ENVIRONMENTAL SERVICES

CMG EST. 2002

ENGINEERING SERVICES

LIMITED SUBSURFACE INVESTIGATION

FORMER DPW GARAGE

195 MAIN STREET
WAYLAND, MASSACHUSETTS

SEPTEMBER 1, 2022

PREPARED FOR:

MR. KENNETH (BEN) KEEFE
PUBLIC BUILDING DIRECTOR
WAYLAND TOWN BUILDING
41 COCHITUATE ROAD
WAYLAND MA 01778

PREPARED BY:

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CMG ID 2022-062

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SIGNATURE OF REPORT AUTHORS

The undersigned employees of CMG Environmental, Inc. (CMG) prepared and reviewed this report. Please direct any requests for additional information regarding the content of this document to these individuals.

Stephen R. VanWormer
Project Manager

September 1, 2022
Date

Benson R. Gould, LSP, LEP
Licensed Site Professional #9923

September 1, 2022
Date

Gary E. Magnuson
Principal

9-1-2022
Date

TABLE OF CONTENTS

SECTION PAGE

TABLE OF CONTENTS

1.0 INTRODUCTION

CMG Environmental, Inc. (CMG) conducted this Limited Subsurface Investigation (LSI) on the former Wayland Department of Public Works (DPW) property located at 195 Main Street in Wayland, MA (the Site).

CMG previously conducted a Phase I Environmental Site Assessment (ESA) at the Site in May 2022 and recommended a subsurface investigation, including the advancement of soil borings and groundwater monitoring wells, and collection/analysis of soil and groundwater samples to assess for the presence of petroleum constituents, 1,4-dioxane, per- and polyfluoroalkyl substances (PFAS), metals, pesticides, and herbicides at the Site.

CMG conducted our LSI in general conformance with ASTM Standard Practice E 1903-11 ("Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process").

1.1 PURPOSE

CMG conducted this LSI to confirm the presence or absence of subsurface contamination associated with historic operations and past use of OHM at the Site.

1.2 SITE IDENTIFICATION

1.2.1 LOCATION

The Site postal address is 195 Main Street, Wayland MA 01778-4533. It is on the easterly side of Main Street (State Route 27), approximately ¼-mile north of its intersection with Plain Street. The Town of Wayland is located in Middlesex County.

UTM (Universal Transverse Mercator) coordinates in the approximate middle of the Site are 4,688,521 meters north and 305,219 meters east in Zone 19. This point is at 42º19'28.5" north latitude (42.32458 °N), 71º21'50.1" west longitude (-71.36391 °E). Figure 2 (Site Plan) depicts Site boundaries and other features.

1.2.2 LEGAL DESCRIPTION

Wayland Assessor's Map 47D identifies the Site as Lot 5, which consists of 204,732 square feet (approximately 4.7 acres) of land.

1.3 CURRENT OCCUPANTS & SITE USE

The Site is the former location of the Wayland DPW. The Town of Wayland razed the former Site building circa 2019 and the Site is currently vacant.

1.4 CURRENT OCCUPANTS & USE OF ADJOINING PROPERTIES

CMG observed the following businesses and uses at properties adjoining the Site.

ADJOINING PROPERTY USES

ADDRESS	NAME	USE
207 Main Street (North)	Highway Department	Vacant land
201 Main Street (East)	Town of Wayland	Middle school
41 Leary Street (SE), 42 Leary Street (S), 183 & 190 Main Street (SW), 192 Main Street (W)	Multiple	Residences
200 Main Street (W/NW)	Town of Wayland	Vacant land

2.0 Relevant Site & Vicinity History

2.1 Information from Site Owner/Operator

CMG interviewed Mr. Kenneth (Ben) Keefe, Public Buildings director, regarding past uses of the Site and adjacent properties. Mr. Keefe told us that the town razed the former building 3-4 years ago and filled in the septic tank.

As a note in Section 1.0, CMG prepared an ESA report on the Site dated May 13, 2022.

2.2 Previous Environmental Investigations

Mr. Keefe believes that the town has a report documenting the closure of the drains, oil/water separator, and former septic system. However, he did not provide CMG with a copy of that report.

2.3 Local Records

CMG visited Wayland municipal offices on April 11, 2022 to research local information regarding registered storage tanks, licensed OHM storage, or other readily available information regarding recognized environmental conditions in the vicinity of the Site. We obtained information from the following local agencies:

- Assessor's Office,
- Health Department, and
- Fire Department.

2.3.1 Fire Department

Assistant Fire Chief Richard Ripley of the Wayland Fire Department told CMG that they have no records of registered underground storage tanks (USTs), aboveground storage tanks (ASTs), or other flammable storage at the Site, nor any records of spills, releases, or fires involving OHM at the Site or in the vicinity.

2.3.2 Assessor's Office

The Town of Wayland subdivided the Site out of larger (municipally-owned) parcel.

2.3.3 Health Department

Wayland Health Department records include the following correspondence:

- 2/11/82: GCA Corporation to Town of Wayland proposing sampling of 8 on-Site drums, soil, sediment, and storm drain outfall for pesticides and herbicides;

- 8/26/94: Letter from DEP to Highway Department stating 1) that an unnamed party had informed DEP that the town had removed USTs and planned to install new ones; 2) since the former landfill occupied portions of the property, the town must comply with "Post-Closure Use of Landfills" requirements; 3) the proposed location for new USTs was within the Zone II Wellhead Protection Area for municipal wells and needed to be moved;
- 8/29/94: Letter from Surface Water Quality Committee regarding concerns about USTs located within the Aquifer Protection Area, and about storage of ice treatment chemicals and vehicle maintenance within this area;
- 11/10/94: Memorandum from Fire Department to Wayland Highway Department regarding requirements for new tank installation, instructions to obtain permits for removal of old USTs;
- 11/14/94: Letter from Fire Department to Town stating approval to remove old tanks and install new USTs;
- 2/22/95: Letter from town resident to Town of Wayland regarding two 10,000-gallon USTs awaiting installation (moved from northerly portion of Site to southerly portion, then inside the garage); questions about whether movement and exposure potentially damaged these tanks;
- 9/5/95: Letter to DEP regarding original project consisting of removal of 3 single-walled stainless-steel gasoline and diesel fuel USTs, removal of a 3,000-gallon waste oil UST, and installation of two 10,000-gallon USTs;
- 9/26/95: Letter from DEP to Town of Wayland – received letter dated 9/5/95 proposing changes to 11/28/94 approval of "Post-Closure Use of Landfills";
- 10/25/95: Plan of Public Works Garage showing floor drain location, current sump, and proposed sump location;
- 5/18/98: Notice of Responsibility for RTN 3-16798, discharge of wastewater from a closed-loop system to a stormwater catchbasin;
- 12/22/99: DEP to Town of Wayland instructing them to disallow storage of de-icing materials due to improper storage and use;
- 2/9/00: Camp Dresser & McKee report to Wayland Highway Department regarding electromagnetic and soil gas surveys to determine the extent of the former landfill and potential for soil migration; they concluded that there were four potential disposal areas (including portions of the northeast corner of the Site building and the north-central portion of the Site) but that vapors were not likely migrating toward the building;
- 12/12/11: Letter from Board of Health to Recreation Commission regarding concerns about the development of athletic fields for adjoining school property as it would encompass portions of the former landfill (and possibly disturb metals, dioxins, and ash);
- 7/19/19: Permit indicating septic system abandonment; and
- 8/14/19: Application to demolish site building.

2.4 SUMMARY

According to CMG's May 2022 Phase I ESA, the Town of Wayland acquired the Site in 1955 but used the Site building as their garage since at least 1945. The Wayland Parks & Recreation Department also occupied the building during that time. A landfill occupied the northerly side of the Site and the northerly-adjoining property until 1958. The surrounding area consists primarily of residential properties and is densely developed.

3.0 PHYSICAL SETTING

3.1 TOPOGRAPHY

The Site is at an approximate elevation of 173' above the North American Vertical Datum of 1988 according to the USGS Natick, Massachusetts topographic quadrangle (see Figure 1).

3.2 GEOLOGY

3.2.1 BEDROCK

CMG did not observe any bedrock outcrops at or in the immediate vicinity of the Site. According to the Bedrock Geological Map of Massachusetts, the Avalon belt formation underlies the Property. This Precambrian-aged bedrock consists of granite, granitic gneiss, and metasedimentary rocks.

CMG advanced borings to a maximum depth of 20' below grade at MW-6 and MW-7. We did not encounter bedrock or other refusal.

3.2.2 SOILS

According to the Soil Conservation Service website (https://websoilsurvey.sc.egov.usda.gov), the loamy Udorthents underly the Site. This mapping unit consists of loamy alluvium, sandy glaciofluvial deposits, loamy glaciolacustrine deposits, loamy marine deposits, loamy basal till, and/or loamy lodgment till.

CMG observed Site soils beneath asphalt paving to consist of well graded sand and gravel to a depth of 20' below grade. Appendix A (Boring Logs) includes detailed subsurface soil descriptions.

3.2.3 REPORTING CATEGORY

DEP classifies Site soils as RCS-1 per 310 CMR 40.0361(1)(a) because it is at or within 500' of residential dwellings, residentially-zoned properties, and the Town of Wayland middle school.

3.3 HYDROLOGY

3.3.1 SURFACE WATER

There is no surface water body located at the Site. Dudley Pond is located approximately 150' west of the Site; Lake Cochituate is located about ¾-mile west. The Site is in the Concord River Drainage Basin of the Merrimack Drainage System, with the Sudbury River located approximately 1.8 miles west of the Site. Surface runoff would be to the east if unimpeded by systems such as stormwater catchbasins.

3.3.2 GROUNDWATER

CMG measured the depth to groundwater and performed a survey of monitoring well elevations on August 2, 2022. The following table summarizes these data; Figure 2 illustrates groundwater elevations and 1' contours.

GROUNDWATER ELEVATIONS (FEET)

WELL ID#	WELLHEAD ELEVATION	DEPTH TO GROUNDWATER	GROUNDWATER ELEVATION
MW-1	100.00	8.64	91.36
MW-4	101.07	10.06	91.01
MW-5	101.39	10.18	91.21
MW-6	103.17	12.37	90.80
MW-7	103.40	12.52	90.88
MW-11	98.99	7.37	91.62
MEASUREMENTS RELATIVE TO AN ARBITRARY DATUM OF 100.00 AT MW-1.			

The groundwater elevation data indicate that Site groundwater flows generally northwest (towards Dudley Pond) with a hydraulic gradient of 0.42×10^{-2} feet/foot (approximately 25 feet/mile).

3.3.3 REPORTING CATEGORY

DEP classifies Site groundwater as RCGW-1 per 310 CMR 40.0362(1)(a) because it is within a designated current or potential drinking water resource area.

4.0 LIMITED SUBSURFACE INVESTIGATION

4.1 GROUND-PENETRATING RADAR SURVEY (GPR)

CMG contracted Sub-Surface Informational Surveys, Inc. (Sub-Surface) of East Longmeadow, Massachusetts to conduct a GPR survey on July 19, 2022 to determine the location of USTs (if present), the former septic system and associated leach field, oil-water separator, and subsurface utilities in the proposed boring and monitoring well areas. Appendix B includes a copy of the GPR survey.

Sub-Surface uses a transmitting/receiving antenna to transmit electromagnetic signals into the subsurface, which can detect, amplify, and display reflections of the signal on a graphic recorder and a video display unit. They use the reflections to determine if anomalies could be present and could potentially indicate the presence of subsurface structures such as USTs, former UST excavations, associated piping, and utilities. Sub-surface identified a possible suspect UST immediately north of the former DPW building at an approximate depth of 3¼'

4.2 SOIL BORINGS

CMG supervised the advancement of 12 soil borings (designated SB-1 through SB-12) at the Site on July 21, 2022 using direct-push (Geoprobe System™ type) equipment. Mr. Stephen VanWormer of CMG supervised the drilling, conducted by Technical Drilling Services, Inc. (TDS) of Sterling, Massachusetts.

CMG directed TDS to place borings as follows:

- MW-1: adjacent to the oil-water separator and leaching pit west of the former Site building;
- SB-2 & SB-3: in the easterly-central footprint of the former Site building, adjacent to a former floor drain system;

- MW-4: in the westerly-central footprint of the former Site building, adjacent to a former floor drain system and sump;
- MW-5: immediately north of the former Site building and adjacent to the suspect UST;
- MW-6 & MW-7: in the westerly footprint of the former Site building and adjacent to two former floor drains;
- SB-8: in the southwesterly footprint of the former Site building in an area of rubble and crushed concrete;
- SB-9: immediately south of the former Site building;
- SB-10: north of the former Site building and adjacent to a steel manhole structure;
- MW-11: northeast of the former Site building and adjacent to two catch basins; and
- SB-12: immediately east of the oil-water separator and leach pit.

TDS collected continuous 5' soil samples in polyacetate liners in accordance with our standard protocols. CMG field-screened soil samples for total organic vapor (TOV) using a calibrated photoionization detector. Table 1 (following the Figures) summarizes TOV readings.

CMG submitted a total of nine samples to Phoenix Environmental Laboratories, Inc. (Phoenix) of Manchester, Connecticut and Alpha Analytical (Alpha) of Westborough, Massachusetts for select laboratory analysis of volatile organic compounds (VOC), volatile petroleum hydrocarbons (VPH) with target VOC identifications, extractable petroleum hydrocarbons (EPH) with target polynuclear aromatic hydrocarbon (PAH) identifications, 14 total MCP metals, 1,4-dioxane, PFAS, pesticides, and herbicides.

Phoenix identified the following constituents above applicable DEP RCS-1 reportable standards (see Tables 1 & 3):

- Lead & zinc in the soil sample collected from MW-5 (7-10'); and
- VPH in the soil sample collected from MW-7 (15-17').

4.3 GROUNDWATER MONITORING WELLS

Immediately following advancement of borings SB-1, SB-4, SB-5 SB-6, SB-7, and SB-11, CMG supervised installation of a groundwater monitoring well in each (designated MW-1, MW-4, MW-5, MW-6, MW-7, and MW-11). TDS constructed these wells of Schedule 40, 2" diameter polyvinyl chloride casing with 0.01" slotted screen set across the water table. The boring logs (Appendix A) include monitoring well construction diagrams.

CMG collected groundwater samples from all six monitoring wells on August 2, 2022. We observed an oily sheen and a distinct petroleum odor in MW-6 and MW-7.

CMG submitted groundwater samples to Phoenix and Alpha for select laboratory analysis of VOCs by EPA Method 8260, VPH with target VOC identifications, EPH with target PAH identifications, 14 dissolved MCP metals, PFAS, 1,4-dioxane, pesticides, and herbicides. Appendix C presents Phoenix and Alpha certificates of analysis and chain of custody documentation.

Phoenix and Alpha identified the following constituents above applicable DEP RCGW-1 reportable standards (see Tables 2 & 4):

- Soluble antimony in the groundwater sample collected from MW-5; and
- Total PFAS in groundwater samples collected from MW-1, MW-4, & MW-11.

4.4 NOTIFICATION REQUIREMENTS

MCP regulations require the Site owner to notify DEP within 120 days of receiving the information summarized above regarding reportable concentrations of OHM in Site soil and groundwater.

Acting Town Manager Stephen Crane acknowledged receipt of this information on August 25, 2022. Thus, the Town of Wayland must submit a Release Notification Form for 120-day conditions (BWSC103) via eDEP on or before December 23, 2022.

5.0 FINDINGS & CONCLUSIONS

CMG conducted our LSI in general conformance with ASTM Standard Practice E 1903-11 ("Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process").

5.1 AREAS OF CONCERN (AOCS)

CMG previously identified AOCs in our May 13, 2022 Phase I ESA Report, which we subsequently investigated as part of this LSI.

5.2 FINDINGS

CMG collected nine soil and six groundwater samples at the Site and submitted them for laboratory analyses for one or more of the following parameters: VOCs, VPH with target VOC identifications, EPH with target PAH identifications, MCP-14 metals, 1,4-dioxane, PFAS, pesticides, and herbicides.

Laboratory analysis identified 120-day reporting conditions at the Site pursuant to 310 CMR 40.0315(1), namely for VPH, lead, & zinc in soil, and soluble antimony & PFAS in groundwater.

CMG provided the Town of Wayland with a "Soil & Groundwater Sampling Results" letter on August 25, 2022 outlining the presence of OHM in soil and groundwater above applicable RCS-1 and RCGW-1 concentrations. CMG received authorization from Mr. Kenneth (Ben) Keefe to notify DEP of the 120-day reporting on or before December 23, 2022.

CMG will prepare a Form BWSC103 ("Release Notification & Notification Retraction Form for 120 Day Reporting Instruction") for the Town of Wayland to submit using the eDEP electronic submittal system.

5.3 RECOMMENDATIONS

CMG recommends the following:

- Removal of the suspect UST (if present) pursuant to regulation 310 CMR 80.00. DEP requires that "the owner or operator shall measure for the presence of a release of regulated substances where contamination is most likely to be present in the subsurface"… during removal of USTs;

- Additional assessment in the area of MW-7 to further delineate the extent and magnitude of petroleum impacts in soil and groundwater;
- Re-sample monitoring well MW-5 for soluble antimony to confirm the 8/2/22 results; and
- Sample monitoring wells MW-5 through MW-7 for PFAS to further delineate the extent and magnitude of PFAS in Site groundwater (not analyzed on 8/2/22).

6.0 LIMITATIONS & CONDITIONS

6.1 METHODOLOGY

CMG Environmental, Inc. conducted this LSI of the Site in general conformance with the American Society of Testing and Materials (ASTM) standard protocol E 1903-11 ("Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process").

6.2 SCOPE OF SERVICES

Mr. Kenneth Keefe of the Town of Wayland authorized CMG to conduct this LSI in June 2022. We performed the following scope of services in July and August 2022:

- Supervised a GPR survey of the Site to identify buried Site features and utilities on July 19, 2022;
- Conducted an LSI at the Site to investigate subsurface soil and groundwater conditions which entailed the advancement of 12 soil borings, with subsequent installation of groundwater monitoring wells in six of these;
- Field-screened soil samples for TOV;
- Conducted an elevation survey of monitoring well casings on August 2, 2022 and collected low-flow groundwater samples on that date;
- Submitted selected soil and groundwater samples for laboratory analysis of VOCs, VPH with target VOC identifications, EPH with target PAH identifications, 14 MCP metals, 1,4-dioxane, PFAS, pesticides, and herbicides;
- Compared all analytical results to DEP standards set forth in the MCP; and
- Prepared this LSI report.

6.3 GENERAL LIMITATIONS

CMG prepared this Report to assess current recognized environmental conditions at the subject Site in accordance with generally accepted engineering and hydrogeologic practices. We make no other warranty, express or implied. CMG cannot provide absolute assurance that we have identified any and all recognized environmental conditions at the Site.

Where CMG included visual or other observations in this report, they represent conditions visibly and/or physically observed at the time of the inspection, or verified through interviewing or by record review, and may not be indicative of past or future Site conditions.

6.4 SPECIFIC CONDITIONS OF THE LSI REPORT

CMG based the conclusions of this report, in large part, on information provided by the client, their agents, or third parties, including state or local officials. We assume no responsibility for the accuracy and completeness of this information.

CMG's subsurface investigation included the collection and laboratory analysis of soil and groundwater samples from several locations throughout the Site. However, CMG did not intend this study to be an exhaustive investigation of subsurface conditions at the Site. CMG restricted the scope of services for this investigation due to time and/or cost constraints, and though we did undertake a significant amount of analytical testing, currently unrecognized subsurface conditions may exist at the Site. Increasing exploration (such as placement of test pits, completion of additional soil borings with subsequent collection of soil samples for laboratory analysis, installation of additional groundwater monitoring wells with subsequent collection of groundwater samples for laboratory analysis, and conducting surface geophysical survey techniques) may better delineate subsurface conditions.

CMG's Site inspection included observing the Site and surrounding area. However not all Site boundaries were clearly delineated, making it difficult to distinguish certain Site features from those of the surrounding area. Therefore, the location of certain Site features described in this Report and depicted on the figures may be approximate.

6.5 RELIANCE

CMG prepared this LSI for the sole use of the Town of Wayland, its successors and assigns in connection with assessing recognized environmental conditions at the subject Site. We do not authorize use of this information by others for any reason, except with our prior written consent.

7.0 REFERENCES

INTERVIEWS
Building Department: Public Building Director Kenneth (Ben) Keefe, April 11, 2022.

WAYLAND
Assessor's Office: records reviewed online at https://gis.vgsi.com/WaylandMA, mapping obtained online at https://www.axisgis.com/WaylandMA.

MASSACHUSETTS
Department of Environmental Protection "Reportable Release Lookup" information obtained from http://public.dep.state.ma.us/SearchableSites2/Search.aspx.

Division of Water Pollution Control regulations (314 CMR 4.00), December 27, 1996 revision.

MassMapper Geographical Information Systems: information reviewed online at https://maps.massgis.digital.mass.gov/MassMapper/MassMapper.html.

Department of Environmental Protection: Underground Storage Tank Data Management System, records obtained from https://ma-ust.windsorcloud.com/ust/?7.

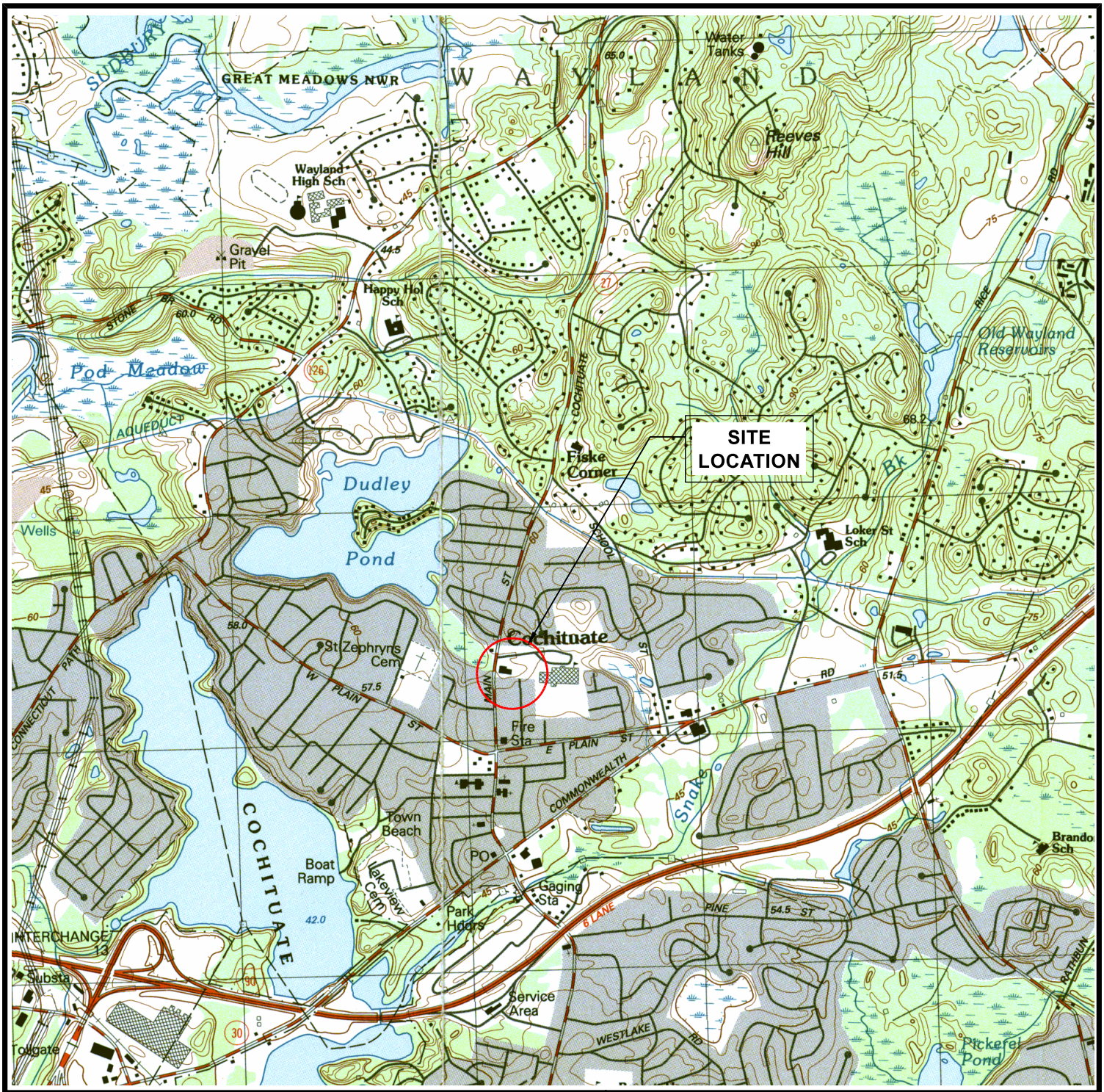
UNITED STATES
Geological Survey (in cooperation with the Massachusetts Department of Public Works): "Bedrock Geologic Map of Massachusetts" edited by E-an Zen, dated 1983.

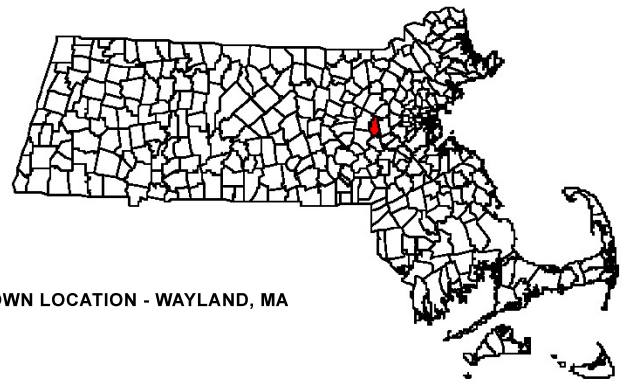
Geological Survey: "Natick, Massachusetts" 7.5-minute series topographic quadrangle, dated 2018.

PREVIOUS ENVIRONMENTAL REPORTS
Cygnus Group Incorporated: "Response Action Outcome Statement" for RTN 3-16798, dated May 12, 1999.

CMG Environmental, Inc.: "Phase I Environmental Site Assessment Former DPW Garage" dated May 13, 2022.

FIGURES





TOWN LOCATION - WAYLAND, MA

FIGURE 1: SITE LOCATION

195 MAIN STREET
WAYLAND, MA 01778
CMG ID 2022-062

SCALE 1" = 2,000'

2000 FT 0 2000 FT

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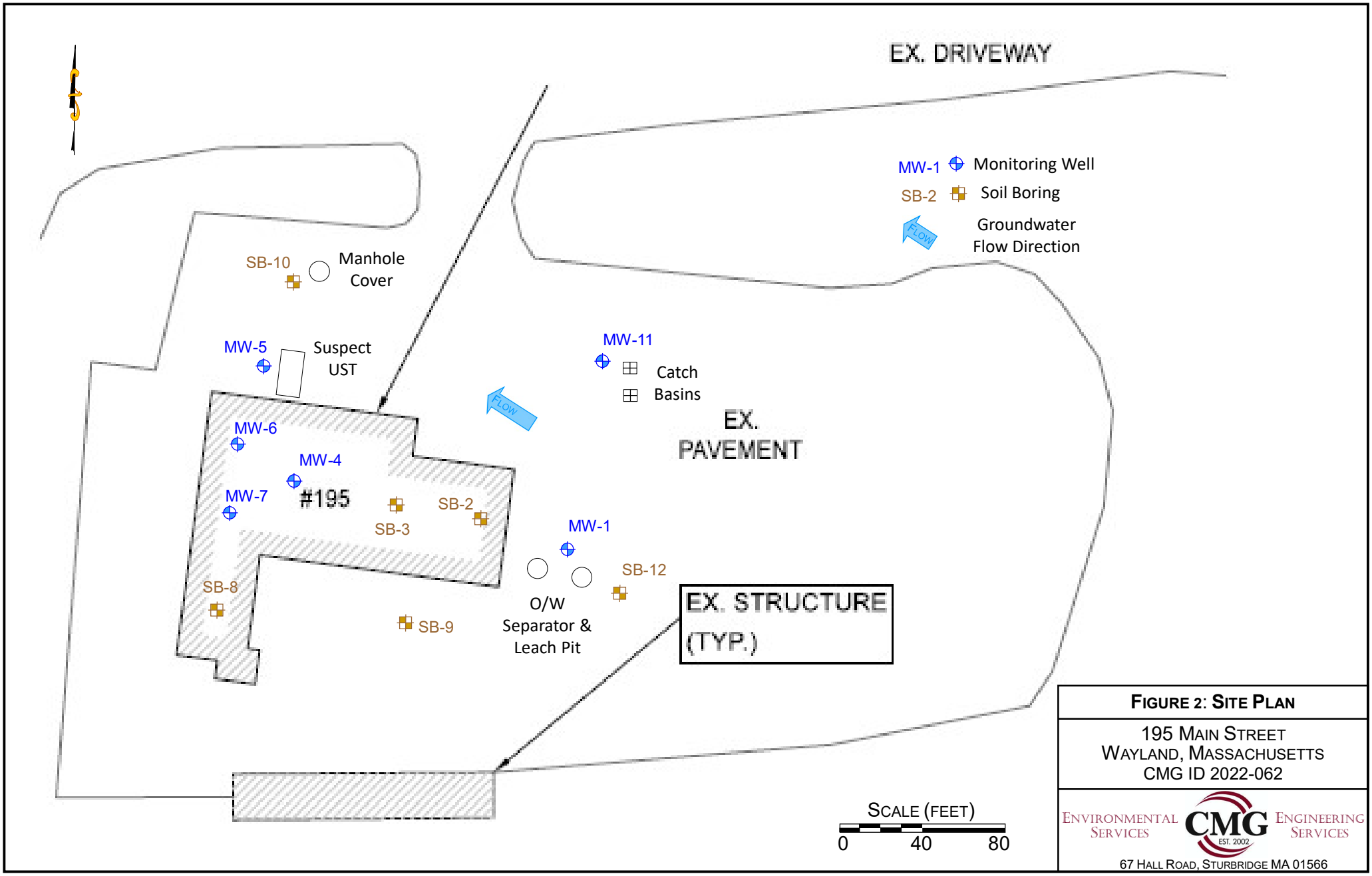


FIGURE 2: SITE PLAN

195 MAIN STREET
WAYLAND, MASSACHUSETTS
CMG ID 2022-062

ENVIRONMENTAL SERVICES CMG EST. 2002 ENGINEERING SERVICES
67 HALL ROAD, STURBRIDGE MA 01566

TABLES

TABLE 1

SOIL QUALITY DATA (MG/KG)

Test	Parameter	RCS-1 Reportable Concentrations	Upper Conc. Limits (UCLs) Soil (mg/Kg)	MW-1 7/21/2022 10-12'	MW-4 7/21/2022 8-10'	MW-5 7/21/2022 7-10'	MW-6 7/21/2022 14-15'	MW-7 7/21/2022 15-17'	SB-9 7/21/2022 8-10'	SB-10 7/21/2022 7-10'	MW-11 7/21/2022 8-10'	SB-12 7/21/2022 10-12'
PID	Total Organic Vapors (ppmv)	—	—	24.7	0.0	3.8	1,049	1,527	0.0	0.0	0.0	0.0
VOCs	Benzene	2	10,000	NT	NT	NT	BRL<0.020	BRL<0.050	NT	NT	NT	NT
	Ethylbenzene	40	10,000	NT	NT	NT	BRL<0.039	15	NT	NT	NT	NT
	Methyl Tertiary Butyl Ether (MTBE)	0.1	5,000	NT	NT	NT	BRL<0.039	BRL<0.10	NT	NT	NT	NT
	Naphthalene	4	10,000	NT	NT	NT	BRL<0.20	2.0	NT	NT	NT	NT
	Toluene	30	10,000	NT	NT	NT	0.14	2.0	NT	NT	NT	NT
	m, p -Xylenes	100		NT	NT	NT	0.14	6.0	NT	NT	NT	NT
	o -Xylene	100		NT	NT	NT	0.20	4.6	NT	NT	NT	NT
	Xylenes (total)	100	10,000	NT	NT	NT	0.34	10.6	NT	NT	NT	NT
	1,4-Dioxane	0.2	5,000	BRL<0.041	BRL<0.052	BRL<0.098	BRL<0.200	BRL<0.077	BRL<0.068	NT	BRL<0.047	NT
	All Other VOCs	Varies	Varies	BRL	BRL	BRL	BRL	BRL	BRL	NT	BRL	NT
VPH	C_5-C_8 Aliphatics	100	5,000	NT	NT	NT	56	640	NT	NT	NT	NT
	C_9-C_{12} Aliphatics	1,000	20,000	NT	NT	NT	260	1,700	NT	NT	NT	NT
	C_9-C_{10} Aromatics	100	5,000	NT	NT	NT	69	330	NT	NT	NT	NT
EPH	C_9-C_{18} Aliphatics	1,000	20,000	BRL<68	BRL<79	BRL<81	BRL<80	120	BRL<76	NT	BRL<75	NT
	C_{19}-C_{36} Aliphatics	3,000	20,000	250	BRL<79	BRL<81	BRL<80	BRL<78	BRL<76	NT	BRL<75	NT
	C_{11}-C_{22} Aromatics	1,000	10,000	BRL<68	BRL<79	BRL<81	BRL<80	BRL<78	BRL<76	NT	BRL<75	NT
PAHs	Naphthalene	4	10,000	BRL<0.240	BRL<0.280	BRL<0.280	BRL<0.280	BRL<0.270	BRL<0.270	NT	BRL<0.260	NT
	2-Methylnaphthalene	0.7	5,000	BRL<0.240	BRL<0.280	BRL<0.280	BRL<0.280	BRL<0.270	BRL<0.270	NT	BRL<0.260	NT
	Acenaphthylene	1	10,000	BRL<0.240	BRL<0.280	BRL<0.280	BRL<0.280	BRL<0.270	BRL<0.270	NT	BRL<0.260	NT
	Acenaphthene	4	10,000	BRL<0.240	BRL<0.280	BRL<0.280	BRL<0.280	BRL<0.270	BRL<0.270	NT	BRL<0.260	NT
	Fluorene	1,000	10,000	BRL<0.240	BRL<0.280	BRL<0.280	BRL<0.280	BRL<0.270	BRL<0.270	NT	BRL<0.260	NT
	Phenanthrene	10	10,000	BRL<0.240	BRL<0.280	0.550	BRL<0.280	BRL<0.270	BRL<0.270	NT	BRL<0.260	NT
	Anthracene	1,000	10,000	BRL<0.240	BRL<0.280	BRL<0.280	BRL<0.280	BRL<0.270	BRL<0.270	NT	BRL<0.260	NT
	Fluoranthene	1,000	10,000	BRL<0.240	BRL<0.280	0.720	BRL<0.280	BRL<0.270	BRL<0.270	NT	BRL<0.260	NT
	Pyrene	1,000	10,000	BRL<0.240	BRL<0.280	0.800	BRL<0.280	BRL<0.270	BRL<0.270	NT	BRL<0.260	NT
	Benzo(a)anthracene	7	3,000	BRL<0.240	BRL<0.280	0.360	BRL<0.280	BRL<0.270	BRL<0.270	NT	BRL<0.260	NT
	Chrysene	70	10,000	BRL<0.240	BRL<0.280	0.410	BRL<0.280	BRL<0.270	BRL<0.270	NT	BRL<0.260	NT
	Benzo(b)fluoranthene	7	3,000	BRL<0.240	BRL<0.280	0.320	BRL<0.280	BRL<0.270	BRL<0.270	NT	BRL<0.260	NT
	Benzo(k)fluoranthene	70	10,000	BRL<0.240	BRL<0.280	0.310	BRL<0.280	BRL<0.270	BRL<0.270	NT	BRL<0.260	NT
	Benzo(a)pyrene	2	300	BRL<0.240	BRL<0.280	0.380	BRL<0.280	BRL<0.270	BRL<0.270	NT	BRL<0.260	NT
	Indeno(1,2,3-cd)pyrene	7	3,000	BRL<0.240	BRL<0.280	BRL<0.280	BRL<0.280	BRL<0.270	BRL<0.270	NT	BRL<0.260	NT
	Dibenzo(a,h)anthracene	0.7	300	BRL<0.240	BRL<0.280	BRL<0.280	BRL<0.280	BRL<0.270	BRL<0.270	NT	BRL<0.260	NT
	Benzo(g,h,i)perylene	1,000	10,000	BRL<0.240	BRL<0.280	BRL<0.280	BRL<0.280	BRL<0.270	BRL<0.270	NT	BRL<0.260	NT
Metals	Silver	100	2,000	BRL<0.36	BRL<0.35	BRL<0.37	BRL<0.42	BRL<0.40	BRL<0.42	NT	BRL<0.34	NT
	Arsenic	20	500	4.85	3.35	5.90	1.49	4.3	2.96	NT	2.35	NT
	Barium	90	10,000	22.6	12.5	128	12.0	16.3	15.5	NT	36.7	NT
	Berylliun	90	2,000	BRL<0.29	BRL<0.28	0.39	BRL<0.33	0.35	BRL<0.34	NT	BRL<0.27	NT
	Cadmium	70	1,000	1.76	0.51	10.1	0.9	0.61	0.53	NT	0.88	NT
	Chromium (total)	100	2,000	23.1	8.87	25.1	13.5	11.7	9.40	NT	19.0	NT
	Mercury	20	300	BRL<0.03	BRL<0.03	0.82	BRL<0.03	BRL<0.03	BRL<0.03	NT	0.04	NT
	Nickel	600	10,000	27.0	6.94	15.1	11.3	12.6	7.53	NT	19.2	NT
	Lead	200	6,000	11.1	3.09	303	5.32	5.62	3.43	NT	7.01	NT
	Antimony	20	300	BRL<3.6	BRL<3.5	6.2	BRL<4.2	BRL<4.0	BRL<4.2	NT	BRL<3.4	NT
	Selenium	400	7,000	BRL<1.4	BRL<1.4	BRL<1.5	BRL<1.7	BRL<1.6	BRL<1.7	NT	BRL<1.4	NT
	Thallium	8	800	BRL<3.3	BRL<3.2	BRL<3.3	BRL<3.8	BRL<3.6	BRL<3.8	NT	BRL<3.1	NT
	Vanadium	400	7,000	63.9	12.7	28.5	22.0	22.2	14.3	NT	23.9	NT
	Zinc	1,000	10,000	53.7	15.6	2,970	25.8	24.8	18.1	NT	51.1	NT
Chlorinated Pesticides	Aldrin	0.08	30	BRL<0.0035	BRL<0.0039	NT	NT	NT	NT	NT	BRL<0.0037	BRL<0.0035
	α-BHC	50	NE	BRL<0.0069	BRL<0.0077	NT	NT	NT	NT	NT	BRL<0.0075	BRL<0.0070
	β-BHC	10	NE	BRL<0.0069	BRL<0.0077	NT	NT	NT	NT	NT	BRL<0.0075	BRL<0.0070
	δ-BHC	10	NE	BRL<0.0069	BRL<0.0077	NT	NT	NT	NT	NT	BRL<0.0075	BRL<0.0070
	Chlordane	5	600	0.10	BRL<0.015	NT	NT	NT	NT	NT	BRL<0.037	BRL<0.014
	4,4-DDD (p,p')	8	600	BRL<0.0069	BRL<0.0077	NT	NT	NT	NT	NT	BRL<0.0075	BRL<0.0070
	4,4-DDE (p,p')	6	600	BRL<0.0069	BRL<0.0077	NT	NT	NT	NT	NT	BRL<0.0075	BRL<0.0070
	4,4-DDT (p,p')	6	600	BRL<0.0069	BRL<0.0077	NT	NT	NT	NT	NT	BRL<0.0075	BRL<0.0070
	Dieldrin	0.08	30	BRL<0.0035	BRL<0.0039	NT	NT	NT	NT	NT	BRL<0.0037	BRL<0.0035
	α-Endosulfan (I)	0.5	5,000	BRL<0.0069	BRL<0.0077	NT	NT	NT	NT	NT	BRL<0.0075	BRL<0.0070
	β-Endosulfan (II)	0.5	5,000	BRL<0.0069	BRL<0.0077	NT	NT	NT	NT	NT	BRL<0.0075	BRL<0.0070
	Endrin	10	200	BRL<0.0069	BRL<0.0077	NT	NT	NT	NT	NT	BRL<0.0075	BRL<0.0070
	Endrin Aldehyde	10	NE	BRL<0.0069	BRL<0.0077	NT	NT	NT	NT	NT	BRL<0.0075	BRL<0.0070
	Heptachlor	0.3	100	BRL<0.0069	BRL<0.0077	NT	NT	NT	NT	NT	BRL<0.0075	BRL<0.0070
	Heptachlor Epoxide	0.1	10	BRL<0.0069	BRL<0.0077	NT	NT	NT	NT	NT	BRL<0.0075	BRL<0.0070
	Methoxychlor	200	4,000	BRL<0.035	BRL<0.039	NT	NT	NT	NT	NT	BRL<0.037	BRL<0.035
	Toxaphene	10	NE	BRL<0.140	BRL<0.150	NT	NT	NT	NT	NT	BRL<0.150	BRL<0.140
Chlorinated Herbicide	2,4-D	100	NE	BRL<0.045	BRL<0.059	NT	NT	NT	NT	NT	BRL<0.057	BRL<0.052
	2,4-DB	100	NE	BRL<0.045	BRL<0.030	NT	NT	NT	NT	NT	BRL<0.028	BRL<0.026
	Dalapon	1,000	NE	BRL<0.045	BRL<0.030	NT	NT	NT	NT	NT	BRL<0.028	BRL<0.026
	Dicamba	500	NE	BRL<0.045	BRL<0.030	NT	NT	NT	NT	NT	BRL<0.028	BRL<0.026
	Dichlorprop	NE	NE	BRL<0.068	BRL<0.044	NT	NT	NT	NT	NT	BRL<0.043	BRL<0.039
	Dinoseb	500	NE	BRL<0.045	BRL<0.030	NT	NT	NT	NT	NT	BRL<0.028	BRL<0.026
	2,4,5-T	100	NE	BRL<0.045	BRL<0.030	NT	NT	NT	NT	NT	BRL<0.028	BRL<0.026
	2,4,5-TP (Silvex)	100	NE	BRL<0.045	BRL<0.030	NT	NT	NT	NT	NT	BRL<0.028	BRL<0.026
Other	Percent Solids	—	—	96%	84%	82%	83%	84%	85%	84%	88%	95%

Notes *BRL = Below laboratory Reporting Limit*
NT = Not Tested (for that parameter)
M1RC = Method 1 Risk Characterization
Yellow highlight = exceeds RCS-1 standards
ppmv = Parts Per Million by Voluem (Benzene Referred)

TABLE 2 GROUNDWATER QUALITY DATA (µG/L)

Test	Parameter	RCGW-1 Reportable Concentrations	MW-1 8/2/2022 8.64'	MW-4 8/2/2022 10.06'	MW-5 8/2/2022 10.18'	MW-6 8/2/2022 12.37'	MW-7 8/2/2022 12.52'	MW-11 8/2/2022 7.37'
VOCs	Benzene	**5**	NT	NT	NT	*BRL<1.0*	*BRL<1.0*	NT
	Bromodichloromethane	**3**	*BRL<0.50*	0.65	*BRL<0.50*	*BRL<0.50*	0.58	*BRL<0.50*
	Chloroform	**50**	*BRL<1.0*	3.6	*BRL<1.0*	2.2	1.5	*BRL<1.0*
	Ethylbenzene	**700**	NT	NT	NT	4.3	3.4	NT
	Methyl Tertiary Butyl Ether (MTBE)	**70**	NT	NT	NT	*BRL<1.0*	*BRL<1.0*	NT
	Naphthalene	**140**	NT	NT	NT	*BRL<5.0*	*BRL<5.0*	NT
	Toluene	**1,000**	NT	NT	NT	*BRL<1.0*	*BRL<1.0*	NT
	m, p -Xylenes	**3,000**	NT	NT	NT	*BRL<2.0*	*BRL<2.0*	NT
	o -Xylene	**3,000**	NT	NT	NT	*BRL<1.0*	*BRL<1.0*	NT
	Xylenes (total)	**3,000**	NT	NT	NT	*BRL<2.0*	*BRL<2.0*	NT
	1,4-Dioxane	**0.3**	*BRL<0.30*	*BRL<0.30*	*BRL<0.20*	*BRL<0.20*	*BRL<0.20*	*BRL<0.30*
VPH	C_5-C_8 Aliphatics	**300**	NT	NT	NT	170	*BRL<100*	NT
	C_9-C_{12} Aliphatics	**700**	NT	NT	NT	*BRL<100*	*BRL<100*	NT
	C_9-C_{10} Aromatics	**200**	NT	NT	NT	*BRL<100*	*BRL<100*	NT
EPH	C_9-C_{18} Aliphatics	**700**	*BRL<190*	*BRL<200*	*BRL<200*	*BRL<190*	*BRL<200*	*BRL<190*
	C_{19}-C_{36} Aliphatics	**14,000**	*BRL<190*	*BRL<200*	*BRL<200*	*BRL<190*	*BRL<200*	*BRL<190*
	C_{11}-C_{22} Aromatics	**200**	*BRL<190*	*BRL<200*	*BRL<200*	*BRL<190*	*BRL<200*	*BRL<190*
PAHs	Naphthalene	**140**	*BRL<0.48*	*BRL<0.49*	*BRL<0.47*	*BRL<0.47*	*BRL<0.50*	*BRL<0.49*
	2-Methylnaphthalene	**10**	*BRL<0.48*	*BRL<0.49*	*BRL<0.47*	*BRL<0.47*	*BRL<0.50*	*BRL<0.49*
	Acenaphthylene	**30**	*BRL<0.10*	*BRL<0.10*	*BRL<0.09*	*BRL<0.09*	*BRL<0.10*	*BRL<0.10*
	Acenaphthene	**20**	*BRL<0.48*	*BRL<0.49*	*BRL<0.47*	*BRL<0.47*	*BRL<0.50*	*BRL<0.49*
	Fluorene	**30**	*BRL<0.10*	*BRL<0.10*	*BRL<0.09*	*BRL<0.09*	*BRL<0.10*	*BRL<0.10*
	Phenanthrene	**40**	*BRL<0.48*	*BRL<0.49*	*BRL<0.47*	*BRL<0.47*	*BRL<0.50*	*BRL<0.49*
	Anthracene	**30**	*BRL<0.09*	*BRL<0.09*	*BRL<0.09*	*BRL<0.09*	*BRL<0.10*	*BRL<0.09*
	Fluoranthene	**90**	*BRL<0.48*	*BRL<0.49*	*BRL<0.47*	*BRL<0.47*	*BRL<0.50*	*BRL<0.49*
	Pyrene	**20**	*BRL<0.07*	0.20	*BRL<0.07*	*BRL<0.07*	*BRL<0.07*	*BRL<0.07*
	Benzo(a)anthracene	**1**	*BRL<0.10*	*BRL<0.10*	*BRL<0.09*	*BRL<0.09*	*BRL<0.10*	*BRL<0.10*
	Chrysene	**2**	*BRL<0.05*	0.05	*BRL<0.05*	*BRL<0.05*	*BRL<0.05*	*BRL<0.05*
	Benzo(b)fluoranthene	**1**	*BRL<0.10*	*BRL<0.10*	*BRL<0.09*	*BRL<0.09*	*BRL<0.10*	*BRL<0.10*
	Benzo(k)fluoranthene	**1**	*BRL<0.10*	*BRL<0.10*	*BRL<0.09*	*BRL<0.09*	*BRL<0.10*	*BRL<0.10*
	Benzo(a)pyrene	**0.2**	*BRL<0.19*	*BRL<0.20*	*BRL<0.19*	*BRL<0.19*	*BRL<0.20*	*BRL<0.20*
	Indeno(1,2,3-cd)pyrene	**0.5**	*BRL<0.10*	*BRL<0.10*	*BRL<0.09*	*BRL<0.09*	*BRL<0.10*	*BRL<0.10*
	Dibenzo(a,h)anthracene	**0.5**	*BRL<0.02*	*BRL<0.02*	*BRL<0.02*	*BRL<0.02*	*BRL<0.02*	*BRL<0.02*
	Benzo(g,h,i)perylene	**20**	*BRL<0.02*	*BRL<0.02*	*BRL<0.02*	*BRL<0.02*	*BRL<0.02*	*BRL<0.02*
Soluble MCP14 Metals	Silver	**7**	*BRL<1*	*BRL<1*	*BRL<1*	*BRL<1*	*BRL<1*	*BRL<1*
	Arsenic	**10**	*BRL<4*	*BRL<4*	*BRL<4*	*BRL<4*	*BRL<4*	*BRL<4*
	Barium	**2,000**	12	54	187	16	56	246
	Beryllium	**4**	*BRL<1*	*BRL<1*	*BRL<1*	*BRL<1*	*BRL<1*	*BRL<1*
	Cadmium	**4**	*BRL<1*	*BRL<1*	*BRL<1*	*BRL<1*	*BRL<1*	*BRL<1*
	Chromium (total)	**100**	*BRL<1*	*BRL<1*	*BRL<1*	*BRL<1*	*BRL<1*	*BRL<1*
	Mercury	**2**	*BRL<0.2*	*BRL<0.2*	*BRL<0.2*	*BRL<0.2*	*BRL<0.2*	*BRL<0.2*
	Nickel	**100**	*BRL<1*	*BRL<2*	3	*BRL<1*	2	3
	Lead	**10**	*BRL<2*	*BRL<2*	3	*BRL<2*	*BRL<2*	*BRL<2*
	Antimony	**6**	*BRL<5*	*BRL<5*	8	*BRL<5*	*BRL<5*	*BRL<5*
	Selenium	**50**	*BRL<11*	*BRL<11*	*BRL<11*	*BRL<11*	*BRL<11*	*BRL<11*
	Thallium	**2**	*BRL<0.5*	*BRL<0.5*	*BRL<0.5*	*BRL<0.5*	*BRL<0.5*	*BRL<0.5*
	Vanadium	**30**	*BRL<2*	*BRL<2*	*BRL<2*	*BRL<2*	*BRL<2*	*BRL<2*
	Zinc	**900**	*BRL<2*	*BRL<2*	5	*BRL<2*	*BRL<2*	30
Chlorinated Pesticides	Aldrin	**0.5**	*BRL<0.001*	*BRL<0.001*	NT	NT	NT	*BRL<0.001*
	α-BHC	**500**	*BRL<0.024*	*BRL<0.024*	NT	NT	NT	*BRL<0.024*
	β-BHC	**100**	*BRL<0.005*	*BRL<0.005*	NT	NT	NT	*BRL<0.005*
	γ-BHC (Lindane, γ-HCH)	**0.2**	*BRL<0.024*	*BRL<0.024*	NT	NT	NT	*BRL<0.024*
	δ-BHC	**100**	*BRL<0.024*	*BRL<0.024*	NT	NT	NT	*BRL<0.024*
	Chlordane	**2**	*BRL<0.019*	*BRL<0.019*	NT	NT	NT	*BRL<0.019*
	4,4-DDD (p,p')	**0.2**	*BRL<0.048*	*BRL<0.047*	NT	NT	NT	*BRL<0.049*
	4,4-DDE (p,p')	**0.05**	*BRL<0.048*	*BRL<0.047*	NT	NT	NT	*BRL<0.049*
	4,4-DDT (p,p')	**0.3**	*BRL<0.048*	*BRL<0.047*	NT	NT	NT	*BRL<0.049*
	Dieldrin	**0.1**	*BRL<0.002*	*BRL<0.001*	NT	NT	NT	*BRL<0.001*
	α-Endosulfan (I)	**2**	*BRL<0.048*	*BRL<0.047*	NT	NT	NT	*BRL<0.049*
	β-Endosulfan (II)	**2**	*BRL<0.048*	*BRL<0.047*	NT	NT	NT	*BRL<0.049*
	Endrin	**2**	*BRL<0.048*	*BRL<0.047*	NT	NT	NT	*BRL<0.049*
	Endrin Aldehyde	**100**	*BRL<0.048*	*BRL<0.047*	NT	NT	NT	*BRL<0.049*
	Heptachlor	**0.4**	*BRL<0.024*	*BRL<0.024*	NT	NT	NT	*BRL<0.024*
	Heptachlor Epoxide	**0.2**	*BRL<0.024*	*BRL<0.024*	NT	NT	NT	*BRL<0.024*
	Methoxychlor	**10**	*BRL<0.095*	*BRL<0.094*	NT	NT	NT	*BRL<0.097*
	Toxaphene	**100**	*BRL<0.95*	*BRL<0.94*	NT	NT	NT	*BRL<0.97*
Chlorinated Herbicides	2,4-D	**1,000**	*BRL<2.0*	*BRL<2.0*	NT	NT	NT	*BRL<2.0*
	2,4-DB	**1,000**	*BRL<1.0*	*BRL<1.0*	NT	NT	NT	*BRL<1.0*
	Dalapon	**10,000**	*BRL<1.0*	*BRL<1.0*	NT	NT	NT	*BRL<1.0*
	Dicamba	**5,000**	*BRL<1.0*	*BRL<1.0*	NT	NT	NT	*BRL<1.0*
	Dichlorprop	**NE**	*BRL<2.0*	*BRL<2.0*	NT	NT	NT	*BRL<2.0*
	Dinoseb	**5,000**	*BRL<2.0*	*BRL<2.0*	NT	NT	NT	*BRL<2.0*
	2,4,5-T	**1,000**	*BRL<1.0*	*BRL<1.0*	NT	NT	NT	*BRL<1.0*
	2,4,5-TP (Silvex)	**1,000**	*BRL<1.0*	*BRL<1.0*	NT	NT	NT	*BRL<1.0*

Notes *BRL = Below laboratory Reporting Limit*
NT = Not Tested (for that parameter)
Yellow highlight = Exceeds RCGW-1 standard

TABLE 3 SOIL QUALITY DATA - PFAS (ng/g)

Test	Parameter	RCS-1 Reportable Concentrations	SB-10 7/21/2022 7-10'	MW-11 7/21/2022 8-10'	SB-12 7/21/2022 10-12'
PFAS	Perfluoroheptanoic acid (PFHpA)*	**0.5**	*BRL<0.268*	*BRL<0.250*	*BRL<0.252*
	Perfluorooctanoic acid (PFOA)*	**0.72**	*BRL<0.268*	*BRL<0.250*	*BRL<0.252*
	Perfluorononanoic acid (PFNA)*	**0.32**	*BRL<0.268*	*BRL<0.250*	*BRL<0.252*
	Perfluorodecanoic acid (PFDA)*	**0.3**	*BRL<0.268*	*BRL<0.250*	*BRL<0.252*
	Perfluorohexanesulfonic acid (PFHxS)*	**0.3**	*BRL<0.268*	*BRL<0.250*	*BRL<0.252*
	Perfluorooctanesulfonic acid (PFOS)*	**2**	0.260	0.197	*BRL<0.252*
	Sum of 6 Regulated PFAS compounds	**—**	0.260	0.197	*BRL*
	Perfluorohexanoic acid (PFHxA)	**NE**	*BRL<0.536*	*BRL<0.500*	*BRL<0.505*
	Perfluoroundecanoic acid (PFUnA)		*BRL<0.536*	*BRL<0.500*	*BRL<0.505*
	Perfluorododecanoic acid (PFDoA)		*BRL<0.536*	*BRL<0.500*	*BRL<0.505*
	Perfluorotridecanoic acid (PFTrDA)		*BRL<0.536*	*BRL<0.500*	*BRL<0.505*
	Perfluorotetradecanoic acid (PFTA)		*BRL<0.536*	*BRL<0.500*	*BRL<0.505*
	Perfluorobutanesulfonic acid (PFBS)		*BRL<0.268*	*BRL<0.250*	*BRL<0.252*
	N-Methyl Perfluorooctanesulfonamidoacetic acid (NMeFOSAA)		*BRL<0.536*	*BRL<0.500*	*BRL<0.505*
	N-Ethyl Perfluorooctanesulfonamidoacetic acid (NEtFOSAA)		*BRL<0.536*	*BRL<0.500*	*BRL<0.505*
	2,3,3,3-Tetrafluoro-2[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic acid (HFPO-DA)		*BRL<10.7*	*BRL<9.99*	*BRL<10.1*
	4,8-Dioxa-3h-Perfluorononanoic acid (ADONA)		*BRL<1.07*	*BRL<0.999*	*BRL<1.01*
	9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic acid (9Cl-PF3ONS)		*BRL<1.07*	*BRL<0.999*	*BRL<1.01*
	11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic acid (11Cl-PF3OUdS)		*BRL<1.07*	*BRL<0.999*	*BRL<1.01*
Other	Percent Solids	—	84%	88%	95%

