatics (Adjusted)	**11**		7.7	7.7	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Naphthalene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
2-Methylnaphthalene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Acenaphthylene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Acenaphthene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Fluorene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Phenanthrene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Anthracene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Fluoranthene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Pyrene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Benzo[a]anthracene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Chrysene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Benzo[b]fluoranthene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Benzo[k]fluoranthene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Benzo[a]pyrene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Indeno[1,2,3-cd]pyrene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Dibenz(a,h)anthracene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1
Benzo[g,h,i]perylene	ND		0.39	0.39	mg/Kg	☼	10/16/23 09:16	10/19/23 22:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*70*		*40 - 140*	*10/16/23 09:16*	*10/19/23 22:30*	*1*
o-Terphenyl (Surr)	*62*		*40 - 140*	*10/16/23 09:16*	*10/19/23 22:30*	*1*
2-Fluorobiphenyl (Surr)	*73*		*40 - 140*	*10/16/23 09:16*	*10/19/23 22:30*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.93**	**J**	4.6	0.35	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1

Client Sample ID: SO-B/MW-107-1015
Date Collected: 10/12/23 09:30
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-2
Matrix: Solid
Percent Solids: 84.3

Method: SW846 6010D - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	23		1.4	0.18	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1
Barium	29		0.93	0.11	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1
Beryllium	ND		0.46	0.023	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1
Cadmium	0.027	J	0.46	0.024	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1
Chromium	18		0.93	0.12	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1
Lead	12		1.4	0.20	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1
Nickel	12		0.93	0.11	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1
Selenium	ND		1.4	0.26	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1
Silver	ND		1.4	0.15	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1
Thallium	ND		2.8	1.0	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1
Vanadium	14		1.4	0.25	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1
Zinc	56		2.8	0.72	mg/Kg	☼	10/16/23 11:07	10/17/23 14:49	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.023	J F1 F2	0.030	0.0050	mg/Kg	☼	10/18/23 13:57	10/19/23 12:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	15.7		0.1	0.1	%			10/16/23 09:33	1
Percent Solids (EPA Moisture)	84.3		0.1	0.1	%			10/16/23 09:33	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Client Sample ID: SO-B/MW-108-1518

Date Collected: 10/12/23 10:10
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-3

Matrix: Solid
Percent Solids: 85.3

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	**4.3**		2.6	2.6	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1
C9-C12 Aliphatics (adjusted)	**8.6**		2.6	2.6	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1
C9-C10 Aromatics	**18**		2.6	2.6	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1
C5-C8 Aliphatics (unadjusted)	**4.6**		2.6	2.6	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1
C9-C12 Aliphatics (unadjusted)	**28**		2.6	2.6	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1
Benzene	ND		0.13	0.13	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1
Ethylbenzene	**0.18**		0.13	0.13	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1
Methyl tert-butyl ether	**0.34**		0.026	0.026	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1
Naphthalene	ND		0.52	0.52	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1
Toluene	ND		0.13	0.13	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1
m,p-Xylene	**0.54**		0.26	0.26	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1
o-Xylene	**0.24**		0.13	0.13	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1
Xylenes, Total	**0.78**		0.39	0.39	mg/Kg	☼	10/18/23 11:23	10/19/23 03:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*87*		*70 - 130*	*10/18/23 11:23*	*10/19/23 03:29*	*1*
2,5-Dibromotoluene (pid)	*78*		*70 - 130*	*10/18/23 11:23*	*10/19/23 03:29*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		7.6	7.6	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
C19-C36 Aliphatics	**12**		7.6	7.6	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
C11-C22 Aromatics	ND		7.6	7.6	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
C11-C22 Aromatics (Adjusted)	ND		7.6	7.6	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Naphthalene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
2-Methylnaphthalene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Acenaphthylene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Acenaphthene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Fluorene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Phenanthrene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Anthracene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Fluoranthene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Pyrene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Benzo[a]anthracene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Chrysene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Benzo[b]fluoranthene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Benzo[k]fluoranthene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Benzo[a]pyrene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Indeno[1,2,3-cd]pyrene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Dibenz(a,h)anthracene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1
Benzo[g,h,i]perylene	ND		0.38	0.38	mg/Kg	☼	10/16/23 09:16	10/23/23 21:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*63*		*40 - 140*	*10/16/23 09:16*	*10/23/23 21:35*	*1*
o-Terphenyl (Surr)	*80*		*40 - 140*	*10/16/23 09:16*	*10/23/23 21:35*	*1*
2-Fluorobiphenyl (Surr)	*100*		*40 - 140*	*10/16/23 09:16*	*10/23/23 21:35*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**1.2**	**J**	5.6	0.42	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Client Sample ID: SO-B/MW-108-1518

Date Collected: 10/12/23 10:10
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-3

Matrix: Solid
Percent Solids: 85.3

Method: SW846 6010D - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**27**		1.7	0.21	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1
Barium	**34**		1.1	0.13	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1
Beryllium	ND		0.56	0.028	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1
Cadmium	**0.035**	**J**	0.56	0.029	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1
Chromium	**21**		1.1	0.15	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1
Lead	**17**		1.7	0.24	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1
Nickel	**14**		1.1	0.13	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1
Selenium	ND		1.7	0.32	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1
Silver	ND		1.7	0.18	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1
Thallium	ND		3.4	1.2	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1
Vanadium	**17**		1.7	0.30	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1
Zinc	**79**		3.4	0.87	mg/Kg	☼	10/16/23 11:07	10/17/23 17:03	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.032	0.0053	mg/Kg	☼	10/18/23 13:57	10/19/23 13:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	**14.7**		0.1	0.1	%			10/16/23 09:33	1
Percent Solids (EPA Moisture)	**85.3**		0.1	0.1	%			10/16/23 09:33	1

Client Sample ID: SO-FD01-101223

Date Collected: 10/12/23 08:00
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-4

Matrix: Solid
Percent Solids: 88.4

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.5	1.5	mg/Kg	☼	10/18/23 11:23	10/19/23 04:05	10
Ethylbenzene	**14**		1.5	1.5	mg/Kg	☼	10/18/23 11:23	10/19/23 04:05	10
Methyl tert-butyl ether	ND		0.30	0.30	mg/Kg	☼	10/18/23 11:23	10/19/23 04:05	10
Naphthalene	**6.9**		6.1	6.1	mg/Kg	☼	10/18/23 11:23	10/19/23 04:05	10
Toluene	ND		1.5	1.5	mg/Kg	☼	10/18/23 11:23	10/19/23 04:05	10
m,p-Xylene	**60**		3.0	3.0	mg/Kg	☼	10/18/23 11:23	10/19/23 04:05	10
o-Xylene	**4.7**		1.5	1.5	mg/Kg	☼	10/18/23 11:23	10/19/23 04:05	10
Xylenes, Total	**65**		4.5	4.5	mg/Kg	☼	10/18/23 11:23	10/19/23 04:05	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*81*		*70 - 130*	*10/18/23 11:23*	*10/19/23 04:05*	*10*
2,5-Dibromotoluene (pid)	*77*		*70 - 130*	*10/18/23 11:23*	*10/19/23 04:05*	*10*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	**500**		300	300	mg/Kg	☼	10/18/23 11:23	10/25/23 00:34	100
C9-C12 Aliphatics (adjusted)	ND		300	300	mg/Kg	☼	10/18/23 11:23	10/25/23 00:34	100
C9-C10 Aromatics	**460**		300	300	mg/Kg	☼	10/18/23 11:23	10/25/23 00:34	100
C5-C8 Aliphatics (unadjusted)	**500**		300	300	mg/Kg	☼	10/18/23 11:23	10/25/23 00:34	100
C9-C12 Aliphatics (unadjusted)	**720**		300	300	mg/Kg	☼	10/18/23 11:23	10/25/23 00:34	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*7*	*S1-*	*70 - 130*	*10/18/23 11:23*	*10/25/23 00:34*	*100*
2,5-Dibromotoluene (pid)	*6*	*S1-*	*70 - 130*	*10/18/23 11:23*	*10/25/23 00:34*	*100*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	**93**		22	22	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
C19-C36 Aliphatics	**360**		22	22	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
C11-C22 Aromatics	**140**		22	22	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
C11-C22 Aromatics (Adjusted)	**130**		22	22	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Naphthalene	**5.2**		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
2-Methylnaphthalene	**6.3**		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Acenaphthylene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Acenaphthene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Fluorene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Phenanthrene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Anthracene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Fluoranthene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Pyrene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Benzo[a]anthracene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Chrysene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Benzo[b]fluoranthene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Benzo[k]fluoranthene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Benzo[a]pyrene	**2.0**		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Indeno[1,2,3-cd]pyrene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Dibenz(a,h)anthracene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1
Benzo[g,h,i]perylene	ND		1.1	1.1	mg/Kg	☼	10/16/23 09:16	10/23/23 22:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*61*		*40 - 140*	*10/16/23 09:16*	*10/23/23 22:03*	*1*

Client Sample ID: SO-FD01-101223

Date Collected: 10/12/23 08:00
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-4

Matrix: Solid
Percent Solids: 88.4

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*72*		*40 - 140*	*10/16/23 09:16*	*10/23/23 22:03*	*1*
2-Fluorobiphenyl (Surr)	*91*		*40 - 140*	*10/16/23 09:16*	*10/23/23 22:03*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.95**	**J**	4.9	0.37	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1
Arsenic	**3.7**		1.5	0.19	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1
Barium	**56**		0.98	0.12	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1
Beryllium	ND		0.49	0.025	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1
Cadmium	ND		0.49	0.025	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1
Chromium	**17**		0.98	0.13	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1
Lead	**2.9**		1.5	0.21	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1
Nickel	**13**		0.98	0.11	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1
Selenium	ND		1.5	0.28	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1
Silver	ND		1.5	0.16	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1
Thallium	ND		2.9	1.1	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1
Vanadium	**13**		1.5	0.26	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1
Zinc	**14**		2.9	0.76	mg/Kg	☼	10/16/23 11:07	10/17/23 16:57	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.030**	**J**	0.043	0.0072	mg/Kg	☼	10/18/23 13:57	10/19/23 13:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	**11.6**		0.1	0.1	%			10/16/23 09:33	1
Percent Solids (EPA Moisture)	**88.4**		0.1	0.1	%			10/16/23 09:33	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Client Sample ID: TB01-101223
Date Collected: 10/12/23 00:00
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-5
Matrix: Solid

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		5.0	5.0	mg/Kg		10/24/23 12:28	10/24/23 22:47	1
C9-C12 Aliphatics (adjusted)	ND		5.0	5.0	mg/Kg		10/24/23 12:28	10/24/23 22:47	1
C9-C10 Aromatics	ND		5.0	5.0	mg/Kg		10/24/23 12:28	10/24/23 22:47	1
C5-C8 Aliphatics (unadjusted)	ND		5.0	5.0	mg/Kg		10/24/23 12:28	10/24/23 22:47	1
C9-C12 Aliphatics (unadjusted)	ND		5.0	5.0	mg/Kg		10/24/23 12:28	10/24/23 22:47	1
Benzene	ND		0.25	0.25	mg/Kg		10/24/23 12:28	10/24/23 22:47	1
Ethylbenzene	ND		0.25	0.25	mg/Kg		10/24/23 12:28	10/24/23 22:47	1
Methyl tert-butyl ether	ND		0.050	0.050	mg/Kg		10/24/23 12:28	10/24/23 22:47	1
Naphthalene	ND		1.0	1.0	mg/Kg		10/24/23 12:28	10/24/23 22:47	1
Toluene	ND		0.25	0.25	mg/Kg		10/24/23 12:28	10/24/23 22:47	1
m,p-Xylene	ND		0.50	0.50	mg/Kg		10/24/23 12:28	10/24/23 22:47	1
o-Xylene	ND		0.25	0.25	mg/Kg		10/24/23 12:28	10/24/23 22:47	1
Xylenes, Total	ND		0.75	0.75	mg/Kg		10/24/23 12:28	10/24/23 22:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*91*		*70 - 130*	*10/24/23 12:28*	*10/24/23 22:47*	*1*
2,5-Dibromotoluene (pid)	*90*		*70 - 130*	*10/24/23 12:28*	*10/24/23 22:47*	*1*

Surrogate Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		25DBTf1	25DBTp1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
620-14582-1	SO-B/MW-106-1015	76	76
620-14582-1 - DL	SO-B/MW-106-1015	10 S1-	9 S1-
620-14582-2	SO-B/MW-107-1015	89	80
620-14582-2 MS	SO-B/MW-107-1015	81	78
620-14582-2 MSD	SO-B/MW-107-1015	89	81
620-14582-3	SO-B/MW-108-1518	87	78
620-14582-4	SO-FD01-101223	81	77
620-14582-4 - DL	SO-FD01-101223	7 S1-	6 S1-
620-14582-5	TB01-101223	91	90
LCS 620-28025/1-A	Lab Control Sample	86	85
LCS 620-28262/1-A	Lab Control Sample	94	93
LCSD 620-28025/2-A	Lab Control Sample Dup	84	82
LCSD 620-28262/2-A	Lab Control Sample Dup	94	94
MB 620-28025/3-A	Method Blank	74	74
MB 620-28262/3-A	Method Blank	90	88

Surrogate Legend

25DBTf = 2,5-Dibromotoluene (fid)
25DBTp = 2,5-Dibromotoluene (pid)

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		1COD1	OTPH1	FBP1
Lab Sample ID	Client Sample ID	(40-140)	(40-140)	(40-140)
620-14582-1	SO-B/MW-106-1015	68	58	64
620-14582-2	SO-B/MW-107-1015	70	62	73
620-14582-2 MS	SO-B/MW-107-1015	43	55	80
620-14582-2 MSD	SO-B/MW-107-1015	49	67	93
620-14582-3	SO-B/MW-108-1518	63	80	100
620-14582-4	SO-FD01-101223	61	72	91
LCS 620-27844/2-B	Lab Control Sample	70	76	78
LCSD 620-27844/3-B	Lab Control Sample Dup	69	72	76
MB 620-27844/1-B	Method Blank	64	59	67

Surrogate Legend

1COD = 1-Chlorooctadecane (Surr)
OTPH = o-Terphenyl (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-28025/3-A
Matrix: Solid
Analysis Batch: 27958

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28025

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		5.0	5.0	mg/Kg		10/18/23 10:00	10/18/23 16:45	1
C9-C12 Aliphatics (adjusted)	ND		5.0	5.0	mg/Kg		10/18/23 10:00	10/18/23 16:45	1
C9-C10 Aromatics	ND		5.0	5.0	mg/Kg		10/18/23 10:00	10/18/23 16:45	1
C5-C8 Aliphatics (unadjusted)	ND		5.0	5.0	mg/Kg		10/18/23 10:00	10/18/23 16:45	1
C9-C12 Aliphatics (unadjusted)	ND		5.0	5.0	mg/Kg		10/18/23 10:00	10/18/23 16:45	1
Benzene	ND		0.25	0.25	mg/Kg		10/18/23 10:00	10/18/23 16:45	1
Ethylbenzene	ND		0.25	0.25	mg/Kg		10/18/23 10:00	10/18/23 16:45	1
Methyl tert-butyl ether	ND		0.050	0.050	mg/Kg		10/18/23 10:00	10/18/23 16:45	1
Naphthalene	ND		1.0	1.0	mg/Kg		10/18/23 10:00	10/18/23 16:45	1
Toluene	ND		0.25	0.25	mg/Kg		10/18/23 10:00	10/18/23 16:45	1
m,p-Xylene	ND		0.50	0.50	mg/Kg		10/18/23 10:00	10/18/23 16:45	1
o-Xylene	ND		0.25	0.25	mg/Kg		10/18/23 10:00	10/18/23 16:45	1
Xylenes, Total	ND		0.75	0.75	mg/Kg		10/18/23 10:00	10/18/23 16:45	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*74*		*70 - 130*	*10/18/23 10:00*	*10/18/23 16:45*	*1*
2,5-Dibromotoluene (pid)	*74*		*70 - 130*	*10/18/23 10:00*	*10/18/23 16:45*	*1*

Lab Sample ID: LCS 620-28025/1-A
Matrix: Solid
Analysis Batch: 27958

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28025

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C10 Aromatics	1.00	ND		mg/Kg		99	70 - 130
C5-C8 Aliphatics (unadjusted)	3.00	ND		mg/Kg		95	70 - 130
C9-C12 Aliphatics (unadjusted)	3.00	ND		mg/Kg		96	70 - 130
Benzene	1.00	0.976		mg/Kg		98	70 - 130
Ethylbenzene	1.00	1.01		mg/Kg		101	70 - 130
Methyl tert-butyl ether	1.00	0.928		mg/Kg		93	70 - 130
Naphthalene	1.00	ND		mg/Kg		94	70 - 130
Toluene	1.00	0.986		mg/Kg		99	70 - 130
m,p-Xylene	2.00	2.03		mg/Kg		102	70 - 130
o-Xylene	1.00	1.01		mg/Kg		101	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*86*		*70 - 130*
2,5-Dibromotoluene (pid)	*85*		*70 - 130*

Lab Sample ID: LCSD 620-28025/2-A
Matrix: Solid
Analysis Batch: 27958

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28025

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics	1.00	ND		mg/Kg		99	70 - 130	0	25
C5-C8 Aliphatics (unadjusted)	3.00	ND		mg/Kg		95	70 - 130	0	25
C9-C12 Aliphatics (unadjusted)	3.00	ND		mg/Kg		97	70 - 130	1	25
Benzene	1.00	0.972		mg/Kg		97	70 - 130	0	25
Ethylbenzene	1.00	1.02		mg/Kg		102	70 - 130	1	25

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-28025/2-A
Matrix: Solid
Analysis Batch: 27958

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28025

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methyl tert-butyl ether			1.00	0.915		mg/Kg		91	70 - 130	1	25
Naphthalene			1.00	ND		mg/Kg		89	70 - 130	6	25
Toluene			1.00	0.974		mg/Kg		97	70 - 130	1	25
m,p-Xylene			2.00	2.03		mg/Kg		102	70 - 130	0	25
o-Xylene			1.00	1.01		mg/Kg		101	70 - 130	0	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*84*		*70 - 130*
2,5-Dibromotoluene (pid)	*82*		*70 - 130*

Lab Sample ID: 620-14582-2 MS
Matrix: Solid
Analysis Batch: 27958

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 28025

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C10 Aromatics	16	F2	1.23	9.27	4	mg/Kg	☼	-524	70 - 130
C5-C8 Aliphatics (unadjusted)	3.9	F1	3.68	8.09		mg/Kg	☼	114	70 - 130
C9-C12 Aliphatics (unadjusted)	26	F2	3.68	12.8	4	mg/Kg	☼	-349	70 - 130
Benzene	ND	F2	1.23	1.19		mg/Kg	☼	97	70 - 130
Ethylbenzene	ND	F2	1.23	1.23		mg/Kg	☼	100	70 - 130
Methyl tert-butyl ether	0.31	F1	1.23	1.08	F1	mg/Kg	☼	63	70 - 130
Naphthalene	ND	F1	1.23	1.03		mg/Kg	☼	84	70 - 130
Toluene	ND	F2	1.23	1.20		mg/Kg	☼	98	70 - 130
m,p-Xylene	ND		2.46	2.45		mg/Kg	☼	100	70 - 130
o-Xylene	0.17	F2	1.23	1.22		mg/Kg	☼	85	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*81*		*70 - 130*
2,5-Dibromotoluene (pid)	*78*		*70 - 130*

Lab Sample ID: 620-14582-2 MSD
Matrix: Solid
Analysis Batch: 27958

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 28025

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics	16	F2	0.715	19.1	4 F2	mg/Kg	☼	472	70 - 130	69	50
C5-C8 Aliphatics (unadjusted)	3.9	F1	2.14	7.83	F1	mg/Kg	☼	184	70 - 130	3	50
C9-C12 Aliphatics (unadjusted)	26	F2	2.14	33.2	4 F2	mg/Kg	☼	353	70 - 130	89	50
Benzene	ND	F2	0.715	0.699	F2	mg/Kg	☼	98	70 - 130	52	30
Ethylbenzene	ND	F2	0.715	0.893	F2	mg/Kg	☼	125	70 - 130	32	30
Methyl tert-butyl ether	0.31	F1	0.715	1.03		mg/Kg	☼	100	70 - 130	6	30
Naphthalene	ND	F1	0.715	0.886		mg/Kg	☼	124	70 - 130	NC	30
Toluene	ND	F2	0.715	0.706	F2	mg/Kg	☼	99	70 - 130	52	30
m,p-Xylene	ND		1.43	1.81		mg/Kg	☼	127	70 - 130	30	30
o-Xylene	0.17	F2	0.715	0.874	F2	mg/Kg	☼	98	70 - 130	33	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*89*		*70 - 130*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: 620-14582-2 MSD
Matrix: Solid
Analysis Batch: 27958

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 28025

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,5-Dibromotoluene (pid)	*81*		*70 - 130*

Lab Sample ID: MB 620-28262/3-A
Matrix: Solid
Analysis Batch: 28182

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28262

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		5.0	5.0	mg/Kg		10/24/23 12:28	10/24/23 21:36	1
C9-C12 Aliphatics (adjusted)	ND		5.0	5.0	mg/Kg		10/24/23 12:28	10/24/23 21:36	1
C9-C10 Aromatics	ND		5.0	5.0	mg/Kg		10/24/23 12:28	10/24/23 21:36	1
C5-C8 Aliphatics (unadjusted)	ND		5.0	5.0	mg/Kg		10/24/23 12:28	10/24/23 21:36	1
C9-C12 Aliphatics (unadjusted)	ND		5.0	5.0	mg/Kg		10/24/23 12:28	10/24/23 21:36	1
Benzene	ND		0.25	0.25	mg/Kg		10/24/23 12:28	10/24/23 21:36	1
Ethylbenzene	ND		0.25	0.25	mg/Kg		10/24/23 12:28	10/24/23 21:36	1
Methyl tert-butyl ether	ND		0.050	0.050	mg/Kg		10/24/23 12:28	10/24/23 21:36	1
Naphthalene	ND		1.0	1.0	mg/Kg		10/24/23 12:28	10/24/23 21:36	1
Toluene	ND		0.25	0.25	mg/Kg		10/24/23 12:28	10/24/23 21:36	1
m,p-Xylene	ND		0.50	0.50	mg/Kg		10/24/23 12:28	10/24/23 21:36	1
o-Xylene	ND		0.25	0.25	mg/Kg		10/24/23 12:28	10/24/23 21:36	1
Xylenes, Total	ND		0.75	0.75	mg/Kg		10/24/23 12:28	10/24/23 21:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*90*		*70 - 130*	*10/24/23 12:28*	*10/24/23 21:36*	*1*
2,5-Dibromotoluene (pid)	*88*		*70 - 130*	*10/24/23 12:28*	*10/24/23 21:36*	*1*

Lab Sample ID: LCS 620-28262/1-A
Matrix: Solid
Analysis Batch: 28182

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28262

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C10 Aromatics	1.00	ND		mg/Kg		96	70 - 130
C5-C8 Aliphatics (unadjusted)	3.00	ND		mg/Kg		93	70 - 130
C9-C12 Aliphatics (unadjusted)	3.00	ND		mg/Kg		91	70 - 130
Benzene	1.00	0.956		mg/Kg		96	70 - 130
Ethylbenzene	1.00	0.970		mg/Kg		97	70 - 130
Methyl tert-butyl ether	1.00	0.948		mg/Kg		95	70 - 130
Naphthalene	1.00	ND		mg/Kg		95	70 - 130
Toluene	1.00	0.937		mg/Kg		94	70 - 130
m,p-Xylene	2.00	1.96		mg/Kg		98	70 - 130
o-Xylene	1.00	0.959		mg/Kg		96	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*94*		*70 - 130*
2,5-Dibromotoluene (pid)	*93*		*70 - 130*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-28262/2-A
Matrix: Solid
Analysis Batch: 28182

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28262

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics			1.00	ND		mg/Kg		95	70 - 130	1	25
C5-C8 Aliphatics (unadjusted)			3.00	ND		mg/Kg		93	70 - 130	1	25
C9-C12 Aliphatics (unadjusted)			3.00	ND		mg/Kg		90	70 - 130	1	25
Benzene			1.00	0.964		mg/Kg		96	70 - 130	1	25
Ethylbenzene			1.00	0.960		mg/Kg		96	70 - 130	1	25
Methyl tert-butyl ether			1.00	0.947		mg/Kg		95	70 - 130	0	25
Naphthalene			1.00	ND		mg/Kg		95	70 - 130	0	25
Toluene			1.00	0.937		mg/Kg		94	70 - 130	0	25
m,p-Xylene			2.00	1.95		mg/Kg		98	70 - 130	0	25
o-Xylene			1.00	0.947		mg/Kg		95	70 - 130	1	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*94*		*70 - 130*
2,5-Dibromotoluene (pid)	*94*		*70 - 130*

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-27844/1-B
Matrix: Solid
Analysis Batch: 27945

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 27844

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		6.7	6.7	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
C19-C36 Aliphatics	ND		6.7	6.7	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
C11-C22 Aromatics	ND		6.7	6.7	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
C11-C22 Aromatics (Adjusted)	ND		6.7	6.7	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Naphthalene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
2-Methylnaphthalene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Acenaphthylene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Acenaphthene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Fluorene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Phenanthrene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Anthracene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Fluoranthene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Pyrene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Benzo[a]anthracene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Chrysene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Benzo[b]fluoranthene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Benzo[k]fluoranthene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Benzo[a]pyrene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Indeno[1,2,3-cd]pyrene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Dibenz(a,h)anthracene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1
Benzo[g,h,i]perylene	ND		0.33	0.33	mg/Kg		10/16/23 09:16	10/18/23 17:18	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*64*		*40 - 140*	*10/16/23 09:16*	*10/18/23 17:18*	*1*
o-Terphenyl (Surr)	*59*		*40 - 140*	*10/16/23 09:16*	*10/18/23 17:18*	*1*
2-Fluorobiphenyl (Surr)	*67*		*40 - 140*	*10/16/23 09:16*	*10/18/23 17:18*	*1*

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Lab Sample ID: LCS 620-27844/2-B
Matrix: Solid
Analysis Batch: 27945

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 27844

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C18 Aliphatics			8.00	ND		mg/Kg		62	40 - 140		
C19-C36 Aliphatics			10.7	11.5		mg/Kg		108	40 - 140		
C11-C22 Aromatics			22.7	16.8		mg/Kg		74	40 - 140		
Naphthalene			1.33	0.869		mg/Kg		65	40 - 140		
2-Methylnaphthalene			1.33	0.812		mg/Kg		61	40 - 140		
Acenaphthylene			1.33	0.959		mg/Kg		72	40 - 140		
Acenaphthene			1.33	0.999		mg/Kg		75	40 - 140		
Fluorene			1.33	0.778		mg/Kg		58	40 - 140		
Phenanthrene			1.33	0.757		mg/Kg		57	40 - 140		
Anthracene			1.33	0.947		mg/Kg		71	40 - 140		
Fluoranthene			1.33	1.06		mg/Kg		79	40 - 140		
Pyrene			1.33	1.18		mg/Kg		89	40 - 140		
Benzo[a]anthracene			1.33	0.688		mg/Kg		52	40 - 140		
Chrysene			1.33	1.06		mg/Kg		80	40 - 140		
Benzo[b]fluoranthene			1.33	0.862		mg/Kg		65	40 - 140		
Benzo[k]fluoranthene			1.33	1.25		mg/Kg		93	40 - 140		
Benzo[a]pyrene			1.33	0.749		mg/Kg		56	40 - 140		
Indeno[1,2,3-cd]pyrene			1.33	0.704		mg/Kg		53	40 - 140		
Dibenz(a,h)anthracene			1.33	0.838		mg/Kg		63	40 - 140		
Benzo[g,h,i]perylene			1.33	1.14		mg/Kg		85	40 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*70*		*40 - 140*
o-Terphenyl (Surr)	*76*		*40 - 140*
2-Fluorobiphenyl (Surr)	*78*		*40 - 140*

Lab Sample ID: LCSD 620-27844/3-B
Matrix: Solid
Analysis Batch: 27945

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 27844

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics			8.00	ND		mg/Kg		61	40 - 140	2	25
C19-C36 Aliphatics			10.7	11.9		mg/Kg		112	40 - 140	3	25
C11-C22 Aromatics			22.7	16.2		mg/Kg		71	40 - 140	4	25
Naphthalene			1.33	0.778		mg/Kg		58	40 - 140	11	25
2-Methylnaphthalene			1.33	0.709		mg/Kg		53	40 - 140	14	25
Acenaphthylene			1.33	0.956		mg/Kg		72	40 - 140	0	25
Acenaphthene			1.33	0.987		mg/Kg		74	40 - 140	1	25
Fluorene			1.33	0.656		mg/Kg		49	40 - 140	17	25
Phenanthrene			1.33	0.692		mg/Kg		52	40 - 140	9	25
Anthracene			1.33	0.788		mg/Kg		59	40 - 140	18	25
Fluoranthene			1.33	1.00		mg/Kg		75	40 - 140	5	25
Pyrene			1.33	1.11		mg/Kg		83	40 - 140	7	25
Benzo[a]anthracene			1.33	0.591		mg/Kg		44	40 - 140	15	25
Chrysene			1.33	1.10		mg/Kg		83	40 - 140	4	25
Benzo[b]fluoranthene			1.33	0.780		mg/Kg		59	40 - 140	10	25
Benzo[k]fluoranthene			1.33	1.28		mg/Kg		96	40 - 140	3	25
Benzo[a]pyrene			1.33	0.820		mg/Kg		62	40 - 140	9	25

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-27844/3-B
Matrix: Solid
Analysis Batch: 27945

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 27844

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Indeno[1,2,3-cd]pyrene			1.33	0.664		mg/Kg		50	40 - 140	6	25
Dibenz(a,h)anthracene			1.33	0.785		mg/Kg		59	40 - 140	6	25
Benzo[g,h,i]perylene			1.33	1.09		mg/Kg		81	40 - 140	5	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*69*		*40 - 140*
o-Terphenyl (Surr)	*72*		*40 - 140*
2-Fluorobiphenyl (Surr)	*76*		*40 - 140*

Lab Sample ID: 620-14582-2 MS
Matrix: Solid
Analysis Batch: 28114

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 27844

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C18 Aliphatics	ND		9.38	8.31		mg/Kg	☼	89	40 - 140
C19-C36 Aliphatics	32		12.5	21.0	F1	mg/Kg	☼	-88	40 - 140
C11-C22 Aromatics	11		26.6	23.2		mg/Kg	☼	47	40 - 140
Naphthalene	ND		1.56	0.982		mg/Kg	☼	63	40 - 140
2-Methylnaphthalene	ND		1.56	0.944		mg/Kg	☼	60	40 - 140
Acenaphthylene	ND		1.56	0.874		mg/Kg	☼	56	40 - 140
Acenaphthene	ND		1.56	0.950		mg/Kg	☼	61	40 - 140
Fluorene	ND		1.56	0.753		mg/Kg	☼	48	40 - 140
Phenanthrene	ND		1.56	0.900		mg/Kg	☼	58	40 - 140
Anthracene	ND		1.56	0.770		mg/Kg	☼	49	40 - 140
Fluoranthene	ND		1.56	1.22		mg/Kg	☼	78	40 - 140
Pyrene	ND		1.56	1.12		mg/Kg	☼	71	40 - 140
Benzo[a]anthracene	ND		1.56	1.01		mg/Kg	☼	65	40 - 140
Chrysene	ND		1.56	1.17		mg/Kg	☼	75	40 - 140
Benzo[b]fluoranthene	ND		1.56	0.997		mg/Kg	☼	64	40 - 140
Benzo[k]fluoranthene	ND		1.56	1.03		mg/Kg	☼	66	40 - 140
Benzo[a]pyrene	ND		1.56	1.06		mg/Kg	☼	68	40 - 140
Indeno[1,2,3-cd]pyrene	ND		1.56	0.862		mg/Kg	☼	55	40 - 140
Dibenz(a,h)anthracene	ND		1.56	1.16		mg/Kg	☼	74	40 - 140
Benzo[g,h,i]perylene	ND		1.56	0.897		mg/Kg	☼	57	40 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*43*		*40 - 140*
o-Terphenyl (Surr)	*55*		*40 - 140*
2-Fluorobiphenyl (Surr)	*80*		*40 - 140*

Lab Sample ID: 620-14582-2 MSD
Matrix: Solid
Analysis Batch: 28114

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 27844

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics	ND		9.40	9.04		mg/Kg	☼	96	40 - 140	8	50
C19-C36 Aliphatics	32		12.5	45.5	F2	mg/Kg	☼	108	40 - 140	74	50
C11-C22 Aromatics	11		26.6	37.5		mg/Kg	☼	100	40 - 140	47	50

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: 620-14582-2 MSD
Matrix: Solid
Analysis Batch: 28114

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 27844

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Naphthalene	ND		1.57	0.912		mg/Kg	☼	58	40 - 140	7	50
2-Methylnaphthalene	ND		1.57	0.992		mg/Kg	☼	63	40 - 140	5	50
Acenaphthylene	ND		1.57	0.902		mg/Kg	☼	58	40 - 140	3	50
Acenaphthene	ND		1.57	1.00		mg/Kg	☼	64	40 - 140	5	50
Fluorene	ND		1.57	0.880		mg/Kg	☼	56	40 - 140	16	50
Phenanthrene	ND		1.57	1.06		mg/Kg	☼	68	40 - 140	17	50
Anthracene	ND		1.57	0.928		mg/Kg	☼	59	40 - 140	19	50
Fluoranthene	ND		1.57	1.30		mg/Kg	☼	83	40 - 140	6	50
Pyrene	ND		1.57	1.40		mg/Kg	☼	89	40 - 140	22	50
Benzo[a]anthracene	ND		1.57	1.29		mg/Kg	☼	82	40 - 140	24	50
Chrysene	ND		1.57	1.68		mg/Kg	☼	107	40 - 140	36	50
Benzo[b]fluoranthene	ND		1.57	1.10		mg/Kg	☼	70	40 - 140	10	50
Benzo[k]fluoranthene	ND		1.57	1.04		mg/Kg	☼	66	40 - 140	1	50
Benzo[a]pyrene	ND		1.57	1.25		mg/Kg	☼	80	40 - 140	17	50
Indeno[1,2,3-cd]pyrene	ND		1.57	1.21		mg/Kg	☼	77	40 - 140	34	50
Dibenz(a,h)anthracene	ND		1.57	1.73		mg/Kg	☼	110	40 - 140	39	50
Benzo[g,h,i]perylene	ND		1.57	1.13		mg/Kg	☼	72	40 - 140	23	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*49*		*40 - 140*
o-Terphenyl (Surr)	*67*		*40 - 140*
2-Fluorobiphenyl (Surr)	*93*		*40 - 140*

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 620-27854/1-A
Matrix: Solid
Analysis Batch: 27926

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 27854

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		4.6	0.34	mg/Kg		10/16/23 11:07	10/17/23 14:14	1
Arsenic	ND		1.4	0.17	mg/Kg		10/16/23 11:07	10/17/23 14:14	1
Barium	ND		0.91	0.11	mg/Kg		10/16/23 11:07	10/17/23 14:14	1
Beryllium	ND		0.46	0.023	mg/Kg		10/16/23 11:07	10/17/23 14:14	1
Cadmium	ND		0.46	0.024	mg/Kg		10/16/23 11:07	10/17/23 14:14	1
Chromium	ND		0.91	0.12	mg/Kg		10/16/23 11:07	10/17/23 14:14	1
Lead	ND		1.4	0.19	mg/Kg		10/16/23 11:07	10/17/23 14:14	1
Nickel	ND		0.91	0.11	mg/Kg		10/16/23 11:07	10/17/23 14:14	1
Selenium	ND		1.4	0.26	mg/Kg		10/16/23 11:07	10/17/23 14:14	1
Silver	ND		1.4	0.15	mg/Kg		10/16/23 11:07	10/17/23 14:14	1
Thallium	ND		2.7	1.0	mg/Kg		10/16/23 11:07	10/17/23 14:14	1
Vanadium	ND		1.4	0.24	mg/Kg		10/16/23 11:07	10/17/23 14:14	1
Zinc	ND		2.7	0.71	mg/Kg		10/16/23 11:07	10/17/23 14:14	1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCSSRM 620-27854/2-A ^5
Matrix: Solid
Analysis Batch: 27926

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 27854

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	270	102		mg/Kg		37.7	3.3 - 103.3
Arsenic	218	165		mg/Kg		75.8	67.0 - 98.6
Barium	388	344		mg/Kg		88.7	74.5 - 107.7
Beryllium	165	146		mg/Kg		88.2	76.4 - 108.5
Cadmium	118	97.2		mg/Kg		82.4	73.6 - 105.1
Chromium	255	227		mg/Kg		89.1	74.1 - 107.8
Lead	155	137		mg/Kg		88.4	76.8 - 110.3
Nickel	120	102		mg/Kg		85.0	74.3 - 105.8
Selenium	107	87.8		mg/Kg		82.1	70.9 - 109.3
Silver	51.0	45.2		mg/Kg		88.6	73.7 - 111.8
Thallium	188	164		mg/Kg		87.3	73.9 - 108.5
Vanadium	133	121		mg/Kg		91.1	69.1 - 108.3
Zinc	406	337		mg/Kg		83.1	72.9 - 109.1

