



Wood Environment & Infrastructure Solutions, Inc.
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May 16, 2022

Mr. Joseph T. Martella II, Senior Engineer
Rhode Island Department of Environmental Management
Office of Land Revitalization and Sustainable Materials Management
Site Remediation Program
235 Promenade Street
Providence, Rhode Island 02908

**RE: Parcel C Groundwater Sampling – February 8, 2022
Former Gorham Manufacturing Facility
333 Adelaide Avenue, Providence, Rhode Island
Wood Project No. 3652220351**

Dear Mr. Martella:

This letter summarizes the February 8, 2022 collection and analysis of a groundwater sample from monitoring well MW-D within Parcel C at the Former Gorham Manufacturing Site in Providence, Rhode Island (Figure 1). This activity was performed to supplement historic periodic groundwater testing done between July 2015 and September 2017. The groundwater sampling was conducted in accordance with the Remedial Action Work Plan (RAWP) dated March 11, 2015 and the corresponding Rhode Island Department of Environmental Management (RIDEM) July 9, 2015 Order of Approval (Order of Approval).

Background

Extensive groundwater investigations were previously conducted throughout the upland portions of the Former Gorham Manufacturing Site property, including Parcel C, and within the Mashapaug Inner and Outer Coves. The groundwater investigations identified low levels of volatile organic compounds (VOCs) in groundwater immediately upgradient of and along the southern shore of the Inner Cove (Parcels C and C-1).

Based on 2006-2010 groundwater data, tetrachloroethylene and trichloroethylene (PCE/TCE) were present at low levels in groundwater from the northwestern corner of Parcel C. Groundwater and Inner Cove sediment data collected during the same period (2006-2010) demonstrated that a clear trend of decreasing contaminant concentrations within the groundwater had occurred over time.

RIDEM's Order of Approval required Textron to monitor Parcel C/C-1 groundwater following completion of the remedial action in December 2015, by sampling six wells (MW-235S, MW-236S, MW-237S, MW-D, MW-241, and MW-FS) until data from three consecutive sampling rounds demonstrate that Parcel C groundwater is compliant with RIDEM's GB Groundwater Objectives with no increasing concentrations of VOCs, and that Parcel C-1 groundwater is compliant with the Massachusetts Department of Environmental Protection (MassDEP) GW-3 Standards with no increasing concentrations of VOCs. The April 2016 sampling event confirmed that both MW-FS and MW-237S met the required criteria of three consecutive decreasing rounds of groundwater data and data below the MassDEP GW-3 Standards. These two wells

were eliminated from the groundwater monitoring program (April 2016 groundwater monitoring report). Three more wells were eliminated from monitoring following the July 2016 sampling round, including MW-235S, MW-236S, and MW-241, in accordance with the Order of Approval. Since September 2016, only MW-D has been sampled; it has been sampled eleven times (September and December 2016, March and September 2017, and April and October 2019, March and September 2020, March and August 2021 and February 2022).

At the time of the Parcel C Closure Report submittal in May 2017, TCE and 1,1-dichloroethene (1,1-DCE) were the only analytes present above their respective GB Groundwater Objectives in MW-D. In 2016 and 2017, TCE had been detected at concentrations ranging from 0.5 milligrams per liter (mg/L) to 3.32 mg/L; most results were above its GB Groundwater Objective of 0.54 mg/L. Concentrations of 1,1-DCE ranged from 0.002 mg/L to 0.0149 mg/l; some of these results exceeded the GB Groundwater Criteria of 0.007 mg/L. Concentration trends for both analytes were generally decreasing during 2017. Other chemicals that have been detected in MW-D since May 2017 are detected at concentrations well below their respective applicable standards and are not discussed further herein.

On April 11, 2019, Wood sampled the one remaining groundwater monitoring well, MW-D (Figure 2). Sample collection included a duplicate groundwater sample from MW-D. The results were presented in a letter report dated May 9, 2019. All April 2019 VOC results, including those for 1,1-DCE and TCE, were below the GB Groundwater Objectives, continuing the decreasing trend observed in 2017.

On October 17, 2019, Wood again sampled monitoring well MW-D, including a duplicate sample. VOC results for 1,1-DCE and TCE increased to slightly above their respective RI GB standards, but remained below their MassDEP GW-3 Standards. The results for the two compounds continued to show a gradual long-term downward trend since 2016.