Notes *BRL = Below laboratory Reporting Limit*
PFAS = Perfluoroalkyl and Polyfluoroalkyl Substances
*MCP Regulated PFAS
ng/g = nanograms per gram
NE = Not Established

TABLE 4 GROUNDWATER QUALITY DATA - PFAS (ng/L)

Test	Parameter	RCGW-1 Reportable Concentrations	MW-1 8/2/2022 8.64'	MW-4 8/2/2022 10.06'	MW-11 8/2/2022 7.37'
PFAS	Perfluoroheptanoic acid (PFHpA)*	(See PFAS Sum)	*BRL<1.83*	9.14	2.41
	Perfluorooctanoic acid (PFOA)*		6.29	17.2	11.1
	Perfluorononanoic acid (PFNA)*		*BRL<1.83*	1.89	1.97
	Perfluorodecanoic acid (PFDA)*		*BRL<1.83*	*BRL<1.88*	*BRL<1.83*
	Perfluorohexanesulfonic acid (PFHxS)*		7.16	3.93	31.4
	Perfluorooctanesulfonic acid (PFOS)*		39.1	32.3	125
	Sum of 6 Regulated PFAS compounds	**20**	52.6	64.46	171.88
	Perfluorohexanoic acid (PFHxA)	NE	2.41	30.7	7.14
	Perfluoroundecanoic acid (PFUnA)		*BRL<1.83*	*BRL<1.88*	*BRL<1.83*
	Perfluorododecanoic acid (PFDoA)		*BRL<1.83*	*BRL<1.88*	*BRL<1.83*
	Perfluorotridecanoic acid (PFTrDA)		*BRL<1.83*	*BRL<1.88*	*BRL<1.83*
	Perfluorotetradecanoic acid (PFTA)		*BRL<1.83*	*BRL<1.88*	*BRL<1.83*
	Perfluorobutanesulfonic acid (PFBS)		6.09	3.50	4.85
	N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)		*BRL<1.83*	*BRL<1.88*	*BRL<1.83*
	Perfluorooctanesulfonamide (FOSA)		*BRL<1.83*	*BRL<1.88*	*BRL<1.83*
	N-Methyl Perfluorooctanesulfonamidoacetic acid (NMeFOSAA)		*BRL<1.83*	*BRL<1.88*	*BRL<1.83*
	Perfluorobutanoic acid (PFBA)		4.88	4.53	2.77
	Perfluoropentanoic acid (PFPeA)		2.80	34.6	5.77
	Perfluoropentanesulfonic acid (PFPeS)		*BRL<1.83*	*BRL<1.88*	3.41
	Perfluoroheptanesulfonic acid (PFHpS)		*BRL<1.83*	*BRL<1.88*	2.59
	Perfluorodecanesulfonic acid (PFDS)		*BRL<1.83*	*BRL<1.88*	*BRL<1.83*
	Perfluorononanesulfonic acid (PFNS)		*BRL<1.83*	*BRL<1.88*	*BRL<1.83*
	1H,1H,2H,2H-Perfluorohexanesulfonic acid (4:2FTS)		*BRL<1.83*	*BRL<1.88*	*BRL<1.83*
	1H,1H,2H,2H-Perfluorooctanesulfonic acid (6:2FTS)		*BRL<1.83*	*BRL<1.88*	*BRL<1.83*
	1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2FTS)		*BRL<1.83*	*BRL<1.88*	*BRL<1.83*

Notes *BRL = Below laboratory Reporting Limit*
PFAS = Perfluoroalkyl and Polyfluoroalkyl Substances
*MCP Regulated PFAS
Yellow highlight = Exceeds Reportable standard for RCGW-1
ng/g = nanograms per gram
NE = Not Established

APPENDIX A

BORING LOGS

ENVIRONMENTAL SERVICES

CMG EST. 2002

ENGINEERING SERVICES

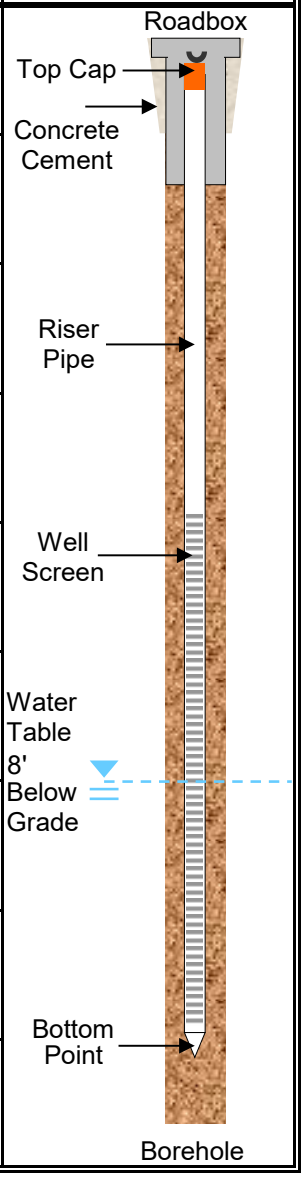
DIRECT PUSH BORING LOG/WELL CONSTRUCTION DIAGRAM

Location: 195 Main Street, Wayland MA
Drilling Company: Technical Drilling Services
Field supervisor: Stephen VanWormer

Boring Designation: **MW-1**
Date: July 21, 2022
Project ID: 2022-062

Direct-Push Sampling Interval (feet)	Sample Recovery (inches)	PID Reading (ppmv)	Soil Characterization
0-5	20	0.0	Well graded sand with gravel, some slit, fine to coarse grained sand, brown
5-10	24	18.4	Well graded sand with gravel, some slit, fine to coarse grained sand, brown, bottom 12" wet with sheen and petroleum odor
10-15	25	24.7	Well graded sand with gravel, some slit, fine to coarse grained sand, brown, black staining, petroluem odor

Well Diagram



Soil Classification

Particles <0.075 mm = silt (rounded) or clay (laminar)
0.075 to 0.25 mm = fine-grained sand
0.25 to 0.60 mm = medium-grained sand
0.60 to 2.0 mm = coarse-grained sand
2.0 to 76 mm = gravel
Particles >76 mm = cobbles
"and" = 30 to 50% by volume in sample
"some" = 20 to 35% by volume in sample
"little" = 10 to 20% by volume in sample
"trace" = 0 to 10% by volume in sample

Well Construction Details

Estimated depth to water: 8 feet below grade
Bottom of boring: 15 feet below grade
Screened interval: 5 to 15 feet below grade
Well materials: 2-inch schedule 40 PVC

ENVIRONMENTAL SERVICES

CMG EST. 2002

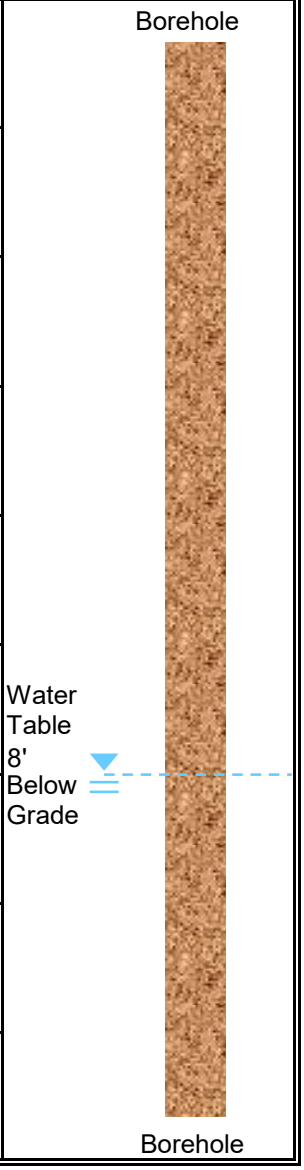
ENGINEERING SERVICES

DIRECT PUSH BORING LOG

Location: 195 Main Street, Wayland MA
Drilling Company: Technical Drilling Services
Field supervisor: Stephen VanWormer

Boring Designation: **SB-2**
Date: July 21, 2022
Project ID: 2022-062

Direct-Push Sampling Interval (feet)	Sample Recovery (inches)	PID Reading (ppmv)	Soil Characterization	Well Diagram
0-5	10	0.0	Well graded sand with gravel, some silt, fine to coarse grained sand, brown	
5-10	14	0.0	Well graded sand with gravel, little slit, fine to coarse grained sand, brown, bottom 10" wet	
10-15	38	0.0	Well graded sand with gravel, little slit, fine to coarse grained sand, brown	



Soil Classification

Particles <0.075 mm = silt (rounded) or clay (laminar)
0.075 to 0.25 mm = fine-grained sand
0.25 to 0.60 mm = medium-grained sand
0.60 to 2.0 mm = coarse-grained sand
2.0 to 76 mm = gravel
Particles >76 mm = cobbles
"and" = 30 to 50% by volume in sample
"some" = 20 to 35% by volume in sample
"little" = 10 to 20% by volume in sample
"trace" = 0 to 10% by volume in sample

Boring Observations

Estimated depth to water: 8 feet below grade
Bottom of boring: 15 feet below grade

ENVIRONMENTAL SERVICES

CMG EST. 2002

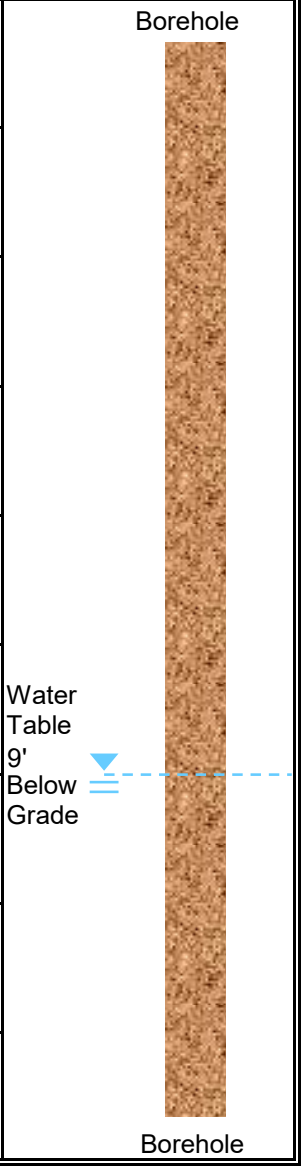
ENGINEERING SERVICES

DIRECT PUSH BORING LOG

Location: 195 Main Street, Wayland MA
Drilling Company: Technical Drilling Services
Field supervisor: Stephen VanWormer

Boring Designation: **SB-3**
Date: July 21, 2022
Project ID: 2022-062

Direct-Push Sampling Interval (feet)	Sample Recovery (inches)	PID Reading (ppmv)	Soil Characterization	Well Diagram
0-5	15	0.8	Well graded sand with gravel, some silt, fine to coarse grained sand, brown, moist, 1" of black stained soil	
5-10	22	0.0	Poorly graded sand, fine to medium grained sand, light brown, bottom 7" wet	
10-15	40	0.0	Poorly graded sand, fine to medium grained sand, light brown	



Soil Classification

Particles <0.075 mm = silt (rounded) or clay (laminar)
0.075 to 0.25 mm = fine-grained sand
0.25 to 0.60 mm = medium-grained sand
0.60 to 2.0 mm = coarse-grained sand
2.0 to 76 mm = gravel
Particles >76 mm = cobbles
"and" = 30 to 50% by volume in sample
"some" = 20 to 35% by volume in sample
"little" = 10 to 20% by volume in sample
"trace" = 0 to 10% by volume in sample

Boring Observations

Estimated depth to water: 9 feet below grade
Bottom of boring: 15 feet below grade

ENVIRONMENTAL SERVICES

CMG EST. 2002

ENGINEERING SERVICES

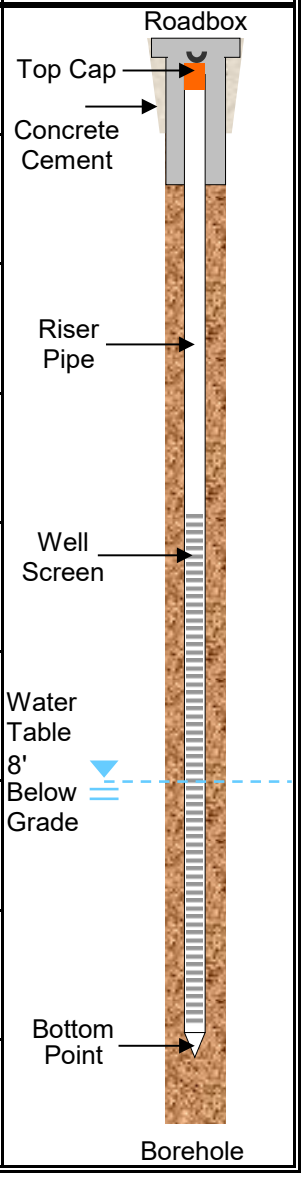
DIRECT PUSH BORING LOG/WELL CONSTRUCTION DIAGRAM

Location: 195 Main Street, Wayland MA
Drilling Company: Technical Drilling Services
Field supervisor: Stephen VanWormer

Boring Designation: **MW-4**
Date: July 21, 2022
Project ID: 2022-062

Direct-Push Sampling Interval (feet)	Sample Recovery (inches)	PID Reading (ppmv)	Soil Characterization
0-5	22	0.0	Well graded sand with gravel, some slit, fine to coarse grained sand, brown
5-10	26	0.0	Poorly graded sand, trace gravel, fine to coarse grained sand, brown, wet
10-15	45	0.0	Poorly graded sand, trace gravel, fine to coarse grained sand, brown, wet

Well Diagram



Soil Classification

Particles <0.075 mm = silt (rounded) or clay (laminar)
0.075 to 0.25 mm = fine-grained sand
0.25 to 0.60 mm = medium-grained sand
0.60 to 2.0 mm = coarse-grained sand
2.0 to 76 mm = gravel
Particles >76 mm = cobbles
"and" = 30 to 50% by volume in sample
"some" = 20 to 35% by volume in sample
"little" = 10 to 20% by volume in sample
"trace" = 0 to 10% by volume in sample

Well Construction Details

Estimated depth to water: 8 feet below grade
Bottom of boring: 15 feet below grade
Screened interval: 5 to 15 feet below grade
Well materials: 2-inch schedule 40 PVC

ENVIRONMENTAL SERVICES

CMG EST. 2002

ENGINEERING SERVICES

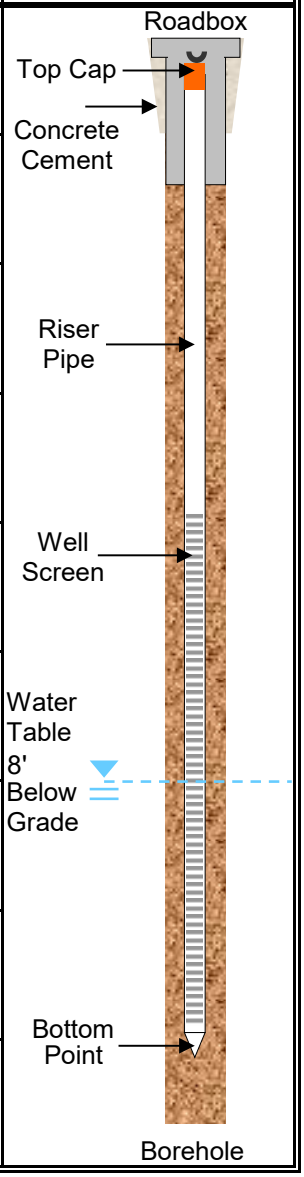
DIRECT PUSH BORING LOG/WELL CONSTRUCTION DIAGRAM

Location: 195 Main Street, Wayland MA
Drilling Company: Technical Drilling Services
Field supervisor: Stephen VanWormer

Boring Designation: **MW-5**
Date: July 21, 2022
Project ID: 2022-062

Direct-Push Sampling Interval (feet)	Sample Recovery (inches)	PID Reading (ppmv)	Soil Characterization
0-5	22	0.0	Well graded sand with gravel, fine to coarse grained sand, brown
5-10	26	3.8	Well graded sand with gravel, some silt, fine to coarse grained sand, brown, wet, fill (brick, glass, coal ash)
10-15	45	0.0	Well graded sand with gravel, fine to coarse grained sand, dark brown, wet

Well Diagram



Soil Classification

Particles <0.075 mm = silt (rounded) or clay (laminar)
0.075 to 0.25 mm = fine-grained sand
0.25 to 0.60 mm = medium-grained sand
0.60 to 2.0 mm = coarse-grained sand
2.0 to 76 mm = gravel
Particles >76 mm = cobbles
"and" = 30 to 50% by volume in sample
"some" = 20 to 35% by volume in sample
"little" = 10 to 20% by volume in sample
"trace" = 0 to 10% by volume in sample

Well Construction Details

Estimated depth to water: 8 feet below grade
Bottom of boring: 15 feet below grade
Screened interval: 5 to 15 feet below grade
Well materials: 2-inch schedule 40 PVC

ENVIRONMENTAL SERVICES

CMG EST. 2002

ENGINEERING SERVICES

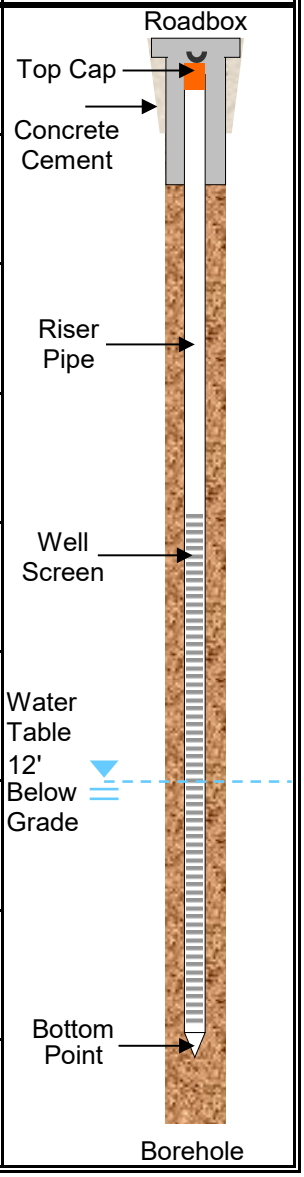
DIRECT PUSH BORING LOG/WELL CONSTRUCTION DIAGRAM

Location: 195 Main Street, Wayland MA
Drilling Company: Technical Drilling Services
Field supervisor: Stephen VanWormer

Boring Designation: **MW-6**
Date: July 21, 2022
Project ID: 2022-062

Direct-Push Sampling Interval (feet)	Sample Recovery (inches)	PID Reading (ppmv)	Soil Characterization
0-5	15	0.0	Poorly graded sand, fine to medium grained sand, light brown, fill
5-10	31	0.0	Poorly graded sand, fine to medium grained sand, light brown, fill
10-15	32	1049	Poorly graded sand, fine to medium grained sand, light brown, fill, bottom of sleeve is gray, strong gasoline odor
15-20	27	908	Top 5" Poorly graded sand, fine to medium grained sand, gray, gasoline odor Middle 12" Poorly graded sand, fine grained, brown Bottom 10" Well graded sand with gravel, no odor

Well Diagram



Soil Classification

Particles <0.075 mm = silt (rounded) or clay (laminar)
0.075 to 0.25 mm = fine-grained sand
0.25 to 0.60 mm = medium-grained sand
0.60 to 2.0 mm = coarse-grained sand
2.0 to 76 mm = gravel
Particles >76 mm = cobbles
"and" = 30 to 50% by volume in sample
"some" = 20 to 35% by volume in sample
"little" = 10 to 20% by volume in sample
"trace" = 0 to 10% by volume in sample

Well Construction Details

Estimated depth to water: 12 feet below grade
Bottom of boring: 20 feet below grade
Screened interval: 10 to 20 feet below grade
Well materials: 2-inch schedule 40 PVC

ENVIRONMENTAL SERVICES

CMG EST. 2002

ENGINEERING SERVICES

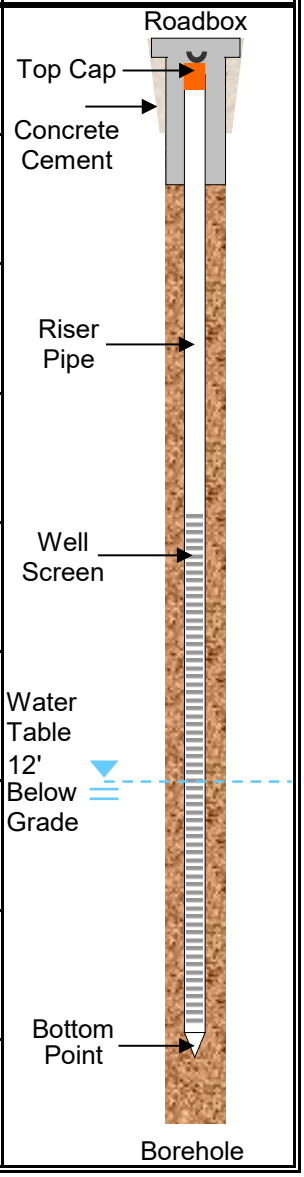
DIRECT PUSH BORING LOG/WELL CONSTRUCTION DIAGRAM

Location: 195 Main Street, Wayland MA
Drilling Company: Technical Drilling Services
Field supervisor: Stephen VanWormer

Boring Designation: **MW-7**
Date: July 21, 2022
Project ID: 2022-062

Direct-Push Sampling Interval (feet)	Sample Recovery (inches)	PID Reading (ppmv)	Soil Characterization
0-5	18	0.0	Poorly graded sand, fine to medium grained sand, light brown, fill
5-10	25	0.0	Poorly graded sand, fine to medium grained sand, light brown, fill
10-15	37	0.0	Poorly graded sand, fine to medium grained sand, light brown, fill
15-20	44	1527	Top 8" Well graded sand, fine to medium grained sand, gray, strong gasoline odor Bottom 30" Poorly graded sand, fine grained, brown, wet, no odor

Well Diagram



Soil Classification

Particles <0.075 mm = silt (rounded) or clay (laminar)
0.075 to 0.25 mm = fine-grained sand
0.25 to 0.60 mm = medium-grained sand
0.60 to 2.0 mm = coarse-grained sand
2.0 to 76 mm = gravel
Particles >76 mm = cobbles
"and" = 30 to 50% by volume in sample
"some" = 20 to 35% by volume in sample
"little" = 10 to 20% by volume in sample
"trace" = 0 to 10% by volume in sample

Well Construction Details

Estimated depth to water: 12 feet below grade
Bottom of boring: 20 feet below grade
Screened interval: 10 to 20 feet below grade
Well materials: 2-inch schedule 40 PVC

ENVIRONMENTAL SERVICES

CMG EST. 2002

ENGINEERING SERVICES

DIRECT PUSH BORING LOG

Location: 195 Main Street, Wayland MA
Drilling Company: Technical Drilling Services
Field supervisor: Stephen VanWormer

Boring Designation: **SB-8**
Date: July 21, 2022
Project ID: 2022-062

Direct-Push Sampling Interval (feet)	Sample Recovery (inches)	PID Reading (ppmv)	Soil Characterization	Well Diagram
0-5	23	0.0	Top 12" Crushed concrete Bottom 11" Well graded sand with gravel, fine to coarse grained sand, brown	Borehole
5-10	20	0.0	Well graded sand with little gravel, fine to coarse grained sand, brown	
10-15	23	0.0	Well graded sand with little gravel, fine to coarse grained sand, brown, wet	
				Water Table 10' Below Grade
				Borehole

Soil Classification

Particles <0.075 mm = silt (rounded) or clay (laminar)
0.075 to 0.25 mm = fine-grained sand
0.25 to 0.60 mm = medium-grained sand
0.60 to 2.0 mm = coarse-grained sand
2.0 to 76 mm = gravel
Particles >76 mm = cobbles
"and" = 30 to 50% by volume in sample
"some" = 20 to 35% by volume in sample
"little" = 10 to 20% by volume in sample
"trace" = 0 to 10% by volume in sample

Boring Observations

Estimated depth to water: 10 feet below grade
Bottom of boring: 15 feet below grade

ENVIRONMENTAL SERVICES

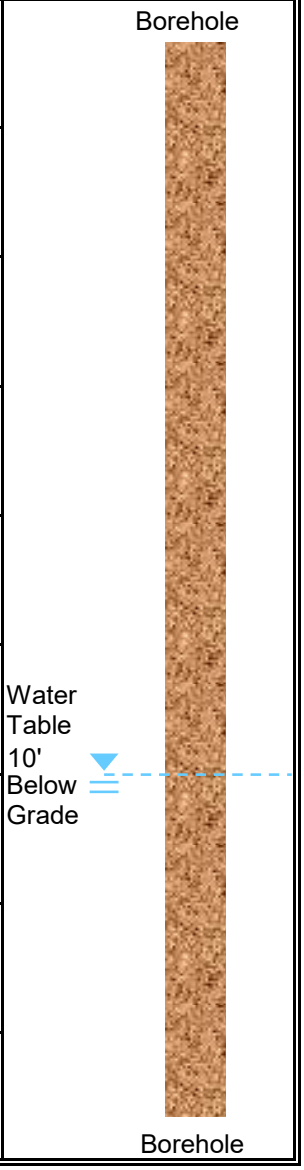
CMG EST. 2002

ENGINEERING SERVICES

DIRECT PUSH BORING LOG

Location: 195 Main Street, Wayland MA
Boring Designation: **SB-9**
Drilling Company: Technical Drilling Services
Date: July 21, 2022
Field supervisor: Stephen VanWormer
Project ID: 2022-062

Direct-Push Sampling Interval (feet)	Sample Recovery (inches)	PID Reading (ppmv)	Soil Characterization	Well Diagram
0-5	36	0.0	Top 9" Well graded sand with gravel, fine to coarse grained sand, brown Bottom 27" Poorly graded sand, fine to medium grained sand, light brown, moist to wet	
5-10	34	0.0	Well graded sand with little gravel, fine to coarse grained sand, brown, wet	
10-15	41	0.0	Well graded sand with little gravel, fine to coarse grained sand, brown, wet	



Soil Classification

Particles <0.075 mm = silt (rounded) or clay (laminar)
0.075 to 0.25 mm = fine-grained sand
0.25 to 0.60 mm = medium-grained sand
0.60 to 2.0 mm = coarse-grained sand
2.0 to 76 mm = gravel
Particles >76 mm = cobbles
"and" = 30 to 50% by volume in sample
"some" = 20 to 35% by volume in sample
"little" = 10 to 20% by volume in sample
"trace" = 0 to 10% by volume in sample

Boring Observations

Estimated depth to water: 10 feet below grade
Bottom of boring: 15 feet below grade

ENVIRONMENTAL SERVICES

CMG EST. 2002

ENGINEERING SERVICES

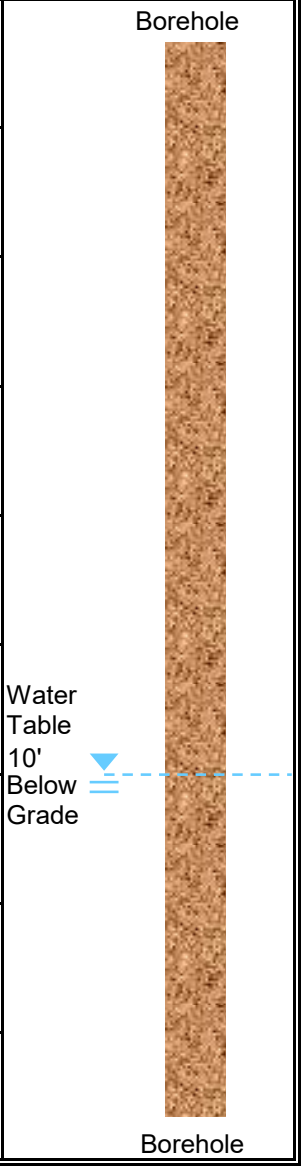
DIRECT PUSH BORING LOG

Location: 195 Main Street, Wayland MA
Drilling Company: Technical Drilling Services
Field supervisor: Stephen VanWormer

Boring Designation: **SB-10**
Date: July 21, 2022
Project ID: 2022-062

Direct-Push Sampling Interval (feet)	Sample Recovery (inches)	PID Reading (ppmv)	Soil Characterization
0-5	25	0.0	Top 9" Asphalt Middle 12" Well graded sand with gravel, fine to coarse grained sand, brown Bottom 4" Gravel
5-10	11	0.0	Gravel, crushed rock, trace sand, bottom of sleeve wet
10-15	35	0.0	Well graded sand with gravel, fine to coarse grained sand, brown, wet

Well Diagram



Soil Classification

Particles <0.075 mm = silt (rounded) or clay (laminar)
0.075 to 0.25 mm = fine-grained sand
0.25 to 0.60 mm = medium-grained sand
0.60 to 2.0 mm = coarse-grained sand
2.0 to 76 mm = gravel
Particles >76 mm = cobbles
"and" = 30 to 50% by volume in sample
"some" = 20 to 35% by volume in sample
"little" = 10 to 20% by volume in sample
"trace" = 0 to 10% by volume in sample

Boring Observations

Estimated depth to water: 10 feet below grade
Bottom of boring: 15 feet below grade

ENVIRONMENTAL SERVICES

CMG EST. 2002

ENGINEERING SERVICES

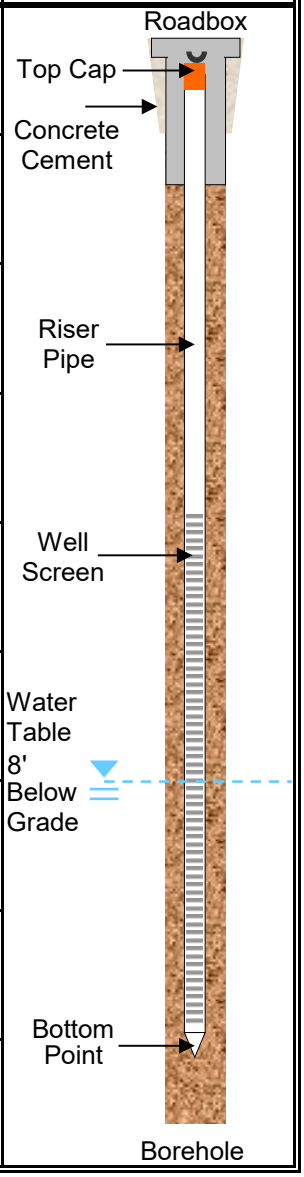
DIRECT PUSH BORING LOG/WELL CONSTRUCTION DIAGRAM

Location: 195 Main Street, Wayland MA
Drilling Company: Technical Drilling Services
Field supervisor: Stephen VanWormer

Boring Designation: **MW-11**
Date: July 21, 2022
Project ID: 2022-062

Direct-Push Sampling Interval (feet)	Sample Recovery (inches)	PID Reading (ppmv)	Soil Characterization
0-5	31	0.0	Well graded sand with gravel, fine to coarse grained sand, dark brown
5-10	12	0.0	Poorly graded sand, trace gravel, fine to medium grained sand, brown, bottom of sleeve wet
10-15	29	0.0	Well graded sand with gravel, fine to coarse grained sand, wet, till

Well Diagram



Soil Classification

Particles <0.075 mm = silt (rounded) or clay (laminar)
0.075 to 0.25 mm = fine-grained sand
0.25 to 0.60 mm = medium-grained sand
0.60 to 2.0 mm = coarse-grained sand
2.0 to 76 mm = gravel
Particles >76 mm = cobbles
"and" = 30 to 50% by volume in sample
"some" = 20 to 35% by volume in sample
"little" = 10 to 20% by volume in sample
"trace" = 0 to 10% by volume in sample

Well Construction Details

Estimated depth to water: 8 feet below grade
Bottom of boring: 15 feet below grade
Screened interval: 5 to 15 feet below grade
Well materials: 2-inch schedule 40 PVC

ENVIRONMENTAL SERVICES

CMG EST. 2002

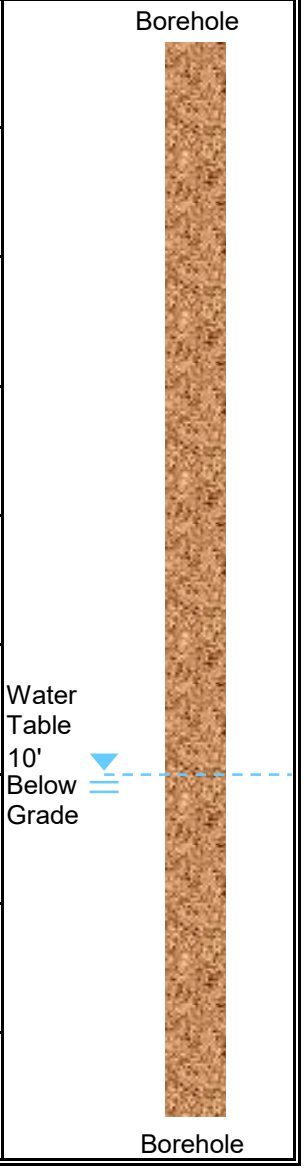
ENGINEERING SERVICES

DIRECT PUSH BORING LOG

Location: 195 Main Street, Wayland MA
Drilling Company: Technical Drilling Services
Field supervisor: Stephen VanWormer

Boring Designation: **SB-12**
Date: July 21, 2022
Project ID: 2022-062

Direct-Push Sampling Interval (feet)	Sample Recovery (inches)	PID Reading (ppmv)	Soil Characterization	Well Diagram
0-5	29	0.0	Well graded sand with little gravel, fine to coarse grained sand, brown	
5-10	44	0.0	Well graded sand with little gravel, fine to coarse grained sand, brown, wet	
10-15	38	0.0	Well graded sand with little gravel, fine to coarse grained sand, brown, wet	



Soil Classification

Particles <0.075 mm = silt (rounded) or clay (laminar)
0.075 to 0.25 mm = fine-grained sand
0.25 to 0.60 mm = medium-grained sand
0.60 to 2.0 mm = coarse-grained sand
2.0 to 76 mm = gravel
Particles >76 mm = cobbles
"and" = 30 to 50% by volume in sample
"some" = 20 to 35% by volume in sample
"little" = 10 to 20% by volume in sample
"trace" = 0 to 10% by volume in sample

Boring Observations

Estimated depth to water: 10 feet below grade
Bottom of boring: 15 feet below grade

APPENDIX B

GPR SURVEY REPORT

GROUND PENETRATING RADAR (GPR)
SURVEY RESULTS

FOR THE LOCATION
AND INVESTIGATION OF:

Underground Storage Tank Graves/Utilities

AT THE FOLLOWING
LOCATION:

195 Main Street
Wayland, MA

PREPARED FOR:

Quotation# 1.7673.22

CMG Environmental, Inc.
67 Hall Road
Sturbridge, MA 01089

PREPARED BY:

Sub-Surface, LLC
143C Shaker Road, Suite 206
PO Box 872
East Longmeadow, MA 01028-0872

"Let us Seek and Find"

July 19, 2022

GROUND PENETRATING RADAR (GPR)
SURVEY RESULTS

SUB-SURFACE , LLC
SUB-SURFACE, LLC/GPR DIVISION

143C Shaker Road
Suite 206
Post Office Box 872
E. Longmeadow, MA 01028-0872

Phone - 413-525-4666
Fax - 413-525-2887
Email – beth@subsurfaceinc.com
Email – ray@subsurfaceinc.com

GROUND PENETRATING RADAR (GPR)
SURVEY RESULTS

SUB-SURFACE, LLC
SUB-SURFACE, LLC/GPR DIVISION

143C Shaker Road
Suite 206
Post Office Box 872
E. Longmeadow, MA 01028-0872

Phone - 413-525-4666
Fax - 413-525-2887
Email – beth@subsurfaceinc.com
Email – ray@subsurfaceinc.com

1.0 Introduction

In accordance with your authorization, Sub-Surface, LLC (SS) reports to you the results of the ground penetrating radar survey performed on July 19, 2022, at 195 Main Street Wayland, MA. This survey directed by your approval of SS quotation #1.7673.22 dated July 7, 2022.

1.1 Purpose and Scope

The purpose of the ground penetrating radar (GPR) survey was an investigation for the location of former underground storage tank graves, underground utilities, septic leach field, O/W separator & etc. within an area less than 40,000 SF.

Above photo shows a portion of the 195 Main Street GPR survey area as directed by the CMG Environmental, Inc. on site project manager on the day of the survey.

GROUND PENETRATING RADAR (GPR)
SURVEY RESULTS

2.0 Geophysical Survey

Sub-Surface, LLC performed the geophysical survey. A transducer operator/supervising GPR technician performed the survey.

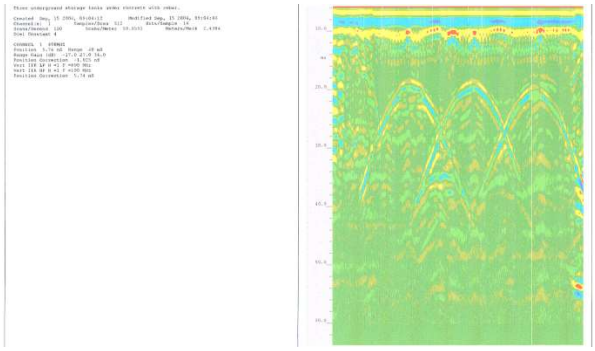
2.1 Geophysical Survey Procedures

The depth setting of the GPR survey was approximately 10.00' locate any existing and unknown anomalies. An increase of high conductivity was located approximately 0.00' to 05.25' below the surface. The increase in conductivity is commonly caused by the capillary fringe of the water table, clays, silts, or organics. Traverses were conducted with a maximum of a 3.00' spacing to better conduct the GPR survey. Typically, a 5.0' – 10.0' spacing is sufficient to detect all large capacity UST's (500-gallon or greater), septic systems and underground utilities with a high degree of certainty. The spacing of a maximum of 3.0' was implemented to better define any existing suspected anomalies. Traverses were conducted in both north/south and east/west directions to form a grid pattern. Traverses were conducted around all surface obstructions such as piles of debris, etc. Anomalies detected in the GPR data common to underground utilities were located within the data and were marked with marking crayon and/or paint on the surface on the day of the survey. All depths are approximate based on an estimation of the dielectric constants of the concrete. The Verifier G2 utility locator was implemented in passive mode in all survey areas to detect the presence of underground live electrical utilities.

The following is an explanation of the equipment used during our survey:

1. The equipment used to conduct the geophysical survey included GPR equipment, which consists of **subsurface interface radar** (SIR-3000) computer manufactured by Geophysical Survey Systems, Inc., power supply, graphic recorder, video display unit, and transmitting/receiving antenna. The equipment is known collectively as a **GPR** system. The transmitting/receiving antenna transmits electromagnetic signals into the subsurface and then detects, amplifies, and displays reflections of the signal on a graphic recorder and a video display unit. As the antenna is moved slowly across the ground surface or surface of contact, a radar image of the subsurface is produced. The maximum depth of penetration of the GPR signal and the resolution of the reflections are a function of the antenna frequency and the electrical properties of the subsurface. As electrical conductivity of the subsurface increases, GPR signal penetration decreases. GPR reflections are produced by spatial changes in the physical properties of the subsurface (I.e., type of material, presence of any subsurface fluid and porosity) and related changes in the electrical properties of the subsurface material in the path of the signals. The greater the difference in the subsurface structures the stronger the GPR reflection seen in the data.

Characteristics that are considered in the interpretation of the GPR data from a given site include the size, shape, and amplitude of the reflections. Metallic underground storage tanks (UST's), utilities and conduits have electrical properties uniquely different from those of the soils in which they are buried. As a result, the GPR reflections are usually of high amplitude and have distinctive shapes. For GPR profiles oriented perpendicular to the long axis of the tanks, the signature is similar to a hyperbola. The signature is also a function of the tank diameter.



GROUND PENETRATING RADAR (GPR)
SURVEY RESULTS

SAMPLE PHOTO: above represents a sample of data collected by Sub-Surface Informational Surveys, Inc. on Sept. 15, 2004, at a site in the State of CT. It shows three (3) Underground Storage Tanks (UST's) with the centerline at the top of the parabolas. This data was taken through concrete, with rebar. NOTE: The above <u>is not</u> part of the data collected for this survey.

2. **Pipehorn 500 Dual-Transmitter, Dual-Frequency Locator:** This unit has two separate transmitters. One operates at the highest frequency available in sweeping an area of tracing poor conductors such as iron pipes, fiber optic cable w/tracer tape. A second, low frequency transmitter enables us to quickly isolate a single conductor in congested areas, or to trace for a long distance. **NOT IMPLEMENTED**

3. **The Verifier G2:** This unit provides digital signal processing for a variety of applications. The unit offers Active, Passive and Beacon locating modes. The unit transmits via direct line connections, induction clamp or induces broadcast signals. An 80 kHz frequency facilitates locating metallic lines with insulators that weaken or block low frequencies. In passive mode, detects signals generated by 50/60 HZ power as well as radiated radio frequencies. **IMPLEMENTED in PASSIVE MODE**

2.2 <u>Geophysical Survey Results</u>

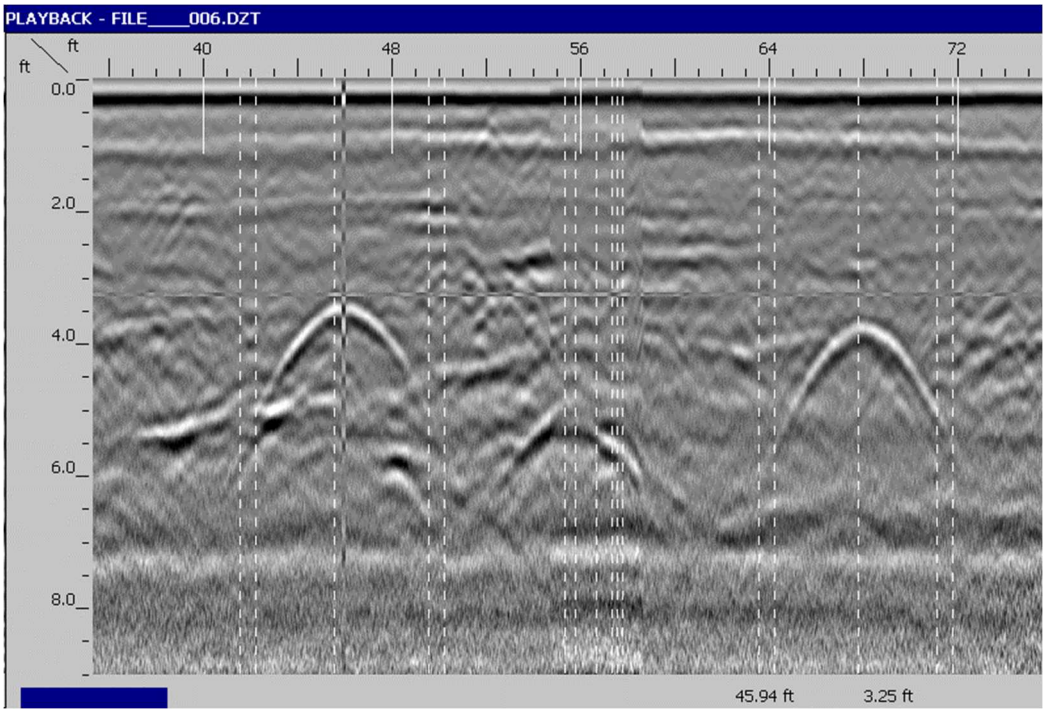
A Ground Penetrating Radar (GPR) survey was conducted in specific asphalt and concrete covered areas outside and on the former building at 195 Main Street as directed by the CMG Environmental, Inc. on site project manager. Parabolic anomalies consistent with underground utilities that were detected in the GPR data collected in the survey areas were marked on the ground with crayon and/or paint on the day of the survey. GPR anomalies similar to one (1) possible suspect underground storage tank were detected in the GPR data collected and marked with paint on the day of the survey.

Above photo shows GPR survey area with paint marking the location of detected anomalies similar to a possible suspect underground storage tank (50% probability) or utilities.

GROUND PENETRATING RADAR (GPR)
SURVEY RESULTS

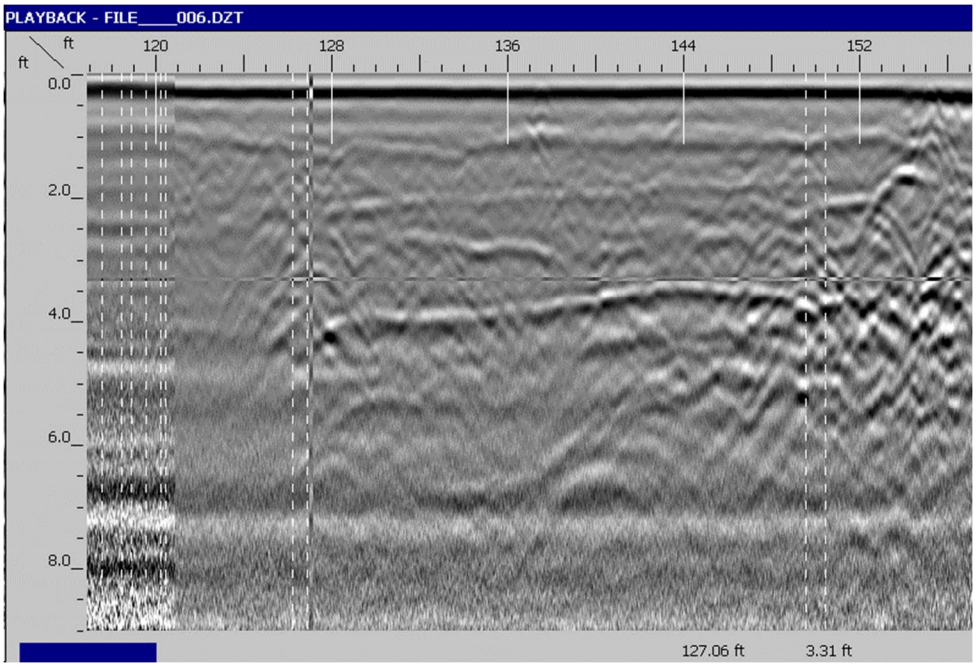
Above and below images show GPR survey area with paint marking the locations of detected possible suspect underground utilities..

GROUND PENETRATING RADAR (GPR)
SURVEY RESULTS



Above image shows GPR data collected in the survey area pictured below. GPR anomalies similar to a possible suspect underground storage tank can be seen at 45.95' into the data at an approximate depth of 03.25' with paint marking the location of detected anomalies similar to a possible suspect underground storage tank (50% probability).

GROUND PENETRATING RADAR (GPR)
SURVEY RESULTS

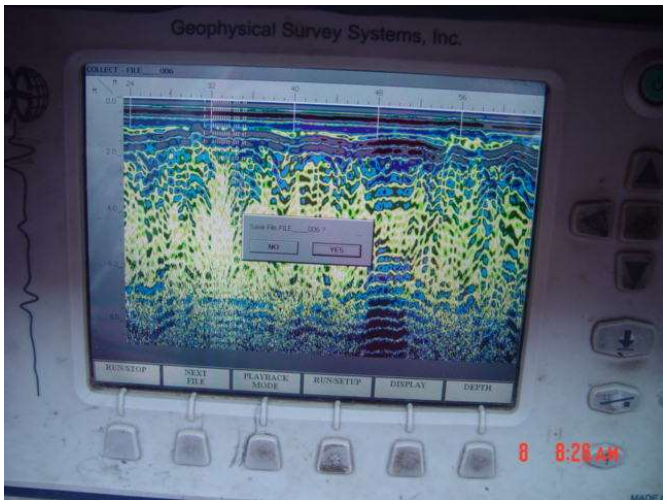


Above image shows GPR anomalies similar to the long axis of a possible suspect undeerground storage tank starting at 127.06’ into the data at an aproximate depth of 03.31’.

GROUND PENETRATING RADAR (GPR)
SURVEY RESULTS

Manhole covers in survey area were removed for inspection on the day of the survey.
All survey results were marked on the ground with crayon and/or paint and reviewed with the CMG Environmental, Inc. on site project manager on the day of the survey.

GROUND PENETRATING RADAR (GPR)
SURVEY RESULTS



Sample: Real-time data collected

SIR-3000 GPR System used in this survey

END OF REPORT

APPENDIX C

LABORATORY CERTIFICATES OF ANALYSIS & CHAIN-OF-CUSTODY DOCUMENTATION

Sunday, August 07, 2022

Attn: Mr. Steve Van Wormer
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Project ID: 2022-062
SDG ID: GCL85974
Sample ID#s: CL85974 - CL85981

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Sincerely yours,

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
VT Lab Registration #VT11301

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

SDG Comments

August 07, 2022

SDG I.D.: GCL85974

Phoenix reporting levels may exceed those referenced in the CAM protocol. Please refer to criteria sheet for comparisons to requested MCP standards.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Sample Id Cross Reference

August 07, 2022

SDG I.D.: GCL85974

Project ID: 2022-062

Client Id	Lab Id	Matrix
MW-1 (10-12)	CL85974	SOIL
MW-4 (8-10)	CL85975	SOIL
MW-5 (7-10)	CL85976	SOIL
MW-6 (14-15)	CL85977	SOIL
MW-7 (15-17)	CL85978	SOIL
SB-9 (8-10)	CL85979	SOIL
MW-11 (8-10)	CL85980	SOIL
SB-12 (10-12)	CL85981	SOIL

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

August 07, 2022

FOR: Attn: Mr. Steve Van Wormer
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:	SV	07/21/22	9:00
Location Code:	CMGENV	Received by:	CP	07/25/22	14:39
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	WAYLAND DPW				

Laboratory Data

SDG ID: GCL85974
Phoenix ID: CL85974

Project ID: 2022-062
Client ID: MW-1 (10-12)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.36	0.36	mg/Kg	1	07/26/22	EK	SW6010D
Arsenic	4.85	0.72	mg/Kg	1	07/26/22	EK	SW6010D
Barium	22.6	0.36	mg/Kg	1	07/26/22	EK	SW6010D
Beryllium	< 0.29	0.29	mg/Kg	1	07/26/22	EK	SW6010D
Cadmium	1.76	0.36	mg/Kg	1	07/26/22	EK	SW6010D
Chromium	23.1	0.36	mg/Kg	1	07/26/22	EK	SW6010D
Mercury	< 0.03	0.03	mg/Kg	2	07/26/22	IE	SW7471B
Nickel	27.0	0.36	mg/Kg	1	07/26/22	EK	SW6010D
Lead	11.1	0.36	mg/Kg	1	07/26/22	EK	SW6010D
Antimony	< 3.6	3.6	mg/Kg	1	07/26/22	EK	SW6010D
Selenium	< 1.4	1.4	mg/Kg	1	07/26/22	EK	SW6010D
Thallium	< 3.3	3.3	mg/Kg	1	07/26/22	EK	SW6010D
Vanadium	63.9	0.36	mg/Kg	1	07/26/22	EK	SW6010D
Zinc	53.7	0.7	mg/Kg	1	07/26/22	EK	SW6010D
Percent Solid	96		%		07/25/22	AE/K	SW846-%Solid
Extraction for SVOA SIM	Completed				07/26/22	O/MO	SW3545A
Soil Extraction for Pesticide	Completed				07/25/22	B/MO	SW3545A
Field Extraction	Completed				07/21/22		SW5035A
Mercury Digestion	Completed				07/26/22	AB/AB	SW7471B
EPH Extraction	Completed				07/25/22	B/RL/BC	SW3545A
Ext. Petroleum Hydrocarbons	Completed				07/25/22		MADEP EPH-19
Soil Extraction for Herbicide	Completed				07/26/22	L/D	SW3546
Soil Extraction for SVOA PAH	Completed				07/25/22	L/B/A	SW3546
Total Metals Digest	Completed				07/25/22	L/T	SW3050B
Chlorinated Herbicides							
2,4,5-T	ND	45	ug/Kg	2	07/27/22	JRB	SW8151A

Ver 1

Project ID: 2022-062
Client ID: MW-1 (10-12)

Phoenix I.D.: CL85974

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
2,4,5-TP (Silvex)	ND	45	ug/Kg	2	07/27/22	JRB	SW8151A
2,4-D	ND	45	ug/Kg	2	07/27/22	JRB	SW8151A
2,4-DB	ND	45	ug/Kg	2	07/27/22	JRB	SW8151A
Dalapon	ND	45	ug/Kg	2	07/27/22	JRB	SW8151A
Dicamba	ND	45	ug/Kg	2	07/27/22	JRB	SW8151A
Dichloroprop	ND	68	ug/Kg	2	07/27/22	JRB	SW8151A
Dinoseb	ND	45	ug/Kg	2	07/27/22	JRB	SW8151A
MCPA	ND	2700	ug/Kg	2	07/27/22	JRB	SW8151A
MCPP	ND	2700	ug/Kg	2	07/27/22	JRB	SW8151A
QA/QC Surrogates							
% DCAA	107		%	2	07/27/22	JRB	30 - 150 %
% DCAA (Confirmation)	88		%	2	07/27/22	JRB	30 - 150 %
Pesticides							
4,4' -DDD	ND	6.9	ug/Kg	2	07/28/22	AW	SW8081B
4,4' -DDE	ND	6.9	ug/Kg	2	07/28/22	AW	SW8081B
4,4' -DDT	ND	6.9	ug/Kg	2	07/28/22	AW	SW8081B
a-BHC	ND	6.9	ug/Kg	2	07/28/22	AW	SW8081B
Alachlor	ND	6.9	ug/Kg	2	07/28/22	AW	SW8081B
Aldrin	ND	3.5	ug/Kg	2	07/28/22	AW	SW8081B
b-BHC	ND	6.9	ug/Kg	2	07/28/22	AW	SW8081B
Chlordane	100	35	ug/Kg	2	07/28/22	AW	SW8081B
d-BHC	ND	6.9	ug/Kg	2	07/28/22	AW	SW8081B
Dieldrin	ND	3.5	ug/Kg	2	07/28/22	AW	SW8081B
Endosulfan I	ND	6.9	ug/Kg	2	07/28/22	AW	SW8081B
Endosulfan II	ND	6.9	ug/Kg	2	07/28/22	AW	SW8081B
Endosulfan sulfate	ND	6.9	ug/Kg	2	07/28/22	AW	SW8081B
Endrin	ND	6.9	ug/Kg	2	07/28/22	AW	SW8081B
Endrin aldehyde	ND	6.9	ug/Kg	2	07/28/22	AW	SW8081B
Endrin ketone	ND	6.9	ug/Kg	2	07/28/22	AW	SW8081B
g-BHC	ND	1.4	ug/Kg	2	07/28/22	AW	SW8081B
Heptachlor	ND	6.9	ug/Kg	2	07/28/22	AW	SW8081B
Heptachlor epoxide	ND	6.9	ug/Kg	2	07/28/22	AW	SW8081B
Hexachlorobenzene	ND	3.5	ug/Kg	2	07/28/22	AW	SW8081B
Methoxychlor	ND	35	ug/Kg	2	07/28/22	AW	SW8081B
Toxaphene	ND	140	ug/Kg	2	07/28/22	AW	SW8081B
QA/QC Surrogates							
% DCBP	60		%	2	07/28/22	AW	30 - 150 %
% DCBP (Confirmation)	73		%	2	07/28/22	AW	30 - 150 %
% TCMX	48		%	2	07/28/22	AW	30 - 150 %
% TCMX (Confirmation)	53		%	2	07/28/22	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
1,1,1-Trichloroethane	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	1.2	ug/Kg	1	08/02/22	JLI	SW8260C
1,1,2-Trichloroethane	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
1,1-Dichloroethane	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
1,1-Dichloroethene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
1,1-Dichloropropene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C

Project ID: 2022-062
Client ID: MW-1 (10-12)

Phoenix I.D.: CL85974

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2,3-Trichlorobenzene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
1,2,3-Trichloropropane	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
1,2-Dibromoethane	ND	0.20	ug/Kg	1	08/02/22	JLI	SW8260C
1,2-Dichlorobenzene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
1,2-Dichloroethane	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
1,2-Dichloropropane	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
1,3-Dichlorobenzene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
1,3-Dichloropropane	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
1,4-Dichlorobenzene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
2,2-Dichloropropane	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
2-Chlorotoluene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
2-Hexanone	ND	10	ug/Kg	1	08/02/22	JLI	SW8260C
2-Isopropyltoluene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
4-Chlorotoluene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
4-Methyl-2-pentanone	ND	10	ug/Kg	1	08/02/22	JLI	SW8260C
Acetone	ND	100	ug/Kg	1	08/02/22	JLI	SW8260C
Acrylonitrile	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
Benzene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
Bromobenzene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
Bromochloromethane	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
Bromodichloromethane	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
Bromoform	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
Bromomethane	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
Carbon Disulfide	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
Carbon tetrachloride	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
Chlorobenzene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
Chloroethane	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
Chloroform	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
Chloromethane	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
cis-1,2-Dichloroethene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
cis-1,3-Dichloropropene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
Dibromochloromethane	ND	1.2	ug/Kg	1	08/02/22	JLI	SW8260C
Dibromomethane	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
Dichlorodifluoromethane	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
Ethylbenzene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
Hexachlorobutadiene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
Isopropylbenzene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
m&p-Xylene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
Methyl Ethyl Ketone	ND	12	ug/Kg	1	08/02/22	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	4.1	ug/Kg	1	08/02/22	JLI	SW8260C
Methylene chloride	ND	4.1	ug/Kg	1	08/02/22	JLI	SW8260C
Naphthalene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
n-Butylbenzene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
n-Propylbenzene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
o-Xylene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C

Project ID: 2022-062
Client ID: MW-1 (10-12)

Phoenix I.D.: CL85974

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
p-Isopropyltoluene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
sec-Butylbenzene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
Styrene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
tert-Butylbenzene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
Tetrachloroethene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
Tetrahydrofuran (THF)	ND	4.1	ug/Kg	1	08/02/22	JLI	SW8260C
Toluene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
Total Xylenes	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
trans-1,2-Dichloroethene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
trans-1,3-Dichloropropene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	4.1	ug/Kg	1	08/02/22	JLI	SW8260C
Trichloroethene	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
Trichlorofluoromethane	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
Trichlorotrifluoroethane	ND	4.1	ug/Kg	1	08/02/22	JLI	SW8260C
Vinyl chloride	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	98		%	1	08/02/22	JLI	70 - 130 %
% Bromofluorobenzene	105		%	1	08/02/22	JLI	70 - 130 %
% Dibromofluoromethane	95		%	1	08/02/22	JLI	70 - 130 %
% Toluene-d8	96		%	1	08/02/22	JLI	70 - 130 %
Oxygenates & Dioxane							
1,4-Dioxane	ND	41	ug/Kg	1	08/02/22	JLI	SW8260C (OXY)
Diethyl ether	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C (OXY)
Di-isopropyl ether	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C (OXY)
Ethyl tert-butyl ether	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C (OXY)
tert-amyl methyl ether	ND	2.0	ug/Kg	1	08/02/22	JLI	SW8260C (OXY)
1,4-Dioxane							
1,4-dioxane	ND	69	ug/Kg	1	07/27/22	WB	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	61		%	1	07/27/22	WB	40 - 140 %
% Nitrobenzene-d5	68		%	1	07/27/22	WB	40 - 140 %
% Terphenyl-d14	105		%	1	07/27/22	WB	40 - 140 %
EPH Other PAH Target Analytes							
Acenaphthylene	ND	240	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Anthracene	ND	240	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Benz(a)anthracene	ND	240	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Benzo(a)pyrene	ND	240	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Benzo(b)fluoranthene	ND	240	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Benzo(ghi)perylene	ND	240	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Benzo(k)fluoranthene	ND	240	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Chrysene	ND	240	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Dibenz(a,h)anthracene	ND	240	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Fluoranthene	ND	240	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Fluorene	ND	240	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Indeno(1,2,3-cd)pyrene	ND	240	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Pyrene	ND	240	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
QA/QC Surrogates							

Project ID: 2022-062
Client ID: MW-1 (10-12)

Phoenix I.D.: CL85974

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
% 2-Fluorobiphenyl	89		%	1	07/26/22	WB	30 - 130 %
% Nitrobenzene-d5	79		%	1	07/26/22	WB	30 - 130 %
% Terphenyl-d14	63		%	1	07/26/22	WB	30 - 130 %
EPH Diesel PAH Target Analytes							
2-Methylnaphthalene	ND	240	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Acenaphthene	ND	240	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Naphthalene	ND	240	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Phenanthrene	ND	240	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
MA EPH Aliphatic/Aromatic Ranges							
C11-C22 Aromatic Hydrocarbons 1,2	ND	68	mg/Kg	1	07/26/22	AW	MA EPH 5/2019
C11-C22 Aromatic Hydrocarbons Un	ND	68	mg/Kg	1	07/26/22	AW	MA EPH 5/2019
C19-C36 Aliphatic Hydrocarbons 1*	250	68	mg/Kg	1	07/26/22	AW	MA EPH 5/2019
C9-C18 Aliphatic Hydrocarbons 1*	ND	68	mg/Kg	1	07/26/22	AW	MA EPH 5/2019
Total TPH 1,2*	250	68	mg/Kg	1	07/26/22	AW	MA EPH 5/2019
QA/QC Surrogates							
% 1-chlorooctadecane (aliphatic)	79		%	1	07/26/22	AW	40 - 140 %
% 2-Bromonaphthalene (Fractionation)	81		%	1	07/26/22	AW	40 - 140 %
% 2-Fluorobiphenyl (Fractionation)	95		%	1	07/26/22	AW	40 - 140 %
% o-terphenyl (aromatic)	78		%	1	07/26/22	AW	40 - 140 %

Massachusetts does not offer certification for Soil/Solid matrices.