Lab Sample ID: 620-14582-2 MS
Matrix: Solid
Analysis Batch: 27992

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 27854

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.93	J	109	111		mg/Kg	☼	101	75 - 125
Arsenic	23		109	120		mg/Kg	☼	90	75 - 125
Barium	29		109	137		mg/Kg	☼	100	75 - 125
Beryllium	ND		109	89.7		mg/Kg	☼	82	75 - 125
Cadmium	0.027	J	109	87.4		mg/Kg	☼	80	75 - 125
Chromium	18		109	116		mg/Kg	☼	90	75 - 125
Lead	12		109	104		mg/Kg	☼	85	75 - 125
Nickel	12		109	103		mg/Kg	☼	84	75 - 125
Selenium	ND		109	89.7		mg/Kg	☼	83	75 - 125
Silver	ND		109	91.6		mg/Kg	☼	84	75 - 125
Thallium	ND		109	99.1		mg/Kg	☼	91	75 - 125
Vanadium	14		109	115		mg/Kg	☼	93	75 - 125
Zinc	56		109	157		mg/Kg	☼	93	75 - 125

Lab Sample ID: 620-14582-2 MSD
Matrix: Solid
Analysis Batch: 27992

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 27854

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	0.93	J	124	135		mg/Kg	☼	108	75 - 125	19	20
Arsenic	23		124	137		mg/Kg	☼	92	75 - 125	13	20

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 620-14582-2 MSD
Matrix: Solid
Analysis Batch: 27992

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 27854

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Barium	29		124	159		mg/Kg	☼	105	75 - 125	15	20
Beryllium	ND		124	108		mg/Kg	☼	87	75 - 125	18	20
Cadmium	0.027	J	124	105		mg/Kg	☼	84	75 - 125	18	20
Chromium	18		124	134		mg/Kg	☼	94	75 - 125	15	20
Lead	12		124	125		mg/Kg	☼	91	75 - 125	18	20
Nickel	12		124	120		mg/Kg	☼	87	75 - 125	15	20
Selenium	ND		124	107		mg/Kg	☼	86	75 - 125	17	20
Silver	ND		124	109		mg/Kg	☼	88	75 - 125	18	20
Thallium	ND		124	117		mg/Kg	☼	94	75 - 125	16	20
Vanadium	14		124	134		mg/Kg	☼	96	75 - 125	15	20
Zinc	56		124	175		mg/Kg	☼	96	75 - 125	11	20

Lab Sample ID: 620-14582-2 DU
Matrix: Solid
Analysis Batch: 27992

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 27854

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Antimony	0.93	J		1.35	J F5	mg/Kg	☼			37	20
Arsenic	23			28.5	F3	mg/Kg	☼			23	20
Barium	29			36.0	F3	mg/Kg	☼			23	20
Beryllium	ND			ND		mg/Kg	☼			NC	20
Cadmium	0.027	J		0.0291	J	mg/Kg	☼			6	20
Chromium	18			22.9	F3	mg/Kg	☼			26	20
Lead	12			16.5	F3	mg/Kg	☼			31	20
Nickel	12			14.9	F3	mg/Kg	☼			21	20
Selenium	ND			ND		mg/Kg	☼			NC	20
Silver	ND			ND		mg/Kg	☼			NC	20
Thallium	ND			ND		mg/Kg	☼			NC	20
Vanadium	14			17.3		mg/Kg	☼			20	20
Zinc	56			86.7	F3	mg/Kg	☼			43	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 620-27974/1-A
Matrix: Solid
Analysis Batch: 28044

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 27974

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.050	0.0083	mg/Kg		10/18/23 13:57	10/19/23 11:09	1

Lab Sample ID: LCSSRM 620-27974/2-A ^10
Matrix: Solid
Analysis Batch: 28044

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 27974

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			17.1	11.0		mg/Kg		64.2	36.0 - 109.9		

Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: 620-14582-2 MS
Matrix: Solid
Analysis Batch: 28044

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 27974

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury	0.023	J F1 F2	0.110	0.148		mg/Kg	☼	114	75 - 125		

Lab Sample ID: 620-14582-2 MSD
Matrix: Solid
Analysis Batch: 28044

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 27974

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.023	J F1 F2	0.127	0.183	F1 F2	mg/Kg	☼	126	75 - 125	21	20

Lab Sample ID: 620-14582-2 DU
Matrix: Solid
Analysis Batch: 28044

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA
Prep Batch: 27974

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Mercury	0.023	J F1 F2	0.0214	J	mg/Kg	☼	8	20

Method: Moisture - Percent Moisture

Lab Sample ID: 620-14582-2 DU
Matrix: Solid
Analysis Batch: 27847

Client Sample ID: SO-B/MW-107-1015
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	15.7		15.8		%		0.4	5
Percent Solids	84.3		84.2		%		0.08	5

GC VOA

Analysis Batch: 27958

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-1	SO-B/MW-106-1015	Total/NA	Solid	MAVPH2.1	28025
620-14582-2	SO-B/MW-107-1015	Total/NA	Solid	MAVPH2.1	28025
620-14582-3	SO-B/MW-108-1518	Total/NA	Solid	MAVPH2.1	28025
620-14582-4	SO-FD01-101223	Total/NA	Solid	MAVPH2.1	28025
MB 620-28025/3-A	Method Blank	Total/NA	Solid	MAVPH2.1	28025
LCS 620-28025/1-A	Lab Control Sample	Total/NA	Solid	MAVPH2.1	28025
LCSD 620-28025/2-A	Lab Control Sample Dup	Total/NA	Solid	MAVPH2.1	28025
620-14582-2 MS	SO-B/MW-107-1015	Total/NA	Solid	MAVPH2.1	28025
620-14582-2 MSD	SO-B/MW-107-1015	Total/NA	Solid	MAVPH2.1	28025

Prep Batch: 28025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-1 - DL	SO-B/MW-106-1015	Total/NA	Solid	5035	
620-14582-1	SO-B/MW-106-1015	Total/NA	Solid	5035	
620-14582-2	SO-B/MW-107-1015	Total/NA	Solid	5035	
620-14582-3	SO-B/MW-108-1518	Total/NA	Solid	5035	
620-14582-4	SO-FD01-101223	Total/NA	Solid	5035	
620-14582-4 - DL	SO-FD01-101223	Total/NA	Solid	5035	
MB 620-28025/3-A	Method Blank	Total/NA	Solid	5035	
LCS 620-28025/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 620-28025/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
620-14582-2 MS	SO-B/MW-107-1015	Total/NA	Solid	5035	
620-14582-2 MSD	SO-B/MW-107-1015	Total/NA	Solid	5035	

Analysis Batch: 28182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-1 - DL	SO-B/MW-106-1015	Total/NA	Solid	MAVPH2.1	28025
620-14582-4 - DL	SO-FD01-101223	Total/NA	Solid	MAVPH2.1	28025
620-14582-5	TB01-101223	Total/NA	Solid	MAVPH2.1	28262
MB 620-28262/3-A	Method Blank	Total/NA	Solid	MAVPH2.1	28262
LCS 620-28262/1-A	Lab Control Sample	Total/NA	Solid	MAVPH2.1	28262
LCSD 620-28262/2-A	Lab Control Sample Dup	Total/NA	Solid	MAVPH2.1	28262

Prep Batch: 28262

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-5	TB01-101223	Total/NA	Solid	5035	
MB 620-28262/3-A	Method Blank	Total/NA	Solid	5035	
LCS 620-28262/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 620-28262/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

GC Semi VOA

Prep Batch: 27844

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-1	SO-B/MW-106-1015	Total/NA	Solid	3546	
620-14582-2	SO-B/MW-107-1015	Total/NA	Solid	3546	
620-14582-3	SO-B/MW-108-1518	Total/NA	Solid	3546	
620-14582-4	SO-FD01-101223	Total/NA	Solid	3546	
MB 620-27844/1-B	Method Blank	Total/NA	Solid	3546	
LCS 620-27844/2-B	Lab Control Sample	Total/NA	Solid	3546	
LCSD 620-27844/3-B	Lab Control Sample Dup	Total/NA	Solid	3546	

GC Semi VOA (Continued)

Prep Batch: 27844 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-2 MS	SO-B/MW-107-1015	Total/NA	Solid	3546	
620-14582-2 MSD	SO-B/MW-107-1015	Total/NA	Solid	3546	

Analysis Batch: 27945

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 620-27844/1-B	Method Blank	Total/NA	Solid	MAEPH2.1	27964
LCS 620-27844/2-B	Lab Control Sample	Total/NA	Solid	MAEPH2.1	27964
LCSD 620-27844/3-B	Lab Control Sample Dup	Total/NA	Solid	MAEPH2.1	27964

Fraction Batch: 27964

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-1	SO-B/MW-106-1015	Total/NA	Solid	MA EPH Frac	27844
620-14582-2	SO-B/MW-107-1015	Total/NA	Solid	MA EPH Frac	27844
620-14582-3	SO-B/MW-108-1518	Total/NA	Solid	MA EPH Frac	27844
620-14582-4	SO-FD01-101223	Total/NA	Solid	MA EPH Frac	27844
MB 620-27844/1-B	Method Blank	Total/NA	Solid	MA EPH Frac	27844
LCS 620-27844/2-B	Lab Control Sample	Total/NA	Solid	MA EPH Frac	27844
LCSD 620-27844/3-B	Lab Control Sample Dup	Total/NA	Solid	MA EPH Frac	27844
620-14582-2 MS	SO-B/MW-107-1015	Total/NA	Solid	MA EPH Frac	27844
620-14582-2 MSD	SO-B/MW-107-1015	Total/NA	Solid	MA EPH Frac	27844

Analysis Batch: 28013

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-1	SO-B/MW-106-1015	Total/NA	Solid	MAEPH2.1	27964
620-14582-2	SO-B/MW-107-1015	Total/NA	Solid	MAEPH2.1	27964

Analysis Batch: 28114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-3	SO-B/MW-108-1518	Total/NA	Solid	MAEPH2.1	27964
620-14582-4	SO-FD01-101223	Total/NA	Solid	MAEPH2.1	27964
620-14582-2 MS	SO-B/MW-107-1015	Total/NA	Solid	MAEPH2.1	27964
620-14582-2 MSD	SO-B/MW-107-1015	Total/NA	Solid	MAEPH2.1	27964

Metals

Prep Batch: 27854

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-1	SO-B/MW-106-1015	Total/NA	Solid	3050B	
620-14582-2	SO-B/MW-107-1015	Total/NA	Solid	3050B	
620-14582-3	SO-B/MW-108-1518	Total/NA	Solid	3050B	
620-14582-4	SO-FD01-101223	Total/NA	Solid	3050B	
MB 620-27854/1-A	Method Blank	Total/NA	Solid	3050B	
LCSSRM 620-27854/2-A ^5	Lab Control Sample	Total/NA	Solid	3050B	
620-14582-2 MS	SO-B/MW-107-1015	Total/NA	Solid	3050B	
620-14582-2 MSD	SO-B/MW-107-1015	Total/NA	Solid	3050B	
620-14582-2 DU	SO-B/MW-107-1015	Total/NA	Solid	3050B	

Analysis Batch: 27926

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-2	SO-B/MW-107-1015	Total/NA	Solid	6010D	27854
MB 620-27854/1-A	Method Blank	Total/NA	Solid	6010D	27854

Metals (Continued)

Analysis Batch: 27926 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSSRM 620-27854/2-A ^5	Lab Control Sample	Total/NA	Solid	6010D	27854

Prep Batch: 27974

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-1	SO-B/MW-106-1015	Total/NA	Solid	7471B	
620-14582-2	SO-B/MW-107-1015	Total/NA	Solid	7471B	
620-14582-3	SO-B/MW-108-1518	Total/NA	Solid	7471B	
620-14582-4	SO-FD01-101223	Total/NA	Solid	7471B	
MB 620-27974/1-A	Method Blank	Total/NA	Solid	7471B	
LCSSRM 620-27974/2-A ^10	Lab Control Sample	Total/NA	Solid	7471B	
620-14582-2 MS	SO-B/MW-107-1015	Total/NA	Solid	7471B	
620-14582-2 MSD	SO-B/MW-107-1015	Total/NA	Solid	7471B	
620-14582-2 DU	SO-B/MW-107-1015	Total/NA	Solid	7471B	

Analysis Batch: 27992

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-1	SO-B/MW-106-1015	Total/NA	Solid	6010D	27854
620-14582-3	SO-B/MW-108-1518	Total/NA	Solid	6010D	27854
620-14582-4	SO-FD01-101223	Total/NA	Solid	6010D	27854
620-14582-2 MS	SO-B/MW-107-1015	Total/NA	Solid	6010D	27854
620-14582-2 MSD	SO-B/MW-107-1015	Total/NA	Solid	6010D	27854
620-14582-2 DU	SO-B/MW-107-1015	Total/NA	Solid	6010D	27854

Analysis Batch: 28044

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-1	SO-B/MW-106-1015	Total/NA	Solid	7471A	27974
620-14582-2	SO-B/MW-107-1015	Total/NA	Solid	7471A	27974
620-14582-3	SO-B/MW-108-1518	Total/NA	Solid	7471A	27974
620-14582-4	SO-FD01-101223	Total/NA	Solid	7471A	27974
MB 620-27974/1-A	Method Blank	Total/NA	Solid	7471A	27974
LCSSRM 620-27974/2-A ^10	Lab Control Sample	Total/NA	Solid	7471A	27974
620-14582-2 MS	SO-B/MW-107-1015	Total/NA	Solid	7471A	27974
620-14582-2 MSD	SO-B/MW-107-1015	Total/NA	Solid	7471A	27974
620-14582-2 DU	SO-B/MW-107-1015	Total/NA	Solid	7471A	27974

General Chemistry

Analysis Batch: 27847

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14582-1	SO-B/MW-106-1015	Total/NA	Solid	Moisture	
620-14582-2	SO-B/MW-107-1015	Total/NA	Solid	Moisture	
620-14582-3	SO-B/MW-108-1518	Total/NA	Solid	Moisture	
620-14582-4	SO-FD01-101223	Total/NA	Solid	Moisture	
620-14582-2 MS	SO-B/MW-107-1015	Total/NA	Solid	Moisture	
620-14582-2 MSD	SO-B/MW-107-1015	Total/NA	Solid	Moisture	
620-14582-2 DU	SO-B/MW-107-1015	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Client Sample ID: SO-B/MW-106-1015
Date Collected: 10/12/23 08:50
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	27847	ODO	EET NE	10/16/23 09:33

Client Sample ID: SO-B/MW-106-1015
Date Collected: 10/12/23 08:50
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-1
Matrix: Solid
Percent Solids: 86.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			28025	BMH	EET NE	10/18/23 11:23
Total/NA	Analysis	MAVPH2.1		1	27958	BMH	EET NE	10/19/23 02:53
Total/NA	Prep	5035	DL		28025	BMH	EET NE	10/18/23 11:23
Total/NA	Analysis	MAVPH2.1	DL	10	28182	BMH	EET NE	10/25/23 01:10
Total/NA	Prep	3546			27844	JAC	EET NE	10/16/23 09:16
Total/NA	Fraction	MA EPH Frac			27964	BJJ	EET NE	10/18/23 12:27
Total/NA	Analysis	MAEPH2.1		1	28013	JS	EET NE	10/19/23 22:03
Total/NA	Prep	3050B			27854	ODO	EET NE	10/16/23 11:07
Total/NA	Analysis	6010D		1	27992	JPC	EET NE	10/17/23 17:09
Total/NA	Prep	7471B			27974	PRB	EET NE	10/18/23 13:57
Total/NA	Analysis	7471A		1	28044	PRB	EET NE	10/19/23 12:50

Client Sample ID: SO-B/MW-107-1015
Date Collected: 10/12/23 09:30
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	27847	ODO	EET NE	10/16/23 09:33

Client Sample ID: SO-B/MW-107-1015
Date Collected: 10/12/23 09:30
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-2
Matrix: Solid
Percent Solids: 84.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			28025	BMH	EET NE	10/18/23 11:23
Total/NA	Analysis	MAVPH2.1		1	27958	BMH	EET NE	10/18/23 19:44
Total/NA	Prep	3546			27844	JAC	EET NE	10/16/23 09:16
Total/NA	Fraction	MA EPH Frac			27964	BJJ	EET NE	10/18/23 12:27
Total/NA	Analysis	MAEPH2.1		1	28013	JS	EET NE	10/19/23 22:30
Total/NA	Prep	3050B			27854	ODO	EET NE	10/16/23 11:07
Total/NA	Analysis	6010D		1	27926	JPC	EET NE	10/17/23 14:49
Total/NA	Prep	7471B			27974	PRB	EET NE	10/18/23 13:57
Total/NA	Analysis	7471A		1	28044	PRB	EET NE	10/19/23 12:52

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Client Sample ID: SO-B/MW-108-1518
Date Collected: 10/12/23 10:10
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	27847	ODO	EET NE	10/16/23 09:33

Client Sample ID: SO-B/MW-108-1518
Date Collected: 10/12/23 10:10
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-3
Matrix: Solid
Percent Solids: 85.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			28025	BMH	EET NE	10/18/23 11:23
Total/NA	Analysis	MAVPH2.1		1	27958	BMH	EET NE	10/19/23 03:29
Total/NA	Prep	3546			27844	JAC	EET NE	10/16/23 09:16
Total/NA	Fraction	MA EPH Frac			27964	BJJ	EET NE	10/18/23 12:27
Total/NA	Analysis	MAEPH2.1		1	28114	JS	EET NE	10/23/23 21:35
Total/NA	Prep	3050B			27854	ODO	EET NE	10/16/23 11:07
Total/NA	Analysis	6010D		1	27992	JPC	EET NE	10/17/23 17:03
Total/NA	Prep	7471B			27974	PRB	EET NE	10/18/23 13:57
Total/NA	Analysis	7471A		1	28044	PRB	EET NE	10/19/23 13:00

Client Sample ID: SO-FD01-101223
Date Collected: 10/12/23 08:00
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	27847	ODO	EET NE	10/16/23 09:33

Client Sample ID: SO-FD01-101223
Date Collected: 10/12/23 08:00
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-4
Matrix: Solid
Percent Solids: 88.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			28025	BMH	EET NE	10/18/23 11:23
Total/NA	Analysis	MAVPH2.1		10	27958	BMH	EET NE	10/19/23 04:05
Total/NA	Prep	5035	DL		28025	BMH	EET NE	10/18/23 11:23
Total/NA	Analysis	MAVPH2.1	DL	100	28182	BMH	EET NE	10/25/23 00:34
Total/NA	Prep	3546			27844	JAC	EET NE	10/16/23 09:16
Total/NA	Fraction	MA EPH Frac			27964	BJJ	EET NE	10/18/23 12:27
Total/NA	Analysis	MAEPH2.1		1	28114	JS	EET NE	10/23/23 22:03
Total/NA	Prep	3050B			27854	ODO	EET NE	10/16/23 11:07
Total/NA	Analysis	6010D		1	27992	JPC	EET NE	10/17/23 16:57
Total/NA	Prep	7471B			27974	PRB	EET NE	10/18/23 13:57
Total/NA	Analysis	7471A		1	28044	PRB	EET NE	10/19/23 13:02

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Client Sample ID: TB01-101223

Date Collected: 10/12/23 00:00
Date Received: 10/13/23 17:11

Lab Sample ID: 620-14582-5

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			28262	BMH	EET NE	10/24/23 12:28
Total/NA	Analysis	MAVPH2.1		1	28182	BMH	EET NE	10/24/23 22:47

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-14582-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Massachusetts	State	M-RI907	06-30-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6010D	3050B	Solid	Antimony
6010D	3050B	Solid	Arsenic
6010D	3050B	Solid	Barium
6010D	3050B	Solid	Beryllium
6010D	3050B	Solid	Cadmium
6010D	3050B	Solid	Chromium
6010D	3050B	Solid	Lead
6010D	3050B	Solid	Nickel
6010D	3050B	Solid	Selenium
6010D	3050B	Solid	Silver
6010D	3050B	Solid	Thallium
6010D	3050B	Solid	Vanadium
6010D	3050B	Solid	Zinc
7471A	7471B	Solid	Mercury
MAEPH2.1	3546	Solid	2-Methylnaphthalene
MAEPH2.1	3546	Solid	Acenaphthene
MAEPH2.1	3546	Solid	Acenaphthylene
MAEPH2.1	3546	Solid	Anthracene
MAEPH2.1	3546	Solid	Benzo[a]anthracene
MAEPH2.1	3546	Solid	Benzo[a]pyrene
MAEPH2.1	3546	Solid	Benzo[b]fluoranthene
MAEPH2.1	3546	Solid	Benzo[g,h,i]perylene
MAEPH2.1	3546	Solid	Benzo[k]fluoranthene
MAEPH2.1	3546	Solid	C11-C22 Aromatics
MAEPH2.1	3546	Solid	C11-C22 Aromatics (Adjusted)
MAEPH2.1	3546	Solid	C19-C36 Aliphatics
MAEPH2.1	3546	Solid	C9-C18 Aliphatics
MAEPH2.1	3546	Solid	Chrysene
MAEPH2.1	3546	Solid	Dibenz(a,h)anthracene
MAEPH2.1	3546	Solid	Fluoranthene
MAEPH2.1	3546	Solid	Fluorene
MAEPH2.1	3546	Solid	Indeno[1,2,3-cd]pyrene
MAEPH2.1	3546	Solid	Naphthalene
MAEPH2.1	3546	Solid	Phenanthrene
MAEPH2.1	3546	Solid	Pyrene
MAVPH2.1	5035	Solid	Benzene
MAVPH2.1	5035	Solid	C5-C8 Aliphatics (adjusted)
MAVPH2.1	5035	Solid	C5-C8 Aliphatics (unadjusted)
MAVPH2.1	5035	Solid	C9-C10 Aromatics
MAVPH2.1	5035	Solid	C9-C12 Aliphatics (adjusted)
MAVPH2.1	5035	Solid	C9-C12 Aliphatics (unadjusted)
MAVPH2.1	5035	Solid	Ethylbenzene
MAVPH2.1	5035	Solid	m,p-Xylene
MAVPH2.1	5035	Solid	Methyl tert-butyl ether
MAVPH2.1	5035	Solid	Naphthalene

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-14582-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
MAVPH2.1	5035	Solid	o-Xylene
MAVPH2.1	5035	Solid	Toluene
MAVPH2.1	5035	Solid	Xylenes, Total
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

Method Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Method	Method Description	Protocol	Laboratory
MAVPH2.1	Massachusetts - Volatile Petroleum Hydrocarbons (GC)	MA DEP	EET NE
MAEPH2.1	Massachusetts - Extractable Petroleum Hydrocarbons (GC)	MA DEP	EET NE
6010D	Metals (ICP)	SW846	EET NE
7471A	Mercury (CVAA)	SW846	EET NE
Moisture	Percent Moisture	EPA	EET NE
3050B	Preparation, Metals	SW846	EET NE
3546	Microwave Extraction	SW846	EET NE
5035	Closed System Purge and Trap	SW846	EET NE
7471B	Preparation, Mercury	SW846	EET NE
MA EPH Frac	Massachusetts - Extractable Petroleum Hydrocarbon Fractionation	MA DEP	EET NE

Protocol References:

EPA = US Environmental Protection Agency

MA DEP = Massachusetts Department Of Environmental Protection

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Sample Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14582-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
620-14582-1	SO-B/MW-106-1015	Solid	10/12/23 08:50	10/13/23 17:11
620-14582-2	SO-B/MW-107-1015	Solid	10/12/23 09:30	10/13/23 17:11
620-14582-3	SO-B/MW-108-1518	Solid	10/12/23 10:10	10/13/23 17:11
620-14582-4	SO-FD01-101223	Solid	10/12/23 08:00	10/13/23 17:11
620-14582-5	TB01-101223	Solid	10/12/23 00:00	10/13/23 17:11

620-14582 Chain of Custody

KFS 10/13

~~14582~~ 14582

Chain of Custody Record

eurofins | Environment Testing

Client Contact: ~~Stephanie Stone~~ Caitlin ODell	Sampler: C. Odell	Lab PM: A. Roy	Carrier Tracking No(s):	COC No: 620-12716-1718 3
Company: Nobis Engineering, Inc	Phone: 203-530-4433	E-Mail: aroy@nobis-group.com	State of Origin: MA	Page: ~~Page 3 of 4~~ 1 of 1
Address: 585 Middlesex Street	PWSID	Analysis Requested		Job #:
City: Lowell	Due Date Requested:			
State, Zip: MA, 01851	TAT Requested (days): Standard			
Phone: 203-530-4433	Compliance Project: X Yes △ No MA CAM			
Email: sstone@nobis-group com	PO #:			
Project Name: S00001 005 L$M Service Station	WO #:			
Site: Lunenburg, MA	Project #: S00001.05/400			
	SSOW#:			

Preservation Codes:

A - HCl, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other: ~~~~

	Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	EPH (MassDEP CAM)	Metals (MCP 14) (6010/7471)	VPH (MassDEP CAM)	% Moisture	Trip blank	Total Number of containers	Special Instructions/Note:
	Preservation Code:									F				
1	SO-B/MW-106-1015	10/12/23	0850	G	Water Solid								4	
2	SO-B/MW-107-1015	"	0930	"	Water Solid		X						12	MS/MSD
3	SO-B/MW-108-1518	"	1010	"	Water Solid								4	
4	SO-FD01-101223	"	0800	"	Water Solid								4	
5	TB01-101223	"	—		Solid							X	1	
					Solid									
					Solid									
					Solid									
					Solid									
					Solid									
					Solid									

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested I, II, III, IV, Other (specify): EDD Report, PDF, & email

Special Instructions/QC Requirements: email EDD to AROY@nobis-group.com; MADEP CAM methods required

Empty Kit Relinquished by:		Date		Time		Method of Shipment:	
Relinquished by: Caitlin ODell	Date/Time: 10/13/23 11:40	Company: Nobis	Received by:	Date/Time: 10/13/23 1140	Company: EA		
Relinquished by:	Date/Time: 10/13/23 17:11	Company: EA	Received by:	Date/Time: 10/13/23 17:11	Company:		
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:		

Custody Seals Intact: △ Yes △ No	Custody Seal No:	Cooler Temperature(s) °C and Other Remarks: 5.6 to 2.8 +3

Ver: 06/08/2021

Page 42 of 43

10/30/2023

Login Sample Receipt Checklist

Client: Nobis Engineering, Inc.

Job Number: 620-14582-1

Login Number: 14582
List Number: 1
Creator: Makhoul, Elie

List Source: Eurofins New England

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

January 15, 2024
Nobis File No. S00001.05

Ms. Katy Deng
USEPA – Region 1
Land, Chemicals, and Redevelopment Division
5 Post Office Square, Suite 100
Boston, MA 02109-3912

Re: USEPA Contract No. 68HE0122D0001
USEPA Task Order No. 68HE0122F0044
Targeted Brownfields Assessment (TBA)
Former L&M Service Station Site
Lunenburg, Massachusetts
Sample Delivery Group (SDG) No. 620149421
Eurofins New England, North Kingstown, RI

Tier 1 Stage 2A Organic and Inorganic Data Review:

Volatile Petroleum Hydrocarbons (VPH by MassDEP-VPH), Extractable Petroleum Hydrocarbons (EPH by MassDEP-EPH), Massachusetts Contingency Plan (MCP) Metals (MCP-14 Metals by 6010D/7470A)

4/Groundwater Samples: LM-MW106-102623, LM-MW107-102623, LM-MW108-102623, LM-FD01-102623
1/Field Duplicate Pair: LM-MW107-102623 / LM-FD01-102623
1/Aqueous Trip Blank: Trip Blank-102623

Dear Ms. Deng:

Nobis Group (Nobis), under a USEPA contract as a subcontractor to KGSNE JV, LLC, performed a Tier 1 Stage 2A manual data review (S2AVM) on the organic and inorganic analytical data for the samples listed above. The samples were collected by Nobis at the Former L&M Service Station Site located in Lunenburg, Massachusetts on October 26, 2023. The samples were analyzed for VPHs by MassDEP-VPH, EPHs by MassDEP-EPH, and MCP-14 Metals by EPA Methods 6010D/7470A by Eurofins New England in North Kingstown, RI.

The Tier 1 Stage 2A manual data review was performed in accordance with the Region 1 - EPA New England Environmental Data Review Supplement for Region 1 Data Review Elements and Superfund Specific Guidance/Procedures (September 2020); USEPA's National Functional Guidelines for Organic Superfund Methods Data Review (November 2020); USEPA's National Functional Guidelines for Inorganic Superfund Methods Data Review (November 2020); the Program Quality Assurance Project Plan (Program QAPP) dated October 2022, and the Quality Assurance Project Plan Addendum (QAPPA) (May 2023) for the Former L&M Service Station Site, which appends the October 2022 Program QAPP.

The data were evaluated based on the following parameters:

* • Overall Evaluation of Data and Potential Usability Issues
* • Data Completeness
* • Preservation and Technical Holding Times

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	•	Blanks
*	•	Surrogates (organic analyses only)
NA	•	Internal Standards
	•	Matrix Spike Analysis
*	•	Laboratory Duplicates
*	•	Laboratory Control Samples (LCS)
	•	Field Duplicates
NA	•	ICP Serial Dilutions (metals only)
NA	•	Performance Evaluation (PE) Samples
NA	•	Target Analyte Identification
	•	Reported Quantitation Limits

* All criteria were met for this parameter or did not require qualification.
NA – Not applicable.

Overall Evaluation of Data and Potential Usability Issues

The site sampling objectives are:

- Characterize in-situ soil based on AOCs identified by Fuss & O'Neill in November 2020 Phase I for the presence of possible site-related contamination.
- Evaluate groundwater elevation.
- Evaluate presence/absence of groundwater contamination related to site.

The non-detect reporting limit for silver exceeded the project action limit (PAL) of 0.007 mg/L in sample LM-MW106-102623. Project objectives may be impacted.

The remaining data meet the project quality criteria and can be used without restriction except as summarized below. The attachments provide details and supporting documentation.

MassDEP-VPH:
Results were qualified for MS/MSD recoveries and field duplicate imprecision.

MassDEP-EPH:
Qualification of the data was not required.

MCP-14 Metals and Mercury:
Results were qualified for laboratory blank contamination.

Please contact Linda Terzis at lterzis@nobis-group.com should you have any questions or comments regarding this information.

Sincerely,

NOBIS GROUP®

nobis

Linda Terzis
Data Validator

Gary Glennon
Data Validator

Tables: Data Summary Tables – Tier 1 Stage 2A (S2AVM) Validated Data
Data Qualification Actions Table

Attachments: Data Review Checklist
Support Documentation
COC

cc: Denis McGrath (Nobis Group)
Adam Roy (Nobis Group)

DATA SUMMARY TABLE

Analysis		EPH in Groundwater			
Lab Sample ID		620-14942-1	620-14942-2	620-14942-3	620-14942-4
Field Sample ID		LM-MW106-102623	LM-MW107-102623	LM-MW108-102623	LM-FD01-102623
Sample Type		N	N	N	FD
Parent Sample ID					LM-MW107-102623
Sample Date	**Units**	10/26/23	10/26/23	10/26/23	10/26/23
2-Methylnaphthalene	ug/L	54	1.2	1 U	1.4
Acenaphthene	ug/L	0.2 J	1 U	1 U	1 U
Acenaphthylene	ug/L	1 U	1 U	1 U	1 U
Anthracene	ug/L	1 U	1 U	1 U	1 U
Benzo(a)anthracene	ug/L	1 U	1 U	1 U	1 U
Benzo(a)pyrene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U
Benzo(b)fluoranthene	ug/L	1 U	1 U	1 U	1 U
Benzo(g,h,i)perylene	ug/L	1 U	1 U	1 U	1 U
Benzo(k)fluoranthene	ug/L	1 U	1 U	1 U	1 U
C11-C22 Aromatics	ug/L	400	120	100 U	130
C11-C22 Aromatics (adjusted)	ug/L	230	110	100 U	120
C19-C36 Aliphatics	ug/L	100 U	100 U	100 U	100 U
C9-C18 Aliphatics	ug/L	290	100 U	100 U	100 U
Chrysene	ug/L	1 U	1 U	1 U	1 U
Dibenz(a,h)anthracene	ug/L	0.5 U	0.5 U	0.5 U	0.5 U
Fluoranthene	ug/L	0.16 J	1 U	1 U	1 U
Fluorene	ug/L	1 U	1 U	1 U	1 U
Indeno(1,2,3-cd)pyrene	ug/L	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene	ug/L	90	8.1	1 U	9.1
Phenanthrene	ug/L	0.43 J	1 U	1 U	1 U
Pyrene	ug/L	1 U	1 U	1 U	1 U

DATA SUMMARY TABLE

Analysis		Dissolved Metals in Groundwater			
Lab Sample ID		620-14942-1	620-14942-2	620-14942-3	620-14942-4
Field Sample ID		LM-MW106-102623	LM-MW107-102623	LM-MW108-102623	LM-FD01-102623
Sample Type		N	N	N	FD
Parent Sample ID					LM-MW107-102623
Sample Date	**Units**	10/26/23	10/26/23	10/26/23	10/26/23
Antimony	mg/L	0.006 U	0.006 U	0.0019 J	0.006 U
Arsenic	mg/L	0.044	0.065	0.004 U	0.066
Barium	mg/L	0.054	0.05	0.14	0.05
Beryllium	mg/L	0.002 U	0.002 U	0.002 U	0.00039 J
Cadmium	mg/L	0.0025 U	0.0025 U	0.0025 U	0.0025 U
Chromium	mg/L	0.005 U	0.005 U	0.005 U	0.005 U
Lead	mg/L	0.0075 U	0.0075 U	0.0075 U	0.0075 U
Mercury	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Nickel	mg/L	0.005 U	0.0026 J	0.0045 J	0.0031 J
Selenium	mg/L	0.015 U	0.015 U	0.015 U	0.015 U
Silver	mg/L	0.01 U	0.005 U	0.0012 J	0.005 U
Thallium	mg/L	0.005 U	0.005 U	0.0026 J	0.005 U
Vanadium	mg/L	0.005 U	0.005 U	0.005 U	0.005 U
Zinc	mg/L	0.025 U	0.025 U	0.025 U	0.025 U

DATA SUMMARY TABLE

Analysis		VPH in Groundwater			
Lab Sample ID		620-14942-1	620-14942-2	620-14942-3	620-14942-4
Field Sample ID		LM-MW106-102623	LM-MW107-102623	LM-MW108-102623	LM-FD01-102623
Sample Type		N	N	N	FD
Parent Sample ID					LM-MW107-102623
Sample Date	**Units**	10/26/23	10/26/23	10/26/23	10/26/23
Benzene	ug/L	61	5 U	5 U	5 U
C5-C8 Aliphatics (adjusted)	ug/L	2500 U	100 U	100 U	100 U
C5-C8 Aliphatics (unadjusted)	ug/L	3200 J	610 J	100 UJ	670 J
C9-C10 Aromatics	ug/L	9100 J	210 J	100 UJ	230 J
C9-C12 Aliphatics (adjusted)	ug/L	11000	500	100 U	500 U
C9-C12 Aliphatics (unadjusted)	ug/L	23000 J	980 J	100 UJ	670 J
Ethylbenzene	ug/L	650	61	5 U	64
m,p-Xylene	ug/L	1600	110	10 U	110
Methyl tert-butyl ether	ug/L	2300 J	790 J	5 UJ	570 J
Naphthalene	ug/L	210	14	5 U	17
o-Xylene	ug/L	18	46	5 U	42
Toluene	ug/L	5 U	79	5 U	67
Xylene (total)	ug/L	1600	160	15 U	150

DATA SUMMARY TABLE

Analysis		VPH in Water Quality Control Matrix
Lab Sample ID		620-14942-5
Field Sample ID		Trip Blank-102623
Sample Type		TB
Parent Sample ID		
Sample Date	**Units**	10/26/23
Benzene	ug/L	5 U
C5-C8 Aliphatics (adjusted)	ug/L	100 U
C5-C8 Aliphatics (unadjusted)	ug/L	100 U
C9-C10 Aromatics	ug/L	100 U
C9-C12 Aliphatics (adjusted)	ug/L	100 U
C9-C12 Aliphatics (unadjusted)	ug/L	100 U
Ethylbenzene	ug/L	5 U
m,p-Xylene	ug/L	10 U
Methyl tert-butyl ether	ug/L	5 U
Naphthalene	ug/L	5 U
o-Xylene	ug/L	5 U
Toluene	ug/L	5 U
Xylene (total)	ug/L	15 U

Data Review Qualification Actions
Former L&M Service Station
SDG 620149421

Parameter	Analyte	Samples	Evaluation Criteria	Action Needed	Comments
MassDEP-VPH					
	Methyl tert-butyl ether	LM-MW106-102623, LM-MW107-102623, LM-MW108-102623, LM-FD01-102326	Field duplicate precision	J / UJ	
	C9-C10 aromatics, C5-C8 aliphatics (unadjusted), C9-C12 aliphatics (unadjusted)	LM-MW106-102623, LM-MW107-102623, LM-MW108-102623, LM-FD01-102326	MS/MSD recovery	J / UJ	
MassDEP-EPH					
	Qualification of the data not required.				
MCP-14 Metals / Mercury					
	Zinc	LM-MW106-102623, LM-MW107-102623, LM-MW108-102623, LM-FD01-102326	Laboratory blank contamination	RL (U)	

Tier 1/Stage 2A Data Review Checklist

Project: Former L&M Service Station, Lunenburg, Massachusetts
Targeted Brownfields Assessment (TBA)
Project #: S00001.05

Date: 12/28/2023

Methods: Volatile Petroleum Hydrocarbons (VPH) (MassDEP-VPH)
Extractable Petroleum Hydrocarbons (EPH) (MassDEP-EPH)
Massachusetts Contingency Plan (MCP) Metals (MCP-14 Metals by 6010D/7470A)

Laboratory: Eurofins New England Laboratory, North Kingstown, RI
Case: N/A
SDG: 620149421
Reviewer: Linda Terzis

1. **Case Narrative and Data Package Completeness (COC and Analyte List Review)**
Four (4) groundwater samples and one trip blank sample were listed on the COC for SDG 620149421. The samples were collected on 10/26/2023 and received at the Eurofins New England Laboratory on 10/27/2023 at a maximum temperature of 1.8 °C.