In 2020, the one remaining groundwater monitoring well was sampled twice. APTIM sampled on March 6, including a duplicate sample, and Wood sampled the well on September 2. VOC results for 1,1-DCE and TCE continued to have a gradual downward trend. Results for 1,1-DCE were below both the GB Groundwater Objective and the MassDEP GW-3 Standard while TCE results were still above its GB Groundwater Objective but remained below its MassDEP GW-3 Standard.

In 2021 the remaining groundwater monitoring well was once again sampled twice. Both sampling events were completed by APTIM. The first sampling event occurred on March 8, 2021 and indicated a continued downward trend in 1,1-DCE and TCE. 1,1-DCE results remained below applicable standards while TCE results remained above the GB Groundwater Objective while remaining below the MassDEP GW-3 Standard. The second sampling event on August 16, 2022 indicated no detection of 1,1-dichloroethene and a slight increase in the concentration of TCE which remains above the GB Groundwater Objective and below the MassDEP GW-3 Standard. This represents a continuous downward trend from the values from 2016 sampling events.

February 2022 Activities

On February 8, 2022, APTIM, of Canton, Massachusetts sampled the one remaining groundwater monitoring well, MW-D (Figure 2), using the U.S. Environmental Protection Agency (USEPA) low-flow methodology. The one sample was submitted under chain-of-custody control to an off-site laboratory for VOC analysis by USEPA Method 8260B. Stabilization parameters for this groundwater sampling event are included in **Appendix A**.

Groundwater Sampling Results

Table 1 summarizes the historic VOC concentrations detected in MW-D including the February 2022 groundwater sampling event. VOC concentrations detected in Parcel C (including MW-D) are compared to the GB Groundwater Objectives, as well as the MassDEP GW-3 Standards. The analytical laboratory report for the February 2022 groundwater sampling event is included in **Appendix B**.

As shown in **Table 1**, results from the February 2022 sampling round show that only TCE and cis-1,2-dichloroethene were detected. The TCE concentration was above its GB Groundwater Objective but remained below its MassDEP GW-3 Standard. The concentration of TCE was lower in this sampling round than in the previous 5 sampling periods. Historically, 1,1-DCE is the other compound detected in MW-D above the applicable standards. This compound was not detected in the February 2022 sample consistent with the downward trend from past events.

Groundwater Monitoring Approach

Based on the extensive groundwater data collected, VOC concentrations within the northwestern area of Parcel C have been reduced. In 2016 and 2017, only MW-D continued to exhibit exceedances of GB Groundwater Objectives, specifically for TCE and 1,1-DCE. Concentrations of 1,1-DCE had reduced to below their respective criteria by April 2019, likely as a result of continued biodegradation and natural attenuation in the groundwater. Subsequent to concentrations rebounding slightly above the criteria in October 2019, they have either stayed steady or decreased in the last five sampling rounds (March 2020, September 2020, March 2021, August 2021, and February 2022) and were not detected in the two most recent sampling rounds (August 2021 and February 2022). TCE concentrations have been trending downward since the September 2016 sampling event. In this most recent sampling event in February 2022, the concentration of TCE was consistent with the decreasing trend observed in 2019-2021, with the exception of the slight increase observed in August 2021. The results continue to show an overall downward trend in all analytes since 2016.

The Parcel C/C-1 area is currently being used by the City of Providence School Department as a soccer field. No buildings are planned in the area of MW-D which is located within the woods. The final Environmental Land Use Restrictions (ELUR) and Soil Management Plan (SMP) has been signed by the City of Providence and filed in the Providence Land Evidence Records. A copy of this signed ELUR and SMP was submitted to RIDEM for their records. The ELUR includes the provision preventing the use of the groundwater for potable and non-potable use, and that no subsurface structures can be constructed over the groundwater without prior approval from RIDEM. This provision addresses the potential future vapor intrusion issue associated with the RIDEM GB Groundwater Objective.

Textron proposes to continue monitoring the groundwater quality at MW-D on a semi-annual basis, pending continued compliance with RIDEM's GB Groundwater Objectives. The next scheduled sampling event is for August 2022. A report will be prepared and submitted to the RIDEM in October 2022, to update the status of this one monitoring well and it will include a recommendation concerning the continuation of the semi-annual monitoring of this well.