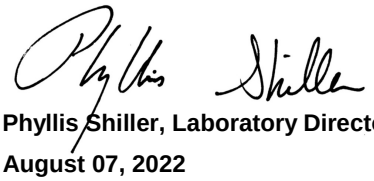
RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

MAEPH:
1* Hydrocarbon range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.
2* C11-C22 Aromatic Hydrocarbons exclude the concentration of Target PAH analytes eluting in that range.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.



Phyllis Shiller, Laboratory Director

August 07, 2022

Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

August 07, 2022

FOR: Attn: Mr. Steve Van Wormer
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:	SV	07/21/22	11:00
Location Code:	CMGENV	Received by:	CP	07/25/22	14:39
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	WAYLAND DPW				

Laboratory Data

SDG ID: GCL85974
Phoenix ID: CL85975

Project ID: 2022-062
Client ID: MW-4 (8-10)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.35	0.35	mg/Kg	1	07/26/22	EK	SW6010D
Arsenic	3.35	0.70	mg/Kg	1	07/26/22	EK	SW6010D
Barium	12.5	0.35	mg/Kg	1	07/26/22	EK	SW6010D
Beryllium	< 0.28	0.28	mg/Kg	1	07/26/22	EK	SW6010D
Cadmium	0.51	0.35	mg/Kg	1	07/26/22	EK	SW6010D
Chromium	8.87	0.35	mg/Kg	1	07/26/22	EK	SW6010D
Mercury	< 0.03	0.03	mg/Kg	2	07/26/22	IE	SW7471B
Nickel	6.94	0.35	mg/Kg	1	07/26/22	EK	SW6010D
Lead	3.09	0.35	mg/Kg	1	07/26/22	EK	SW6010D
Antimony	< 3.5	3.5	mg/Kg	1	07/26/22	EK	SW6010D
Selenium	< 1.4	1.4	mg/Kg	1	07/26/22	EK	SW6010D
Thallium	< 3.2	3.2	mg/Kg	1	07/26/22	EK	SW6010D
Vanadium	12.7	0.35	mg/Kg	1	07/26/22	EK	SW6010D
Zinc	15.9	0.7	mg/Kg	1	07/26/22	EK	SW6010D
Percent Solid	84		%		07/25/22	AE/K	SW846-%Solid
Soil Extraction for Pesticide	Completed				07/25/22	B/MO	SW3545A
Field Extraction	Completed				07/21/22		SW5035A
Mercury Digestion	Completed				07/26/22	AB/AB	SW7471B
EPH Extraction	Completed				07/25/22	B/RL/BC	SW3545A
Ext. Petroleum Hydrocarbons	Completed				07/25/22		MADEP EPH-19
Soil Extraction for Herbicide	Completed				07/26/22	L/D	SW3546
Soil Extraction for SVOA PAH	Completed				07/25/22	L/B/A	SW3546
Total Metals Digest	Completed				07/25/22	L/T	SW3050B
Chlorinated Herbicides							
2,4,5-T	ND	30	ug/Kg	2	07/27/22	JRB	SW8151A
2,4,5-TP (Silvex)	ND	30	ug/Kg	2	07/27/22	JRB	SW8151A

Ver 1

Project ID: 2022-062
Client ID: MW-4 (8-10)

Phoenix I.D.: CL85975

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
2,4-D	ND	59	ug/Kg	2	07/27/22	JRB	SW8151A
2,4-DB	ND	30	ug/Kg	2	07/27/22	JRB	SW8151A
Dalapon	ND	30	ug/Kg	2	07/27/22	JRB	SW8151A
Dicamba	ND	30	ug/Kg	2	07/27/22	JRB	SW8151A
Dichloroprop	ND	44	ug/Kg	2	07/27/22	JRB	SW8151A
Dinoseb	ND	30	ug/Kg	2	07/27/22	JRB	SW8151A
MCPA	ND	3000	ug/Kg	2	07/27/22	JRB	SW8151A
MCPP	ND	3000	ug/Kg	2	07/27/22	JRB	SW8151A
QA/QC Surrogates							
% DCAA	115		%	2	07/27/22	JRB	30 - 150 %
% DCAA (Confirmation)	91		%	2	07/27/22	JRB	30 - 150 %
Pesticides							
4,4' -DDD	ND	7.7	ug/Kg	2	07/27/22	AW	SW8081B
4,4' -DDE	ND	7.7	ug/Kg	2	07/27/22	AW	SW8081B
4,4' -DDT	ND	7.7	ug/Kg	2	07/27/22	AW	SW8081B
a-BHC	ND	7.7	ug/Kg	2	07/27/22	AW	SW8081B
Alachlor	ND	7.7	ug/Kg	2	07/27/22	AW	SW8081B
Aldrin	ND	3.9	ug/Kg	2	07/27/22	AW	SW8081B
b-BHC	ND	7.7	ug/Kg	2	07/27/22	AW	SW8081B
Chlordane	ND	15	ug/Kg	2	07/27/22	AW	SW8081B
d-BHC	ND	7.7	ug/Kg	2	07/27/22	AW	SW8081B
Dieldrin	ND	3.9	ug/Kg	2	07/27/22	AW	SW8081B
Endosulfan I	ND	7.7	ug/Kg	2	07/27/22	AW	SW8081B
Endosulfan II	ND	7.7	ug/Kg	2	07/27/22	AW	SW8081B
Endosulfan sulfate	ND	7.7	ug/Kg	2	07/27/22	AW	SW8081B
Endrin	ND	7.7	ug/Kg	2	07/27/22	AW	SW8081B
Endrin aldehyde	ND	7.7	ug/Kg	2	07/27/22	AW	SW8081B
Endrin ketone	ND	7.7	ug/Kg	2	07/27/22	AW	SW8081B
g-BHC	ND	1.5	ug/Kg	2	07/27/22	AW	SW8081B
Heptachlor	ND	7.7	ug/Kg	2	07/27/22	AW	SW8081B
Heptachlor epoxide	ND	7.7	ug/Kg	2	07/27/22	AW	SW8081B
Hexachlorobenzene	ND	3.9	ug/Kg	2	07/27/22	AW	SW8081B
Methoxychlor	ND	39	ug/Kg	2	07/27/22	AW	SW8081B
Toxaphene	ND	150	ug/Kg	2	07/27/22	AW	SW8081B
QA/QC Surrogates							
% DCBP	53		%	2	07/27/22	AW	30 - 150 %
% DCBP (Confirmation)	55		%	2	07/27/22	AW	30 - 150 %
% TCMX	45		%	2	07/27/22	AW	30 - 150 %
% TCMX (Confirmation)	43		%	2	07/27/22	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
1,1,1-Trichloroethane	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	1.6	ug/Kg	1	07/29/22	JLI	SW8260C
1,1,2-Trichloroethane	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
1,1-Dichloroethane	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
1,1-Dichloroethene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
1,1-Dichloropropene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
1,2,3-Trichlorobenzene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C

Project ID: 2022-062
Client ID: MW-4 (8-10)

Phoenix I.D.: CL85975

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2,3-Trichloropropane	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
1,2-Dibromoethane	ND	0.26	ug/Kg	1	07/29/22	JLI	SW8260C
1,2-Dichlorobenzene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
1,2-Dichloroethane	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
1,2-Dichloropropane	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
1,3-Dichlorobenzene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
1,3-Dichloropropane	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
1,4-Dichlorobenzene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
2,2-Dichloropropane	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
2-Chlorotoluene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
2-Hexanone	ND	13	ug/Kg	1	07/29/22	JLI	SW8260C
2-Isopropyltoluene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
4-Chlorotoluene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
4-Methyl-2-pentanone	ND	13	ug/Kg	1	07/29/22	JLI	SW8260C
Acetone	ND	130	ug/Kg	1	07/29/22	JLI	SW8260C
Acrylonitrile	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
Benzene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
Bromobenzene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
Bromochloromethane	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
Bromodichloromethane	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
Bromoform	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
Bromomethane	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
Carbon Disulfide	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
Carbon tetrachloride	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
Chlorobenzene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
Chloroethane	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
Chloroform	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
Chloromethane	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
cis-1,2-Dichloroethene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
cis-1,3-Dichloropropene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
Dibromochloromethane	ND	1.6	ug/Kg	1	07/29/22	JLI	SW8260C
Dibromomethane	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
Dichlorodifluoromethane	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
Ethylbenzene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
Hexachlorobutadiene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
Isopropylbenzene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
m&p-Xylene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
Methyl Ethyl Ketone	ND	16	ug/Kg	1	07/29/22	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	5.2	ug/Kg	1	07/29/22	JLI	SW8260C
Methylene chloride	ND	5.2	ug/Kg	1	07/29/22	JLI	SW8260C
Naphthalene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
n-Butylbenzene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
n-Propylbenzene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
o-Xylene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
p-Isopropyltoluene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C

Project ID: 2022-062
Client ID: MW-4 (8-10)

Phoenix I.D.: CL85975

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
sec-Butylbenzene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
Styrene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
tert-Butylbenzene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
Tetrachloroethene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
Tetrahydrofuran (THF)	ND	5.2	ug/Kg	1	07/29/22	JLI	SW8260C
Toluene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
Total Xylenes	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
trans-1,2-Dichloroethene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
trans-1,3-Dichloropropene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	5.2	ug/Kg	1	07/29/22	JLI	SW8260C
Trichloroethene	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
Trichlorofluoromethane	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
Trichlorotrifluoroethane	ND	5.2	ug/Kg	1	07/29/22	JLI	SW8260C
Vinyl chloride	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	96		%	1	07/29/22	JLI	70 - 130 %
% Bromofluorobenzene	97		%	1	07/29/22	JLI	70 - 130 %
% Dibromofluoromethane	97		%	1	07/29/22	JLI	70 - 130 %
% Toluene-d8	93		%	1	07/29/22	JLI	70 - 130 %
Oxygenates & Dioxane							
1,4-Dioxane	ND	52	ug/Kg	1	07/29/22	JLI	SW8260C (OXY)
Diethyl ether	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C (OXY)
Di-isopropyl ether	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C (OXY)
Ethyl tert-butyl ether	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C (OXY)
tert-amyl methyl ether	ND	2.6	ug/Kg	1	07/29/22	JLI	SW8260C (OXY)
EPH Other PAH Target Analytes							
Acenaphthylene	ND	280	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Anthracene	ND	280	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Benz(a)anthracene	ND	280	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Benzo(a)pyrene	ND	280	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Benzo(b)fluoranthene	ND	280	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Benzo(ghi)perylene	ND	280	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Benzo(k)fluoranthene	ND	280	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Chrysene	ND	280	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Dibenz(a,h)anthracene	ND	280	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Fluoranthene	ND	280	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Fluorene	ND	280	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Indeno(1,2,3-cd)pyrene	ND	280	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Pyrene	ND	280	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
QA/QC Surrogates							
% 2-Fluorobiphenyl	75		%	1	07/26/22	WB	30 - 130 %
% Nitrobenzene-d5	80		%	1	07/26/22	WB	30 - 130 %
% Terphenyl-d14	94		%	1	07/26/22	WB	30 - 130 %
EPH Diesel PAH Target Analytes							
2-Methylnaphthalene	ND	280	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Acenaphthene	ND	280	ug/Kg	1	07/26/22	WB	MA EPH 5/2004
Naphthalene	ND	280	ug/Kg	1	07/26/22	WB	MA EPH 5/2004

Project ID: 2022-062
Client ID: MW-4 (8-10)

Phoenix I.D.: CL85975

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Phenanthrene	ND	280	ug/Kg	1	07/26/22	WB	MA EPH 5/2004

MA EPH Aliphatic/Aromatic Ranges

C11-C22 Aromatic Hydrocarbons 1,2	ND	79	mg/Kg	1	07/26/22	AW	MA EPH 5/2019
C11-C22 Aromatic Hydrocarbons Un	ND	79	mg/Kg	1	07/26/22	AW	MA EPH 5/2019
C19-C36 Aliphatic Hydrocarbons 1*	ND	79	mg/Kg	1	07/26/22	AW	MA EPH 5/2019
C9-C18 Aliphatic Hydrocarbons 1*	ND	79	mg/Kg	1	07/26/22	AW	MA EPH 5/2019
Total TPH 1,2*	ND	79	mg/Kg	1	07/26/22	AW	MA EPH 5/2019
QA/QC Surrogates							
% 1-chlorooctadecane (aliphatic)	105		%	1	07/26/22	AW	40 - 140 %
% 2-Bromonaphthalene (Fractionation)	79		%	1	07/26/22	AW	40 - 140 %
% 2-Fluorobiphenyl (Fractionation)	117		%	1	07/26/22	AW	40 - 140 %
% o-terphenyl (aromatic)	105		%	1	07/26/22	AW	40 - 140 %

Massachusetts does not offer certification for Soil/Solid matrices.

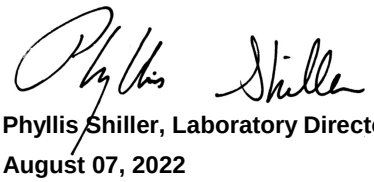
RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

MAEPH:
1* Hydrocarbon range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.
2* C11-C22 Aromatic Hydrocarbons exclude the concentration of Target PAH analytes eluting in that range.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.



Phyllis Shiller, Laboratory Director
August 07, 2022
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

August 07, 2022

FOR: Attn: Mr. Steve Van Wormer
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:	SV	07/21/22	12:15
Location Code:	CMGENV	Received by:	CP	07/25/22	14:39
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	WAYLAND DPW				

Laboratory Data

SDG ID: GCL85974
Phoenix ID: CL85976

Project ID: 2022-062
Client ID: MW-5 (7-10)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.37	0.37	mg/Kg	1	07/26/22	EK	SW6010D
Arsenic	5.90	0.73	mg/Kg	1	07/26/22	EK	SW6010D
Barium	128	0.37	mg/Kg	1	07/26/22	EK	SW6010D
Beryllium	0.39	0.29	mg/Kg	1	07/26/22	EK	SW6010D
Cadmium	10.1	0.37	mg/Kg	1	07/26/22	EK	SW6010D
Chromium	25.1	0.37	mg/Kg	1	07/26/22	EK	SW6010D
Mercury	0.82	0.03	mg/Kg	2	07/26/22	IE	SW7471B
Nickel	15.1	0.37	mg/Kg	1	07/26/22	EK	SW6010D
Lead	303	0.37	mg/Kg	1	07/26/22	EK	SW6010D
Antimony	6.2	3.7	mg/Kg	1	07/26/22	EK	SW6010D
Selenium	< 1.5	1.5	mg/Kg	1	07/26/22	EK	SW6010D
Thallium	< 3.3	3.3	mg/Kg	1	07/26/22	EK	SW6010D
Vanadium	28.5	0.37	mg/Kg	1	07/26/22	EK	SW6010D
Zinc	2970	73	mg/Kg	100	08/02/22	TH	SW6010D
Percent Solid	82		%		07/25/22	AE/K	SW846-%Solid
Field Extraction	Completed				07/21/22		SW5035A
Mercury Digestion	Completed				07/26/22	AB/AB	SW7471B
EPH Extraction	Completed				07/25/22	B/RL/BC	SW3545A
Ext. Petroleum Hydrocarbons	Completed				07/25/22		MADEP EPH-19
Soil Extraction for SVOA PAH	Completed				07/26/22	B/A	SW3546
Total Metals Digest	Completed				07/25/22	L/T	SW3050B
Volatiles							
1,1,1,2-Tetrachloroethane	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
1,1,1-Trichloroethane	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	2.9	ug/Kg	1	07/29/22	JLI	SW8260C
1,1,2-Trichloroethane	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C

Project ID: 2022-062
Client ID: MW-5 (7-10)

Phoenix I.D.: CL85976

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,1-Dichloroethane	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
1,1-Dichloroethene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
1,1-Dichloropropene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
1,2,3-Trichlorobenzene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
1,2,3-Trichloropropane	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
1,2-Dibromoethane	ND	0.49	ug/Kg	1	07/29/22	JLI	SW8260C
1,2-Dichlorobenzene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
1,2-Dichloroethane	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
1,2-Dichloropropane	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
1,3-Dichlorobenzene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
1,3-Dichloropropane	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
1,4-Dichlorobenzene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
2,2-Dichloropropane	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
2-Chlorotoluene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
2-Hexanone	ND	24	ug/Kg	1	07/29/22	JLI	SW8260C
2-Isopropyltoluene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
4-Chlorotoluene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
4-Methyl-2-pentanone	ND	24	ug/Kg	1	07/29/22	JLI	SW8260C
Acetone	ND	240	ug/Kg	1	07/29/22	JLI	SW8260C
Acrylonitrile	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
Benzene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
Bromobenzene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
Bromochloromethane	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
Bromodichloromethane	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
Bromoform	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
Bromomethane	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
Carbon Disulfide	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
Carbon tetrachloride	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
Chlorobenzene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
Chloroethane	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
Chloroform	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
Chloromethane	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
cis-1,2-Dichloroethene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
cis-1,3-Dichloropropene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
Dibromochloromethane	ND	2.9	ug/Kg	1	07/29/22	JLI	SW8260C
Dibromomethane	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
Dichlorodifluoromethane	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
Ethylbenzene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
Hexachlorobutadiene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
Isopropylbenzene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
m&p-Xylene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
Methyl Ethyl Ketone	ND	29	ug/Kg	1	07/29/22	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	9.8	ug/Kg	1	07/29/22	JLI	SW8260C
Methylene chloride	ND	9.8	ug/Kg	1	07/29/22	JLI	SW8260C
Naphthalene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C

Project ID: 2022-062
Client ID: MW-5 (7-10)

Phoenix I.D.: CL85976

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
n-Butylbenzene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
n-Propylbenzene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
o-Xylene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
p-Isopropyltoluene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
sec-Butylbenzene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
Styrene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
tert-Butylbenzene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
Tetrachloroethene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
Tetrahydrofuran (THF)	ND	9.8	ug/Kg	1	07/29/22	JLI	SW8260C
Toluene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
Total Xylenes	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
trans-1,2-Dichloroethene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
trans-1,3-Dichloropropene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	9.8	ug/Kg	1	07/29/22	JLI	SW8260C
Trichloroethene	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
Trichlorofluoromethane	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
Trichlorotrifluoroethane	ND	9.8	ug/Kg	1	07/29/22	JLI	SW8260C
Vinyl chloride	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	95		%	1	07/29/22	JLI	70 - 130 %
% Bromofluorobenzene	96		%	1	07/29/22	JLI	70 - 130 %
% Dibromofluoromethane	95		%	1	07/29/22	JLI	70 - 130 %
% Toluene-d8	92		%	1	07/29/22	JLI	70 - 130 %
Oxygenates & Dioxane							
1,4-Dioxane	ND	98	ug/Kg	1	07/29/22	JLI	SW8260C (OXY)
Diethyl ether	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C (OXY)
Di-isopropyl ether	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C (OXY)
Ethyl tert-butyl ether	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C (OXY)
tert-amyl methyl ether	ND	4.9	ug/Kg	1	07/29/22	JLI	SW8260C (OXY)
EPH Other PAH Target Analytes							
Acenaphthylene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Anthracene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benz(a)anthracene	360	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benzo(a)pyrene	380	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benzo(b)fluoranthene	320	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benzo(ghi)perylene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benzo(k)fluoranthene	310	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Chrysene	410	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Dibenz(a,h)anthracene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Fluoranthene	720	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Fluorene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Indeno(1,2,3-cd)pyrene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Pyrene	800	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
QA/QC Surrogates							
% 2-Fluorobiphenyl	51		%	1	07/27/22	WB	30 - 130 %
% Nitrobenzene-d5	54		%	1	07/27/22	WB	30 - 130 %
% Terphenyl-d14	71		%	1	07/27/22	WB	30 - 130 %

Project ID: 2022-062
Client ID: MW-5 (7-10)

Phoenix I.D.: CL85976

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
EPH Diesel PAH Target Analytes							
2-Methylnaphthalene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Acenaphthene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Naphthalene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Phenanthrene	550	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
MA EPH Aliphatic/Aromatic Ranges							
C11-C22 Aromatic Hydrocarbons 1,2	ND	81	mg/Kg	1	07/26/22	AW	MA EPH 5/2019
C11-C22 Aromatic Hydrocarbons Un	ND	81	mg/Kg	1	07/26/22	AW	MA EPH 5/2019
C19-C36 Aliphatic Hydrocarbons 1*	ND	81	mg/Kg	1	07/26/22	AW	MA EPH 5/2019
C9-C18 Aliphatic Hydrocarbons 1*	ND	81	mg/Kg	1	07/26/22	AW	MA EPH 5/2019
Total TPH 1,2*	ND	81	mg/Kg	1	07/26/22	AW	MA EPH 5/2019
QA/QC Surrogates							
% 1-chlorooctadecane (aliphatic)	64		%	1	07/26/22	AW	40 - 140 %
% 2-Bromonaphthalene (Fractionation)	89		%	1	07/26/22	AW	40 - 140 %
% 2-Fluorobiphenyl (Fractionation)	92		%	1	07/26/22	AW	40 - 140 %
% o-terphenyl (aromatic)	42		%	1	07/26/22	AW	40 - 140 %

Massachusetts does not offer certification for Soil/Solid matrices.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

MAEPH:
1* Hydrocarbon range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.
2* C11-C22 Aromatic Hydrocarbons exclude the concentration of Target PAH analytes eluting in that range.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
August 07, 2022
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

August 07, 2022

FOR: Attn: Mr. Steve Van Wormer
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:	SV	07/21/22	13:00
Location Code:	CMGENV	Received by:	CP	07/25/22	14:39
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	WAYLAND DPW				

Laboratory Data

SDG ID: GCL85974
Phoenix ID: CL85977

Project ID: 2022-062
Client ID: MW-6 (14-15)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.42	0.42	mg/Kg	1	07/27/22	EK	SW6010D
Arsenic	1.49	0.84	mg/Kg	1	07/27/22	EK	SW6010D
Barium	12.0	0.42	mg/Kg	1	07/27/22	EK	SW6010D
Beryllium	< 0.33	0.33	mg/Kg	1	07/27/22	EK	SW6010D
Cadmium	0.59	0.42	mg/Kg	1	07/27/22	EK	SW6010D
Chromium	13.5	0.42	mg/Kg	1	07/27/22	EK	SW6010D
Mercury	< 0.03	0.03	mg/Kg	2	07/27/22	IE	SW7471B
Nickel	11.3	0.42	mg/Kg	1	07/27/22	EK	SW6010D
Lead	5.32	0.42	mg/Kg	1	07/27/22	EK	SW6010D
Antimony	< 4.2	4.2	mg/Kg	1	07/27/22	EK	SW6010D
Selenium	< 1.7	1.7	mg/Kg	1	07/27/22	EK	SW6010D
Thallium	< 3.8	3.8	mg/Kg	1	07/27/22	EK	SW6010D
Vanadium	22.0	0.42	mg/Kg	1	07/27/22	EK	SW6010D
Zinc	25.8	0.8	mg/Kg	1	07/27/22	EK	SW6010D
Percent Solid	83		%		07/25/22	AE/K	SW846-%Solid
Field Extraction	Completed				07/21/22		SW5035A
Mercury Digestion	Completed				07/27/22	KL/KL	SW7471B
EPH Extraction	Completed				07/25/22	B/RL/BC	SW3545A
Ext. Petroleum Hydrocarbons	Completed				07/25/22		MADEP EPH-19
Soil Extraction for SVOA PAH	Completed				07/26/22	B/A	SW3546
Total Metals Digest	Completed				07/26/22	L/T/N	SW3050B
MA Petroleum Hydrocarbon (VPH)	Completed				07/26/22	V	MA VPH 2/20182.1, 201
Volatiles							
1,1,1,2-Tetrachloroethane	ND	100	ug/Kg	50	07/29/22	PS	SW8260C
1,1,1-Trichloroethane	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
1,1,2,2-Tetrachloroethane	ND	10	ug/Kg	50	07/29/22	PS	SW8260C

Project ID: 2022-062
Client ID: MW-6 (14-15)

Phoenix I.D.: CL85977

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,1,2-Trichloroethane	ND	100	ug/Kg	50	07/29/22	PS	SW8260C
1,1-Dichloroethane	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
1,1-Dichloroethene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
1,1-Dichloropropene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
1,2,3-Trichlorobenzene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
1,2,3-Trichloropropane	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
1,2,4-Trichlorobenzene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
1,2,4-Trimethylbenzene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
1,2-Dibromo-3-chloropropane	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
1,2-Dibromoethane	ND	23	ug/Kg	50	07/29/22	PS	SW8260C
1,2-Dichlorobenzene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
1,2-Dichloroethane	ND	100	ug/Kg	50	07/29/22	PS	SW8260C
1,2-Dichloropropane	ND	100	ug/Kg	50	07/29/22	PS	SW8260C
1,3,5-Trimethylbenzene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
1,3-Dichlorobenzene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
1,3-Dichloropropane	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
1,4-Dichlorobenzene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
2,2-Dichloropropane	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
2-Chlorotoluene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
2-Hexanone	ND	1100	ug/Kg	50	07/29/22	PS	SW8260C
2-Isopropyltoluene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
4-Chlorotoluene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
4-Methyl-2-pentanone	ND	400	ug/Kg	50	07/29/22	PS	SW8260C
Acetone	ND	6000	ug/Kg	50	07/29/22	PS	SW8260C
Acrylonitrile	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
Benzene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
Bromobenzene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
Bromochloromethane	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
Bromodichloromethane	ND	100	ug/Kg	50	07/29/22	PS	SW8260C
Bromoform	ND	100	ug/Kg	50	07/29/22	PS	SW8260C
Bromomethane	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
Carbon Disulfide	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
Carbon tetrachloride	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
Chlorobenzene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
Chloroethane	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
Chloroform	ND	200	ug/Kg	50	07/29/22	PS	SW8260C
Chloromethane	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
cis-1,2-Dichloroethene	ND	100	ug/Kg	50	07/29/22	PS	SW8260C
cis-1,3-Dichloropropene	ND	10	ug/Kg	50	07/29/22	PS	SW8260C
Dibromochloromethane	ND	10	ug/Kg	50	07/29/22	PS	SW8260C
Dibromomethane	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
Dichlorodifluoromethane	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
Ethylbenzene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
Hexachlorobutadiene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
Isopropylbenzene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
m&p-Xylene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
Methyl Ethyl Ketone	ND	1400	ug/Kg	50	07/29/22	PS	SW8260C
Methyl t-butyl ether (MTBE)	ND	100	ug/Kg	50	07/29/22	PS	SW8260C
Methylene chloride	ND	91	ug/Kg	50	07/29/22	PS	SW8260C

Project ID: 2022-062
Client ID: MW-6 (14-15)

Phoenix I.D.: CL85977

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Naphthalene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
n-Butylbenzene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
n-Propylbenzene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
o-Xylene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
p-Isopropyltoluene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
sec-Butylbenzene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
Styrene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
tert-Butylbenzene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
Tetrachloroethene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
Tetrahydrofuran (THF)	ND	450	ug/Kg	50	07/29/22	PS	SW8260C
Toluene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
Total Xylenes	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
trans-1,2-Dichloroethene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
trans-1,3-Dichloropropene	ND	10	ug/Kg	50	07/29/22	PS	SW8260C
trans-1,4-dichloro-2-butene	ND	450	ug/Kg	50	07/29/22	PS	SW8260C
Trichloroethene	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
Trichlorofluoromethane	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
Trichlorotrifluoroethane	ND	450	ug/Kg	50	07/29/22	PS	SW8260C
Vinyl chloride	ND	230	ug/Kg	50	07/29/22	PS	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4 (50x)	95		%	50	07/29/22	PS	70 - 130 %
% Bromofluorobenzene (50x)	114		%	50	07/29/22	PS	70 - 130 %
% Dibromofluoromethane (50x)	89		%	50	07/29/22	PS	70 - 130 %
% Toluene-d8 (50x)	93		%	50	07/29/22	PS	70 - 130 %
Oxygenates & Dioxane							
1,4-Dioxane	ND	200	ug/Kg	50	07/29/22	PS	SW8260C (OXY)
Diethyl ether	ND	230	ug/Kg	50	07/29/22	PS	SW8260C (OXY)
Di-isopropyl ether	ND	230	ug/Kg	50	07/29/22	PS	SW8260C (OXY)
Ethyl tert-butyl ether	ND	230	ug/Kg	50	07/29/22	PS	SW8260C (OXY)
tert-amyl methyl ether	ND	230	ug/Kg	50	07/29/22	PS	SW8260C (OXY)
EPH Other PAH Target Analytes							
Acenaphthylene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Anthracene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benz(a)anthracene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benzo(a)pyrene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benzo(b)fluoranthene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benzo(ghi)perylene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benzo(k)fluoranthene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Chrysene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Dibenz(a,h)anthracene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Fluoranthene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Fluorene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Indeno(1,2,3-cd)pyrene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Pyrene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
QA/QC Surrogates							
% 2-Fluorobiphenyl	70		%	1	07/27/22	WB	30 - 130 %
% Nitrobenzene-d5	77		%	1	07/27/22	WB	30 - 130 %
% Terphenyl-d14	81		%	1	07/27/22	WB	30 - 130 %

Ver 1

Project ID: 2022-062
Client ID: MW-6 (14-15)

Phoenix I.D.: CL85977

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
EPH Diesel PAH Target Analytes							
2-Methylnaphthalene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Acenaphthene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Naphthalene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Phenanthrene	ND	280	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
MA EPH Aliphatic/Aromatic Ranges							
C11-C22 Aromatic Hydrocarbons 1,2	ND	80	mg/Kg	1	07/28/22	AW	MA EPH 5/2019
C11-C22 Aromatic Hydrocarbons Un	ND	80	mg/Kg	1	07/28/22	AW	MA EPH 5/2019
C19-C36 Aliphatic Hydrocarbons 1*	ND	80	mg/Kg	1	07/28/22	AW	MA EPH 5/2019
C9-C18 Aliphatic Hydrocarbons 1*	ND	80	mg/Kg	1	07/28/22	AW	MA EPH 5/2019
Total TPH 1,2*	ND	80	mg/Kg	1	07/28/22	AW	MA EPH 5/2019
QA/QC Surrogates							
% 1-chlorooctadecane (aliphatic)	79		%	1	07/28/22	AW	40 - 140 %
% 2-Bromonaphthalene (Fractionation)	69		%	1	07/28/22	AW	40 - 140 %
% 2-Fluorobiphenyl (Fractionation)	69		%	1	07/28/22	AW	40 - 140 %
% o-terphenyl (aromatic)	47		%	1	07/28/22	AW	40 - 140 %
MA Volatile Petroleum Hydrocarbons (VPH)							
Unadjusted C5-C8 Aliphatics (*1)	56	3.9	mg/Kg	50	07/26/22	V	MA VPH2.1, 2018
Unadjusted C9-C12 Aliphatics (*1)	330	3.9	mg/Kg	50	07/26/22	V	MA VPH2.1, 2018
C5-C8 Aliphatic Hydrocarbons *1,2	56	3.9	mg/Kg	50	07/26/22	V	MA VPH2.1, 2018
C9-C12 Aliphatic Hydrocarbons *1,3	260	3.9	mg/Kg	50	07/26/22	V	MA VPH2.1, 2018
C9-C10 Aromatic Hydrocarbons *1	69	3.9	mg/Kg	50	07/26/22	V	MA VPH2.1, 2018
Benzene	ND	0.020	mg/Kg	50	07/26/22	V	MA VPH2.1, 2018
Ethyl Benzene	ND	0.039	mg/Kg	50	07/26/22	V	MA VPH2.1, 2018
MTBE	ND	0.039	mg/Kg	50	07/26/22	V	MA VPH2.1, 2018
Naphthalene	ND	0.20	mg/Kg	50	07/26/22	V	MA VPH2.1, 2018
Toluene	0.14	0.039	mg/Kg	50	07/26/22	V	MA VPH2.1, 2018
m,p-Xylenes	0.20	0.039	mg/Kg	50	07/26/22	V	MA VPH2.1, 2018
o-Xylene	0.14	0.039	mg/Kg	50	07/26/22	V	MA VPH2.1, 2018
QA/QC Surrogates							
% 2,5-Dibromotoluene (FID)	76		%	50	07/26/22	V	70 - 130 %
% 2,5-Dibromotoluene (PID)	72		%	50	07/26/22	V	70 - 130 %

Project ID: 2022-062
Client ID: MW-6 (14-15)

Phoenix I.D.: CL85977

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

Massachusetts does not offer certification for Soil/Solid matrices.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

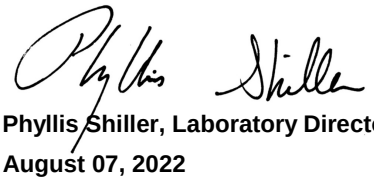
MAEPH:
1* Hydrocarbon range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.
2* C11-C22 Aromatic Hydrocarbons exclude the concentration of Target PAH analytes eluting in that range.

VPH:
*1 Range data exclude concentrations of any surrogate(s) and/or Internal stds eluting in that range.
*2 C5-C8 and C9-C12 Aliphatic exclude the conc. of Target Analytes in that range.
*3 C9-C12 Aliphatic also exclude C9-C10 Aromatic Hydrocarbons.

Volatile Comment:
Due to the presence of a large amount of non-target petroleum material, the Low level vials could not be analyzed. The methanol preserved high level vials require at least a 50x dilution prior to analysis, not all of the requested criteria could be achieved.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.



Phyllis Shiller, Laboratory Director
August 07, 2022
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

August 07, 2022

FOR: Attn: Mr. Steve Van Wormer
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:	SV	07/21/22	14:30
Location Code:	CMGENV	Received by:	CP	07/25/22	14:39
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	WAYLAND DPW				

Laboratory Data

SDG ID: GCL85974
Phoenix ID: CL85978

Project ID: 2022-062
Client ID: MW-7 (15-17)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.40	0.40	mg/Kg	1	07/27/22	EK	SW6010D
Arsenic	4.30	0.80	mg/Kg	1	07/27/22	EK	SW6010D
Barium	16.3	0.40	mg/Kg	1	07/27/22	EK	SW6010D
Beryllium	0.35	0.32	mg/Kg	1	07/27/22	EK	SW6010D
Cadmium	0.61	0.40	mg/Kg	1	07/27/22	EK	SW6010D
Chromium	11.7	0.40	mg/Kg	1	07/27/22	EK	SW6010D
Mercury	< 0.03	0.03	mg/Kg	2	07/27/22	IE	SW7471B
Nickel	12.6	0.40	mg/Kg	1	07/27/22	EK	SW6010D
Lead	5.62	0.40	mg/Kg	1	07/27/22	EK	SW6010D
Antimony	< 4.0	4.0	mg/Kg	1	07/27/22	EK	SW6010D
Selenium	< 1.6	1.6	mg/Kg	1	07/27/22	EK	SW6010D
Thallium	< 3.6	3.6	mg/Kg	1	07/27/22	EK	SW6010D
Vanadium	22.2	0.40	mg/Kg	1	07/27/22	EK	SW6010D
Zinc	24.8	0.8	mg/Kg	1	07/27/22	EK	SW6010D
Percent Solid	84		%		07/25/22	AE/K	SW846-%Solid
Extraction for SVOA SIM	Completed				07/26/22	O/MO	SW3545A
Field Extraction	Completed				07/21/22		SW5035A
Mercury Digestion	Completed				07/27/22	KL/KL	SW7471B
EPH Extraction	Completed				07/25/22	B/RL/BC	SW3545A
Ext. Petroleum Hydrocarbons	Completed				07/25/22		MADEP EPH-19
Soil Extraction for SVOA PAH	Completed				07/26/22	B/A	SW3546
Total Metals Digest	Completed				07/26/22	L/T/N	SW3050B
MA Petroleum Hydrocarbon (VPH)	Completed				07/28/22	V	MA VPH 2/20182.1, 201
Volatiles							
1,1,1,2-Tetrachloroethane	ND	100	ug/Kg	50	08/03/22	PS	SW8260C
1,1,1-Trichloroethane	ND	190	ug/Kg	50	08/03/22	PS	SW8260C

Project ID: 2022-062
Client ID: MW-7 (15-17)

Phoenix I.D.: CL85978

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,1,2,2-Tetrachloroethane	ND	10	ug/Kg	50	08/03/22	PS	SW8260C
1,1,2-Trichloroethane	ND	100	ug/Kg	50	08/03/22	PS	SW8260C
1,1-Dichloroethane	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
1,1-Dichloroethene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
1,1-Dichloropropene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
1,2,3-Trichlorobenzene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
1,2,3-Trichloropropane	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
1,2,4-Trichlorobenzene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
1,2,4-Trimethylbenzene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
1,2-Dibromo-3-chloropropane	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
1,2-Dibromoethane	ND	19	ug/Kg	50	08/03/22	PS	SW8260C
1,2-Dichlorobenzene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
1,2-Dichloroethane	ND	100	ug/Kg	50	08/03/22	PS	SW8260C
1,2-Dichloropropane	ND	100	ug/Kg	50	08/03/22	PS	SW8260C
1,3,5-Trimethylbenzene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
1,3-Dichlorobenzene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
1,3-Dichloropropane	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
1,4-Dichlorobenzene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
2,2-Dichloropropane	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
2-Chlorotoluene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
2-Hexanone	ND	970	ug/Kg	50	08/03/22	PS	SW8260C
2-Isopropyltoluene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
4-Chlorotoluene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
4-Methyl-2-pentanone	ND	400	ug/Kg	50	08/03/22	PS	SW8260C
Acetone	ND	6000	ug/Kg	50	08/03/22	PS	SW8260C
Acrylonitrile	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
Benzene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
Bromobenzene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
Bromochloromethane	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
Bromodichloromethane	ND	100	ug/Kg	50	08/03/22	PS	SW8260C
Bromoform	ND	100	ug/Kg	50	08/03/22	PS	SW8260C
Bromomethane	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
Carbon Disulfide	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
Carbon tetrachloride	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
Chlorobenzene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
Chloroethane	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
Chloroform	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
Chloromethane	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
cis-1,2-Dichloroethene	ND	100	ug/Kg	50	08/03/22	PS	SW8260C
cis-1,3-Dichloropropene	ND	10	ug/Kg	50	08/03/22	PS	SW8260C
Dibromochloromethane	ND	10	ug/Kg	50	08/03/22	PS	SW8260C
Dibromomethane	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
Dichlorodifluoromethane	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
Ethylbenzene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
Hexachlorobutadiene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
Isopropylbenzene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
m&p-Xylene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
Methyl Ethyl Ketone	ND	1200	ug/Kg	50	08/03/22	PS	SW8260C
Methyl t-butyl ether (MTBE)	ND	100	ug/Kg	50	08/03/22	PS	SW8260C

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Methylene chloride	ND	100	ug/Kg	50	08/03/22	PS	SW8260C
Naphthalene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
n-Butylbenzene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
n-Propylbenzene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
o-Xylene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
p-Isopropyltoluene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
sec-Butylbenzene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
Styrene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
tert-Butylbenzene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
Tetrachloroethene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
Tetrahydrofuran (THF)	ND	390	ug/Kg	50	08/03/22	PS	SW8260C
Toluene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
Total Xylenes	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
trans-1,2-Dichloroethene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
trans-1,3-Dichloropropene	ND	10	ug/Kg	50	08/03/22	PS	SW8260C
trans-1,4-dichloro-2-butene	ND	390	ug/Kg	50	08/03/22	PS	SW8260C
Trichloroethene	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
Trichlorofluoromethane	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
Trichlorotrifluoroethane	ND	390	ug/Kg	50	08/03/22	PS	SW8260C
Vinyl chloride	ND	190	ug/Kg	50	08/03/22	PS	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4 (50x)	94		%	50	08/03/22	PS	70 - 130 %
% Bromofluorobenzene (50x)	119		%	50	08/03/22	PS	70 - 130 %
% Dibromofluoromethane (50x)	89		%	50	08/03/22	PS	70 - 130 %
% Toluene-d8 (50x)	92		%	50	08/03/22	PS	70 - 130 %
Oxygenates & Dioxane							
1,4-Dioxane	ND	190	ug/Kg	50	08/03/22	PS	SW8260C (OXY)
Diethyl ether	ND	190	ug/Kg	50	08/03/22	PS	SW8260C (OXY)
Di-isopropyl ether	ND	190	ug/Kg	50	08/03/22	PS	SW8260C (OXY)
Ethyl tert-butyl ether	ND	190	ug/Kg	50	08/03/22	PS	SW8260C (OXY)
tert-amyl methyl ether	ND	190	ug/Kg	50	08/03/22	PS	SW8260C (OXY)
1,4-Dioxane							
1,4-dioxane	ND	77	ug/Kg	1	07/27/22	WB	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	61		%	1	07/27/22	WB	40 - 140 %
% Nitrobenzene-d5	90		%	1	07/27/22	WB	40 - 140 %
% Terphenyl-d14	105		%	1	07/27/22	WB	40 - 140 %
EPH Other PAH Target Analytes							
Acenaphthylene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Anthracene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benz(a)anthracene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benzo(a)pyrene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benzo(b)fluoranthene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benzo(ghi)perylene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benzo(k)fluoranthene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Chrysene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Dibenz(a,h)anthracene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Fluoranthene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Fluorene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Indeno(1,2,3-cd)pyrene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Pyrene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
QA/QC Surrogates							
% 2-Fluorobiphenyl	67		%	1	07/27/22	WB	30 - 130 %
% Nitrobenzene-d5	69		%	1	07/27/22	WB	30 - 130 %
% Terphenyl-d14	79		%	1	07/27/22	WB	30 - 130 %
EPH Diesel PAH Target Analytes							
2-Methylnaphthalene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Acenaphthene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Naphthalene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Phenanthrene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
MA EPH Aliphatic/Aromatic Ranges							
C11-C22 Aromatic Hydrocarbons 1,2	ND	78	mg/Kg	1	07/28/22	AW	MA EPH 5/2019
C11-C22 Aromatic Hydrocarbons Un	ND	78	mg/Kg	1	07/28/22	AW	MA EPH 5/2019
C19-C36 Aliphatic Hydrocarbons 1*	ND	78	mg/Kg	1	07/28/22	AW	MA EPH 5/2019
C9-C18 Aliphatic Hydrocarbons 1*	120	78	mg/Kg	1	07/28/22	AW	MA EPH 5/2019
Total TPH 1,2*	120	78	mg/Kg	1	07/28/22	AW	MA EPH 5/2019
QA/QC Surrogates							
% 1-chlorooctadecane (aliphatic)	94		%	1	07/28/22	AW	40 - 140 %
% 2-Bromonaphthalene (Fractionation)	66		%	1	07/28/22	AW	40 - 140 %
% 2-Fluorobiphenyl (Fractionation)	71		%	1	07/28/22	AW	40 - 140 %
% o-terphenyl (aromatic)	48		%	1	07/28/22	AW	40 - 140 %
MA Volatile Petroleum Hydrocarbons (VPH)							
Unadjusted C5-C8 Aliphatics (*1)	640	10	mg/Kg	100	07/29/22	V	MA VPH2.1, 2018
Unadjusted C9-C12 Aliphatics (*1)	2100	10	mg/Kg	100	07/29/22	V	MA VPH2.1, 2018
C5-C8 Aliphatic Hydrocarbons *1,2	640	10	mg/Kg	100	07/29/22	V	MA VPH2.1, 2018
C9-C12 Aliphatic Hydrocarbons *1,3	1700	10	mg/Kg	100	07/29/22	V	MA VPH2.1, 2018
C9-C10 Aromatic Hydrocarbons *1	330	10	mg/Kg	100	07/29/22	V	MA VPH2.1, 2018
Benzene	ND	0.050	mg/Kg	100	07/29/22	V	MA VPH2.1, 2018
Ethyl Benzene	15	0.50	mg/Kg	500	07/29/22	V	MA VPH2.1, 2018
MTBE	ND	0.10	mg/Kg	100	07/29/22	V	MA VPH2.1, 2018
Naphthalene	2.0	0.50	mg/Kg	100	07/29/22	V	MA VPH2.1, 2018
Toluene	2.0	0.10	mg/Kg	100	07/29/22	V	MA VPH2.1, 2018
m,p-Xylenes	6.0	0.10	mg/Kg	100	07/29/22	V	MA VPH2.1, 2018
o-Xylene	4.6	0.10	mg/Kg	100	07/29/22	V	MA VPH2.1, 2018
QA/QC Surrogates							
% 2,5-Dibromotoluene (FID)	121		%	100	07/29/22	V	70 - 130 %
% 2,5-Dibromotoluene (PID)	97		%	100	07/29/22	V	70 - 130 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

Massachusetts does not offer certification for Soil/Solid matrices.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

MAEPH:
1* Hydrocarbon range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.
2* C11-C22 Aromatic Hydrocarbons exclude the concentration of Target PAH analytes eluting in that range.

VPH:
*1 Range data exclude concentrations of any surrogate(s) and/or Internal stds eluting in that range.
*2 C5-C8 and C9-C12 Aliphatic exclude the conc. of Target Analytes in that range.
*3 C9-C12 Aliphatic also exclude C9-C10 Aromatic Hydrocarbons.

VPH diluted run
Elevated reporting limits for VPH due to the presence of target and/or non-target compounds.