Sample ID	Laboratory ID	Analyses
LM-MW106-102623	620-14942-1	MassDEP-VPH, MassDEP-EPH, MCP-14 Metals/Mercury
LM-MW107-102623	620-14942-2	
LM-MW108-102623	620-14942-3	
LM-FD01-102623	620-14942-4	
Trip Blank-102623	620-14942-5	MassDEP-VPH

The data were evaluated using the site-specific Quality Assurance Project Plan Addendum (QAPPA) (dated May 2023) and the Program QAPP (dated October 2022). Both were prepared by KGSNE, LLC. The QAPPA appends and incorporates by reference the procedures and quality control measures detailed in the Program QAPP (October 2022). Therefore, site data for this SDG were evaluated using both the QAPPA of May 2023 and the Program QAPP dated October 2022. The Massachusetts Compendium of Analytical Methods (CAM) and/or SW-846 Methods were used to perform the analyses. Therefore, site data were also evaluated using CAM quality control (QC) limits, where applicable.

The analyte lists reported by the laboratory were compared to the required analyte lists per Table 4 (groundwater) in the QAPPA (May 2023) for the site. Results for all requested analytes were reported and no inconsistencies were noted.

2. **Holding Time and Sample Preservation Compliance**

Receipt temperatures are acceptable (≤ 6°), as specified in the QAPPA (May 2023).

MassDEP-VPH: Holding time criteria (analyzed within 14 days) met.

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MassDEP-EPH: Holding time criteria (extracted within 14 days and analyzed within 40 days of extraction) met.

MCP-14 Metals/Mercury: Holding time criteria (analyzed within 28 days for mercury; within 180 days for all other analytes) were met.

3. Calibration Issues

Not assessed for S2AVM data review.

4. Laboratory and Field Blanks

MassDEP-VPH: Results for the VPH laboratory method blanks and the trip blank (Trip Blank-102623) were non-detect. No blank actions are required.

MassDEP-EPH: Results for the EPH laboratory method blanks were non-detect. No blank actions are required.

MCP-14 Metals/Mercury: Zinc was detected at < reporting limit (RL) in the method blank associated with the groundwater samples. The method blank is associated with the four groundwater samples in this SDG. Detected concentrations of zinc were < reporting limit (RL) in all samples. Based on the National Functional Guidelines (NFGs, 2020), the detected results for zinc in all groundwater samples are qualified as non-detect (U) at the RL.

Results for mercury in the laboratory method blanks were non-detect. No blank actions are required.

5. Interference Check Sample (metals only)

Not assessed for S2AVM data review.

6. Surrogates

The Program QAPP (October 2022) was used to evaluate site data for surrogate recovery. If no Program QAPP-specific recovery limits were available for a surrogate, the MCP CAM recovery limits were used.

MassDEP-VPH: Percent surrogate recoveries for the samples were within the Program QAPP limits of 70-130%. No actions are required.

MassDEP-EPH: Percent surrogate recoveries for the samples were within the Program QAPP limits of 40-140%. No actions are required.

MCP-14 Metals/Mercury: Not applicable for this analysis.

7. Laboratory Control Samples

MassDEP-VPH: The percent recoveries in the VPH LCS/LCSD pairs met the Program QAPP recovery limits of 70-130% and RPDs ≤ 25%. No actions are required.

MassDEP-EPH: The percent recoveries in the EPH LCS/LCSD pairs meet the Program QAPP recovery limits of 40-140% and RPDs ≤ 25%. No actions are required.

MCP-14 Metals/Mercury: Percent recoveries and RPDs for all metals and mercury LCS/LCSD analyses were within the QAPP limits of 80-120% and ≤ 20%, respectively. No actions are required.

8. Matrix Spikes

Based on the Region I EPA New England Environmental Data Review Supplement (Region I Supplement, 2020), MS/MSD qualifications are applied to all field samples with similar matrix, unless otherwise noted.

MS/MSD analyses were performed on sample LM-MW108-102623 (6020-14942-3).

MassDEP-VPH: Recoveries and RPDs met the Program QAPP limits of 70-130% recovery and ≤ 50% RPD except for the recoveries of C9-C10 aromatics, which was reported as spiked but not detected in both the MS and MSD analyses, and the recoveries of C5-C8 aliphatics (unadjusted) and C9-C12 aliphatics (unadjusted), which were also reported as spiked, but with results > spiking level. Percent recoveries were not calculated by the laboratory for these ranges. Results for the parent sample were all non-detect. The laboratory has indicated the recovery failures are due to the way the entire baseline is integrated for samples versus for QC samples (sum of peaks). Professional judgement was used to qualify detected and non-detect results for C9-C10 aromatics, C5-C8 aliphatics (unadjusted), and C9-C12 aliphatics (unadjusted) as estimated (J/UJ) in all groundwater samples due to baseline integration preventing calculation of meaningful recoveries for these ranges. LCS/LCSD recoveries are acceptable as noted above.

MassDEP-EPH: MS/MSD results meet the limits of 70-130% recovery and ≤ 50% RPD as specified in the Program QAPP. No actions are required.

MCP-14 Metals/Mercury: MS/MSD recoveries and RPDs met the Program QAPP limits of 75-125% recovery and ≤ 20% RPD. No actions are required.

9. Laboratory Duplicates (metals only)

MCP-14 Metals/Mercury: Laboratory duplicate analysis was performed on sample LM-MW108-102623 (620-14942-3). The QAPP duplicate criterion (≤ 20% RPD) was met for all detected analytes. Mercury was not detected in the sample and a duplicate analysis was not performed for mercury. Laboratory duplicate precision is acceptable and no actions are required.

10. Serial Dilution (metals only)

MCP-14 Metals/Mercury: A serial dilution analysis was not performed for this SDG. The Massachusetts CAM requires a serial dilution analysis on samples used for MS/MSD analyses where analytes are detected at > 50x RL. MS/MSD analyses were performed on sample LM-MW108-102623 (620-14942-3). Detected analyte results were < 50x RL in this sample and no actions are required.

11. Field Duplicate Precision

Acceptable field duplicate precision is an RPD of ≤ 30% for results > 5x RL and an absolute difference < 2x RL for results < 5x RL, based on the EPA Region I Supplement (2020). Based on the Region I Supplement (2020), qualifications are applied to all field samples with similar matrix, unless otherwise indicated.

Field duplicate pair LM-MW107-102623 / LM-FD01-102623 (620-14942-2 / 620-14942-4) was submitted with the samples of this SDG.

Field duplicate precision criteria were met for the EPH and metals analyses. Field duplicate precision criteria were met for the VPH analysis except for the results for methyl tert-butyl ether, where the RPD exceeded 30% for results > 5x RL. Based on the EPA Region I Supplemental Guidance (2020), the detect and non-detect results for methyl tert-butyl ether are qualified as estimated (J/UJ) in all groundwater samples.

12. Internal Standards

Not assessed for S2AVM data review.

13. Dual Column Precision (PCBs only)

Not applicable for this SDG.

14. Performance Evaluation Samples

Performance Evaluation (PE) samples were not included in this SDG.

15. Reporting Limits

RLs for non-detect results for VPH, EPH, and metals/mercury analyses met the project action levels (PALs) for the site except for the non-detect result for silver in sample LM-MW106-102623 (620-14942-1), where the reporting limit (0.01 mg/L) exceeded the PAL (0.007 mg/L).

16. Other

EPA Region I Supplement (2020) criterion for percent solids content (> 30%) not applicable for groundwater samples.

Overall bias is considered indeterminate when cumulative nonconformances do not show a consistent bias or in cases of the presence of conflicting high and low biases.

Field Duplicate Evaluation

SDG: 620149421

Analyte	Original Result (ug/L)	Qual	Duplicate Result (ug/L)	Qual	RPD ≤ 30%	Abs Diff	Comment[1]
Sample ID	**LM-MW107-102623**		**LM-FD01-102623**				
	620-14942-2		**620-14942-4**				
Benzene	5	U	5	U	0.00		Ok - both ND
C5-C8 Aliphatics (adjusted)	100	U	100	U	0.00		Ok - both ND
C5-C8 Aliphatics (unadjusted)	610		670		9.38		Ok - RPD < 30%
C9-C10 Aromatics	210		230		9.09	20.0	Ok - abs diff < 2x RL
C9-C12 Aliphatics (adjusted)	500		500	U	0.00	0.00	Ok - abs diff < 2x RL
C9-C12 Aliphatics (unadjusted)	980		670		-37.58	-310.00	Ok - abs diff < 2x RL
Ethylbenzene	61		64		4.80		Ok - RPD < 30%
m,p-Xylene	110		110		0.00		Ok - RPD < 30%
Methyl tert-butyl ether	790		570		-32.35		**RPD > 30% J / UJ**
Naphthalene	14		17		19.35	3	Ok - abs diff < 2x RL
o-Xylene	46		42		-9.09		Ok - RPD < 30%
Toluene	79		67		-16.44		Ok - RPD < 30%

[1] Actions apply to all samples, per EPA Region I Supplemental Review Guidance (2020).

Field Duplicate Evaluation

SDG: 620149421 EPH

Analyte	Original Result (ug/L)	Qual	Duplicate Result (ugL)	Qual	RPD ≤ 30%	Abs Diff	Comment[1]
Sample ID	**LM-MW107-102623**		**LM-FD01-102623**				
	620-14942-2		**620-14942-4**				
2-Methylnaphthalene	1.2		1.4		15.38	0.20	Ok - abs diff < 2x RL
Acenaphthene	1	U	1	U	0.00		Ok - both ND
Acenaphthylene	1	U	1	U	0.00		Ok - both ND
Anthracene	1	U	1	U	0.00		Ok - both ND
Benzo(a)anthracene	1	U	1	U	0.00		Ok - both ND
Benzo(a)pyrene	0.2	U	0.2	U	0.00		Ok - both ND
Benzo(b)fluoranthene	1	U	1	U	0.00		Ok - both ND
Benzo(g,h,i)perylene	1	U	1	U	0.00		Ok - both ND
Benzo(k)fluoranthene	1	U	1	U	0.00		Ok - both ND
C11-C22 Aromatics	120		130		8.00	10	Ok - abs diff < 2x RL
C11-C22 Aromatics (adjusted)	110		120		8.70	10	Ok - abs diff < 2x RL
C19-C36 Aliphatics	100	U	100	U	0.00		Ok - both ND
C9-C18 Aliphatics	100	U	100	U	0.00		Ok - both ND
Chrysene	1	U	1	U	0.00		Ok - both ND
Dibenz(a,h)anthracene	0.5	U	0.5	U	0.00		Ok - both ND
Fluoranthene	1	U	1	U	0.00		Ok - both ND
Fluorene	1	U	1	U	0.00		Ok - both ND
Indeno(1,2,3-cd)pyrene	0.5	U	0.5	U	0.00		Ok - both ND
Naphthalene	8.1		9.1		11.63		Ok - RPD < 30%
Phenanthrene	1	U	1	U	0.00		Ok - both ND
Pyrene	1	U	1	U	0.00		Ok - both ND

[1] Actions apply to all samples, per EPA Region I Supplemental Review Guidance (2020).

Field Duplicate Evaluation

SDG: 620149421 METALS

Analyte	Original Result (mg/L)	Qual	Duplicate Result (mg/L)	Qual	RPD ≤ 30%	Abs Diff	Comment[1]
Sample ID	**LM-MW107-102623**		**LM-FD01-102623**				
	620-14942-2		**620-14942-4**				
Antimony	0.006	U	0.006	U	0.0		Ok - both ND
Arsenic	0.065		0.066		1.5		Ok - RPD < 30%
Barium	0.05		0.05		0.0		Ok - RPD < 30%
Beryllium	0.002	U	0.00039	J	-134.7		Ok - ND and < RL
Cadmium	0.0025	U	0.0025	U	0.0		Ok - both ND
Chromium	0.005	U	0.005	U	0.0		Ok - both ND
Lead	0.0075	U	0.0075	U	0.0		Ok - both ND
Mercury	0.0002	U	0.0002	U	0.0		Ok - both ND
Nickel	0.0026	J	0.0031	J	17.5		Ok - both < RL
Selenium	0.015	U	0.015	U	0.0		Ok - both ND
Silver	0.005	U	0.005	U	0.0		Ok - both ND
Thallium	0.005	U	0.005	U	0.0		Ok - both ND
Vanadium	0.005	U	0.005	U	0.0		Ok - both ND
Zinc	0.0033	J	0.0034	J	3.0		Ok - both < RL

[1] Actions apply to all samples, per EPA Region I Supplemental Review Guidance (2020).



620-14942 Chain of Custody

14942

Chain of Custody Record

eurofins | Environment Testing

Client Contact: ~~Stephanie Stone~~ Adam Roy	Sampler: Caroline Belmowiz	Lab PM	Carrier Tracking No(s)	COC No: 620-12716-1718 2
Company: Nobis Engineering, Inc	Phone: 978-888-4404	E-Mail: CBelmowiz@nobis-group.com	State of Origin	Page: Page 2 of 4
Address: 585 Middlesex Street	PWSID	Analysis Requested		Job #:
City: Lowell	Due Date Requested:			
State, Zip: MA, 01851	TAT Requested (days): Standard			
Phone: 978-703-6014	Compliance Project: ✓ Yes △ No MASSDEP			
Email: AROY ~~cstone~~@nobis-group com	PO #:			
Project Name: S00001 005 LSM	WO #:			
Site: Lunenburg, MA	Project #:			
	SSOW#:			

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

	Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	VPH (MASSDEP)	EPH (MASSDEP)	MCP 14-Dissolved Metals	Total Number of containers	Special Instructions/Note:
	Preservation Code:											
-1	LM-MW106-102623	10/26/23	1335	G	Water	X					6	
-2	LM-MW107-102623	10/26/23	1200	G	Water	X					6	
-3	LM-MW108-102623	10/26/23	1005	G	Water	X	X				8	MS/MSD
-4	LM-FD01-102623	10/26/23	0800	G	Water	X					6	
-5	Trip Blank				Water						2	
					Water							
					Water							
					Water							
					Water							
					Water							
					Water							

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: email EQuIS EDD to AROY@nobis-group.com

Empty Kit Relinquished by		Date		Time		Method of Shipment:	
Relinquished by:		Date/Time: 10/27/23 1130	Company: Nobis	Received by:		Date/Time: 10/27/23 1130	Company: ENE
Relinquished by:		Date/Time: 10/27/23 1642	Company: ENE	Received by:		Date/Time: 10/27/23 1642	Company: ENE
Relinquished by:		Date/Time:	Company:	Received by:		Date/Time:	Company:

Custody Seals Intact: △ Yes △ No | Custody Seal No

Cooler Temperature(s) °C and Other Remarks: 1.6 to.2 1.8 #6 / 1.4 to.2 1.6 #6

Ver: 06/08/2021

Page 43 of 44

11/13/2023

ANALYTICAL REPORT

PREPARED FOR

Attn: Adam Roy
Nobis Engineering, Inc.
585 Middlesex Street
Lowell, Massachusetts 01851

Generated 11/13/2023 11:04:24 AM

JOB DESCRIPTION

Former L&M - Lunenburg MA

JOB NUMBER

620-14942-1

Eurofins New England
646 Camp Ave
North Kingstown RI 02852

See page two for job notes and contact information.

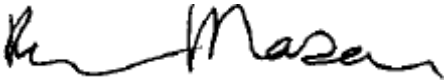
my EOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northeast, LLC Project Manager.

Authorization



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Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
State Forms 5
MCP Checklist 5
Case Narrative 6
Detection Summary 7
Client Sample Results 9
Surrogate Summary 18
QC Sample Results 20
QC Association Summary 33
Lab Chronicle 37
Certification Summary 39
Method Summary 41
Sample Summary 42
Chain of Custody 43
Receipt Checklists 44

Definitions/Glossary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14942-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.

Metals

Qualifier	Qualifier Description
^3+	Reporting Limit Check Standard is outside acceptance limits, high biased
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

MassDEP Analytical Protocol Certfication Form

Laboratory Name: Eurofins New England | Project #: 620-14942-1

Project Location: Former L&M - Lunenburg MA | RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
620-14942-1 through 620-14942-5

Matrices: ☑ Groundwater/Surface Water ☐ Soil/Sediment ☐ Drinking Water ☐ Air ☐ Other:

CAM Protocol (check all that apply below:)

8260 VOC CAM II A ☐	7470/7471 Hg CAM III B ☑	MassDEP VPH (GC/PID/FID) CAM IV A ☑	8082 PCB CAM V A ☐	9014 Total Cyanide/PAC CAM VI A ☐	6860 Perchlorate CAM VIII B ☐
8270 SVOC CAM II B ☐	7010 Metals CAM III C ☐	MassDEP VPH (GC/MS) CAM IV C ☐	8081 Pesticides CAM V B ☐	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
6010 Metals CAM III A ☑	6020 Metals CAM III D ☐	MassDEP EPH CAM IV B ☑	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes ☐ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☑ Yes ☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes ☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☑ Yes ☐ No
E	VPH, EPH, APH, and TO-15 only a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☑ Yes ☐ No ☐ Yes ☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☑ Yes ☐ No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☑ Yes ☐ No[1]

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☐ Yes ☑ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes ☐ No[1]

1 All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature: _____ **Position:** Project Manager II

Printed Name: Becky Mason **Date:** 11/13/2023

Job ID: 620-14942-1

Laboratory: Eurofins New England

Narrative

Job Narrative
620-14942-1

Receipt
The samples were received on 10/27/2023 4:22 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method MAEPH2.1: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 620-28762 and 620-28794 and analytical batch 620-28787 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method 7470A: The matrix spike duplicate (MSD) precision for preparation batch 620-28845 and analytical batch 620-28884 was outside control limits. The sample spike volume was doubled, leading to precision failure; however, recovery was within acceptable limits. No additional sample volume was available, therefore the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14942-1

Client Sample ID: LM-MW106-102623 — Lab Sample ID: 620-14942-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	90		10	2.3	ug/L	10		EPH	Total/NA
2-Methylnaphthalene	54		10	2.9	ug/L	10		EPH	Total/NA
Acenaphthene	0.20	J	1.0	0.19	ug/L	1		EPH	Total/NA
Phenanthrene	0.43	J	1.0	0.17	ug/L	1		EPH	Total/NA
Fluoranthene	0.16	J	1.0	0.15	ug/L	1		EPH	Total/NA
Benzene	61		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
o-Xylene	18		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
C9-C12 Aliphatics (adjusted) - DL	11000		2500	2500	ug/L	25		MAVPH2.1	Total/NA
C9-C10 Aromatics - DL	9100		2500	2500	ug/L	25		MAVPH2.1	Total/NA
C5-C8 Aliphatics (unadjusted) - DL	3200		2500	2500	ug/L	25		MAVPH2.1	Total/NA
C9-C12 Aliphatics (unadjusted) - DL	23000		2500	2500	ug/L	25		MAVPH2.1	Total/NA
Ethylbenzene - DL	650		130	130	ug/L	25		MAVPH2.1	Total/NA
Methyl tert-butyl ether - DL	2300		130	130	ug/L	25		MAVPH2.1	Total/NA
Naphthalene - DL	210		130	130	ug/L	25		MAVPH2.1	Total/NA
m,p-Xylene - DL	1600		250	250	ug/L	25		MAVPH2.1	Total/NA
Xylenes, Total - DL	1600		380	380	ug/L	25		MAVPH2.1	Total/NA
C9-C18 Aliphatics	290		100	100	ug/L	1		MAEPH2.1	Total/NA
C11-C22 Aromatics	400		100	100	ug/L	1		MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	230		100	100	ug/L	1		MAEPH2.1	Total/NA
Arsenic	0.044		0.0040	0.0014	mg/L	1		6010D	Dissolved
Barium	0.054		0.0050	0.00070	mg/L	1		6010D	Dissolved
Zinc	0.0027	J	0.025	0.0016	mg/L	1		6010D	Dissolved

Client Sample ID: LM-MW107-102623 — Lab Sample ID: 620-14942-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	8.1		1.0	0.23	ug/L	1		EPH	Total/NA
2-Methylnaphthalene	1.2		1.0	0.29	ug/L	1		EPH	Total/NA
C9-C10 Aromatics	210		100	100	ug/L	1		MAVPH2.1	Total/NA
C5-C8 Aliphatics (unadjusted)	610		100	100	ug/L	1		MAVPH2.1	Total/NA
Ethylbenzene	61		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
Naphthalene	14		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
Toluene	79		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
m,p-Xylene	110		10	10	ug/L	1		MAVPH2.1	Total/NA
o-Xylene	46		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
Xylenes, Total	160		15	15	ug/L	1		MAVPH2.1	Total/NA
C9-C12 Aliphatics (adjusted) - DL	500		500	500	ug/L	5		MAVPH2.1	Total/NA
C9-C12 Aliphatics (unadjusted) - DL	980		500	500	ug/L	5		MAVPH2.1	Total/NA
Methyl tert-butyl ether - DL	790		25	25	ug/L	5		MAVPH2.1	Total/NA
C11-C22 Aromatics	120		100	100	ug/L	1		MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	110		100	100	ug/L	1		MAEPH2.1	Total/NA
Arsenic	0.065		0.0040	0.0014	mg/L	1		6010D	Dissolved
Barium	0.050		0.0050	0.00070	mg/L	1		6010D	Dissolved
Nickel	0.0026	J	0.0050	0.00087	mg/L	1		6010D	Dissolved
Zinc	0.0033	J	0.025	0.0016	mg/L	1		6010D	Dissolved

Client Sample ID: LM-MW108-102623 — Lab Sample ID: 620-14942-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Antimony	0.0019	J	0.0060	0.0016	mg/L	1		6010D	Dissolved
Barium	0.14		0.0050	0.00070	mg/L	1		6010D	Dissolved
Nickel	0.0045	J	0.0050	0.00087	mg/L	1		6010D	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins New England

Client Sample ID: LM-MW108-102623 (Continued)

Lab Sample ID: 620-14942-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Silver	0.0012	J	0.0050	0.00062	mg/L	1		6010D	Dissolved
Thallium	0.0026	J	0.0050	0.0021	mg/L	1		6010D	Dissolved
Zinc	0.0020	J	0.025	0.0016	mg/L	1		6010D	Dissolved

Client Sample ID: LM-FD01-102623

Lab Sample ID: 620-14942-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	9.1		1.0	0.23	ug/L	1		EPH	Total/NA
2-Methylnaphthalene	1.4		1.0	0.29	ug/L	1		EPH	Total/NA
C9-C10 Aromatics	230		100	100	ug/L	1		MAVPH2.1	Total/NA
C5-C8 Aliphatics (unadjusted)	670		100	100	ug/L	1		MAVPH2.1	Total/NA
Ethylbenzene	64		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
Naphthalene	17		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
Toluene	67		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
m,p-Xylene	110		10	10	ug/L	1		MAVPH2.1	Total/NA
o-Xylene	42		5.0	5.0	ug/L	1		MAVPH2.1	Total/NA
Xylenes, Total	150		15	15	ug/L	1		MAVPH2.1	Total/NA
C9-C12 Aliphatics (unadjusted) - DL	670		500	500	ug/L	5		MAVPH2.1	Total/NA
Methyl tert-butyl ether - DL	570		25	25	ug/L	5		MAVPH2.1	Total/NA
C11-C22 Aromatics	130		100	100	ug/L	1		MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	120		100	100	ug/L	1		MAEPH2.1	Total/NA
Arsenic	0.066		0.0040	0.0014	mg/L	1		6010D	Dissolved
Barium	0.050		0.0050	0.00070	mg/L	1		6010D	Dissolved
Beryllium	0.00039	J	0.0020	0.00028	mg/L	1		6010D	Dissolved
Nickel	0.0031	J	0.0050	0.00087	mg/L	1		6010D	Dissolved
Zinc	0.0034	J	0.025	0.0016	mg/L	1		6010D	Dissolved

Client Sample ID: Trip Blank

Lab Sample ID: 620-14942-5

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: LM-MW106-102623

Date Collected: 10/26/23 13:35
Date Received: 10/27/23 16:22

Lab Sample ID: 620-14942-1

Matrix: Water

Method: MA DEP EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**90**		10	2.3	ug/L		11/07/23 09:35	11/08/23 13:43	10
2-Methylnaphthalene	**54**		10	2.9	ug/L		11/07/23 09:35	11/08/23 13:43	10
Acenaphthylene	ND		1.0	0.39	ug/L		11/07/23 09:35	11/08/23 11:29	1
Acenaphthene	**0.20**	**J**	1.0	0.19	ug/L		11/07/23 09:35	11/08/23 11:29	1
Fluorene	ND		1.0	0.39	ug/L		11/07/23 09:35	11/08/23 11:29	1
Phenanthrene	**0.43**	**J**	1.0	0.17	ug/L		11/07/23 09:35	11/08/23 11:29	1
Anthracene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 11:29	1
Fluoranthene	**0.16**	**J**	1.0	0.15	ug/L		11/07/23 09:35	11/08/23 11:29	1
Pyrene	ND		1.0	0.14	ug/L		11/07/23 09:35	11/08/23 11:29	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		11/07/23 09:35	11/08/23 11:29	1
Chrysene	ND		1.0	0.14	ug/L		11/07/23 09:35	11/08/23 11:29	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 11:29	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		11/07/23 09:35	11/08/23 11:29	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		11/07/23 09:35	11/08/23 11:29	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		11/07/23 09:35	11/08/23 11:29	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		11/07/23 09:35	11/08/23 11:29	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		11/07/23 09:35	11/08/23 11:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*65*		*40 - 140*	*11/07/23 09:35*	*11/08/23 11:29*	*1*
o-Terphenyl (Surr)	*56*		*40 - 140*	*11/07/23 09:35*	*11/08/23 13:43*	*10*
2-Fluorobiphenyl (Surr)	*109*		*40 - 140*	*11/07/23 09:35*	*11/08/23 11:29*	*1*
2-Fluorobiphenyl (Surr)	*93*		*40 - 140*	*11/07/23 09:35*	*11/08/23 13:43*	*10*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**61**		5.0	5.0	ug/L			11/01/23 00:16	1
Toluene	ND		5.0	5.0	ug/L			11/01/23 00:16	1
o-Xylene	**18**		5.0	5.0	ug/L			11/01/23 00:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*128*		*70 - 130*		*11/01/23 00:16*	*1*
2,5-Dibromotoluene (pid)	*116*		*70 - 130*		*11/01/23 00:16*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		2500	2500	ug/L			11/01/23 14:59	25
C9-C12 Aliphatics (adjusted)	**11000**		2500	2500	ug/L			11/01/23 14:59	25
C9-C10 Aromatics	**9100**		2500	2500	ug/L			11/01/23 14:59	25
C5-C8 Aliphatics (unadjusted)	**3200**		2500	2500	ug/L			11/01/23 14:59	25
C9-C12 Aliphatics (unadjusted)	**23000**		2500	2500	ug/L			11/01/23 14:59	25
Ethylbenzene	**650**		130	130	ug/L			11/01/23 14:59	25
Methyl tert-butyl ether	**2300**		130	130	ug/L			11/01/23 14:59	25
Naphthalene	**210**		130	130	ug/L			11/01/23 14:59	25
m,p-Xylene	**1600**		250	250	ug/L			11/01/23 14:59	25
Xylenes, Total	**1600**		380	380	ug/L			11/01/23 14:59	25

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*100*		*70 - 130*		*11/01/23 14:59*	*25*
2,5-Dibromotoluene (pid)	*98*		*70 - 130*		*11/01/23 14:59*	*25*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14942-1

Client Sample ID: LM-MW106-102623

Date Collected: 10/26/23 13:35
Date Received: 10/27/23 16:22

Lab Sample ID: 620-14942-1

Matrix: Water

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	**290**		100	100	ug/L		11/07/23 09:35	11/08/23 12:41	1
C19-C36 Aliphatics	ND		100	100	ug/L		11/07/23 09:35	11/08/23 12:41	1
C11-C22 Aromatics	**400**		100	100	ug/L		11/07/23 09:35	11/08/23 12:41	1
C11-C22 Aromatics (Adjusted)	**230**		100	100	ug/L		11/07/23 09:35	11/08/23 12:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*53*		*40 - 140*	*11/07/23 09:35*	*11/08/23 12:41*	*1*
o-Terphenyl (Surr)	*76*		*40 - 140*	*11/07/23 09:35*	*11/08/23 12:41*	*1*
2-Fluorobiphenyl (Surr)	*110*		*40 - 140*	*11/07/23 09:35*	*11/08/23 12:41*	*1*

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0060	0.0016	mg/L		10/30/23 14:59	11/02/23 13:52	1
Arsenic	**0.044**		0.0040	0.0014	mg/L		10/30/23 14:59	11/02/23 13:52	1
Barium	**0.054**		0.0050	0.00070	mg/L		10/30/23 14:59	11/02/23 13:52	1
Beryllium	ND		0.0020	0.00028	mg/L		10/30/23 14:59	11/02/23 13:52	1
Cadmium	ND		0.0025	0.00036	mg/L		10/30/23 14:59	11/02/23 13:52	1
Chromium	ND		0.0050	0.00093	mg/L		10/30/23 14:59	11/02/23 13:52	1
Lead	ND		0.0075	0.0062	mg/L		10/30/23 14:59	11/02/23 13:52	1
Nickel	ND		0.0050	0.00087	mg/L		10/30/23 14:59	11/02/23 13:52	1
Selenium	ND		0.015	0.0042	mg/L		10/30/23 14:59	11/02/23 13:52	1
Silver	ND		0.010	0.00062	mg/L		11/07/23 15:24	11/08/23 12:52	1
Thallium	ND		0.0050	0.0021	mg/L		10/30/23 14:59	11/02/23 13:52	1
Vanadium	ND		0.0050	0.0011	mg/L		10/30/23 14:59	11/02/23 13:52	1
Zinc	**0.0027**	**J**	0.025	0.0016	mg/L		11/07/23 15:24	11/08/23 12:52	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		11/09/23 08:42	11/09/23 14:40	1

Client Sample ID: LM-MW107-102623

Date Collected: 10/26/23 12:00
Date Received: 10/27/23 16:22

Lab Sample ID: 620-14942-2

Matrix: Water

Method: MA DEP EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**8.1**		1.0	0.23	ug/L		11/07/23 09:35	11/08/23 11:52	1
2-Methylnaphthalene	**1.2**		1.0	0.29	ug/L		11/07/23 09:35	11/08/23 11:52	1
Acenaphthylene	ND		1.0	0.39	ug/L		11/07/23 09:35	11/08/23 11:52	1
Acenaphthene	ND		1.0	0.19	ug/L		11/07/23 09:35	11/08/23 11:52	1
Fluorene	ND		1.0	0.39	ug/L		11/07/23 09:35	11/08/23 11:52	1
Phenanthrene	ND		1.0	0.17	ug/L		11/07/23 09:35	11/08/23 11:52	1
Anthracene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 11:52	1
Fluoranthene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 11:52	1
Pyrene	ND		1.0	0.14	ug/L		11/07/23 09:35	11/08/23 11:52	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		11/07/23 09:35	11/08/23 11:52	1
Chrysene	ND		1.0	0.14	ug/L		11/07/23 09:35	11/08/23 11:52	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 11:52	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		11/07/23 09:35	11/08/23 11:52	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		11/07/23 09:35	11/08/23 11:52	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		11/07/23 09:35	11/08/23 11:52	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		11/07/23 09:35	11/08/23 11:52	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		11/07/23 09:35	11/08/23 11:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*67*		*40 - 140*	*11/07/23 09:35*	*11/08/23 11:52*	*1*
2-Fluorobiphenyl (Surr)	*116*		*40 - 140*	*11/07/23 09:35*	*11/08/23 11:52*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			10/31/23 19:09	1
C9-C10 Aromatics	**210**		100	100	ug/L			10/31/23 19:09	1
C5-C8 Aliphatics (unadjusted)	**610**		100	100	ug/L			10/31/23 19:09	1
Benzene	ND		5.0	5.0	ug/L			10/31/23 19:09	1
Ethylbenzene	**61**		5.0	5.0	ug/L			10/31/23 19:09	1
Naphthalene	**14**		5.0	5.0	ug/L			10/31/23 19:09	1
Toluene	**79**		5.0	5.0	ug/L			10/31/23 19:09	1
m,p-Xylene	**110**		10	10	ug/L			10/31/23 19:09	1
o-Xylene	**46**		5.0	5.0	ug/L			10/31/23 19:09	1
Xylenes, Total	**160**		15	15	ug/L			10/31/23 19:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*95*		*70 - 130*		*10/31/23 19:09*	*1*
2,5-Dibromotoluene (pid)	*94*		*70 - 130*		*10/31/23 19:09*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C12 Aliphatics (adjusted)	**500**		500	500	ug/L			11/01/23 15:30	5
C9-C12 Aliphatics (unadjusted)	**980**		500	500	ug/L			11/01/23 15:30	5
Methyl tert-butyl ether	**790**		25	25	ug/L			11/01/23 15:30	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*101*		*70 - 130*		*11/01/23 15:30*	*5*
2,5-Dibromotoluene (pid)	*99*		*70 - 130*		*11/01/23 15:30*	*5*

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14942-1

Client Sample ID: LM-MW107-102623

Date Collected: 10/26/23 12:00
Date Received: 10/27/23 16:22

Lab Sample ID: 620-14942-2

Matrix: Water

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		100	100	ug/L		11/07/23 09:35	11/08/23 13:08	1
C19-C36 Aliphatics	ND		100	100	ug/L		11/07/23 09:35	11/08/23 13:08	1
C11-C22 Aromatics	**120**		100	100	ug/L		11/07/23 09:35	11/08/23 13:08	1
C11-C22 Aromatics (Adjusted)	**110**		100	100	ug/L		11/07/23 09:35	11/08/23 13:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*62*		*40 - 140*	*11/07/23 09:35*	*11/08/23 13:08*	*1*
o-Terphenyl (Surr)	*75*		*40 - 140*	*11/07/23 09:35*	*11/08/23 13:08*	*1*
2-Fluorobiphenyl (Surr)	*99*		*40 - 140*	*11/07/23 09:35*	*11/08/23 13:08*	*1*

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0060	0.0016	mg/L		10/30/23 14:59	11/02/23 13:58	1
Arsenic	**0.065**		0.0040	0.0014	mg/L		10/30/23 14:59	11/02/23 13:58	1
Barium	**0.050**		0.0050	0.00070	mg/L		10/30/23 14:59	11/02/23 13:58	1
Beryllium	ND		0.0020	0.00028	mg/L		10/30/23 14:59	11/02/23 13:58	1
Cadmium	ND		0.0025	0.00036	mg/L		10/30/23 14:59	11/02/23 13:58	1
Chromium	ND		0.0050	0.00093	mg/L		10/30/23 14:59	11/02/23 13:58	1
Lead	ND		0.0075	0.0062	mg/L		10/30/23 14:59	11/02/23 13:58	1
Nickel	**0.0026**	**J**	0.0050	0.00087	mg/L		10/30/23 14:59	11/02/23 13:58	1
Selenium	ND		0.015	0.0042	mg/L		10/30/23 14:59	11/02/23 13:58	1
Silver	ND		0.0050	0.00062	mg/L		11/07/23 15:24	11/08/23 12:58	1
Thallium	ND		0.0050	0.0021	mg/L		10/30/23 14:59	11/02/23 13:58	1
Vanadium	ND		0.0050	0.0011	mg/L		10/30/23 14:59	11/02/23 13:58	1
Zinc	**0.0033**	**J**	0.025	0.0016	mg/L		11/07/23 15:24	11/08/23 12:58	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		11/09/23 08:42	11/09/23 14:42	1

Client Sample ID: LM-MW108-102623

Date Collected: 10/26/23 10:05
Date Received: 10/27/23 16:22

Lab Sample ID: 620-14942-3

Matrix: Water

Method: MA DEP EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.0	0.23	ug/L		11/07/23 09:35	11/08/23 12:14	1
2-Methylnaphthalene	ND		1.0	0.29	ug/L		11/07/23 09:35	11/08/23 12:14	1
Acenaphthylene	ND		1.0	0.39	ug/L		11/07/23 09:35	11/08/23 12:14	1
Acenaphthene	ND		1.0	0.19	ug/L		11/07/23 09:35	11/08/23 12:14	1
Fluorene	ND		1.0	0.39	ug/L		11/07/23 09:35	11/08/23 12:14	1
Phenanthrene	ND		1.0	0.17	ug/L		11/07/23 09:35	11/08/23 12:14	1
Anthracene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 12:14	1
Fluoranthene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 12:14	1
Pyrene	ND		1.0	0.14	ug/L		11/07/23 09:35	11/08/23 12:14	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		11/07/23 09:35	11/08/23 12:14	1
Chrysene	ND		1.0	0.14	ug/L		11/07/23 09:35	11/08/23 12:14	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 12:14	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		11/07/23 09:35	11/08/23 12:14	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		11/07/23 09:35	11/08/23 12:14	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		11/07/23 09:35	11/08/23 12:14	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		11/07/23 09:35	11/08/23 12:14	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		11/07/23 09:35	11/08/23 12:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*55*		*40 - 140*	*11/07/23 09:35*	*11/08/23 12:14*	*1*
2-Fluorobiphenyl (Surr)	*93*		*40 - 140*	*11/07/23 09:35*	*11/08/23 12:14*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			11/03/23 15:22	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			11/03/23 15:22	1
C9-C10 Aromatics	ND		100	100	ug/L			11/03/23 15:22	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			11/03/23 15:22	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			11/03/23 15:22	1
Benzene	ND		5.0	5.0	ug/L			11/03/23 15:22	1
Ethylbenzene	ND		5.0	5.0	ug/L			11/03/23 15:22	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			11/03/23 15:22	1
Naphthalene	ND		5.0	5.0	ug/L			11/03/23 15:22	1
Toluene	ND		5.0	5.0	ug/L			11/03/23 15:22	1
m,p-Xylene	ND		10	10	ug/L			11/03/23 15:22	1
o-Xylene	ND		5.0	5.0	ug/L			11/03/23 15:22	1
Xylenes, Total	ND		15	15	ug/L			11/03/23 15:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*106*		*70 - 130*		*11/03/23 15:22*	*1*
2,5-Dibromotoluene (pid)	*105*		*70 - 130*		*11/03/23 15:22*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND	F1	100	100	ug/L		11/07/23 09:35	11/08/23 13:34	1
C19-C36 Aliphatics	ND		100	100	ug/L		11/07/23 09:35	11/08/23 13:34	1
C11-C22 Aromatics	ND		100	100	ug/L		11/07/23 09:35	11/08/23 13:34	1
C11-C22 Aromatics (Adjusted)	ND		100	100	ug/L		11/07/23 09:35	11/08/23 13:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*46*		*40 - 140*	*11/07/23 09:35*	*11/08/23 13:34*	*1*