Please contact Calissa Spooner, Textron, (401-457-6009) or Greg Avenia, Wood, (401-648-9243) if we can provide additional information or answer any questions concerning these groundwater monitoring data and planned future sampling of MW-D.

Sincerely,

Wood Environment & Infrastructure Solutions, Inc.



Brian Thornton
Technical Professional II - Geology



Gregory Avenia, PE, CFM
Project Manager



Jane Parkin Kullmann, PhD, CPH
Senior Risk Assessor

Enclosures: Table 1 – Summary of Parcel C/C-1 Groundwater Results 1989 – 2022
Figure 1 – Site Location Map
Figure 2 – Parcel C/C-1 Site Map
Appendix A – Stabilization Parameters February 2022 Sampling Event
Appendix B – Laboratory Report February 2022 Sampling Event

cc: Robert Azar, Deputy Director - Providence Planning & Development (Electronic)
G. Simpson, Textron, Inc. (Electronic)
C. Spooner, Textron, Inc. (Electronic)
Knight Memorial Library Repository
Wood Project File



wood.

Tables





wood.

Figures





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Location of Site



SITE LOCATION MAP

Former Gorham
Manufacturing Site

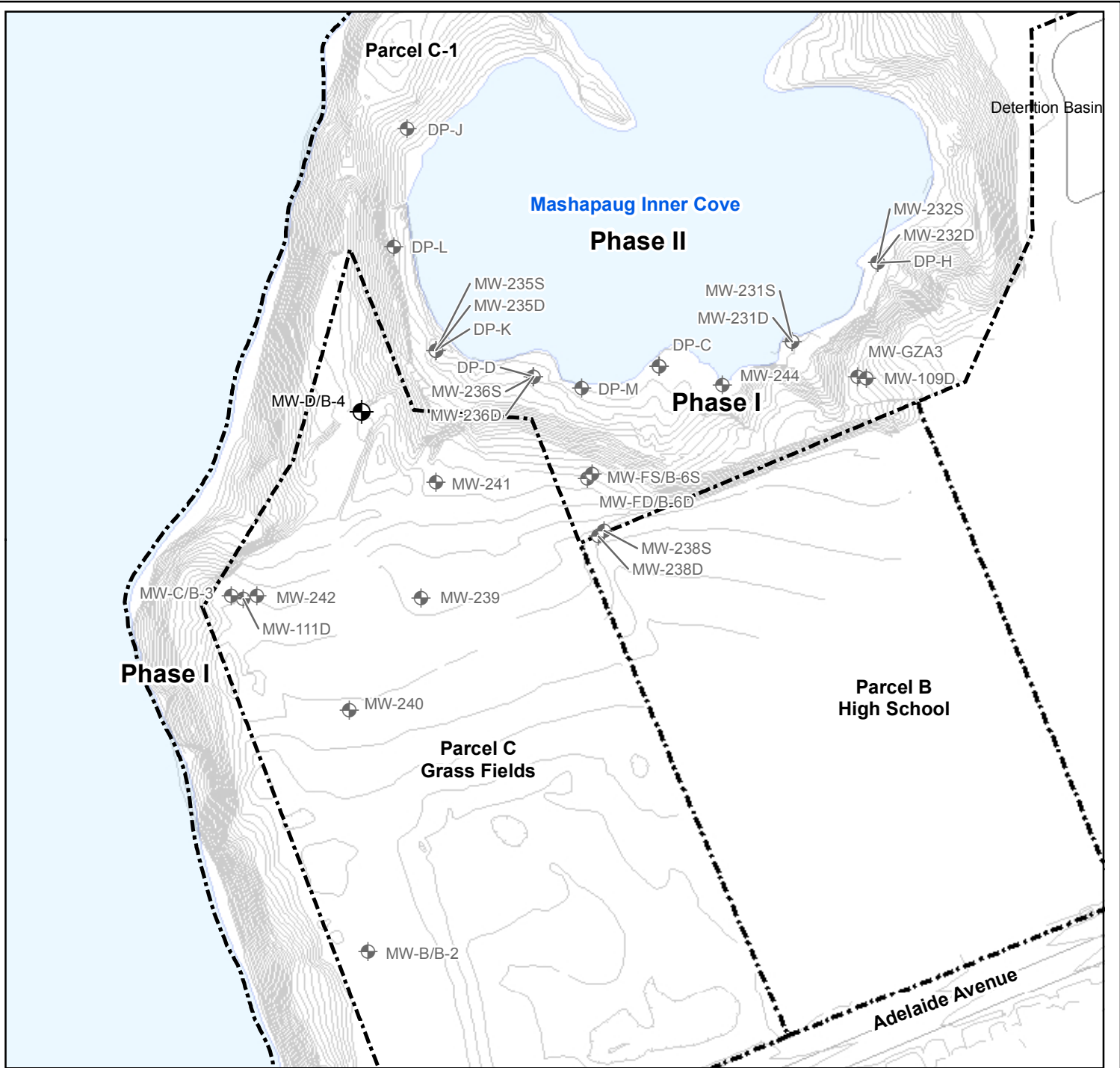
333 Adelaide Avenue
Providence, Rhode Island