Volatile Comment:
Due to the presence of a large amount of non-target petroleum material, the Low level vials could not be analyzed. The methanol preserved high level vials require at least a 50x dilution prior to analysis, not all of the requested criteria could be achieved.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
August 07, 2022
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

August 07, 2022

FOR: Attn: Mr. Steve Van Wormer
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:	SV	07/22/22	8:00
Location Code:	CMGENV	Received by:	CP	07/25/22	14:39
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	WAYLAND DPW				

Laboratory Data

SDG ID: GCL85974
Phoenix ID: CL85979

Project ID: 2022-062
Client ID: SB-9 (8-10)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.42	0.42	mg/Kg	1	07/26/22	EK	SW6010D
Arsenic	2.96	0.84	mg/Kg	1	07/26/22	EK	SW6010D
Barium	15.5	0.42	mg/Kg	1	07/26/22	EK	SW6010D
Beryllium	< 0.34	0.34	mg/Kg	1	07/26/22	EK	SW6010D
Cadmium	0.53	0.42	mg/Kg	1	07/26/22	EK	SW6010D
Chromium	9.40	0.42	mg/Kg	1	07/26/22	EK	SW6010D
Mercury	< 0.03	0.03	mg/Kg	2	07/26/22	IE	SW7471B
Nickel	7.53	0.42	mg/Kg	1	07/26/22	EK	SW6010D
Lead	3.43	0.42	mg/Kg	1	07/26/22	EK	SW6010D
Antimony	< 4.2	4.2	mg/Kg	1	07/26/22	EK	SW6010D
Selenium	< 1.7	1.7	mg/Kg	1	07/26/22	EK	SW6010D
Thallium	< 3.8	3.8	mg/Kg	1	07/26/22	EK	SW6010D
Vanadium	14.3	0.42	mg/Kg	1	07/26/22	EK	SW6010D
Zinc	18.1	0.8	mg/Kg	1	07/26/22	EK	SW6010D
Percent Solid	85		%		07/25/22	AE/K	SW846-%Solid
Field Extraction	Completed				07/22/22		SW5035A
Mercury Digestion	Completed				07/26/22	AB/AB	SW7471B
EPH Extraction	Completed				07/25/22	B/RL/BC	SW3545A
Ext. Petroleum Hydrocarbons	Completed				07/25/22		MADEP EPH-19
Soil Extraction for SVOA PAH	Completed				07/26/22	B/A	SW3546
Total Metals Digest	Completed				07/25/22	L/T	SW3050B
Volatiles							
1,1,1,2-Tetrachloroethane	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
1,1,1-Trichloroethane	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	2.0	ug/Kg	1	08/01/22	JLI	SW8260C
1,1,2-Trichloroethane	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C

Project ID: 2022-062
Client ID: SB-9 (8-10)

Phoenix I.D.: CL85979

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,1-Dichloroethane	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
1,1-Dichloroethene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
1,1-Dichloropropene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
1,2,3-Trichlorobenzene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
1,2,3-Trichloropropane	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
1,2-Dibromoethane	ND	0.34	ug/Kg	1	08/01/22	JLI	SW8260C
1,2-Dichlorobenzene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
1,2-Dichloroethane	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
1,2-Dichloropropane	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
1,3-Dichlorobenzene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
1,3-Dichloropropane	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
1,4-Dichlorobenzene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
2,2-Dichloropropane	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
2-Chlorotoluene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
2-Hexanone	ND	17	ug/Kg	1	08/01/22	JLI	SW8260C
2-Isopropyltoluene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
4-Chlorotoluene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
4-Methyl-2-pentanone	ND	17	ug/Kg	1	08/01/22	JLI	SW8260C
Acetone	ND	170	ug/Kg	1	08/01/22	JLI	SW8260C
Acrylonitrile	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
Benzene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
Bromobenzene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
Bromochloromethane	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
Bromodichloromethane	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
Bromoform	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
Bromomethane	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
Carbon Disulfide	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
Carbon tetrachloride	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
Chlorobenzene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
Chloroethane	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
Chloroform	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
Chloromethane	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
cis-1,2-Dichloroethene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
cis-1,3-Dichloropropene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
Dibromochloromethane	ND	2.0	ug/Kg	1	08/01/22	JLI	SW8260C
Dibromomethane	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
Dichlorodifluoromethane	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
Ethylbenzene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
Hexachlorobutadiene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
Isopropylbenzene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
m&p-Xylene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
Methyl Ethyl Ketone	ND	20	ug/Kg	1	08/01/22	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	6.8	ug/Kg	1	08/01/22	JLI	SW8260C
Methylene chloride	ND	6.8	ug/Kg	1	08/01/22	JLI	SW8260C
Naphthalene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C

Project ID: 2022-062
Client ID: SB-9 (8-10)

Phoenix I.D.: CL85979

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
n-Butylbenzene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
n-Propylbenzene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
o-Xylene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
p-Isopropyltoluene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
sec-Butylbenzene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
Styrene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
tert-Butylbenzene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
Tetrachloroethene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
Tetrahydrofuran (THF)	ND	6.8	ug/Kg	1	08/01/22	JLI	SW8260C
Toluene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
Total Xylenes	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
trans-1,2-Dichloroethene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
trans-1,3-Dichloropropene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	6.8	ug/Kg	1	08/01/22	JLI	SW8260C
Trichloroethene	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
Trichlorofluoromethane	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
Trichlorotrifluoroethane	ND	6.8	ug/Kg	1	08/01/22	JLI	SW8260C
Vinyl chloride	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	99		%	1	08/01/22	JLI	70 - 130 %
% Bromofluorobenzene	94		%	1	08/01/22	JLI	70 - 130 %
% Dibromofluoromethane	96		%	1	08/01/22	JLI	70 - 130 %
% Toluene-d8	96		%	1	08/01/22	JLI	70 - 130 %
Oxygenates & Dioxane							
1,4-Dioxane	ND	68	ug/Kg	1	08/01/22	JLI	SW8260C (OXY)
Diethyl ether	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C (OXY)
Di-isopropyl ether	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C (OXY)
Ethyl tert-butyl ether	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C (OXY)
tert-amyl methyl ether	ND	3.4	ug/Kg	1	08/01/22	JLI	SW8260C (OXY)
EPH Other PAH Target Analytes							
Acenaphthylene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Anthracene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benz(a)anthracene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benzo(a)pyrene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benzo(b)fluoranthene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benzo(ghi)perylene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benzo(k)fluoranthene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Chrysene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Dibenz(a,h)anthracene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Fluoranthene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Fluorene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Indeno(1,2,3-cd)pyrene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Pyrene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
QA/QC Surrogates							
% 2-Fluorobiphenyl	78		%	1	07/27/22	WB	30 - 130 %
% Nitrobenzene-d5	83		%	1	07/27/22	WB	30 - 130 %
% Terphenyl-d14	100		%	1	07/27/22	WB	30 - 130 %

Project ID: 2022-062
Client ID: SB-9 (8-10)

Phoenix I.D.: CL85979

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
EPH Diesel PAH Target Analytes							
2-Methylnaphthalene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Acenaphthene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Naphthalene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Phenanthrene	ND	270	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
MA EPH Aliphatic/Aromatic Ranges							
C11-C22 Aromatic Hydrocarbons 1,2	ND	76	mg/Kg	1	07/26/22	AW	MA EPH 5/2019
C11-C22 Aromatic Hydrocarbons Un	ND	76	mg/Kg	1	07/26/22	AW	MA EPH 5/2019
C19-C36 Aliphatic Hydrocarbons 1*	ND	76	mg/Kg	1	07/26/22	AW	MA EPH 5/2019
C9-C18 Aliphatic Hydrocarbons 1*	ND	76	mg/Kg	1	07/26/22	AW	MA EPH 5/2019
Total TPH 1,2*	ND	76	mg/Kg	1	07/26/22	AW	MA EPH 5/2019
QA/QC Surrogates							
% 1-chlorooctadecane (aliphatic)	92		%	1	07/26/22	AW	40 - 140 %
% 2-Bromonaphthalene (Fractionation)	66		%	1	07/26/22	AW	40 - 140 %
% 2-Fluorobiphenyl (Fractionation)	107		%	1	07/26/22	AW	40 - 140 %
% o-terphenyl (aromatic)	90		%	1	07/26/22	AW	40 - 140 %

Massachusetts does not offer certification for Soil/Solid matrices.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

MAEPH:
1* Hydrocarbon range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.
2* C11-C22 Aromatic Hydrocarbons exclude the concentration of Target PAH analytes eluting in that range.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
August 07, 2022
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

August 07, 2022

FOR: Attn: Mr. Steve Van Wormer
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:	SV	07/22/22	9:30
Location Code:	CMGENV	Received by:	CP	07/25/22	14:39
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	WAYLAND DPW				

Laboratory Data

SDG ID: GCL85974
Phoenix ID: CL85980

Project ID: 2022-062
Client ID: MW-11 (8-10)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.34	0.34	mg/Kg	1	07/26/22	EK	SW6010D
Arsenic	2.35	0.68	mg/Kg	1	07/26/22	EK	SW6010D
Barium	36.7	0.34	mg/Kg	1	07/26/22	EK	SW6010D
Beryllium	< 0.27	0.27	mg/Kg	1	07/26/22	EK	SW6010D
Cadmium	0.88	0.34	mg/Kg	1	07/26/22	EK	SW6010D
Chromium	19.0	0.34	mg/Kg	1	07/26/22	EK	SW6010D
Mercury	0.04	0.03	mg/Kg	2	07/26/22	IE	SW7471B
Nickel	19.2	0.34	mg/Kg	1	07/26/22	EK	SW6010D
Lead	7.01	0.34	mg/Kg	1	07/26/22	EK	SW6010D
Antimony	< 3.4	3.4	mg/Kg	1	07/26/22	EK	SW6010D
Selenium	< 1.4	1.4	mg/Kg	1	07/26/22	EK	SW6010D
Thallium	< 3.1	3.1	mg/Kg	1	07/26/22	EK	SW6010D
Vanadium	23.9	0.34	mg/Kg	1	07/26/22	EK	SW6010D
Zinc	51.1	0.7	mg/Kg	1	07/26/22	EK	SW6010D
Percent Solid	88		%		07/25/22	AE/K	SW846-%Solid
Extraction for SVOA SIM	Completed				07/26/22	O/MO	SW3545A
Soil Extraction for Pesticide	Completed				07/25/22	B/MO	SW3545A
Field Extraction	Completed				07/22/22		SW5035A
Mercury Digestion	Completed				07/26/22	AB/AB	SW7471B
EPH Extraction	Completed				07/25/22	B/RL/BC	SW3545A
Ext. Petroleum Hydrocarbons	Completed				07/25/22		MADEP EPH-19
Soil Extraction for Herbicide	Completed				07/27/22	L/D	SW3546
Soil Extraction for SVOA PAH	Completed				07/26/22	B/A	SW3546
Total Metals Digest	Completed				07/25/22	L/T	SW3050B
Chlorinated Herbicides							
2,4,5-T	ND	28	ug/Kg	2	07/28/22	JRB	SW8151A

Ver 1

Project ID: 2022-062
Client ID: MW-11 (8-10)

Phoenix I.D.: CL85980

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
2,4,5-TP (Silvex)	ND	28	ug/Kg	2	07/28/22	JRB	SW8151A
2,4-D	ND	57	ug/Kg	2	07/28/22	JRB	SW8151A
2,4-DB	ND	28	ug/Kg	2	07/28/22	JRB	SW8151A
Dalapon	ND	28	ug/Kg	2	07/28/22	JRB	SW8151A
Dicamba	ND	28	ug/Kg	2	07/28/22	JRB	SW8151A
Dichloroprop	ND	43	ug/Kg	2	07/28/22	JRB	SW8151A
Dinoseb	ND	28	ug/Kg	2	07/28/22	JRB	SW8151A
MCPA	ND	3300	ug/Kg	2	07/28/22	JRB	SW8151A
MCPP	ND	3300	ug/Kg	2	07/28/22	JRB	SW8151A
QA/QC Surrogates							
% DCAA	91		%	2	07/28/22	JRB	30 - 150 %
% DCAA (Confirmation)	117		%	2	07/28/22	JRB	30 - 150 %
Pesticides							
4,4' -DDD	ND	7.5	ug/Kg	2	07/27/22	AW	SW8081B
4,4' -DDE	ND	7.5	ug/Kg	2	07/27/22	AW	SW8081B
4,4' -DDT	ND	7.5	ug/Kg	2	07/27/22	AW	SW8081B
a-BHC	ND	7.5	ug/Kg	2	07/27/22	AW	SW8081B
Alachlor	ND	7.5	ug/Kg	2	07/27/22	AW	SW8081B
Aldrin	ND	3.7	ug/Kg	2	07/27/22	AW	SW8081B
b-BHC	ND	7.5	ug/Kg	2	07/27/22	AW	SW8081B
Chlordane	ND	37	ug/Kg	2	07/27/22	AW	SW8081B
d-BHC	ND	7.5	ug/Kg	2	07/27/22	AW	SW8081B
Dieldrin	ND	3.7	ug/Kg	2	07/27/22	AW	SW8081B
Endosulfan I	ND	7.5	ug/Kg	2	07/27/22	AW	SW8081B
Endosulfan II	ND	7.5	ug/Kg	2	07/27/22	AW	SW8081B
Endosulfan sulfate	ND	7.5	ug/Kg	2	07/27/22	AW	SW8081B
Endrin	ND	7.5	ug/Kg	2	07/27/22	AW	SW8081B
Endrin aldehyde	ND	7.5	ug/Kg	2	07/27/22	AW	SW8081B
Endrin ketone	ND	7.5	ug/Kg	2	07/27/22	AW	SW8081B
g-BHC	ND	1.5	ug/Kg	2	07/27/22	AW	SW8081B
Heptachlor	ND	7.5	ug/Kg	2	07/27/22	AW	SW8081B
Heptachlor epoxide	ND	7.5	ug/Kg	2	07/27/22	AW	SW8081B
Hexachlorobenzene	ND	3.7	ug/Kg	2	07/27/22	AW	SW8081B
Methoxychlor	ND	37	ug/Kg	2	07/27/22	AW	SW8081B
Toxaphene	ND	150	ug/Kg	2	07/27/22	AW	SW8081B
QA/QC Surrogates							
% DCBP	49		%	2	07/27/22	AW	30 - 150 %
% DCBP (Confirmation)	39		%	2	07/27/22	AW	30 - 150 %
% TCMX	43		%	2	07/27/22	AW	30 - 150 %
% TCMX (Confirmation)	43		%	2	07/27/22	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
1,1,1-Trichloroethane	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
1,1,2,2-Tetrachloroethane	ND	1.4	ug/Kg	1	08/01/22	JLI	SW8260C
1,1,2-Trichloroethane	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
1,1-Dichloroethane	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
1,1-Dichloroethene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
1,1-Dichloropropene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C

Project ID: 2022-062
Client ID: MW-11 (8-10)

Phoenix I.D.: CL85980

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2,3-Trichlorobenzene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
1,2,3-Trichloropropane	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
1,2,4-Trichlorobenzene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
1,2,4-Trimethylbenzene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
1,2-Dibromo-3-chloropropane	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
1,2-Dibromoethane	ND	0.23	ug/Kg	1	08/01/22	JLI	SW8260C
1,2-Dichlorobenzene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
1,2-Dichloroethane	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
1,2-Dichloropropane	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
1,3,5-Trimethylbenzene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
1,3-Dichlorobenzene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
1,3-Dichloropropane	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
1,4-Dichlorobenzene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
2,2-Dichloropropane	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
2-Chlorotoluene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
2-Hexanone	ND	12	ug/Kg	1	08/01/22	JLI	SW8260C
2-Isopropyltoluene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
4-Chlorotoluene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
4-Methyl-2-pentanone	ND	12	ug/Kg	1	08/01/22	JLI	SW8260C
Acetone	ND	120	ug/Kg	1	08/01/22	JLI	SW8260C
Acrylonitrile	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
Benzene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
Bromobenzene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
Bromochloromethane	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
Bromodichloromethane	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
Bromoform	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
Bromomethane	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
Carbon Disulfide	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
Carbon tetrachloride	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
Chlorobenzene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
Chloroethane	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
Chloroform	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
Chloromethane	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
cis-1,2-Dichloroethene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
cis-1,3-Dichloropropene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
Dibromochloromethane	ND	1.4	ug/Kg	1	08/01/22	JLI	SW8260C
Dibromomethane	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
Dichlorodifluoromethane	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
Ethylbenzene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
Hexachlorobutadiene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
Isopropylbenzene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
m&p-Xylene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
Methyl Ethyl Ketone	ND	14	ug/Kg	1	08/01/22	JLI	SW8260C
Methyl t-butyl ether (MTBE)	ND	4.7	ug/Kg	1	08/01/22	JLI	SW8260C
Methylene chloride	ND	4.7	ug/Kg	1	08/01/22	JLI	SW8260C
Naphthalene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
n-Butylbenzene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
n-Propylbenzene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
o-Xylene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C

Project ID: 2022-062
Client ID: MW-11 (8-10)

Phoenix I.D.: CL85980

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
p-Isopropyltoluene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
sec-Butylbenzene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
Styrene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
tert-Butylbenzene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
Tetrachloroethene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
Tetrahydrofuran (THF)	ND	4.7	ug/Kg	1	08/01/22	JLI	SW8260C
Toluene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
Total Xylenes	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
trans-1,2-Dichloroethene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
trans-1,3-Dichloropropene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
trans-1,4-dichloro-2-butene	ND	4.7	ug/Kg	1	08/01/22	JLI	SW8260C
Trichloroethene	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
Trichlorofluoromethane	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
Trichlorotrifluoroethane	ND	4.7	ug/Kg	1	08/01/22	JLI	SW8260C
Vinyl chloride	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	100		%	1	08/01/22	JLI	70 - 130 %
% Bromofluorobenzene	94		%	1	08/01/22	JLI	70 - 130 %
% Dibromofluoromethane	97		%	1	08/01/22	JLI	70 - 130 %
% Toluene-d8	97		%	1	08/01/22	JLI	70 - 130 %
Oxygenates & Dioxane							
1,4-Dioxane	ND	47	ug/Kg	1	08/01/22	JLI	SW8260C (OXY)
Diethyl ether	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C (OXY)
Di-isopropyl ether	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C (OXY)
Ethyl tert-butyl ether	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C (OXY)
tert-amyl methyl ether	ND	2.3	ug/Kg	1	08/01/22	JLI	SW8260C (OXY)
1,4-Dioxane							
1,4-dioxane	ND	73	ug/Kg	1	07/27/22	WB	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	61		%	1	07/27/22	WB	40 - 140 %
% Nitrobenzene-d5	88		%	1	07/27/22	WB	40 - 140 %
% Terphenyl-d14	104		%	1	07/27/22	WB	40 - 140 %
EPH Other PAH Target Analytes							
Acenaphthylene	ND	260	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Anthracene	ND	260	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benz(a)anthracene	ND	260	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benzo(a)pyrene	ND	260	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benzo(b)fluoranthene	ND	260	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benzo(ghi)perylene	ND	260	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Benzo(k)fluoranthene	ND	260	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Chrysene	ND	260	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Dibenz(a,h)anthracene	ND	260	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Fluoranthene	ND	260	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Fluorene	ND	260	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Indeno(1,2,3-cd)pyrene	ND	260	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Pyrene	ND	260	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
QA/QC Surrogates							

Project ID: 2022-062
Client ID: MW-11 (8-10)

Phoenix I.D.: CL85980

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
% 2-Fluorobiphenyl	76		%	1	07/27/22	WB	30 - 130 %
% Nitrobenzene-d5	80		%	1	07/27/22	WB	30 - 130 %
% Terphenyl-d14	108		%	1	07/27/22	WB	30 - 130 %
EPH Diesel PAH Target Analytes							
2-Methylnaphthalene	ND	260	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Acenaphthene	ND	260	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Naphthalene	ND	260	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
Phenanthrene	ND	260	ug/Kg	1	07/27/22	WB	MA EPH 5/2004
MA EPH Aliphatic/Aromatic Ranges							
C11-C22 Aromatic Hydrocarbons 1,2	ND	75	mg/Kg	1	07/28/22	AW	MA EPH 5/2019
C11-C22 Aromatic Hydrocarbons Un	ND	75	mg/Kg	1	07/28/22	AW	MA EPH 5/2019
C19-C36 Aliphatic Hydrocarbons 1*	ND	75	mg/Kg	1	07/28/22	AW	MA EPH 5/2019
C9-C18 Aliphatic Hydrocarbons 1*	ND	75	mg/Kg	1	07/28/22	AW	MA EPH 5/2019
Total TPH 1,2*	ND	75	mg/Kg	1	07/28/22	AW	MA EPH 5/2019
QA/QC Surrogates							
% 1-chlorooctadecane (aliphatic)	88		%	1	07/28/22	AW	40 - 140 %
% 2-Bromonaphthalene (Fractionation)	103		%	1	07/28/22	AW	40 - 140 %
% 2-Fluorobiphenyl (Fractionation)	111		%	1	07/28/22	AW	40 - 140 %
% o-terphenyl (aromatic)	65		%	1	07/28/22	AW	40 - 140 %

Massachusetts does not offer certification for Soil/Solid matrices.

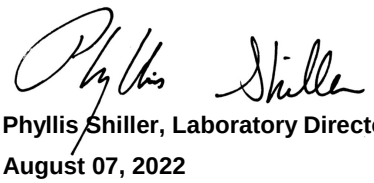
RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

MAEPH:
1* Hydrocarbon range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.
2* C11-C22 Aromatic Hydrocarbons exclude the concentration of Target PAH analytes eluting in that range.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.



Phyllis Shiller, Laboratory Director

August 07, 2022

Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

August 07, 2022

FOR: Attn: Mr. Steve Van Wormer
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:	SV	07/22/22	11:00
Location Code:	CMGENV	Received by:	CP	07/25/22	14:39
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	WAYLAND DPW				

Laboratory Data

SDG ID: GCL85974
Phoenix ID: CL85981

Project ID: 2022-062
Client ID: SB-12 (10-12)

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Percent Solid	95		%		07/25/22	AE/K	SW846-%Solid
Soil Extraction for Pesticide	Completed				07/25/22	B/MO	SW3545A
Soil Extraction for Herbicide	Completed				07/26/22	L/D	SW3546
Chlorinated Herbicides							
2,4,5-T	ND	26	ug/Kg	2	07/27/22	JRB	SW8151A
2,4,5-TP (Silvex)	ND	26	ug/Kg	2	07/27/22	JRB	SW8151A
2,4-D	ND	52	ug/Kg	2	07/27/22	JRB	SW8151A
2,4-DB	ND	26	ug/Kg	2	07/27/22	JRB	SW8151A
Dalapon	ND	26	ug/Kg	2	07/27/22	JRB	SW8151A
Dicamba	ND	26	ug/Kg	2	07/27/22	JRB	SW8151A
Dichloroprop	ND	39	ug/Kg	2	07/27/22	JRB	SW8151A
Dinoseb	ND	26	ug/Kg	2	07/27/22	JRB	SW8151A
MCPA	ND	3100	ug/Kg	2	07/27/22	JRB	SW8151A
MCPP	ND	3100	ug/Kg	2	07/27/22	JRB	SW8151A
QA/QC Surrogates							
% DCAA	115		%	2	07/27/22	JRB	30 - 150 %
% DCAA (Confirmation)	89		%	2	07/27/22	JRB	30 - 150 %
Pesticides							
4,4' -DDD	ND	7.0	ug/Kg	2	07/27/22	AW	SW8081B
4,4' -DDE	ND	7.0	ug/Kg	2	07/27/22	AW	SW8081B
4,4' -DDT	ND	7.0	ug/Kg	2	07/27/22	AW	SW8081B
a-BHC	ND	7.0	ug/Kg	2	07/27/22	AW	SW8081B
Alachlor	ND	7.0	ug/Kg	2	07/27/22	AW	SW8081B
Aldrin	ND	3.5	ug/Kg	2	07/27/22	AW	SW8081B
b-BHC	ND	7.0	ug/Kg	2	07/27/22	AW	SW8081B

Project ID: 2022-062
Client ID: SB-12 (10-12)

Phoenix I.D.: CL85981

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Chlordane	ND	14	ug/Kg	2	07/27/22	AW	SW8081B
d-BHC	ND	7.0	ug/Kg	2	07/27/22	AW	SW8081B
Dieldrin	ND	3.5	ug/Kg	2	07/27/22	AW	SW8081B
Endosulfan I	ND	7.0	ug/Kg	2	07/27/22	AW	SW8081B
Endosulfan II	ND	7.0	ug/Kg	2	07/27/22	AW	SW8081B
Endosulfan sulfate	ND	7.0	ug/Kg	2	07/27/22	AW	SW8081B
Endrin	ND	7.0	ug/Kg	2	07/27/22	AW	SW8081B
Endrin aldehyde	ND	7.0	ug/Kg	2	07/27/22	AW	SW8081B
Endrin ketone	ND	7.0	ug/Kg	2	07/27/22	AW	SW8081B
g-BHC	ND	1.4	ug/Kg	2	07/27/22	AW	SW8081B
Heptachlor	ND	7.0	ug/Kg	2	07/27/22	AW	SW8081B
Heptachlor epoxide	ND	7.0	ug/Kg	2	07/27/22	AW	SW8081B
Hexachlorobenzene	ND	3.5	ug/Kg	2	07/27/22	AW	SW8081B
Methoxychlor	ND	35	ug/Kg	2	07/27/22	AW	SW8081B
Toxaphene	ND	140	ug/Kg	2	07/27/22	AW	SW8081B
QA/QC Surrogates							
% DCBP	60		%	2	07/27/22	AW	30 - 150 %
% DCBP (Confirmation)	64		%	2	07/27/22	AW	30 - 150 %
% TCMX	49		%	2	07/27/22	AW	30 - 150 %
% TCMX (Confirmation)	46		%	2	07/27/22	AW	30 - 150 %

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RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

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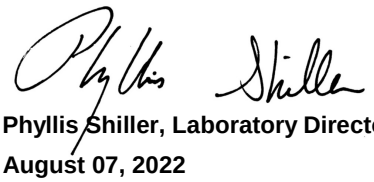

Phyllis Shiller, Laboratory Director

August 07, 2022

Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

August 07, 2022

QA/QC Data

SDG I.D.: GCL85974

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
QA/QC Batch 634738 (mg/kg), QC Sample No: CL81255 2X (CL85977)														
Mercury - Soil	BRL	0.02	0.24	0.24	0	103	103	0.0	88.9	117	27.3	75 - 125	20	r
Comment:														
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 75-125%														
QA/QC Batch 634568 (mg/kg), QC Sample No: CL85579 2X (CL85974, CL85975, CL85976, CL85979, CL85980)														
Mercury - Soil	BRL	0.02	0.07	0.09	NC	103	104	1.0	94.6	99.5	5.0	75 - 125	20	
Comment:														
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 75-125%														
QA/QC Batch 634764 (mg/kg), QC Sample No: CL86574 2X (CL85978)														
Mercury - Soil	BRL	0.02	<0.03	<0.03	NC	112	110	1.8	101	103	2.0	75 - 125	20	
Comment:														
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 75-125%														
QA/QC Batch 634475 (mg/kg), QC Sample No: CL85839 (CL85974, CL85975, CL85976, CL85979, CL85980)														
ICP Metals - Soil														
Antimony	BRL	3.3	<4.0	<3.8	NC	93.8	92.5	1.4	94.3			75 - 125	35	
Arsenic	BRL	0.67	4.11	5.61	30.9	99.8	104	4.1	105			75 - 125	35	
Barium	BRL	0.33	51.1	62.7	20.4	95.1	97.2	2.2	123			75 - 125	35	
Beryllium	BRL	0.27	0.42	0.49	NC	96.7	97.4	0.7	98.6			75 - 125	35	
Cadmium	BRL	0.33	0.94	1.08	NC	93.9	93.9	0.0	99.2			75 - 125	35	
Chromium	BRL	0.33	17.0	26.2	42.6	101	102	1.0	105			75 - 125	35	r
Lead	BRL	0.33	94.3	103	8.80	98.1	103	4.9	107			75 - 125	35	
Nickel	BRL	0.33	14.6	16.0	9.20	98.1	99.6	1.5	104			75 - 125	35	
Selenium	BRL	1.3	<1.6	<1.5	NC	96.4	97.9	1.5	99.3			75 - 125	35	
Silver	BRL	0.33	<0.40	<0.38	NC	90.6	95.1	4.8	98.2			75 - 125	35	
Thallium	BRL	3.0	<2.2	<3.4	NC	97.6	94.4	3.3	102			75 - 125	35	
Vanadium	BRL	0.33	32.8	36.8	11.5	97.3	99.4	2.1	102			75 - 125	35	
Zinc	BRL	0.67	146	163	11.0	95.9	98.2	2.4	112			75 - 125	35	
Comment:														
Additional: LCS acceptance range is 80-120% MS acceptance range 75-125%.														
QA/QC Batch 634683 (mg/kg), QC Sample No: CL89026 (CL85977, CL85978)														
ICP Metals - Soil														
Antimony	BRL	3.3	<3.1	<3.2	NC	95.2	94.3	0.9	90.8			75 - 125	35	
Arsenic	BRL	0.67	3.06	2.63	NC	106	101	4.8	103			75 - 125	35	
Barium	BRL	0.33	47.4	52.2	9.60	100	100	0.0	111			75 - 125	35	
Beryllium	BRL	0.27	0.36	0.39	NC	98.5	110	11.0	105			75 - 125	35	
Cadmium	BRL	0.33	0.99	1.12	NC	104	108	3.8	100			75 - 125	35	
Chromium	BRL	0.33	18.7	17.4	7.20	104	104	0.0	106			75 - 125	35	
Lead	BRL	0.33	27.7	28.9	4.20	105	101	3.9	108			75 - 125	35	
Nickel	BRL	0.33	13.1	14.1	7.40	101	101	0.0	105			75 - 125	35	
Selenium	BRL	1.3	<1.3	<1.3	NC	100	103	3.0	98.9			75 - 125	35	
Silver	BRL	0.33	<0.31	<0.32	NC	92.8	90.8	2.2	96.3			75 - 125	35	

QA/QC Data

SDG I.D.: GCL85974

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
Thallium	BRL	3.0	<2.8	<2.9	NC	95.0	97.6	2.7	102			75 - 125	35
Vanadium	BRL	0.33	46.2	43.7	5.60	103	98.9	4.1	106			75 - 125	35
Zinc	BRL	0.67	46.7	50.0	6.80	103	98.6	4.4	111			75 - 125	35

Comment:

Additional: LCS acceptance range is 80-120% MS acceptance range 75-125%.

r = This parameter is outside laboratory RPD specified recovery limits.

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QA/QC Report

August 07, 2022

QA/QC Data

SDG I.D.: GCL85974

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 634492 (mg/kg), QC Sample No: CL85975 (CL85974, CL85975, CL85976, CL85977, CL85978, CL85979, CL85980)										
Extractable Petroleum Hydrocarbons - Soil										
C11-C22 Aromatic Hydrocarbons U	ND	3.3							40 - 140	25
C9-C18 Aliphatic Hydrocarbons 1*	ND	3.3	68	61	10.9	78	70	10.8	40 - 140	25
C19-C36 Aliphatic Hydrocarbons 1*	ND	3.3	98	95	3.1	130	119	8.8	40 - 140	25
C11-C22 Aromatic Hydrocarbons 1	ND	3.3	57	69	19.0	79	76	3.9	40 - 140	25
Total TPH 1,2*	ND	3.3	85	81	4.8	108	98	9.7	40 - 140	25
C9 - Nonane	ND	0.67	45	38	16.9	44	41	7.1	40 - 140	25
C-10 Decane	ND	0.67	56	48	15.4	58	54	7.1	40 - 140	25
C12 - Dodecane	ND	0.67	64	57	11.6	69	62	10.7	40 - 140	25
C14 - Tetradecane	ND	0.67	63	58	8.3	74	65	12.9	40 - 140	25
C16 - Hexadecane	ND	0.67	83	77	7.5	101	90	11.5	40 - 140	25
C18 - Octadecane	ND	0.67	97	90	7.5	122	110	10.3	40 - 140	25
C19 - Nonadecane	ND	0.67	95	89	6.5	118	106	10.7	40 - 140	25
C20 - Eicosane	ND	0.67	99	93	6.3	125	112	11.0	40 - 140	25
C22 - Docosane	ND	0.67	100	94	6.2	127	114	10.8	40 - 140	25
C24 - Tetracosane	ND	0.67	106	100	5.8	134	121	10.2	40 - 140	25
C26 - Hexacosane	ND	0.67	108	101	6.7	136	123	10.0	40 - 140	25
C28 - Octacosane	ND	0.67	106	100	5.8	135	122	10.1	40 - 140	25
C30 - Tricotane	ND	0.67	102	98	4.0	133	122	8.6	40 - 140	25
C36 - Hexatriacontane	ND	0.67	69	85	20.8	128	132	3.1	40 - 140	25
% 1-chlorooctadecane (aliphatic)	72	%	73	70	4.2	92	81	12.7	40 - 140	25
% o-terphenyl (aromatic)	68	%	52	63	19.1	71	70	1.4	40 - 140	25
% 2-Fluorobiphenyl (Fractionation)	105	%	79	101	24.4	99	98	1.0	40 - 140	25
% 2-Bromonaphthalene (Fractionati	101	%	74	95	24.9	90	90	0.0	40 - 140	25
% 2-Methylnaphthalene BT		%	0	0	NC				0 - 5	
% Naphthalene BT		%	0	0	NC				0 - 5	
Comment:										
Additional EPH fractionation criteria: Breakthrough criteria (BT) is 0 to 5%										
QA/QC Batch 634680 (ug/Kg), QC Sample No: CL88885 10X (CL85974, CL85975, CL85981)										
Chlorinated Herbicides - Soil										
2,4,5-T	ND	130	70	68	2.9	67	56	17.9	40 - 140	30
2,4,5-TP (Silvex)	ND	130	56	50	11.3	55	52	5.6	40 - 140	30
2,4-D	ND	250	84	81	3.6	44	46	4.4	40 - 140	30
2,4-DB	ND	2500	72	82	13.0	43	42	2.4	40 - 140	30
Dalapon	ND	130	57	44	25.7	54	53	1.9	40 - 140	30
Dicamba	ND	130	68	92	30.0	67	66	1.5	40 - 140	30
Dichloroprop	ND	130	84	90	6.9	51	53	3.8	40 - 140	30
Dinoseb	ND	130	89	86	3.4	68	62	9.2	10 - 110	20
MCPA	ND	38000	47	49	4.2	51	57	11.1	40 - 140	30
MCPP	ND	38000	56	65	14.9	65	71	8.8	40 - 140	30
% DCAA (Surrogate Rec)	87	%	67	58	14.4	68	69	1.5	30 - 150	30

QA/QC Data

SDG I.D.: GCL85974

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
% DCAA (Surrogate Rec) (Confirm	77	%	74	55	29.5	69	72	4.3	30 - 150	30	
Comment:											
MCP 8151 additional criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%.											
QA/QC Batch 634855 (ug/Kg), QC Sample No: CL88908 10X (CL85980)											
Chlorinated Herbicides - Soil											
2,4,5-T	ND	130	75	86	13.7	81	85	4.8	40 - 140	30	
2,4,5-TP (Silvex)	ND	130	63	73	14.7	84	82	2.4	40 - 140	30	
2,4-D	ND	250	66	73	10.1	79	78	1.3	40 - 140	30	
2,4-DB	ND	2500	57	64	11.6	73	75	2.7	40 - 140	30	
Dalapon	ND	130	70	75	6.9	33	34	3.0	40 - 140	30	
Dicamba	ND	130	73	76	4.0	92	85	7.9	40 - 140	30	
Dichloroprop	ND	130	86	86	0.0	94	87	7.7	40 - 140	30	
Dinoseb	ND	130	99	97	2.0	85	85	0.0	10 - 110	20	
MCPA	ND	38000	62	72	14.9	82	83	1.2	40 - 140	30	
MCPP	ND	38000	35	44	22.8	80	74	7.8	40 - 140	30	I
% DCAA (Surrogate Rec)	89	%	77	88	13.3	102	100	2.0	30 - 150	30	
% DCAA (Surrogate Rec) (Confirm	88	%	80	99	21.2	105	102	2.9	30 - 150	30	
Comment:											
MCP 8151 additional criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%.											
QA/QC Batch 634454 (ug/Kg), QC Sample No: CL86127 2X (CL85974, CL85975, CL85980, CL85981)											
Pesticides - Soil											
4,4' -DDD	ND	1.7	76	72	5.4	68	71	4.3	40 - 140	30	
4,4' -DDE	ND	1.7	69	64	7.5	67	73	8.6	40 - 140	30	
4,4' -DDT	ND	1.7	71	67	5.8	65	71	8.8	40 - 140	30	
a-BHC	ND	1.0	63	60	4.9	58	71	20.2	40 - 140	30	
Alachlor	ND	3.3	NA	NA	NC	NA	NA	NC	40 - 140	30	
Aldrin	ND	1.0	64	60	6.5	64	72	11.8	40 - 140	30	
b-BHC	ND	1.0	72	66	8.7	68	72	5.7	40 - 140	30	
Chlordane	ND	33	61	58	5.0	78	89	13.2	40 - 140	30	
d-BHC	ND	3.3	33	30	9.5	31	35	12.1	40 - 140	30	I
Dieldrin	ND	1.0	68	63	7.6	63	67	6.2	40 - 140	30	
Endosulfan I	ND	3.3	70	63	10.5	60	70	15.4	40 - 140	30	
Endosulfan II	ND	3.3	77	72	6.7	67	74	9.9	40 - 140	30	
Endosulfan sulfate	ND	3.3	71	68	4.3	60	68	12.5	40 - 140	30	
Endrin	ND	3.3	73	67	8.6	65	71	8.8	40 - 140	30	
Endrin aldehyde	ND	3.3	67	62	7.8	57	65	13.1	40 - 140	30	
Endrin ketone	ND	3.3	79	77	2.6	67	74	9.9	40 - 140	30	
g-BHC	ND	1.0	67	62	7.8	63	71	11.9	40 - 140	30	
Heptachlor	ND	3.3	60	56	6.9	60	67	11.0	40 - 140	30	
Heptachlor epoxide	ND	3.3	70	65	7.4	69	75	8.3	40 - 140	30	
Hexachlorobenzene	ND	3.3	56	52	7.4	62	61	1.6	40 - 140	30	
Methoxychlor	ND	3.3	76	73	4.0	65	69	6.0	40 - 140	30	
Toxaphene	ND	130	NA	NA	NC	NA	NA	NC	40 - 140	30	
% DCBP	60	%	72	70	2.8	63	65	3.1	30 - 150	30	
% DCBP (Confirmation)	59	%	65	66	1.5	63	69	9.1	30 - 150	30	
% TCMX	48	%	58	54	7.1	55	58	5.3	30 - 150	30	
% TCMX (Confirmation)	42	%	50	49	2.0	53	56	5.5	30 - 150	30	
QA/QC Batch 634494 (ug/kg), QC Sample No: CL85975 (CL85974, CL85975)											
Polynuclear Aromatic HC - Soil											
2-Methylnaphthalene	ND	230	75	72	4.1	71	80	11.9	40 - 140	30	
Acenaphthene	ND	230	80	78	2.5	73	82	11.6	40 - 140	30	

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Acenaphthylene	ND	230	73	72	1.4	66	74	11.4	40 - 140	30	
Anthracene	ND	230	82	80	2.5	73	86	16.4	40 - 140	30	
Benz(a)anthracene	ND	230	78	78	0.0	69	83	18.4	40 - 140	30	
Benzo(a)pyrene	ND	230	80	78	2.5	69	80	14.8	40 - 140	30	
Benzo(b)fluoranthene	ND	230	85	79	7.3	71	86	19.1	40 - 140	30	
Benzo(ghi)perylene	ND	230	77	79	2.6	72	78	8.0	40 - 140	30	
Benzo(k)fluoranthene	ND	230	74	75	1.3	67	77	13.9	40 - 140	30	
Chrysene	ND	230	81	80	1.2	72	83	14.2	40 - 140	30	
Dibenz(a,h)anthracene	ND	230	81	82	1.2	73	86	16.4	40 - 140	30	
Fluoranthene	ND	230	85	82	3.6	86	87	1.2	40 - 140	30	
Fluorene	ND	230	83	82	1.2	79	86	8.5	40 - 140	30	
Indeno(1,2,3-cd)pyrene	ND	230	86	86	0.0	76	87	13.5	40 - 140	30	
Naphthalene	ND	230	72	69	4.3	69	72	4.3	40 - 140	30	
Phenanthrene	ND	230	78	77	1.3	70	83	17.0	40 - 140	30	
Pyrene	ND	230	87	83	4.7	90	88	2.2	40 - 140	30	
% 2-Fluorobiphenyl	73	%	70	69	1.4	60	74	20.9	30 - 130	30	
% Nitrobenzene-d5	88	%	75	72	4.1	72	85	16.6	30 - 130	30	
% Terphenyl-d14	94	%	80	76	5.1	82	88	7.1	30 - 130	30	

Comment:

Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

QA/QC Batch 634640 (ug/kg), QC Sample No: CL86013 (CL85976, CL85977, CL85978, CL85979, CL85980)

Polynuclear Aromatic HC - Soil

2-Methylnaphthalene	ND	230	85	80	6.1	96	73	27.2	40 - 140	30	
Acenaphthene	ND	230	74	67	9.9	88	67	27.1	40 - 140	30	
Acenaphthylene	ND	230	59	53	10.7	67	53	23.3	40 - 140	30	
Anthracene	ND	230	73	62	16.3	85	63	29.7	40 - 140	30	
Benz(a)anthracene	ND	230	71	64	10.4	82	61	29.4	40 - 140	30	
Benzo(a)pyrene	ND	230	71	61	15.2	75	61	20.6	40 - 140	30	
Benzo(b)fluoranthene	ND	230	88	79	10.8	92	72	24.4	40 - 140	30	
Benzo(ghi)perylene	ND	230	86	69	21.9	82	67	20.1	40 - 140	30	
Benzo(k)fluoranthene	ND	230	84	71	16.8	80	62	25.4	40 - 140	30	
Chrysene	ND	230	79	68	15.0	87	64	30.5	40 - 140	30	
Dibenz(a,h)anthracene	ND	230	89	75	17.1	88	67	27.1	40 - 140	30	
Fluoranthene	ND	230	70	56	22.2	79	60	27.3	40 - 140	30	
Fluorene	ND	230	71	64	10.4	90	65	32.3	40 - 140	30	r
Indeno(1,2,3-cd)pyrene	ND	230	92	79	15.2	91	73	22.0	40 - 140	30	
Naphthalene	ND	230	67	63	6.2	76	61	21.9	40 - 140	30	
Phenanthrene	ND	230	73	60	19.5	83	65	24.3	40 - 140	30	
Pyrene	ND	230	70	59	17.1	80	62	25.4	40 - 140	30	
% 2-Fluorobiphenyl	62	%	72	61	16.5	84	60	33.3	30 - 130	30	r
% Nitrobenzene-d5	61	%	59	60	1.7	73	57	24.6	30 - 130	30	
% Terphenyl-d14	86	%	72	59	19.8	82	59	32.6	30 - 130	30	r

Comment:

Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

QA/QC Batch 634656 (ug/kg), QC Sample No: CL85707 (CL85974, CL85978, CL85980)

Polynuclear Aromatic HC - Soil

1,4-dioxane	ND	67	46	50	8.3	48	49	2.1	40 - 140	30	
% 2-Fluorobiphenyl	65	%	58	72	21.5	73	72	1.4	40 - 140	30	
% Nitrobenzene-d5	69	%	70	87	21.7	87	90	3.4	40 - 140	30	
% Terphenyl-d14	97	%	91	108	17.1	118	106	10.7	40 - 140	30	

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
Comment:										
Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)										
QA/QC Batch 635652 (ug/kg), QC Sample No: CL89818 (CL85979, CL85980)										
Volatiles - Soil (Low Level)										
1,1,1,2-Tetrachloroethane	ND	5.0	115	119	3.4				70 - 130	20
1,1,1-Trichloroethane	ND	5.0	105	108	2.8				70 - 130	20
1,1,2,2-Tetrachloroethane	ND	3.0	100	106	5.8				70 - 130	20
1,1,2-Trichloroethane	ND	5.0	103	107	3.8				70 - 130	20
1,1-Dichloroethane	ND	5.0	96	99	3.1				70 - 130	20
1,1-Dichloroethene	ND	5.0	101	105	3.9				70 - 130	20
1,1-Dichloropropene	ND	5.0	108	113	4.5				70 - 130	20
1,2,3-Trichlorobenzene	ND	5.0	110	118	7.0				70 - 130	20
1,2,3-Trichloropropane	ND	5.0	92	97	5.3				70 - 130	20
1,2,4-Trichlorobenzene	ND	5.0	116	124	6.7				70 - 130	20
1,2,4-Trimethylbenzene	ND	1.0	116	120	3.4				70 - 130	20
1,2-Dibromo-3-chloropropane	ND	5.0	106	116	9.0				70 - 130	20
1,2-Dibromoethane	ND	5.0	111	117	5.3				70 - 130	20
1,2-Dichlorobenzene	ND	5.0	108	112	3.6				70 - 130	20
1,2-Dichloroethane	ND	5.0	100	105	4.9				70 - 130	20
1,2-Dichloropropane	ND	5.0	97	101	4.0				70 - 130	20
1,3,5-Trimethylbenzene	ND	1.0	116	121	4.2				70 - 130	20
1,3-Dichlorobenzene	ND	5.0	113	118	4.3				70 - 130	20
1,3-Dichloropropane	ND	5.0	105	111	5.6				70 - 130	20
1,4-Dichlorobenzene	ND	5.0	110	115	4.4				70 - 130	20
1,4-dioxane	ND	100	101	112	10.3				40 - 160	20
2,2-Dichloropropane	ND	5.0	110	114	3.6				70 - 130	20
2-Chlorotoluene	ND	5.0	113	118	4.3				70 - 130	20
2-Hexanone	ND	25	99	108	8.7				40 - 160	20
2-Isopropyltoluene	ND	5.0	114	119	4.3				70 - 130	20
4-Chlorotoluene	ND	5.0	114	118	3.4				70 - 130	20
4-Methyl-2-pentanone	ND	25	95	101	6.1				40 - 160	20
Acetone	ND	10	62	67	7.8				40 - 160	20
Acrylonitrile	ND	5.0	88	93	5.5				70 - 130	20
Benzene	ND	1.0	105	109	3.7				70 - 130	20
Bromobenzene	ND	5.0	114	119	4.3				70 - 130	20
Bromochloromethane	ND	5.0	101	104	2.9				70 - 130	20
Bromodichloromethane	ND	5.0	108	113	4.5				70 - 130	20
Bromoform	ND	5.0	120	127	5.7				70 - 130	20
Bromomethane	ND	5.0	109	113	3.6				40 - 160	20
Carbon Disulfide	ND	5.0	103	107	3.8				70 - 130	20
Carbon tetrachloride	ND	5.0	106	110	3.7				70 - 130	20
Chlorobenzene	ND	5.0	107	111	3.7				70 - 130	20
Chloroethane	ND	5.0	98	101	3.0				70 - 130	20
Chloroform	ND	5.0	99	102	3.0				70 - 130	20
Chloromethane	ND	5.0	85	86	1.2				40 - 160	20
cis-1,2-Dichloroethene	ND	5.0	105	108	2.8				70 - 130	20
cis-1,3-Dichloropropene	ND	5.0	110	115	4.4				70 - 130	20
Dibromochloromethane	ND	3.0	116	123	5.9				70 - 130	20
Dibromomethane	ND	5.0	104	109	4.7				70 - 130	20
Dichlorodifluoromethane	ND	5.0	88	90	2.2				40 - 160	20
Diethyl ether	ND	5.0	86	89	3.4				70 - 130	20

QA/QC Data

SDG I.D.: GCL85974

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
Di-isopropyl ether	ND	5.0	92	95	3.2				70 - 130	20
Ethyl tert-butyl ether	ND	5.0	97	102	5.0				70 - 130	20
Ethylbenzene	ND	1.0	113	116	2.6				70 - 130	20
Hexachlorobutadiene	ND	5.0	112	118	5.2				70 - 130	20
Isopropylbenzene	ND	1.0	116	122	5.0				70 - 130	20
m&p-Xylene	ND	2.0	113	117	3.5				70 - 130	20
Methyl ethyl ketone	ND	5.0	83	89	7.0				40 - 160	20
Methyl t-butyl ether (MTBE)	ND	1.0	88	93	5.5				70 - 130	20
Methylene chloride	ND	5.0	81	83	2.4				70 - 130	20
Naphthalene	ND	5.0	113	123	8.5				70 - 130	20
n-Butylbenzene	ND	1.0	118	124	5.0				70 - 130	20
n-Propylbenzene	ND	1.0	114	119	4.3				70 - 130	20
o-Xylene	ND	2.0	115	119	3.4				70 - 130	20
p-Isopropyltoluene	ND	1.0	119	124	4.1				70 - 130	20
sec-Butylbenzene	ND	1.0	115	121	5.1				70 - 130	20
Styrene	ND	5.0	116	120	3.4				70 - 130	20
tert-amyl methyl ether	ND	5.0	104	109	4.7				70 - 130	20
tert-Butylbenzene	ND	1.0	118	122	3.3				70 - 130	20
Tetrachloroethene	ND	5.0	110	114	3.6				70 - 130	20
Tetrahydrofuran (THF)	ND	5.0	82	86	4.8				70 - 130	20
Toluene	ND	1.0	106	109	2.8				70 - 130	20
trans-1,2-Dichloroethene	ND	5.0	99	103	4.0				70 - 130	20
trans-1,3-Dichloropropene	ND	5.0	114	119	4.3				70 - 130	20
trans-1,4-dichloro-2-butene	ND	5.0	119	128	7.3				70 - 130	20
Trichloroethene	ND	5.0	106	110	3.7				70 - 130	20
Trichlorofluoromethane	ND	5.0	108	112	3.6				70 - 130	20
Trichlorotrifluoroethane	ND	5.0	94	99	5.2				70 - 130	20
Vinyl chloride	ND	5.0	99	103	4.0				70 - 130	20
% 1,2-dichlorobenzene-d4	101	%	99	99	0.0				70 - 130	20
% Bromofluorobenzene	96	%	100	100	0.0				70 - 130	20
% Dibromofluoromethane	99	%	98	97	1.0				70 - 130	20
% Toluene-d8	96	%	98	97	1.0				70 - 130	20

Comment:

Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.
The RPD criteria for the LCS/LCSD is 20%,
The MS/MSD RPD criteria is listed above.

QA/QC Batch 635473 (ug/kg), QC Sample No: CL91509 (CL85975, CL85976)

Volatiles - Soil (Low Level)

1,1,1,2-Tetrachloroethane	ND	5.0	108	107	0.9				70 - 130	20
1,1,1-Trichloroethane	ND	5.0	112	105	6.5				70 - 130	20
1,1,2,2-Tetrachloroethane	ND	3.0	102	99	3.0				70 - 130	20
1,1,2-Trichloroethane	ND	5.0	102	102	0.0				70 - 130	20
1,1-Dichloroethane	ND	5.0	107	101	5.8				70 - 130	20
1,1-Dichloroethene	ND	5.0	116	109	6.2				70 - 130	20
1,1-Dichloropropene	ND	5.0	115	108	6.3				70 - 130	20
1,2,3-Trichlorobenzene	ND	5.0	106	102	3.8				70 - 130	20
1,2,3-Trichloropropane	ND	5.0	96	95	1.0				70 - 130	20
1,2,4-Trichlorobenzene	ND	5.0	97	92	5.3				70 - 130	20
1,2,4-Trimethylbenzene	ND	1.0	106	102	3.8				70 - 130	20
1,2-Dibromo-3-chloropropane	ND	5.0	110	110	0.0				70 - 130	20
1,2-Dibromoethane	ND	5.0	105	104	1.0				70 - 130	20
1,2-Dichlorobenzene	ND	5.0	102	100	2.0				70 - 130	20

QA/QC Data

SDG I.D.: GCL85974

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
1,2-Dichloroethane	ND	5.0	101	98	3.0				70 - 130	20
1,2-Dichloropropane	ND	5.0	110	107	2.8				70 - 130	20
1,3,5-Trimethylbenzene	ND	1.0	107	102	4.8				70 - 130	20
1,3-Dichlorobenzene	ND	5.0	99	96	3.1				70 - 130	20
1,3-Dichloropropane	ND	5.0	104	103	1.0				70 - 130	20
1,4-Dichlorobenzene	ND	5.0	101	97	4.0				70 - 130	20
1,4-dioxane	ND	100	98	97	1.0				40 - 160	20
2,2-Dichloropropane	ND	5.0	114	109	4.5				70 - 130	20
2-Chlorotoluene	ND	5.0	109	105	3.7				70 - 130	20
2-Hexanone	ND	25	99	98	1.0				40 - 160	20
2-Isopropyltoluene	ND	5.0	111	105	5.6				70 - 130	20
4-Chlorotoluene	ND	5.0	108	102	5.7				70 - 130	20
4-Methyl-2-pentanone	ND	25	103	104	1.0				40 - 160	20
Acetone	ND	10	72	73	1.4				40 - 160	20
Acrylonitrile	ND	5.0	94	94	0.0				70 - 130	20
Benzene	ND	1.0	111	106	4.6				70 - 130	20
Bromobenzene	ND	5.0	109	106	2.8				70 - 130	20
Bromochloromethane	ND	5.0	103	102	1.0				70 - 130	20
Bromodichloromethane	ND	5.0	108	105	2.8				70 - 130	20
Bromoform	ND	5.0	103	102	1.0				70 - 130	20
Bromomethane	ND	5.0	105	98	6.9				40 - 160	20
Carbon Disulfide	ND	5.0	110	101	8.5				70 - 130	20
Carbon tetrachloride	ND	5.0	112	107	4.6				70 - 130	20
Chlorobenzene	ND	5.0	105	103	1.9				70 - 130	20
Chloroethane	ND	5.0	117	109	7.1				70 - 130	20
Chloroform	ND	5.0	103	99	4.0				70 - 130	20
Chloromethane	ND	5.0	109	100	8.6				40 - 160	20
cis-1,2-Dichloroethene	ND	5.0	118	114	3.4				70 - 130	20
cis-1,3-Dichloropropene	ND	5.0	111	108	2.7				70 - 130	20
Dibromochloromethane	ND	3.0	107	107	0.0				70 - 130	20
Dibromomethane	ND	5.0	107	104	2.8				70 - 130	20
Dichlorodifluoromethane	ND	5.0	106	100	5.8				40 - 160	20
Diethyl ether	ND	5.0	95	91	4.3				70 - 130	20
Di-isopropyl ether	ND	5.0	101	100	1.0				70 - 130	20
Ethyl tert-butyl ether	ND	5.0	100	101	1.0				70 - 130	20
Ethylbenzene	ND	1.0	111	106	4.6				70 - 130	20
Hexachlorobutadiene	ND	5.0	110	107	2.8				70 - 130	20
Isopropylbenzene	ND	1.0	114	107	6.3				70 - 130	20
m&p-Xylene	ND	2.0	105	102	2.9				70 - 130	20
Methyl ethyl ketone	ND	5.0	93	92	1.1				40 - 160	20
Methyl t-butyl ether (MTBE)	ND	1.0	98	97	1.0				70 - 130	20
Methylene chloride	ND	5.0	86	81	6.0				70 - 130	20
Naphthalene	ND	5.0	111	104	6.5				70 - 130	20
n-Butylbenzene	ND	1.0	111	106	4.6				70 - 130	20
n-Propylbenzene	ND	1.0	114	107	6.3				70 - 130	20
o-Xylene	ND	2.0	107	103	3.8				70 - 130	20
p-Isopropyltoluene	ND	1.0	110	106	3.7				70 - 130	20
sec-Butylbenzene	ND	1.0	112	106	5.5				70 - 130	20
Styrene	ND	5.0	104	101	2.9				70 - 130	20
tert-amyl methyl ether	ND	5.0	103	103	0.0				70 - 130	20
tert-Butylbenzene	ND	1.0	114	109	4.5				70 - 130	20
Tetrachloroethene	ND	5.0	110	104	5.6				70 - 130	20
Tetrahydrofuran (THF)	ND	5.0	94	97	3.1				70 - 130	20

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
Toluene	ND	1.0	112	105	6.5				70 - 130	20
trans-1,2-Dichloroethene	ND	5.0	111	104	6.5				70 - 130	20
trans-1,3-Dichloropropene	ND	5.0	109	105	3.7				70 - 130	20
trans-1,4-dichloro-2-butene	ND	5.0	110	105	4.7				70 - 130	20
Trichloroethene	ND	5.0	112	107	4.6				70 - 130	20
Trichlorofluoromethane	ND	5.0	112	105	6.5				70 - 130	20
Trichlorotrifluoroethane	ND	5.0	104	99	4.9				70 - 130	20
Vinyl chloride	ND	5.0	118	111	6.1				70 - 130	20
% 1,2-dichlorobenzene-d4	96	%	101	101	0.0				70 - 130	20
% Bromofluorobenzene	97	%	98	99	1.0				70 - 130	20
% Dibromofluoromethane	98	%	97	98	1.0				70 - 130	20
% Toluene-d8	93	%	102	101	1.0				70 - 130	20

Comment:

The Low Level MS/MSD are not reported for this batch.

Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.
The RPD criteria for the LCS/LCSD is 20%,
The MS/MSD RPD criteria is listed above.