Client Sample ID: LM-MW108-102623

Date Collected: 10/26/23 10:05
Date Received: 10/27/23 16:22

Lab Sample ID: 620-14942-3

Matrix: Water

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*75*		*40 - 140*	*11/07/23 09:35*	*11/08/23 13:34*	*1*
2-Fluorobiphenyl (Surr)	*98*		*40 - 140*	*11/07/23 09:35*	*11/08/23 13:34*	*1*

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.0019**	**J**	0.0060	0.0016	mg/L		10/30/23 14:59	11/02/23 13:11	1
Arsenic	ND		0.0040	0.0014	mg/L		10/30/23 14:59	11/02/23 13:11	1
Barium	**0.14**		0.0050	0.00070	mg/L		10/30/23 14:59	11/02/23 13:11	1
Beryllium	ND		0.0020	0.00028	mg/L		10/30/23 14:59	11/02/23 13:11	1
Cadmium	ND		0.0025	0.00036	mg/L		10/30/23 14:59	11/02/23 13:11	1
Chromium	ND		0.0050	0.00093	mg/L		10/30/23 14:59	11/02/23 13:11	1
Lead	ND		0.0075	0.0062	mg/L		10/30/23 14:59	11/02/23 13:11	1
Nickel	**0.0045**	**J**	0.0050	0.00087	mg/L		10/30/23 14:59	11/02/23 13:11	1
Selenium	ND		0.015	0.0042	mg/L		10/30/23 14:59	11/02/23 13:11	1
Silver	**0.0012**	**J**	0.0050	0.00062	mg/L		11/07/23 15:24	11/08/23 12:28	1
Thallium	**0.0026**	**J**	0.0050	0.0021	mg/L		10/30/23 14:59	11/02/23 13:11	1
Vanadium	ND		0.0050	0.0011	mg/L		10/30/23 14:59	11/02/23 13:11	1
Zinc	**0.0020**	**J**	0.025	0.0016	mg/L		11/07/23 15:24	11/08/23 12:28	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		11/09/23 08:42	11/09/23 14:45	1

Client Sample ID: LM-FD01-102623

Date Collected: 10/26/23 08:00
Date Received: 10/27/23 16:22

Lab Sample ID: 620-14942-4

Matrix: Water

Method: MA DEP EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**9.1**		1.0	0.23	ug/L		11/07/23 09:35	11/08/23 13:21	1
2-Methylnaphthalene	**1.4**		1.0	0.29	ug/L		11/07/23 09:35	11/08/23 13:21	1
Acenaphthylene	ND		1.0	0.39	ug/L		11/07/23 09:35	11/08/23 13:21	1
Acenaphthene	ND		1.0	0.19	ug/L		11/07/23 09:35	11/08/23 13:21	1
Fluorene	ND		1.0	0.39	ug/L		11/07/23 09:35	11/08/23 13:21	1
Phenanthrene	ND		1.0	0.17	ug/L		11/07/23 09:35	11/08/23 13:21	1
Anthracene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 13:21	1
Fluoranthene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 13:21	1
Pyrene	ND		1.0	0.14	ug/L		11/07/23 09:35	11/08/23 13:21	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		11/07/23 09:35	11/08/23 13:21	1
Chrysene	ND		1.0	0.14	ug/L		11/07/23 09:35	11/08/23 13:21	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 13:21	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		11/07/23 09:35	11/08/23 13:21	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		11/07/23 09:35	11/08/23 13:21	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		11/07/23 09:35	11/08/23 13:21	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		11/07/23 09:35	11/08/23 13:21	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		11/07/23 09:35	11/08/23 13:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*72*		*40 - 140*	*11/07/23 09:35*	*11/08/23 13:21*	*1*
2-Fluorobiphenyl (Surr)	*113*		*40 - 140*	*11/07/23 09:35*	*11/08/23 13:21*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			10/31/23 19:40	1
C9-C10 Aromatics	**230**		100	100	ug/L			10/31/23 19:40	1
C5-C8 Aliphatics (unadjusted)	**670**		100	100	ug/L			10/31/23 19:40	1
Benzene	ND		5.0	5.0	ug/L			10/31/23 19:40	1
Ethylbenzene	**64**		5.0	5.0	ug/L			10/31/23 19:40	1
Naphthalene	**17**		5.0	5.0	ug/L			10/31/23 19:40	1
Toluene	**67**		5.0	5.0	ug/L			10/31/23 19:40	1
m,p-Xylene	**110**		10	10	ug/L			10/31/23 19:40	1
o-Xylene	**42**		5.0	5.0	ug/L			10/31/23 19:40	1
Xylenes, Total	**150**		15	15	ug/L			10/31/23 19:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*100*		*70 - 130*		*10/31/23 19:40*	*1*
2,5-Dibromotoluene (pid)	*97*		*70 - 130*		*10/31/23 19:40*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C12 Aliphatics (adjusted)	ND		500	500	ug/L			11/01/23 16:01	5
C9-C12 Aliphatics (unadjusted)	**670**		500	500	ug/L			11/01/23 16:01	5
Methyl tert-butyl ether	**570**		25	25	ug/L			11/01/23 16:01	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*101*		*70 - 130*		*11/01/23 16:01*	*5*
2,5-Dibromotoluene (pid)	*99*		*70 - 130*		*11/01/23 16:01*	*5*

Client Sample ID: LM-FD01-102623

Date Collected: 10/26/23 08:00
Date Received: 10/27/23 16:22

Lab Sample ID: 620-14942-4

Matrix: Water

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		100	100	ug/L		11/07/23 09:35	11/08/23 15:39	1
C19-C36 Aliphatics	ND		100	100	ug/L		11/07/23 09:35	11/08/23 15:39	1
C11-C22 Aromatics	**130**		100	100	ug/L		11/07/23 09:35	11/08/23 15:39	1
C11-C22 Aromatics (Adjusted)	**120**		100	100	ug/L		11/07/23 09:35	11/08/23 15:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*52*		*40 - 140*	*11/07/23 09:35*	*11/08/23 15:39*	*1*
o-Terphenyl (Surr)	*85*		*40 - 140*	*11/07/23 09:35*	*11/08/23 15:39*	*1*
2-Fluorobiphenyl (Surr)	*107*		*40 - 140*	*11/07/23 09:35*	*11/08/23 15:39*	*1*

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0060	0.0016	mg/L		10/30/23 14:59	11/02/23 13:47	1
Arsenic	**0.066**		0.0040	0.0014	mg/L		10/30/23 14:59	11/02/23 13:47	1
Barium	**0.050**		0.0050	0.00070	mg/L		10/30/23 14:59	11/02/23 13:47	1
Beryllium	**0.00039**	**J**	0.0020	0.00028	mg/L		10/30/23 14:59	11/02/23 13:47	1
Cadmium	ND		0.0025	0.00036	mg/L		10/30/23 14:59	11/02/23 13:47	1
Chromium	ND		0.0050	0.00093	mg/L		10/30/23 14:59	11/02/23 13:47	1
Lead	ND		0.0075	0.0062	mg/L		10/30/23 14:59	11/02/23 13:47	1
Nickel	**0.0031**	**J**	0.0050	0.00087	mg/L		10/30/23 14:59	11/02/23 13:47	1
Selenium	ND		0.015	0.0042	mg/L		10/30/23 14:59	11/02/23 13:47	1
Silver	ND		0.0050	0.00062	mg/L		11/07/23 15:24	11/08/23 13:04	1
Thallium	ND		0.0050	0.0021	mg/L		10/30/23 14:59	11/02/23 13:47	1
Vanadium	ND		0.0050	0.0011	mg/L		10/30/23 14:59	11/02/23 13:47	1
Zinc	**0.0034**	**J**	0.025	0.0016	mg/L		11/07/23 15:24	11/08/23 13:04	1

Method: SW846 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		11/09/23 08:42	11/09/23 14:47	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14942-1

Client Sample ID: Trip Blank

Date Collected: 10/26/23 00:00
Date Received: 10/27/23 16:22

Lab Sample ID: 620-14942-5

Matrix: Water

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			10/31/23 15:36	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			10/31/23 15:36	1
C9-C10 Aromatics	ND		100	100	ug/L			10/31/23 15:36	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			10/31/23 15:36	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			10/31/23 15:36	1
Benzene	ND		5.0	5.0	ug/L			10/31/23 15:36	1
Ethylbenzene	ND		5.0	5.0	ug/L			10/31/23 15:36	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			10/31/23 15:36	1
Naphthalene	ND		5.0	5.0	ug/L			10/31/23 15:36	1
Toluene	ND		5.0	5.0	ug/L			10/31/23 15:36	1
m,p-Xylene	ND		10	10	ug/L			10/31/23 15:36	1
o-Xylene	ND		5.0	5.0	ug/L			10/31/23 15:36	1
Xylenes, Total	ND		15	15	ug/L			10/31/23 15:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*95*		*70 - 130*		*10/31/23 15:36*	*1*
2,5-Dibromotoluene (pid)	*95*		*70 - 130*		*10/31/23 15:36*	*1*

Surrogate Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14942-1

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	OTPH (40-140)	FBP (40-140)
620-14942-1	LM-MW106-102623	56	93
620-14942-1	LM-MW106-102623	65	109
620-14942-2	LM-MW107-102623	67	116
620-14942-3	LM-MW108-102623	55	93
620-14942-3 MS	LM-MW108-102623	66	110
620-14942-3 MSD	LM-MW108-102623	64	113
620-14942-4	LM-FD01-102623	72	113
LCS 620-28762/4-B	Lab Control Sample	68	112
LCSD 620-28762/5-B	Lab Control Sample Dup	71	117
MB 620-28762/1-B	Method Blank	71	115

Surrogate Legend

OTPH = o-Terphenyl (Surr)

FBP = 2-Fluorobiphenyl (Surr)

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	25DBTf1 (70-130)	25DBTp1 (70-130)
620-14942-1	LM-MW106-102623	128	116
620-14942-1 - DL	LM-MW106-102623	100	98
620-14942-2	LM-MW107-102623	95	94
620-14942-2 - DL	LM-MW107-102623	101	99
620-14942-3	LM-MW108-102623	106	105
620-14942-3 MS	LM-MW108-102623	99	101
620-14942-3 MSD	LM-MW108-102623	102	103
620-14942-4	LM-FD01-102623	100	97
620-14942-4 - DL	LM-FD01-102623	101	99
620-14942-5	Trip Blank	95	95
LCS 620-28516/3	Lab Control Sample	100	100
LCS 620-28559/3	Lab Control Sample	103	99
LCS 620-28656/3	Lab Control Sample	106	105
LCSD 620-28516/4	Lab Control Sample Dup	103	101
LCSD 620-28559/4	Lab Control Sample Dup	108	107
LCSD 620-28656/4	Lab Control Sample Dup	104	103
MB 620-28516/5	Method Blank	104	103
MB 620-28559/5	Method Blank	110	108
MB 620-28656/5	Method Blank	103	103

Surrogate Legend

25DBTf = 2,5-Dibromotoluene (fid)

25DBTp = 2,5-Dibromotoluene (pid)

Surrogate Summary

Client: Nobis Engineering, Inc.
Job ID: 620-14942-1
Project/Site: Former L&M - Lunenburg MA

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Matrix: Water
Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	1COD1 (40-140)	OTPH1 (40-140)	FBP1 (40-140)
620-14942-1	LM-MW106-102623	53	76	110
620-14942-2	LM-MW107-102623	62	75	99
620-14942-3	LM-MW108-102623	46	75	98
620-14942-3 MS	LM-MW108-102623	57	79	113
620-14942-3 MSD	LM-MW108-102623	48	70	105
620-14942-4	LM-FD01-102623	52	85	107
LCS 620-28762/2-B	Lab Control Sample	49	80	112
LCSD 620-28762/3-B	Lab Control Sample Dup	67	88	112
MB 620-28762/1-B	Method Blank	44	65	93

Surrogate Legend

1COD = 1-Chlorooctadecane (Surr)
OTPH = o-Terphenyl (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Lab Sample ID: MB 620-28762/1-B
Matrix: Water
Analysis Batch: 28788

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28762

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.0	0.23	ug/L		11/07/23 09:35	11/08/23 10:22	1
2-Methylnaphthalene	ND		1.0	0.29	ug/L		11/07/23 09:35	11/08/23 10:22	1
Acenaphthylene	ND		1.0	0.39	ug/L		11/07/23 09:35	11/08/23 10:22	1
Acenaphthene	ND		1.0	0.19	ug/L		11/07/23 09:35	11/08/23 10:22	1
Fluorene	ND		1.0	0.39	ug/L		11/07/23 09:35	11/08/23 10:22	1
Phenanthrene	ND		1.0	0.17	ug/L		11/07/23 09:35	11/08/23 10:22	1
Anthracene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 10:22	1
Fluoranthene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 10:22	1
Pyrene	ND		1.0	0.14	ug/L		11/07/23 09:35	11/08/23 10:22	1
Benzo[a]anthracene	ND		1.0	0.070	ug/L		11/07/23 09:35	11/08/23 10:22	1
Chrysene	ND		1.0	0.14	ug/L		11/07/23 09:35	11/08/23 10:22	1
Benzo[b]fluoranthene	ND		1.0	0.15	ug/L		11/07/23 09:35	11/08/23 10:22	1
Benzo[k]fluoranthene	ND		1.0	0.24	ug/L		11/07/23 09:35	11/08/23 10:22	1
Benzo[a]pyrene	ND		0.20	0.16	ug/L		11/07/23 09:35	11/08/23 10:22	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.46	ug/L		11/07/23 09:35	11/08/23 10:22	1
Dibenz(a,h)anthracene	ND		0.50	0.21	ug/L		11/07/23 09:35	11/08/23 10:22	1
Benzo[g,h,i]perylene	ND		1.0	0.17	ug/L		11/07/23 09:35	11/08/23 10:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*71*		*40 - 140*	*11/07/23 09:35*	*11/08/23 10:22*	*1*
2-Fluorobiphenyl (Surr)	*115*		*40 - 140*	*11/07/23 09:35*	*11/08/23 10:22*	*1*

Lab Sample ID: LCS 620-28762/4-B
Matrix: Water
Analysis Batch: 28788

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28762

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Naphthalene	5.00	3.10		ug/L		62	40 - 140
2-Methylnaphthalene	5.00	3.04		ug/L		61	40 - 140
Acenaphthylene	5.00	3.18		ug/L		64	40 - 140
Acenaphthene	5.00	3.16		ug/L		63	40 - 140
Fluorene	5.00	3.06		ug/L		61	40 - 140
Phenanthrene	5.00	3.16		ug/L		63	40 - 140
Anthracene	5.00	2.95		ug/L		59	40 - 140
Fluoranthene	5.00	3.64		ug/L		73	40 - 140
Pyrene	5.00	3.55		ug/L		71	40 - 140
Benzo[a]anthracene	5.00	3.39		ug/L		68	40 - 140
Chrysene	5.00	3.25		ug/L		65	40 - 140
Benzo[b]fluoranthene	5.00	3.13		ug/L		63	40 - 140
Benzo[k]fluoranthene	5.00	3.50		ug/L		70	40 - 140
Benzo[a]pyrene	5.00	2.79		ug/L		56	40 - 140
Indeno[1,2,3-cd]pyrene	5.00	2.94		ug/L		59	40 - 140
Dibenz(a,h)anthracene	5.00	2.85		ug/L		57	40 - 140
Benzo[g,h,i]perylene	5.00	3.18		ug/L		64	40 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*68*		*40 - 140*
2-Fluorobiphenyl (Surr)	*112*		*40 - 140*

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Lab Sample ID: LCSD 620-28762/5-B
Matrix: Water
Analysis Batch: 28788

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28762

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Naphthalene			5.00	2.96		ug/L		59	40 - 140	5	25
2-Methylnaphthalene			5.00	2.91		ug/L		58	40 - 140	4	25
Acenaphthylene			5.00	3.15		ug/L		63	40 - 140	1	25
Acenaphthene			5.00	3.08		ug/L		62	40 - 140	3	25
Fluorene			5.00	3.14		ug/L		63	40 - 140	2	25
Phenanthrene			5.00	3.27		ug/L		65	40 - 140	4	25
Anthracene			5.00	3.05		ug/L		61	40 - 140	3	25
Fluoranthene			5.00	3.80		ug/L		76	40 - 140	5	25
Pyrene			5.00	3.76		ug/L		75	40 - 140	6	25
Benzo[a]anthracene			5.00	3.80		ug/L		76	40 - 140	11	25
Chrysene			5.00	3.88		ug/L		78	40 - 140	18	25
Benzo[b]fluoranthene			5.00	3.91		ug/L		78	40 - 140	22	25
Benzo[k]fluoranthene			5.00	4.38		ug/L		88	40 - 140	22	25
Benzo[a]pyrene			5.00	3.25		ug/L		65	40 - 140	15	25
Indeno[1,2,3-cd]pyrene			5.00	3.62		ug/L		72	40 - 140	21	25
Dibenz(a,h)anthracene			5.00	3.60		ug/L		72	40 - 140	23	25
Benzo[g,h,i]perylene			5.00	4.01		ug/L		80	40 - 140	23	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*71*		*40 - 140*
2-Fluorobiphenyl (Surr)	*117*		*40 - 140*

Lab Sample ID: 620-14942-3 MS
Matrix: Water
Analysis Batch: 28788

Client Sample ID: LM-MW108-102623
Prep Type: Total/NA
Prep Batch: 28762

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Naphthalene	ND		5.00	2.27		ug/L		45	40 - 140
2-Methylnaphthalene	ND		5.00	2.30		ug/L		46	40 - 140
Acenaphthylene	ND		5.00	2.48		ug/L		50	40 - 140
Acenaphthene	ND		5.00	2.47		ug/L		49	40 - 140
Fluorene	ND		5.00	2.49		ug/L		50	40 - 140
Phenanthrene	ND		5.00	2.96		ug/L		59	40 - 140
Anthracene	ND		5.00	2.80		ug/L		56	40 - 140
Fluoranthene	ND		5.00	3.63		ug/L		73	40 - 140
Pyrene	ND		5.00	3.61		ug/L		72	40 - 140
Benzo[a]anthracene	ND		5.00	3.42		ug/L		68	40 - 140
Chrysene	ND		5.00	3.48		ug/L		70	40 - 140
Benzo[b]fluoranthene	ND		5.00	3.20		ug/L		64	40 - 140
Benzo[k]fluoranthene	ND		5.00	3.73		ug/L		75	40 - 140
Benzo[a]pyrene	ND		5.00	2.68		ug/L		54	40 - 140
Indeno[1,2,3-cd]pyrene	ND		5.00	2.90		ug/L		58	40 - 140
Dibenz(a,h)anthracene	ND		5.00	2.88		ug/L		58	40 - 140
Benzo[g,h,i]perylene	ND		5.00	3.16		ug/L		63	40 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl (Surr)	*66*		*40 - 140*
2-Fluorobiphenyl (Surr)	*110*		*40 - 140*

Method: EPH - Extractable Petroleum Hydrocarbons (GC/MS)

Lab Sample ID: 620-14942-3 MSD
Matrix: Water
Analysis Batch: 28788

Client Sample ID: LM-MW108-102623
Prep Type: Total/NA
Prep Batch: 28762

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Naphthalene	ND		5.00	2.16		ug/L		43	40 - 140	5	50
2-Methylnaphthalene	ND		5.00	2.21		ug/L		44	40 - 140	4	50
Acenaphthylene	ND		5.00	2.45		ug/L		49	40 - 140	1	50
Acenaphthene	ND		5.00	2.39		ug/L		48	40 - 140	3	50
Fluorene	ND		5.00	2.49		ug/L		50	40 - 140	0	50
Phenanthrene	ND		5.00	2.95		ug/L		59	40 - 140	0	50
Anthracene	ND		5.00	2.73		ug/L		55	40 - 140	3	50
Fluoranthene	ND		5.00	3.49		ug/L		70	40 - 140	4	50
Pyrene	ND		5.00	3.41		ug/L		68	40 - 140	6	50
Benzo[a]anthracene	ND		5.00	3.13		ug/L		63	40 - 140	9	50
Chrysene	ND		5.00	3.20		ug/L		64	40 - 140	8	50
Benzo[b]fluoranthene	ND		5.00	2.86		ug/L		57	40 - 140	11	50
Benzo[k]fluoranthene	ND		5.00	3.28		ug/L		66	40 - 140	13	50
Benzo[a]pyrene	ND		5.00	2.39		ug/L		48	40 - 140	12	50
Indeno[1,2,3-cd]pyrene	ND		5.00	2.51		ug/L		50	40 - 140	14	50
Dibenz(a,h)anthracene	ND		5.00	2.52		ug/L		50	40 - 140	13	50
Benzo[g,h,i]perylene	ND		5.00	2.77		ug/L		55	40 - 140	13	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*64*		*40 - 140*
2-Fluorobiphenyl (Surr)	*113*		*40 - 140*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-28516/5
Matrix: Water
Analysis Batch: 28516

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			10/31/23 13:17	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			10/31/23 13:17	1
C9-C10 Aromatics	ND		100	100	ug/L			10/31/23 13:17	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			10/31/23 13:17	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			10/31/23 13:17	1
Benzene	ND		5.0	5.0	ug/L			10/31/23 13:17	1
Ethylbenzene	ND		5.0	5.0	ug/L			10/31/23 13:17	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			10/31/23 13:17	1
Naphthalene	ND		5.0	5.0	ug/L			10/31/23 13:17	1
Toluene	ND		5.0	5.0	ug/L			10/31/23 13:17	1
m,p-Xylene	ND		10	10	ug/L			10/31/23 13:17	1
o-Xylene	ND		5.0	5.0	ug/L			10/31/23 13:17	1
Xylenes, Total	ND		15	15	ug/L			10/31/23 13:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*104*		*70 - 130*		*10/31/23 13:17*	*1*
2,5-Dibromotoluene (pid)	*103*		*70 - 130*		*10/31/23 13:17*	*1*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCS 620-28516/3
Matrix: Water
Analysis Batch: 28516

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C10 Aromatics			20.0	ND		ug/L		92	70 - 130		
C5-C8 Aliphatics (unadjusted)			60.0	ND		ug/L		86	70 - 130		
C9-C12 Aliphatics (unadjusted)			60.0	ND		ug/L		86	70 - 130		
Benzene			20.0	17.4		ug/L		87	70 - 130		
Ethylbenzene			20.0	18.0		ug/L		90	70 - 130		
Methyl tert-butyl ether			20.0	17.9		ug/L		90	70 - 130		
Naphthalene			20.0	19.4		ug/L		97	70 - 130		
Toluene			20.0	17.8		ug/L		89	70 - 130		
m,p-Xylene			40.0	37.2		ug/L		93	70 - 130		
o-Xylene			20.0	18.6		ug/L		93	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*100*		*70 - 130*
2,5-Dibromotoluene (pid)	*100*		*70 - 130*

Lab Sample ID: LCSD 620-28516/4
Matrix: Water
Analysis Batch: 28516

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics			20.0	ND		ug/L		117	70 - 130	24	25
C5-C8 Aliphatics (unadjusted)			60.0	ND		ug/L		107	70 - 130	22	25
C9-C12 Aliphatics (unadjusted)			60.0	ND		ug/L		107	70 - 130	22	25
Benzene			20.0	21.6		ug/L		108	70 - 130	22	25
Ethylbenzene			20.0	22.7		ug/L		114	70 - 130	23	25
Methyl tert-butyl ether			20.0	22.8		ug/L		114	70 - 130	24	25
Naphthalene			20.0	24.1		ug/L		121	70 - 130	22	25
Toluene			20.0	22.2		ug/L		111	70 - 130	22	25
m,p-Xylene			40.0	47.2		ug/L		118	70 - 130	24	25
o-Xylene			20.0	23.6		ug/L		118	70 - 130	24	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*103*		*70 - 130*
2,5-Dibromotoluene (pid)	*101*		*70 - 130*

Lab Sample ID: MB 620-28559/5
Matrix: Water
Analysis Batch: 28559

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			11/01/23 13:27	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			11/01/23 13:27	1
C9-C10 Aromatics	ND		100	100	ug/L			11/01/23 13:27	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			11/01/23 13:27	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			11/01/23 13:27	1
Benzene	ND		5.0	5.0	ug/L			11/01/23 13:27	1
Ethylbenzene	ND		5.0	5.0	ug/L			11/01/23 13:27	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			11/01/23 13:27	1

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: MB 620-28559/5
Matrix: Water
Analysis Batch: 28559

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		5.0	5.0	ug/L			11/01/23 13:27	1
Toluene	ND		5.0	5.0	ug/L			11/01/23 13:27	1
m,p-Xylene	ND		10	10	ug/L			11/01/23 13:27	1
o-Xylene	ND		5.0	5.0	ug/L			11/01/23 13:27	1
Xylenes, Total	ND		15	15	ug/L			11/01/23 13:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*110*		*70 - 130*		*11/01/23 13:27*	*1*
2,5-Dibromotoluene (pid)	*108*		*70 - 130*		*11/01/23 13:27*	*1*

Lab Sample ID: LCS 620-28559/3
Matrix: Water
Analysis Batch: 28559

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C10 Aromatics			20.0	ND		ug/L		109	70 - 130		
C5-C8 Aliphatics (unadjusted)			60.0	ND		ug/L		97	70 - 130		
C9-C12 Aliphatics (unadjusted)			60.0	ND		ug/L		98	70 - 130		
Benzene			20.0	19.8		ug/L		99	70 - 130		
Ethylbenzene			20.0	21.1		ug/L		105	70 - 130		
Methyl tert-butyl ether			20.0	20.8		ug/L		104	70 - 130		
Naphthalene			20.0	23.1		ug/L		116	70 - 130		
Toluene			20.0	20.6		ug/L		103	70 - 130		
m,p-Xylene			40.0	43.5		ug/L		109	70 - 130		
o-Xylene			20.0	21.7		ug/L		109	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*103*		*70 - 130*
2,5-Dibromotoluene (pid)	*99*		*70 - 130*

Lab Sample ID: LCSD 620-28559/4
Matrix: Water
Analysis Batch: 28559

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics			20.0	ND		ug/L		112	70 - 130	2	25
C5-C8 Aliphatics (unadjusted)			60.0	ND		ug/L		98	70 - 130	1	25
C9-C12 Aliphatics (unadjusted)			60.0	ND		ug/L		98	70 - 130	0	25
Benzene			20.0	20.2		ug/L		101	70 - 130	2	25
Ethylbenzene			20.0	21.6		ug/L		108	70 - 130	3	25
Methyl tert-butyl ether			20.0	21.0		ug/L		105	70 - 130	1	25
Naphthalene			20.0	23.8		ug/L		119	70 - 130	3	25
Toluene			20.0	21.0		ug/L		105	70 - 130	2	25
m,p-Xylene			40.0	44.3		ug/L		111	70 - 130	2	25
o-Xylene			20.0	22.2		ug/L		111	70 - 130	2	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*108*		*70 - 130*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-28559/4
Matrix: Water
Analysis Batch: 28559

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (pid)	*107*		*70 - 130*

Lab Sample ID: MB 620-28656/5
Matrix: Water
Analysis Batch: 28656

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		100	100	ug/L			11/03/23 12:49	1
C9-C12 Aliphatics (adjusted)	ND		100	100	ug/L			11/03/23 12:49	1
C9-C10 Aromatics	ND		100	100	ug/L			11/03/23 12:49	1
C5-C8 Aliphatics (unadjusted)	ND		100	100	ug/L			11/03/23 12:49	1
C9-C12 Aliphatics (unadjusted)	ND		100	100	ug/L			11/03/23 12:49	1
Benzene	ND		5.0	5.0	ug/L			11/03/23 12:49	1
Ethylbenzene	ND		5.0	5.0	ug/L			11/03/23 12:49	1
Methyl tert-butyl ether	ND		5.0	5.0	ug/L			11/03/23 12:49	1
Naphthalene	ND		5.0	5.0	ug/L			11/03/23 12:49	1
Toluene	ND		5.0	5.0	ug/L			11/03/23 12:49	1
m,p-Xylene	ND		10	10	ug/L			11/03/23 12:49	1
o-Xylene	ND		5.0	5.0	ug/L			11/03/23 12:49	1
Xylenes, Total	ND		15	15	ug/L			11/03/23 12:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*103*		*70 - 130*		*11/03/23 12:49*	*1*
2,5-Dibromotoluene (pid)	*103*		*70 - 130*		*11/03/23 12:49*	*1*

Lab Sample ID: LCS 620-28656/3
Matrix: Water
Analysis Batch: 28656

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C10 Aromatics	20.0	ND		ug/L		109	70 - 130
C5-C8 Aliphatics (unadjusted)	60.0	ND		ug/L		99	70 - 130
C9-C12 Aliphatics (unadjusted)	60.0	ND		ug/L		100	70 - 130
Benzene	20.0	20.0		ug/L		100	70 - 130
Ethylbenzene	20.0	21.2		ug/L		106	70 - 130
Methyl tert-butyl ether	20.0	20.2		ug/L		101	70 - 130
Naphthalene	20.0	23.1		ug/L		116	70 - 130
Toluene	20.0	20.9		ug/L		104	70 - 130
m,p-Xylene	40.0	43.7		ug/L		109	70 - 130
o-Xylene	20.0	21.9		ug/L		109	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*106*		*70 - 130*
2,5-Dibromotoluene (pid)	*105*		*70 - 130*

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-28656/4
Matrix: Water
Analysis Batch: 28656

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics			20.0	ND		ug/L		111	70 - 130	1	25
C5-C8 Aliphatics (unadjusted)			60.0	ND		ug/L		99	70 - 130	0	25
C9-C12 Aliphatics (unadjusted)			60.0	ND		ug/L		100	70 - 130	0	25
Benzene			20.0	20.1		ug/L		101	70 - 130	1	25
Ethylbenzene			20.0	21.4		ug/L		107	70 - 130	1	25
Methyl tert-butyl ether			20.0	21.0		ug/L		105	70 - 130	4	25
Naphthalene			20.0	23.4		ug/L		117	70 - 130	1	25
Toluene			20.0	20.9		ug/L		104	70 - 130	0	25
m,p-Xylene			40.0	44.2		ug/L		111	70 - 130	1	25
o-Xylene			20.0	22.1		ug/L		110	70 - 130	1	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*104*		*70 - 130*
2,5-Dibromotoluene (pid)	*103*		*70 - 130*

Lab Sample ID: 620-14942-3 MS
Matrix: Water
Analysis Batch: 28656

Client Sample ID: LM-MW108-102623
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C10 Aromatics	ND		20.3	ND		ug/L		NC	70 - 130
C5-C8 Aliphatics (unadjusted)	ND		61.0	140		ug/L		NC	70 - 130
C9-C12 Aliphatics (unadjusted)	ND		61.0	328		ug/L		NC	70 - 130
Benzene	ND		20.3	20.9		ug/L		103	70 - 130
Ethylbenzene	ND		20.3	22.2		ug/L		109	70 - 130
Methyl tert-butyl ether	ND		20.3	20.2		ug/L		99	70 - 130
Naphthalene	ND		20.3	20.5		ug/L		101	70 - 130
Toluene	ND		20.3	21.7		ug/L		107	70 - 130
m,p-Xylene	ND		40.7	45.4		ug/L		112	70 - 130
o-Xylene	ND		20.3	22.4		ug/L		110	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*99*		*70 - 130*
2,5-Dibromotoluene (pid)	*101*		*70 - 130*

Lab Sample ID: 620-14942-3 MSD
Matrix: Water
Analysis Batch: 28656

Client Sample ID: LM-MW108-102623
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics	ND		20.3	ND		ug/L		NC	70 - 130	NC	30
C5-C8 Aliphatics (unadjusted)	ND		61.0	143		ug/L		NC	70 - 130	3	30
C9-C12 Aliphatics (unadjusted)	ND		61.0	339		ug/L		NC	70 - 130	3	30
Benzene	ND		20.3	21.5		ug/L		106	70 - 130	3	30
Ethylbenzene	ND		20.3	23.0		ug/L		113	70 - 130	4	30
Methyl tert-butyl ether	ND		20.3	20.3		ug/L		100	70 - 130	1	30
Naphthalene	ND		20.3	22.3		ug/L		110	70 - 130	8	30
Toluene	ND		20.3	22.3		ug/L		110	70 - 130	3	30

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: 620-14942-3 MSD
Matrix: Water
Analysis Batch: 28656

Client Sample ID: LM-MW108-102623
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
m,p-Xylene	ND		40.7	47.1		ug/L		116	70 - 130	4	30
o-Xylene	ND		20.3	23.1		ug/L		114	70 - 130	3	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*102*		*70 - 130*
2,5-Dibromotoluene (pid)	*103*		*70 - 130*

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-28762/1-B
Matrix: Water
Analysis Batch: 28787

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28762

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		100	100	ug/L		11/07/23 09:35	11/08/23 14:23	1
C19-C36 Aliphatics	ND		100	100	ug/L		11/07/23 09:35	11/08/23 14:23	1
C11-C22 Aromatics	ND		100	100	ug/L		11/07/23 09:35	11/08/23 14:23	1
C11-C22 Aromatics (Adjusted)	ND		100	100	ug/L		11/07/23 09:35	11/08/23 14:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*44*		*40 - 140*	*11/07/23 09:35*	*11/08/23 14:23*	*1*
o-Terphenyl (Surr)	*65*		*40 - 140*	*11/07/23 09:35*	*11/08/23 14:23*	*1*
2-Fluorobiphenyl (Surr)	*93*		*40 - 140*	*11/07/23 09:35*	*11/08/23 14:23*	*1*

Lab Sample ID: LCS 620-28762/2-B
Matrix: Water
Analysis Batch: 28787

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28762

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C18 Aliphatics	120	ND		ug/L		50	40 - 140
C19-C36 Aliphatics	160	143		ug/L		90	40 - 140
C11-C22 Aromatics	340	330		ug/L		97	40 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*49*		*40 - 140*
o-Terphenyl (Surr)	*80*		*40 - 140*
2-Fluorobiphenyl (Surr)	*112*		*40 - 140*

Lab Sample ID: LCSD 620-28762/3-B
Matrix: Water
Analysis Batch: 28787

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28762

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics	120	ND		ug/L		59	40 - 140	16	25
C19-C36 Aliphatics	160	171		ug/L		107	40 - 140	18	25
C11-C22 Aromatics	340	358		ug/L		105	40 - 140	8	25

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-28762/3-B
Matrix: Water
Analysis Batch: 28787

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28762

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*67*		*40 - 140*
o-Terphenyl (Surr)	*88*		*40 - 140*
2-Fluorobiphenyl (Surr)	*112*		*40 - 140*

Lab Sample ID: 620-14942-3 MS
Matrix: Water
Analysis Batch: 28787

Client Sample ID: LM-MW108-102623
Prep Type: Total/NA
Prep Batch: 28762

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C18 Aliphatics	ND	F1	114	55.3		ug/L		48	40 - 140
C19-C36 Aliphatics	ND		152	135		ug/L		88	40 - 140
C11-C22 Aromatics	ND		324	300		ug/L		93	40 - 140

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*57*		*40 - 140*
o-Terphenyl (Surr)	*79*		*40 - 140*
2-Fluorobiphenyl (Surr)	*113*		*40 - 140*

Lab Sample ID: 620-14942-3 MSD
Matrix: Water
Analysis Batch: 28787

Client Sample ID: LM-MW108-102623
Prep Type: Total/NA
Prep Batch: 28762

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics	ND	F1	126	61.0		ug/L		48	40 - 140	10	50
C19-C36 Aliphatics	ND		168	156		ug/L		93	40 - 140	15	50
C11-C22 Aromatics	ND		358	299		ug/L		84	40 - 140	0	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*48*		*40 - 140*
o-Terphenyl (Surr)	*70*		*40 - 140*
2-Fluorobiphenyl (Surr)	*105*		*40 - 140*

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 620-28470/1-A
Matrix: Water
Analysis Batch: 28620

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28470

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0060	0.0016	mg/L		10/30/23 14:59	11/02/23 12:59	1
Arsenic	ND		0.0040	0.0014	mg/L		10/30/23 14:59	11/02/23 12:59	1
Barium	ND		0.0050	0.00070	mg/L		10/30/23 14:59	11/02/23 12:59	1
Beryllium	ND		0.0020	0.00028	mg/L		10/30/23 14:59	11/02/23 12:59	1
Cadmium	ND		0.0025	0.00036	mg/L		10/30/23 14:59	11/02/23 12:59	1
Chromium	ND		0.0050	0.00093	mg/L		10/30/23 14:59	11/02/23 12:59	1
Lead	ND		0.0075	0.0062	mg/L		10/30/23 14:59	11/02/23 12:59	1
Nickel	ND		0.0050	0.00087	mg/L		10/30/23 14:59	11/02/23 12:59	1
Selenium	ND		0.015	0.0042	mg/L		10/30/23 14:59	11/02/23 12:59	1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: MB 620-28470/1-A
Matrix: Water
Analysis Batch: 28620

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28470

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	ND		0.0050	0.0021	mg/L		10/30/23 14:59	11/02/23 12:59	1
Vanadium	ND		0.0050	0.0011	mg/L		10/30/23 14:59	11/02/23 12:59	1
Zinc	0.00170	J ^3+	0.025	0.0016	mg/L		10/30/23 14:59	11/02/23 12:59	1

Lab Sample ID: LCS 620-28470/2-A
Matrix: Water
Analysis Batch: 28620

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28470

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	1.25	1.31		mg/L		104	80 - 120
Arsenic	1.25	1.37		mg/L		110	80 - 120
Barium	1.25	1.26		mg/L		101	80 - 120
Beryllium	1.25	1.33		mg/L		107	80 - 120
Cadmium	1.25	1.32		mg/L		106	80 - 120
Chromium	1.25	1.31		mg/L		104	80 - 120
Lead	1.25	1.32		mg/L		105	80 - 120
Nickel	1.25	1.28		mg/L		102	80 - 120
Selenium	1.25	1.42		mg/L		114	80 - 120
Thallium	1.25	1.28		mg/L		102	80 - 120
Vanadium	1.25	1.26		mg/L		101	80 - 120
Zinc	1.25	1.33	^3+	mg/L		107	80 - 120

Lab Sample ID: MB 620-28780/1-A
Matrix: Water
Analysis Batch: 28840

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28780

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.012	0.0032	mg/L		11/07/23 15:24	11/08/23 12:16	1
Arsenic	ND		0.0080	0.0028	mg/L		11/07/23 15:24	11/08/23 12:16	1
Barium	ND		0.010	0.0014	mg/L		11/07/23 15:24	11/08/23 12:16	1
Cadmium	ND		0.0050	0.00071	mg/L		11/07/23 15:24	11/08/23 12:16	1
Chromium	ND		0.010	0.0019	mg/L		11/07/23 15:24	11/08/23 12:16	1
Lead	ND		0.015	0.012	mg/L		11/07/23 15:24	11/08/23 12:16	1
Nickel	ND		0.010	0.0017	mg/L		11/07/23 15:24	11/08/23 12:16	1
Selenium	ND		0.030	0.0083	mg/L		11/07/23 15:24	11/08/23 12:16	1
Silver	ND		0.010	0.0012	mg/L		11/07/23 15:24	11/08/23 12:16	1
Thallium	ND		0.010	0.0042	mg/L		11/07/23 15:24	11/08/23 12:16	1
Vanadium	ND		0.010	0.0022	mg/L		11/07/23 15:24	11/08/23 12:16	1
Zinc	ND		0.050	0.0032	mg/L		11/07/23 15:24	11/08/23 12:16	1

Lab Sample ID: LCS 620-28780/2-A
Matrix: Water
Analysis Batch: 28840

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28780

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	1.25	1.13		mg/L		91	80 - 120
Arsenic	1.25	1.17		mg/L		93	80 - 120
Barium	1.25	1.15		mg/L		92	80 - 120
Cadmium	1.25	1.16		mg/L		93	80 - 120

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCS 620-28780/2-A
Matrix: Water
Analysis Batch: 28840

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28780

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chromium	1.25	1.11		mg/L		89	80 - 120
Lead	1.25	1.15		mg/L		92	80 - 120
Nickel	1.25	1.14		mg/L		92	80 - 120
Selenium	1.25	1.18		mg/L		95	80 - 120
Silver	1.25	1.15		mg/L		92	80 - 120
Thallium	1.25	1.16		mg/L		93	80 - 120
Vanadium	1.25	1.14		mg/L		91	80 - 120
Zinc	1.25	1.16		mg/L		93	80 - 120

Lab Sample ID: 620-14942-3 MS
Matrix: Water
Analysis Batch: 28620

Client Sample ID: LM-MW108-102623
Prep Type: Dissolved
Prep Batch: 28470

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0019	J	1.25	1.27		mg/L		102	75 - 125
Arsenic	ND		1.25	1.38		mg/L		110	75 - 125
Barium	0.14		1.25	1.35		mg/L		97	75 - 125
Beryllium	ND		1.25	1.32		mg/L		106	75 - 125
Cadmium	ND		1.25	1.25		mg/L		100	75 - 125
Chromium	ND		1.25	1.24		mg/L		99	75 - 125
Lead	ND		1.25	1.22		mg/L		98	75 - 125
Nickel	0.0045	J	1.25	1.18		mg/L		94	75 - 125
Selenium	ND		1.25	1.36		mg/L		109	75 - 125
Thallium	0.0026	J	1.25	1.23		mg/L		98	75 - 125
Vanadium	ND		1.25	1.23		mg/L		99	75 - 125

Lab Sample ID: 620-14942-3 MSD
Matrix: Water
Analysis Batch: 28620

Client Sample ID: LM-MW108-102623
Prep Type: Dissolved
Prep Batch: 28470

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	0.0019	J	1.25	1.35		mg/L		108	75 - 125	6	20
Arsenic	ND		1.25	1.45		mg/L		116	75 - 125	5	20
Barium	0.14		1.25	1.39		mg/L		100	75 - 125	3	20
Beryllium	ND		1.25	1.35		mg/L		108	75 - 125	2	20
Cadmium	ND		1.25	1.30		mg/L		104	75 - 125	4	20
Chromium	ND		1.25	1.29		mg/L		103	75 - 125	4	20
Lead	ND		1.25	1.28		mg/L		102	75 - 125	4	20
Nickel	0.0045	J	1.25	1.24		mg/L		99	75 - 125	5	20
Selenium	ND		1.25	1.44		mg/L		115	75 - 125	5	20
Thallium	0.0026	J	1.25	1.28		mg/L		102	75 - 125	4	20
Vanadium	ND		1.25	1.28		mg/L		103	75 - 125	4	20

Lab Sample ID: 620-14942-3 DU
Matrix: Water
Analysis Batch: 28620

Client Sample ID: LM-MW108-102623
Prep Type: Dissolved
Prep Batch: 28470

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	0.0019	J	ND		mg/L		NC	20

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 620-14942-3 DU
Matrix: Water
Analysis Batch: 28620

Client Sample ID: LM-MW108-102623
Prep Type: Dissolved
Prep Batch: 28470

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	ND		0.00165	J	mg/L		NC	20
Barium	0.14		0.150		mg/L		5	20
Beryllium	ND		ND		mg/L		NC	20
Cadmium	ND		ND		mg/L		NC	20
Chromium	ND		ND		mg/L		NC	20
Lead	ND		ND		mg/L		NC	20
Nickel	0.0045	J	0.00440	J	mg/L		1	20
Selenium	ND		ND		mg/L		NC	20
Thallium	0.0026	J	ND		mg/L		NC	20
Vanadium	ND		ND		mg/L		NC	20

Lab Sample ID: 620-14942-3 MS
Matrix: Water
Analysis Batch: 28840

Client Sample ID: LM-MW108-102623
Prep Type: Dissolved
Prep Batch: 28780

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	0.0012	J	1.25	1.28		mg/L		103	75 - 125
Zinc	0.0020	J	1.25	1.18		mg/L		94	75 - 125

Lab Sample ID: 620-14942-3 MSD
Matrix: Water
Analysis Batch: 28840

Client Sample ID: LM-MW108-102623
Prep Type: Dissolved
Prep Batch: 28780

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Silver	0.0012	J	1.25	1.32		mg/L		105	75 - 125	3	20
Zinc	0.0020	J	1.25	1.21		mg/L		97	75 - 125	2	20

Lab Sample ID: 620-14942-3 DU
Matrix: Water
Analysis Batch: 28840

Client Sample ID: LM-MW108-102623
Prep Type: Dissolved
Prep Batch: 28780

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Silver	0.0012	J	ND		mg/L		NC	20
Zinc	0.0020	J	0.00235	J	mg/L		19	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 620-28845/1-A
Matrix: Water
Analysis Batch: 28884

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28845

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		11/09/23 08:42	11/09/23 14:15	1

Lab Sample ID: LCS 620-28845/2-A
Matrix: Water
Analysis Batch: 28884

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28845

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00500		mg/L		100	85 - 115

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCSD 620-28845/3-A
Matrix: Water
Analysis Batch: 28884

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28845

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury			0.00500	0.00494		mg/L		99	85 - 115	1	20

Lab Sample ID: MB 620-28897/1-A
Matrix: Water
Analysis Batch: 28931

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28897

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00014	mg/L		11/10/23 09:18	11/10/23 12:54	1

Lab Sample ID: LCS 620-28897/2-A
Matrix: Water
Analysis Batch: 28931

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28897

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			0.00500	0.00500		mg/L		100	85 - 115		

Lab Sample ID: LCSD 620-28897/3-A
Matrix: Water
Analysis Batch: 28931

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28897

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury			0.00500	0.00500		mg/L		100	85 - 115	0	20

Lab Sample ID: 620-14942-3 MS
Matrix: Water
Analysis Batch: 28931

Client Sample ID: LM-MW108-102623
Prep Type: Dissolved
Prep Batch: 28897

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury	ND		0.00500	0.00536		mg/L		107	80 - 120		

Lab Sample ID: 620-14942-3 MSD
Matrix: Water
Analysis Batch: 28931

Client Sample ID: LM-MW108-102623
Prep Type: Dissolved
Prep Batch: 28897

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		0.00500	0.00505		mg/L		101	80 - 120	6	20

GC/MS Semi VOA

Prep Batch: 28762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Total/NA	Water	3510C	
620-14942-2	LM-MW107-102623	Total/NA	Water	3510C	
620-14942-3	LM-MW108-102623	Total/NA	Water	3510C	
620-14942-4	LM-FD01-102623	Total/NA	Water	3510C	
MB 620-28762/1-B	Method Blank	Total/NA	Water	3510C	
LCS 620-28762/4-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 620-28762/5-B	Lab Control Sample Dup	Total/NA	Water	3510C	
620-14942-3 MS	LM-MW108-102623	Total/NA	Water	3510C	
620-14942-3 MSD	LM-MW108-102623	Total/NA	Water	3510C	

Analysis Batch: 28788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Total/NA	Water	EPH	28794
620-14942-1	LM-MW106-102623	Total/NA	Water	EPH	28794
620-14942-2	LM-MW107-102623	Total/NA	Water	EPH	28794
620-14942-3	LM-MW108-102623	Total/NA	Water	EPH	28794
620-14942-4	LM-FD01-102623	Total/NA	Water	EPH	28794
MB 620-28762/1-B	Method Blank	Total/NA	Water	EPH	28794
LCS 620-28762/4-B	Lab Control Sample	Total/NA	Water	EPH	28794
LCSD 620-28762/5-B	Lab Control Sample Dup	Total/NA	Water	EPH	28794
620-14942-3 MS	LM-MW108-102623	Total/NA	Water	EPH	28794
620-14942-3 MSD	LM-MW108-102623	Total/NA	Water	EPH	28794

Fraction Batch: 28794

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Total/NA	Water	MA EPH Frac	28762
620-14942-2	LM-MW107-102623	Total/NA	Water	MA EPH Frac	28762
620-14942-3	LM-MW108-102623	Total/NA	Water	MA EPH Frac	28762
620-14942-4	LM-FD01-102623	Total/NA	Water	MA EPH Frac	28762
MB 620-28762/1-B	Method Blank	Total/NA	Water	MA EPH Frac	28762
LCS 620-28762/4-B	Lab Control Sample	Total/NA	Water	MA EPH Frac	28762
LCSD 620-28762/5-B	Lab Control Sample Dup	Total/NA	Water	MA EPH Frac	28762
620-14942-3 MS	LM-MW108-102623	Total/NA	Water	MA EPH Frac	28762
620-14942-3 MSD	LM-MW108-102623	Total/NA	Water	MA EPH Frac	28762

GC VOA

Analysis Batch: 28516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Total/NA	Water	MAVPH2.1	
620-14942-2	LM-MW107-102623	Total/NA	Water	MAVPH2.1	
620-14942-4	LM-FD01-102623	Total/NA	Water	MAVPH2.1	
620-14942-5	Trip Blank	Total/NA	Water	MAVPH2.1	
MB 620-28516/5	Method Blank	Total/NA	Water	MAVPH2.1	
LCS 620-28516/3	Lab Control Sample	Total/NA	Water	MAVPH2.1	
LCSD 620-28516/4	Lab Control Sample Dup	Total/NA	Water	MAVPH2.1	

Analysis Batch: 28559

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1 - DL	LM-MW106-102623	Total/NA	Water	MAVPH2.1	
620-14942-2 - DL	LM-MW107-102623	Total/NA	Water	MAVPH2.1	

GC VOA (Continued)

Analysis Batch: 28559 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-4 - DL	LM-FD01-102623	Total/NA	Water	MAVPH2.1	
MB 620-28559/5	Method Blank	Total/NA	Water	MAVPH2.1	
LCS 620-28559/3	Lab Control Sample	Total/NA	Water	MAVPH2.1	
LCSD 620-28559/4	Lab Control Sample Dup	Total/NA	Water	MAVPH2.1	

Analysis Batch: 28656

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-3	LM-MW108-102623	Total/NA	Water	MAVPH2.1	
MB 620-28656/5	Method Blank	Total/NA	Water	MAVPH2.1	
LCS 620-28656/3	Lab Control Sample	Total/NA	Water	MAVPH2.1	
LCSD 620-28656/4	Lab Control Sample Dup	Total/NA	Water	MAVPH2.1	
620-14942-3 MS	LM-MW108-102623	Total/NA	Water	MAVPH2.1	
620-14942-3 MSD	LM-MW108-102623	Total/NA	Water	MAVPH2.1	

GC Semi VOA

Prep Batch: 28762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Total/NA	Water	3510C	
620-14942-2	LM-MW107-102623	Total/NA	Water	3510C	
620-14942-3	LM-MW108-102623	Total/NA	Water	3510C	
620-14942-4	LM-FD01-102623	Total/NA	Water	3510C	
MB 620-28762/1-B	Method Blank	Total/NA	Water	3510C	
LCS 620-28762/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 620-28762/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	
620-14942-3 MS	LM-MW108-102623	Total/NA	Water	3510C	
620-14942-3 MSD	LM-MW108-102623	Total/NA	Water	3510C	

Analysis Batch: 28787

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Total/NA	Water	MAEPH2.1	28794
620-14942-2	LM-MW107-102623	Total/NA	Water	MAEPH2.1	28794
620-14942-3	LM-MW108-102623	Total/NA	Water	MAEPH2.1	28794
620-14942-4	LM-FD01-102623	Total/NA	Water	MAEPH2.1	28794
MB 620-28762/1-B	Method Blank	Total/NA	Water	MAEPH2.1	28794
LCS 620-28762/2-B	Lab Control Sample	Total/NA	Water	MAEPH2.1	28794
LCSD 620-28762/3-B	Lab Control Sample Dup	Total/NA	Water	MAEPH2.1	28794
620-14942-3 MS	LM-MW108-102623	Total/NA	Water	MAEPH2.1	28794
620-14942-3 MSD	LM-MW108-102623	Total/NA	Water	MAEPH2.1	28794

Fraction Batch: 28794

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Total/NA	Water	MA EPH Frac	28762
620-14942-2	LM-MW107-102623	Total/NA	Water	MA EPH Frac	28762
620-14942-3	LM-MW108-102623	Total/NA	Water	MA EPH Frac	28762
620-14942-4	LM-FD01-102623	Total/NA	Water	MA EPH Frac	28762
MB 620-28762/1-B	Method Blank	Total/NA	Water	MA EPH Frac	28762
LCS 620-28762/2-B	Lab Control Sample	Total/NA	Water	MA EPH Frac	28762
LCSD 620-28762/3-B	Lab Control Sample Dup	Total/NA	Water	MA EPH Frac	28762
620-14942-3 MS	LM-MW108-102623	Total/NA	Water	MA EPH Frac	28762
620-14942-3 MSD	LM-MW108-102623	Total/NA	Water	MA EPH Frac	28762

Metals

Prep Batch: 28470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Dissolved	Water	3005A	
620-14942-2	LM-MW107-102623	Dissolved	Water	3005A	
620-14942-3	LM-MW108-102623	Dissolved	Water	3005A	
620-14942-4	LM-FD01-102623	Dissolved	Water	3005A	
MB 620-28470/1-A	Method Blank	Total/NA	Water	3005A	
LCS 620-28470/2-A	Lab Control Sample	Total/NA	Water	3005A	
620-14942-3 MS	LM-MW108-102623	Dissolved	Water	3005A	
620-14942-3 MSD	LM-MW108-102623	Dissolved	Water	3005A	
620-14942-3 DU	LM-MW108-102623	Dissolved	Water	3005A	

Analysis Batch: 28620

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Dissolved	Water	6010D	28470
620-14942-2	LM-MW107-102623	Dissolved	Water	6010D	28470
620-14942-3	LM-MW108-102623	Dissolved	Water	6010D	28470
620-14942-4	LM-FD01-102623	Dissolved	Water	6010D	28470
MB 620-28470/1-A	Method Blank	Total/NA	Water	6010D	28470
LCS 620-28470/2-A	Lab Control Sample	Total/NA	Water	6010D	28470
620-14942-3 MS	LM-MW108-102623	Dissolved	Water	6010D	28470
620-14942-3 MSD	LM-MW108-102623	Dissolved	Water	6010D	28470
620-14942-3 DU	LM-MW108-102623	Dissolved	Water	6010D	28470

Prep Batch: 28780

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Dissolved	Water	3005A	
620-14942-2	LM-MW107-102623	Dissolved	Water	3005A	
620-14942-3	LM-MW108-102623	Dissolved	Water	3005A	
620-14942-4	LM-FD01-102623	Dissolved	Water	3005A	
MB 620-28780/1-A	Method Blank	Total/NA	Water	3005A	
LCS 620-28780/2-A	Lab Control Sample	Total/NA	Water	3005A	
620-14942-3 MS	LM-MW108-102623	Dissolved	Water	3005A	
620-14942-3 MSD	LM-MW108-102623	Dissolved	Water	3005A	
620-14942-3 DU	LM-MW108-102623	Dissolved	Water	3005A	

Analysis Batch: 28840

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Dissolved	Water	6010D	28780
620-14942-2	LM-MW107-102623	Dissolved	Water	6010D	28780
620-14942-3	LM-MW108-102623	Dissolved	Water	6010D	28780
620-14942-4	LM-FD01-102623	Dissolved	Water	6010D	28780
MB 620-28780/1-A	Method Blank	Total/NA	Water	6010D	28780
LCS 620-28780/2-A	Lab Control Sample	Total/NA	Water	6010D	28780
620-14942-3 MS	LM-MW108-102623	Dissolved	Water	6010D	28780
620-14942-3 MSD	LM-MW108-102623	Dissolved	Water	6010D	28780
620-14942-3 DU	LM-MW108-102623	Dissolved	Water	6010D	28780

Prep Batch: 28845

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Dissolved	Water	7470A	
620-14942-2	LM-MW107-102623	Dissolved	Water	7470A	
620-14942-3	LM-MW108-102623	Dissolved	Water	7470A	

Metals (Continued)

Prep Batch: 28845 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-4	LM-FD01-102623	Dissolved	Water	7470A	
MB 620-28845/1-A	Method Blank	Total/NA	Water	7470A	
LCS 620-28845/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 620-28845/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	

Analysis Batch: 28884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-14942-1	LM-MW106-102623	Dissolved	Water	7470A	28845
620-14942-2	LM-MW107-102623	Dissolved	Water	7470A	28845
620-14942-3	LM-MW108-102623	Dissolved	Water	7470A	28845
620-14942-4	LM-FD01-102623	Dissolved	Water	7470A	28845
MB 620-28845/1-A	Method Blank	Total/NA	Water	7470A	28845
LCS 620-28845/2-A	Lab Control Sample	Total/NA	Water	7470A	28845
LCSD 620-28845/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	28845

Prep Batch: 28897

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 620-28897/1-A	Method Blank	Total/NA	Water	7470A	
LCS 620-28897/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 620-28897/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	
620-14942-3 MS	LM-MW108-102623	Dissolved	Water	7470A	
620-14942-3 MSD	LM-MW108-102623	Dissolved	Water	7470A	

Analysis Batch: 28931

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 620-28897/1-A	Method Blank	Total/NA	Water	7470A	28897
LCS 620-28897/2-A	Lab Control Sample	Total/NA	Water	7470A	28897
LCSD 620-28897/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	28897
620-14942-3 MS	LM-MW108-102623	Dissolved	Water	7470A	28897
620-14942-3 MSD	LM-MW108-102623	Dissolved	Water	7470A	28897

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14942-1

Client Sample ID: LM-MW106-102623

Lab Sample ID: 620-14942-1

Date Collected: 10/26/23 13:35

Matrix: Water

Date Received: 10/27/23 16:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			28762	AAH	EET NE	11/07/23 09:35
Total/NA	Fraction	MA EPH Frac			28794	JJB	EET NE	11/08/23 08:22
Total/NA	Analysis	EPH		1	28788	JS	EET NE	11/08/23 11:29
Total/NA	Prep	3510C			28762	AAH	EET NE	11/07/23 09:35
Total/NA	Fraction	MA EPH Frac			28794	JJB	EET NE	11/08/23 08:22
Total/NA	Analysis	EPH		10	28788	JS	EET NE	11/08/23 13:43
Total/NA	Analysis	MAVPH2.1		1	28516	BMH	EET NE	11/01/23 00:16
Total/NA	Analysis	MAVPH2.1	DL	25	28559	BMH	EET NE	11/01/23 14:59
Total/NA	Prep	3510C			28762	AAH	EET NE	11/07/23 09:35
Total/NA	Fraction	MA EPH Frac			28794	JJB	EET NE	11/08/23 08:22
Total/NA	Analysis	MAEPH2.1		1	28787	JS	EET NE	11/08/23 12:41
Dissolved	Prep	3005A			28470	ODO	EET NE	10/30/23 14:59
Dissolved	Analysis	6010D		1	28620	PRB	EET NE	11/02/23 13:52
Dissolved	Prep	3005A			28780	ODO	EET NE	11/07/23 15:24
Dissolved	Analysis	6010D		1	28840	PRB	EET NE	11/08/23 12:52
Dissolved	Prep	7470A			28845	PRB	EET NE	11/09/23 08:42
Dissolved	Analysis	7470A		1	28884	PRB	EET NE	11/09/23 14:40

Client Sample ID: LM-MW107-102623

Lab Sample ID: 620-14942-2

Date Collected: 10/26/23 12:00

Matrix: Water

Date Received: 10/27/23 16:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			28762	AAH	EET NE	11/07/23 09:35
Total/NA	Fraction	MA EPH Frac			28794	JJB	EET NE	11/08/23 08:22
Total/NA	Analysis	EPH		1	28788	JS	EET NE	11/08/23 11:52
Total/NA	Analysis	MAVPH2.1		1	28516	BMH	EET NE	10/31/23 19:09
Total/NA	Analysis	MAVPH2.1	DL	5	28559	BMH	EET NE	11/01/23 15:30
Total/NA	Prep	3510C			28762	AAH	EET NE	11/07/23 09:35
Total/NA	Fraction	MA EPH Frac			28794	JJB	EET NE	11/08/23 08:22
Total/NA	Analysis	MAEPH2.1		1	28787	JS	EET NE	11/08/23 13:08
Dissolved	Prep	3005A			28470	ODO	EET NE	10/30/23 14:59
Dissolved	Analysis	6010D		1	28620	PRB	EET NE	11/02/23 13:58
Dissolved	Prep	3005A			28780	ODO	EET NE	11/07/23 15:24
Dissolved	Analysis	6010D		1	28840	PRB	EET NE	11/08/23 12:58
Dissolved	Prep	7470A			28845	PRB	EET NE	11/09/23 08:42
Dissolved	Analysis	7470A		1	28884	PRB	EET NE	11/09/23 14:42

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14942-1

Client Sample ID: LM-MW108-102623

Lab Sample ID: 620-14942-3

Date Collected: 10/26/23 10:05
Matrix: Water
Date Received: 10/27/23 16:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			28762	AAH	EET NE	11/07/23 09:35
Total/NA	Fraction	MA EPH Frac			28794	JJB	EET NE	11/08/23 08:22
Total/NA	Analysis	EPH		1	28788	JS	EET NE	11/08/23 12:14
Total/NA	Analysis	MAVPH2.1		1	28656	BMH	EET NE	11/03/23 15:22
Total/NA	Prep	3510C			28762	AAH	EET NE	11/07/23 09:35
Total/NA	Fraction	MA EPH Frac			28794	JJB	EET NE	11/08/23 08:22
Total/NA	Analysis	MAEPH2.1		1	28787	JS	EET NE	11/08/23 13:34
Dissolved	Prep	3005A			28470	ODO	EET NE	10/30/23 14:59
Dissolved	Analysis	6010D		1	28620	PRB	EET NE	11/02/23 13:11
Dissolved	Prep	3005A			28780	ODO	EET NE	11/07/23 15:24
Dissolved	Analysis	6010D		1	28840	PRB	EET NE	11/08/23 12:28
Dissolved	Prep	7470A			28845	PRB	EET NE	11/09/23 08:42
Dissolved	Analysis	7470A		1	28884	PRB	EET NE	11/09/23 14:45

Client Sample ID: LM-FD01-102623

Lab Sample ID: 620-14942-4

Date Collected: 10/26/23 08:00
Matrix: Water
Date Received: 10/27/23 16:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3510C			28762	AAH	EET NE	11/07/23 09:35
Total/NA	Fraction	MA EPH Frac			28794	JJB	EET NE	11/08/23 08:22
Total/NA	Analysis	EPH		1	28788	JS	EET NE	11/08/23 13:21
Total/NA	Analysis	MAVPH2.1		1	28516	BMH	EET NE	10/31/23 19:40
Total/NA	Analysis	MAVPH2.1	DL	5	28559	BMH	EET NE	11/01/23 16:01
Total/NA	Prep	3510C			28762	AAH	EET NE	11/07/23 09:35
Total/NA	Fraction	MA EPH Frac			28794	JJB	EET NE	11/08/23 08:22
Total/NA	Analysis	MAEPH2.1		1	28787	JS	EET NE	11/08/23 15:39
Dissolved	Prep	3005A			28470	ODO	EET NE	10/30/23 14:59
Dissolved	Analysis	6010D		1	28620	PRB	EET NE	11/02/23 13:47
Dissolved	Prep	3005A			28780	ODO	EET NE	11/07/23 15:24
Dissolved	Analysis	6010D		1	28840	PRB	EET NE	11/08/23 13:04
Dissolved	Prep	7470A			28845	PRB	EET NE	11/09/23 08:42
Dissolved	Analysis	7470A		1	28884	PRB	EET NE	11/09/23 14:47

Client Sample ID: Trip Blank

Lab Sample ID: 620-14942-5

Date Collected: 10/26/23 00:00
Matrix: Water
Date Received: 10/27/23 16:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	MAVPH2.1		1	28516	BMH	EET NE	10/31/23 15:36

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-14942-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Massachusetts	State	M-RI907	06-30-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6010D	3005A	Water	Antimony
6010D	3005A	Water	Arsenic
6010D	3005A	Water	Barium
6010D	3005A	Water	Beryllium
6010D	3005A	Water	Cadmium
6010D	3005A	Water	Chromium
6010D	3005A	Water	Lead
6010D	3005A	Water	Nickel
6010D	3005A	Water	Selenium
6010D	3005A	Water	Silver
6010D	3005A	Water	Thallium
6010D	3005A	Water	Vanadium
6010D	3005A	Water	Zinc
7470A	7470A	Water	Mercury
EPH	3510C	Water	2-Methylnaphthalene
EPH	3510C	Water	Acenaphthene
EPH	3510C	Water	Acenaphthylene
EPH	3510C	Water	Anthracene
EPH	3510C	Water	Benzo[a]anthracene
EPH	3510C	Water	Benzo[a]pyrene
EPH	3510C	Water	Benzo[b]fluoranthene
EPH	3510C	Water	Benzo[g,h,i]perylene
EPH	3510C	Water	Benzo[k]fluoranthene
EPH	3510C	Water	Chrysene
EPH	3510C	Water	Dibenz(a,h)anthracene
EPH	3510C	Water	Fluoranthene
EPH	3510C	Water	Fluorene
EPH	3510C	Water	Indeno[1,2,3-cd]pyrene
EPH	3510C	Water	Naphthalene
EPH	3510C	Water	Phenanthrene
EPH	3510C	Water	Pyrene
MAEPH2.1	3510C	Water	C11-C22 Aromatics
MAEPH2.1	3510C	Water	C11-C22 Aromatics (Adjusted)
MAEPH2.1	3510C	Water	C19-C36 Aliphatics
MAEPH2.1	3510C	Water	C9-C18 Aliphatics
MAVPH2.1		Water	Benzene
MAVPH2.1		Water	C5-C8 Aliphatics (adjusted)
MAVPH2.1		Water	C5-C8 Aliphatics (unadjusted)
MAVPH2.1		Water	C9-C10 Aromatics
MAVPH2.1		Water	C9-C12 Aliphatics (adjusted)
MAVPH2.1		Water	C9-C12 Aliphatics (unadjusted)
MAVPH2.1		Water	Ethylbenzene
MAVPH2.1		Water	m,p-Xylene
MAVPH2.1		Water	Methyl tert-butyl ether
MAVPH2.1		Water	Naphthalene

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-14942-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
MAVPH2.1		Water	o-Xylene
MAVPH2.1		Water	Toluene
MAVPH2.1		Water	Xylenes, Total

Method Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14942-1

Method	Method Description	Protocol	Laboratory
EPH	Extractable Petroleum Hydrocarbons (GC/MS)	MA DEP	EET NE
MAVPH2.1	Massachusetts - Volatile Petroleum Hydrocarbons (GC)	MA DEP	EET NE
MAEPH2.1	Massachusetts - Extractable Petroleum Hydrocarbons (GC)	MA DEP	EET NE
6010D	Metals (ICP)	SW846	EET NE
7470A	Mercury (CVAA)	SW846	EET NE
3005A	Preparation, Total Metals	SW846	EET NE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET NE
5030C	Purge and Trap	SW846	EET NE
7470A	Preparation, Mercury	SW846	EET NE
MA EPH Frac	Massachusetts - Extractable Petroleum Hydrocarbon Fractionation	MA DEP	EET NE

Protocol References:

MA DEP = Massachusetts Department Of Environmental Protection

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Sample Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-14942-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
620-14942-1	LM-MW106-102623	Water	10/26/23 13:35	10/27/23 16:22
620-14942-2	LM-MW107-102623	Water	10/26/23 12:00	10/27/23 16:22
620-14942-3	LM-MW108-102623	Water	10/26/23 10:05	10/27/23 16:22
620-14942-4	LM-FD01-102623	Water	10/26/23 08:00	10/27/23 16:22
620-14942-5	Trip Blank	Water	10/26/23 00:00	10/27/23 16:22



620-14942 Chain of Custody

14942

Chain of Custody Record

eurofins | Environment Testing

Client Contact: ~~Stephanie Stone~~ Adam Roy	Sampler: Caroline Belmowiz	Lab PM	Carrier Tracking No(s)	COC No: 620-12716-1718 2
Company: Nobis Engineering, Inc	Phone: 978-888-4404	E-Mail: CBelmowiz@nobis-group.com	State of Origin	Page: Page 2 of 4
Address: 585 Middlesex Street	PWSID	Analysis Requested		Job #:
City: Lowell	Due Date Requested:			
State, Zip: MA, 01851	TAT Requested (days): Standard			
Phone: 978-703-6014	Compliance Project: ✓ Yes △ No MASSDEP			
Email: AROY ~~cstone~~@nobis-group com	PO #:			
Project Name: S00001 005 LSM	WO #:			
Site: Lunenburg, MA	Project #:			
	SSOW#:			

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

	Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	VPH (MASSDEP)	EPH (MASSDEP)	MCP 14-Dissolved Metals	Total Number of containers	Special Instructions/Note:
	Preservation Code:											
-1	LM-MW106-102623	10/26/23	1335	G	Water	X					6	
-2	LM-MW107-102623	10/26/23	1200	G	Water	X					6	
-3	LM-MW108-102623	10/26/23	1005	G	Water	X	X				8	MS/MSD
-4	LM-FD01-102623	10/26/23	0800	G	Water	X					6	
-5	Trip Blank				Water						2	
					Water							
					Water							
					Water							
					Water							
					Water							
					Water							

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: email EQuIS EDD to AROY@nobis-group.com

Empty Kit Relinquished by		Date		Time		Method of Shipment:	
Relinquished by:		Date/Time: 10/27/23 1130	Company: Nobis	Received by:		Date/Time: 10/27/23 1130	Company: ENE
Relinquished by:		Date/Time: 10/27/23 1642	Company: ENE	Received by:		Date/Time: 10/27/23 1642	Company: ENE
Relinquished by:		Date/Time:	Company:	Received by:		Date/Time:	Company:

Custody Seals Intact: △ Yes △ No | Custody Seal No

Cooler Temperature(s) °C and Other Remarks: 1.6 to.2 1.8 #6 / 1.4 to.2 1.6 #6

Ver: 06/08/2021

Page 43 of 44

11/13/2023

Login Sample Receipt Checklist

Client: Nobis Engineering, Inc.

Job Number: 620-14942-1

Login Number: 14942
List Number: 1
Creator: Makhoul, Elie

List Source: Eurofins New England

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

January 15, 2024
Nobis File No. S00001.05

Ms. Katy Deng
USEPA – Region 1
Land, Chemicals, and Redevelopment Division
5 Post Office Square, Suite 100
Boston, MA 02109-3912

Re: USEPA Contract No. 68HE0122D0001
USEPA Task Order No. 68HE0122F0044
Targeted Brownfields Assessment (TBA)
Former L&M Service Station Site
Lunenburg, Massachusetts
Sample Delivery Group (SDG) No. 620150851
Eurofins New England, North Kingstown, RI

Tier 1 Stage 2A Organic and Inorganic Data Review:

Volatile Petroleum Hydrocarbons (VPH by MassDEP-VPH), Extractable Petroleum Hydrocarbons (EPH by MasDEP-EPH), Polychlorinated Biphenyls (PCBs by 8082), Massachusetts Contingency Plan (MCP) Metals (MCP-14 Metals by 6010D/7471A)

2/Soil Samples: HYDLIFT-0608, HOLDTANK-0410

Dear Ms. Deng:

Nobis Group (Nobis), under a USEPA contract as a subcontractor to KGSNE JV, LLC, performed a Tier 1 Stage 2A manual data review (S2AVM) on the organic and inorganic analytical data for the samples listed above. The samples were collected by Nobis at the Former L&M Service Station Site located in Lunenburg, Massachusetts on October 31, 2023 and November 1, 2023. The samples were analyzed for VPHs by MassDEP-VPH, EPHs by MassDEP-EPH, PCBs by 8082, and MCP-14 Metals by 6010D/7471A by Eurofins New England in North Kingstown, RI.

The Tier 1 Stage 2A manual data review was performed in accordance with the Region 1 - EPA New England Environmental Data Review Supplement for Region I Data Review Elements and Superfund Specific Guidance/Procedures (September 2020); USEPA's National Functional Guidelines for Organic Superfund Methods Data Review (November 2020); USEPA's National Functional Guidelines for Inorganic Superfund Methods Data Review (November 2020); the Program Quality Assurance Project Plan (Program QAPP) dated October 2022, and the Quality Assurance Project Plan Addendum (QAPPA) (May 2023) for the Former L&M Service Station Site, which appends the October 2022 Program QAPP.

The data were evaluated based on the following parameters:

*	• Overall Evaluation of Data and Potential Usability Issues
*	• Data Completeness
*	• Preservation and Technical Holding Times
*	• Blanks
	• Surrogates (organic analyses only)
NA	• Internal Standards

Nobis Group®
585 Middlesex Street
Lowell, MA 01851
T (978) 683-0891

NA	•	Matrix Spike Analysis
NA	•	Laboratory Duplicates
	•	Laboratory Control Samples (LCS)
NA	•	Field Duplicates
NA	•	ICP Serial Dilutions (metals only)
NA	•	Performance Evaluation (PE) Samples
*	•	Target Analyte Identification
*	•	Reported Quantitation Limits

* All criteria were met for this parameter or did not require qualification.
NA – Not applicable.

Overall Evaluation of Data and Potential Usability Issues

The site sampling objectives are:

- Characterize in-situ soil based on AOCs identified by Fuss & O'Neill in November 2020 Phase I for the presence of possible site-related contamination.
- Evaluate groundwater elevation.
- Evaluate presence/absence of groundwater contamination related to site.

The data meet the project quality criteria and can be used without restriction except as summarized below. The attachments provide details and supporting documentation.

MassDEP-VPH:
Results were qualified for surrogate recovery.

MassDEP-EPH:
Results were qualified for surrogate recovery.

PCBs:
Qualification of the data was not required.

MCP-14 Metals:
Results were qualified for LCS recovery.

Please contact Linda Terzis at lterzis@nobis-group.com should you have any questions or comments regarding this information.