QA/QC Batch 635473H (ug/kg), QC Sample No: CL91509 50X (CL85977 (50X))

Volatiles - Soil (High Level)

1,1,1,2-Tetrachloroethane	ND	250	107	111	3.7	89	96	7.6	70 - 130	20
1,1,1-Trichloroethane	ND	250	105	112	6.5	87	99	12.9	70 - 130	20
1,1,2,2-Tetrachloroethane	ND	250	100	108	7.7	104	107	2.8	70 - 130	20
1,1,2-Trichloroethane	ND	250	104	111	6.5	101	110	8.5	70 - 130	20
1,1-Dichloroethane	ND	250	106	113	6.4	95	108	12.8	70 - 130	20
1,1-Dichloroethene	ND	250	102	112	9.3	92	110	17.8	70 - 130	20
1,1-Dichloropropene	ND	250	115	122	5.9	106	121	13.2	70 - 130	20
1,2,3-Trichlorobenzene	ND	250	119	129	8.1	108	119	9.7	70 - 130	20
1,2,3-Trichloropropane	ND	250	96	103	7.0	94	101	7.2	70 - 130	20
1,2,4-Trichlorobenzene	ND	250	124	131	5.5	106	120	12.4	70 - 130	20
1,2,4-Trimethylbenzene	ND	250	114	124	8.4	108	119	9.7	70 - 130	20
1,2-Dibromo-3-chloropropane	ND	250	107	114	6.3	91	97	6.4	70 - 130	20
1,2-Dibromoethane	ND	250	107	114	6.3	104	109	4.7	70 - 130	20
1,2-Dichlorobenzene	ND	250	112	121	7.7	107	116	8.1	70 - 130	20
1,2-Dichloroethane	ND	250	101	107	5.8	91	98	7.4	70 - 130	20
1,2-Dichloropropane	ND	250	110	118	7.0	109	118	7.9	70 - 130	20
1,3,5-Trimethylbenzene	ND	250	113	121	6.8	107	118	9.8	70 - 130	20
1,3-Dichlorobenzene	ND	250	112	119	6.1	103	114	10.1	70 - 130	20
1,3-Dichloropropane	ND	250	109	115	5.4	108	114	5.4	70 - 130	20
1,4-Dichlorobenzene	ND	250	116	122	5.0	106	119	11.6	70 - 130	20
1,4-dioxane	ND	5000	106	115	8.1	106	111	4.6	40 - 160	20
2,2-Dichloropropane	ND	250	111	115	3.5	82	99	18.8	70 - 130	20
2-Chlorotoluene	ND	250	114	123	7.6	108	123	13.0	70 - 130	20
2-Hexanone	ND	1300	98	101	3.0	96	97	1.0	40 - 160	20
2-Isopropyltoluene	ND	250	114	124	8.4	111	121	8.6	70 - 130	20
4-Chlorotoluene	ND	250	119	127	6.5	112	123	9.4	70 - 130	20
4-Methyl-2-pentanone	ND	1300	102	108	5.7	98	103	5.0	40 - 160	20
Acetone	ND	500	71	75	5.5	65	67	3.0	40 - 160	20
Acrylonitrile	ND	250	105	103	1.9	102	105	2.9	70 - 130	20
Benzene	ND	250	112	119	6.1	109	122	11.3	70 - 130	20
Bromobenzene	ND	250	112	120	6.9	108	119	9.7	70 - 130	20
Bromochloromethane	ND	250	101	110	8.5	98	107	8.8	70 - 130	20
Bromodichloromethane	ND	250	106	112	5.5	89	97	8.6	70 - 130	20

QA/QC Data

SDG I.D.: GCL85974

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Bromoform	ND	250	100	103	3.0	75	80	6.5	70 - 130	20	
Bromomethane	ND	250	81	90	10.5	68	82	18.7	40 - 160	20	
Carbon Disulfide	ND	250	98	106	7.8	84	101	18.4	70 - 130	20	
Carbon tetrachloride	ND	250	104	109	4.7	73	86	16.4	70 - 130	20	
Chlorobenzene	ND	250	112	120	6.9	106	117	9.9	70 - 130	20	
Chloroethane	ND	250	34	35	2.9	26	31	17.5	70 - 130	20	l,m
Chloroform	ND	250	101	108	6.7	92	101	9.3	70 - 130	20	
Chloromethane	ND	250	110	113	2.7	87	102	15.9	40 - 160	20	
cis-1,2-Dichloroethene	ND	250	117	125	6.6	110	94	15.7	70 - 130	20	
cis-1,3-Dichloropropene	ND	250	112	119	6.1	94	106	12.0	70 - 130	20	
Dibromochloromethane	ND	150	108	113	4.5	86	94	8.9	70 - 130	20	
Dibromomethane	ND	250	106	115	8.1	103	110	6.6	70 - 130	20	
Dichlorodifluoromethane	ND	250	103	110	6.6	87	99	12.9	40 - 160	20	
Diethyl ether	ND	250	69	78	12.2	67	76	12.6	70 - 130	20	l,m
Di-isopropyl ether	ND	250	103	107	3.8	94	102	8.2	70 - 130	20	
Ethyl tert-butyl ether	ND	250	103	109	5.7	97	104	7.0	70 - 130	20	
Ethylbenzene	ND	250	117	124	5.8	111	122	9.4	70 - 130	20	
Hexachlorobutadiene	ND	250	128	137	6.8	117	131	11.3	70 - 130	20	l,m
Isopropylbenzene	ND	250	114	125	9.2	110	125	12.8	70 - 130	20	
m&p-Xylene	ND	250	113	121	6.8	108	118	8.8	70 - 130	20	
Methyl ethyl ketone	ND	250	95	96	1.0	91	91	0.0	40 - 160	20	
Methyl t-butyl ether (MTBE)	ND	250	98	104	5.9	92	98	6.3	70 - 130	20	
Methylene chloride	ND	250	85	90	5.7	83	91	9.2	70 - 130	20	
Naphthalene	ND	250	110	119	7.9	107	115	7.2	70 - 130	20	
n-Butylbenzene	ND	250	130	140	7.4	118	132	11.2	70 - 130	20	l,m
n-Propylbenzene	ND	250	117	128	9.0	112	126	11.8	70 - 130	20	
o-Xylene	ND	250	114	120	5.1	109	117	7.1	70 - 130	20	
p-Isopropyltoluene	ND	250	121	129	6.4	113	127	11.7	70 - 130	20	
sec-Butylbenzene	ND	250	116	125	7.5	112	125	11.0	70 - 130	20	
Styrene	ND	250	113	118	4.3	107	115	7.2	70 - 130	20	
tert-amyl methyl ether	ND	250	105	113	7.3	105	114	8.2	70 - 130	20	
tert-Butylbenzene	ND	250	115	124	7.5	110	124	12.0	70 - 130	20	
Tetrachloroethene	ND	250	118	125	5.8	111	124	11.1	70 - 130	20	
Tetrahydrofuran (THF)	ND	250	98	101	3.0	95	98	3.1	70 - 130	20	
Toluene	ND	250	113	121	6.8	109	121	10.4	70 - 130	20	
trans-1,2-Dichloroethene	ND	250	111	116	4.4	98	112	13.3	70 - 130	20	
trans-1,3-Dichloropropene	ND	250	108	115	6.3	87	95	8.8	70 - 130	20	
trans-1,4-dichloro-2-butene	ND	250	110	117	6.2	84	91	8.0	70 - 130	20	
Trichloroethene	ND	250	113	121	6.8	106	119	11.6	70 - 130	20	
Trichlorofluoromethane	ND	250	24	25	4.1	20	23	14.0	70 - 130	20	l,m
Trichlorotrifluoroethane	ND	250	95	103	8.1	88	101	13.8	70 - 130	20	
Vinyl chloride	ND	250	128	138	7.5	113	134	17.0	70 - 130	20	l,m
% 1,2-dichlorobenzene-d4	96	%	100	101	1.0	101	100	1.0	70 - 130	20	
% Bromofluorobenzene	96	%	100	99	1.0	98	96	2.1	70 - 130	20	
% Dibromofluoromethane	95	%	94	94	0.0	93	93	0.0	70 - 130	20	
% Toluene-d8	93	%	102	101	1.0	100	102	2.0	70 - 130	20	

Comment:

Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.
The RPD criteria for the LCS/LCSD is 20%,
The MS/MSD RPD criteria is listed above.

QA/QC Data

SDG I.D.: GCL85974

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
QA/QC Batch 635649 (ug/kg), QC Sample No: CL92220 (CL85974)											
Volatiles - Soil (Low Level)											
1,1,1,2-Tetrachloroethane	ND	5.0	108	107	0.9	114	115	0.9	70 - 130	20	
1,1,1-Trichloroethane	ND	5.0	109	107	1.9	113	114	0.9	70 - 130	20	
1,1,2,2-Tetrachloroethane	ND	3.0	98	99	1.0	107	108	0.9	70 - 130	20	
1,1,2-Trichloroethane	ND	5.0	101	101	0.0	109	111	1.8	70 - 130	20	
1,1-Dichloroethane	ND	5.0	104	105	1.0	107	108	0.9	70 - 130	20	
1,1-Dichloroethene	ND	5.0	107	104	2.8	109	109	0.0	70 - 130	20	
1,1-Dichloropropene	ND	5.0	112	107	4.6	116	115	0.9	70 - 130	20	
1,2,3-Trichlorobenzene	ND	5.0	108	98	9.7	107	103	3.8	70 - 130	20	
1,2,3-Trichloropropane	ND	5.0	94	94	0.0	101	108	6.7	70 - 130	20	
1,2,4-Trichlorobenzene	ND	5.0	105	93	12.1	101	98	3.0	70 - 130	20	
1,2,4-Trimethylbenzene	ND	1.0	102	96	6.1	108	106	1.9	70 - 130	20	
1,2-Dibromo-3-chloropropane	ND	5.0	106	107	0.9	112	114	1.8	70 - 130	20	
1,2-Dibromoethane	ND	5.0	105	105	0.0	113	114	0.9	70 - 130	20	
1,2-Dichlorobenzene	ND	5.0	97	93	4.2	102	103	1.0	70 - 130	20	
1,2-Dichloroethane	ND	5.0	102	99	3.0	107	109	1.9	70 - 130	20	
1,2-Dichloropropane	ND	5.0	103	101	2.0	108	110	1.8	70 - 130	20	
1,3,5-Trimethylbenzene	ND	1.0	104	98	5.9	111	109	1.8	70 - 130	20	
1,3-Dichlorobenzene	ND	5.0	99	93	6.3	104	102	1.9	70 - 130	20	
1,3-Dichloropropane	ND	5.0	102	103	1.0	107	109	1.9	70 - 130	20	
1,4-Dichlorobenzene	ND	5.0	97	91	6.4	102	100	2.0	70 - 130	20	
1,4-dioxane	ND	100	101	98	3.0	128	128	0.0	40 - 160	20	
2,2-Dichloropropane	ND	5.0	105	103	1.9	111	103	7.5	70 - 130	20	
2-Chlorotoluene	ND	5.0	104	99	4.9	112	110	1.8	70 - 130	20	
2-Hexanone	ND	25	97	99	2.0	99	103	4.0	40 - 160	20	
2-Isopropyltoluene	ND	5.0	103	97	6.0	111	109	1.8	70 - 130	20	
4-Chlorotoluene	ND	5.0	101	96	5.1	108	105	2.8	70 - 130	20	
4-Methyl-2-pentanone	ND	25	103	103	0.0	106	109	2.8	40 - 160	20	
Acetone	ND	10	89	90	1.1	144	138	4.3	40 - 160	20	
Acrylonitrile	ND	5.0	99	101	2.0	99	100	1.0	70 - 130	20	
Benzene	ND	1.0	106	104	1.9	112	112	0.0	70 - 130	20	
Bromobenzene	ND	5.0	101	99	2.0	109	111	1.8	70 - 130	20	
Bromochloromethane	ND	5.0	106	104	1.9	112	114	1.8	70 - 130	20	
Bromodichloromethane	ND	5.0	104	105	1.0	111	112	0.9	70 - 130	20	
Bromoform	ND	5.0	108	109	0.9	111	116	4.4	70 - 130	20	
Bromomethane	ND	5.0	95	100	5.1	105	106	0.9	40 - 160	20	
Carbon Disulfide	ND	5.0	99	98	1.0	94	95	1.1	70 - 130	20	
Carbon tetrachloride	ND	5.0	111	107	3.7	112	113	0.9	70 - 130	20	
Chlorobenzene	ND	5.0	101	99	2.0	106	107	0.9	70 - 130	20	
Chloroethane	ND	5.0	99	98	1.0	107	106	0.9	70 - 130	20	
Chloroform	ND	5.0	103	107	3.8	113	110	2.7	70 - 130	20	
Chloromethane	ND	5.0	94	94	0.0	96	96	0.0	40 - 160	20	
cis-1,2-Dichloroethene	ND	5.0	113	106	6.4	117	118	0.9	70 - 130	20	
cis-1,3-Dichloropropene	ND	5.0	108	106	1.9	112	113	0.9	70 - 130	20	
Dibromochloromethane	ND	3.0	110	110	0.0	114	118	3.4	70 - 130	20	
Dibromomethane	ND	5.0	104	104	0.0	111	111	0.0	70 - 130	20	
Dichlorodifluoromethane	ND	5.0	87	82	5.9	92	90	2.2	40 - 160	20	
Diethyl ether	ND	5.0	92	91	1.1	>200	>200	NC	70 - 130	20	m
Di-isopropyl ether	ND	5.0	103	103	0.0	105	107	1.9	70 - 130	20	
Ethyl tert-butyl ether	ND	5.0	100	101	1.0	104	106	1.9	70 - 130	20	
Ethylbenzene	ND	1.0	105	103	1.9	111	111	0.0	70 - 130	20	

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Hexachlorobutadiene	ND	5.0	106	93	13.1	115	111	3.5	70 - 130	20	
Isopropylbenzene	ND	1.0	105	101	3.9	114	112	1.8	70 - 130	20	
m&p-Xylene	ND	2.0	105	101	3.9	111	110	0.9	70 - 130	20	
Methyl ethyl ketone	ND	5.0	93	94	1.1	93	93	0.0	40 - 160	20	
Methyl t-butyl ether (MTBE)	ND	1.0	99	99	0.0	137	138	0.7	70 - 130	20	m
Methylene chloride	ND	5.0	67	67	0.0	78	79	1.3	70 - 130	20	l
Naphthalene	ND	5.0	116	111	4.4	116	115	0.9	70 - 130	20	
n-Butylbenzene	ND	1.0	107	97	9.8	110	106	3.7	70 - 130	20	
n-Propylbenzene	ND	1.0	105	99	5.9	112	110	1.8	70 - 130	20	
o-Xylene	ND	2.0	104	100	3.9	110	110	0.0	70 - 130	20	
p-Isopropyltoluene	ND	1.0	105	98	6.9	113	110	2.7	70 - 130	20	
sec-Butylbenzene	ND	1.0	106	99	6.8	114	111	2.7	70 - 130	20	
Styrene	ND	5.0	107	105	1.9	112	113	0.9	70 - 130	20	
tert-amyl methyl ether	ND	5.0	100	100	0.0	107	110	2.8	70 - 130	20	
tert-Butylbenzene	ND	1.0	105	100	4.9	115	112	2.6	70 - 130	20	
Tetrachloroethene	ND	5.0	108	100	7.7	112	110	1.8	70 - 130	20	
Tetrahydrofuran (THF)	ND	5.0	95	97	2.1	97	97	0.0	70 - 130	20	
Toluene	ND	1.0	105	102	2.9	111	111	0.0	70 - 130	20	
trans-1,2-Dichloroethene	ND	5.0	107	104	2.8	107	105	1.9	70 - 130	20	
trans-1,3-Dichloropropene	ND	5.0	109	108	0.9	111	112	0.9	70 - 130	20	
trans-1,4-dichloro-2-butene	ND	5.0	109	109	0.0	109	107	1.9	70 - 130	20	
Trichloroethene	ND	5.0	109	104	4.7	112	111	0.9	70 - 130	20	
Trichlorofluoromethane	ND	5.0	106	104	1.9	109	109	0.0	70 - 130	20	
Trichlorotrifluoroethane	ND	5.0	100	93	7.3	103	101	2.0	70 - 130	20	
Vinyl chloride	ND	5.0	103	102	1.0	106	106	0.0	70 - 130	20	
% 1,2-dichlorobenzene-d4	99	%	100	100	0.0	99	99	0.0	70 - 130	20	
% Bromofluorobenzene	99	%	101	101	0.0	99	100	1.0	70 - 130	20	
% Dibromofluoromethane	96	%	100	100	0.0	97	99	2.0	70 - 130	20	
% Toluene-d8	100	%	97	98	1.0	98	98	0.0	70 - 130	20	

Comment:

Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.
The RPD criteria for the LCS/LCSD is 20%,
The MS/MSD RPD criteria is listed above.

QA/QC Batch 635788H (ug/kg), QC Sample No: CL95536 50X (CL85978 (50X))

Volatiles - Soil (High Level)

1,1,1,2-Tetrachloroethane	ND	250	109	109	0.0	105	105	0.0	70 - 130	20	
1,1,1-Trichloroethane	ND	250	97	102	5.0	97	97	0.0	70 - 130	20	
1,1,2,2-Tetrachloroethane	ND	250	108	107	0.9	105	108	2.8	70 - 130	20	
1,1,2-Trichloroethane	ND	250	103	103	0.0	102	104	1.9	70 - 130	20	
1,1-Dichloroethane	ND	250	97	97	0.0	97	93	4.2	70 - 130	20	
1,1-Dichloroethene	ND	250	93	69	29.6	94	91	3.2	70 - 130	20	l,r
1,1-Dichloropropene	ND	250	108	111	2.7	107	109	1.9	70 - 130	20	
1,2,3-Trichlorobenzene	ND	250	123	122	0.8	112	117	4.4	70 - 130	20	
1,2,3-Trichloropropane	ND	250	108	103	4.7	100	102	2.0	70 - 130	20	
1,2,4-Trichlorobenzene	ND	250	123	123	0.0	114	116	1.7	70 - 130	20	
1,2,4-Trimethylbenzene	ND	250	114	113	0.9	110	112	1.8	70 - 130	20	
1,2-Dibromo-3-chloropropane	ND	250	112	110	1.8	105	107	1.9	70 - 130	20	
1,2-Dibromoethane	ND	250	111	113	1.8	110	114	3.6	70 - 130	20	
1,2-Dichlorobenzene	ND	250	110	110	0.0	107	111	3.7	70 - 130	20	
1,2-Dichloroethane	ND	250	100	99	1.0	98	101	3.0	70 - 130	20	
1,2-Dichloropropane	ND	250	102	104	1.9	102	102	0.0	70 - 130	20	
1,3,5-Trimethylbenzene	ND	250	114	115	0.9	111	114	2.7	70 - 130	20	

QA/QC Data

SDG I.D.: GCL85974

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
1,3-Dichlorobenzene	ND	250	114	113	0.9	110	112	1.8	70 - 130	20	
1,3-Dichloropropane	ND	250	108	110	1.8	109	109	0.0	70 - 130	20	
1,4-Dichlorobenzene	ND	250	113	111	1.8	109	110	0.9	70 - 130	20	
1,4-dioxane	ND	5000	90	89	1.1	91	96	5.3	40 - 160	20	
2,2-Dichloropropane	ND	250	98	100	2.0	89	90	1.1	70 - 130	20	
2-Chlorotoluene	ND	250	115	116	0.9	113	115	1.8	70 - 130	20	
2-Hexanone	ND	1300	97	99	2.0	98	100	2.0	40 - 160	20	
2-Isopropyltoluene	ND	250	113	113	0.0	111	112	0.9	70 - 130	20	
4-Chlorotoluene	ND	250	115	115	0.0	112	113	0.9	70 - 130	20	
4-Methyl-2-pentanone	ND	1300	98	99	1.0	100	102	2.0	40 - 160	20	
Acetone	ND	500	68	58	15.9	73	71	2.8	40 - 160	20	
Acrylonitrile	ND	250	92	91	1.1	94	92	2.2	70 - 130	20	
Benzene	ND	250	106	107	0.9	104	106	1.9	70 - 130	20	
Bromobenzene	ND	250	113	115	1.8	112	113	0.9	70 - 130	20	
Bromochloromethane	ND	250	106	106	0.0	103	103	0.0	70 - 130	20	
Bromodichloromethane	ND	250	100	99	1.0	95	96	1.0	70 - 130	20	
Bromoform	ND	250	105	101	3.9	98	98	0.0	70 - 130	20	
Bromomethane	ND	250	74	74	0.0	73	72	1.4	40 - 160	20	
Carbon Disulfide	ND	250	86	66	26.3	84	81	3.6	70 - 130	20	l,r
Carbon tetrachloride	ND	250	93	88	5.5	83	84	1.2	70 - 130	20	
Chlorobenzene	ND	250	108	109	0.9	108	108	0.0	70 - 130	20	
Chloroethane	ND	250	30	30	0.0	30	29	3.4	70 - 130	20	l,m
Chloroform	ND	250	92	92	0.0	91	89	2.2	70 - 130	20	
Chloromethane	ND	250	90	89	1.1	88	86	2.3	40 - 160	20	
cis-1,2-Dichloroethene	ND	250	112	111	0.9	111	112	0.9	70 - 130	20	
cis-1,3-Dichloropropene	ND	250	104	104	0.0	97	99	2.0	70 - 130	20	
Dibromochloromethane	ND	150	110	108	1.8	104	105	1.0	70 - 130	20	
Dibromomethane	ND	250	104	104	0.0	103	105	1.9	70 - 130	20	
Dichlorodifluoromethane	ND	250	82	84	2.4	77	77	0.0	40 - 160	20	
Diethyl ether	ND	250	57	37	42.6	62	55	12.0	70 - 130	20	l,m,r
Di-isopropyl ether	ND	250	98	96	2.1	98	96	2.1	70 - 130	20	
Ethyl tert-butyl ether	ND	250	98	96	2.1	96	95	1.0	70 - 130	20	
Ethylbenzene	ND	250	112	114	1.8	112	114	1.8	70 - 130	20	
Hexachlorobutadiene	ND	250	120	123	2.5	113	119	5.2	70 - 130	20	
Isopropylbenzene	ND	250	114	117	2.6	111	113	1.8	70 - 130	20	
m&p-Xylene	ND	250	113	114	0.9	112	114	1.8	70 - 130	20	
Methyl ethyl ketone	ND	250	89	90	1.1	88	86	2.3	40 - 160	20	
Methyl t-butyl ether (MTBE)	ND	250	97	95	2.1	97	95	2.1	70 - 130	20	
Methylene chloride	ND	250	67	62	7.8	68	66	3.0	70 - 130	20	l,m
Naphthalene	ND	250	125	128	2.4	117	124	5.8	70 - 130	20	
n-Butylbenzene	ND	250	120	119	0.8	116	118	1.7	70 - 130	20	
n-Propylbenzene	ND	250	116	117	0.9	113	115	1.8	70 - 130	20	
o-Xylene	ND	250	111	113	1.8	112	113	0.9	70 - 130	20	
p-Isopropyltoluene	ND	250	118	118	0.0	115	117	1.7	70 - 130	20	
sec-Butylbenzene	ND	250	115	116	0.9	113	116	2.6	70 - 130	20	
Styrene	ND	250	116	117	0.9	116	118	1.7	70 - 130	20	
tert-amyl methyl ether	ND	250	102	104	1.9	100	102	2.0	70 - 130	20	
tert-Butylbenzene	ND	250	113	115	1.8	110	114	3.6	70 - 130	20	
Tetrachloroethene	ND	250	110	111	0.9	>200	159	NC	70 - 130	20	m
Tetrahydrofuran (THF)	ND	250	94	93	1.1	94	92	2.2	70 - 130	20	
Toluene	ND	250	105	107	1.9	104	105	1.0	70 - 130	20	
trans-1,2-Dichloroethene	ND	250	100	95	5.1	98	96	2.1	70 - 130	20	
trans-1,3-Dichloropropene	ND	250	104	102	1.9	99	100	1.0	70 - 130	20	

QA/QC Data

SDG I.D.: GCL85974

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
trans-1,4-dichloro-2-butene	ND	250	108	110	1.8	98	101	3.0	70 - 130	20	
Trichloroethene	ND	250	107	107	0.0	109	109	0.0	70 - 130	20	
Trichlorofluoromethane	ND	250	17	20	16.2	17	16	6.1	70 - 130	20	l,m
Trichlorotrifluoroethane	ND	250	90	66	30.8	93	89	4.4	70 - 130	20	l,r
Vinyl chloride	ND	250	88	91	3.4	88	87	1.1	70 - 130	20	
% 1,2-dichlorobenzene-d4	98	%	98	97	1.0	98	98	0.0	70 - 130	20	
% Bromofluorobenzene	96	%	97	97	0.0	98	98	0.0	70 - 130	20	
% Dibromofluoromethane	89	%	97	97	0.0	94	92	2.2	70 - 130	20	
% Toluene-d8	97	%	96	96	0.0	95	96	1.0	70 - 130	20	

Comment:

Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.
The RPD criteria for the LCS/LCSD is 20%,
The MS/MSD RPD criteria is listed above.

QA/QC Batch 634754 (mg/Kg), QC Sample No: CL84852 50X (CL85977 (50X))

Volatile Petroleum Hydrocarbons - Soil

Benzene	ND	13	102	106	3.8	100	95	5.1	70 - 130	25	
C5-C8 Aliphatic Hydrocarbons *1,2	ND	250	113	114	0.9	111	102	8.5	70 - 130	25	
C9-C10 Aromatic Hydrocarbons *1	ND	83	107	108	0.9	105	98	6.9	70 - 130	25	
C9-C12 Aliphatic Hydrocarbons *1,	ND	250	115	118	2.6	119	106	11.6	70 - 130	25	
Ethyl Benzene	ND	13	101	104	2.9	100	94	6.2	70 - 130	25	
m,p-Xylenes	ND	13	102	105	2.9	100	95	5.1	70 - 130	25	
MTBE	ND	2.5	96	98	2.1	92	88	4.4	70 - 130	25	
Naphthalene	ND	13	86	86	0.0	80	75	6.5	70 - 130	25	
o-Xylene	ND	13	102	105	2.9	100	95	5.1	70 - 130	25	
Toluene	ND	13	100	103	3.0	98	93	5.2	70 - 130	25	
Unadjusted C5-C8 Aliphatics (*1)	ND	250	113	114	0.9	111	102	8.5	70 - 130	25	
Unadjusted C9-C12 Aliphatics (*1)	ND	250	115	118	2.6	119	106	11.6	70 - 130	25	
% 2,5-Dibromotoluene (FID)	74	%	81	81	0.0	74	75	1.3	70 - 130	25	
% 2,5-Dibromotoluene (PID)	73	%	75	77	2.6	73	71	2.8	70 - 130	25	

QA/QC Batch 635143 (mg/Kg), QC Sample No: CL89302 50X (CL85978 (100X, 500X))

Volatile Petroleum Hydrocarbons - Soil

Benzene	ND	13	97	95	2.1	88	91	3.4	70 - 130	25	
C5-C8 Aliphatic Hydrocarbons *1,2	ND	250	106	105	0.9	106	106	0.0	70 - 130	25	
C9-C10 Aromatic Hydrocarbons *1	ND	83	104	102	1.9	102	99	3.0	70 - 130	25	
C9-C12 Aliphatic Hydrocarbons *1,	ND	250	111	112	0.9	103	98	5.0	70 - 130	25	
Ethyl Benzene	ND	13	96	94	2.1	84	87	3.5	70 - 130	25	
m,p-Xylenes	ND	13	97	95	2.1	93	93	0.0	70 - 130	25	
MTBE	ND	2.5	95	95	0.0	91	92	1.1	70 - 130	25	
Naphthalene	ND	13	92	92	0.0	96	88	8.7	70 - 130	25	
o-Xylene	ND	13	97	96	1.0	98	94	4.2	70 - 130	25	
Toluene	ND	13	95	93	2.1	90	91	1.1	70 - 130	25	
Unadjusted C5-C8 Aliphatics (*1)	ND	250	106	105	0.9	106	106	0.0	70 - 130	25	
Unadjusted C9-C12 Aliphatics (*1)	ND	250	111	112	0.9	103	98	5.0	70 - 130	25	
% 2,5-Dibromotoluene (FID)	123	%	113	111	1.8	110	104	5.6	70 - 130	25	
% 2,5-Dibromotoluene (PID)	113	%	112	110	1.8	104	107	2.8	70 - 130	25	

l = This parameter is outside laboratory LCS/LCSD specified recovery limits.
m = This parameter is outside laboratory MS/MSD specified recovery limits.
r = This parameter is outside laboratory RPD specified recovery limits.

QA/QC Data

SDG I.D.: GCL85974

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference

Phyllis Shiller, Laboratory Director
August 07, 2022

Sunday, August 07, 2022

Criteria: MA: CAM, S1

State: MA

Sample Criteria Exceedances Report

GCL85974 - CMGENV

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units
CL85974	$PEST_SMMA	Chlordane	MA / CAM Protocol / Pest Soil RL	100	35	20	20	ug/Kg
CL85976	PB-SM	Lead	MA / CMR 310.40.1600 / S1 (mg/kg)	303	0.37	200	200	mg/Kg
CL85976	PB-SM	Lead	MA / SOIL S-1 STANDARDS / S-1 Soil & GW-1	303	0.37	200	200	mg/Kg
CL85976	ZN-SM	Zinc	MA / CMR 310.40.1600 / S1 (mg/kg)	2970	73	1000	1000	mg/Kg
CL85976	ZN-SM	Zinc	MA / SOIL S-1 STANDARDS / S-1 Soil & GW-1	2970	73	1000	1000	mg/Kg
CL85977	$8260MAR	Dibromochloromethane	MA / CMR 310.40.1600 / S1 (mg/kg)	ND	10	5	5	ug/Kg
CL85977	$8260MAR	1,1,2,2-Tetrachloroethane	MA / CMR 310.40.1600 / S1 (mg/kg)	ND	10	5	5	ug/Kg
CL85977	$8260MAR	Dibromochloromethane	MA / SOIL S-1 STANDARDS / S-1 Soil & GW-1	ND	10	5	5	ug/Kg
CL85977	$8260MAR	1,1,2,2-Tetrachloroethane	MA / SOIL S-1 STANDARDS / S-1 Soil & GW-1	ND	10	5	5	ug/Kg
CL85978	$8260MAR	1,1,2,2-Tetrachloroethane	MA / CMR 310.40.1600 / S1 (mg/kg)	ND	10	5	5	ug/Kg
CL85978	$8260MAR	Dibromochloromethane	MA / CMR 310.40.1600 / S1 (mg/kg)	ND	10	5	5	ug/Kg
CL85978	$8260MAR	1,1,2,2-Tetrachloroethane	MA / SOIL S-1 STANDARDS / S-1 Soil & GW-1	ND	10	5	5	ug/Kg
CL85978	$8260MAR	Dibromochloromethane	MA / SOIL S-1 STANDARDS / S-1 Soil & GW-1	ND	10	5	5	ug/Kg
CL85978	$VPHRANGE-S	C9-C12 Aliphatic Hydrocarbons *1,3	MA / CMR 310.40.1600 / S1 (mg/kg)	1700	10	1000	1000	mg/Kg
CL85978	$VPHRANGE-S	C5-C8 Aliphatic Hydrocarbons *1,2	MA / CMR 310.40.1600 / S1 (mg/kg)	640	10	100	100	mg/Kg
CL85978	$VPHRANGE-S	C5-C8 Aliphatic Hydrocarbons *1,2	MA / SOIL S-1 STANDARDS / S-1 Soil & GW-1	640	10	100	100	mg/Kg
CL85978	$VPHRANGE-S	C9-C12 Aliphatic Hydrocarbons *1,3	MA / SOIL S-1 STANDARDS / S-1 Soil & GW-1	1700	10	1000	1000	mg/Kg
CL85978	$VPHRANGE-S	C9-C10 Aromatic Hydrocarbons *1	MA / CMR 310.40.1600 / S1 (mg/kg)	330	10	100	100	mg/Kg
CL85978	$VPHRANGE-S	C9-C10 Aromatic Hydrocarbons *1	MA / SOIL S-1 STANDARDS / S-1 Soil & GW-1	330	10	100	100	mg/Kg
CL85980	$PEST_SMMA	Chlordane	MA / CAM Protocol / Pest Soil RL	ND	37	20	20	ug/Kg

MassDEP Analytical Protocol Certification Form

Laboratory Name: Phoenix Environmental Laboratories, Inc. **Project #:**

Project Location: 2022-062 **RTN:**

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

CL85974, CL85975, CL85976, CL85977, CL85978, CL85979, CL85980, CL85981

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 CAM IV A ☑	8081 Pesticides CAM V B ☐	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
8270 SVOC CAM II B ☑	7010 Metals CAM III C ☐	MassDEP EPH CAM IV B ☑	8151 Herbicides CAM V C ☑	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐
6010 Metals CAM III A ☑	6020 Metals CAM III D ☐	8082 PCB CAM V A ☐	9012 Total Cyanide/PAC CAM V1 A ☐	6860 Perchlorate CAM VIII 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 with method holding times? (* see narrative)	☑ 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 speified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☑ Yes ☐ No
E	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 is 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

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? See Sections: EPH, Herbicide, ICP, PEST, VOA Narrations .	☐ Yes ☑ No
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☐ Yes ☑ No

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, accurate and complete.

Authorized Signature: Rashmi Makol

Date: Sunday, August 07, 2022

Printed Name: Rashmi Makol

Position: Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
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ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

MCP Certification Report

August 07, 2022

SDG I.D.: GCL85974

SDG Comments

Phoenix reporting levels may exceed those referenced in the CAM protocol. Please refer to criteria sheet for comparisons to requested MCP standards.

CL85977 and CL85978
Volatile Comment:
Due to the presence of a large amount of non-target petroleum material, the Low level vials could not be analyzed. The methanol preserved high level vials require at least a 50x dilution prior to analysis, not all of the requested criteria could be achieved.

EPH Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? No.

QC Batch 634492 (Samples: CL85974, CL85975, CL85976, CL85977, CL85978, CL85979, CL85980): -----

The LCS and/or the LCSD recovery is below the method criteria. All of the other QC is acceptable, therefore no significant bias is suspected. (C9 - Nonane)

Instrument:

AU-FID3 07/25/22-1 Adam Werner, Chemist 07/25/22

CL85974 (1X), CL85976 (1X)

No significant modifications were made to the EPH method, as specified in Section 11.3 of the method.

The initial calibration (AR0708BI) RSD for the compound list was less than 25% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 25% except for the following compounds:None.

AU-FID3 07/28/22-2 Adam Werner, Chemist 07/28/22

CL85977 (1X), CL85978 (1X), CL85980 (1X)

No significant modifications were made to the EPH method, as specified in Section 11.3 of the method.

The initial calibration (AR0708BI) RSD for the compound list was less than 25% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 25% except for the following compounds:None.

AU-FID4 07/25/22-1 Adam Werner, Chemist 07/25/22

CL85974 (1X), CL85975 (1X), CL85976 (1X), CL85979 (1X)

The initial calibration (AL0421BI) RSD for the compound list was less than 25% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 25% except for the following compounds:None.

AU-FID4 07/28/22-1 Adam Werner, Chemist 07/28/22

CL85977 (1X), CL85978 (1X), CL85980 (1X)

The initial calibration (AL0421BI) RSD for the compound list was less than 25% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 25% except for the following compounds:None.

QC (Batch Specific):

Batch 634492 (CL85975)

CL85974, CL85975, CL85976, CL85977, CL85978, CL85979, CL85980

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: C9 - Nonane(38%)
All LCS/LCSD RPDs were less than 25% with the following exceptions: None.

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SDG I.D.: GCL85974

EPH Narration

Additional EPH fractionation criteria: Breakthrough criteria (BT) is 0 to 5%

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

Herbicide Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? No.

QC Batch 634855 (Samples: CL85980): -----

The LCS and/or the LCSD recovery is below the method criteria. All of the other QC is acceptable, therefore no significant bias is suspected. (MCPP)

Instrument:

AU-ECD12 07/28/22-1 Jeff Bucko, Chemist 07/28/22

CL85980 (2X)

The initial calibration (HRB627AI) RSD for the compound list was less than 20% except for the following compounds: None.
The initial calibration (HRB627BI) RSD for the compound list was less than 20% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 15% except for the following compounds:None.

AU-ECD2 07/27/22-1 Jeff Bucko, Chemist 07/27/22

CL85974 (2X), CL85975 (2X), CL85981 (2X)

The initial calibration (HRB718AI) RSD for the compound list was less than 20% except for the following compounds: None.
The initial calibration (HRB718BI) RSD for the compound list was less than 20% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 15% except for the following compounds:None.

QC (Batch Specific):

Batch 634680 (CL88885)

CL85974, CL85975, CL85981

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
MCP 8151 additional criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%.

Batch 634855 (CL88908)

CL85980

All LCS recoveries were within 40 - 140 with the following exceptions: MCPP(35%)
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
MCP 8151 additional criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%.

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

Mercury Narration

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Certification Report

August 07, 2022

SDG I.D.: GCL85974

Mercury Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

Instrument:

MERLIN 07/26/22 14:11 Ian Enders, Chemist 07/26/22

CL85974, CL85975, CL85976, CL85979, CL85980

The method preparation blank, ICB, and CCBs contain all of the acids and reagents as the samples.
The initial calibration met all criteria including a standard run at or below the reporting level.
All calibration verification standards (ICV, CCV) met criteria.
All calibration blank verification standards (ICB, CCB) met criteria.
The matrix spike sample is used to identify spectral interference for each batch of samples, if within 85-115%, no interference is observed and no further action is taken.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.

MERLIN 07/27/22 11:53 Ian Enders, Chemist 07/27/22

CL85977, CL85978

The method preparation blank, ICB, and CCBs contain all of the acids and reagents as the samples.
The initial calibration met all criteria including a standard run at or below the reporting level.
All calibration verification standards (ICV, CCV) met criteria.
All calibration blank verification standards (ICB, CCB) met criteria.
The matrix spike sample is used to identify spectral interference for each batch of samples, if within 85-115%, no interference is observed and no further action is taken.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.

QC (Batch Specific):

Batch 634568 (CL85579)

CL85974, CL85975, CL85976, CL85979, CL85980

All LCS recoveries were within 75 - 125 with the following exceptions: None.
All LCSD recoveries were within 75 - 125 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 75-125%

Batch 634738 (CL81255)

CL85977

All LCS recoveries were within 75 - 125 with the following exceptions: None.
All LCSD recoveries were within 75 - 125 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 75-125%

Batch 634764 (CL86574)

CL85978

All LCS recoveries were within 75 - 125 with the following exceptions: None.
All LCSD recoveries were within 75 - 125 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 75-125%

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Certification Report

August 07, 2022

SDG I.D.: GCL85974

ICP Metals Narration

Were all QA/QC performance criteria specified in the analytical method achieved? No.

QC Batch 634475 (Samples: CL85974, CL85975, CL85976, CL85979, CL85980): -----

The Sample/Duplicate RPD exceeds the method criteria for one or more analytes, therefore there may be variability in the reported result. (Chromium)

Instrument:

ARCOS-2 07/25/22 12:15 Emily Kolominskaya, Tina Hall, Chemist 07/25/22

CL85974, CL85975, CL85976, CL85979, CL85980

The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

ARCOS-2 07/26/22 10:07 Emily Kolominskaya, Chemist 07/26/22

CL85977, CL85978

The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

ARCOS-2 07/27/22 10:48 Emily Kolominskaya, Chemist 07/27/22

CL85977, CL85978

The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

ARCOS-2 08/02/22 07:48 Emily Kolominskaya, Tina Hall, Chemist 08/02/22

CL85976

The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

QC (Batch Specific):

Batch 634475 (CL85839)

CL85974, CL85975, CL85976, CL85979, CL85980

All LCS recoveries were within 75 - 125 with the following exceptions: None.
All LCSD recoveries were within 75 - 125 with the following exceptions: None.
All LCS/LCSD RPDs were less than 35% with the following exceptions: None.
Additional: LCS acceptance range is 80-120% MS acceptance range 75-125%.

Batch 634683 (CL89026)

CL85977, CL85978

All LCS recoveries were within 75 - 125 with the following exceptions: None.
All LCSD recoveries were within 75 - 125 with the following exceptions: None.

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NY # 11301

Certification Report

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SDG I.D.: GCL85974

ICP Metals Narration

All LCS/LCSD RPDs were less than 35% with the following exceptions: None.
Additional: LCS acceptance range is 80-120% MS acceptance range 75-125%.

PEST Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? No.

QC Batch 634454 (Samples: CL85974, CL85975, CL85980, CL85981): -----

One or more analytes is below the method criteria. A low bias for these analytes is possible. (d-BHC)

Instrument:

AU-ECD35 07/27/22-1 Adam Werner, Chemist 07/27/22

CL85980 (2X)

The initial calibration (PS0719AI) RSD for the compound list was less than 20% except for the following compounds: None.
The initial calibration (PS0719BI) RSD for the compound list was less than 20% except for the following compounds: None.
The Endrin and DDT breakdown does not exceed 15% except for the following compounds:None.
The Endrin and DDT breakdown does not exceed the maximum of 20% except for the following compounds:None.
The continuing calibration %D for the compound list was less than 20% except for the following compounds:None.

AU-ECD7 07/27/22-1 Adam Werner, Chemist 07/27/22

CL85974 (2X), CL85975 (2X), CL85981 (2X)

The initial calibration (PS630AI) RSD for the compound list was less than 20% except for the following compounds: None.
The initial calibration (PS630BI) RSD for the compound list was less than 20% except for the following compounds: None.
The Endrin and DDT breakdown does not exceed 15% except for the following compounds:None.
The Endrin and DDT breakdown does not exceed the maximum of 20% except for the following compounds:None.
The continuing calibration %D for the compound list was less than 20% except for the following compounds:None.

QC (Batch Specific):

Batch 634454 (CL86127)

CL85974, CL85975, CL85980, CL85981

All LCS recoveries were within 40 - 140 with the following exceptions: d-BHC(33%)
All LCSD recoveries were within 40 - 140 with the following exceptions: d-BHC(30%)
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.

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

SVOA Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

CHEM22 07/26/22-1 Matt Richard, Chemist 07/26/22

CL85976 (1X), CL85977 (1X), CL85978 (1X), CL85979 (1X), CL85980 (1X)

Initial Calibration Evaluation (CHEM22/22_BN_0715):

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MCP Certification Report

August 07, 2022

SDG I.D.: GCL85974

SVOA Narration

100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM22/0726_03-22_BN_0715) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

CHEM29 07/25/22-1 Matt Richard, Chemist 07/25/22

CL85974 (1X)

For 8270 full list, the DDT breakdown and pentachlorophenol & benzidine peak tailing were evaluated in the DFTPP tune and were found to be in control.
For 8270 BN list, benzidine peak tailing was evaluated in the DFTPP tune and was found to be in control.

Initial Calibration Evaluation (CHEM29/29_BN_0715):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM29/0725_03-29_BN_0715) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

CHEM36 07/25/22-2 Matt Richard, Chemist 07/25/22

CL85975 (1X)

Initial Calibration Evaluation (CHEM36/36_BN_0715):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM36/0725_29-36_BN_0715) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

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MCP Certification Report

August 07, 2022

SDG I.D.: GCL85974

SVOA Narration

QC (Batch Specific):

Batch 634494 (CL85975)

CL85974, CL85975

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

Batch 634640 (CL86013)

CL85976, CL85977, CL85978, CL85979, CL85980

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

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

SVOASIM Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

CHEM33 07/26/22-1 Matt Richard, Chemist 07/26/22

CL85974 (1X), CL85978 (1X), CL85980 (1X)

Initial Calibration Evaluation (CHEM33/33_DIOX_0630):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM33/0726_07-33_DIOX_0630) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 634656 (CL85707)

CL85974, CL85978, CL85980

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.

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MCP Certification Report

August 07, 2022

SDG I.D.: GCL85974

SVOASIM Narration

All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

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

VOA Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? No.

QC Batch 635473H: -----

The LCS and/or the LCSD recovery is above the upper range for one or more analytes that were not reported in the sample(s), therefore no significant bias is suspected. (1,2,4-Trichlorobenzene)

The QC recoveries for one or more analytes is below the method criteria. A slight low bias is likely. (Diethyl ether, Chloroethane, Trichlorofluoromethane)

The QC recovery for one or more analytes is above the upper range but were not reported in the sample(s), therefore no significant bias is suspected. (Hexachlorobutadiene, n-Butylbenzene, Vinyl chloride)

QC Batch 635649 (Samples: CL85974): -----

One or more analytes is below the method criteria. A low bias for these analytes is possible. (Methylene chloride)

QC Batch 635788H: -----

The LCS and/or the LCSD recovery is below the method criteria. All of the other QC is acceptable, therefore no significant bias is suspected. (1,1-Dichloroethene, Carbon Disulfide, Trichlorotrifluoroethane)

The LCS/LCSD RPD exceeds the method criteria for one or more analytes, but these analytes were not reported in the sample(s) so no variability is suspected. (1,1-Dichloroethene, Carbon Disulfide, Diethyl ether, Trichlorotrifluoroethane)

The QC recoveries for one or more analytes is below the method criteria. A slight low bias is likely. (Chloroethane, Diethyl ether, Methylene chloride, Trichlorofluoromethane)

Instrument:

CHEM03 08/01/22-1 Jane Li, Chemist 08/01/22

CL85979 (1X), CL85980 (1X)

Initial Calibration Evaluation (CHEM03/VT-L072522):
93% of target compounds met criteria.
The following compounds had %RSDs >20%: Acetone 33% (20%), Bromoform 22% (20%), Methylene chloride 25% (20%), Naphthalene 21% (20%), trans-1,3-Dichloropropene 22% (20%), trans-1,4-dichloro-2-butene 23% (20%)
The following compounds did not meet Table 4 recommended minimum response factors: Acetone 0.081 (0.1), Tetrachloroethene 0.164 (0.2)
The following compounds did not meet the minimum response factor of 0.05: None.

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MCP Certification Report

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SDG I.D.: GCL85974

VOA Narration

Continuing Calibration Verification (CHEM03/0801_02-VT-L072522) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
96% of target compounds met criteria.
The following compounds did not meet % deviation criteria: Acetone 36%L (20%), Methylene chloride 22%L (20%), Tetrahydrofuran (THF) 21%L (20%)
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet Table 4 recommended minimum response factors: Acetone 0.052 (0.1), Tetrachloroethene 0.183 (0.2)
The following compounds did not meet the minimum MCP response factor of 0.05: None.

CHEM14 07/29/22-2 Jane Li, Chemist 07/29/22

CL85975 (1X), CL85976 (1X), CL85977 (50X)

Initial Calibration Evaluation (CHEM14/VT072922):
96% of target compounds met criteria.
The following compounds had %RSDs >20%: 1,2-Dibromo-3-chloropropane 22% (20%), Acetone 25% (20%), Methylene chloride 24% (20%)
The following compounds did not meet Table 4 recommended minimum response factors: Acetone 0.073 (0.1)
The following compounds did not meet the minimum response factor of 0.05: None.

Continuing Calibration Verification (CHEM14/0729_09-VT072922) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet Table 4 recommended minimum response factors: Acetone 0.065 (0.1)
The following compounds did not meet the minimum MCP response factor of 0.05: None.

CHEM31 08/01/22-2 Jane Li, Chemist 08/01/22

CL85974 (1X)

Initial Calibration Evaluation (CHEM31/VT-L072722):
93% of target compounds met criteria.
The following compounds had %RSDs >20%: 1,2-Dibromo-3-chloropropane 26% (20%), Acetone 33% (20%), Bromoform 28% (20%), Methylene chloride 36% (20%), Naphthalene 31% (20%), trans-1,4-dichloro-2-butene 31% (20%)
The following compounds did not meet Table 4 recommended minimum response factors: Acetone 0.090 (0.1), Bromoform 0.097 (0.1), Tetrachloroethene 0.148 (0.2), Trichloroethene 0.198 (0.2)
The following compounds did not meet the minimum response factor of 0.05: None.

Continuing Calibration Verification (CHEM31/0801_36-VT-L072722) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
99% of target compounds met criteria.
The following compounds did not meet % deviation criteria: Methylene chloride 34%L (20%)
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet Table 4 recommended minimum response factors: Acetone 0.077 (0.1), Bromoform 0.098 (0.1), Tetrachloroethene 0.159 (0.2)
The following compounds did not meet the minimum MCP response factor of 0.05: None.

CHEM31 08/02/22-2 Jane Li, Chemist 08/02/22

CL85978 (50X)

Initial Calibration Evaluation (CHEM31/VT-L072722):
93% of target compounds met criteria.

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MCP Certification Report

August 07, 2022

SDG I.D.: GCL85974

VOA Narration

The following compounds had %RSDs >20%: 1,2-Dibromo-3-chloropropane 26% (20%), Acetone 33% (20%), Bromoform 28% (20%), Methylene chloride 36% (20%), Naphthalene 31% (20%), trans-1,4-dichloro-2-butene 31% (20%)
The following compounds did not meet Table 4 recommended minimum response factors: Acetone 0.090 (0.1), Bromoform 0.097 (0.1), Tetrachloroethene 0.148 (0.2), Trichloroethene 0.198 (0.2)
The following compounds did not meet the minimum response factor of 0.05: None.

Continuing Calibration Verification (CHEM31/0802_36-VT-L072722) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
95% of target compounds met criteria.
The following compounds did not meet % deviation criteria: 1,2-Dibromo-3-chloropropane 22%H (20%), Bromoform 21%H (20%), Methylene chloride 28%L (20%), trans-1,4-dichloro-2-butene 26%H (20%)
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet Table 4 recommended minimum response factors: Acetone 0.083 (0.1), Tetrachloroethene 0.151 (0.2)
The following compounds did not meet the minimum MCP response factor of 0.05: None.

QC (Batch Specific):

Batch 635473 (CL91509) CHEM14 7/29/2022-2

CL85975(1X), CL85976(1X)

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
The Low Level MS/MSD are not reported for this batch.
Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.
The RPD criteria for the LCS/LCSD is 20%,
The MS/MSD RPD criteria is listed above.

Batch 635473H (CL91509) CHEM14 7/29/2022-2

CL85977(50X)

All LCS recoveries were within 70 - 130 with the following exceptions: Chloroethane(34%), Diethyl ether(69%), Trichlorofluoromethane(24%)
All LCSD recoveries were within 70 - 130 with the following exceptions: 1,2,4-Trichlorobenzene(131%), Chloroethane(35%), Hexachlorobutadiene(137%), n-Butylbenzene(140%), Trichlorofluoromethane(25%), Vinyl chloride(138%)
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.
The RPD criteria for the LCS/LCSD is 20%,
The MS/MSD RPD criteria is listed above.

Batch 635649 (CL92220) CHEM31 8/1/2022-2

CL85974(1X)

All LCS recoveries were within 70 - 130 with the following exceptions: Methylene chloride(67%)
All LCSD recoveries were within 70 - 130 with the following exceptions: Methylene chloride(67%)
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.
The RPD criteria for the LCS/LCSD is 20%,
The MS/MSD RPD criteria is listed above.

Batch 635652 (CL89818) CHEM03 8/1/2022-1

CL85979(1X), CL85980(1X)

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

MCP Certification Report

August 07, 2022

SDG I.D.: GCL85974

VOA Narration

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.
The RPD criteria for the LCS/LCSD is 20%,
The MS/MSD RPD criteria is listed above.

Batch 635788H (CL95536) CHEM31 8/2/2022-2

CL85978(50X)

All LCS recoveries were within 70 - 130 with the following exceptions: Chloroethane(30%), Diethyl ether(57%), Methylene chloride(67%), Trichlorofluoromethane(17%)
All LCSD recoveries were within 70 - 130 with the following exceptions: 1,1-Dichloroethene(69%), Carbon Disulfide(66%), Chloroethane(30%), Diethyl ether(37%), Methylene chloride(62%), Trichlorofluoromethane(20%), Trichlorotrifluoroethane(66%)
All LCS/LCSD RPDs were less than 20% with the following exceptions: 1,1-Dichloroethene(29.6%), Carbon Disulfide(26.3%), Diethyl ether(42.6%), Trichlorotrifluoroethane(30.8%)
Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.
The RPD criteria for the LCS/LCSD is 20%,
The MS/MSD RPD criteria is listed above.

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

VPH Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

PIDFID 07/26/22-2 James Karabetsos, Chemist 07/26/22

CL85977 (50X)

Initial Calibration Evaluation (PIDFID/VPH_042122_T):
The following compounds exceeded %RSD criteria: None.

PIDFID 07/28/22-2 James Karabetsos, Chemist 07/28/22

CL85978 (100X, 500X)

Initial Calibration Evaluation (PIDFID/VPH_042122_T):
The following compounds exceeded %RSD criteria: None.

QC (Batch Specific):

Batch 634754 (CL84852)

CL85977(50X)

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 25% with the following exceptions: None.

Batch 635143 (CL89302)

CL85978(100X, 500X)

All LCS recoveries were within 70 - 130 with the following exceptions: None.

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ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

MCP Certification Report

August 07, 2022

SDG I.D.: GCL85974

VPH Narration

All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 25% with the following exceptions: None.

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

Cooler: Yes [X] No [ ]
Coolant: IPK [X] ICE [ ] No [ ]

CHAIN OF CUSTODY RECORD

Temp 2.8 °C Pg of

PHOENIX
Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email Makrina Nolan: makrina@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-1102

Data Delivery/Contact Options:
[ ] Fax:
[ ] Phone:
[ ] Email: svanwinnen@cmgnv.com

Customer: CMG
Address: 67 Hall Road
Sturbridge MA

Project: 2022-062
Report to: CMG
Invoice to: CMG
QUOTE #

Project P.O: Wayland DPW

This section MUST be completed with Bottle Quantities.

Client Sample - Information - Identification

Sampler's Signature: SV Date: 7/21-7/22/22

Matrix Code:
DW=Drinking Water **GW**=Ground Water **SW**=Surface Water **WW**=Waste Water
RW=Raw Water **SE**=Sediment **SL**=Sludge **S**=Soil **SD**=Solid **W**=Wipe **OIL**=Oil
B=Bulk **L**=Liquid **X** = _____(Other)

Analysis Request

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	EPH	VOC 8260	VPH + Target VOC	PAST / Herbicide	14 Metals	1,4 Dioxane 8270 SIM	MS/MSD *	GL Amber 8 oz. [ ]H3PO4 [ ]NAHSO4	Soil VOA Vials [X]methanol [X]H2O	GL Soil container (4)oz	GL Soil container ( )oz	40 ml VOA Vial [ ]As is [ ]HCl	GL Amber 1000ml [ ]As is [ ]H2SO4	PL As is [1250ml [1500ml [1000ml	PL H2SO4 [1250ml [1500ml	PL HNO3 250ml	PL NaOH 250ml	Bacteria Bottle w/thio	Bacteria Bottle as is
85974	MW-1 (10-12)	S	7/21/22	0900	X	X		X	X	X						4	2							
85975	MW-4 (8-10)			1100	X	X		X	X							3	1							
85976	MW-5 (7-10)			1215	X	X			X							3	2							
85977	MW-6 (14-15)			1300	X	X	X		X							4	1							
85978	MW-7 (15-17)			1430	X	X	X		X	X						4	1							
85979	SB-9 (8-10)		7/22/22	0800	X	X			X							3	1							
85980	MW-11 (8-10)			0930	X	X		X	X	X						3	1							
85981	SB-12 (10-12)			1100				X								3	1							

Relinquished by:	Accepted by:	Date:	Time:
		7-25-22	13:30
		7125	1439

Comments, Special Requirements or Regulations:

**MS/MSD are considered site samples and will be billed as such in accordance with the prices quoted.*

Turnaround Time:
[ ] 1 Day*
[ ] 2 Days*
[ ] 3 Days*
[X] Standard
[ ] Other
*** SURCHARGE APPLIES**

RI
[ ] (Residential) Direct Exposure
[ ] (Comm/Industrial) Direct Exposure
[ ] GA Leachability
[ ] GB Leachability
[ ] GA-GW Objectives
[ ] GB-GW Objectives

CT
[ ] RCP Cert
[ ] GW Protection
[ ] SW Protection
[ ] GA Mobility
[ ] GB Mobility
[ ] Residential DEC
[ ] I/C DEC
[ ] Other

MA
[X] MCP Certification
[ ] GW-1 [ ] MWRA eSMART
[ ] GW-2 [ ] S-1 10% CALC
[ ] GW-3
[X] S-1 GW-1 [ ] S-1 GW-2 [ ] S-1 GW-3
[ ] S-2 GW-1 [ ] S-2 GW-2 [ ] S-2 GW-3
[ ] S-3 GW-1 [ ] S-3 GW-2 [ ] S-3 GW-3
[ ] SW Protection

State where samples were collected: MA

Data Format
[ ] Excel
[X] PDF
[ ] GIS/Key
[ ] EQuIS
[ ] Other

Data Package
[ ] Tier II Checklist
[ ] Full Data Package*
[X] Phoenix Std Report
[ ] Other

*** SURCHARGE APPLIES**

PEL-126 REV. 03/22

PHOENIX
Environmental Laboratories, Inc.

Wednesday, August 17, 2022

Attn: Steve Van Wormer
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Project ID: 2022-062
SDG ID: GCL97284
Sample ID#s: CL97284 - CL97289

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Sincerely yours,

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
VT Lab Registration #VT11301

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

NY # 11301

SDG Comments

August 17, 2022

SDG I.D.: GCL97284

8260 Analysis:
1,2-Dibromoethane doesn't meet GW-1 criteria, this compound is analyzed by GC/FID to achieve this criteria.

Phoenix reporting levels may exceed those referenced in the CAM protocol. Please refer to criteria sheet for comparisons to requested MCP standards.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Sample Id Cross Reference

August 17, 2022

SDG I.D.: GCL97284

Project ID: 2022-062

Client Id	Lab Id	Matrix
MW-1	CL97284	GROUND WATER
MW-4	CL97285	GROUND WATER
MW-5	CL97286	GROUND WATER
MW-6	CL97287	GROUND WATER
MW-7	CL97288	GROUND WATER
MW-11	CL97289	GROUND WATER

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

August 17, 2022

FOR: Attn: Steve Van Wormer
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Sample Information		Custody Information		Date	Time
Matrix:	GROUND WATER	Collected by:	SV	08/02/22	11:10
Location Code:	CMGENV	Received by:	SW	08/03/22	16:45
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	WAYLAND				

Laboratory Data

SDG ID: GCL97284
Phoenix ID: CL97284

Project ID: 2022-062
Client ID: MW-1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Arsenic (Dissolved)	< 0.004	0.004	mg/L	1	08/05/22	EK	SW6010D
Barium (Dissolved)	0.012	0.002	mg/L	1	08/05/22	EK	SW6010D
Beryllium (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Cadmium (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Chromium (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Mercury (Dissolved)	< 0.0002	0.0002	mg/L	1	08/05/22	MGH	SW7470A
Nickel (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Lead (Dissolved)	< 0.002	0.002	mg/L	1	08/05/22	EK	SW6010D
Antimony (Dissolved)	< 0.005	0.005	mg/L	1	08/05/22	EK	SW6010D
Selenium (Dissolved)	< 0.011	0.011	mg/L	1	08/05/22	EK	SW6010D
Thallium (Dissolved)	< 0.0005	0.0005	mg/L	2	08/08/22	CPP	SW6020B
Vanadium (Dissolved)	< 0.002	0.002	mg/L	1	08/05/22	EK	SW6010D
Zinc (Dissolved)	< 0.002	0.002	mg/L	1	08/05/22	EK	SW6010D
Dissolved Mercury Digestion	Completed				08/04/22	AB/AB	SW7470A
EPH Extraction	Completed				08/04/22	CV/CV	SW3510C
Extraction for Herbicide	Completed				08/05/22	CV/D/K	SW8151A
Extraction for Pest (LDL)	Completed				08/03/22	B/N	SW3510C
Semi-Volatile Extraction	Completed				08/04/22	X/MQ	SW3520C
Dissolved Metals Preparation	Completed				08/04/22	AG	SW3005A
Dissolved Metals Preparation	Completed				08/03/22	AG	SW3005A
MA Petroleum Hydrocarbon (EPH)	Completed				08/03/22		MADEP EPH-19
Chlorinated Herbicides							
2,4,5-T	ND	1.0	ug/L	2	08/09/22	JRB	SW-846 8151
2,4,5-TP (Silvex)	ND	1.0	ug/L	2	08/09/22	JRB	SW-846 8151
2,4-D	ND	2.0	ug/L	2	08/09/22	JRB	SW-846 8151

Project ID: 2022-062
Client ID: MW-1

Phoenix I.D.: CL97284

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
2,4-DB	ND	1.0	ug/L	2	08/09/22	JRB	SW-846 8151
Dalapon	ND	1.0	ug/L	2	08/09/22	JRB	SW-846 8151
Dicamba	ND	1.0	ug/L	2	08/09/22	JRB	SW-846 8151
Dichloroprop	ND	2.0	ug/L	2	08/09/22	JRB	SW-846 8151
Dinoseb	ND	2.0	ug/L	2	08/09/22	JRB	SW-846 8151
MCPA	ND	100	ug/L	2	08/09/22	JRB	SW-846 8151
MCPP	ND	100	ug/L	2	08/09/22	JRB	SW-846 8151
QA/QC Surrogates							
% DCAA	87		%	2	08/09/22	JRB	30 - 150 %
% DCAA (Confirmation)	45		%	2	08/09/22	JRB	30 - 150 %
Pesticides							
4,4' -DDD	ND	0.048	ug/L	1	08/04/22	AW	SW8081B
4,4' -DDE	ND	0.048	ug/L	1	08/04/22	AW	SW8081B
4,4' -DDT	ND	0.048	ug/L	1	08/04/22	AW	SW8081B
a-BHC	ND	0.024	ug/L	1	08/04/22	AW	SW8081B
Alachlor	ND	0.071	ug/L	1	08/04/22	AW	SW8081B
Aldrin	ND	0.001	ug/L	1	08/04/22	AW	SW8081B
b-BHC	ND	0.005	ug/L	1	08/04/22	AW	SW8081B
Chlordane	ND	0.019	ug/L	1	08/04/22	AW	SW8081B
d-BHC	ND	0.024	ug/L	1	08/04/22	AW	SW8081B
Dieldrin	ND	0.002	ug/L	1	08/04/22	AW	SW8081B
Endosulfan I	ND	0.048	ug/L	1	08/04/22	AW	SW8081B
Endosulfan II	ND	0.048	ug/L	1	08/04/22	AW	SW8081B
Endosulfan Sulfate	ND	0.048	ug/L	1	08/04/22	AW	SW8081B
Endrin	ND	0.048	ug/L	1	08/04/22	AW	SW8081B
Endrin Aldehyde	ND	0.048	ug/L	1	08/04/22	AW	SW8081B
Endrin ketone	ND	0.048	ug/L	1	08/04/22	AW	SW8081B
g-BHC (Lindane)	ND	0.024	ug/L	1	08/04/22	AW	SW8081B
Heptachlor	ND	0.024	ug/L	1	08/04/22	AW	SW8081B
Heptachlor epoxide	ND	0.024	ug/L	1	08/04/22	AW	SW8081B
Hexachlorobenzene	ND	0.005	ug/L	1	08/04/22	AW	SW8081B
Methoxychlor	ND	0.095	ug/L	1	08/04/22	AW	SW8081B
Toxaphene	ND	0.95	ug/L	1	08/04/22	AW	SW8081B
QA/QC Surrogates							
%DCBP (Surrogate Rec)	96		%	1	08/04/22	AW	30 - 150 %
%DCBP (Surrogate Rec) (Confirmation)	83		%	1	08/04/22	AW	30 - 150 %
%TCMX (Surrogate Rec)	90		%	1	08/04/22	AW	30 - 150 %
%TCMX (Surrogate Rec) (Confirmation)	71		%	1	08/04/22	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1,1-Trichloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	08/05/22	MH	SW8260C
1,1,2-Trichloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1-Dichloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1-Dichloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1-Dichloropropene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2,3-Trichloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C

Project ID: 2022-062
Client ID: MW-1

Phoenix I.D.: CL97284

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2-Dibromo-3-chloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2-Dibromoethane	ND	0.25	ug/L	1	08/05/22	MH	SW8260C
1,2-Dichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2-Dichloroethane	ND	0.60	ug/L	1	08/05/22	MH	SW8260C
1,2-Dichloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,3-Dichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,3-Dichloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,4-Dichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
2,2-Dichloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
2-Chlorotoluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
2-Hexanone	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
2-Isopropyltoluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
4-Chlorotoluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
4-Methyl-2-pentanone	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
Acetone	ND	25	ug/L	1	08/05/22	MH	SW8260C
Acrylonitrile	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Benzene	ND	0.70	ug/L	1	08/05/22	MH	SW8260C
Bromobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Bromochloromethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Bromodichloromethane	ND	0.50	ug/L	1	08/05/22	MH	SW8260C
Bromoform	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Bromomethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Carbon Disulfide	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
Carbon tetrachloride	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Chlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Chloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Chloroform	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Chloromethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	08/05/22	MH	SW8260C
Dibromochloromethane	ND	0.50	ug/L	1	08/05/22	MH	SW8260C
Dibromomethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Dichlorodifluoromethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Ethylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Hexachlorobutadiene	ND	0.40	ug/L	1	08/05/22	MH	SW8260C
Isopropylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
m&p-Xylene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Methyl ethyl ketone	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Methylene chloride	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Naphthalene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
n-Butylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
n-Propylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
o-Xylene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
p-Isopropyltoluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
sec-Butylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C

Project ID: 2022-062
Client ID: MW-1

Phoenix I.D.: CL97284

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Styrene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
tert-Butylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Tetrachloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	08/05/22	MH	SW8260C
Toluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Total Xylenes	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	08/05/22	MH	SW8260C
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
Trichloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Trichlorofluoromethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Trichlorotrifluoroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Vinyl chloride	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	98		%	1	08/05/22	MH	70 - 130 %
% Bromofluorobenzene	95		%	1	08/05/22	MH	70 - 130 %
% Dibromofluoromethane	100		%	1	08/05/22	MH	70 - 130 %
% Toluene-d8	100		%	1	08/05/22	MH	70 - 130 %
Oxygenates & Dioxane							
Diethyl ether	ND	1.0	ug/L	1	08/05/22	MH	SW8260C (OXY)
Di-isopropyl ether	ND	1.0	ug/L	1	08/05/22	MH	SW8260C (OXY)
Ethyl tert-butyl ether	ND	1.0	ug/L	1	08/05/22	MH	SW8260C (OXY)
tert-amyl methyl ether	ND	1.0	ug/L	1	08/05/22	MH	SW8260C (OXY)
Semivolatiles by SIM, PAH							
2-Methylnaphthalene	ND	0.48	ug/L	1	08/05/22	WB	SW8270D (SIM)
Acenaphthene	ND	0.48	ug/L	1	08/05/22	WB	SW8270D (SIM)
Acenaphthylene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Anthracene	ND	0.09	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benz(a)anthracene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benzo(a)pyrene	ND	0.19	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benzo(b)fluoranthene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benzo(ghi)perylene	ND	0.02	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benzo(k)fluoranthene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Chrysene	ND	0.05	ug/L	1	08/05/22	WB	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	0.02	ug/L	1	08/05/22	WB	SW8270D (SIM)
Fluoranthene	ND	0.48	ug/L	1	08/05/22	WB	SW8270D (SIM)
Fluorene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Naphthalene	ND	0.48	ug/L	1	08/05/22	WB	SW8270D (SIM)
Phenanthrene	ND	0.48	ug/L	1	08/05/22	WB	SW8270D (SIM)
Pyrene	ND	0.07	ug/L	1	08/05/22	WB	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	59		%	1	08/05/22	WB	40 - 140 %
% Nitrobenzene-d5	78		%	1	08/05/22	WB	40 - 140 %
% Terphenyl-d14	67		%	1	08/05/22	WB	40 - 140 %
1,4-dioxane							
1,4-dioxane	ND	0.30	ug/l	1	08/11/22	AW	SW8270DSIM

Ver 1

Project ID: 2022-062
Client ID: MW-1

Phoenix I.D.: CL97284

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
QA/QC Surrogates							
% 1,4-dioxane-d8	86		%	1	08/11/22	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				08/10/22	G/G	
MA EPH Aliphatic/Aromatic Ranges							
C11-C22 Aromatic Hydrocarbons 1,2	ND	190	ug/L	1	08/06/22	AW	MAEPH 5/2019
C11-C22 Aromatic Hydrocarbons Un	ND	190	ug/L	1	08/06/22	AW	MAEPH 5/2019
C19-C36 Aliphatic Hydrocarbons 1*	ND	190	ug/L	1	08/06/22	AW	MAEPH 5/2019
C9-C18 Aliphatic Hydrocarbons 1*	ND	190	ug/L	1	08/06/22	AW	MAEPH 5/2019
Total TPH 1,2*	ND	190	ug/L	1	08/06/22	AW	MAEPH 5/2019
QA/QC Surrogates							
% 1-chlorooctadecane (aliphatic)	69		%	1	08/06/22	AW	40 - 140 %
% 2-Bromonaphthalene (Fractionation)	125		%	1	08/06/22	AW	40 - 140 %
% 2-Fluorobiphenyl (Fractionation)	125		%	1	08/06/22	AW	40 - 140 %
% o-terphenyl (aromatic)	98		%	1	08/06/22	AW	40 - 140 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

MAEPH:
1* Hydrocarbon range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.
2* C11-C12 Aromatic Hydrocarbons exclude the concentration of Target PAH analytes eluting in that range.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
August 17, 2022
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

August 17, 2022

FOR: Attn: Steve Van Wormer
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Sample Information		Custody Information		Date	Time
Matrix:	GROUND WATER	Collected by:	SV	08/02/22	11:50
Location Code:	CMGENV	Received by:	SW	08/03/22	16:45
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	WAYLAND				

Laboratory Data

SDG ID: GCL97284
Phoenix ID: CL97285

Project ID: 2022-062
Client ID: MW-4

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Arsenic (Dissolved)	< 0.004	0.004	mg/L	1	08/05/22	EK	SW6010D
Barium (Dissolved)	0.054	0.002	mg/L	1	08/05/22	EK	SW6010D
Beryllium (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Cadmium (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Chromium (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Mercury (Dissolved)	< 0.0002	0.0002	mg/L	1	08/05/22	MGH	SW7470A
Nickel (Dissolved)	0.002	0.001	mg/L	1	08/05/22	EK	SW6010D
Lead (Dissolved)	< 0.002	0.002	mg/L	1	08/05/22	EK	SW6010D
Antimony (Dissolved)	< 0.005	0.005	mg/L	1	08/05/22	EK	SW6010D
Selenium (Dissolved)	< 0.011	0.011	mg/L	1	08/05/22	EK	SW6010D
Thallium (Dissolved)	< 0.0005	0.0005	mg/L	2	08/08/22	CPP	SW6020B
Vanadium (Dissolved)	< 0.002	0.002	mg/L	1	08/05/22	EK	SW6010D
Zinc (Dissolved)	< 0.002	0.002	mg/L	1	08/05/22	EK	SW6010D
Dissolved Mercury Digestion	Completed				08/04/22	AB/AB	SW7470A
EPH Extraction	Completed				08/05/22	CV/CV	SW3510C
Extraction for Herbicide	Completed				08/05/22	CV/D/K	SW8151A
Extraction for Pest (LDL)	Completed				08/03/22	B/N	SW3510C
Semi-Volatile Extraction	Completed				08/04/22	X/MQ	SW3520C
Dissolved Metals Preparation	Completed				08/04/22	AG	SW3005A
Dissolved Metals Preparation	Completed				08/03/22	AG	SW3005A
MA Petroleum Hydrocarbon (EPH)	Completed				08/03/22		MADEP EPH-19
Chlorinated Herbicides							
2,4,5-T	ND	1.0	ug/L	2	08/09/22	JRB	SW-846 8151
2,4,5-TP (Silvex)	ND	1.0	ug/L	2	08/09/22	JRB	SW-846 8151
2,4-D	ND	2.0	ug/L	2	08/09/22	JRB	SW-846 8151

Project ID: 2022-062
Client ID: MW-4

Phoenix I.D.: CL97285

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
2,4-DB	ND	1.0	ug/L	2	08/09/22	JRB	SW-846 8151
Dalapon	ND	1.0	ug/L	2	08/09/22	JRB	SW-846 8151
Dicamba	ND	1.0	ug/L	2	08/09/22	JRB	SW-846 8151
Dichloroprop	ND	2.0	ug/L	2	08/09/22	JRB	SW-846 8151
Dinoseb	ND	2.0	ug/L	2	08/09/22	JRB	SW-846 8151
MCPA	ND	100	ug/L	2	08/09/22	JRB	SW-846 8151
MCPP	ND	100	ug/L	2	08/09/22	JRB	SW-846 8151
QA/QC Surrogates							
% DCAA	89		%	2	08/09/22	JRB	30 - 150 %
% DCAA (Confirmation)	47		%	2	08/09/22	JRB	30 - 150 %
Pesticides							
4,4' -DDD	ND	0.047	ug/L	1	08/04/22	AW	SW8081B
4,4' -DDE	ND	0.047	ug/L	1	08/04/22	AW	SW8081B
4,4' -DDT	ND	0.047	ug/L	1	08/04/22	AW	SW8081B
a-BHC	ND	0.024	ug/L	1	08/04/22	AW	SW8081B
Alachlor	ND	0.071	ug/L	1	08/04/22	AW	SW8081B
Aldrin	ND	0.001	ug/L	1	08/04/22	AW	SW8081B
b-BHC	ND	0.005	ug/L	1	08/04/22	AW	SW8081B
Chlordane	ND	0.019	ug/L	1	08/04/22	AW	SW8081B
d-BHC	ND	0.024	ug/L	1	08/04/22	AW	SW8081B
Dieldrin	ND	0.001	ug/L	1	08/04/22	AW	SW8081B
Endosulfan I	ND	0.047	ug/L	1	08/04/22	AW	SW8081B
Endosulfan II	ND	0.047	ug/L	1	08/04/22	AW	SW8081B
Endosulfan Sulfate	ND	0.047	ug/L	1	08/04/22	AW	SW8081B
Endrin	ND	0.047	ug/L	1	08/04/22	AW	SW8081B
Endrin Aldehyde	ND	0.047	ug/L	1	08/04/22	AW	SW8081B
Endrin ketone	ND	0.047	ug/L	1	08/04/22	AW	SW8081B
g-BHC (Lindane)	ND	0.024	ug/L	1	08/04/22	AW	SW8081B
Heptachlor	ND	0.024	ug/L	1	08/04/22	AW	SW8081B
Heptachlor epoxide	ND	0.024	ug/L	1	08/04/22	AW	SW8081B
Hexachlorobenzene	ND	0.005	ug/L	1	08/04/22	AW	SW8081B
Methoxychlor	ND	0.094	ug/L	1	08/04/22	AW	SW8081B
Toxaphene	ND	0.94	ug/L	1	08/04/22	AW	SW8081B
QA/QC Surrogates							
%DCBP (Surrogate Rec)	36		%	1	08/04/22	AW	30 - 150 %
%DCBP (Surrogate Rec) (Confirmation)	58		%	1	08/04/22	AW	30 - 150 %
%TCMX (Surrogate Rec)	53		%	1	08/04/22	AW	30 - 150 %
%TCMX (Surrogate Rec) (Confirmation)	77		%	1	08/04/22	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1,1-Trichloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	08/05/22	MH	SW8260C
1,1,2-Trichloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1-Dichloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1-Dichloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1-Dichloropropene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2,3-Trichloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C

Project ID: 2022-062
Client ID: MW-4

Phoenix I.D.: CL97285

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2-Dibromo-3-chloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2-Dibromoethane	ND	0.25	ug/L	1	08/05/22	MH	SW8260C
1,2-Dichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2-Dichloroethane	ND	0.60	ug/L	1	08/05/22	MH	SW8260C
1,2-Dichloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,3-Dichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,3-Dichloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,4-Dichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
2,2-Dichloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
2-Chlorotoluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
2-Hexanone	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
2-Isopropyltoluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
4-Chlorotoluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
4-Methyl-2-pentanone	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
Acetone	ND	25	ug/L	1	08/05/22	MH	SW8260C
Acrylonitrile	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Benzene	ND	0.70	ug/L	1	08/05/22	MH	SW8260C
Bromobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Bromochloromethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Bromodichloromethane	0.65	0.50	ug/L	1	08/05/22	MH	SW8260C
Bromoform	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Bromomethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Carbon Disulfide	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
Carbon tetrachloride	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Chlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Chloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Chloroform	3.6	1.0	ug/L	1	08/05/22	MH	SW8260C
Chloromethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	08/05/22	MH	SW8260C
Dibromochloromethane	ND	0.50	ug/L	1	08/05/22	MH	SW8260C
Dibromomethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Dichlorodifluoromethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Ethylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Hexachlorobutadiene	ND	0.40	ug/L	1	08/05/22	MH	SW8260C
Isopropylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
m&p-Xylene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Methyl ethyl ketone	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Methylene chloride	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Naphthalene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
n-Butylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
n-Propylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
o-Xylene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
p-Isopropyltoluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
sec-Butylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C

Project ID: 2022-062
Client ID: MW-4

Phoenix I.D.: CL97285

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Styrene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
tert-Butylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Tetrachloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	08/05/22	MH	SW8260C
Toluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Total Xylenes	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	08/05/22	MH	SW8260C
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
Trichloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Trichlorofluoromethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Trichlorotrifluoroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Vinyl chloride	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	99		%	1	08/05/22	MH	70 - 130 %
% Bromofluorobenzene	95		%	1	08/05/22	MH	70 - 130 %
% Dibromofluoromethane	101		%	1	08/05/22	MH	70 - 130 %
% Toluene-d8	100		%	1	08/05/22	MH	70 - 130 %
Oxygenates & Dioxane							
Diethyl ether	ND	1.0	ug/L	1	08/05/22	MH	SW8260C (OXY)
Di-isopropyl ether	ND	1.0	ug/L	1	08/05/22	MH	SW8260C (OXY)
Ethyl tert-butyl ether	ND	1.0	ug/L	1	08/05/22	MH	SW8260C (OXY)
tert-amyl methyl ether	ND	1.0	ug/L	1	08/05/22	MH	SW8260C (OXY)
Semivolatiles by SIM, PAH							
2-Methylnaphthalene	ND	0.49	ug/L	1	08/05/22	WB	SW8270D (SIM)
Acenaphthene	ND	0.49	ug/L	1	08/05/22	WB	SW8270D (SIM)
Acenaphthylene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Anthracene	ND	0.09	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benz(a)anthracene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benzo(a)pyrene	ND	0.20	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benzo(b)fluoranthene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benzo(ghi)perylene	ND	0.02	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benzo(k)fluoranthene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Chrysene	0.05	0.05	ug/L	1	08/05/22	WB	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	0.02	ug/L	1	08/05/22	WB	SW8270D (SIM)
Fluoranthene	ND	0.49	ug/L	1	08/05/22	WB	SW8270D (SIM)
Fluorene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Naphthalene	ND	0.49	ug/L	1	08/05/22	WB	SW8270D (SIM)
Phenanthrene	ND	0.49	ug/L	1	08/05/22	WB	SW8270D (SIM)
Pyrene	0.20	0.07	ug/L	1	08/05/22	WB	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	63		%	1	08/05/22	WB	40 - 140 %
% Nitrobenzene-d5	77		%	1	08/05/22	WB	40 - 140 %
% Terphenyl-d14	59		%	1	08/05/22	WB	40 - 140 %
1,4-dioxane							
1,4-dioxane	ND	0.30	ug/l	1	08/11/22	AW	SW8270DSIM

Ver 1

Project ID: 2022-062
Client ID: MW-4

Phoenix I.D.: CL97285

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
QA/QC Surrogates							
% 1,4-dioxane-d8	87		%	1	08/11/22	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				08/10/22	G/G	
MA EPH Aliphatic/Aromatic Ranges							
C11-C22 Aromatic Hydrocarbons 1,2	ND	200	ug/L	1	08/06/22	AW	MAEPH 5/2019
C11-C22 Aromatic Hydrocarbons Un	ND	200	ug/L	1	08/06/22	AW	MAEPH 5/2019
C19-C36 Aliphatic Hydrocarbons 1*	ND	200	ug/L	1	08/06/22	AW	MAEPH 5/2019
C9-C18 Aliphatic Hydrocarbons 1*	ND	200	ug/L	1	08/06/22	AW	MAEPH 5/2019
Total TPH 1,2*	ND	200	ug/L	1	08/06/22	AW	MAEPH 5/2019
QA/QC Surrogates							
% 1-chlorooctadecane (aliphatic)	54		%	1	08/06/22	AW	40 - 140 %
% 2-Bromonaphthalene (Fractionation)	112		%	1	08/06/22	AW	40 - 140 %
% 2-Fluorobiphenyl (Fractionation)	114		%	1	08/06/22	AW	40 - 140 %
% o-terphenyl (aromatic)	86		%	1	08/06/22	AW	40 - 140 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

MAEPH:
1* Hydrocarbon range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.
2* C11-C12 Aromatic Hydrocarbons exclude the concentration of Target PAH analytes eluting in that range.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
August 17, 2022
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

August 17, 2022

FOR: Attn: Steve Van Wormer
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Sample Information		Custody Information		Date	Time
Matrix:	GROUND WATER	Collected by:	SV	08/02/22	12:15
Location Code:	CMGENV	Received by:	SW	08/03/22	16:45
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	WAYLAND				

Laboratory Data

SDG ID: GCL97284
Phoenix ID: CL97286

Project ID: 2022-062
Client ID: MW-5

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Arsenic (Dissolved)	< 0.004	0.004	mg/L	1	08/05/22	EK	SW6010D
Barium (Dissolved)	0.187	0.002	mg/L	1	08/05/22	EK	SW6010D
Beryllium (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Cadmium (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Chromium (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Mercury (Dissolved)	< 0.0002	0.0002	mg/L	1	08/05/22	MGH	SW7470A
Nickel (Dissolved)	0.003	0.001	mg/L	1	08/05/22	EK	SW6010D
Lead (Dissolved)	0.003	0.002	mg/L	1	08/05/22	EK	SW6010D
Antimony (Dissolved)	0.008	0.005	mg/L	1	08/05/22	EK	SW6010D
Selenium (Dissolved)	< 0.011	0.011	mg/L	1	08/05/22	EK	SW6010D
Thallium (Dissolved)	< 0.0005	0.0005	mg/L	2	08/08/22	CPP	SW6020B
Vanadium (Dissolved)	< 0.002	0.002	mg/L	1	08/05/22	EK	SW6010D
Zinc (Dissolved)	0.005	0.002	mg/L	1	08/05/22	EK	SW6010D
Dissolved Mercury Digestion	Completed				08/04/22	AB/AB	SW7470A
EPH Extraction	Completed				08/05/22	CV/CV	SW3510C
Semi-Volatile Extraction	Completed				08/04/22	X/MQ	SW3520C
Dissolved Metals Preparation	Completed				08/04/22	AG	SW3005A
Dissolved Metals Preparation	Completed				08/03/22	AG	SW3005A
MA Petroleum Hydrocarbon (EPH)	Completed				08/03/22		MADEP EPH-19
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1,1-Trichloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	08/05/22	MH	SW8260C
1,1,2-Trichloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1-Dichloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C

Project ID: 2022-062
Client ID: MW-5

Phoenix I.D.: CL97286

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,1-Dichloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1-Dichloropropene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2,3-Trichloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2-Dibromo-3-chloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2-Dibromoethane	ND	0.25	ug/L	1	08/05/22	MH	SW8260C
1,2-Dichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2-Dichloroethane	ND	0.60	ug/L	1	08/05/22	MH	SW8260C
1,2-Dichloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,3-Dichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,3-Dichloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,4-Dichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
2,2-Dichloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
2-Chlorotoluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
2-Hexanone	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
2-Isopropyltoluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
4-Chlorotoluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
4-Methyl-2-pentanone	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
Acetone	ND	25	ug/L	1	08/05/22	MH	SW8260C
Acrylonitrile	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Benzene	ND	0.70	ug/L	1	08/05/22	MH	SW8260C
Bromobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Bromochloromethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Bromodichloromethane	ND	0.50	ug/L	1	08/05/22	MH	SW8260C
Bromoform	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Bromomethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Carbon Disulfide	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
Carbon tetrachloride	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Chlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Chloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Chloroform	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Chloromethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	08/05/22	MH	SW8260C
Dibromochloromethane	ND	0.50	ug/L	1	08/05/22	MH	SW8260C
Dibromomethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Dichlorodifluoromethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Ethylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Hexachlorobutadiene	ND	0.40	ug/L	1	08/05/22	MH	SW8260C
Isopropylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
m&p-Xylene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Methyl ethyl ketone	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Methylene chloride	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Naphthalene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
n-Butylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C

Project ID: 2022-062
Client ID: MW-5

Phoenix I.D.: CL97286

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
n-Propylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
o-Xylene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
p-Isopropyltoluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
sec-Butylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Styrene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
tert-Butylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Tetrachloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	08/05/22	MH	SW8260C
Toluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Total Xylenes	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	08/05/22	MH	SW8260C
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
Trichloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Trichlorofluoromethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Trichlorotrifluoroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Vinyl chloride	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	98		%	1	08/05/22	MH	70 - 130 %
% Bromofluorobenzene	95		%	1	08/05/22	MH	70 - 130 %
% Dibromofluoromethane	100		%	1	08/05/22	MH	70 - 130 %
% Toluene-d8	101		%	1	08/05/22	MH	70 - 130 %
Oxygenates & Dioxane							
Diethyl ether	ND	1.0	ug/L	1	08/05/22	MH	SW8260C (OXY)
Di-isopropyl ether	ND	1.0	ug/L	1	08/05/22	MH	SW8260C (OXY)
Ethyl tert-butyl ether	ND	1.0	ug/L	1	08/05/22	MH	SW8260C (OXY)
tert-amyl methyl ether	ND	1.0	ug/L	1	08/05/22	MH	SW8260C (OXY)
Semivolatiles by SIM, PAH							
2-Methylnaphthalene	ND	0.47	ug/L	1	08/05/22	WB	SW8270D (SIM)
Acenaphthene	ND	0.47	ug/L	1	08/05/22	WB	SW8270D (SIM)
Acenaphthylene	ND	0.09	ug/L	1	08/05/22	WB	SW8270D (SIM)
Anthracene	ND	0.09	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benz(a)anthracene	ND	0.09	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benzo(a)pyrene	ND	0.19	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benzo(b)fluoranthene	ND	0.09	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benzo(ghi)perylene	ND	0.02	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benzo(k)fluoranthene	ND	0.09	ug/L	1	08/05/22	WB	SW8270D (SIM)
Chrysene	ND	0.05	ug/L	1	08/05/22	WB	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	0.02	ug/L	1	08/05/22	WB	SW8270D (SIM)
Fluoranthene	ND	0.47	ug/L	1	08/05/22	WB	SW8270D (SIM)
Fluorene	ND	0.09	ug/L	1	08/05/22	WB	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.09	ug/L	1	08/05/22	WB	SW8270D (SIM)
Naphthalene	ND	0.47	ug/L	1	08/05/22	WB	SW8270D (SIM)
Phenanthrene	ND	0.47	ug/L	1	08/05/22	WB	SW8270D (SIM)
Pyrene	ND	0.07	ug/L	1	08/05/22	WB	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	45		%	1	08/05/22	WB	40 - 140 %
% Nitrobenzene-d5	62		%	1	08/05/22	WB	40 - 140 %

Project ID: 2022-062
Client ID: MW-5

Phoenix I.D.: CL97286

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
% Terphenyl-d14	35		%	1	08/05/22	WB	40 - 140 %	3
1,4-dioxane								
1,4-dioxane	ND	0.20	ug/l	1	08/09/22	AW	SW8270DSIM	
QA/QC Surrogates								
% 1,4-dioxane-d8	88		%	1	08/09/22	AW	70 - 130 %	
Extraction for 1,4-Dioxane	Completed				08/08/22	DT/DT		
MA EPH Aliphatic/Aromatic Ranges								
C11-C22 Aromatic Hydrocarbons 1,2	ND	200	ug/L	1	08/06/22	AW	MAEPH 5/2019	
C11-C22 Aromatic Hydrocarbons Un	ND	200	ug/L	1	08/06/22	AW	MAEPH 5/2019	
C19-C36 Aliphatic Hydrocarbons 1*	ND	200	ug/L	1	08/06/22	AW	MAEPH 5/2019	
C9-C18 Aliphatic Hydrocarbons 1*	ND	200	ug/L	1	08/06/22	AW	MAEPH 5/2019	
Total TPH 1,2*	ND	200	ug/L	1	08/06/22	AW	MAEPH 5/2019	
QA/QC Surrogates								
% 1-chlorooctadecane (aliphatic)	63		%	1	08/06/22	AW	40 - 140 %	
% 2-Bromonaphthalene (Fractionation)	107		%	1	08/06/22	AW	40 - 140 %	
% 2-Fluorobiphenyl (Fractionation)	106		%	1	08/06/22	AW	40 - 140 %	
% o-terphenyl (aromatic)	85		%	1	08/06/22	AW	40 - 140 %	

3 = This parameter exceeds laboratory specified limits.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

MAEPH:
1* Hydrocarbon range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.
2* C11-C12 Aromatic Hydrocarbons exclude the concentration of Target PAH analytes eluting in that range.

Semi-Volatile Comment:
Poor surrogate recovery was observed for one acid and/or one base surrogate. The other surrogates associated with this sample were within QA/QC criteria. No significant bias suspected.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
August 17, 2022
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

August 17, 2022

FOR: Attn: Steve Van Wormer
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Sample Information		Custody Information		Date	Time
Matrix:	GROUND WATER	Collected by:	SV	08/02/22	12:45
Location Code:	CMGENV	Received by:	SW	08/03/22	16:45
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	WAYLAND				

Laboratory Data

SDG ID: GCL97284
Phoenix ID: CL97287

Project ID: 2022-062
Client ID: MW-6

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Arsenic (Dissolved)	< 0.004	0.004	mg/L	1	08/05/22	EK	SW6010D
Barium (Dissolved)	0.016	0.002	mg/L	1	08/05/22	EK	SW6010D
Beryllium (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Cadmium (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Chromium (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Mercury (Dissolved)	< 0.0002	0.0002	mg/L	1	08/05/22	MGH	SW7470A
Nickel (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Lead (Dissolved)	< 0.002	0.002	mg/L	1	08/05/22	EK	SW6010D
Antimony (Dissolved)	< 0.005	0.005	mg/L	1	08/05/22	EK	SW6010D
Selenium (Dissolved)	< 0.011	0.011	mg/L	1	08/05/22	EK	SW6010D
Thallium (Dissolved)	< 0.0005	0.0005	mg/L	2	08/08/22	CPP	SW6020B
Vanadium (Dissolved)	< 0.002	0.002	mg/L	1	08/05/22	EK	SW6010D
Zinc (Dissolved)	< 0.002	0.002	mg/L	1	08/05/22	EK	SW6010D
Dissolved Mercury Digestion	Completed				08/04/22	AB/AB	SW7470A
EPH Extraction	Completed				08/05/22	CV/CV	SW3510C
Semi-Volatile Extraction	Completed				08/04/22	X/MQ	SW3520C
Dissolved Metals Preparation	Completed				08/04/22	AG	SW3005A
Dissolved Metals Preparation	Completed				08/03/22	AG	SW3005A
MA Petroleum Hydrocarbon (EPH)	Completed				08/03/22		MADEP EPH-19
	Completed				08/05/22	V	MA VPH 2/20182.1, 201
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1,1-Trichloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	08/05/22	MH	SW8260C
1,1,2-Trichloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C

Project ID: 2022-062
Client ID: MW-6

Phoenix I.D.: CL97287

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,1-Dichloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1-Dichloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1-Dichloropropene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2,3-Trichloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2-Dibromo-3-chloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2-Dibromoethane	ND	0.25	ug/L	1	08/05/22	MH	SW8260C
1,2-Dichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2-Dichloroethane	ND	0.60	ug/L	1	08/05/22	MH	SW8260C
1,2-Dichloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,3-Dichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,3-Dichloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,4-Dichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
2,2-Dichloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
2-Chlorotoluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
2-Hexanone	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
2-Isopropyltoluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
4-Chlorotoluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
4-Methyl-2-pentanone	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
Acetone	ND	25	ug/L	1	08/05/22	MH	SW8260C
Acrylonitrile	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Benzene	ND	0.70	ug/L	1	08/05/22	MH	SW8260C
Bromobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Bromochloromethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Bromodichloromethane	ND	0.50	ug/L	1	08/05/22	MH	SW8260C
Bromoform	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Bromomethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Carbon Disulfide	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
Carbon tetrachloride	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Chlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Chloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Chloroform	2.2	1.0	ug/L	1	08/05/22	MH	SW8260C
Chloromethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	08/05/22	MH	SW8260C
Dibromochloromethane	ND	0.50	ug/L	1	08/05/22	MH	SW8260C
Dibromomethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Dichlorodifluoromethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Ethylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Hexachlorobutadiene	ND	0.40	ug/L	1	08/05/22	MH	SW8260C
Isopropylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
m&p-Xylene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Methyl ethyl ketone	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Methylene chloride	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Naphthalene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C

Project ID: 2022-062
Client ID: MW-6

Phoenix I.D.: CL97287

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
n-Butylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
n-Propylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
o-Xylene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
p-Isopropyltoluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
sec-Butylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Styrene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
tert-Butylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Tetrachloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	08/05/22	MH	SW8260C
Toluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Total Xylenes	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	08/05/22	MH	SW8260C
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
Trichloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Trichlorofluoromethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Trichlorotrifluoroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Vinyl chloride	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	98		%	1	08/05/22	MH	70 - 130 %
% Bromofluorobenzene	96		%	1	08/05/22	MH	70 - 130 %
% Dibromofluoromethane	98		%	1	08/05/22	MH	70 - 130 %
% Toluene-d8	106		%	1	08/05/22	MH	70 - 130 %
Oxygenates & Dioxane							
Diethyl ether	ND	1.0	ug/L	1	08/05/22	MH	SW8260C (OXY)
Di-isopropyl ether	ND	1.0	ug/L	1	08/05/22	MH	SW8260C (OXY)
Ethyl tert-butyl ether	ND	1.0	ug/L	1	08/05/22	MH	SW8260C (OXY)
tert-amyl methyl ether	ND	1.0	ug/L	1	08/05/22	MH	SW8260C (OXY)
Semivolatiles by SIM, PAH							
2-Methylnaphthalene	ND	0.47	ug/L	1	08/05/22	WB	SW8270D (SIM)
Acenaphthene	ND	0.47	ug/L	1	08/05/22	WB	SW8270D (SIM)
Acenaphthylene	ND	0.09	ug/L	1	08/05/22	WB	SW8270D (SIM)
Anthracene	ND	0.09	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benz(a)anthracene	ND	0.09	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benzo(a)pyrene	ND	0.19	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benzo(b)fluoranthene	ND	0.09	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benzo(ghi)perylene	ND	0.02	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benzo(k)fluoranthene	ND	0.09	ug/L	1	08/05/22	WB	SW8270D (SIM)
Chrysene	ND	0.05	ug/L	1	08/05/22	WB	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	0.02	ug/L	1	08/05/22	WB	SW8270D (SIM)
Fluoranthene	ND	0.47	ug/L	1	08/05/22	WB	SW8270D (SIM)
Fluorene	ND	0.09	ug/L	1	08/05/22	WB	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.09	ug/L	1	08/05/22	WB	SW8270D (SIM)
Naphthalene	ND	0.47	ug/L	1	08/05/22	WB	SW8270D (SIM)
Phenanthrene	ND	0.47	ug/L	1	08/05/22	WB	SW8270D (SIM)
Pyrene	ND	0.07	ug/L	1	08/05/22	WB	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	18		%	1	08/05/22	WB	40 - 140 %

3

Ver 1

Project ID: 2022-062
Client ID: MW-6

Phoenix I.D.: CL97287

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference	
% Nitrobenzene-d5	27		%	1	08/05/22	WB	40 - 140 %	3
% Terphenyl-d14	26		%	1	08/05/22	WB	40 - 140 %	3
1,4-dioxane								
1,4-dioxane	ND	0.20	ug/l	1	08/09/22	AW	SW8270DSIM	
QA/QC Surrogates								
% 1,4-dioxane-d8	97		%	1	08/09/22	AW	70 - 130 %	
Extraction for 1,4-Dioxane	Completed				08/08/22	DT/DT		
MA EPH Aliphatic/Aromatic Ranges								
C11-C22 Aromatic Hydrocarbons 1,2	ND	190	ug/L	1	08/06/22	AW	MAEPH 5/2019	
C11-C22 Aromatic Hydrocarbons Un	ND	190	ug/L	1	08/06/22	AW	MAEPH 5/2019	
C19-C36 Aliphatic Hydrocarbons 1*	ND	190	ug/L	1	08/06/22	AW	MAEPH 5/2019	
C9-C18 Aliphatic Hydrocarbons 1*	ND	190	ug/L	1	08/06/22	AW	MAEPH 5/2019	
Total TPH 1,2*	ND	190	ug/L	1	08/06/22	AW	MAEPH 5/2019	
QA/QC Surrogates								
% 1-chlorooctadecane (aliphatic)	64		%	1	08/06/22	AW	40 - 140 %	
% 2-Bromonaphthalene (Fractionation)	107		%	1	08/06/22	AW	40 - 140 %	
% 2-Fluorobiphenyl (Fractionation)	106		%	1	08/06/22	AW	40 - 140 %	
% o-terphenyl (aromatic)	85		%	1	08/06/22	AW	40 - 140 %	
MA Volatile Petroleum Hydrocarbons (VPH)								
Unadjusted C5-C8 Aliphatics (*1)	170	100	ug/L	1	08/05/22	V	MA VPH 2/20182.1, 201	
Unadjusted C9-C12 Aliphatics (*1)	ND	100	ug/L	1	08/05/22	V	MA VPH 2/20182.1, 201	
C5-C8 Aliphatic Hydrocarbons *1,2	170	100	ug/L	1	08/05/22	V	MA VPH 2/20182.1, 201	
C9-C12 Aliphatic Hydrocarbons *1,3	ND	100	ug/L	1	08/05/22	V	MA VPH 2/20182.1, 201	
C9-C10 Aromatic Hydrocarbons *1	ND	100	ug/L	1	08/05/22	V	MA VPH 2/20182.1, 201	
Benzene	ND	1.0	ug/L	1	08/05/22	V	MA VPH 2/20182.1, 201	
Ethyl Benzene	4.3	1.0	ug/L	1	08/05/22	V	MA VPH 2/20182.1, 201	
MTBE	ND	1.0	ug/L	1	08/05/22	V	MA VPH 2/20182.1, 201	
Naphthalene	ND	5.0	ug/L	1	08/05/22	V	MA VPH 2/20182.1, 201	
Toluene	ND	1.0	ug/L	1	08/05/22	V	MA VPH 2/20182.1, 201	
m,p-Xylenes	ND	2.0	ug/L	1	08/05/22	V	MA VPH 2/20182.1, 201	
o-Xylene	ND	1.0	ug/L	1	08/05/22	V	MA VPH 2/20182.1, 201	
QA/QC Surrogates								
% 2,5-Dibromotoluene (FID)	110		%	1	08/05/22	V	70 - 130 %	
% 2,5-Dibromotoluene (PID)	108		%	1	08/05/22	V	70 - 130 %	

Project ID: 2022-062
Client ID: MW-6

Phoenix I.D.: CL97287

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

3 = This parameter exceeds laboratory specified limits.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

MAEPH:
1* Hydrocarbon range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.
2* C11-C12 Aromatic Hydrocarbons exclude the concentration of Target PAH analytes eluting in that range.

VPH:
*1 Range data exclude conc.s of any surrogate(s) and/or Int. std.s eluting in that range.
*2 C5-C8 and C9-C12 Aliphatic exclude the conc. Of Target Analytes in that range.
*3 C9-C12 Aliphatic also exclude C9-C10 Aromatic Hydrocarbon

Semi-Volatile Comment:
Poor surrogate recovery was observed for semivolatiles and there was insufficient sample for re-extraction.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director

August 17, 2022

Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

August 17, 2022

FOR: Attn: Steve Van Wormer
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Sample Information		Custody Information		Date	Time
Matrix:	GROUND WATER	Collected by:	SV	08/02/22	13:15
Location Code:	CMGENV	Received by:	SW	08/03/22	16:45
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	WAYLAND				

Laboratory Data

SDG ID: GCL97284
Phoenix ID: CL97288

Project ID: 2022-062
Client ID: MW-7

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Arsenic (Dissolved)	< 0.004	0.004	mg/L	1	08/05/22	EK	SW6010D
Barium (Dissolved)	0.056	0.002	mg/L	1	08/05/22	EK	SW6010D
Beryllium (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Cadmium (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Chromium (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Mercury (Dissolved)	< 0.0002	0.0002	mg/L	1	08/05/22	MGH	SW7470A
Nickel (Dissolved)	0.002	0.001	mg/L	1	08/05/22	EK	SW6010D
Lead (Dissolved)	< 0.002	0.002	mg/L	1	08/05/22	EK	SW6010D
Antimony (Dissolved)	< 0.005	0.005	mg/L	1	08/05/22	EK	SW6010D
Selenium (Dissolved)	< 0.011	0.011	mg/L	1	08/05/22	EK	SW6010D
Thallium (Dissolved)	< 0.0005	0.0005	mg/L	2	08/08/22	CPP	SW6020B
Vanadium (Dissolved)	< 0.002	0.002	mg/L	1	08/05/22	EK	SW6010D
Zinc (Dissolved)	< 0.002	0.002	mg/L	1	08/05/22	EK	SW6010D
Dissolved Mercury Digestion	Completed				08/04/22	AB/AB	SW7470A
EPH Extraction	Completed				08/05/22	CV/CV	SW3510C
Semi-Volatile Extraction	Completed				08/04/22	X/MQ	SW3520C
Dissolved Metals Preparation	Completed				08/04/22	AG	SW3005A
Dissolved Metals Preparation	Completed				08/03/22	AG	SW3005A
MA Petroleum Hydrocarbon (EPH)	Completed				08/03/22		MADEP EPH-19
	Completed				08/05/22	V	MA VPH 2/20182.1, 201
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1,1-Trichloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	08/05/22	MH	SW8260C
1,1,2-Trichloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C

Project ID: 2022-062
Client ID: MW-7

Phoenix I.D.: CL97288

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,1-Dichloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1-Dichloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1-Dichloropropene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2,3-Trichloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2-Dibromo-3-chloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2-Dibromoethane	ND	0.25	ug/L	1	08/05/22	MH	SW8260C
1,2-Dichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2-Dichloroethane	ND	0.60	ug/L	1	08/05/22	MH	SW8260C
1,2-Dichloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,3-Dichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,3-Dichloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,4-Dichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
2,2-Dichloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
2-Chlorotoluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
2-Hexanone	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
2-Isopropyltoluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
4-Chlorotoluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
4-Methyl-2-pentanone	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
Acetone	ND	25	ug/L	1	08/05/22	MH	SW8260C
Acrylonitrile	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Benzene	ND	0.70	ug/L	1	08/05/22	MH	SW8260C
Bromobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Bromochloromethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Bromodichloromethane	0.58	0.50	ug/L	1	08/05/22	MH	SW8260C
Bromoform	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Bromomethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Carbon Disulfide	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
Carbon tetrachloride	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Chlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Chloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Chloroform	1.5	1.0	ug/L	1	08/05/22	MH	SW8260C
Chloromethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	08/05/22	MH	SW8260C
Dibromochloromethane	ND	0.50	ug/L	1	08/05/22	MH	SW8260C
Dibromomethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Dichlorodifluoromethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Ethylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Hexachlorobutadiene	ND	0.40	ug/L	1	08/05/22	MH	SW8260C
Isopropylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
m&p-Xylene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Methyl ethyl ketone	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Methylene chloride	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Naphthalene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C

Project ID: 2022-062
Client ID: MW-7

Phoenix I.D.: CL97288

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
n-Butylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
n-Propylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
o-Xylene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
p-Isopropyltoluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
sec-Butylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Styrene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
tert-Butylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Tetrachloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	08/05/22	MH	SW8260C
Toluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Total Xylenes	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	08/05/22	MH	SW8260C
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
Trichloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Trichlorofluoromethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Trichlorotrifluoroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Vinyl chloride	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	97		%	1	08/05/22	MH	70 - 130 %
% Bromofluorobenzene	100		%	1	08/05/22	MH	70 - 130 %
% Dibromofluoromethane	99		%	1	08/05/22	MH	70 - 130 %
% Toluene-d8	99		%	1	08/05/22	MH	70 - 130 %
Oxygenates & Dioxane							
Diethyl ether	ND	1.0	ug/L	1	08/05/22	MH	SW8260C (OXY)
Di-isopropyl ether	ND	1.0	ug/L	1	08/05/22	MH	SW8260C (OXY)
Ethyl tert-butyl ether	ND	1.0	ug/L	1	08/05/22	MH	SW8260C (OXY)
tert-amyl methyl ether	ND	1.0	ug/L	1	08/05/22	MH	SW8260C (OXY)
Semivolatiles by SIM, PAH							
2-Methylnaphthalene	ND	0.50	ug/L	1	08/05/22	WB	SW8270D (SIM)
Acenaphthene	ND	0.50	ug/L	1	08/05/22	WB	SW8270D (SIM)
Acenaphthylene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Anthracene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benz(a)anthracene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benzo(a)pyrene	ND	0.20	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benzo(b)fluoranthene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benzo(ghi)perylene	ND	0.02	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benzo(k)fluoranthene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Chrysene	ND	0.05	ug/L	1	08/05/22	WB	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	0.02	ug/L	1	08/05/22	WB	SW8270D (SIM)
Fluoranthene	ND	0.50	ug/L	1	08/05/22	WB	SW8270D (SIM)
Fluorene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Naphthalene	ND	0.50	ug/L	1	08/05/22	WB	SW8270D (SIM)
Phenanthrene	ND	0.50	ug/L	1	08/05/22	WB	SW8270D (SIM)
Pyrene	ND	0.07	ug/L	1	08/05/22	WB	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	60		%	1	08/05/22	WB	40 - 140 %

Project ID: 2022-062
Client ID: MW-7

Phoenix I.D.: CL97288

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
% Nitrobenzene-d5	70		%	1	08/05/22	WB	40 - 140 %
% Terphenyl-d14	69		%	1	08/05/22	WB	40 - 140 %
1,4-dioxane							
1,4-dioxane	ND	0.20	ug/l	1	08/09/22	AW	SW8270DSIM
QA/QC Surrogates							
% 1,4-dioxane-d8	95		%	1	08/09/22	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				08/08/22	DT/DT	
MA EPH Aliphatic/Aromatic Ranges							
C11-C22 Aromatic Hydrocarbons 1,2	ND	200	ug/L	1	08/06/22	AW	MAEPH 5/2019
C11-C22 Aromatic Hydrocarbons Un	ND	200	ug/L	1	08/06/22	AW	MAEPH 5/2019
C19-C36 Aliphatic Hydrocarbons 1*	ND	200	ug/L	1	08/06/22	AW	MAEPH 5/2019
C9-C18 Aliphatic Hydrocarbons 1*	ND	200	ug/L	1	08/06/22	AW	MAEPH 5/2019
Total TPH 1,2*	ND	200	ug/L	1	08/06/22	AW	MAEPH 5/2019
QA/QC Surrogates							
% 1-chlorooctadecane (aliphatic)	54		%	1	08/06/22	AW	40 - 140 %
% 2-Bromonaphthalene (Fractionation)	97		%	1	08/06/22	AW	40 - 140 %
% 2-Fluorobiphenyl (Fractionation)	95		%	1	08/06/22	AW	40 - 140 %
% o-terphenyl (aromatic)	83		%	1	08/06/22	AW	40 - 140 %
MA Volatile Petroleum Hydrocarbons (VPH)							
Unadjusted C5-C8 Aliphatics (*1)	ND	100	ug/L	1	08/05/22	V	MA VPH 2/20182.1, 201
Unadjusted C9-C12 Aliphatics (*1)	ND	100	ug/L	1	08/05/22	V	MA VPH 2/20182.1, 201
C5-C8 Aliphatic Hydrocarbons *1,2	ND	100	ug/L	1	08/05/22	V	MA VPH 2/20182.1, 201
C9-C12 Aliphatic Hydrocarbons *1,3	ND	100	ug/L	1	08/05/22	V	MA VPH 2/20182.1, 201
C9-C10 Aromatic Hydrocarbons *1	ND	100	ug/L	1	08/05/22	V	MA VPH 2/20182.1, 201
Benzene	ND	1.0	ug/L	1	08/05/22	V	MA VPH 2/20182.1, 201
Ethyl Benzene	3.4	1.0	ug/L	1	08/05/22	V	MA VPH 2/20182.1, 201
MTBE	ND	1.0	ug/L	1	08/05/22	V	MA VPH 2/20182.1, 201
Naphthalene	ND	5.0	ug/L	1	08/05/22	V	MA VPH 2/20182.1, 201
Toluene	ND	1.0	ug/L	1	08/05/22	V	MA VPH 2/20182.1, 201
m,p-Xylenes	ND	2.0	ug/L	1	08/05/22	V	MA VPH 2/20182.1, 201
o-Xylene	ND	1.0	ug/L	1	08/05/22	V	MA VPH 2/20182.1, 201
QA/QC Surrogates							
% 2,5-Dibromotoluene (FID)	119		%	1	08/05/22	V	70 - 130 %
% 2,5-Dibromotoluene (PID)	109		%	1	08/05/22	V	70 - 130 %

Project ID: 2022-062
Client ID: MW-7

Phoenix I.D.: CL97288

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

MAEPH:
1* Hydrocarbon range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.
2* C11-C12 Aromatic Hydrocarbons exclude the concentration of Target PAH analytes eluting in that range.