Sincerely,

NOBIS GROUP®

Linda Terzis
Data Validator

Gary Glennon
Data Validator

Tables: Data Summary Tables – Tier 1 Stage 2A (S2AVM) Validated Data
Data Qualification Actions Table

Attachments: Data Review Checklist
Support Documentation
COC

cc: Denis McGrath (Nobis Group)
Adam Roy (Nobis Group)

DATA SUMMARY TABLE

Analysis		EPH in Soil	
Lab Sample ID		620-15085-1	620-15085-2
Field Sample ID		HYDLIFT-0608	HOLDTANK-0410
Sample Type		N	N
Parent Sample ID			
Sample Date	**Units**	10/31/23	11/01/23
2-Methylnaphthalene	mg/kg	0.35 UJ	3.5
Acenaphthene	mg/kg	0.35 UJ	0.36 U
Acenaphthylene	mg/kg	0.35 UJ	0.36 U
Anthracene	mg/kg	0.35 UJ	0.36 U
Benzo(a)anthracene	mg/kg	0.35 UJ	0.36 U
Benzo(a)pyrene	mg/kg	0.35 UJ	0.36 U
Benzo(b)fluoranthene	mg/kg	0.35 UJ	0.36 U
Benzo(g,h,i)perylene	mg/kg	0.35 UJ	0.36 U
Benzo(k)fluoranthene	mg/kg	0.35 UJ	0.36 U
C11-C22 Aromatics	mg/kg	1500 J-	310
C11-C22 Aromatics (adjusted)	mg/kg	1500 J-	310
C19-C36 Aliphatics	mg/kg	880 J-	380 J-
C9-C18 Aliphatics	mg/kg	52 J-	51 J-
Chrysene	mg/kg	0.35 UJ	0.36 U
Dibenz(a,h)anthracene	mg/kg	0.35 UJ	0.36 U
Fluoranthene	mg/kg	0.35 UJ	0.36 U
Fluorene	mg/kg	0.35 UJ	0.36 U
Indeno(1,2,3-cd)pyrene	mg/kg	0.35 UJ	0.36 U
Naphthalene	mg/kg	0.35 UJ	1.3
Phenanthrene	mg/kg	0.35 UJ	0.53
Pyrene	mg/kg	0.35 UJ	0.36 U

DATA SUMMARY TABLE

Analysis		Metals in Soil	
Lab Sample ID		620-15085-1	620-15085-2
Field Sample ID		HYDLIFT-0608	HOLDTANK-0410
Sample Type		N	N
Parent Sample ID			
Sample Date	**Units**	10/31/23	11/01/23
Antimony	mg/kg	0.54 J	1.6 J
Arsenic	mg/kg	4.1 J-	4.6 J-
Barium	mg/kg	19	49
Beryllium	mg/kg	0.52 U	0.52 U
Cadmium	mg/kg	0.52 U	0.073 J
Chromium	mg/kg	9.5	16
Lead	mg/kg	7	14
Mercury	mg/kg	0.066 UJ	0.013 J
Nickel	mg/kg	7.4	9.6
Selenium	mg/kg	1.6 U	1.6 U
Silver	mg/kg	1.6 U	1.6 U
Thallium	mg/kg	3.1 U	3.1 U
Vanadium	mg/kg	7.5	25
Zinc	mg/kg	33	31

DATA SUMMARY TABLE

Analysis		Pesticides/PCBs in Soil
Lab Sample ID		620-15085-1
Field Sample ID		HYDLIFT-0608
Sample Type		N
Parent Sample ID		
Sample Date	**Units**	10/31/23
Aroclor 1016	ug/kg	21 U
Aroclor 1221	ug/kg	21 U
Aroclor 1232	ug/kg	21 U
Aroclor 1242	ug/kg	21 U
Aroclor 1248	ug/kg	21 U
Aroclor 1254	ug/kg	21 U
Aroclor 1260	ug/kg	21 U
Aroclor 1262	ug/kg	21 U
Aroclor 1268	ug/kg	21 U

DATA SUMMARY TABLE

Analysis		VPH in Soil	
Lab Sample ID		620-15085-1	620-15085-2
Field Sample ID		HYDLIFT-0608	HOLDTANK-0410
Sample Type		N	N
Parent Sample ID			
Sample Date	**Units**	10/31/23	11/01/23
Benzene	mg/kg	0.33 UJ	0.26 U
C5-C8 Aliphatics (adjusted)	mg/kg	6.6 UJ	15
C5-C8 Aliphatics (unadjusted)	mg/kg	6.6 UJ	15
C9-C10 Aromatics	mg/kg	6.6 UJ	76
C9-C12 Aliphatics (adjusted)	mg/kg	6.6 UJ	78
C9-C12 Aliphatics (unadjusted)	mg/kg	6.6 UJ	160
Ethylbenzene	mg/kg	0.33 UJ	0.45
m,p-Xylene	mg/kg	0.66 UJ	1.2
Methyl tert-butyl ether	mg/kg	0.066 UJ	0.053 U
Naphthalene	mg/kg	1.3 UJ	6.4
o-Xylene	mg/kg	0.33 UJ	1.2
Toluene	mg/kg	0.33 UJ	0.28
Xylene (total)	mg/kg	0.99 UJ	2.4

Data Review Qualification Actions
Former L&M Service Station
SDG 620150851

Parameter	Analyte	Samples	Evaluation Criteria	Action Needed	Comments
VPH					
	All VPH compounds	HYDLIFT-0608	Surrogate recovery	UJ	
EPH					
	C9-C18 and C19-C36 aliphatic hydrocarbons, C11-C22 aromatic hydrocarbons (adjusted and unadjusted)	HYDLIFT-0608	Surrogate recovery	J-	
	All target PAH compounds	HYDLIFT-0608	Surrogate recovery	UJ	
	C9-C18 and C19-C36 aliphatic hydrocarbons	HOLDTANK-0410	Surrogate recovery	J-	
PCBs					
	Qualification of the data was not required.				
MCP-14 Metals					
	Antimony	HYDLIFT-0608, HOLDTANK-0410	LCS recovery	J-	Final qual J, indeterminate bias, both samples due to being < RL
	Arsenic	HYDLIFT-0608, HOLDTANK-0410	LCS recovery	J-	
	Mercury	HYDLIFT-0608, HOLDTANK-0410	LCS recovery	J- / UJ	Final qual J, indeterminate bias, sample HOLDTANK-0410 due to < RL.

Tier 1/Stage 2A Data Review Checklist

Project: Former L&M Service Station, Lunenburg, Massachusetts
Targeted Brownfields Assessment (TBA)
Project #: S00001.05

Date: 01/02/2024

Methods: Volatile Petroleum Hydrocarbons (VPH) (MassDEP-VPH)
Polychlorinated Biphenyls (PCBs by 8082)
Extractable Petroleum Hydrocarbons (EPH) (MassDEP-EPH)
Massachusetts Contingency Plan (MCP) Metals (MCP-14 Metals by 6010D/7471A)

Laboratory: Eurofins New England Laboratory, North Kingstown, RI
Case: N/A
SDG: 620150851
Reviewer: Linda Terzis

1. **Case Narrative and Data Package Completeness (COC and Analyte List Review)**
Two (2) soil samples were listed on the COC for SDG 620158051. The samples were collected on 10/31/2023 and 11/01/2023 and received at the Eurofins New England Laboratory on 11/03/2023 at a maximum temperature of 4.0 °C.

Sample ID	Laboratory ID	Analyses
HYDLIFT-0608	620-15085-1	MassDEP-VPH, MassDEP-EPH, PCBs, MCP-14 Metals/Mercury
HOLDTANK-0410	620-15085-2	MassDEP-VPH, MassDEP-EPH, MCP-14 Metals/Mercury

The data were evaluated using the site-specific Quality Assurance Project Plan Addendum (QAPPA) (dated May 2023) and the Program QAPP (dated October 2022). Both were prepared by KGSNE, LLC. The QAPPA appends and incorporates by reference the procedures and quality control measures detailed in the Program QAPP (October 2022). Therefore, site data for this SDG were evaluated using both the QAPPA of May 2023 and the Program QAPP dated October 2022. The Massachusetts Compendium of Analytical Methods (CAM) and/or SW-846 Methods were used to perform the analyses. Therefore, site data were also evaluated using CAM quality control (QC) limits, where applicable.

The analyte lists reported by the laboratory were compared to the required analyte lists per Table 3 (soil) in the QAPPA (May 2023) for the site. Results for all requested analytes were reported and no inconsistencies were noted.

2. **Holding Time and Sample Preservation Compliance**

Receipt temperatures are acceptable (≤ 6°), as specified in the QAPPA (May 2023).

MassDEP-VPH: Holding time criteria (analyzed within 14 days) met.

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Lowell, MA 01851
T (978) 683-0891

MassDEP-EPH: Holding time criteria (extracted within 14 days and analyzed within 40 days of extraction) met.

PCBs: Holding time criteria (extracted within 14 days and analyzed within 40 days of extraction) met.

MCP-14 Metals/Mercury: Holding time criteria (analyzed within 28 days for mercury; within 180 days for all other analytes) were met.

3. Calibration Issues

Not assessed for S2AVM data review.

4. Laboratory and Field Blanks

MassDEP VPH: Results for the VPH laboratory method blank were non-detect. No blank actions are required.

MassDEP-EPH: Results for the EPH laboratory method blank were non-detect. No blank actions are required.

PCBs: Results for the PCB laboratory method blank were non-detect. No blank actions are required.

MCP-14 Metals/Mercury: Results for the metals and mercury laboratory method blanks were non-detect. No blank actions are required.

Field blanks were not submitted with the samples of this SDG. No actions are required.

5. Interference Check Sample (metals only)

Not assessed for S2AVM data review.

6. Surrogates

The Program QAPP (October 2022) was used to evaluate site data for surrogate recovery. If no Program QAPP-specific recovery limits were available for a surrogate, the MCP CAM recovery limits were used.

MassDEP-VPH: Percent recoveries for both surrogates were below the Program QAPP limits of 70-130% but > 10% in sample HYDLIFT-0608 (620-15085-1). The low surrogate recoveries were confirmed by re-analysis and results from the original analysis are reported. VPH results were all non-detect in the sample. Based on professional judgment, the National Functional Guidelines (NFGs, 2020) for the VOC surrogate guidance was used to qualify the non-detect results for all VPH compounds as estimated (UJ) in sample HYDLIFT-0608 due to the low surrogate recoveries. Surrogate recoveries were within limits for sample HOLDTANK-0410.

MassDEP-EPH: Two of three percent surrogate recoveries (1-chlorooctadecane and o-terphenyl) were below the Program QAPP limits of 40-140% in sample HYDLIFT-0608 (620-15085-1). The recovery of 1-chlorooctadecane was < 10%. Based on the MCP CAM method for EPH, the surrogate 1-chlorooctadecane is associated with C9-C18 and C19-C36 aliphatic hydrocarbons. The surrogate o-terphenyl is associated with the target PAH compounds and C11-C22 aromatic

hydrocarbons. Based on professional judgment, the NFGs (2020) for the SVOC surrogate guidance was used to qualify the detected results for C9-C18 and C19-C36 aliphatic hydrocarbons as estimated with a potential low bias (J-) in sample HYDLIFT-0608. The detected results for C11-C22 aromatic hydrocarbons (adjusted and unadjusted) are qualified as estimated with a potential low bias (J-) and the non-detect results for all target PAH compounds are qualified as estimated (UJ) in sample HYDLIFT-0608 due to low surrogate recoveries.

The recovery of the surrogate 1-chlorooctadecane in sample HOLDTANK-0410 (620-15085-2) was below the 40-140% limits but > 10%. Therefore, the detected results for C9-C18 and C19-C36 aliphatic hydrocarbons are qualified as estimated with a potential low bias (J-) in sample HOLDTANK-0410 due to low surrogate recoveries.

The laboratory's case narrative indicated evidence of interference was present in sample HOLDTANK-0410 and therefore, the samples were not re-extracted and/or re-analyzed.

PCBs: Percent surrogate recoveries were within the Program QAPP limits of 30-150%. No actions are required.

Surrogate recovery is not applicable for the MCP-14 metals/mercury analysis.

7. Laboratory Control Samples

MassDEP-VPH: The percent recoveries for the VPH LCS/LCSD pair met the Program QAPP limits of 70-130% recovery and RPDs ≤ 25%. No actions are required.

MassDEP-EPH: The percent recoveries for the EPH LCS/LCSD pair met the Program QAPP limits of 40-140% and RPDs ≤ 25%. No actions are required.

PCBs: Percent recoveries and RPDs for the PCB LCS/LCSD analyses were within the QAPP recovery limits of 40-140% and RPD ≤ 30%. No actions are required.

MCP-14 Metals/Mercury: The recoveries of antimony (45.9%), arsenic (77.2%), and mercury (55.9%) were below the 80-120% recovery limits in the LCS analyses associated with the samples. The Program QAPP and MCP CAM require that soil LCS/LCSD recoveries be "within vendor 95% confidence limits". Vendor limits were not presented in the laboratory report; therefore, the MassDEP CAM Method 6010D recovery limits for aqueous samples (80-120%) were conservatively used to evaluate the solid LCS results during this review.

Antimony was detected in both soil samples. Based on the NFGs (2020), the detected results for antimony are qualified as estimated with a potential low bias (J-) in both samples due to the low LCS recovery. Note that the final qualification for the samples is estimated (J) with an indeterminate bias since sample results were both reported by the laboratory as estimated (J) due to results being < reporting limit (RL).

Arsenic was detected in both samples at concentrations > RL. Based on the NFGs (2020), the detected results for arsenic are qualified as estimated with a potential low bias (J-) due to the low LCS recovery.

The detect and non-detected results for mercury are qualified as estimated with a potential low bias (J-/UJ) in the samples due to the low LCS recovery. Note that mercury was detected at < RL in sample HOLDTANK-0410 and reported by the laboratory with a J qualifier. Therefore, the final

qualifier for the mercury result in sample HOLDTANK-0410 is estimated (J) with an indeterminate bias.

8. Matrix Spikes

Based on the Region I EPA New England Environmental Data Review Supplement (Region I Supplement, 2020), MS/MSD qualifications are applied to all field samples with similar matrix, unless otherwise noted.

MS/MSD analyses were not performed on the samples of this SDG. No action is required.

9. Laboratory Duplicates (metals only)

MCP-14 Metals/Mercury: A laboratory duplicate analysis was not performed for this SDG. No action is required.

10. Serial Dilution (metals only)

A serial dilution analysis was not performed for this SDG. No actions are required.

11. Field Duplicate Precision

Acceptable field duplicate precision is an RPD of ≤ 50% for results > 5x RL and an absolute difference < 4x RL for results < 5x RL, based on the EPA Region I Supplement (2020).

Based on the Region I Supplement (2020), qualifications are applied to all field samples with similar matrix, unless otherwise indicated.

A field duplicate sample was not submitted with the samples of this SDG. No action is required.

12. Internal Standards

Not assessed for S2AVM data review.

13. Dual Column Precision (PCBs only)

Results for all PCB Aroclors are non-detect; therefore, dual column precision is not evaluated. No actions are required.

14. Performance Evaluation Samples

Performance Evaluation (PE) samples were not included in this SDG.

15. Reporting Limits

Laboratory RLs for non-detect results met the project action levels (PALs) for the VPH, EPH, PCB, and MCP-14 metals analyses, as listed in Table 3 of the QAPPA.

16. Other

EPA Region I Supplement (2020) criterion for percent solids content (> 30%) was met for the soil samples.

Overall bias is considered indeterminate when cumulative nonconformances do not show a consistent bias or in cases of the presence of conflicting high and low biases.

620-15085 Chain of Custody

15085

Chain of Custody Record

eurofins | Environment Testing

Client Information	Sampler: P. Moran	Lab PM	Carrier Tracking No(s)	COC No: 620-12716-1718 1
Client Contact: ~~Stephanie Stone~~ Adam Roy	Phone	E-Mail	State of Origin: MA	Page: Page 1 of 4
Company: Nobis Engineering, Inc	PWSID			Job #:

Address: 585 Middlesex Street	Due Date Requested:	
City: Lowell	TAT Requested (days): standard	
State, Zip: MA, 01851	Compliance Project: Δ Yes Δ No	
Phone	PO #:	
Email: ~~sstone@nobis-group.com~~ aroy@nobis-group.com	WO #:	
Project Name: S00001 005	Project #:	
Site: Former L&M	SSOW#:	

Analysis Requested

Preservation Codes:

A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Y - Trizma; Z - other (specify)

Other:

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	VPH	EPH	MCP Metals	PCBs											Total Number of containers	Special Instructions/Note:
	Preservation Code:							F	I	I	I												
1	HYDLIFT-0608	10/31/23	0910	C	Solid	N	N	X	X	X	X											4	
2	HOLDTANK-0410	11/1/23	1445	C	Solid	N	N	X	X	X												3	
					Solid																		
					Solid																		
					Solid																		
					Solid																		
					Solid																		
					Solid																		
					Solid																		
					Solid																		
					Solid																		
					Water																		

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested. I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: Email EDD to aroy@nobis-group.com

Empty Kit Relinquished by	Date	Time	Method of Shipment:

Relinquished by:	Date/Time: 11/3/23 11:53	Company	Received by:	Date/Time: 11/3/23 1153	Company: EA
Relinquished by:	Date/Time: 11/3/23 16:13	Company: EA	Received by:	Date/Time: 11/3/23 16:13	Company: Eurofins
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact. Δ Yes Δ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks: 3.8-0.2 4-0.0 6

Ver: 06/08/2021

Page 27 of 28

11/14/2023

ANALYTICAL REPORT

PREPARED FOR

Attn: Adam Roy
Nobis Engineering, Inc.
585 Middlesex Street
Lowell, Massachusetts 01851

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JOB DESCRIPTION

Former L&M - Lunenburg MA

JOB NUMBER

620-15085-1

Eurofins New England
646 Camp Ave
North Kingstown RI 02852

See page two for job notes and contact information.

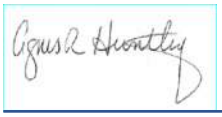
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Job Notes

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The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northeast, LLC Project Manager.

Authorization



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Authorized for release by
Agnes Huntley, Project Manager
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(401)372-3482

Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
State Forms 5
MCP Checklist 5
Case Narrative 6
Detection Summary 7
Client Sample Results 8
Surrogate Summary 13
QC Sample Results 14
QC Association Summary 20
Lab Chronicle 22
Certification Summary 23
Method Summary 25
Sample Summary 26
Chain of Custody 27
Receipt Checklists 28

Definitions/Glossary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-15085-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
S1-	Surrogate recovery exceeds control limits, low biased.

GC Semi VOA

Qualifier	Qualifier Description
S1-	Surrogate recovery exceeds control limits, low biased.

Metals

Qualifier	Qualifier Description
^3+	Reporting Limit Check Standard is outside acceptance limits, high biased
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

MassDEP Analytical Protocol Certfication Form

Laboratory Name: Eurofins New England | Project #: 620-15085-1

Project Location: Former L&M - Lunenburg MA | RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
620-15085-1, 620-15085-2

Matrices: ☐ Groundwater/Surface Water ☑ Soil/Sediment ☐ Drinking Water ☐ Air ☐ Other:

CAM Protocol (check all that apply below:)

8260 VOC CAM II A ☐	7470/7471 Hg CAM III B ☑	MassDEP VPH (GC/PID/FID) CAM IV A ☑	8082 PCB CAM V A ☑	9014 Total Cyanide/PAC CAM VI A ☐	6860 Perchlorate CAM VIII B ☐
8270 SVOC CAM II B ☐	7010 Metals CAM III C ☐	MassDEP VPH (GC/MS) CAM IV C ☐	8081 Pesticides CAM V B ☐	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
6010 Metals CAM III A ☑	6020 Metals CAM III D ☐	MassDEP EPH CAM IV B ☑	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes ☐ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☑ Yes ☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes ☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☑ Yes ☐ No
E	VPH, EPH, APH, and TO-15 only a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☑ Yes ☐ No ☐ Yes ☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☑ Yes ☐ No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☑ Yes ☐ No[1]

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☐ Yes ☑ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes ☐ No[1]

1 All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature: Agnes R Huntley **Position:** Project Manager

Printed Name: Agnes Huntley **Date:** 11/14/2023

Job ID: 620-15085-1

Laboratory: Eurofins New England

Narrative

Job Narrative
620-15085-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 11/3/2023 4:13 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.0°C

GC VOA
Method MAVPH2.1: Surrogate recovery for the following sample was outside control limits: HYDLIFT-0608 (620-15085-1). Evidence of matrix interferences is not obvious. Sample reanalyzed for matrix interference confirmation.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA
Method MAEPH2.1: Surrogate recovery for the following samples were outside control limits: HYDLIFT-0608 (620-15085-1) and HOLDTANK-0410 (620-15085-2). Evidence of pattern interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

PCBs
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
Method 6010MCP: The low level check standard recovery associated with batch 620-28770 is outside the acceptance criteria for the following analyte(s): Zinc. All associated field samples have the analyte in quantities greater than 10x the reporting limit (RL), therefore the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-15085-1

Client Sample ID: HYDLIFT-0608 — Lab Sample ID: 620-15085-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C9-C18 Aliphatics	52		7.0	7.0	mg/Kg	1	☼	MAEPH2.1	Total/NA
C19-C36 Aliphatics	880		7.0	7.0	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics	1500		7.0	7.0	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	1500		7.0	7.0	mg/Kg	1	☼	MAEPH2.1	Total/NA
Antimony	0.54	J	5.2	0.39	mg/Kg	1	☼	6010D	Total/NA
Arsenic	4.1		1.6	0.20	mg/Kg	1	☼	6010D	Total/NA
Barium	19		1.0	0.12	mg/Kg	1	☼	6010D	Total/NA
Chromium	9.5		1.0	0.14	mg/Kg	1	☼	6010D	Total/NA
Lead	7.0		1.6	0.22	mg/Kg	1	☼	6010D	Total/NA
Nickel	7.4		1.0	0.12	mg/Kg	1	☼	6010D	Total/NA
Vanadium	7.5		1.6	0.28	mg/Kg	1	☼	6010D	Total/NA
Zinc	33	^3+	3.1	0.81	mg/Kg	1	☼	6010D	Total/NA

Client Sample ID: HOLDTANK-0410 — Lab Sample ID: 620-15085-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C5-C8 Aliphatics (adjusted)	15		5.3	5.3	mg/Kg	1	☼	MAVPH2.1	Total/NA
C9-C12 Aliphatics (adjusted)	78		5.3	5.3	mg/Kg	1	☼	MAVPH2.1	Total/NA
C9-C10 Aromatics	76		5.3	5.3	mg/Kg	1	☼	MAVPH2.1	Total/NA
C5-C8 Aliphatics (unadjusted)	15		5.3	5.3	mg/Kg	1	☼	MAVPH2.1	Total/NA
C9-C12 Aliphatics (unadjusted)	160		5.3	5.3	mg/Kg	1	☼	MAVPH2.1	Total/NA
Ethylbenzene	0.45		0.26	0.26	mg/Kg	1	☼	MAVPH2.1	Total/NA
Naphthalene	6.4		1.1	1.1	mg/Kg	1	☼	MAVPH2.1	Total/NA
Toluene	0.28		0.26	0.26	mg/Kg	1	☼	MAVPH2.1	Total/NA
m,p-Xylene	1.2		0.53	0.53	mg/Kg	1	☼	MAVPH2.1	Total/NA
o-Xylene	1.2		0.26	0.26	mg/Kg	1	☼	MAVPH2.1	Total/NA
Xylenes, Total	2.4		0.79	0.79	mg/Kg	1	☼	MAVPH2.1	Total/NA
C9-C18 Aliphatics	51		7.2	7.2	mg/Kg	1	☼	MAEPH2.1	Total/NA
C19-C36 Aliphatics	380		7.2	7.2	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics	310		7.2	7.2	mg/Kg	1	☼	MAEPH2.1	Total/NA
C11-C22 Aromatics (Adjusted)	310		7.2	7.2	mg/Kg	1	☼	MAEPH2.1	Total/NA
Naphthalene	1.3		0.36	0.36	mg/Kg	1	☼	MAEPH2.1	Total/NA
2-Methylnaphthalene	3.5		0.36	0.36	mg/Kg	1	☼	MAEPH2.1	Total/NA
Phenanthrene	0.53		0.36	0.36	mg/Kg	1	☼	MAEPH2.1	Total/NA
Antimony	1.6	J	5.2	0.39	mg/Kg	1	☼	6010D	Total/NA
Arsenic	4.6		1.6	0.20	mg/Kg	1	☼	6010D	Total/NA
Barium	49		1.0	0.12	mg/Kg	1	☼	6010D	Total/NA
Cadmium	0.073	J	0.52	0.027	mg/Kg	1	☼	6010D	Total/NA
Chromium	16		1.0	0.14	mg/Kg	1	☼	6010D	Total/NA
Lead	14		1.6	0.22	mg/Kg	1	☼	6010D	Total/NA
Nickel	9.6		1.0	0.12	mg/Kg	1	☼	6010D	Total/NA
Vanadium	25		1.6	0.28	mg/Kg	1	☼	6010D	Total/NA
Zinc	31	^3+	3.1	0.80	mg/Kg	1	☼	6010D	Total/NA
Mercury	0.013	J	0.067	0.011	mg/Kg	1	☼	7471A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: HYDLIFT-0608

Date Collected: 10/31/23 09:10
Date Received: 11/03/23 16:13

Lab Sample ID: 620-15085-1

Matrix: Solid
Percent Solids: 93.3

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		6.6	6.6	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1
C9-C12 Aliphatics (adjusted)	ND		6.6	6.6	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1
C9-C10 Aromatics	ND		6.6	6.6	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1
C5-C8 Aliphatics (unadjusted)	ND		6.6	6.6	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1
C9-C12 Aliphatics (unadjusted)	ND		6.6	6.6	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1
Benzene	ND		0.33	0.33	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1
Ethylbenzene	ND		0.33	0.33	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1
Methyl tert-butyl ether	ND		0.066	0.066	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1
Naphthalene	ND		1.3	1.3	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1
Toluene	ND		0.33	0.33	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1
m,p-Xylene	ND		0.66	0.66	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1
o-Xylene	ND		0.33	0.33	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1
Xylenes, Total	ND		0.99	0.99	mg/Kg	☼	11/09/23 14:14	11/09/23 20:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*23*	*S1-*	*70 - 130*	*11/09/23 14:14*	*11/09/23 20:04*	*1*
2,5-Dibromotoluene (pid)	*18*	*S1-*	*70 - 130*	*11/09/23 14:14*	*11/09/23 20:04*	*1*

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		6.6	6.6	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1
C9-C12 Aliphatics (adjusted)	ND		6.6	6.6	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1
C9-C10 Aromatics	ND		6.6	6.6	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1
C5-C8 Aliphatics (unadjusted)	ND		6.6	6.6	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1
C9-C12 Aliphatics (unadjusted)	ND		6.6	6.6	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1
Benzene	ND		0.33	0.33	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1
Ethylbenzene	ND		0.33	0.33	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1
Methyl tert-butyl ether	ND		0.066	0.066	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1
Naphthalene	ND		1.3	1.3	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1
Toluene	ND		0.33	0.33	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1
m,p-Xylene	ND		0.66	0.66	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1
o-Xylene	ND		0.33	0.33	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1
Xylenes, Total	ND		0.99	0.99	mg/Kg	☼	11/09/23 14:14	11/10/23 14:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*7*	*S1-*	*70 - 130*	*11/09/23 14:14*	*11/10/23 14:05*	*1*
2,5-Dibromotoluene (pid)	*6*	*S1-*	*70 - 130*	*11/09/23 14:14*	*11/10/23 14:05*	*1*

Method: MA DEP 8082 - Polychlorinated Biphenyls (GC/ECD)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		21	15	ug/Kg	☼	11/07/23 13:04	11/09/23 02:11	1
PCB-1221	ND		21	6.3	ug/Kg	☼	11/07/23 13:04	11/09/23 02:11	1
PCB-1232	ND		21	5.9	ug/Kg	☼	11/07/23 13:04	11/09/23 02:11	1
PCB-1242	ND		21	3.4	ug/Kg	☼	11/07/23 13:04	11/09/23 02:11	1
PCB-1248	ND		21	6.7	ug/Kg	☼	11/07/23 13:04	11/09/23 02:11	1
PCB-1254	ND		21	17	ug/Kg	☼	11/07/23 13:04	11/09/23 02:11	1
PCB-1262	ND		21	5.0	ug/Kg	☼	11/07/23 13:04	11/09/23 02:11	1
PCB-1260	ND		21	4.6	ug/Kg	☼	11/07/23 13:04	11/09/23 02:11	1
PCB-1268	ND		21	4.6	ug/Kg	☼	11/07/23 13:04	11/09/23 02:11	1

Client Sample ID: HYDLIFT-0608

Date Collected: 10/31/23 09:10
Date Received: 11/03/23 16:13

Lab Sample ID: 620-15085-1

Matrix: Solid
Percent Solids: 93.3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	79		30 - 150	11/07/23 13:04	11/09/23 02:11	1
Tetrachloro-m-xylene	91		30 - 150	11/07/23 13:04	11/09/23 02:11	1
DCB Decachlorobiphenyl (Surr)	116		30 - 150	11/07/23 13:04	11/09/23 02:11	1
DCB Decachlorobiphenyl (Surr)	100		30 - 150	11/07/23 13:04	11/09/23 02:11	1

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	**52**		7.0	7.0	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
C19-C36 Aliphatics	**880**		7.0	7.0	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
C11-C22 Aromatics	**1500**		7.0	7.0	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
C11-C22 Aromatics (Adjusted)	**1500**		7.0	7.0	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Naphthalene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
2-Methylnaphthalene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Acenaphthylene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Acenaphthene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Fluorene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Phenanthrene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Anthracene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Fluoranthene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Pyrene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Benzo[a]anthracene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Chrysene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Benzo[b]fluoranthene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Benzo[k]fluoranthene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Benzo[a]pyrene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Indeno[1,2,3-cd]pyrene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Dibenz(a,h)anthracene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1
Benzo[g,h,i]perylene	ND		0.35	0.35	mg/Kg	☼	11/07/23 09:19	11/08/23 22:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctadecane (Surr)	5	S1-	40 - 140	11/07/23 09:19	11/08/23 22:04	1
o-Terphenyl (Surr)	27	S1-	40 - 140	11/07/23 09:19	11/08/23 22:04	1
2-Fluorobiphenyl (Surr)	66		40 - 140	11/07/23 09:19	11/08/23 22:04	1

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.54**	**J**	5.2	0.39	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1
Arsenic	**4.1**		1.6	0.20	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1
Barium	**19**		1.0	0.12	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1
Beryllium	ND		0.52	0.026	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1
Cadmium	ND		0.52	0.027	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1
Chromium	**9.5**		1.0	0.14	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1
Lead	**7.0**		1.6	0.22	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1
Nickel	**7.4**		1.0	0.12	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1
Selenium	ND		1.6	0.30	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1
Silver	ND		1.6	0.17	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1
Thallium	ND		3.1	1.1	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1
Vanadium	**7.5**		1.6	0.28	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1
Zinc	**33**	**^3+**	3.1	0.81	mg/Kg	☼	11/06/23 13:39	11/07/23 11:38	1

Client Sample Results

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-15085-1

Client Sample ID: HYDLIFT-0608
Date Collected: 10/31/23 09:10
Date Received: 11/03/23 16:13

Lab Sample ID: 620-15085-1
Matrix: Solid
Percent Solids: 93.3

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.066	0.011	mg/Kg	☼	11/07/23 13:04	11/08/23 12:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	6.7		0.1	0.1	%			11/06/23 14:14	1
Percent Solids (EPA Moisture)	93.3		0.1	0.1	%			11/06/23 14:14	1

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-15085-1

Client Sample ID: HOLDTANK-0410

Date Collected: 11/01/23 14:45
Date Received: 11/03/23 16:13

Lab Sample ID: 620-15085-2

Matrix: Solid
Percent Solids: 91.2

Method: MA DEP MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	15		5.3	5.3	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1
C9-C12 Aliphatics (adjusted)	78		5.3	5.3	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1
C9-C10 Aromatics	76		5.3	5.3	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1
C5-C8 Aliphatics (unadjusted)	15		5.3	5.3	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1
C9-C12 Aliphatics (unadjusted)	160		5.3	5.3	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1
Benzene	ND		0.26	0.26	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1
Ethylbenzene	0.45		0.26	0.26	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1
Methyl tert-butyl ether	ND		0.053	0.053	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1
Naphthalene	6.4		1.1	1.1	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1
Toluene	0.28		0.26	0.26	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1
m,p-Xylene	1.2		0.53	0.53	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1
o-Xylene	1.2		0.26	0.26	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1
Xylenes, Total	2.4		0.79	0.79	mg/Kg	☼	11/09/23 14:14	11/09/23 20:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*95*		*70 - 130*	*11/09/23 14:14*	*11/09/23 20:40*	*1*
2,5-Dibromotoluene (pid)	*90*		*70 - 130*	*11/09/23 14:14*	*11/09/23 20:40*	*1*

Method: MA DEP MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	51		7.2	7.2	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
C19-C36 Aliphatics	380		7.2	7.2	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
C11-C22 Aromatics	310		7.2	7.2	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
C11-C22 Aromatics (Adjusted)	310		7.2	7.2	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Naphthalene	1.3		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
2-Methylnaphthalene	3.5		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Acenaphthylene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Acenaphthene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Fluorene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Phenanthrene	0.53		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Anthracene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Fluoranthene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Pyrene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Benzo[a]anthracene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Chrysene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Benzo[b]fluoranthene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Benzo[k]fluoranthene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Benzo[a]pyrene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Indeno[1,2,3-cd]pyrene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Dibenz(a,h)anthracene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1
Benzo[g,h,i]perylene	ND		0.36	0.36	mg/Kg	☼	11/07/23 09:19	11/08/23 22:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*35*	*S1-*	*40 - 140*	*11/07/23 09:19*	*11/08/23 22:31*	*1*
o-Terphenyl (Surr)	*59*		*40 - 140*	*11/07/23 09:19*	*11/08/23 22:31*	*1*
2-Fluorobiphenyl (Surr)	*132*		*40 - 140*	*11/07/23 09:19*	*11/08/23 22:31*	*1*

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	1.6	J	5.2	0.39	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1

Client Sample ID: HOLDTANK-0410

Date Collected: 11/01/23 14:45
Date Received: 11/03/23 16:13

Lab Sample ID: 620-15085-2

Matrix: Solid
Percent Solids: 91.2

Method: SW846 6010D - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.6		1.6	0.20	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1
Barium	49		1.0	0.12	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1
Beryllium	ND		0.52	0.026	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1
Cadmium	0.073	J	0.52	0.027	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1
Chromium	16		1.0	0.14	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1
Lead	14		1.6	0.22	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1
Nickel	9.6		1.0	0.12	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1
Selenium	ND		1.6	0.30	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1
Silver	ND		1.6	0.17	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1
Thallium	ND		3.1	1.1	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1
Vanadium	25		1.6	0.28	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1
Zinc	31	^3+	3.1	0.80	mg/Kg	☼	11/06/23 13:39	11/07/23 11:43	1

Method: SW846 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.013	J	0.067	0.011	mg/Kg	☼	11/07/23 13:09	11/08/23 12:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	8.8		0.1	0.1	%			11/06/23 14:14	1
Percent Solids (EPA Moisture)	91.2		0.1	0.1	%			11/06/23 14:14	1

Surrogate Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-15085-1

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		25DBTf1	25DBTp1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
620-15085-1	HYDLIFT-0608	23 S1-	18 S1-
620-15085-1 - RA	HYDLIFT-0608	7 S1-	6 S1-
620-15085-2	HOLDTANK-0410	95	90
LCS 620-28924/1-A	Lab Control Sample	98	98
LCSD 620-28924/2-A	Lab Control Sample Dup	96	96
MB 620-28924/3-A	Method Blank	89	92

Surrogate Legend

25DBTf = 2,5-Dibromotoluene (fid)
25DBTp = 2,5-Dibromotoluene (pid)

Method: 8082 - Polychlorinated Biphenyls (GC/ECD)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TCX1	TCX2	DCB1	DCB2
Lab Sample ID	Client Sample ID	(30-150)	(30-150)	(30-150)	(30-150)
620-15085-1	HYDLIFT-0608	79	91	116	100
LCS 620-28771/7-A	Lab Control Sample	86	87	128	103
LCSD 620-28771/8-A	Lab Control Sample Dup	85	87	135	111
MB 620-28771/1-A	Method Blank	70	72	111	92

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		1COD1	OTPH1	FBP1
Lab Sample ID	Client Sample ID	(40-140)	(40-140)	(40-140)
620-15085-1	HYDLIFT-0608	5 S1-	27 S1-	66
620-15085-2	HOLDTANK-0410	35 S1-	59	132
LCS 620-28761/2-B	Lab Control Sample	50	81	111
LCSD 620-28761/3-B	Lab Control Sample Dup	59	93	127
MB 620-28761/1-B	Method Blank	45	67	91

Surrogate Legend

1COD = 1-Chlorooctadecane (Surr)
OTPH = o-Terphenyl (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-28924/3-A
Matrix: Solid
Analysis Batch: 28871

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28924

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C5-C8 Aliphatics (adjusted)	ND		5.0	5.0	mg/Kg		11/09/23 14:14	11/09/23 19:29	1
C9-C12 Aliphatics (adjusted)	ND		5.0	5.0	mg/Kg		11/09/23 14:14	11/09/23 19:29	1
C9-C10 Aromatics	ND		5.0	5.0	mg/Kg		11/09/23 14:14	11/09/23 19:29	1
C5-C8 Aliphatics (unadjusted)	ND		5.0	5.0	mg/Kg		11/09/23 14:14	11/09/23 19:29	1
C9-C12 Aliphatics (unadjusted)	ND		5.0	5.0	mg/Kg		11/09/23 14:14	11/09/23 19:29	1
Benzene	ND		0.25	0.25	mg/Kg		11/09/23 14:14	11/09/23 19:29	1
Ethylbenzene	ND		0.25	0.25	mg/Kg		11/09/23 14:14	11/09/23 19:29	1
Methyl tert-butyl ether	ND		0.050	0.050	mg/Kg		11/09/23 14:14	11/09/23 19:29	1
Naphthalene	ND		1.0	1.0	mg/Kg		11/09/23 14:14	11/09/23 19:29	1
Toluene	ND		0.25	0.25	mg/Kg		11/09/23 14:14	11/09/23 19:29	1
m,p-Xylene	ND		0.50	0.50	mg/Kg		11/09/23 14:14	11/09/23 19:29	1
o-Xylene	ND		0.25	0.25	mg/Kg		11/09/23 14:14	11/09/23 19:29	1
Xylenes, Total	ND		0.75	0.75	mg/Kg		11/09/23 14:14	11/09/23 19:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,5-Dibromotoluene (fid)	*89*		*70 - 130*	*11/09/23 14:14*	*11/09/23 19:29*	*1*
2,5-Dibromotoluene (pid)	*92*		*70 - 130*	*11/09/23 14:14*	*11/09/23 19:29*	*1*