VPH:
*1 Range data exclude conc.s of any surrogate(s) and/or Int. std.s eluting in that range.
*2 C5-C8 and C9-C12 Aliphatic exclude the conc. Of Target Analytes in that range.
*3 C9-C12 Aliphatic also exclude C9-C10 Aromatic Hydrocarbon

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
August 17, 2022
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

August 17, 2022

FOR: Attn: Steve Van Wormer
CMG Environmental, Inc.
67 Hall Rd
Sturbridge, MA 01566

Sample Information		Custody Information		Date	Time
Matrix:	GROUND WATER	Collected by:	SV	08/02/22	11:30
Location Code:	CMGENV	Received by:	SW	08/03/22	16:45
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	WAYLAND				

Laboratory Data

SDG ID: GCL97284
Phoenix ID: CL97289

Project ID: 2022-062
Client ID: MW-11

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Arsenic (Dissolved)	< 0.004	0.004	mg/L	1	08/05/22	EK	SW6010D
Barium (Dissolved)	0.246	0.002	mg/L	1	08/05/22	EK	SW6010D
Beryllium (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Cadmium (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Chromium (Dissolved)	< 0.001	0.001	mg/L	1	08/05/22	EK	SW6010D
Mercury (Dissolved)	< 0.0002	0.0002	mg/L	1	08/05/22	MGH	SW7470A
Nickel (Dissolved)	0.003	0.001	mg/L	1	08/05/22	EK	SW6010D
Lead (Dissolved)	< 0.002	0.002	mg/L	1	08/05/22	EK	SW6010D
Antimony (Dissolved)	< 0.005	0.005	mg/L	1	08/05/22	EK	SW6010D
Selenium (Dissolved)	< 0.011	0.011	mg/L	1	08/05/22	EK	SW6010D
Thallium (Dissolved)	< 0.0005	0.0005	mg/L	2	08/08/22	CPP	SW6020B
Vanadium (Dissolved)	< 0.002	0.002	mg/L	1	08/05/22	EK	SW6010D
Zinc (Dissolved)	0.030	0.002	mg/L	1	08/05/22	EK	SW6010D
Dissolved Mercury Digestion	Completed				08/04/22	AB/AB	SW7470A
EPH Extraction	Completed				08/05/22	CV/CV	SW3510C
Extraction for Herbicide	Completed				08/05/22	CV/D/K	SW8151A
Extraction for Pest (LDL)	Completed				08/03/22	B/N	SW3510C
Semi-Volatile Extraction	Completed				08/04/22	X/MQ	SW3520C
Dissolved Metals Preparation	Completed				08/04/22	AG	SW3005A
Dissolved Metals Preparation	Completed				08/03/22	AG	SW3005A
MA Petroleum Hydrocarbon (EPH)	Completed				08/03/22		MADEP EPH-19
Chlorinated Herbicides							
2,4,5-T	ND	1.0	ug/L	2	08/09/22	JRB	SW-846 8151
2,4,5-TP (Silvex)	ND	1.0	ug/L	2	08/09/22	JRB	SW-846 8151
2,4-D	ND	2.0	ug/L	2	08/09/22	JRB	SW-846 8151

Project ID: 2022-062
Client ID: MW-11

Phoenix I.D.: CL97289

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
2,4-DB	ND	1.0	ug/L	2	08/09/22	JRB	SW-846 8151
Dalapon	ND	1.0	ug/L	2	08/09/22	JRB	SW-846 8151
Dicamba	ND	1.0	ug/L	2	08/09/22	JRB	SW-846 8151
Dichloroprop	ND	2.0	ug/L	2	08/09/22	JRB	SW-846 8151
Dinoseb	ND	2.0	ug/L	2	08/09/22	JRB	SW-846 8151
MCPA	ND	100	ug/L	2	08/09/22	JRB	SW-846 8151
MCPP	ND	100	ug/L	2	08/09/22	JRB	SW-846 8151
QA/QC Surrogates							
% DCAA	85		%	2	08/09/22	JRB	30 - 150 %
% DCAA (Confirmation)	45		%	2	08/09/22	JRB	30 - 150 %
Pesticides							
4,4' -DDD	ND	0.049	ug/L	1	08/04/22	AW	SW8081B
4,4' -DDE	ND	0.049	ug/L	1	08/04/22	AW	SW8081B
4,4' -DDT	ND	0.049	ug/L	1	08/04/22	AW	SW8081B
a-BHC	ND	0.024	ug/L	1	08/04/22	AW	SW8081B
Alachlor	ND	0.073	ug/L	1	08/04/22	AW	SW8081B
Aldrin	ND	0.002	ug/L	1	08/04/22	AW	SW8081B
b-BHC	ND	0.005	ug/L	1	08/04/22	AW	SW8081B
Chlordane	ND	0.019	ug/L	1	08/04/22	AW	SW8081B
d-BHC	ND	0.024	ug/L	1	08/04/22	AW	SW8081B
Dieldrin	ND	0.002	ug/L	1	08/04/22	AW	SW8081B
Endosulfan I	ND	0.049	ug/L	1	08/04/22	AW	SW8081B
Endosulfan II	ND	0.049	ug/L	1	08/04/22	AW	SW8081B
Endosulfan Sulfate	ND	0.049	ug/L	1	08/04/22	AW	SW8081B
Endrin	ND	0.049	ug/L	1	08/04/22	AW	SW8081B
Endrin Aldehyde	ND	0.049	ug/L	1	08/04/22	AW	SW8081B
Endrin ketone	ND	0.049	ug/L	1	08/04/22	AW	SW8081B
g-BHC (Lindane)	ND	0.024	ug/L	1	08/04/22	AW	SW8081B
Heptachlor	ND	0.024	ug/L	1	08/04/22	AW	SW8081B
Heptachlor epoxide	ND	0.024	ug/L	1	08/04/22	AW	SW8081B
Hexachlorobenzene	ND	0.005	ug/L	1	08/04/22	AW	SW8081B
Methoxychlor	ND	0.097	ug/L	1	08/04/22	AW	SW8081B
Toxaphene	ND	0.97	ug/L	1	08/04/22	AW	SW8081B
QA/QC Surrogates							
%DCBP (Surrogate Rec)	53		%	1	08/04/22	AW	30 - 150 %
%DCBP (Surrogate Rec) (Confirmation)	65		%	1	08/04/22	AW	30 - 150 %
%TCMX (Surrogate Rec)	49		%	1	08/04/22	AW	30 - 150 %
%TCMX (Surrogate Rec) (Confirmation)	73		%	1	08/04/22	AW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1,1-Trichloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	08/05/22	MH	SW8260C
1,1,2-Trichloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1-Dichloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1-Dichloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,1-Dichloropropene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2,3-Trichloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C

Project ID: 2022-062
Client ID: MW-11

Phoenix I.D.: CL97289

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2-Dibromo-3-chloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2-Dibromoethane	ND	0.25	ug/L	1	08/05/22	MH	SW8260C
1,2-Dichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,2-Dichloroethane	ND	0.60	ug/L	1	08/05/22	MH	SW8260C
1,2-Dichloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,3-Dichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,3-Dichloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
1,4-Dichlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
2,2-Dichloropropane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
2-Chlorotoluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
2-Hexanone	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
2-Isopropyltoluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
4-Chlorotoluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
4-Methyl-2-pentanone	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
Acetone	ND	25	ug/L	1	08/05/22	MH	SW8260C
Acrylonitrile	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Benzene	ND	0.70	ug/L	1	08/05/22	MH	SW8260C
Bromobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Bromochloromethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Bromodichloromethane	ND	0.50	ug/L	1	08/05/22	MH	SW8260C
Bromoform	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Bromomethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Carbon Disulfide	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
Carbon tetrachloride	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Chlorobenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Chloroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Chloroform	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Chloromethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	08/05/22	MH	SW8260C
Dibromochloromethane	ND	0.50	ug/L	1	08/05/22	MH	SW8260C
Dibromomethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Dichlorodifluoromethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Ethylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Hexachlorobutadiene	ND	0.40	ug/L	1	08/05/22	MH	SW8260C
Isopropylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
m&p-Xylene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Methyl ethyl ketone	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Methylene chloride	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Naphthalene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
n-Butylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
n-Propylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
o-Xylene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
p-Isopropyltoluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
sec-Butylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C

Project ID: 2022-062
Client ID: MW-11

Phoenix I.D.: CL97289

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Styrene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
tert-Butylbenzene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Tetrachloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	08/05/22	MH	SW8260C
Toluene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Total Xylenes	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	08/05/22	MH	SW8260C
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	08/05/22	MH	SW8260C
Trichloroethene	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Trichlorofluoromethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Trichlorotrifluoroethane	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
Vinyl chloride	ND	1.0	ug/L	1	08/05/22	MH	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	98		%	1	08/05/22	MH	70 - 130 %
% Bromofluorobenzene	98		%	1	08/05/22	MH	70 - 130 %
% Dibromofluoromethane	101		%	1	08/05/22	MH	70 - 130 %
% Toluene-d8	98		%	1	08/05/22	MH	70 - 130 %
Oxygenates & Dioxane							
Diethyl ether	ND	1.0	ug/L	1	08/05/22	MH	SW8260C (OXY)
Di-isopropyl ether	ND	1.0	ug/L	1	08/05/22	MH	SW8260C (OXY)
Ethyl tert-butyl ether	ND	1.0	ug/L	1	08/05/22	MH	SW8260C (OXY)
tert-amyl methyl ether	ND	1.0	ug/L	1	08/05/22	MH	SW8260C (OXY)
Semivolatiles by SIM, PAH							
2-Methylnaphthalene	ND	0.49	ug/L	1	08/05/22	WB	SW8270D (SIM)
Acenaphthene	ND	0.49	ug/L	1	08/05/22	WB	SW8270D (SIM)
Acenaphthylene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Anthracene	ND	0.09	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benz(a)anthracene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benzo(a)pyrene	ND	0.19	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benzo(b)fluoranthene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benzo(ghi)perylene	ND	0.02	ug/L	1	08/05/22	WB	SW8270D (SIM)
Benzo(k)fluoranthene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Chrysene	ND	0.05	ug/L	1	08/05/22	WB	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	0.02	ug/L	1	08/05/22	WB	SW8270D (SIM)
Fluoranthene	ND	0.49	ug/L	1	08/05/22	WB	SW8270D (SIM)
Fluorene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L	1	08/05/22	WB	SW8270D (SIM)
Naphthalene	ND	0.49	ug/L	1	08/05/22	WB	SW8270D (SIM)
Phenanthrene	ND	0.49	ug/L	1	08/05/22	WB	SW8270D (SIM)
Pyrene	ND	0.07	ug/L	1	08/05/22	WB	SW8270D (SIM)
QA/QC Surrogates							
% 2-Fluorobiphenyl	43		%	1	08/05/22	WB	40 - 140 %
% Nitrobenzene-d5	48		%	1	08/05/22	WB	40 - 140 %
% Terphenyl-d14	64		%	1	08/05/22	WB	40 - 140 %
1,4-dioxane							
1,4-dioxane	ND	0.30	ug/l	1	08/11/22	AW	SW8270DSIM

Ver 1

Project ID: 2022-062
Client ID: MW-11

Phoenix I.D.: CL97289

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
QA/QC Surrogates							
% 1,4-dioxane-d8	99		%	1	08/11/22	AW	70 - 130 %
Extraction for 1,4-Dioxane	Completed				08/10/22	G/G	
MA EPH Aliphatic/Aromatic Ranges							
C11-C22 Aromatic Hydrocarbons 1,2	ND	190	ug/L	1	08/06/22	AW	MAEPH 5/2019
C11-C22 Aromatic Hydrocarbons Un	ND	190	ug/L	1	08/06/22	AW	MAEPH 5/2019
C19-C36 Aliphatic Hydrocarbons 1*	ND	190	ug/L	1	08/06/22	AW	MAEPH 5/2019
C9-C18 Aliphatic Hydrocarbons 1*	ND	190	ug/L	1	08/06/22	AW	MAEPH 5/2019
Total TPH 1,2*	ND	190	ug/L	1	08/06/22	AW	MAEPH 5/2019
QA/QC Surrogates							
% 1-chlorooctadecane (aliphatic)	65		%	1	08/06/22	AW	40 - 140 %
% 2-Bromonaphthalene (Fractionation)	104		%	1	08/06/22	AW	40 - 140 %
% 2-Fluorobiphenyl (Fractionation)	104		%	1	08/06/22	AW	40 - 140 %
% o-terphenyl (aromatic)	87		%	1	08/06/22	AW	40 - 140 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

MAEPH:
1* Hydrocarbon range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.
2* C11-C12 Aromatic Hydrocarbons exclude the concentration of Target PAH analytes eluting in that range.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
August 17, 2022
Reviewed and Released by: Phyllis Shiller, Laboratory Director

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

August 17, 2022

QA/QC Data

SDG I.D.: GCL97284

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 635952 (mg/L), QC Sample No: CL96518 (CL97284, CL97285, CL97286, CL97287, CL97288, CL97289)													
Mercury (Dissolved)	BRL	0.0002	<0.0002	<0.0002	NC	104			109			75 - 125	30
Comment:													
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 75-125%													
QA/QC Batch 636135 (mg/L), QC Sample No: CL97043 (CL97284, CL97285, CL97286, CL97287, CL97288, CL97289)													
ICP Metals - Dissolved													
Antimony	BRL	0.005	<0.005	<0.005	NC	92.0	89.5	2.8	91.5			80 - 120	20
Arsenic	BRL	0.004	<0.004	<0.004	NC	91.2	89.6	1.8	91.2			80 - 120	20
Barium	BRL	0.002	0.009	0.009	NC	92.5	91.0	1.6	92.1			80 - 120	20
Beryllium	BRL	0.001	<0.001	<0.001	NC	95.5	93.9	1.7	94.8			80 - 120	20
Cadmium	BRL	0.001	<0.001	<0.001	NC	91.5	90.0	1.7	90.6			80 - 120	20
Chromium	BRL	0.001	<0.001	<0.001	NC	92.3	90.3	2.2	91.7			80 - 120	20
Lead	BRL	0.002	<0.002	<0.002	NC	91.7	90.7	1.1	91.1			80 - 120	20
Nickel	BRL	0.001	<0.001	0.001	NC	92.0	90.2	2.0	91.2			80 - 120	20
Selenium	BRL	0.011	<0.011	<0.011	NC	92.2	90.2	2.2	91.5			80 - 120	20
Silver	BRL	0.001	<0.001	<0.001	NC	93.2	91.6	1.7	93.6			80 - 120	20
Vanadium	BRL	0.002	<0.002	<0.002	NC	93.2	92.0	1.3	92.9			80 - 120	20
Zinc	BRL	0.002	<0.002	<0.002	NC	91.4	89.4	2.2	91.2			80 - 120	20
Comment:													
Additional: LCS acceptance range is 80-120% MS acceptance range 75-125%.													
QA/QC Batch 635923 (mg/L), QC Sample No: CL97284 2X (CL97284, CL97285, CL97286, CL97287, CL97288, CL97289)													
ICP Metals MS - Dissolved													
Thallium	BRL	0.0005	<0.0005	<0.0005	NC	94.8	96.8	2.1	94.8			80 - 120	20
Comment:													
Additional: LCS acceptance range is 80-120% MS acceptance range 75-125%.													

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QA/QC Report

August 17, 2022

QA/QC Data

SDG I.D.: GCL97284

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 636568 (ug/l), QC Sample No: CL96270 (CL97286, CL97287, CL97288)										
1,4dioxane - Ground Water										
1,4-dioxane	ND	0.20	107	112	4.6	113			70 - 130	20
% 1,4-dioxane-d8	104	%	103	108	4.7	105			70 - 130	20
QA/QC Batch 636812 (ug/l), QC Sample No: CM00434 (CL97284, CL97285, CL97289)										
1,4dioxane - Ground Water										
1,4-dioxane	ND	0.20	112	116	3.5	115			70 - 130	20
% 1,4-dioxane-d8	85	%	87	86	1.2	85			70 - 130	20
Comment:										
CL97284,CL97285,CL97289 PREPPED AT 40 DUE TO USING VOA VIAL										
QA/QC Batch 635967 (ug/L), QC Sample No: CL93016 (CL97284)										
MAEPH - Ground Water										
C9-C18 Aliphatic Hydrocarbons 1*	ND	100	78	83	6.2				40 - 140	25
C19-C36 Aliphatic Hydrocarbons 1*	ND	100	100	116	14.8				40 - 140	25
C11-C22 Aromatic Hydrocarbons 1	ND	100	101	114	12.1				40 - 140	25
C11-C22 Aromatic Hydrocarbons U	ND	100							40 - 140	25
Total TPH 1,2*	ND	100	91	102	11.4				40 - 140	25
C9 - Nonane	ND	10	43	41	4.8				40 - 140	25
C-10 Decane	ND	10	61	61	0.0				40 - 140	25
C12 - Dodecane	ND	10	75	80	6.5				40 - 140	25
C14 - Tetradecane	ND	10	86	93	7.8				40 - 140	25
C16 - Hexadecane	ND	10	96	106	9.9				40 - 140	25
C18 - Octadecane	ND	10	106	119	11.6				40 - 140	25
C19 - Nonadecane	ND	10	100	113	12.2				40 - 140	25
C20 - Eicosane	ND	10	102	116	12.8				40 - 140	25
C22 - Docosane	ND	10	103	116	11.9				40 - 140	25
C24 - Tetracosane	ND	10	103	118	13.6				40 - 140	25
C26 - Hexacosane	ND	10	103	118	13.6				40 - 140	25
C28 - Octacosane	ND	10	101	118	15.5				40 - 140	25
C30 - Tricotane	ND	10	99	115	15.0				40 - 140	25
C36 - Hexatriacontane	ND	10	93	116	22.0				40 - 140	25
% 1-chlorooctadecane (aliphatic)	81	%	99	109	9.6				40 - 140	25
% o-terphenyl (aromatic)	98	%	88	98	10.8				40 - 140	25
% 2-Fluorobiphenyl (Fractionation)	121	%	123	128	4.0				40 - 140	25
% 2-Bromonaphthalene (Fractionati	121	%	128	137	6.8				40 - 140	25
% 2-Methylnaphthalene BT		%	0	0	NC				0 - 5	
% Naphthalene BT		%	0	0	NC				0 - 5	
Comment:										
A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.										
Additional EPH fractionation criteria: Breakthrough criteria (BT) is 0 to 5%										

QA/QC Data

SDG I.D.: GCL97284

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
QA/QC Batch 636186 (ug/L), QC Sample No: CL97094 (CL97285, CL97286, CL97287, CL97288, CL97289)											
MAEPH - Ground Water											
C9-C18 Aliphatic Hydrocarbons 1*	ND	100	70	81	14.6				40 - 140	25	
C19-C36 Aliphatic Hydrocarbons 1*	ND	100	101	109	7.6				40 - 140	25	
C11-C22 Aromatic Hydrocarbons 1	ND	100	104	102	1.9				40 - 140	25	
C11-C22 Aromatic Hydrocarbons U	ND	100							40 - 140	25	
Total TPH 1,2*	ND	100	88	97	9.7				40 - 140	25	
C9 - Nonane	ND	10	39	49	22.7				40 - 140	25	I
C-10 Decane	ND	10	53	66	21.8				40 - 140	25	
C12 - Dodecane	ND	10	65	77	16.9				40 - 140	25	
C14 - Tetradecane	ND	10	75	86	13.7				40 - 140	25	
C16 - Hexadecane	ND	10	87	99	12.9				40 - 140	25	
C18 - Octadecane	ND	10	99	108	8.7				40 - 140	25	
C19 - Nonadecane	ND	10	96	103	7.0				40 - 140	25	
C20 - Eicosane	ND	10	98	106	7.8				40 - 140	25	
C22 - Docosane	ND	10	99	106	6.8				40 - 140	25	
C24 - Tetracosane	ND	10	99	106	6.8				40 - 140	25	
C26 - Hexacosane	ND	10	101	108	6.7				40 - 140	25	
C28 - Octacosane	ND	10	101	109	7.6				40 - 140	25	
C30 - Tricotane	ND	10	101	108	6.7				40 - 140	25	
C36 - Hexatriacontane	ND	10	114	122	6.8				40 - 140	25	
% 1-chlorooctadecane (aliphatic)	92	%	96	110	13.6				40 - 140	25	
% o-terphenyl (aromatic)	108	%	90	95	5.4				40 - 140	25	
% 2-Fluorobiphenyl (Fractionation)	137	%	110	122	10.3				40 - 140	25	
% 2-Bromonaphthalene (Fractionati	145	%	120	123	2.5				40 - 140	25	s
% 2-Methylnaphthalene BT		%	0	0	NC				0 - 5		
% Naphthalene BT		%	0	0	NC				0 - 5		

Comment:

A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.

Additional EPH fractionation criteria: Breakthrough criteria (BT) is 0 to 5%

QA/QC Batch 636203 (ug/L), QC Sample No: CL97284 10X (CL97284, CL97285, CL97289)

Chlorinated Herbicides - Ground Water

2,4,5-T	ND	2.5	81	86	6.0				40 - 140	20	
2,4,5-TP (Silvex)	ND	2.5	86	90	4.5				40 - 140	20	
2,4-D	ND	5.0	85	89	4.6				40 - 140	20	
2,4-DB	ND	50	41	42	2.4				40 - 140	20	
Dalapon	ND	2.5	78	82	5.0				40 - 140	20	
Dicamba	ND	2.5	83	86	3.6				40 - 140	20	
Dichloroprop	ND	5.0	98	102	4.0				40 - 140	20	
Dinoseb	ND	5.0	85	90	5.7				10 - 110	30	
MCPA	ND	750	83	87	4.7				40 - 140	20	
MCPP	ND	750	80	82	2.5				40 - 140	20	
% DCAA (Surrogate Rec)	124	%	132	137	3.7				30 - 150	20	
% DCAA (Surrogate Rec) (Confirm	127	%	148	146	1.4				30 - 150	20	

Comment:

MCP 8151 additional criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%.

QA/QC Batch 635837 (ug/L), QC Sample No: CL94008 (CL97284, CL97285, CL97289)

Pesticides - Ground Water

4,4' -DDD	ND	0.003	103	101	2.0				40 - 140	20	
4,4' -DDE	ND	0.003	93	93	0.0				40 - 140	20	

QA/QC Data

SDG I.D.: GCL97284

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
4,4' -DDT	ND	0.003	85	81	4.8				40 - 140	20	
a-BHC	ND	0.002	80	81	1.2				40 - 140	20	
Alachlor	ND	0.005	NA	NA	NC				40 - 140	20	
Aldrin	ND	0.002	83	81	2.4				40 - 140	20	
b-BHC	ND	0.002	105	104	1.0				40 - 140	20	
Chlordane	ND	0.050	89	88	1.1				40 - 140	20	
d-BHC	ND	0.005	30	31	3.3				40 - 140	20	I
Dieldrin	ND	0.002	97	95	2.1				40 - 140	20	
Endosulfan I	ND	0.005	100	95	5.1				40 - 140	20	
Endosulfan II	ND	0.005	99	98	1.0				40 - 140	20	
Endosulfan sulfate	ND	0.005	80	79	1.3				40 - 140	20	
Endrin	ND	0.005	108	107	0.9				40 - 140	20	
Endrin aldehyde	ND	0.005	100	97	3.0				40 - 140	20	
Endrin ketone	ND	0.005	89	89	0.0				40 - 140	20	
g-BHC	ND	0.002	93	87	6.7				40 - 140	20	
Heptachlor	ND	0.005	98	96	2.1				40 - 140	20	
Heptachlor epoxide	ND	0.005	96	94	2.1				40 - 140	20	
Hexachlorobenzene	ND	0.005	81	77	5.1				40 - 140	20	
Methoxychlor	ND	0.005	97	97	0.0				40 - 140	20	
Toxaphene	ND	0.20	NA	NA	NC				40 - 140	20	
% DCBP	78	%	77	77	0.0				30 - 150	20	
% DCBP (Confirmation)	59	%	74	81	9.0				30 - 150	20	
% TCMX	64	%	73	70	4.2				30 - 150	20	
% TCMX (Confirmation)	72	%	80	76	5.1				30 - 150	20	

Comment:

A LCS and LCS duplicate were performed instead of a MS and MSD. Alpha and gamma chlordane were spiked and analyzed instead of technical chlordane. Gamma chlordane recovery is reported as chlordane in the LCS and LCSD

QA/QC Batch 636078 (ug/L), QC Sample No: CL96360 (CL97284, CL97285, CL97286, CL97287, CL97288, CL97289)

Semivolatiles by SIM, PAH - Ground Water

2-Methylnaphthalene	ND	0.50	45	45	0.0				40 - 140	20	
Acenaphthene	ND	0.50	56	65	14.9				40 - 140	20	
Acenaphthylene	ND	0.10	50	56	11.3				40 - 140	20	
Anthracene	ND	0.10	56	67	17.9				40 - 140	20	
Benz(a)anthracene	ND	0.02	62	81	26.6				40 - 140	20	r
Benzo(a)pyrene	ND	0.02	53	65	20.3				40 - 140	20	
Benzo(b)fluoranthene	ND	0.02	58	72	21.5				40 - 140	20	r
Benzo(ghi)perylene	ND	0.02	61	80	27.0				40 - 140	20	r
Benzo(k)fluoranthene	ND	0.02	43	49	13.0				40 - 140	20	
Chrysene	ND	0.02	59	69	15.6				40 - 140	20	
Dibenz(a,h)anthracene	ND	0.02	63	81	25.0				40 - 140	20	r
Fluoranthene	ND	0.50	57	69	19.0				40 - 140	20	
Fluorene	ND	0.10	57	65	13.1				40 - 140	20	
Indeno(1,2,3-cd)pyrene	ND	0.02	70	89	23.9				40 - 140	20	r
Naphthalene	ND	0.50	55	51	7.5				40 - 140	20	
Phenanthrene	ND	0.06	60	72	18.2				40 - 140	20	
Pyrene	ND	0.07	58	69	17.3				40 - 140	20	
% 2-Fluorobiphenyl	72	%	49	53	7.8				40 - 140	20	
% Nitrobenzene-d5	100	%	71	80	11.9				40 - 140	20	
% Terphenyl-d14	73	%	51	59	14.5				40 - 140	20	

Comment:

Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

QA/QC Data

SDG I.D.: GCL97284

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 636500 (ug/L), QC Sample No: CL97284 (CL97284, CL97285, CL97286, CL97287, CL97288, CL97289)										
Volatiles - Ground Water										
1,1,1,2-Tetrachloroethane	ND	1.0	109	109	0.0				70 - 130	20
1,1,1-Trichloroethane	ND	1.0	114	112	1.8				70 - 130	20
1,1,2,2-Tetrachloroethane	ND	0.50	102	100	2.0				70 - 130	20
1,1,2-Trichloroethane	ND	1.0	100	96	4.1				70 - 130	20
1,1-Dichloroethane	ND	1.0	107	105	1.9				70 - 130	20
1,1-Dichloroethene	ND	1.0	109	108	0.9				70 - 130	20
1,1-Dichloropropene	ND	1.0	119	116	2.6				70 - 130	20
1,2,3-Trichlorobenzene	ND	1.0	95	92	3.2				70 - 130	20
1,2,3-Trichloropropane	ND	1.0	109	109	0.0				70 - 130	20
1,2,4-Trichlorobenzene	ND	1.0	110	109	0.9				70 - 130	20
1,2,4-Trimethylbenzene	ND	1.0	116	116	0.0				70 - 130	20
1,2-Dibromo-3-chloropropane	ND	1.0	107	103	3.8				70 - 130	20
1,2-Dibromoethane	ND	1.0	106	104	1.9				70 - 130	20
1,2-Dichlorobenzene	ND	1.0	106	104	1.9				70 - 130	20
1,2-Dichloroethane	ND	1.0	102	99	3.0				70 - 130	20
1,2-Dichloropropane	ND	1.0	105	102	2.9				70 - 130	20
1,3,5-Trimethylbenzene	ND	1.0	117	118	0.9				70 - 130	20
1,3-Dichlorobenzene	ND	1.0	111	109	1.8				70 - 130	20
1,3-Dichloropropane	ND	1.0	105	103	1.9				70 - 130	20
1,4-Dichlorobenzene	ND	1.0	107	106	0.9				70 - 130	20
2,2-Dichloropropane	ND	1.0	120	122	1.7				70 - 130	20
2-Chlorotoluene	ND	1.0	116	116	0.0				70 - 130	20
2-Hexanone	ND	5.0	95	92	3.2				40 - 160	20
2-Isopropyltoluene	ND	1.0	115	115	0.0				70 - 130	20
4-Chlorotoluene	ND	1.0	117	117	0.0				70 - 130	20
4-Methyl-2-pentanone	ND	5.0	98	95	3.1				40 - 160	20
Acetone	ND	5.0	89	83	7.0				40 - 160	20
Acrylonitrile	ND	5.0	95	92	3.2				70 - 130	20
Benzene	ND	0.70	110	108	1.8				70 - 130	20
Bromobenzene	ND	1.0	112	112	0.0				70 - 130	20
Bromochloromethane	ND	1.0	104	100	3.9				70 - 130	20
Bromodichloromethane	ND	0.50	103	103	0.0				70 - 130	20
Bromoform	ND	1.0	108	105	2.8				70 - 130	20
Bromomethane	ND	1.0	152	148	2.7				40 - 160	20
Carbon Disulfide	ND	1.0	107	104	2.8				70 - 130	20
Carbon tetrachloride	ND	1.0	117	114	2.6				70 - 130	20
Chlorobenzene	ND	1.0	106	106	0.0				70 - 130	20
Chloroethane	ND	1.0	111	109	1.8				70 - 130	20
Chloroform	ND	1.0	107	105	1.9				70 - 130	20
Chloromethane	ND	1.0	104	103	1.0				40 - 160	20
cis-1,2-Dichloroethene	ND	1.0	104	102	1.9				70 - 130	20
cis-1,3-Dichloropropene	ND	0.40	108	106	1.9				70 - 130	20
Dibromochloromethane	ND	0.50	108	106	1.9				70 - 130	20
Dibromomethane	ND	1.0	103	99	4.0				70 - 130	20
Dichlorodifluoromethane	ND	1.0	110	106	3.7				40 - 160	20
Di-isopropyl ether	ND	1.0	103	99	4.0				70 - 130	20
Ethyl ether	ND	1.0	89	85	4.6				70 - 130	20
Ethyl tert-butyl ether	ND	1.0	100	97	3.0				70 - 130	20
Ethylbenzene	ND	1.0	114	114	0.0				70 - 130	20
Hexachlorobutadiene	ND	0.40	115	116	0.9				70 - 130	20

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
Isopropylbenzene	ND	1.0	121	122	0.8				70 - 130	20
m&p-Xylene	ND	1.0	113	114	0.9				70 - 130	20
Methyl ethyl ketone	ND	5.0	86	91	5.6				40 - 160	20
Methyl t-butyl ether (MTBE)	ND	1.0	97	94	3.1				70 - 130	20
Methylene chloride	ND	1.0	87	84	3.5				70 - 130	20
Naphthalene	ND	1.0	108	106	1.9				70 - 130	20
n-Butylbenzene	ND	1.0	123	123	0.0				70 - 130	20
n-Propylbenzene	ND	1.0	119	121	1.7				70 - 130	20
o-Xylene	ND	1.0	112	112	0.0				70 - 130	20
p-Isopropyltoluene	ND	1.0	121	121	0.0				70 - 130	20
sec-Butylbenzene	ND	1.0	120	121	0.8				70 - 130	20
Styrene	ND	1.0	113	112	0.9				70 - 130	20
tert-amyl methyl ether	ND	1.0	101	98	3.0				70 - 130	20
tert-Butylbenzene	ND	1.0	121	121	0.0				70 - 130	20
Tetrachloroethene	ND	1.0	111	110	0.9				70 - 130	20
Tetrahydrofuran (THF)	ND	2.5	93	88	5.5				70 - 130	20
Toluene	ND	1.0	109	109	0.0				70 - 130	20
trans-1,2-Dichloroethene	ND	1.0	109	108	0.9				70 - 130	20
trans-1,3-Dichloropropene	ND	0.40	110	108	1.8				70 - 130	20
trans-1,4-dichloro-2-butene	ND	5.0	116	113	2.6				70 - 130	20
Trichloroethene	ND	1.0	107	108	0.9				70 - 130	20
Trichlorofluoromethane	ND	1.0	113	111	1.8				70 - 130	20
Trichlorotrifluoroethane	ND	1.0	103	100	3.0				70 - 130	20
Vinyl chloride	ND	1.0	117	115	1.7				70 - 130	20
% 1,2-dichlorobenzene-d4	98	%	98	98	0.0				70 - 130	20
% Bromofluorobenzene	96	%	101	100	1.0				70 - 130	20
% Dibromofluoromethane	99	%	100	97	3.0				70 - 130	20
% Toluene-d8	101	%	100	101	1.0				70 - 130	20

Comment:

Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.
The RPD criteria for the LCS/LCSD is 20%,
The MS/MSD RPD criteria is listed above.

QA/QC Batch 636281 (ug/L), QC Sample No: CL97096 (CL97287, CL97288)

Volatile Petroleum Hydrocarbons - Ground Water

Unadjusted C5-C8 Aliphatics (*1)	ND	100	111	107	3.7				70 - 130	25
Unadjusted C9-C12 Aliphatics (*1)	ND	100	115	117	1.7				70 - 130	25
C5-C8 Aliphatic Hydrocarbons *1,2	ND	100	111	107	3.7				70 - 130	25
C9-C12 Aliphatic Hydrocarbons *1,	ND	100	115	117	1.7				70 - 130	25
C9-C10 Aromatic Hydrocarbons *1	ND	100	101	99	2.0				70 - 130	25
Benzene	ND	1.0	93	93	0.0				70 - 130	25
Ethyl Benzene	ND	1.0	93	93	0.0				70 - 130	25
MTBE	ND	1.0	95	95	0.0				70 - 130	25
Naphthalene	ND	5.0	98	98	0.0				70 - 130	25
Toluene	ND	1.0	91	92	1.1				70 - 130	25
m,p-Xylenes	ND	2.0	94	94	0.0				70 - 130	25
o-Xylene	ND	1.0	94	94	0.0				70 - 130	25
% 2,5-Dibromotoluene (PID)	110	%	108	111	2.7				70 - 130	25
% 2,5-Dibromotoluene (FID)	115	%	110	116	5.3				70 - 130	25

Comment:

This batch consists of a Blank, LCS and LCSD.

QA/QC Data

SDG I.D.: GCL97284

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits

l = This parameter is outside laboratory LCS/LCSD specified recovery limits.
r = This parameter is outside laboratory RPD specified recovery limits.
s = This parameter is outside laboratory Blank Surrogate specified recovery limits.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference

Phyllis Shiller, Laboratory Director
August 17, 2022

Wednesday, August 17, 2022

Criteria: MA: CAM, GW1

State: MA

Sample Criteria Exceedances Report

GCL97284 - CMGENV

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units
CL97284	$8260GWR	Acetone	MA / CAM Protocol / VOA AQ RL	ND	25		10	ug/L
CL97284	$8260GWR	Carbon Disulfide	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CL97284	$8260GWR	Tetrahydrofuran (THF)	MA / CAM Protocol / VOA AQ RL	ND	2.5		2	ug/L
CL97284	$8260GWR	trans-1,4-dichloro-2-butene	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CL97284	$8260GWR	1,2-Dibromoethane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	0.25	0.02	0.02	ug/L
CL97284	$8260GWR	1,2-Dibromoethane	MA / GROUNDWATER STANDARDS / GW-1	ND	0.25	0.02	0.02	ug/L
CL97285	$8260GWR	Acetone	MA / CAM Protocol / VOA AQ RL	ND	25		10	ug/L
CL97285	$8260GWR	trans-1,4-dichloro-2-butene	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CL97285	$8260GWR	Carbon Disulfide	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CL97285	$8260GWR	Tetrahydrofuran (THF)	MA / CAM Protocol / VOA AQ RL	ND	2.5		2	ug/L
CL97285	$8260GWR	1,2-Dibromoethane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	0.25	0.02	0.02	ug/L
CL97285	$8260GWR	1,2-Dibromoethane	MA / GROUNDWATER STANDARDS / GW-1	ND	0.25	0.02	0.02	ug/L
CL97286	$8260GWR	trans-1,4-dichloro-2-butene	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CL97286	$8260GWR	Acetone	MA / CAM Protocol / VOA AQ RL	ND	25		10	ug/L
CL97286	$8260GWR	Carbon Disulfide	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CL97286	$8260GWR	Tetrahydrofuran (THF)	MA / CAM Protocol / VOA AQ RL	ND	2.5		2	ug/L
CL97286	$8260GWR	1,2-Dibromoethane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	0.25	0.02	0.02	ug/L
CL97286	$8260GWR	1,2-Dibromoethane	MA / GROUNDWATER STANDARDS / GW-1	ND	0.25	0.02	0.02	ug/L
CL97286	D-SB	Antimony (Dissolved)	MA / CMR 310.40.1600 / GW-1 (mg/l)	0.008	0.005	0.006	0.006	mg/L
CL97286	D-SB	Antimony (Dissolved)	MA / GROUNDWATER STANDARDS / GW-1	0.008	0.005	0.006	0.006	mg/L
CL97287	$8260GWR	Acetone	MA / CAM Protocol / VOA AQ RL	ND	25		10	ug/L
CL97287	$8260GWR	Carbon Disulfide	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CL97287	$8260GWR	Tetrahydrofuran (THF)	MA / CAM Protocol / VOA AQ RL	ND	2.5		2	ug/L
CL97287	$8260GWR	trans-1,4-dichloro-2-butene	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CL97287	$8260GWR	1,2-Dibromoethane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	0.25	0.02	0.02	ug/L
CL97287	$8260GWR	1,2-Dibromoethane	MA / GROUNDWATER STANDARDS / GW-1	ND	0.25	0.02	0.02	ug/L
CL97288	$8260GWR	Acetone	MA / CAM Protocol / VOA AQ RL	ND	25		10	ug/L
CL97288	$8260GWR	trans-1,4-dichloro-2-butene	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CL97288	$8260GWR	Tetrahydrofuran (THF)	MA / CAM Protocol / VOA AQ RL	ND	2.5		2	ug/L
CL97288	$8260GWR	Carbon Disulfide	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CL97288	$8260GWR	1,2-Dibromoethane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	0.25	0.02	0.02	ug/L
CL97288	$8260GWR	1,2-Dibromoethane	MA / GROUNDWATER STANDARDS / GW-1	ND	0.25	0.02	0.02	ug/L
CL97289	$8260GWR	trans-1,4-dichloro-2-butene	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CL97289	$8260GWR	Acetone	MA / CAM Protocol / VOA AQ RL	ND	25		10	ug/L
CL97289	$8260GWR	Carbon Disulfide	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CL97289	$8260GWR	Tetrahydrofuran (THF)	MA / CAM Protocol / VOA AQ RL	ND	2.5		2	ug/L
CL97289	$8260GWR	1,2-Dibromoethane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	0.25	0.02	0.02	ug/L
CL97289	$8260GWR	1,2-Dibromoethane	MA / GROUNDWATER STANDARDS / GW-1	ND	0.25	0.02	0.02	ug/L

Wednesday, August 17, 2022

Criteria: MA: CAM, GW1

State: MA

Sample Criteria Exceedances Report

GCL97284 - CMGENV

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units

Phoenix Laboratories does not assume responsibility for the data contained in this exceedance report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.

MassDEP Analytical Protocol Certification Form

Laboratory Name: Phoenix Environmental Laboratories, Inc. **Project #:**

Project Location: 2022-062 **RTN:**

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

CL97284, CL97285, CL97286, CL97287, CL97288, CL97289

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 CAM IV A ☑	8081 Pesticides CAM V B ☑	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
8270 SVOC CAM II B ☑	7010 Metals CAM III C ☐	MassDEP EPH CAM IV B ☐	8151 Herbicides CAM V C ☑	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐
6010 Metals CAM III A ☑	6020 Metals CAM III D ☐	8082 PCB CAM V A ☐	9012 Total Cyanide/PAC CAM V1 A ☐	6860 Perchlorate CAM VIII 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 with method holding times? (* see narrative)	☑ 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 speified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☑ Yes ☐ No
E	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 is 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

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? See Sections: EPH, PEST, SVOASIM Narrations .	☐ Yes ☑ No
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes ☐ No

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, accurate and complete.

Authorized Signature: Rashmi Makol

Date: Wednesday, August 17, 2022

Printed Name: Rashmi Makol

Position: Project Manager

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587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
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ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

MCP Certification Report

August 17, 2022

SDG I.D.: GCL97284

SDG Comments

8260 Volatile Organics:
1,2-Dibromoethane doesn't meet GW-1 criteria, this compound is analyzed by GC/FID to achieve this criteria.

Phoenix reporting levels may exceed those referenced in the CAM protocol. Please refer to criteria sheet for comparisons to requested MCP standards.

522 - DIOXANE

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

CHEM34 08/09/22-1 Adam Werner, Chemist 08/09/22

CL97286 (1X), CL97287 (1X), CL97288 (1X)

Initial Calibration Evaluation (CHEM34/DIOX_0310):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM34/0809_04-DIOX_0310) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

CHEM34 08/11/22-1 Adam Werner, Chemist 08/11/22

CL97284 (1X), CL97285 (1X), CL97289 (1X)

Initial Calibration Evaluation (CHEM34/DIOX_0310):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM34/0811_04-DIOX_0310) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 636568 (CL96270)

CL97286, CL97287, CL97288

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.

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MCP Certification Report

August 17, 2022

SDG I.D.: GCL97284

522 - DIOXANE

Batch 636812 (CM00434)

CL97284, CL97285, CL97289

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
CL97284,CL97285,CL97289 PREPPED AT 40 DUE TO USING VOA VIAL

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

EPH Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? No.

QC Batch 636186 (Samples: CL97285, CL97286, CL97287, CL97288, CL97289): -----

The blank surrogate was above criteria. (% 2-Bromonaphthalene (Fractionation)(CL97094))

The LCS and/or the LCSD recovery is below the method criteria. All of the other QC is acceptable, therefore no significant bias is suspected. (C9 - Nonane)

Instrument:

AU-FID4 08/05/22-1 Adam Werner, Chemist 08/05/22

CL97284 (1X), CL97285 (1X), CL97286 (1X), CL97287 (1X), CL97288 (1X), CL97289 (1X)

The initial calibration (AL0805BI) RSD for the compound list was less than 25% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 25% except for the following compounds:None.

QC (Batch Specific):

Batch 635967 (CL93016)

CL97284

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 25% with the following exceptions: None.
A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.
Additional EPH fractionation criteria: Breakthrough criteria (BT) is 0 to 5%

Batch 636186 (CL97094)

CL97285, CL97286, CL97287, CL97288, CL97289

All LCS recoveries were within 40 - 140 with the following exceptions: C9 - Nonane(39%)
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 25% with the following exceptions: None.
A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.
Additional EPH fractionation criteria: Breakthrough criteria (BT) is 0 to 5%

We attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for

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MCP Certification Report

August 17, 2022

SDG I.D.: GCL97284

EPH Narration

obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Herbicide Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

AU-ECD2 08/09/22-1 Jeff Bucko, Chemist 08/09/22

CL97284 (2X), CL97285 (2X), CL97289 (2X)

The initial calibration (HRB718AI) RSD for the compound list was less than 20% except for the following compounds: None.
The initial calibration (HRB718BI) RSD for the compound list was less than 20% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 15% except for the following compounds:None.

QC (Batch Specific):

Batch 636203 (CL97284)

CL97284, CL97285, CL97289

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
MCP 8151 additional criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%.

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

Mercury Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

Instrument:

MERLIN 08/05/22 11:19 Mike Hornak, Chemist 08/05/22

CL97284, CL97285, CL97286, CL97287, CL97288, CL97289

The method preparation blank, ICB, and CCBs contain all of the acids and reagents as the samples.
The initial calibration met all criteria including a standard run at or below the reporting level.
All calibration verification standards (ICV, CCV) met criteria.
All calibration blank verification standards (ICB, CCB) met criteria.
The matrix spike sample is used to identify spectral interference for each batch of samples, if within 85-115%, no interference is observed and no further action is taken.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.

QC (Batch Specific):

Batch 635952 (CL96518)

CL97284, CL97285, CL97286, CL97287, CL97288, CL97289

All LCS recoveries were within 75 - 125 with the following exceptions: None.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 75-125%

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Certification Report

August 17, 2022

SDG I.D.: GCL97284

ICP Metals Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

Instrument:

ARCOS 08/05/22 08:39 Emily Kolominskaya, Chemist 08/05/22

CL97284, CL97285, CL97286, CL97287, CL97288, CL97289

Additional criteria for CCV and ICSAB:
Sodium and Potassium are poor performing elements, the laboratory's in-house limits are 85-115% (CCV) and 70-130% (ICSAB).The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

QC (Batch Specific):

Batch 636135 (CL97043)

CL97284, CL97285, CL97286, CL97287, CL97288, CL97289

All LCS recoveries were within 80 - 120 with the following exceptions: None.
All LCSD recoveries were within 80 - 120 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
Additional: LCS acceptance range is 80-120% MS acceptance range 75-125%.

ICPMS Metals Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

Instrument:

ICPMS 08/08/22 15:20 Cindy Pearce, Chemist 08/08/22

CL97284, CL97285, CL97286, CL97287, CL97288, CL97289

The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following samples did not meet internal standard criteria: None.

QC (Batch Specific):

Batch 635923 (CL97284)

CL97284, CL97285, CL97286, CL97287, CL97288, CL97289

All LCS recoveries were within 80 - 120 with the following exceptions: None.
All LCSD recoveries were within 80 - 120 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
Additional: LCS acceptance range is 80-120% MS acceptance range 75-125%.

PEST Narration

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ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

MCP Certification Report

August 17, 2022

SDG I.D.: GCL97284

PEST Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? No.

QC Batch 635837 (Samples: CL97284, CL97285, CL97289): -----

One or more analytes is below the method criteria. A low bias for these analytes is possible. (d-BHC)

Instrument:

AU-ECD35 08/04/22-1 Adam Werner, Chemist 08/04/22

CL97284 (1X), CL97285 (1X), CL97289 (1X)

The initial calibration (PS0719AI) RSD for the compound list was less than 20% except for the following compounds: None.
The initial calibration (PS0719BI) RSD for the compound list was less than 20% except for the following compounds: None.
The Endrin and DDT breakdown does not exceed 15% except for the following compounds:None.
The Endrin and DDT breakdown does not exceed the maximum of 20% except for the following compounds:None.
The continuing calibration %D for the compound list was less than 20% except for the following compounds:None.

QC (Batch Specific):

Batch 635837 (CL94008)

CL97284, CL97285, CL97289

All LCS recoveries were within 40 - 140 with the following exceptions: d-BHC(30%)
All LCSD recoveries were within 40 - 140 with the following exceptions: d-BHC(31%)
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
A LCS and LCS duplicate were performed instead of a MS and MSD. Alpha and gamma chlordane were spiked and analyzed instead of technical chlordane. Gamma chlordane recovery is reported as chlordane in the LCS and LCSD

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

SVOASIM Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? No.

QC Batch 636078 (Samples: CL97284, CL97285, CL97286, CL97287, CL97288, CL97289): -----

The LCS/LCSD RPD exceeds the method criteria for one or more analytes, but these analytes were not reported in the sample(s) so no variability is suspected. (Benz(a)anthracene, Benzo(b)fluoranthene, Benzo(ghi)perylene, Dibenz(a,h)anthracene, Indeno(1,2,3-cd)pyrene)

Instrument:

CHEM27 08/05/22-1 Wes Bryon, Chemist 08/05/22

CL97284 (1X), CL97285 (1X), CL97286 (1X), CL97287 (1X), CL97288 (1X), CL97289 (1X)

For 8270 BN list, benzidine peak tailing was evaluated in the DFTPP tune and was found to be in control.

Initial Calibration Evaluation (CHEM27/27_BNSIM18_0609):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.

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MCP Certification Report

August 17, 2022

SDG I.D.: GCL97284

SVOASIM Narration

The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM27/0805_03-27_BNSIM18_0609) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 636078 (CL96360)

CL97284, CL97285, CL97286, CL97287, CL97288, CL97289

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: Benz(a)anthracene(26.6%), Benzo(b)fluoranthene(21.5%), Benzo(ghi)perylene(27.0%), Dibenz(a,h)anthracene(25.0%), Indeno(1,2,3-cd)pyrene(23.9%)
Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

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

VOA Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

CHEM02 08/05/22-1 Michael Hahn, Chemist 08/05/22

CL97284 (1X), CL97285 (1X), CL97286 (1X), CL97287 (1X), CL97288 (1X), CL97289 (1X)

Chem02 is a 25ml purge instrument. The laboratory minimum response factor is set at 0.01 instead of 0.05 for the 25ml purge instruments.
EPA method 8260D Table 4 supports this approach.

Initial Calibration Evaluation (CHEM02/VT-P080422):
95% of target compounds met criteria.
The following compounds had %RSDs >20%: Bromomethane 39% (20%), Methylene chloride 27% (20%), Naphthalene 24% (20%), trans-1,4-dichloro-2-butene 31% (20%)
The following compounds did not meet Table 4 recommended minimum response factors: 2-Hexanone 0.096 (0.1), Acetone 0.064 (0.1)
The following compounds did not meet the minimum response factor of 0.05: None.

Continuing Calibration Verification (CHEM02/0805_02-VT-P080422) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
94% of target compounds met criteria.
The following compounds did not meet % deviation criteria: 2,2-Dichloropropane 24%H (20%), Bromomethane 39%H (20%), Dichlorodifluoromethane 22%H (20%)

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

MCP Certification Report

August 17, 2022

SDG I.D.: GCL97284

VOA Narration

The following compounds did not meet maximum % deviations: None.
The following compounds did not meet Table 4 recommended minimum response factors: 2-Hexanone 0.095 (0.1), Acetone 0.056 (0.1), Methyl ethyl ketone 0.090 (0.1)
The following compounds did not meet the minimum MCP response factor of 0.05: None.

QC (Batch Specific):

Batch 636500 (CL97284) CHEM02 8/5/2022-1

CL97284(1X), CL97285(1X), CL97286(1X), CL97287(1X), CL97288(1X), CL97289(1X)

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.
The RPD criteria for the LCS/LCSD is 20%,
The MS/MSD RPD criteria is listed above.

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

VPH Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

PIDFID 08/04/22-1 James Karabetsos, Chemist 08/04/22

CL97287 (1X), CL97288 (1X)

Initial Calibration Evaluation (PIDFID/VPH_042122_T):
The following compounds exceeded %RSD criteria: None.

QC (Batch Specific):

Batch 636281 (CL97096)

CL97287(1X), CL97288(1X)

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 25% with the following exceptions: None.
This batch consists of a Blank, LCS and LCSD.

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

Cooler: Yes [X] No [ ]
Coolant: IPK [X] ICE [ ] No [ ]

CHAIN OF CUSTODY RECORD

Temp 2.5 °C Pg of

PHOENIX
Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email Makrina Nolan: makrina@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-1102

Data Delivery/Contact Options:
[ ] Fax:
[ ] Phone:
[ ] Email: svanwormer@cmgenv.com

Customer: CMG
Address: 67 Hall Road
Sturbridge MA 01566

Project: 2022-062
Report to: CMG
Invoice to: CMG
QUOTE #

Project P.O: Wayland

This section MUST be completed with Bottle Quantities.

Client Sample - Information - Identification

Sampler's Signature: SV Date: 8/2/22

Matrix Code:
DW=Drinking Water **GW**=Ground Water **SW**=Surface Water **WW**=Waste Water
RW=Raw Water **SE**=Sediment **SL**=Sludge **S**=Soil **SD**=Solid **W**=Wipe **OIL**=Oil
B=Bulk **L**=Liquid **X** = _____(Other)

Analysis Request

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	EPH	VOC 8260	VPH	Herbicide / Pesticide	Soluble MCP 14 Metals	1,4 Dioxane - 8270 SIM	MS/MSD*	GL Amber 8 oz. [ ] H3PO4 [ ] NAHSO4	Soil VOA Vials [ ] methanol [ ] H2O	GL Soil container ( ) oz	GL Soil container ( ) oz	40 ml VOA Vial [ ] As is [X] HCL	GL Amber 1000ml [X] As is [ ]	PL As is [ ] 250ml [ ] 500ml [X] 1000ml	PL H2SO4 [ ] 250ml [ ] 500ml [ ] 1000ml	PL HNO3 250ml	~~PL NaOH 250ml~~	Bacteria Bottle w/thio	Bacteria Bottle as is
97284	MW-1	GW	8/2/22	11:10	X	X		X	X	X						3	3			1	1			
97285	MW-4			11:50	X	X		X	X	X						3	3			1	1			
97286	MW-5			12:15	X	X			X	X						3	2			1	1			
97287	MW-6			12:45	X	X	X		X	X						3	2			1	1			
97288	MW-7			13:15	X	X	X		X	X						3	2			1	1			
97289	MW-11	↓	↓	11:30	X	X		X	X	X						3	3			1	1			

Relinquished by:	Accepted by:	Date:	Time:
		8/3/22	3:40
		8/3/22	16:43

Comments, Special Requirements or Regulations:
500 mL Amber For 1,4 Dioxane
Metals Field Filtered.

*MS/MSD are considered site samples and will be billed as such in accordance with the prices quoted.

Turnaround Time:
[ ] 1 Day*
[ ] 2 Days*
[ ] 3 Days*
[X] Standard
[ ] Other
* SURCHARGE APPLIES

RI
[ ] (Residential) Direct Exposure
[ ] (Comm/Industrial) Direct Exposure
[ ] GA Leachability
[ ] GB Leachability
[ ] GA-GW Objectives
[ ] GB-GW Objectives

CT
[ ] RCP Cert
[ ] GW Protection
[ ] SW Protection
[ ] GA Mobility
[ ] GB Mobility
[ ] Residential DEC
[ ] I/C DEC
[ ] Other

MA
[X] MCP Certification
[X] GW-1
[ ] GW-2
[ ] GW-3
[ ] S-1 GW-1 [ ] S-1 GW-2 [ ] S-1 GW-3
[ ] S-2 GW-1 [ ] S-2 GW-2 [ ] S-2 GW-3
[ ] S-3 GW-1 [ ] S-3 GW-2 [ ] S-3 GW-3
[ ] SW Protection
[ ] MWRA eSMART
[ ] S-1 10% CALC

State where samples were collected: MA

Data Format
[ ] Excel
[X] PDF
[ ] GIS/Key
[ ] EQuIS
[ ] Other

Data Package
[ ] Tier II Checklist
[ ] Full Data Package*
[X] Phoenix Std Report
[ ] Other
* SURCHARGE APPLIES

PEL-126 REV. 03/22

ANALYTICAL REPORT

Lab Number:	L2239541
Client:	CMG Environmental, Inc. 67 Hall Road Sturbridge, MA 01566
ATTN:	Gary Magnuson
Phone:	(774) 241-0901
Project Name:	WAYLAND DPW
Project Number:	2022-062
Report Date:	08/15/22

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0141), DoD (L2474), FL (E87814), IL (200081), LA (85084), ME (MA00030), MD (350), NJ (MA015), NY (11627), NC (685), OH (CL106), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #P330-17-00150), USFWS (Permit #206964).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: WAYLAND DPW
Project Number: 2022-062

Lab Number: L2239541
Report Date: 08/15/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2239541-01	FB-07/22/22	WATER	WAYLAND MA	07/22/22 09:00	07/25/22
L2239541-02	SB-10 (7-10)	SOIL	WAYLAND MA	07/22/22 09:20	07/25/22
L2239541-03	MW-11 (8-10)	SOIL	WAYLAND MA	07/22/22 09:45	07/25/22
L2239541-04	SB-12 (10-12)	SOIL	WAYLAND MA	07/22/22 11:00	07/25/22

Project Name:	WAYLAND DPW	**Lab Number:**	L2239541
Project Number:	2022-062	**Report Date:**	08/15/22

Case Narrative

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

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

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

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

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

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

Project Name: WAYLAND DPW
Project Number: 2022-062
Lab Number: L2239541
Report Date: 08/15/22

Case Narrative (continued)

Report Submission

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

Perfluorinated Alkyl Acids by Isotope Dilution

WG1668546-1 and WG1668546-2R: Extracted Internal Standard recoveries were outside the acceptance criteria for individual analytes. Please refer to the surrogate section of the report for details.

WG1668546-2R: The sample was re-analyzed due to QC failures in the original analysis. The results of the re-analysis are reported.

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

Authorized Signature: Alycia Mogayzel

Title: Technical Director/Representative Date: 08/15/22

ORGANICS

SEMIVOLATILES

Project Name: WAYLAND DPW
Project Number: 2022-062
Lab Number: L2239541
Report Date: 08/15/22

SAMPLE RESULTS

Lab ID: L2239541-01
Client ID: FB-07/22/22
Sample Location: WAYLAND MA

Date Collected: 07/22/22 09:00
Date Received: 07/25/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 134,LCMSMS-ID
Analytical Date: 08/14/22 13:36
Analyst: SG

Extraction Method: ALPHA 23528
Extraction Date: 07/30/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.90	0.226	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.90	0.311	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.90	0.214	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.90	0.356	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.90	0.224	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.90	0.296	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.90	0.478	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.90	0.288	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.90	0.614	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.90	0.246	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.90	0.762	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.90	0.353	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.90	0.310	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.90	0.235	1
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND		ng/l	47.4	21.5	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.90	0.318	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.90	0.262	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.90	0.278	1
PFAS, Total (6)	ND		ng/l	1.90	0.214	1

Project Name: WAYLAND DPW
Lab Number: L2239541
Project Number: 2022-062
Report Date: 08/15/22

SAMPLE RESULTS

Lab ID: L2239541-01
Client ID: FB-07/22/22
Sample Location: WAYLAND MA
Date Collected: 07/22/22 09:00
Date Received: 07/25/22
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	102		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	99		12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	94		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	92		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	93		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	101		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	109		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	109		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	107		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	101		62-124
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	71		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	94		55-137
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	67		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	82		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	93		22-136
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	118		10-165

Project Name: WAYLAND DPW
Project Number: 2022-062
Lab Number: L2239541
Report Date: 08/15/22

SAMPLE RESULTS

Lab ID: L2239541-02
Client ID: SB-10 (7-10)
Sample Location: WAYLAND MA

Date Collected: 07/22/22 09:20
Date Received: 07/25/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 134,LCMSMS-ID
Analytical Date: 08/14/22 20:14
Analyst: SG
Percent Solids: 84%

Extraction Method: ALPHA 23528
Extraction Date: 07/28/22 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.268	0.042	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.536	0.056	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/g	0.268	0.048	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.268	0.065	1
Perfluorooctanoic Acid (PFOA)	ND		ng/g	0.268	0.045	1
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.268	0.080	1
Perfluorooctanesulfonic Acid (PFOS)	0.260	JF	ng/g	0.268	0.139	1
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.268	0.072	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.536	0.216	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	0.536	0.050	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.536	0.091	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.536	0.075	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.536	0.219	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/g	0.536	0.058	1
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND		ng/g	10.7	4.08	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/g	1.07	0.044	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/g	1.07	0.040	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/g	1.07	0.042	1
PFAS, Total (6)	0.260	J	ng/g	0.268	0.045	1

Project Name: WAYLAND DPW
Project Number: 2022-062
Lab Number: L2239541
Report Date: 08/15/22

SAMPLE RESULTS

Lab ID: L2239541-02
Client ID: SB-10 (7-10)
Sample Location: WAYLAND MA
Date Collected: 07/22/22 09:20
Date Received: 07/25/22
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	95		74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	80		14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	92		66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	95		71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	91		78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	98		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	78		20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	101		72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	99		79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	98		75-130
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	59		31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	95		61-155
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	63		34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	90		54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	66		24-159
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	135		10-203

Project Name: WAYLAND DPW
Project Number: 2022-062
Lab Number: L2239541
Report Date: 08/15/22

SAMPLE RESULTS

Lab ID: L2239541-03
Client ID: MW-11 (8-10)
Sample Location: WAYLAND MA

Date Collected: 07/22/22 09:45
Date Received: 07/25/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 134,LCMSMS-ID
Analytical Date: 08/14/22 20:30
Analyst: SG
Percent Solids: 92%

Extraction Method: ALPHA 23528
Extraction Date: 07/28/22 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.250	0.039	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.500	0.053	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/g	0.250	0.045	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.250	0.060	1
Perfluorooctanoic Acid (PFOA)	ND		ng/g	0.250	0.042	1
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.250	0.075	1
Perfluorooctanesulfonic Acid (PFOS)	0.197	J	ng/g	0.250	0.130	1
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.250	0.067	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.500	0.201	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	0.500	0.047	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.500	0.084	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.500	0.070	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.500	0.204	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/g	0.500	0.054	1
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND		ng/g	9.99	3.81	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/g	0.999	0.041	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/g	0.999	0.037	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/g	0.999	0.039	1
PFAS, Total (6)	0.197	J	ng/g	0.250	0.042	1

Project Name: WAYLAND DPW
Lab Number: L2239541
Project Number: 2022-062
Report Date: 08/15/22

SAMPLE RESULTS

Lab ID: L2239541-03
Client ID: MW-11 (8-10)
Sample Location: WAYLAND MA
Date Collected: 07/22/22 09:45
Date Received: 07/25/22
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	97		74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	79		14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	94		66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	94		71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	94		78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	99		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	85		20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	103		72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	102		79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	96		75-130
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	52		31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	99		61-155
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	58		34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	89		54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	69		24-159
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	120		10-203

Project Name: WAYLAND DPW
Project Number: 2022-062
Lab Number: L2239541
Report Date: 08/15/22

SAMPLE RESULTS

Lab ID: L2239541-04
Client ID: SB-12 (10-12)
Sample Location: WAYLAND MA

Date Collected: 07/22/22 11:00
Date Received: 07/25/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 134,LCMSMS-ID
Analytical Date: 08/14/22 20:47
Analyst: SG
Percent Solids: 92%

Extraction Method: ALPHA 23528
Extraction Date: 07/28/22 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.252	0.039	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.505	0.053	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/g	0.252	0.046	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.252	0.061	1
Perfluorooctanoic Acid (PFOA)	ND		ng/g	0.252	0.042	1
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.252	0.076	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/g	0.252	0.131	1
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.252	0.068	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.505	0.204	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	0.505	0.047	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.505	0.085	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.505	0.071	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.505	0.206	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/g	0.505	0.055	1
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND		ng/g	10.1	3.85	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/g	1.01	0.042	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/g	1.01	0.038	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/g	1.01	0.039	1
PFAS, Total (6)	ND		ng/g	0.252	0.042	1

Project Name: WAYLAND DPW
Lab Number: L2239541
Project Number: 2022-062
Report Date: 08/15/22

SAMPLE RESULTS

Lab ID: L2239541-04
Client ID: SB-12 (10-12)
Sample Location: WAYLAND MA
Date Collected: 07/22/22 11:00
Date Received: 07/25/22
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	94		74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	76		14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	91		66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	90		71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	91		78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	96		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	80		20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	100		72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	100		79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	93		75-130
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	52		31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	92		61-155
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	59		34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	86		54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	67		24-159
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	121		10-203

Project Name: WAYLAND DPW
Project Number: 2022-062
Lab Number: L2239541
Report Date: 08/15/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 08/06/22 11:59
Analyst: MP

Extraction Method: ALPHA 23528
Extraction Date: 07/28/22 11:45

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 02-04 Batch: WG1668546-1					
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.250	0.039
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.500	0.053
Perfluoroheptanoic Acid (PFHpA)	ND		ng/g	0.250	0.045
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.250	0.061
Perfluorooctanoic Acid (PFOA)	ND		ng/g	0.250	0.042
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.250	0.075
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/g	0.250	0.130
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.250	0.067
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.500	0.202
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	0.500	0.047
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.500	0.085
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.500	0.070
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.500	0.204
Perfluorotetradecanoic Acid (PFTA)	ND		ng/g	0.500	0.054
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND		ng/g	10.0	3.81
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/g	1.00	0.041
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/g	1.00	0.037
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/g	1.00	0.039
PFAS, Total (6)	ND		ng/g	0.250	0.042

Project Name: WAYLAND DPW
Project Number: 2022-062

Lab Number: L2239541
Report Date: 08/15/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 08/06/22 11:59
Analyst: MP

Extraction Method: ALPHA 23528
Extraction Date: 07/28/22 11:45

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 02-04 Batch: WG1668546-1					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	**57**	Q	61-135
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	60		58-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	**61**	Q	74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	53		14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	66		66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	**63**	Q	71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	**55**	Q	78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	**56**	Q	75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	45		20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	**44**	Q	72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	**50**	Q	79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	**48**	Q	75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	31		19-175
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	37		31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	**54**	Q	61-155
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	8		5-117
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	**33**	Q	34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	**53**	Q	54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	**13**	Q	24-159
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	80		10-203

Project Name: WAYLAND DPW
Project Number: 2022-062
Lab Number: L2239541
Report Date: 08/15/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 08/14/22 13:03
Analyst: SG

Extraction Method: ALPHA 23528
Extraction Date: 07/30/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01 Batch: WG1669221-1					
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.238
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.328
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.225
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.376
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.236
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.312
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.504
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.304
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.648
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.260
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.804
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.372
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.327
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.248
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND		ng/l	50.0	22.7
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	2.00	0.336
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	2.00	0.277
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	2.00	0.293
PFAS, Total (6)	ND		ng/l	2.00	0.225

Project Name: WAYLAND DPW
Project Number: 2022-062
Lab Number: L2239541
Report Date: 08/15/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 08/14/22 13:03
Analyst: SG

Extraction Method: ALPHA 23528
Extraction Date: 07/30/22 06:20

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01 Batch: WG1669221-1					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	96		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	111		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	96		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	85		12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	98		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	95		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	90		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	102		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	94		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	109		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	111		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	107		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	110		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	73		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	97		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	43		5-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	67		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	88		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	88		22-136
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	129		10-165
Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA)	79		10-206
1H,1H,2H,2H-Perfluorododecane Sulfonate (M2D4-10:2FTS)	107		50-150

Lab Control Sample Analysis
Batch Quality Control

Project Name: WAYLAND DPW
Project Number: 2022-062
Lab Number: L2239541
Report Date: 08/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 02-04 Batch: WG1668546-2								
Perfluorobutanesulfonic Acid (PFBS)	98		-		72-128	-		30
Perfluorohexanoic Acid (PFHxA)	104		-		70-132	-		30
Perfluoroheptanoic Acid (PFHpA)	104		-		71-131	-		30
Perfluorohexanesulfonic Acid (PFHxS)	114		-		67-130	-		30
Perfluorooctanoic Acid (PFOA)	106		-		69-133	-		30
Perfluorononanoic Acid (PFNA)	98		-		72-129	-		30
Perfluorooctanesulfonic Acid (PFOS)	122		-		68-136	-		30
Perfluorodecanoic Acid (PFDA)	98		-		69-133	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	143		-		63-144	-		30
Perfluoroundecanoic Acid (PFUnA)	114		-		64-136	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	109		-		61-139	-		30
Perfluorododecanoic Acid (PFDoA)	112		-		69-135	-		30
Perfluorotridecanoic Acid (PFTrDA)	125		-		66-139	-		30
Perfluorotetradecanoic Acid (PFTA)	123		-		69-133	-		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	82		-		41-165	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	112		-		61-135	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	73		-		69-139	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	70		-		51-155	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: WAYLAND DPW
Project Number: 2022-062
Lab Number: L2239541
Report Date: 08/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 02-04 Batch: WG1668546-2								

Surrogate (Extracted Internal Standard)	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	66				61-135
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	69				58-150
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	**67**	Q			74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	74				14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	66				66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	**69**	Q			71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	**68**	Q			78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	**65**	Q			75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	78				20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	**70**	Q			72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	**62**	Q			79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	**65**	Q			75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	72				19-175
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	33				31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	**60**	Q			61-155
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	11				5-117
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	39				34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	**53**	Q			54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	24				24-159
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	83				10-203

Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND DPW

Project Number: 2022-062

Lab Number: L2239541

Report Date: 08/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01 Batch: WG1669221-2								
Perfluorobutanesulfonic Acid (PFBS)	95		-		65-157	-		30
Perfluorohexanoic Acid (PFHxA)	93		-		69-168	-		30
Perfluoroheptanoic Acid (PFHpA)	92		-		58-159	-		30
Perfluorohexanesulfonic Acid (PFHxS)	113		-		69-177	-		30
Perfluorooctanoic Acid (PFOA)	91		-		63-159	-		30
Perfluorononanoic Acid (PFNA)	82		-		68-171	-		30
Perfluorooctanesulfonic Acid (PFOS)	88		-		52-151	-		30
Perfluorodecanoic Acid (PFDA)	88		-		63-171	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	98		-		60-166	-		30
Perfluoroundecanoic Acid (PFUnA)	120		-		60-153	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	94		-		45-170	-		30
Perfluorododecanoic Acid (PFDoA)	94		-		67-153	-		30
Perfluorotridecanoic Acid (PFTrDA)	90		-		48-158	-		30
Perfluorotetradecanoic Acid (PFTA)	83		-		59-182	-		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	91		-		57-162	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	84		-		69-143	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	79		-		55-158	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	69		-		52-156	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND DPW

Project Number: 2022-062

Lab Number: L2239541

Report Date: 08/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01 Batch: WG1669221-2								

Surrogate (Extracted Internal Standard)	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	99				58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	111				62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	93				70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	91				12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	98				57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	96				60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	87				71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	105				62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	99				14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	112				59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	111				69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	102				62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	110				10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	79				24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	88				55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	43				5-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	74				27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	88				48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	95				22-136
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	120				10-165
Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA)	83				10-206
1H,1H,2H,2H-Perfluorododecane Sulfonate (M2D4-10:2FTS)	98				50-150

Matrix Spike Analysis

Batch Quality Control

Project Name: WAYLAND DPW

Project Number: 2022-062

Lab Number: L2239541

Report Date: 08/15/22

Parameter	*Native Sample*	*MS Added*	*MS Found*	*MS %Recovery*	*Qual*	*MSD Found*	*MSD %Recovery*	*Qual*	*Recovery Limits*	*RPD*	*Qual*	*RPD Limits*
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 02-04 QC Batch ID: WG1668546-3 QC Sample: L2238063-16 Client ID: MS Sample												
Perfluorobutanesulfonic Acid (PFBS)	ND	5.11	5.07	99		-	-		72-128	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	5.4	5.99	111		-	-		62-145	-		30
Perfluorohexanoic Acid (PFHxA)	0.535J	5.75	5.85	92		-	-		70-132	-		30
Perfluoropentanesulfonic Acid (PFPeS)	ND	5.42	5.72	106		-	-		73-123	-		30
Perfluoroheptanoic Acid (PFHpA)	1.43	5.75	6.20	83		-	-		71-131	-		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	5.26	6.03	115		-	-		67-130	-		30
Perfluorooctanoic Acid (PFOA)	1.86	5.75	6.23	76		-	-		69-133	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	5.48	5.54	101		-	-		64-140	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	5.49	5.49	100		-	-		70-132	-		30
Perfluorononanoic Acid (PFNA)	3.30	5.75	7.49	73		-	-		72-129	-		30
Perfluorooctanesulfonic Acid (PFOS)	0.286	5.34	5.70	101		-	-		68-136	-		30
Perfluorodecanoic Acid (PFDA)	4.16	5.75	7.55	**59**	Q	-	-		69-133	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	5.75	5.14F	89		-	-		63-144	-		30
Perfluoroundecanoic Acid (PFUnA)	8.01	5.75	8.15	**2**	Q	-	-		64-136	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	5.75	6.59	115		-	-		61-139	-		30
Perfluorododecanoic Acid (PFDoA)	0.800F	5.75	5.83	87		-	-		69-135	-		30
Perfluorotridecanoic Acid (PFTrDA)	1.90	5.75	7.57	99		-	-		66-139	-		30
Perfluorotetradecanoic Acid (PFTA)	0.182J	5.75	8.18	**139**	Q	-	-		69-133	-		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	56.1	53.5	95		-	-		41-165	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	5.44	5.32	98		-	-		61-135	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	5.37	4.64	86		-	-		67-139	-		30

Matrix Spike Analysis

Batch Quality Control

Project Name: WAYLAND DPW
Project Number: 2022-062
Lab Number: L2239541
Report Date: 08/15/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 02-04 QC Batch ID: WG1668546-3 QC Sample: L2238063-16 Client ID: MS Sample												
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	5.43	4.35	80		-	-		51-155	-		30

Surrogate (Extracted Internal Standard)	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	77				14-167
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	79				20-154
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	96				10-203
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	**32**	Q			34-137
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	39				31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	80				61-155
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	**73**	Q			75-130
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	84				66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	79				71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	**74**	Q			78-139
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	82				54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	32				24-159
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	**75**	Q			79-136
Perfluoro[13C8]Octanoic Acid (M8PFOA)	77				75-130
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	**66**	Q			72-140
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	80				74-139

Matrix Spike Analysis
Batch Quality Control

Project Name: WAYLAND DPW
Project Number: 2022-062
Lab Number: L2239541
Report Date: 08/15/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1669221-3 QC Sample: L2239815-01 Client ID: MS Sample												
Perfluorobutanoic Acid (PFBA)	ND	36.3	33.0	91		-	-		67-148	-		30
Perfluoropentanoic Acid (PFPeA)	0.613J	36.3	33.3	90		-	-		63-161	-		30
Perfluorobutanesulfonic Acid (PFBS)	ND	32.3	29.6	92		-	-		65-157	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	34.1	33.6	99		-	-		37-219	-		30
Perfluorohexanoic Acid (PFHxA)	ND	36.3	32.4	89		-	-		69-168	-		30
Perfluoropentanesulfonic Acid (PFPeS)	ND	34.2	36.1	105		-	-		52-156	-		30
Perfluoroheptanoic Acid (PFHpA)	ND	36.3	33.4	92		-	-		58-159	-		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	33.2	36.5	110		-	-		69-177	-		30
Perfluorooctanoic Acid (PFOA)	ND	36.3	32.4	89		-	-		63-159	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	34.6	34.9	101		-	-		49-187	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	34.7	29.1	84		-	-		61-179	-		30
Perfluorononanoic Acid (PFNA)	ND	36.3	28.8	79		-	-		68-171	-		30
Perfluorooctanesulfonic Acid (PFOS)	ND	33.7	29.8	88		-	-		52-151	-		30
Perfluorodecanoic Acid (PFDA)	ND	36.3	31.8	88		-	-		63-171	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	34.9	44.1	126		-	-		56-173	-		30
Perfluorononanesulfonic Acid (PFNS)	ND	35	27.5	79		-	-		48-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	36.3	34.6	95		-	-		60-166	-		30
Perfluoroundecanoic Acid (PFUnA)	ND	36.3	38.0	105		-	-		60-153	-		30
Perfluorodecanesulfonic Acid (PFDS)	ND	35.1	26.6	76		-	-		38-156	-		30
Perfluorooctanesulfonamide (FOSA)	ND	36.3	33.5	92		-	-		46-170	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	36.3	35.4	97		-	-		45-170	-		30
Perfluorododecanoic Acid (PFDoA)	ND	36.3	34.5	95		-	-		67-153	-		30

Matrix Spike Analysis
Batch Quality Control

Project Name: WAYLAND DPW
Project Number: 2022-062
Lab Number: L2239541
Report Date: 08/15/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1669221-3 QC Sample: L2239815-01 Client ID: MS Sample												
Perfluorotridecanoic Acid (PFTrDA)	ND	36.3	31.8	88		-	-		48-158	-		30
Perfluorotetradecanoic Acid (PFTA)	ND	36.3	28.2	78		-	-		59-182	-		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	354	274	77		-	-		57-162	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	34.4	28.4	83		-	-		69-143	-		30
Perfluorohexadecanoic Acid (PFHxDA)	ND	36.3	37.3	103		-	-		40-167	-		30
Perfluorooctadecanoic Acid (PFODA)	ND	36.3	23.8	66		-	-		10-119	-		30

Surrogate (Extracted Internal Standard)	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	100				10-162
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	137				12-142
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	93				14-147
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	104				10-165
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	53				27-126
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	60				24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	81				55-137
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	91				62-124
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	85				57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	85				60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	88				71-134
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	76				48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	88				22-136
Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA)	71				10-206

Matrix Spike Analysis

Batch Quality Control

Project Name: WAYLAND DPW

Project Number: 2022-062

Lab Number: L2239541

Report Date: 08/15/22

Parameter	*Native Sample*	*MS Added*	*MS Found*	*MS %Recovery*	*Qual*	*MSD Found*	*MSD %Recovery*	*Qual*	*Recovery Limits*	*RPD*	*Qual*	*RPD Limits*
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1669221-3 QC Sample: L2239815-01 Client ID: MS Sample												

Surrogate (Extracted Internal Standard)	*MS % Recovery*	*MS Qualifier*	*MSD % Recovery*	*MSD Qualifier*	*Acceptance Criteria*
Perfluoro[13C4]Butanoic Acid (MPFBA)	81				58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	92				62-163
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	14				5-112
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	104				69-131
Perfluoro[13C8]Octanoic Acid (M8PFOA)	91				62-129
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	97				59-139
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	96				70-131

Lab Duplicate Analysis
Batch Quality Control

Project Name: WAYLAND DPW
Project Number: 2022-062

Lab Number: L2239541
Report Date: 08/15/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 02-04 QC Batch ID: WG1668546-4 QC Sample: L2238063-20 Client ID: DUP Sample						
Perfluorobutanesulfonic Acid (PFBS)	ND	ND	ng/g	NC		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	ND	ng/g	NC		30
Perfluorohexanoic Acid (PFHxA)	ND	0.212J	ng/g	NC		30
Perfluoropentanesulfonic Acid (PFPeS)	ND	ND	ng/g	NC		30
Perfluoroheptanoic Acid (PFHpA)	0.063J	0.052J	ng/g	NC		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	ND	ng/g	NC		30
Perfluorooctanoic Acid (PFOA)	0.118J	0.097J	ng/g	NC		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	ND	ng/g	NC		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	ND	ng/g	NC		30
Perfluorononanoic Acid (PFNA)	0.290	0.214J	ng/g	NC		30
Perfluorooctanesulfonic Acid (PFOS)	0.549	0.488	ng/g	12		30
Perfluorodecanoic Acid (PFDA)	0.181J	0.167J	ng/g	NC		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ng/g	NC		30
Perfluoroundecanoic Acid (PFUnA)	0.360J	0.308J	ng/g	NC		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ng/g	NC		30
Perfluorododecanoic Acid (PFDoA)	ND	ND	ng/g	NC		30
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ng/g	NC		30
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/g	NC		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	ND	ng/g	NC		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	ND	ng/g	NC		30

Lab Duplicate Analysis
Batch Quality Control

Project Name: WAYLAND DPW
Project Number: 2022-062

Lab Number: L2239541
Report Date: 08/15/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 02-04 QC Batch ID: WG1668546-4 QC Sample: L2238063-20 Client ID: DUP Sample						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	ND	ng/g	NC		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	ND	ng/g	NC		30

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	97		95		74-139
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	101		99		14-167
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	106		103		66-128
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	99		96		71-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	92		93		78-139
Perfluoro[13C8]Octanoic Acid (M8PFOA)	94		90		75-130
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	99		96		20-154
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	78		77		72-140
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	89		89		79-136
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	90		90		75-130
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	64		59		31-134
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	102		101		61-155
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	56		62		34-137
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	101		101		54-150
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	36		38		24-159
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	123		117		10-203

Lab Duplicate Analysis
Batch Quality Control

Project Name: WAYLAND DPW
Project Number: 2022-062

Lab Number: L2239541
Report Date: 08/15/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1669221-4 QC Sample: L2239818-01 Client ID: DUP Sample						
Perfluorobutanoic Acid (PFBA)	ND	0.379J	ng/l	NC		30
Perfluoropentanoic Acid (PFPeA)	0.754J	0.931J	ng/l	NC		30
Perfluorobutanesulfonic Acid (PFBS)	ND	ND	ng/l	NC		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	ND	ng/l	NC		30
Perfluorohexanoic Acid (PFHxA)	ND	ND	ng/l	NC		30
Perfluoropentanesulfonic Acid (PFPeS)	ND	ND	ng/l	NC		30
Perfluoroheptanoic Acid (PFHpA)	ND	ND	ng/l	NC		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	ND	ng/l	NC		30
Perfluorooctanoic Acid (PFOA)	ND	ND	ng/l	NC		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	5.07B	14.8	ng/l	**98**	Q	30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	ND	ng/l	NC		30
Perfluorononanoic Acid (PFNA)	ND	ND	ng/l	NC		30
Perfluorooctanesulfonic Acid (PFOS)	ND	ND	ng/l	NC		30
Perfluorodecanoic Acid (PFDA)	ND	ND	ng/l	NC		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	ng/l	NC		30
Perfluorononanesulfonic Acid (PFNS)	ND	ND	ng/l	NC		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ng/l	NC		30
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ng/l	NC		30
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ng/l	NC		30
Perfluorooctanesulfonamide (FOSA)	ND	ND	ng/l	NC		30

Lab Duplicate Analysis
Batch Quality Control

Project Name: WAYLAND DPW
Project Number: 2022-062

Lab Number: L2239541
Report Date: 08/15/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1669221-4 QC Sample: L2239818-01 Client ID: DUP Sample						
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ng/l	NC		30
Perfluorododecanoic Acid (PFDoA)	ND	ND	ng/l	NC		30
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ng/l	NC		30
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/l	NC		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	ND	ng/l	NC		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	ND	ng/l	NC		30
Perfluorohexadecanoic Acid (PFHxDA)	ND	ND	ng/l	NC		30
Perfluorooctadecanoic Acid (PFODA)	ND	ND	ng/l	NC		30

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	70		73		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	87		93		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	95		91		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	116		115		12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	75		71		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	72		70		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	90		86		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	76		77		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	82		81		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	88		85		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	95		105		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	80		83		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	89		82		10-162

Lab Duplicate Analysis
Batch Quality Control

Project Name: WAYLAND DPW
Project Number: 2022-062

Lab Number: L2239541
Report Date: 08/15/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1669221-4 QC Sample: L2239818-01 Client ID: DUP Sample

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	39		45		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	69		75		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	10		13		5-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	38		48		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	62		69		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	79		86		22-136
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	97		98		10-165
Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA)	69		67		10-206

INORGANICS
&
MISCELLANEOUS

Project Name: WAYLAND DPW
Project Number: 2022-062

Lab Number: L2239541
Report Date: 08/15/22

SAMPLE RESULTS

Lab ID: L2239541-02
Client ID: SB-10 (7-10)
Sample Location: WAYLAND MA

Date Collected: 07/22/22 09:20
Date Received: 07/25/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	83.7		%	0.100	0.100	1	-	07/28/22 22:21	121,2540G	JM

Project Name: WAYLAND DPW
Project Number: 2022-062

Lab Number: L2239541
Report Date: 08/15/22

SAMPLE RESULTS

Lab ID: L2239541-03
Client ID: MW-11 (8-10)
Sample Location: WAYLAND MA

Date Collected: 07/22/22 09:45
Date Received: 07/25/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	91.6		%	0.100	0.100	1	-	07/28/22 22:21	121,2540G	JM

Project Name: WAYLAND DPW
Project Number: 2022-062

Lab Number: L2239541
Report Date: 08/15/22

SAMPLE RESULTS

Lab ID: L2239541-04
Client ID: SB-12 (10-12)
Sample Location: WAYLAND MA

Date Collected: 07/22/22 11:00
Date Received: 07/25/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	92.3		%	0.100	0.100	1	-	07/28/22 22:21	121,2540G	JM

Lab Duplicate Analysis
Batch Quality Control

Project Name: WAYLAND DPW
Project Number: 2022-062

Lab Number: L2239541
Report Date: 08/15/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Mansfield Lab Associated sample(s): 02-04 QC Batch ID: WG1668723-1 QC Sample: L2233927-14 Client ID: DUP Sample						
Solids, Total	36.3	36.2	%	0		10

Project Name: WAYLAND DPW
Project Number: 2022-062

Lab Number: L2239541
Report Date: 08/15/22

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2239541-01A	Plastic 250ml unpreserved	A	NA		4.4	Y	Absent		A2-537-ISOTOPE-36(14)
L2239541-02A	Plastic 8oz unpreserved	A	NA		4.4	Y	Absent		A2-537-ISOTOPE-36(14)
L2239541-02B	Plastic 2oz unpreserved for TS	A	NA		4.4	Y	Absent		A2-TS(7)
L2239541-03A	Plastic 8oz unpreserved	A	NA		4.4	Y	Absent		A2-537-ISOTOPE-36(14)
L2239541-03B	Plastic 2oz unpreserved for TS	A	NA		4.4	Y	Absent		A2-TS(7)
L2239541-04A	Plastic 8oz unpreserved	A	NA		4.4	Y	Absent		A2-537-ISOTOPE-36(14)
L2239541-04B	Plastic 2oz unpreserved for TS	A	NA		4.4	Y	Absent		A2-TS(7)

*Values in parentheses indicate holding time in days

Project Name: WAYLAND DPW
Project Number: 2022-062
Lab Number: L2239541
Report Date: 08/15/22

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs)		
Perfluorooctadecanoic Acid	PFODA	16517-11-6
Perfluorohexadecanoic Acid	PFHxDA	67905-19-5
Perfluorotetradecanoic Acid	PFTA	376-06-7
Perfluorotridecanoic Acid	PFTrDA	72629-94-8
Perfluorododecanoic Acid	PFDoA	307-55-1
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorobutanoic Acid	PFBA	375-22-4
PERFLUOROALKYL SULFONIC ACIDS (PFSAs)		
Perfluorododecanesulfonic Acid	PFDoDS	79780-39-5
Perfluorodecanesulfonic Acid	PFDS	335-77-3
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluoroheptanesulfonic Acid	PFHpS	375-92-8
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorobutanesulfonic Acid	PFBS	375-73-5
FLUOROTELOMERS		
1H,1H,2H,2H-Perfluorododecanesulfonic Acid	10:2FTS	120226-60-0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	8:2FTS	39108-34-4
1H,1H,2H,2H-Perfluorooctanesulfonic Acid	6:2FTS	27619-97-2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid	4:2FTS	757124-72-4
PERFLUOROALKANE SULFONAMIDES (FASAs)		
Perfluorooctanesulfonamide	FOSA	754-91-6
N-Ethyl Perfluorooctane Sulfonamide	NEtFOSA	4151-50-2
N-Methyl Perfluorooctane Sulfonamide	NMeFOSA	31506-32-8
PERFLUOROALKANE SULFONYL SUBSTANCES		
N-Ethyl Perfluorooctanesulfonamido Ethanol	NEtFOSE	1691-99-2
N-Methyl Perfluorooctanesulfonamido Ethanol	NMeFOSE	24448-09-7
N-Ethyl Perfluorooctanesulfonamidoacetic Acid	NEtFOSAA	2991-50-6
N-Methyl Perfluorooctanesulfonamidoacetic Acid	NMeFOSAA	2355-31-9
PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid	HFPO-DA	13252-13-6
4,8-Dioxa-3h-Perfluorononanoic Acid	ADONA	919005-14-4
CHLORO-PERFLUOROALKYL SULFONIC ACIDS		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid	9Cl-PF3ONS	756426-58-1
PERFLUOROETHER SULFONIC ACIDS (PFESAs)		
Perfluoro(2-Ethoxyethane)Sulfonic Acid	PFEESA	113507-82-7
PERFLUOROETHER/POLYETHER CARBOXYLIC ACIDS (PFPCAs)		
Perfluoro-3-Methoxypropanoic Acid	PFMPA	377-73-1
Perfluoro-4-Methoxybutanoic Acid	PFMBA	863090-89-5
Nonafluoro-3,6-Dioxaheptanoic Acid	NFDHA	151772-58-6

Project Name:	WAYLAND DPW	**Lab Number:**	L2239541
Project Number:	2022-062	**Report Date:**	08/15/22

GLOSSARY

Acronyms

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

Report Format: DU Report with 'J' Qualifiers

Project Name:	WAYLAND DPW	**Lab Number:**	L2239541
Project Number:	2022-062	**Report Date:**	08/15/22

Footnotes

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

Terms

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

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

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

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

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

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

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

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

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

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

Data Qualifiers

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

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

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

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

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

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

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

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

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

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

Report Format: DU Report with 'J' Qualifiers

Project Name:	WAYLAND DPW	**Lab Number:**	L2239541
Project Number:	2022-062	**Report Date:**	08/15/22

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers

REFERENCES

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

134 Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) using Isotope Dilution. Alpha SOP 23528.

LIMITATION OF LIABILITIES

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

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

Certification Information

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

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

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

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

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

CHAIN OF CUSTODY

PAGE ____ OF ____

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

Date Rec'd in Lab: 7/25/22

ALPHA Job #: L2239541

Client Information

Client: CMG Environmental Inc.
Address: 67 Hall Road, Sturbridge MA 01566
Phone: 774-241-0901
Fax:
Email: svanwormer@cmgenv.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Wayland DPW
Project Location: Wayland MA
Project #: 2022-062
Project Manager:
ALPHA Quote #:

Turn-Around Time

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

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: Wayland

Regulatory Requirements/Report Limits

State /Fed Program: MassDEP
Criteria: MCP RCS1

Other Project Specific Requirements/Comments/Detection Limits:

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: 537.1 PFAS + Isotope Dilution 18 compounds	ANALYSIS: PFAS - 537 Isotope Dilution 18 Compounds	SAMPLE HANDLING	Sample Specific Comments	TOTAL # BOTTLES
39541-01	FB-7/22/22	7/22/22	0900	Soil	SV	X				2
-02	SB-10(7-10)		0920				X			2
-03	MW-11 (8-10)		0945				X			2
-04	SB-12 (10-12)		1100				X			2

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

Container Type	P	P
Preservative	None	None

Relinquished By:	Date/Time	Received By:	Date/Time
	7/25/22 1727		7/25/22 1727
	7/25/22 1930		7/25/22 1930
	7/25/22 2037		7/25/22 2037

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

ANALYTICAL REPORT

Lab Number:	L2241492
Client:	CMG Environmental, Inc. 67 Hall Road Sturbridge, MA 01566
ATTN:	Stphen Van Wormer
Phone:	(774) 241-0901
Project Name:	WAYLAND DPW
Project Number:	2022-062
Report Date:	08/24/22

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0141), DoD (L2474), FL (E87814), IL (200081), LA (85084), ME (MA00030), MD (350), NJ (MA015), NY (11627), NC (685), OH (CL106), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #P330-17-00150), USFWS (Permit #206964).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: WAYLAND DPW
Project Number: 2022-062

Lab Number: L2241492
Report Date: 08/24/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2241492-01	MW-1	WATER	WAYLAND, MA	08/02/22 11:10	08/03/22
L2241492-02	MW-4	WATER	WAYLAND, MA	08/02/22 11:50	08/03/22
L2241492-03	MW-11	WATER	WAYLAND, MA	08/02/22 11:30	08/03/22
L2241492-04	FIELD BLANK-8/2/22	WATER	WAYLAND, MA	08/02/22 10:59	08/03/22

Project Name:	WAYLAND DPW	**Lab Number:**	L2241492
Project Number:	2022-062	**Report Date:**	08/24/22

Case Narrative

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

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

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

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

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

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

Project Name:	WAYLAND DPW	**Lab Number:**	L2241492
Project Number:	2022-062	**Report Date:**	08/24/22

Case Narrative (continued)

Perfluorinated Alkyl Acids by Isotope Dilution

L2241492-01, -02, and -03: Extracted Internal Standard recoveries were outside the acceptance criteria for individual analytes. Please refer to the surrogate section of the report for details.

The WG1671623-1 Method Blank, associated with L2241492-01 through -04, has a concentration above the reporting limit for 6:2FTS. Since the associated sample concentrations are non-detect to the reporting limit, no corrective action is required.

WG1671623-2: Extracted Internal Standard recoveries were outside the acceptance criteria for individual analytes. Please refer to the surrogate section of the report for details.

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

Authorized Signature: Susan E O'Neil Susan O' Neil

Title: Technical Director/Representative Date: 08/24/22

ORGANICS

SEMIVOLATILES

Project Name: WAYLAND DPW
Project Number: 2022-062
Lab Number: L2241492
Report Date: 08/24/22

SAMPLE RESULTS

Lab ID: L2241492-01
Client ID: MW-1
Sample Location: WAYLAND, MA

Date Collected: 08/02/22 11:10
Date Received: 08/03/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 134,LCMSMS-ID
Analytical Date: 08/22/22 19:12
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 08/05/22 11:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	4.88		ng/l	1.83	--	1
Perfluoropentanoic Acid (PFPeA)	2.80		ng/l	1.83	--	1
Perfluorobutanesulfonic Acid (PFBS)	6.09		ng/l	1.83	--	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	1.83	--	1
Perfluorohexanoic Acid (PFHxA)	2.41		ng/l	1.83	--	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.83	--	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.83	--	1
Perfluorohexanesulfonic Acid (PFHxS)	7.16		ng/l	1.83	--	1
Perfluorooctanoic Acid (PFOA)	6.29		ng/l	1.83	--	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.83	--	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.83	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.83	--	1
Perfluorooctanesulfonic Acid (PFOS)	39.1		ng/l	1.83	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.83	--	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.83	--	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.83	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.83	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.83	--	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.83	--	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.83	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.83	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.83	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.83	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.83	--	1

Project Name: WAYLAND DPW
Project Number: 2022-062
Lab Number: L2241492
Report Date: 08/24/22

SAMPLE RESULTS

Lab ID: L2241492-01
Client ID: MW-1
Sample Location: WAYLAND, MA
Date Collected: 08/02/22 11:10
Date Received: 08/03/22
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	59		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	77		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	94		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	**164**	Q	12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	**54**	Q	57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	**49**	Q	60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	92		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	**55**	Q	62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	133		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	**44**	Q	59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	89		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	**50**	Q	62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	129		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	55		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	**47**	Q	55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	19		5-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	50		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	54		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	54		22-136

Project Name: WAYLAND DPW
Project Number: 2022-062
Lab Number: L2241492
Report Date: 08/24/22

SAMPLE RESULTS

Lab ID: L2241492-02
Client ID: MW-4
Sample Location: WAYLAND, MA

Sample Depth:
Matrix: Water
Analytical Method: 134,LCMSMS-ID
Analytical Date: 08/22/22 19:29
Analyst: RS

Date Collected: 08/02/22 11:50
Date Received: 08/03/22
Field Prep: Not Specified

Extraction Method: ALPHA 23528
Extraction Date: 08/05/22 11:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	4.53		ng/l	1.88	--	1
Perfluoropentanoic Acid (PFPeA)	34.6		ng/l	1.88	--	1
Perfluorobutanesulfonic Acid (PFBS)	3.50		ng/l	1.88	--	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	1.88	--	1
Perfluorohexanoic Acid (PFHxA)	30.7		ng/l	1.88	--	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.88	--	1
Perfluoroheptanoic Acid (PFHpA)	9.14		ng/l	1.88	--	1
Perfluorohexanesulfonic Acid (PFHxS)	3.93		ng/l	1.88	--	1
Perfluorooctanoic Acid (PFOA)	17.2		ng/l	1.88	--	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.88	--	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.88	--	1
Perfluorononanoic Acid (PFNA)	1.89		ng/l	1.88	--	1
Perfluorooctanesulfonic Acid (PFOS)	32.3		ng/l	1.88	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.88	--	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.88	--	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.88	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.88	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.88	--	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.88	--	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.88	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.88	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.88	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.88	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.88	--	1

Project Name: WAYLAND DPW
Lab Number: L2241492
Project Number: 2022-062
Report Date: 08/24/22

SAMPLE RESULTS

Lab ID: L2241492-02
Client ID: MW-4
Sample Location: WAYLAND, MA
Date Collected: 08/02/22 11:50
Date Received: 08/03/22
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	67		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	89		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	95		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	**146**	Q	12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	65		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	**54**	Q	60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	90		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	65		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	115		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	63		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	84		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	**61**	Q	62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	105		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	71		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	60		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	10		5-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	64		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	68		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	51		22-136

Project Name: WAYLAND DPW
Project Number: 2022-062
Lab Number: L2241492
Report Date: 08/24/22

SAMPLE RESULTS

Lab ID: L2241492-03
Client ID: MW-11
Sample Location: WAYLAND, MA

Date Collected: 08/02/22 11:30
Date Received: 08/03/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 134,LCMSMS-ID
Analytical Date: 08/22/22 20:02
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 08/05/22 11:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	2.77		ng/l	1.83	--	1
Perfluoropentanoic Acid (PFPeA)	5.77		ng/l	1.83	--	1
Perfluorobutanesulfonic Acid (PFBS)	4.85		ng/l	1.83	--	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	1.83	--	1
Perfluorohexanoic Acid (PFHxA)	7.14		ng/l	1.83	--	1
Perfluoropentanesulfonic Acid (PFPeS)	3.41		ng/l	1.83	--	1
Perfluoroheptanoic Acid (PFHpA)	2.41		ng/l	1.83	--	1
Perfluorohexanesulfonic Acid (PFHxS)	31.4		ng/l	1.83	--	1
Perfluorooctanoic Acid (PFOA)	11.1		ng/l	1.83	--	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.83	--	1
Perfluoroheptanesulfonic Acid (PFHpS)	2.59		ng/l	1.83	--	1
Perfluorononanoic Acid (PFNA)	1.97		ng/l	1.83	--	1
Perfluorooctanesulfonic Acid (PFOS)	125		ng/l	1.83	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.83	--	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.83	--	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.83	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.83	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.83	--	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.83	--	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.83	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.83	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.83	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.83	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.83	--	1

Project Name: WAYLAND DPW **Lab Number:** L2241492

Project Number: 2022-062 **Report Date:** 08/24/22

SAMPLE RESULTS

Lab ID: L2241492-03 Date Collected: 08/02/22 11:30

Client ID: MW-11 Date Received: 08/03/22

Sample Location: WAYLAND, MA Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	77		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	93		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	88		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	**205**	Q	12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	60		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	**45**	Q	60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	81		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	**60**	Q	62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	**196**	Q	14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	**58**	Q	59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	75		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	**61**	Q	62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	154		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	69		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	57		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	16		5-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	71		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	59		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	52		22-136

Project Name: WAYLAND DPW
Project Number: 2022-062
Lab Number: L2241492
Report Date: 08/24/22

SAMPLE RESULTS

Lab ID: L2241492-04
Client ID: FIELD BLANK-8/2/22
Sample Location: WAYLAND, MA

Date Collected: 08/02/22 10:59
Date Received: 08/03/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 134,LCMSMS-ID
Analytical Date: 08/22/22 20:19
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 08/05/22 11:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	1.89	--	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	1.89	--	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.89	--	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	1.89	--	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.89	--	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.89	--	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.89	--	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.89	--	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.89	--	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.89	--	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.89	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.89	--	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.89	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.89	--	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.89	--	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.89	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.89	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.89	--	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.89	--	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.89	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.89	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.89	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.89	--	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.89	--	1

Project Name: WAYLAND DPW **Lab Number:** L2241492

Project Number: 2022-062 **Report Date:** 08/24/22

SAMPLE RESULTS

Lab ID: L2241492-04 Date Collected: 08/02/22 10:59

Client ID: FIELD BLANK-8/2/22 Date Received: 08/03/22

Sample Location: WAYLAND, MA Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	63		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	105		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	92		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	115		12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	74		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	68		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	88		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	75		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	96		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	76		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	80		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	74		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	84		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	102		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	66		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	5		5-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	109		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	78		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	59		22-136

Project Name: WAYLAND DPW
Project Number: 2022-062
Lab Number: L2241492
Report Date: 08/24/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 08/11/22 12:26
Analyst: MP

Extraction Method: ALPHA 23528
Extraction Date: 08/05/22 11:30

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-04 Batch: WG1671623-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	--
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	--
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	--
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	2.00	--
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	--
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	2.00	--
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	--
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	--
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	--
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	8.66		ng/l	2.00	--
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.00	--
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	--
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	--
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	--
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	--
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	2.00	--
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	--
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	--
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	--
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	--
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	--
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	--
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	--
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	--

Project Name: WAYLAND DPW
Project Number: 2022-062
Lab Number: L2241492
Report Date: 08/24/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 08/11/22 12:26
Analyst: MP

Extraction Method: ALPHA 23528
Extraction Date: 08/05/22 11:30

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-04 Batch: WG1671623-1					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	95		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	110		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	103		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	106		12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	94		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	97		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	103		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	93		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	130		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	97		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	102		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	94		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	146		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	79		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	93		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	46		5-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	74		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	91		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	76		22-136

Lab Control Sample Analysis
Batch Quality Control

Project Name: WAYLAND DPW
Project Number: 2022-062
Lab Number: L2241492
Report Date: 08/24/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-04 Batch: WG1671623-2								
Perfluorobutanoic Acid (PFBA)	106		-		67-148	-		30
Perfluoropentanoic Acid (PFPeA)	106		-		63-161	-		30
Perfluorobutanesulfonic Acid (PFBS)	103		-		65-157	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	118		-		37-219	-		30
Perfluorohexanoic Acid (PFHxA)	107		-		69-168	-		30
Perfluoropentanesulfonic Acid (PFPeS)	104		-		52-156	-		30
Perfluoroheptanoic Acid (PFHpA)	102		-		58-159	-		30
Perfluorohexanesulfonic Acid (PFHxS)	117		-		69-177	-		30
Perfluorooctanoic Acid (PFOA)	112		-		63-159	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	140		-		49-187	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	103		-		61-179	-		30
Perfluorononanoic Acid (PFNA)	104		-		68-171	-		30
Perfluorooctanesulfonic Acid (PFOS)	119		-		52-151	-		30
Perfluorodecanoic Acid (PFDA)	113		-		63-171	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	100		-		56-173	-		30
Perfluorononanesulfonic Acid (PFNS)	105		-		48-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	103		-		60-166	-		30
Perfluoroundecanoic Acid (PFUnA)	133		-		60-153	-		30
Perfluorodecanesulfonic Acid (PFDS)	101		-		38-156	-		30
Perfluorooctanesulfonamide (FOSA)	120		-		46-170	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	116		-		45-170	-		30
Perfluorododecanoic Acid (PFDoA)	109		-		67-153	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: WAYLAND DPW

Project Number: 2022-062

Lab Number: L2241492

Report Date: 08/24/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-04 Batch: WG1671623-2								
Perfluorotridecanoic Acid (PFTrDA)	118		-		48-158	-		30
Perfluorotetradecanoic Acid (PFTA)	108		-		59-182	-		30

Surrogate (Extracted Internal Standard)	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	93				58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	106				62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	97				70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	111				12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	96				57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	99				60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	100				71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	92				62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	125				14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	99				59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	101				69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	90				62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	**163**	Q			10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	89				24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	86				55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	59				5-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	73				27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	89				48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	80				22-136

Matrix Spike Analysis

Batch Quality Control

Project Name: WAYLAND DPW

Project Number: 2022-062

Lab Number: L2241492

Report Date: 08/24/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1671623-3 QC Sample: L2241441-04 Client ID: MS Sample												
Perfluorobutanoic Acid (PFBA)	ND	40.2	43.2	106		-	-		67-148	-		30
Perfluoropentanoic Acid (PFPeA)	ND	40.2	44.7	111		-	-		63-161	-		30
Perfluorobutanesulfonic Acid (PFBS)	ND	35.7	39.2	105		-	-		65-157	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	37.7	44.8	119		-	-		37-219	-		30
Perfluorohexanoic Acid (PFHxA)	ND	40.2	46.1	113		-	-		69-168	-		30
Perfluoropentanesulfonic Acid (PFPeS)	ND	37.9	37.9	99		-	-		52-156	-		30
Perfluoroheptanoic Acid (PFHpA)	ND	40.2	44.4	106		-	-		58-159	-		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	36.7	46.9	122		-	-		69-177	-		30
Perfluorooctanoic Acid (PFOA)	3.96	40.2	49.2	113		-	-		63-159	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	15.4B	38.3	60.2	117		-	-		49-187	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	38.3	42.7	111		-	-		61-179	-		30
Perfluorononanoic Acid (PFNA)	4.29F	40.2	50.5	115		-	-		68-171	-		30
Perfluorooctanesulfonic Acid (PFOS)	3.11	37.3	48.8	122		-	-		52-151	-		30
Perfluorodecanoic Acid (PFDA)	ND	40.2	42.1	105		-	-		63-171	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	38.6	55.0	143		-	-		56-173	-		30
Perfluorononanesulfonic Acid (PFNS)	ND	38.7	38.4	99		-	-		48-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	40.2	44.2	110		-	-		60-166	-		30
Perfluoroundecanoic Acid (PFUnA)	ND	40.2	47.1	117		-	-		60-153	-		30
Perfluorodecanesulfonic Acid (PFDS)	ND	38.8	32.5	84		-	-		38-156	-		30
Perfluorooctanesulfonamide (FOSA)	ND	40.2	54.5	136		-	-		46-170	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	40.2	41.0	102		-	-		45-170	-		30
Perfluorododecanoic Acid (PFDoA)	ND	40.2	45.2	112		-	-		67-153	-		30

Matrix Spike Analysis

Batch Quality Control

Project Name: WAYLAND DPW

Project Number: 2022-062

Lab Number: L2241492

Report Date: 08/24/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1671623-3 QC Sample: L2241441-04 Client ID: MS Sample												
Perfluorotridecanoic Acid (PFTrDA)	ND	40.2	48.9	122		-	-		48-158	-		30
Perfluorotetradecanoic Acid (PFTA)	ND	40.2	47.7	119		-	-		59-182	-		30

Surrogate (Extracted Internal Standard)	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	84				10-162
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	**204**	Q			12-142
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	**161**	Q			14-147
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	46				27-126
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	44				24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	62				55-137
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	68				62-124
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	60				57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	73				60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	90				71-134
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	60				48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	55				22-136
Perfluoro[13C4]Butanoic Acid (MPFBA)	78				58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	74				62-163
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	8				5-112
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	86				69-131
Perfluoro[13C8]Octanoic Acid (M8PFOA)	78				62-129
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	66				59-139
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	79				70-131

Lab Duplicate Analysis
Batch Quality Control

Project Name: WAYLAND DPW
Project Number: 2022-062

Lab Number: L2241492
Report Date: 08/24/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1671623-4 QC Sample: L2241441-05 Client ID: DUP Sample						
Perfluorobutanoic Acid (PFBA)	6.18	6.04	ng/l	2		30
Perfluoropentanoic Acid (PFPeA)	4.73	4.43	ng/l	7		30
Perfluorobutanesulfonic Acid (PFBS)	2.36	2.25	ng/l	5		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	ND	ng/l	NC		30
Perfluorohexanoic Acid (PFHxA)	4.80	4.92	ng/l	2		30
Perfluoropentanesulfonic Acid (PFPeS)	ND	ND	ng/l	NC		30
Perfluoroheptanoic Acid (PFHpA)	4.26	4.32	ng/l	1		30
Perfluorohexanesulfonic Acid (PFHxS)	2.21	2.25	ng/l	2		30
Perfluorooctanoic Acid (PFOA)	6.58	5.64	ng/l	15		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	12.7B	12.2	ng/l	4		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	ND	ng/l	NC		30
Perfluorononanoic Acid (PFNA)	ND	ND	ng/l	NC		30
Perfluorooctanesulfonic Acid (PFOS)	4.87	5.11	ng/l	5		30
Perfluorodecanoic Acid (PFDA)	ND	ND	ng/l	NC		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	ng/l	NC		30
Perfluorononanesulfonic Acid (PFNS)	ND	ND	ng/l	NC		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ng/l	NC		30
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ng/l	NC		30
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ng/l	NC		30
Perfluorooctanesulfonamide (FOSA)	ND	ND	ng/l	NC		30

Lab Duplicate Analysis
Batch Quality Control

Project Name: WAYLAND DPW
Project Number: 2022-062

Lab Number: L2241492
Report Date: 08/24/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1671623-4 QC Sample: L2241441-05 Client ID: DUP Sample						
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ng/l	NC		30
Perfluorododecanoic Acid (PFDoA)	ND	ND	ng/l	NC		30
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ng/l	NC		30
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/l	NC		30

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	79		75		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	86		85		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	87		84		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	**214**	Q	**201**	Q	12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	65		61		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	76		68		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	95		90		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	76		69		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	**170**	Q	**155**	Q	14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	74		64		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	97		83		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	78		73		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	112		104		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	55		40		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	81		64		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	32		15		5-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	52		44		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	72		65		48-131

Lab Duplicate Analysis
Batch Quality Control

Project Name: WAYLAND DPW
Project Number: 2022-062

Lab Number: L2241492
Report Date: 08/24/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1671623-4 QC Sample: L2241441-05 Client ID: DUP Sample

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	66		54		22-136

Project Name: WAYLAND DPW
Project Number: 2022-062

Lab Number: L2241492
Report Date: 08/24/22

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2241492-01A	Plastic 250ml Trizma preserved	A	NA		3.1	Y	Absent		A2-537-ISOTOPE(14)
L2241492-01B	Plastic 250ml Trizma preserved	A	NA		3.1	Y	Absent		A2-537-ISOTOPE(14)
L2241492-02A	Plastic 250ml Trizma preserved	A	NA		3.1	Y	Absent		A2-537-ISOTOPE(14)
L2241492-02B	Plastic 250ml Trizma preserved	A	NA		3.1	Y	Absent		A2-537-ISOTOPE(14)
L2241492-03A	Plastic 250ml Trizma preserved	A	NA		3.1	Y	Absent		A2-537-ISOTOPE(14)
L2241492-03B	Plastic 250ml Trizma preserved	A	NA		3.1	Y	Absent		A2-537-ISOTOPE(14)
L2241492-04A	Plastic 250ml Trizma preserved	A	NA		3.1	Y	Absent		A2-537-ISOTOPE(14)

*Values in parentheses indicate holding time in days

Project Name: WAYLAND DPW
Project Number: 2022-062
Lab Number: L2241492
Report Date: 08/24/22

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs)		
Perfluorooctadecanoic Acid	PFODA	16517-11-6
Perfluorohexadecanoic Acid	PFHxDA	67905-19-5
Perfluorotetradecanoic Acid	PFTA	376-06-7
Perfluorotridecanoic Acid	PFTrDA	72629-94-8
Perfluorododecanoic Acid	PFDoA	307-55-1
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorobutanoic Acid	PFBA	375-22-4
PERFLUOROALKYL SULFONIC ACIDS (PFSAs)		
Perfluorododecanesulfonic Acid	PFDoDS	79780-39-5
Perfluorodecanesulfonic Acid	PFDS	335-77-3
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluoroheptanesulfonic Acid	PFHpS	375-92-8
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorobutanesulfonic Acid	PFBS	375-73-5
FLUOROTELOMERS		
1H,1H,2H,2H-Perfluorododecanesulfonic Acid	10:2FTS	120226-60-0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	8:2FTS	39108-34-4
1H,1H,2H,2H-Perfluorooctanesulfonic Acid	6:2FTS	27619-97-2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid	4:2FTS	757124-72-4
PERFLUOROALKANE SULFONAMIDES (FASAs)		
Perfluorooctanesulfonamide	FOSA	754-91-6
N-Ethyl Perfluorooctane Sulfonamide	NEtFOSA	4151-50-2
N-Methyl Perfluorooctane Sulfonamide	NMeFOSA	31506-32-8
PERFLUOROALKANE SULFONYL SUBSTANCES		
N-Ethyl Perfluorooctanesulfonamido Ethanol	NEtFOSE	1691-99-2
N-Methyl Perfluorooctanesulfonamido Ethanol	NMeFOSE	24448-09-7
N-Ethyl Perfluorooctanesulfonamidoacetic Acid	NEtFOSAA	2991-50-6
N-Methyl Perfluorooctanesulfonamidoacetic Acid	NMeFOSAA	2355-31-9
PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid	HFPO-DA	13252-13-6
4,8-Dioxa-3h-Perfluorononanoic Acid	ADONA	919005-14-4
CHLORO-PERFLUOROALKYL SULFONIC ACIDS		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid	9Cl-PF3ONS	756426-58-1
PERFLUOROETHER SULFONIC ACIDS (PFESAs)		
Perfluoro(2-Ethoxyethane)Sulfonic Acid	PFEESA	113507-82-7
PERFLUOROETHER/POLYETHER CARBOXYLIC ACIDS (PFPCAs)		
Perfluoro-3-Methoxypropanoic Acid	PFMPA	377-73-1
Perfluoro-4-Methoxybutanoic Acid	PFMBA	863090-89-5
Nonafluoro-3,6-Dioxaheptanoic Acid	NFDHA	151772-58-6

Project Name:	WAYLAND DPW	**Lab Number:**	L2241492
Project Number:	2022-062	**Report Date:**	08/24/22

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report

Project Name:	WAYLAND DPW	**Lab Number:**	L2241492
Project Number:	2022-062	**Report Date:**	08/24/22

Footnotes

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

Terms

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

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

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

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

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

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

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

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

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

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

Data Qualifiers

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

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

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

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

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

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

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

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

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

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

Report Format: Data Usability Report

Project Name:	WAYLAND DPW	**Lab Number:**	L2241492
Project Number:	2022-062	**Report Date:**	08/24/22

Data Qualifiers

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: Data Usability Report

Project Name:	WAYLAND DPW	**Lab Number:**	L2241492
Project Number:	2022-062	**Report Date:**	08/24/22

REFERENCES

134 Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) using Isotope Dilution. Alpha SOP 23528.

LIMITATION OF LIABILITIES

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

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

Certification Information

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

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

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

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

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

CHAIN OF CUSTODY

PAGE ____ OF ____

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

Date Rec'd in Lab: 8/3/22

ALPHA Job #: L2241492

Client Information

Client: CMG
Address: 67 Hall Road
Sturbridge MA 01566
Phone: 774-241-0901
Fax:
Email: SVanWormer@cmgenv.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Wayland DPW
Project Location: Wayland, MA
Project #: 2022-062
Project Manager: S. VanWormer
ALPHA Quote #:

Turn-Around Time

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

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO#: 2022-062

Regulatory Requirements/Report Limits

State /Fed Program: MCP Criteria: GW-1

Other Project Specific Requirements/Comments/Detection Limits:

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: PFAS - 537 Isotope Dilution	Sample Specific Comments	TOTAL # BOTTLES
41492-01	MW-1	8/2/22	11:10	GW	SV	X		2
-02	MW-4		1150			X		2
-03	MW-11		1130			X		2
-04	Field Blank - 8/2/22		—			X		2

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

Container Type: 250 mL Plastic
Preservative: Trizma

Relinquished By:	Date/Time	Received By:	Date/Time
			8/3/22
	8/3 19:15		8/3/22 18:00

gl AAL 8/3/22 2100
gl AAL 8/3/22 1915

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

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