Lab Sample ID: LCS 620-28924/1-A
Matrix: Solid
Analysis Batch: 28871

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28924

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C9-C10 Aromatics	1.00	ND		mg/Kg		104	70 - 130
C5-C8 Aliphatics (unadjusted)	3.00	ND		mg/Kg		97	70 - 130
C9-C12 Aliphatics (unadjusted)	3.00	ND		mg/Kg		99	70 - 130
Benzene	1.00	1.01		mg/Kg		101	70 - 130
Ethylbenzene	1.00	1.04		mg/Kg		104	70 - 130
Methyl tert-butyl ether	1.00	1.02		mg/Kg		102	70 - 130
Naphthalene	1.00	1.01		mg/Kg		101	70 - 130
Toluene	1.00	1.03		mg/Kg		103	70 - 130
m,p-Xylene	2.00	2.10		mg/Kg		105	70 - 130
o-Xylene	1.00	1.04		mg/Kg		104	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*98*		*70 - 130*
2,5-Dibromotoluene (pid)	*98*		*70 - 130*

Lab Sample ID: LCSD 620-28924/2-A
Matrix: Solid
Analysis Batch: 28871

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28924

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C10 Aromatics	1.00	ND		mg/Kg		104	70 - 130	1	25
C5-C8 Aliphatics (unadjusted)	3.00	ND		mg/Kg		97	70 - 130	1	25
C9-C12 Aliphatics (unadjusted)	3.00	ND		mg/Kg		101	70 - 130	2	25
Benzene	1.00	1.02		mg/Kg		102	70 - 130	1	25
Ethylbenzene	1.00	1.04		mg/Kg		104	70 - 130	0	25

Method: MAVPH2.1 - Massachusetts - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-28924/2-A
Matrix: Solid
Analysis Batch: 28871

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28924

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methyl tert-butyl ether			1.00	1.01		mg/Kg		101	70 - 130	0	25
Naphthalene			1.00	1.04		mg/Kg		104	70 - 130	3	25
Toluene			1.00	1.02		mg/Kg		102	70 - 130	0	25
m,p-Xylene			2.00	2.10		mg/Kg		105	70 - 130	0	25
o-Xylene			1.00	1.04		mg/Kg		104	70 - 130	0	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,5-Dibromotoluene (fid)	*96*		*70 - 130*
2,5-Dibromotoluene (pid)	*96*		*70 - 130*

Method: 8082 - Polychlorinated Biphenyls (GC/ECD)

Lab Sample ID: MB 620-28771/1-A
Matrix: Solid
Analysis Batch: 28791

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28771

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		20	14	ug/Kg		11/07/23 13:04	11/09/23 01:02	1
PCB-1221	ND		20	5.9	ug/Kg		11/07/23 13:04	11/09/23 01:02	1
PCB-1232	ND		20	5.5	ug/Kg		11/07/23 13:04	11/09/23 01:02	1
PCB-1242	ND		20	3.2	ug/Kg		11/07/23 13:04	11/09/23 01:02	1
PCB-1248	ND		20	6.3	ug/Kg		11/07/23 13:04	11/09/23 01:02	1
PCB-1254	ND		20	16	ug/Kg		11/07/23 13:04	11/09/23 01:02	1
PCB-1262	ND		20	4.7	ug/Kg		11/07/23 13:04	11/09/23 01:02	1
PCB-1260	ND		20	4.3	ug/Kg		11/07/23 13:04	11/09/23 01:02	1
PCB-1268	ND		20	4.3	ug/Kg		11/07/23 13:04	11/09/23 01:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*70*		*30 - 150*	*11/07/23 13:04*	*11/09/23 01:02*	*1*
Tetrachloro-m-xylene	*72*		*30 - 150*	*11/07/23 13:04*	*11/09/23 01:02*	*1*
DCB Decachlorobiphenyl (Surr)	*111*		*30 - 150*	*11/07/23 13:04*	*11/09/23 01:02*	*1*
DCB Decachlorobiphenyl (Surr)	*92*		*30 - 150*	*11/07/23 13:04*	*11/09/23 01:02*	*1*

Lab Sample ID: LCS 620-28771/7-A
Matrix: Solid
Analysis Batch: 28791

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28771

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
PCB-1016			167	146		ug/Kg		87	40 - 140
PCB-1016			167	146		ug/Kg		87	40 - 140
PCB-1260			167	148		ug/Kg		89	40 - 140
PCB-1260			167	148		ug/Kg		89	40 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*86*		*30 - 150*
Tetrachloro-m-xylene	*87*		*30 - 150*
DCB Decachlorobiphenyl (Surr)	*128*		*30 - 150*
DCB Decachlorobiphenyl (Surr)	*103*		*30 - 150*

Method: 8082 - Polychlorinated Biphenyls (GC/ECD)

Lab Sample ID: LCSD 620-28771/8-A
Matrix: Solid
Analysis Batch: 28791

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28771

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
PCB-1016			167	152		ug/Kg		91	40 - 140	4	30
PCB-1016			167	152		ug/Kg		91	40 - 140	4	30
PCB-1260			167	160		ug/Kg		96	40 - 140	8	30
PCB-1260			167	159		ug/Kg		96	40 - 140	8	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*85*		*30 - 150*
Tetrachloro-m-xylene	*87*		*30 - 150*
DCB Decachlorobiphenyl (Surr)	*135*		*30 - 150*
DCB Decachlorobiphenyl (Surr)	*111*		*30 - 150*

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 620-28761/1-B
Matrix: Solid
Analysis Batch: 28787

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28761

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C18 Aliphatics	ND		6.7	6.7	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
C19-C36 Aliphatics	ND		6.7	6.7	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
C11-C22 Aromatics	ND		6.7	6.7	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
C11-C22 Aromatics (Adjusted)	ND		6.7	6.7	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Naphthalene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
2-Methylnaphthalene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Acenaphthylene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Acenaphthene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Fluorene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Phenanthrene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Anthracene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Fluoranthene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Pyrene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Benzo[a]anthracene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Chrysene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Benzo[b]fluoranthene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Benzo[k]fluoranthene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Benzo[a]pyrene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Indeno[1,2,3-cd]pyrene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Dibenz(a,h)anthracene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1
Benzo[g,h,i]perylene	ND		0.33	0.33	mg/Kg		11/07/23 09:19	11/08/23 20:16	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane (Surr)	*45*		*40 - 140*	*11/07/23 09:19*	*11/08/23 20:16*	*1*
o-Terphenyl (Surr)	*67*		*40 - 140*	*11/07/23 09:19*	*11/08/23 20:16*	*1*
2-Fluorobiphenyl (Surr)	*91*		*40 - 140*	*11/07/23 09:19*	*11/08/23 20:16*	*1*

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCS 620-28761/2-B
Matrix: Solid
Analysis Batch: 28787

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28761

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C9-C18 Aliphatics			8.00	ND		mg/Kg		45	40 - 140		
C19-C36 Aliphatics			10.7	8.72		mg/Kg		82	40 - 140		
C11-C22 Aromatics			22.7	20.7		mg/Kg		91	40 - 140		
Naphthalene			1.33	0.693		mg/Kg		52	40 - 140		
2-Methylnaphthalene			1.33	1.18		mg/Kg		88	40 - 140		
Acenaphthylene			1.33	0.877		mg/Kg		66	40 - 140		
Acenaphthene			1.33	0.895		mg/Kg		67	40 - 140		
Fluorene			1.33	0.706		mg/Kg		53	40 - 140		
Phenanthrene			1.33	0.900		mg/Kg		68	40 - 140		
Anthracene			1.33	0.794		mg/Kg		60	40 - 140		
Fluoranthene			1.33	1.12		mg/Kg		84	40 - 140		
Pyrene			1.33	1.20		mg/Kg		90	40 - 140		
Benzo[a]anthracene			1.33	0.878		mg/Kg		66	40 - 140		
Chrysene			1.33	1.24		mg/Kg		93	40 - 140		
Benzo[b]fluoranthene			1.33	0.924		mg/Kg		69	40 - 140		
Benzo[k]fluoranthene			1.33	1.31		mg/Kg		99	40 - 140		
Benzo[a]pyrene			1.33	1.13		mg/Kg		84	40 - 140		
Indeno[1,2,3-cd]pyrene			1.33	0.788		mg/Kg		59	40 - 140		
Dibenz(a,h)anthracene			1.33	1.11		mg/Kg		83	40 - 140		
Benzo[g,h,i]perylene			1.33	1.08		mg/Kg		81	40 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*50*		*40 - 140*
o-Terphenyl (Surr)	*81*		*40 - 140*
2-Fluorobiphenyl (Surr)	*111*		*40 - 140*

Lab Sample ID: LCSD 620-28761/3-B
Matrix: Solid
Analysis Batch: 28787

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28761

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C9-C18 Aliphatics			8.00	ND		mg/Kg		40	40 - 140	11	25
C19-C36 Aliphatics			10.7	7.93		mg/Kg		74	40 - 140	9	25
C11-C22 Aromatics			22.7	24.7		mg/Kg		109	40 - 140	17	25
Naphthalene			1.33	0.889		mg/Kg		67	40 - 140	25	25
2-Methylnaphthalene			1.33	1.38		mg/Kg		104	40 - 140	16	25
Acenaphthylene			1.33	1.05		mg/Kg		79	40 - 140	18	25
Acenaphthene			1.33	1.11		mg/Kg		83	40 - 140	21	25
Fluorene			1.33	0.866		mg/Kg		65	40 - 140	20	25
Phenanthrene			1.33	1.04		mg/Kg		78	40 - 140	15	25
Anthracene			1.33	0.960		mg/Kg		72	40 - 140	19	25
Fluoranthene			1.33	1.30		mg/Kg		97	40 - 140	15	25
Pyrene			1.33	1.34		mg/Kg		100	40 - 140	10	25
Benzo[a]anthracene			1.33	1.08		mg/Kg		81	40 - 140	21	25
Chrysene			1.33	1.34		mg/Kg		101	40 - 140	8	25
Benzo[b]fluoranthene			1.33	1.02		mg/Kg		77	40 - 140	10	25
Benzo[k]fluoranthene			1.33	1.52		mg/Kg		114	40 - 140	15	25
Benzo[a]pyrene			1.33	1.20		mg/Kg		90	40 - 140	6	25

Method: MAEPH2.1 - Massachusetts - Extractable Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: LCSD 620-28761/3-B
Matrix: Solid
Analysis Batch: 28787

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 28761

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Indeno[1,2,3-cd]pyrene			1.33	1.00		mg/Kg		75	40 - 140	24	25
Dibenz(a,h)anthracene			1.33	1.34		mg/Kg		101	40 - 140	19	25
Benzo[g,h,i]perylene			1.33	1.37		mg/Kg		103	40 - 140	24	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctadecane (Surr)	*59*		*40 - 140*
o-Terphenyl (Surr)	*93*		*40 - 140*
2-Fluorobiphenyl (Surr)	*127*		*40 - 140*

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 620-28725/1-A
Matrix: Solid
Analysis Batch: 28770

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28725

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		4.7	0.35	mg/Kg		11/06/23 13:39	11/07/23 10:56	1
Arsenic	ND		1.4	0.18	mg/Kg		11/06/23 13:39	11/07/23 10:56	1
Barium	ND		0.93	0.11	mg/Kg		11/06/23 13:39	11/07/23 10:56	1
Beryllium	ND		0.47	0.023	mg/Kg		11/06/23 13:39	11/07/23 10:56	1
Cadmium	ND		0.47	0.024	mg/Kg		11/06/23 13:39	11/07/23 10:56	1
Chromium	ND		0.93	0.12	mg/Kg		11/06/23 13:39	11/07/23 10:56	1
Lead	ND		1.4	0.20	mg/Kg		11/06/23 13:39	11/07/23 10:56	1
Nickel	ND		0.93	0.11	mg/Kg		11/06/23 13:39	11/07/23 10:56	1
Selenium	ND		1.4	0.27	mg/Kg		11/06/23 13:39	11/07/23 10:56	1
Silver	ND		1.4	0.15	mg/Kg		11/06/23 13:39	11/07/23 10:56	1
Thallium	ND		2.8	1.0	mg/Kg		11/06/23 13:39	11/07/23 10:56	1
Vanadium	ND		1.4	0.25	mg/Kg		11/06/23 13:39	11/07/23 10:56	1
Zinc	ND	^3+	2.8	0.72	mg/Kg		11/06/23 13:39	11/07/23 10:56	1

Lab Sample ID: LCSSRM 620-28725/2-A
Matrix: Solid
Analysis Batch: 28770

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28725

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits		
Antimony			270	124		mg/Kg		45.9	3.3 - 103.3		
Arsenic			218	168		mg/Kg		77.2	67.0 - 98.6		
Barium			388	366		mg/Kg		94.3	74.5 - 107.7		
Beryllium			165	153		mg/Kg		92.8	76.4 - 108.5		
Cadmium			118	102		mg/Kg		86.2	73.6 - 105.1		
Chromium			255	230		mg/Kg		90.0	74.1 - 107.8		
Lead			155	139		mg/Kg		89.8	76.8 - 110.3		
Nickel			120	106		mg/Kg		88.6	74.3 - 105.8		

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCSSRM 620-28725/2-A
Matrix: Solid
Analysis Batch: 28770

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28725

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Selenium	107	90.0		mg/Kg		84.1	70.9 - 109.3
Silver	51.0	43.3		mg/Kg		85.0	73.7 - 111.8
Thallium	188	166		mg/Kg		88.3	73.9 - 108.5
Vanadium	133	122		mg/Kg		91.8	69.1 - 108.3
Zinc	406	357	^3+	mg/Kg		87.8	72.9 - 109.1

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 620-28772/1-A
Matrix: Solid
Analysis Batch: 28817

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 28772

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.064	0.011	mg/Kg		11/07/23 13:04	11/08/23 11:35	1

Lab Sample ID: LCSSRM 620-28772/2-A ^10
Matrix: Solid
Analysis Batch: 28817

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28772

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	17.1	9.56		mg/Kg		55.9	33.1 - 86.5

QC Association Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-15085-1

GC VOA

Analysis Batch: 28871

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-1	HYDLIFT-0608	Total/NA	Solid	MAVPH2.1	28924
620-15085-1 - RA	HYDLIFT-0608	Total/NA	Solid	MAVPH2.1	28924
620-15085-2	HOLDTANK-0410	Total/NA	Solid	MAVPH2.1	28924
MB 620-28924/3-A	Method Blank	Total/NA	Solid	MAVPH2.1	28924
LCS 620-28924/1-A	Lab Control Sample	Total/NA	Solid	MAVPH2.1	28924
LCSD 620-28924/2-A	Lab Control Sample Dup	Total/NA	Solid	MAVPH2.1	28924

Prep Batch: 28924

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-1 - RA	HYDLIFT-0608	Total/NA	Solid	5035	
620-15085-1	HYDLIFT-0608	Total/NA	Solid	5035	
620-15085-2	HOLDTANK-0410	Total/NA	Solid	5035	
MB 620-28924/3-A	Method Blank	Total/NA	Solid	5035	
LCS 620-28924/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 620-28924/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

GC Semi VOA

Prep Batch: 28761

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-1	HYDLIFT-0608	Total/NA	Solid	3546	
620-15085-2	HOLDTANK-0410	Total/NA	Solid	3546	
MB 620-28761/1-B	Method Blank	Total/NA	Solid	3546	
LCS 620-28761/2-B	Lab Control Sample	Total/NA	Solid	3546	
LCSD 620-28761/3-B	Lab Control Sample Dup	Total/NA	Solid	3546	

Prep Batch: 28771

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-1	HYDLIFT-0608	Total/NA	Solid	3546	
MB 620-28771/1-A	Method Blank	Total/NA	Solid	3546	
LCS 620-28771/7-A	Lab Control Sample	Total/NA	Solid	3546	
LCSD 620-28771/8-A	Lab Control Sample Dup	Total/NA	Solid	3546	

Analysis Batch: 28787

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-1	HYDLIFT-0608	Total/NA	Solid	MAEPH2.1	28809
620-15085-2	HOLDTANK-0410	Total/NA	Solid	MAEPH2.1	28809
MB 620-28761/1-B	Method Blank	Total/NA	Solid	MAEPH2.1	28809
LCS 620-28761/2-B	Lab Control Sample	Total/NA	Solid	MAEPH2.1	28809
LCSD 620-28761/3-B	Lab Control Sample Dup	Total/NA	Solid	MAEPH2.1	28809

Analysis Batch: 28791

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-1	HYDLIFT-0608	Total/NA	Solid	8082	28771
MB 620-28771/1-A	Method Blank	Total/NA	Solid	8082	28771
LCS 620-28771/7-A	Lab Control Sample	Total/NA	Solid	8082	28771
LCSD 620-28771/8-A	Lab Control Sample Dup	Total/NA	Solid	8082	28771

Fraction Batch: 28809

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-1	HYDLIFT-0608	Total/NA	Solid	MA EPH Frac	28761

GC Semi VOA (Continued)

Fraction Batch: 28809 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-2	HOLDTANK-0410	Total/NA	Solid	MA EPH Frac	28761
MB 620-28761/1-B	Method Blank	Total/NA	Solid	MA EPH Frac	28761
LCS 620-28761/2-B	Lab Control Sample	Total/NA	Solid	MA EPH Frac	28761
LCSD 620-28761/3-B	Lab Control Sample Dup	Total/NA	Solid	MA EPH Frac	28761

Metals

Prep Batch: 28725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-1	HYDLIFT-0608	Total/NA	Solid	3050B	
620-15085-2	HOLDTANK-0410	Total/NA	Solid	3050B	
MB 620-28725/1-A	Method Blank	Total/NA	Solid	3050B	
LCSSRM 620-28725/2-A	Lab Control Sample	Total/NA	Solid	3050B	

Analysis Batch: 28770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-1	HYDLIFT-0608	Total/NA	Solid	6010D	28725
620-15085-2	HOLDTANK-0410	Total/NA	Solid	6010D	28725
MB 620-28725/1-A	Method Blank	Total/NA	Solid	6010D	28725
LCSSRM 620-28725/2-A	Lab Control Sample	Total/NA	Solid	6010D	28725

Prep Batch: 28772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-1	HYDLIFT-0608	Total/NA	Solid	7471B	
620-15085-2	HOLDTANK-0410	Total/NA	Solid	7471B	
MB 620-28772/1-A	Method Blank	Total/NA	Solid	7471B	
LCSSRM 620-28772/2-A ^10	Lab Control Sample	Total/NA	Solid	7471B	

Analysis Batch: 28817

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-1	HYDLIFT-0608	Total/NA	Solid	7471A	28772
620-15085-2	HOLDTANK-0410	Total/NA	Solid	7471A	28772
MB 620-28772/1-A	Method Blank	Total/NA	Solid	7471A	28772
LCSSRM 620-28772/2-A ^10	Lab Control Sample	Total/NA	Solid	7471A	28772

General Chemistry

Analysis Batch: 28726

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-15085-1	HYDLIFT-0608	Total/NA	Solid	Moisture	
620-15085-2	HOLDTANK-0410	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-15085-1

Client Sample ID: HYDLIFT-0608
Date Collected: 10/31/23 09:10
Date Received: 11/03/23 16:13

Lab Sample ID: 620-15085-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	28726	ODO	EET NE	11/06/23 14:14

Client Sample ID: HYDLIFT-0608
Date Collected: 10/31/23 09:10
Date Received: 11/03/23 16:13

Lab Sample ID: 620-15085-1
Matrix: Solid
Percent Solids: 93.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			28924	BMH	EET NE	11/09/23 14:14
Total/NA	Analysis	MAVPH2.1		1	28871	BMH	EET NE	11/09/23 20:04
Total/NA	Prep	5035	RA		28924	BMH	EET NE	11/09/23 14:14
Total/NA	Analysis	MAVPH2.1	RA	1	28871	BMH	EET NE	11/10/23 14:05
Total/NA	Prep	3546			28771	JAC	EET NE	11/07/23 13:04
Total/NA	Analysis	8082		1	28791	SFL	EET NE	11/09/23 02:11
Total/NA	Prep	3546			28761	JAC	EET NE	11/07/23 09:19
Total/NA	Fraction	MA EPH Frac			28809	JJB	EET NE	11/08/23 10:17
Total/NA	Analysis	MAEPH2.1		1	28787	JS	EET NE	11/08/23 22:04
Total/NA	Prep	3050B			28725	ODO	EET NE	11/06/23 13:39
Total/NA	Analysis	6010D		1	28770	PRB	EET NE	11/07/23 11:38
Total/NA	Prep	7471B			28772	ODO	EET NE	11/07/23 13:04
Total/NA	Analysis	7471A		1	28817	PRB	EET NE	11/08/23 12:07

Client Sample ID: HOLDTANK-0410
Date Collected: 11/01/23 14:45
Date Received: 11/03/23 16:13

Lab Sample ID: 620-15085-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	28726	ODO	EET NE	11/06/23 14:14

Client Sample ID: HOLDTANK-0410
Date Collected: 11/01/23 14:45
Date Received: 11/03/23 16:13

Lab Sample ID: 620-15085-2
Matrix: Solid
Percent Solids: 91.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			28924	BMH	EET NE	11/09/23 14:14
Total/NA	Analysis	MAVPH2.1		1	28871	BMH	EET NE	11/09/23 20:40
Total/NA	Prep	3546			28761	JAC	EET NE	11/07/23 09:19
Total/NA	Fraction	MA EPH Frac			28809	JJB	EET NE	11/08/23 10:17
Total/NA	Analysis	MAEPH2.1		1	28787	JS	EET NE	11/08/23 22:31
Total/NA	Prep	3050B			28725	ODO	EET NE	11/06/23 13:39
Total/NA	Analysis	6010D		1	28770	PRB	EET NE	11/07/23 11:43
Total/NA	Prep	7471B			28772	ODO	EET NE	11/07/23 13:09
Total/NA	Analysis	7471A		1	28817	PRB	EET NE	11/08/23 12:09

Laboratory References:
EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-15085-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Massachusetts	State	M-RI907	06-30-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6010D	3050B	Solid	Antimony
6010D	3050B	Solid	Arsenic
6010D	3050B	Solid	Barium
6010D	3050B	Solid	Beryllium
6010D	3050B	Solid	Cadmium
6010D	3050B	Solid	Chromium
6010D	3050B	Solid	Lead
6010D	3050B	Solid	Nickel
6010D	3050B	Solid	Selenium
6010D	3050B	Solid	Silver
6010D	3050B	Solid	Thallium
6010D	3050B	Solid	Vanadium
6010D	3050B	Solid	Zinc
7471A	7471B	Solid	Mercury
8082	3546	Solid	PCB-1016
8082	3546	Solid	PCB-1221
8082	3546	Solid	PCB-1232
8082	3546	Solid	PCB-1242
8082	3546	Solid	PCB-1248
8082	3546	Solid	PCB-1254
8082	3546	Solid	PCB-1260
8082	3546	Solid	PCB-1262
8082	3546	Solid	PCB-1268
MAEPH2.1	3546	Solid	2-Methylnaphthalene
MAEPH2.1	3546	Solid	Acenaphthene
MAEPH2.1	3546	Solid	Acenaphthylene
MAEPH2.1	3546	Solid	Anthracene
MAEPH2.1	3546	Solid	Benzo[a]anthracene
MAEPH2.1	3546	Solid	Benzo[a]pyrene
MAEPH2.1	3546	Solid	Benzo[b]fluoranthene
MAEPH2.1	3546	Solid	Benzo[g,h,i]perylene
MAEPH2.1	3546	Solid	Benzo[k]fluoranthene
MAEPH2.1	3546	Solid	C11-C22 Aromatics
MAEPH2.1	3546	Solid	C11-C22 Aromatics (Adjusted)
MAEPH2.1	3546	Solid	C19-C36 Aliphatics
MAEPH2.1	3546	Solid	C9-C18 Aliphatics
MAEPH2.1	3546	Solid	Chrysene
MAEPH2.1	3546	Solid	Dibenz(a,h)anthracene
MAEPH2.1	3546	Solid	Fluoranthene
MAEPH2.1	3546	Solid	Fluorene
MAEPH2.1	3546	Solid	Indeno[1,2,3-cd]pyrene
MAEPH2.1	3546	Solid	Naphthalene
MAEPH2.1	3546	Solid	Phenanthrene
MAEPH2.1	3546	Solid	Pyrene
MAVPH2.1	5035	Solid	Benzene

Accreditation/Certification Summary

Client: Nobis Engineering, Inc. Job ID: 620-15085-1
Project/Site: Former L&M - Lunenburg MA

Laboratory: Eurofins New England (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
MAVPH2.1	5035	Solid	C5-C8 Aliphatics (adjusted)
MAVPH2.1	5035	Solid	C5-C8 Aliphatics (unadjusted)
MAVPH2.1	5035	Solid	C9-C10 Aromatics
MAVPH2.1	5035	Solid	C9-C12 Aliphatics (adjusted)
MAVPH2.1	5035	Solid	C9-C12 Aliphatics (unadjusted)
MAVPH2.1	5035	Solid	Ethylbenzene
MAVPH2.1	5035	Solid	m,p-Xylene
MAVPH2.1	5035	Solid	Methyl tert-butyl ether
MAVPH2.1	5035	Solid	Naphthalene
MAVPH2.1	5035	Solid	o-Xylene
MAVPH2.1	5035	Solid	Toluene
MAVPH2.1	5035	Solid	Xylenes, Total
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

Method Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-15085-1

Method	Method Description	Protocol	Laboratory
MAVPH2.1	Massachusetts - Volatile Petroleum Hydrocarbons (GC)	MA DEP	EET NE
8082	Polychlorinated Biphenyls (GC/ECD)	MA DEP	EET NE
MAEPH2.1	Massachusetts - Extractable Petroleum Hydrocarbons (GC)	MA DEP	EET NE
6010D	Metals (ICP)	SW846	EET NE
7471A	Mercury (CVAA)	SW846	EET NE
Moisture	Percent Moisture	EPA	EET NE
3050B	Preparation, Metals	SW846	EET NE
3546	Microwave Extraction	SW846	EET NE
5035	Closed System Purge and Trap	SW846	EET NE
7471B	Preparation, Mercury	SW846	EET NE
MA EPH Frac	Massachusetts - Extractable Petroleum Hydrocarbon Fractionation	MA DEP	EET NE

Protocol References:

EPA = US Environmental Protection Agency

MA DEP = Massachusetts Department Of Environmental Protection

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET NE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

Sample Summary

Client: Nobis Engineering, Inc.
Project/Site: Former L&M - Lunenburg MA

Job ID: 620-15085-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
620-15085-1	HYDLIFT-0608	Solid	10/31/23 09:10	11/03/23 16:13
620-15085-2	HOLDTANK-0410	Solid	11/01/23 14:45	11/03/23 16:13

620-15085 Chain of Custody

15085

Chain of Custody Record

eurofins | Environment Testing

Client Information	Sampler: P. Moran	Lab PM	Carrier Tracking No(s)	COC No: 620-12716-1718 1
Client Contact: ~~Stephanie Stone~~ Adam Roy	Phone	E-Mail	State of Origin: MA	Page: Page 1 of 4
Company: Nobis Engineering, Inc	PWSID			Job #:

Address: 585 Middlesex Street	Due Date Requested:	
City: Lowell	TAT Requested (days): standard	
State, Zip: MA, 01851	Compliance Project: Δ Yes Δ No	
Phone	PO #:	
Email: ~~sstone@nobis-group.com~~ aroy@nobis-group.com	WO #:	
Project Name: S00001 005	Project #:	
Site: Former L&M	SSOW#:	

Analysis Requested

Preservation Codes:

A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Y - Trizma; Z - other (specify)

Other:

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	VPH	EPH	MCP Metals	PCBs												Total Number of containers	Special Instructions/Note:
	Preservation Code:					N	N	F	I	I	*													
1	HYDLIFT-0608	10/31/23	0910	C	Solid	N	N	X	X	X	X												4	
2	HOLDTANK-0410	11/1/23	1445	C	Solid	N	N	X	X	X													3	
					Solid																			
					Solid																			
					Solid																			
					Solid																			
					Solid																			
					Solid																			
					Solid																			
					Solid																			
					Water																			

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested. I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: Email EDD to aroy@nobis-group.com

Empty Kit Relinquished by	Date	Time	Method of Shipment:

Relinquished by:	Date/Time: 11/3/23 11:53	Company	Received by:	Date/Time: 11/3/23 1153	Company: EA
Relinquished by:	Date/Time: 11/3/23 16:13	Company: EA	Received by:	Date/Time: 11/3/23 16:13	Company: Eurofins
Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company

Custody Seals Intact. Δ Yes Δ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks: 3.8-0.2 4.0-0.6

Ver: 06/08/2021

Page 27 of 28

11/14/2023

Login Sample Receipt Checklist

Client: Nobis Engineering, Inc.

Job Number: 620-15085-1

Login Number: 15085
List Number: 1
Creator: Makhoul, Elie

List Source: Eurofins New England

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX F

230165 Revised

The Commonwealth of Massachusetts
Department of Fire Services – Office of the State Fire Marshal

RECEIPT OF DISPOSAL OF UNDERGROUND STEEL STORAGE TANK FORMERLY CONTAINING FLAMMABLE LIQUIDS

NAME AND ADDRESS OF APPROVED TANK YARD: Allied Recycling Center, Inc.
1901 Main Street
Walpole, MA 02081

Approved Tank Yard Number: 0015

Tank Yard Ledger Number (527 CMR 1.00:66.21.7.8.2): 2023 0067

I certify under penalty of law that I have personally examined the underground steel storage tank delivered to this "approved tank yard" by (firm, corporation or partnership) Strategic Environmental and accepted same in conformance with 527 CMR 1.00:66.21.7.7 Provisions for Approving Underground Steel Storage Tank Dismantling Yards. A valid permit was issued by the head of the LOCAL fire department FDID# 27162 to transport this tank to this yard.

Name and official title of approved tank yard owner or owners authorized representative:

Signature: Molly E. Title: Scale Date signed: 5/26/2023

TANK DATA:	TANK REMOVED FROM:
Gallons: 10,000	No. and Street: 925 Massachusetts Ave
Previous contents: Gasoline	City and Town: Lunenburg, MA
Diameter:	Fire Dept. Permit #: 27162
Length:	Notes:
Date Received: 5/26/2023	
Serial # (if available):	
Tank I.D. # (Form FP-290):	

EACH TANK MUST HAVE A RECEIPT OF DISPOSAL

Owner/Operator is responsible for notifying the Department of Environmental Protection:

Department of Environmental Protection
Bureau of Waste Prevention - UST Program
Boston, MA 02112

This signed receipt of disposal must be returned to the head of the local fire department.

Form FP-291 (Rev. 1.2018)

23-0163

The Commonwealth of Massachusetts
Department of Fire Services – Office of the State Fire Marshal

RECEIPT OF DISPOSAL OF UNDERGROUND STEEL STORAGE TANK FORMERLY CONTAINING FLAMMABLE LIQUIDS

NAME AND ADDRESS OF APPROVED TANK YARD: Allied Recycling Center, Inc.
1901 Main Street
Walpole, MA 02081

Approved Tank Yard Number: 0015

Tank Yard Ledger Number (527 CMR 1.00:66.21.7.8.2): 2023 0068

I certify under penalty of law that I have personally examined the underground steel storage tank delivered to this "approved tank yard" by (firm, corporation or partnership) Strategic Environmental **and accepted same in conformance with 527 CMR 1.00:66.21.7.7 Provisions for Approving Underground Steel Storage Tank Dismantling Yards. A valid permit was issued by the head of the LOCAL fire department FDID#** 27162 **to transport this tank to this yard.**

Name and official title of approved tank yard owner or owners authorized representative:

Signature : [signature] **Title :** Scale **Date signed:** 5/26/2023

TANK DATA:	**TANK REMOVED FROM:**
Gallons: 10,000	**No. and Street:** 925 Massachusetts Ave
Previous contents: Gasoline	**City and Town:** Lunenburg, MA
Diameter:	**Fire Dept. Permit #:** 27162
Length:	**Notes:**
Date Received: 5/26/2023	
Serial # (If available):	
Tank I.D. # (Form FP-290):	

EACH TANK MUST HAVE A RECEIPT OF DISPOSAL

Owner/Operator is responsible for notifying the Department of Environmental Protection:

Department of Environmental Protection
Bureau of Waste Prevention - UST Program
Boston, MA 02112

This signed receipt of disposal must be returned to the head of the local fire department.

23-0166

The Commonwealth of Massachusetts
Department of Fire Services – Office of the State Fire Marshal

RECEIPT OF DISPOSAL OF UNDERGROUND STEEL STORAGE TANK FORMERLY CONTAINING FLAMMABLE LIQUIDS

NAME AND ADDRESS OF APPROVED TANK YARD: Allied Recycling Center, Inc.
1901 Main Street
Walpole, MA 02081

Approved Tank Yard Number: 0015

Tank Yard Ledger Number (527 CMR 1.00:66.21.7.8.2): 20230069

I certify under penalty of law that I have personally examined the underground steel storage tank delivered to this "approved tank yard" by (firm, corporation or partnership) Strategic Environmental and accepted same in conformance with 527 CMR 1.00:66.21.7.7 Provisions for Approving Underground Steel Storage Tank Dismantling Yards. A valid permit was issued by the head of the LOCAL fire department FDID# 27162 to transport this tank to this yard.

Name and official title of approved tank yard owner or owners authorized representative:

Signature : Molly C. Title : Scale Date signed: 5/26/2023

TANK DATA:	TANK REMOVED FROM:
Gallons: 10,000	No. and Street: 925 Massachusetts Ave
Previous contents: Gasoline	City and Town: Lunenburg, MA
Diameter:	Fire Dept. Permit #: 27162
Length:	Notes:
Date Received:	
Serial # (if available):	
Tank I.D. # (Form FP-290):	

EACH TANK MUST HAVE A RECEIPT OF DISPOSAL

Owner/Operator is responsible for notifying the Department of Environmental Protection:

Department of Environmental Protection
Bureau of Waste Prevention - UST Program
Boston, MA 02112

This signed receipt of disposal must be returned to the head of the local fire department.

The Commonwealth of Massachusetts
Department of Fire Services – Office of the State Fire Marshal

RECEIPT OF DISPOSAL OF UNDERGROUND STEEL STORAGE TANK FORMERLY CONTAINING FLAMMABLE LIQUIDS

NAME AND ADDRESS OF APPROVED TANK YARD: Allied Recycling Center, Inc.
1901 Main Street
Walpole, MA 02081

Approved Tank Yard Number: 0015

Tank Yard Ledger Number (527 CMR 1.00:66.21.7.8.2): 2023 0072

I certify under penalty of law that I have personally examined the underground steel storage tank delivered to this "approved tank yard" by (firm, corporation or partnership) Strategic Env. and accepted same in conformance with 527 CMR 1.00:66.21.7.7 Provisions for Approving Underground Steel Storage Tank Dismantling Yards. A valid permit was issued by the head of the LOCAL fire department FDID# 27162 to transport this tank to this yard.

Name and official title of approved tank yard owner or owners authorized representative:

Signature : [signature] Title : Scale Date signed: 5/31/2023

TANK DATA:	TANK REMOVED FROM:
Gallons: 500	No. and Street: 935 Mass. Ave.
Previous contents: Heating oil	City and Town: Lunenburg, MA
Diameter: 48"	Fire Dept. Permit #: 27162
Length: 5' 5"	Notes:
Date Received: 5/31/2023	
Serial # (if available):	
Tank I.D. # (Form FP-290):	

EACH TANK MUST HAVE A RECEIPT OF DISPOSAL

Owner/Operator is responsible for notifying the Department of Environmental Protection:

Department of Environmental Protection
Bureau of Waste Prevention - UST Program
Boston, MA 02112

This signed receipt of disposal must be returned to the head of the local fire department.

Make application to local Fire Department.
Fire Department retains original application and issues duplicate as Permit.

Commonwealth of Massachusetts

Department of Fire Services - Office of the State Fire Marshal

APPLICATION and PERMIT

Fee: 0.00

for storage tank removal and transportation to approved tank disposal yard in accordance with the provisions of M.G.L. Chapter 148, Section 38A, 527 CMR 9.00, application is hereby made by:

Tank Owner

Tank Owner Name (please print) TOWN OF LUNENBURG X _____ (Signature (if applying for permit))

Address 925 MASSACHUSETTS AVE (Street) LUNENBURG (City) MA (State) 01462 (Zip)

Removal Contractor

Company Name Strategic Environmental Services (Print)

Address 352 Putnam Hill Rd, Sutton, MA 01590 (Print)

Signature (if applying for permit)

☐ IFCI* Certified Other _____

Containment Assessment

Co. or Individual Nobis Corp (Print)

Address 18 Chenell Dr, Concord, NH 03301 (Print)

Signature (if applying for permit)

☐ IFCI* Certified ☐ LSP # _____ Other _____

Tank Information

Tank Location 925 MASSACHUSETTS AVE (Street Address) LUNENBURG (City)

Tank Capacity (gallons) 500 Substance Last Stored Heating Oil

Tank Dimensions (diameter x length) 48" x 5'5"

Remarks: Rough Dimensions. Tanks assumed to be steel.

Disposal Information

Firm transporting waste Strategic Environmental Services State Lic. # MAC300102423

Hazardous waste manifest # _____ E.P.A. # _____

Approved tank disposal yard Allied Recylcing Center Tank yard # 015

Type of inert gas Dry Ice Tank yard address 1901 Main St, Walpole, MA

Approvals

City or Town Lunenburg FDID# 27162 Permit# 23LUN-5.UR-PM

Date of issue 05/30/2023 Date of expiration _____

Dig safe approval number: 20231905183 Dig Safe Toll Free Tel. Number - 800-322-4844

Signature / Title of Officer granting permit

After removal(s) ("Consumptive Use" fuel oil tanks exempted) send Form FP-290R signed by Local Fire Dept. to UST Regulatory Compliance Unit, Department of Fire Services, P.O. Box 1025, State Road, Stow, MA 01775.

8478

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number: MAD981203177
2. Page 1 of: 1
3. Emergency Response Phone: 800-535-5053
4. Waste Tracking Number: 23-0165-01

5. Generator's Name and Mailing Address
Former L+M Service Center
925 Massachusetts Ave.
Lunenburg Mass: 01462
Generator's Phone:

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name: Strategic Environmental Service Inc.
U.S. EPA ID Number: MAG300102423

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
NRC Environmental of Maine Inc.
106 main St. South Portland ME. 04106
Facility's Phone: 207-799-0850
U.S. EPA ID Number: MED019051069

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non-RCRA None-D.O.T Regulated material	001	CM	15	T	
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information
Roll off truck #215
dumpster # BX30-0389
K23986382SAM

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Caitlin Odell
Signature: Caitlin Odell
Month: 11 Day: 14 Year: 23

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

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Kevin Pieper
Signature: Kevin Pieper
Month: 11 Day: 14 Year: 23

Transporter 2 Printed/Typed Name
Signature
Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

17c. Signature of Alternate Facility (or Generator)
Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name
Signature
Month: 11 Day: 14 Year: 23

GENERATOR — INT'L — TRANSPORTER — DESIGNATED FACILITY

169-BLC-O 5 11977 (Rev. 9/09)

DESIGNATED FACILITY TO GENERATOR

18102183

90796187 23-0165-NOR-01 3733149

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
MAD981203177	1	800-535-5053	23-0165-NOR-01

GENERATOR

5. Generator's Name and Mailing Address
Former L&M Service Center
925 Massachusetts Avenue
Lunenburg MA 01462
Att: Heather Lemieux
Generator's Phone: 978 582-4130
Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name: Strategic Environmental Services, Inc.
U.S. EPA ID Number: MAC300102423

7. Transporter 2 Company Name: Tradebe Transportation LLC
U.S. EPA ID Number: CTD021816829

8. Designated Facility Name and Site Address
Norlite, LLC
628 South Saratoga Street
Cohoes NY 12047
Facility's Phone: 518 235 0030
U.S. EPA ID Number: NYD080469935

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
X	1UN1203, Gasoline 3, PGII	002	TP	x400	G	
	2.					
	3.					
	4.					

13. Special Handling Instructions and Additional Information
1)(L) (Gasoline, Water for Reclamation); RCRA exempt per 40 CFR § 261.2(c)(2)(ii) OSCP Fuel exemption; Tradebe Approval: 1000252749 // (_____x55) ERG#128 PM: T. Santa Fe, SES# 23-0165

ER Contact: InfoTrac, Inc.CN#110775 800-535-5053Job# 23-0165

14. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: x Chris Ruhl - Facilities
Signature: x
Month 08 Day 04 Year 23

INT'L

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

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Francis P Amero SR
Signature:
Month 08 Day 04 Year 23

Transporter 2 Printed/Typed Name: Michael Bronson
Signature:
Month 8 Day 10 Year 23

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

17c. Signature of Alternate Facility (or Generator)
Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Jennifer Bushey
Signature:
Month 08 Day 14 Year 23

169-BLC-O 5 11977 (Rev. 9/09)

DESIGNATED FACILITY TO GENERATOR

Tradebe Environmental Services, LLC

1433 E 83rd Ave, Suite 200,
Merrillville, IN 46410
www.tradebeusa.com

CERTIFICATE OF WASTE MANAGEMENT

To whom this may concern

This certificate is to verify that the waste described below, is handled in accordance with local, state, and federal regulations.

Name: Former L&M Service Center

Address: 925 Massachusetts Avenue Lunenburg , MA 01462

Sales Order: 3733149

Facility
TTR Northeast Cohoes 628 S. Saratoga Street Cohoes , NY 12047 EPA ID: NYD080469935

Profile	Manifest / Page / Line	Quantity	Hcode
1000252749	23-0165-NOR-01 00001/001	2.000 TP	H040

Robert O´Brien
Executive Vice President of Operations

NORLITE, LLC

Date:08/14/2023

On behalf of its subsidiary:TTR Northeast, LLC

RESPONSIBLE SM
RECYCLING
A commitment to our generators
our employees and our
community.

007378403GBF

90792694 016608463FLE 3710423

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	MAD981203177	1	800-535-5053	016608463 FLE

GENERATOR

5. Generator's Name and Mailing Address
Former L&M Service Center
925 Massachusetts Avenue
Lunenburg MA 01462
Att: Heather Lemieux
Generator's Phone: 978 582-4130

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name
Strategic Environmental Services, Inc.
U.S. EPA ID Number: MAC300102423

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Tradebe Treatment and Recycling Northeast
410 Shattuck Way
Newington NH 03801
Facility's Phone: 800 345 4525
U.S. EPA ID Number: NHD980521843

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. Non-RCRA, Non-DOT Regulated Material (Oily Solids)	003	DM	x300	P	MA01
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1)(S) Petroleum Impacted Absorbents, Debris// Tradebe Approval: 1000202805//
SO# 3710423 (1x55) PM T. Santa Fe
23-0165
Emergency Contact: InfoTrac, Inc.CN#110775 800-535-5053

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Heather Lemieux (Heather Lemieux) | Signature: Heather Lemieux | Month 7 | Day 26 | Year 23

INT'L

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

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Francis P Amero Sr | Signature: Francis P Amero Sr | Month 7 | Day 27 | Year 23

Transporter 2 Printed/Typed Name | Signature | Month | Day | Year

DESIGNATED FACILITY

18. Discrepancy

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

Manifest Reference Number:

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

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
~~H061~~ H141			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Carol MacDonald | Signature: Carol MacDonald | Month 7 | Day 28 | Year 23

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete.

DESIGNATED FACILITY TO EPA's e-MANIFEST SYSTEM

Tradebe Environmental Services, LLC

1433 E 83rd Ave, Suite 200,
Merrillville, IN 46410
www.tradebeusa.com

CERTIFICATE OF WASTE MANAGEMENT

To whom this may concern

This certificate is to verify that the waste described below, is handled in accordance with local, state, and federal regulations.

Name: Former L&M Service Center

Address: 925 Massachusetts Avenue Lunenburg , MA 01462

Sales Order: 3710423

Facility
TTR Northeast Newington 410 Shattuck Way Newington , NH 03801 EPA ID: NHD980521843

Profile	Manifest / Page / Line	Quantity	Hcode
1000202805	016608463FLE 00001/001	2.000 DM	N/A

Robert O´Brien
Executive Vice President of Operations

TRADEBE T&R OF NEWINGTON, LLC

Date:07/28/2023

On behalf of its subsidiary:TTR Northeast, LLC

RESPONSIBLE SM
RECYCLING
A commitment to our generators
our employees and our
community.

90794739 020790255JJK 3719983

3719983

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	MAD981203177	1	800-535-5053	020790255 JJK

GENERATOR

5. Generator's Name and Mailing Address — Att: Heather Lemieux
Former L&M Service Center
925 Massachusetts Avenue
Lunenburg MA 01462
Generator's Phone: 978 582-4130

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name: Strategic Environmental Services, Inc. — U.S. EPA ID Number: MAC300102423

7. Transporter 2 Company Name: Tradebe Transportation LLC — U.S. EPA ID Number: CTD021816889

8. Designated Facility Name and Site Address — U.S. EPA ID Number
Tradebe Treatment and Recycling of Bridgeport, LLC
50 Cross Street
Bridgeport CT 03310
Facility's Phone: 800 404 4408 — CTD002593887

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. NA1993, Combustible liquid, n.o.s. (Fuel oil, water) COMB, PGIII	001	TP	X125	G	CR02	MA98	
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
1)(L) Virgin Fuel Oil For Reclamation// RCRA exempt per 40 CFR § 261.4(b)(4)// Tradebe Approval: 1000392172// SO#_____ ERG#128 PM: T. Santa Fe SES# 23-0165

ER Contact: InfoTrac, Inc.CN#110775 800-535-5053

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable International and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: x Chris Ruth - Facilities — Signature: x — Month 08 Day 04 Year 23

INT'L

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

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Francis P Amero Sr — Signature: Francis P Amero Sr — Month 08 Day 04 Year 23

Transporter 2 Printed/Typed Name: Ashley Andrew — Signature: — Month 8 Day 5 Year 23

DESIGNATED FACILITY

18. Discrepancy

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

Manifest Reference Number:

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

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H141			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Annette Garcia — Signature: Annette Garcia — Month 08 Day 07 Year 23

Tradebe Environmental Services, LLC

1433 E 83rd Ave, Suite 200,
Merrillville, IN 46410
www.tradebeusa.com

CERTIFICATE OF WASTE MANAGEMENT

To whom this may concern

This certificate is to verify that the waste described below, is handled in accordance with local, state, and federal regulations.

Name: Former L&M Service Center

Address: 925 Massachusetts Avenue Lunenburg , MA 01462

Sales Order: 3719983

Facility
TTR Northeast Bridgeport 50 Cross Street Bridgeport , CT 06610 EPA ID: CTD002593887

Profile	Manifest / Page / Line	Quantity	Hcode
1000392172	020790255JJK 00001/001	1.000 TP	N/A

Robert O´Brien
Executive Vice President of Operations

TRADEBE T&R OF BRIDGEPORT, LLC

Date:08/07/2023

On behalf of its subsidiary:TTR Northeast, LLC

RESPONSIBLE SM
RECYCLING
A commitment to our generators
our employees and our
community.

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: MAD981203177
2. Page 1 of: 2
3. Emergency Response Phone: 508 757-7782
4. Manifest Tracking Number: 024331073 JJK

5. Generator's Name and Mailing Address: Former L&M Service Center, 925 Massachusetts Avenue, Lunenburg MA 01462 — Att: Heather Lemieux
Generator's Phone: 978 582-4130
Generator's Site Address (if different than mailing address):

6. Transporter 1 Company Name: Strategic Environmental Services, Inc.
U.S. EPA ID Number: MAC300102423

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address: NRC Environmental of Maine, Inc., 106 Main Street, South Portland ME 04106
Facility's Phone: 207 799-0850
U.S. EPA ID Number: MED019051069

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
	1 Non-RCRA, Non-DOT State Regulated Oily Material, MA01	007	DM	~~13830~~ P		MA01		
	2 State Regulated Oily Material For Recycle	001	DM	XX55	G	MA88		
	3 Non-RCRA, Non-DOT State Regulated Hydraulic Oil For Recycle	001	DM	XX40	G	MA88		
	4 Non-RCRA, Non-DOT State Regulated Oily Debris, MA01	003	DM	X450	P	MA01		

14. Special Handling Instructions and Additional Information
1)(SI) OWS Tank Bottoms, congealed fuel EMI Approval J23982858SPM, (7 x 55) 2)(L) USE EMI K23986385SPM / Motor Oil Passes Dexsil 1000 For Recycle / (1x55 DM) 3)(L) Passes Dexsil 1000, Non-PCB (1x55 DM) USE Maine Approval K23990847SPM, FORMID-825299-1 4)(S) Hydraulic oil impaced pads, debris, poly; US Ecology L23994033SPM ; Form ID 830320 (3x55) PM: T SantaFe SES 23-0165
ER Contact: Strategic Environmental Services, Inc. PH 508-757-7782

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: [illegible] Signature: Chris Ruth - Sec Director Month 12 Day 28 Year 23

INT'L

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

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Francis P Amero Sr Signature: Francis P Amero Sr. Month 12 Day 28 Year 23

Transporter 2 Printed/Typed Name: Signature: Month Day Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

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

18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H-141	H-141	H-141	H-141

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: DAVID Hart Signature: [signature] Month 12 Day 28 Year 23

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete.

DESIGNATED FACILITY TO EPA's e-MANIFEST SYSTEM

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)	21. Generator ID Number	22. Page	23. Manifest Tracking Number
	MAD981203177	2 of 2	024331073JJK

24. Generator's Name

Former L&M Service Center

25. Transporter _____ Company Name — U.S. EPA ID Number

26. Transporter _____ Company Name — U.S. EPA ID Number

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes		
	6. Non-RCRA, Non-DOT State Regulated Soil, MA99	001	DM	X300	P	MA99		

32. Special Handling Instructions and Additional Information

5)(S) Hydraulic Oil Impacted Soil Passes One Drop Rule, MA99; US Ecology ME: L23994034SPM Form ID 830373 (1x55)

GENERATOR

TRANSPORTER

33. Transporter _____ Acknowledgment of Receipt of Materials

Printed/Typed Name | Signature | Month | Day | Year

34. Transporter _____ Acknowledgment of Receipt of Materials

Printed/Typed Name | Signature | Month | Day | Year

DESIGNATED FACILITY

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

H-141

EPA Form 8700-22A (Rev. 12-17) Previous editions are obsolete.

DESIGNATED FACILITY TO EPA's e-MANIFEST SYSTEM

Ondrick Materials & Recycling, LLC

22 Industry Road, Chicopee, MA 01020

Ticket 394879

7/28/23 2:06 PM

Truck ID	STRATEGIC214	STRATEGIC214
Customer	2101	STRATEGIC ENVIRONMENTAL SE
Order	23-07-M-12337M	Former L&M Service Station, 925 M
P.O.	23-0165	
Product	GAS/OIL/PETROLEUM	
Site Addr.	Former L&M Service Station 925 Massachusetts Avenue Lunenburg, MA 01642	

Driver: _____

Customer: _____

Arrival Time: _____ **Depart Time:** _____

Gross	99520 Lb	
Tare	35000 Lb	*
Net	32.26 Ton	*

	Today	To Date
Loads	4	4
Qty	117.69	117.69

NOTICE TO PURCHASERS: The Purchaser, through their officer, principal, employee or agent, hereby acknowledges that in consideration of the purchase and loading of product from Ondrick Materials & Construction. LLC. hereafter referred to as Seller, the Purchaser agrees that SELLER'S LIABBILITY, IN TORT, IN NEGLIGENCE OR OTHERWISE SHALL BE LIMITED TO THE AMOUNT OF THE PURCHASE PRICE OF THE SELLER'S PRODUCT AND UNDER NO CIRCUMSTANCE SHALL SELLER BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES arising out of the fact that the vehicle loaded by the seller for the purchaser was loaded in excess of its permitted and certified capacity. Purchaser, through their officer, principal, employee or agent, further agrees in consideration of the purchase and loading of Seller's product, TO RELEASE, REMISE AND FOREVER DISCHARGE THE SELLER, ITS REPRESENTATIVES, SUCCESSORS AND ASSIGNS OF AND FROM ANY AND ALL DEBTS, DEMANDS. ACTIONS, CAUSES OF ACTION, SUITS, PRECEEDINGS, AGREEMENTS, CONTRACTS, JUDGEMENTS, DAMAGES, EXECUTIONS, CLAIMS AND LIABILITIES WHATSOEVER OF EVERY NATURE AND NAME, WHETHER KNOWN OR UNKNOWN, WHETHER IN LAW OR IN EQUITY, WHICH THE PURCHASER HAS OR MAY HAVE FOR ANY REASON, MATTER OR CAUSE, AND PURCHASER FURTHER INDEMNIFIES AND HOLDS SELLER HARMLESS FROM ANY LOSS, COST, EXPENSE, DAMAGE, OR ATTORNEY'S FEES ARISING OUT OF THE SELLER'S LOADING OF ANY VEHICLE FOR THE PURCHASER IN EXCESS OF ITS PERMITTED AND CERTIFIED CAPACITY

CAUTION: HOT MATERIAL (275°F-325°F) Avoid contact with skin & eyes - Thermal Burns could result. Fumes count cause nausea or irritation. Seek proper medical assistance in all emergencies. Consult Material Safety Data Sheet for more information. KNOW & RESPECT THE PRODUCTS YOU HANDLE.

Ondrick Materials & Recycling, LLC

22 Industry Road, Chicopee, MA 01020

Ticket 394841
7/28/23 9:20 AM

Truck ID	STRATEGIC214	STRATEGIC214
Customer	2101	STRATEGIC ENVIRONMENTAL SE
Order	23-07-M-12337M	Former L&M Service Station, 925 M
P.O.	23-0165	
Product	GAS/OIL/PETROLEUM	
Site Addr.	Former L&M Service Station 925 Massachusetts Avenue Lunenburg, MA 01642	

Driver: _____

Customer: _____

Arrival Time: _____ **Depart Time:** _____

Gross	85300 Lb	
Tare	35000 Lb	*
Net	25.15 Ton	

	Today	To Date
Loads	2	2
Qty	59.74	59.74

NOTICE TO PURCHASERS: The Purchaser, through their officer, principal, employee or agent, hereby acknowledges that in consideration of the purchase and loading of product from Ondrick Materials & Construction, LLC, hereafter referred to as Seller, the Purchaser agrees that SELLER'S LIABBILITY, IN TORT, IN NEGLIGENCE OR OTHERWISE SHALL BE LIMITED TO THE AMOUNT OF THE PURCHASE PRICE OF THE SELLER'S PRODUCT AND UNDER NO CIRCUMSTANCE SHALL SELLER BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES arising out of the fact that the vehicle loaded by the seller for the purchaser was loaded in excess of its permitted and certified capacity. Purchaser, through their officer, principal, employee or agent, further agrees in consideration of the purchase and loading of Seller's product, TO RELEASE, REMISE AND FOREVER DISCHARGE THE SELLER, ITS REPRESENTATIVES, SUCCESSORS AND ASSIGNS OF AND FROM ANY AND ALL DEBTS, DEMANDS, ACTIONS, CAUSES OF ACTION, SUITS, PRECEEDINGS, AGREEMENTS, CONTRACTS, JUDGEMENTS, DAMAGES, EXECUTIONS, CLAIMS AND LIABILITIES WHATSOEVER OF EVERY NATURE AND NAME, WHETHER KNOWN OR UNKNOWN, WHETHER IN LAW OR IN EQUITY, WHICH THE PURCHASER HAS OR MAY HAVE FOR ANY REASON, MATTER OR CAUSE, AND PURCHASER FURTHER INDEMNIFIES AND HOLDS SELLER HARMLESS FROM ANY LOSS, COST, EXPENSE, DAMAGE, OR ATTORNEY'S FEES ARISING OUT OF THE SELLER'S LOADING OF ANY VEHICLE FOR THE PURCHASER IN EXCESS OF ITS PERMITTED AND CERTIFIED CAPACITY

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Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING Transport Log Sheet

Page 1 OF _____

Release Tracking Number: 2 - 22322

I. LOAD INFORMATION:

Load 1:
Signature of Transporter Representative: Joseph Chu
Date of Shipment: 7/28/23
Time of Shipment: ☑ AM ☐ PM
Truck/Tractor Registration: 214/T-05
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative: Onsite CG
Date of Receipt: 7-28-23
Time of Receipt: 9:20 ☑ AM ☐ PM
Load Size (cu. yds./tons): 25.15

Load 2:
Signature of Transporter Representative: Joseph Chu
Date of Shipment: 7/28/23
Time of Shipment: ☑ AM ☐ PM
Truck/Tractor Registration: 214/T-05
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative: Onsite CG
Date of Receipt: 7-28-23
Time of Receipt: 2:00 ☐ AM ☑ PM
Load Size (cu. yds./tons): 3226

Load 3:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

Load 4:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

Load 5:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

Load 6:
Signatiure of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

J. LOG SHEET VOLUME INFORMATION:
Total Volume Recorded This Page (cu. yds./tons)
Total Carried Forward (cu. yds./tons):
Total Carried Forward and This Page (cu. yds./tons):

Ondrick Materials & Recycling, LLC

22 Industry Road, Chicopee, MA 01020

Ticket 394876
7/28/23 1:51 PM

Truck ID	STRATEGIC212	STRATEGIC212
Customer	2101	STRATEGIC ENVIRONMENTAL SE
Order	23-07-M-12337M	Former L&M Service Station, 925 M
P.O.	23-0165	
Product	GAS/OIL/PETROLEUM	
Site Addr.	Former L&M Service Station 925 Massachusetts Avenue Lunenburg, MA 01642	

Driver: _____

Customer: _____

Arrival Time: _____ **Depart Time:** _____

Gross	81880 Lb	
Tare	30500 Lb	*
Net	25.69 Ton	*

	Today	To Date
Loads	3	3
Qty	85.43	85.43

NOTICE TO PURCHASERS: The Purchaser, through their officer, principal, employee or agent, hereby acknowledges that in consideration of the purchase and loading of product from Ondrick Materials & Construction, LLC, hereafter referred to as Seller, the Purchaser agrees that SELLER'S LIABBILITY, IN TORT, IN NEGLIGENCE OR OTHERWISE SHALL BE LIMITED TO THE AMOUNT OF THE PURCHASE PRICE OF THE SELLER'S PRODUCT AND UNDER NO CIRCUMSTANCE SHALL SELLER BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES arising out of the fact that the vehicle loaded by the seller for the purchaser was loaded in excess of its permitted and certified capacity. Purchaser, through their officer, principal, employee or agent, further agrees in consideration of the purchase and loading of Seller's product, TO RELEASE, REMISE AND FOREVER DISCHARGE THE SELLER, ITS REPRESENTATIVES, SUCCESSORS AND ASSIGNS OF AND FROM ANY AND ALL DEBTS, DEMANDS, ACTIONS, CAUSES OF ACTION, SUITS, PRECEEDINGS, AGREEMENTS, CONTRACTS, JUDGEMENTS, DAMAGES, EXECUTIONS, CLAIMS AND LIABILITIES WHATSOEVER OF EVERY NATURE AND NAME, WHETHER KNOWN OR UNKNOWN, WHETHER IN LAW OR IN EQUITY, WHICH THE PURCHASER HAS OR MAY HAVE FOR ANY REASON, MATTER OR CAUSE, AND PURCHASER FURTHER INDEMNIFIES AND HOLDS SELLER HARMLESS FROM ANY LOSS, COST, EXPENSE, DAMAGE, OR ATTORNEY'S FEES ARISING OUT OF THE SELLER'S LOADING OF ANY VEHICLE FOR THE PURCHASER IN EXCESS OF ITS PERMITTED AND CERTIFIED CAPACITY

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Ondrick Materials & Recycling, LLC

22 Industry Road, Chicopee, MA 01020

Ticket 394840
7/28/23 9:17 AM

Truck ID	STRATEGIC212	STRATEGIC212
Customer	2101	STRATEGIC ENVIRONMENTAL SE
Order	23-07-M-12337M	Former L&M Service Station, 925 M
P.O.	23-0165	
Product	GAS/OIL/PETROLEUM	
Site Addr.	Former L&M Service Station 925 Massachusetts Avenue Lunenburg, MA 01642	

Driver: _____

Customer: _____

Arrival Time: _____ **Depart Time:** _____

Gross	99680 Lb	
Tare	30500 Lb	*
Net	34.59 Ton	*

	Today	To Date
Loads	1	1
Qty	34.59	34.59

NOTICE TO PURCHASERS: The Purchaser, through their officer, principal, employee or agent, hereby acknowledges that in consideration of the purchase and loading of product from Ondrick Materials & Construction, LLC, hereafter referred to as Seller, the Purchaser agrees that SELLER'S LIABBILITY, IN TORT, IN NEGLIGENCE OR OTHERWISE SHALL BE LIMITED TO THE AMOUNT OF THE PURCHASE PRICE OF THE SELLER'S PRODUCT AND UNDER NO CIRCUMSTANCE SHALL SELLER BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES arising out of the fact that the vehicle loaded by the seller for the purchaser was loaded in excess of its permitted and certified capacity. Purchaser, through their officer, principal, employee or agent, further agrees in consideration of the purchase and loading of Seller's product, TO RELEASE, REMISE AND FOREVER DISCHARGE THE SELLER, ITS REPRESENTATIVES, SUCCESSORS AND ASSIGNS OF AND FROM ANY AND ALL DEBTS, DEMANDS, ACTIONS, CAUSES OF ACTION, SUITS, PRECEEDINGS, AGREEMENTS, CONTRACTS, JUDGEMENTS, DAMAGES, EXECUTIONS, CLAIMS AND LIABILITIES WHATSOEVER OF EVERY NATURE AND NAME, WHETHER KNOWN OR UNKNOWN, WHETHER IN LAW OR IN EQUITY, WHICH THE PURCHASER HAS OR MAY HAVE FOR ANY REASON, MATTER OR CAUSE, AND PURCHASER FURTHER INDEMNIFIES AND HOLDS SELLER HARMLESS FROM ANY LOSS, COST, EXPENSE, DAMAGE, OR ATTORNEY'S FEES ARISING OUT OF THE SELLER'S LOADING OF ANY VEHICLE FOR THE PURCHASER IN EXCESS OF ITS PERMITTED AND CERTIFIED CAPACITY

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Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING Transport Log Sheet

Page 1 OF _____

Release Tracking Number: 2 - 22322

I. LOAD INFORMATION:

Load 1:
Signature of Transporter Representative:
Date of Shipment: 7/28/23
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration: 1901A
Trailer Registration (if any): 92729
Receiving Facility/Temporary Storage Representative: Onyx CG
Date of Receipt: 7-28-23
Time of Receipt: 9:17 ☑ AM ☐ PM
Load Size (cu. yds./tons): 34.59

Load 2:
Signature of Transporter Representative:
Date of Shipment: 7/28/23
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration: 1901A
Trailer Registration (if any): 98725
Receiving Facility/Temporary Storage Representative: Onyx CG
Date of Receipt: 7-28-23
Time of Receipt: 1:50 ☐ AM ☑ PM
Load Size (cu. yds./tons): 25.69

Load 3:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

Load 4:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

Load 5:
Signature of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

Load 6:
Signatiure of Transporter Representative:
Date of Shipment:
Time of Shipment: ☐ AM ☐ PM
Truck/Tractor Registration:
Trailer Registration (if any):
Receiving Facility/Temporary Storage Representative:
Date of Receipt:
Time of Receipt: ☐ AM ☐ PM
Load Size (cu. yds./tons):

J. LOG SHEET VOLUME INFORMATION:
Total Volume Recorded This Page (cu. yds./tons)
Total Carried Forward (cu. yds./tons):
Total Carried Forward and This Page (cu. yds./tons):

Appendix D
Bill of Lading Documentation and Disposal Manifests

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

BWSC 112

Release Tracking Number
2 - 22322

A. LOCATION OF SITE OR DISPOSAL SITE WHERE REMEDIATION WASTE WAS GENERATED:

1. Release Name/Location Aid: FORMER GAS STATION

2. Street Address: 925 MASSACHUSETTS AVE

3. City/Town: LUNENBURG 4. Zip Code: 014620000

☐ 5. Check here if the disposal site that is the source of the release is Tier Classified. Check the current Tier Classification Category.
☐ a. Tier I ☐ b. Tier ID ☐ c. Tier II

B. THIS FORM IS BEING USED TO: (check one: B1-B4):

☐ 1. Submit a **Bill of Lading (BOL)** to transport Remediation Waste to Temporary Storage or a Receiving Facility.
Response Actions associated with this BOL (check all that apply):

☐ a. Immediate Response Action (IRA)
☐ b. Release Abatement Measure (RAM)
☐ c. Downgradient Property Status (DPS)
☐ d. Utility Release Abatement Measure (URAM)
☐ e. Comprehensive Response Actions
☐ f. Limited Removal Action (LRA): (must be retained pursuant to 310 CMR 40.0034(6); can't be submitted via eDEP)
☐ g. Other

☐ 2. Submit an Attestation of Completion of **Shipment to Temporary Storage** (Sections C, F and J are not required):
☑ 3. Submit an Attestation of **Completion of Shipment to a Receiving Facility** (Sections C, F and J are not required):
☐ 4. Certify that Remediation Waste Was **Not Shipped, and the Bill of Lading is Void**. (Sections C, D, E, and F are not required)

5. Date Bill of Lading submitted to the Department: 7/10/2023 (mm/dd/yyyy) b. eDEP Transaction ID: 1585326

6. Period of Generation Associated with this Bill of Lading 7/28/2023 (mm/dd/yyyy) to 7/28/2023 (mm/dd/yyyy)

(All sections of this transmittal form must be filled out unless otherwise noted above)
The Bill of Lading is not considered complete until the Attestation of Completion of Shipment is received by the Department.

C. DESCRIPTION OF WASTE AND WASTE SOURCE:

1. Contaminated Media/Debris (check all that apply):

☐ a. Soil ☐ b. Groundwater ☐ c. Surface Water ☐ d. Sediment ☐ e. Vegetation or Organic Debris

☐ f. Demolition/Construction Waste ☐ g. Inorganic Absorbent Materials ☐ h. Other:

2. Uncontainerized Waste (check all that apply):

☐ a. Inorganic Absorbent Materials ☐ b. Other:

C. DESCRIPTION OF WASTE AND WASTE SOURCE (cont.):

3. Containerized Waste (check all that apply):

☐ a. Tank Bottoms/Sludges ☐ b. Containers ☐ c. Drums ☐ d. Engineered Impoundments

☐ e. Other: _____

4. Estimated Quantity: _____ ☐ Tons ☐ Cu. Yds. ☐ Gallons

5. Contaminant Source (check one):

☐ a. Transportation Accident ☐ b. Underground Storage Tank ☐ c. Brownfields Redevelopment

☐ d. Other: _____

6. Type of Contaminant (check all that apply):

☐ a. Gasoline ☐ b. Diesel Fuel ☐ c. #2 Fuel Oil ☐ d. #4 Fuel Oil ☐ e. #6 Fuel Oil ☐ f. Jet Fuel

☐ g. Waste Oil ☐ h. Kerosene ☐ i. Chlorinated Solvents ☐ j. Urban Fill ☐ k. Other: _____

7. Constituents of Concern (check all that apply):

☐ a. As ☐ b. Cd ☐ c. Cr ☐ d. Pb ☐ e. Hg ☐ f. EPH/TPH ☐ g. VPH

☐ h. PCBs ☐ i. VOCs ☐ j. SVOCs ☐ k. Other: _____

8. If applicable, check the box for the Reportable Concentration Category of the site:

☐ a. RCS-1 ☐ b. RCS-2 ☐ c. RCGW-1 ☐ d. RCGW-2

9. Remediation Waste Characterization Documentation (check at least one):

☐ a. Site History Information ☐ b. Sampling Analytical Methods and Procedures ☐ c. Laboratory Data

☐ d. Field Screening Data ☐ e. Characterization Documentation previously submitted to the Department

i. Date submitted: _____ (mm/dd/yyyy) ii. Type of Documentation: _____

D. TRANSPORTER OR COMMON CARRIER INFORMATION:

1. Transporter/Common Carrier Name: STRATEGIC ENVIRONMENTAL SERV.

2. Contact First Name: TONY 3. Last Name: SANTA FE

4. Street: 362 PUTNAM HILL ROAD 5. Title: PROJECT MANAGER

6. City/Town: SUTTON 7. State: MA 8. Zip Code: 015900000

9. Telephone: 5087577782 10. Ext: _____ 11. Email: tsantafe@strategic-es.com

E. RECEIVING FACILITY/TEMPORARY STORAGE LOCATION:

1. Operator/Facility Name: ONDRICK MATERIALS AND RECY.
2. Contact First Name: DAVID 3. Last Name: COSTANZO
4. Street: 58 INDUSTRY ROAD 5. Title: ENVIRONMENTAL DIVISION MANAGER
6. City/Town: CHICOPEE 7. State: MA 8. Zip Code: 010200000
9. Telephone: 4135922566 10. Ext: 11. Email: dcostanzo@ondrickmr.com
12. Type of facility: (check one)

a. Temporary Storage i. Period of Temporary Storage _____ (mm/dd/yyyy) to _____ (mm/dd/yyyy)

ii. Reason for Temporary Storage: _____

☐ b. Asphalt Batch/Hot Mix ☐ c. Landfill/Disposal ☐ d. Landfill/Structural Fill ☐ e. Landfill/Daily Cover

☑ f. Asphalt Batch/Cold Mix ☐ g. Thermal Processing ☐ h. Incinerator ☐ i. Other: _____

13. Division of Hazardous Waste/Class A Permit Number: X258844
14. Division of Solid Waste Permit Number: _____
15. EPA Identification Number: MAR000529677

F. LSP SIGNATURE AND STAMP:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this submittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief, the assessment action(s) undertaken to characterize the Remediation Waste which is (are) the subject of this submittal for acceptance at the facility identified in this submittal comply with applicable provisions of 310 CMR 40.0000, and such facility is permitted to accept Remediation Waste having the characteristics described in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP #: _____
2. First Name: _____ 3. Last Name: _____
4. Telephone: _____ 5. Ext: _____ 6. Email: _____
7. Signature: _____
8. Date: _____ (mm/dd/yyyy)
9. LSP Stamp:

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

BWSC 112

Release Tracking Number
2 - 22322

G. PERSON SUBMITTING BILL OF LADING:

1. Check all that apply: ☐ a. change in contact name ☐ b. change of address ☑ c. change in the person undertaking response actions

2. Name of Organization: TOWN OF LUNENBURG MA

3. Contact First Name: HE 4. Last Name: LEMIEUX

5. Street: 17 MAIN STREET 6. Title: TOWN MANAGER

7. City/Town: LUNENBURG 8. State: MA 9. Zip Code: 014620000

10. Telephone: 9785824130 11. Ext: 12. Email: hlemieux@lunenburgma.gov

H. RELATIONSHIP TO SITE OF PERSON SUBMITTING BILL OF LADING: ☐ Check here to change relationship

☑ 1. RP or PRP ☐ a. Owner ☐ b. Operator ☐ c. Generator ☐ d. Transporter

☑ e. Other RP or PRP Specify: NON SPECIFIED PRP

☐ 2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)

☐ 3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))

☐ 4. Any Other Person Undertaking Response Actions: Specify Relationship:

I. REQUIRED ATTACHMENT AND SUBMITTALS:

☐ 1. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approvals issued by DEP or EPA. If the box is checked, you must attach a statement identifying the applicable provisions thereof.

☐ 2. Check here if any non-updatable information provided on this form is incorrect, e.g. Release Address/Location Aid. Send corrections to BWSC.eDEP@state.ma.us

☐ 3. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.

J. CERTIFICATION OF PERSON SUBMITTING BILL OF LADING:

1. I, _____, attest under the pains and penalties or perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: 3. Title: TOWN MANAGER

4. For: TOWN OF LUNENBURG MA 5. Date:

(Name of person or entity recorded in Section G) (mm/dd/yyyy)

J. CERTIFICATION OF PERSON SUBMITTING BILL OF LADING (cont.) :

☐ 6. Check here if the address of the person providing certification is different from address recorded in Section G.

7. Street:

8. City/Town: 9. State: 10. Zip Code:

11. Telephone: 12. Ext: 13. Email:

YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO $10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.

Date Stamp (MassDEP USE ONLY):

Received by DEP on 8/22/2023 8:36:29 AM

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC 112A

BILL OF LADING (pursuant to 310 CMR 40.0030)

Release Tracking Number
2 - 22322

SUMMARY OF SHIPMENT SHEET 1 **OF** 1

A. SUMMARY OF SHIPMENT (To be filled out by the receiving facility upon receipt of Remediation Waste):

1. Date of Shipment: (mm/dd/yyyy)	2. Date of Receipt: (mm/dd/yyyy)	3. Number of Loads Shipped:	4. Daily Volume Shipped: ☐ yds3 ☑ tons ☐ gals
7/28/2023	7/28/2023	4	117.69
5. Totals Recorded on this Summary of Shipment Sheet:		4	117.69

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC 112B

Release Tracking Number
2 - 22322

BILL OF LADING (pursuant to 310 CMR 40.0030)
SUMMARY SHEET SIGNATURE PAGE

A. ACKNOWLEDGEMENT OF RECEIPT OF REMEDIATION WASTE AT RECEIVING FACILITY OR TEMPORARY STORAGE:

1. I, DAVID S. COSTANZO , attest under the pains and penalties or perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: DAVID S. COSTANZO 3. Title:

4. For: ONDRICK MATERIALS & RECYCLING 5. Date: 8/15/2023 (mm/dd/yyyy)

6. Date of Final Shipment asociated with this Bill of lading: 7/28/2023 (mm/dd/yyyy)

B. ACKNOWLEDGEMENT OF SHIPMENT AND RECEIPT OF REMEDIATION WASTE BY PERSON CONDUCTING RESPONSE ACTIONS ASSOCIATED WITH THIS BILL OF LADING:

1. I, HEATHER LEMIEUX , attest under the pains and penalties or perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: HEATHER LEMIEUX 3. Title:

4. For: TOWN OF LUNENBURG MA (Name of person or entity recorded in Section G) 5. Date: 8/21/2023 (mm/dd/yyyy)

☐ 6. Check here if the address of the person providing certification is different from address recorded in BWSC112 Section G.

7. Street:

8. City/Town: 9. State: 10. Zip Code:

11. Telephone: 12. Ext: 13. Email:

☐ 14. Check here if attaching optional supporting documentation such as copies of Load Information Summary Sheets