Notes & Sources

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Feet

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FIGURE
1








PARCEL C: MW-D

Former Gorham
Manufacturing Site

333 Adelaide Avenue
Providence, Rhode Island

Legend

-  Existing Monitoring Well
-  Abandoned Monitoring Well
-  Approximate Site Boundary
-  Mashapaug Pond
-  Elevation Contour

Location of Site



Notes & Sources



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FIGURE
2

Appendix A

Field Data Record February 2022 Sampling Event

Appendix A - Stabilization Parameters for MW-D, February 2022 Sampling Event	
Date	2/8/2022
pH	6.94
Temp (°C)	9.26
Conductivity (µS/cm)	313
DO (mg/L)	3.36
ORP (mV)	-35.2
Turbidity (NTU)	0.5
Depth to Water (ft)	20.18
Depth to Bottom (ft)	22*

*Possible Obstruction noted at 22 ft.

Prepared by: BPT 2/16/2022

Checked by: JPK 4/26/2022

Appendix B

Laboratory Report, February 2022 Sampling Event

February 10, 2022

Catherine Joe Mainville
APTIM - MA
150 Royall Street
Canton, MA 02021

Project Location: 333 Adelaide Ave, Providence, RI
Client Job Number:
Project Number: 631010697
Laboratory Work Order Number: 22B0405

Enclosed are results of analyses for samples as received by the laboratory on February 8, 2022. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Scott C. Basal
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

APTIM - MA
150 Royall Street
Canton, MA 02021
ATTN: Catherine Joe Mainville

REPORT DATE: 2/10/2022

PURCHASE ORDER NUMBER: 216854

PROJECT NUMBER: 631010697

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 22B0405

The results of analyses performed on the following samples submitted to CON-TEST, a Pace Analytical Laboratory, are found in this report.

PROJECT LOCATION: 333 Adelaide Ave, Providence, RI

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
MW-D-20220208	22B0405-01	Ground Water		SW-846 8260D	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SW-846 8260D**Qualifications:****L-02**

Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.

Analyte & Samples(s) Qualified:**Bromomethane**

B300780-BS1, B300780-BSD1

RL-11

Elevated reporting limit due to high concentration of target compounds.

Analyte & Samples(s) Qualified:

22B0405-01[MW-D-20220208]

V-05

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:**Chloromethane**

22B0405-01[MW-D-20220208], B300780-BLK1, B300780-BS1, B300780-BSD1, S068128-CCV1

Methyl Acetate

22B0405-01[MW-D-20220208], B300780-BLK1, B300780-BS1, B300780-BSD1, S068128-CCV1

Naphthalene

22B0405-01[MW-D-20220208], B300780-BLK1, B300780-BS1, B300780-BSD1, S068128-CCV1

V-20

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:**Bromomethane**

B300780-BS1, B300780-BSD1, S068128-CCV1

V-34

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:**Bromomethane**

22B0405-01[MW-D-20220208], B300780-BLK1, B300780-BS1, B300780-BSD1, S068128-CCV1

Chloromethane

22B0405-01[MW-D-20220208], B300780-BLK1, B300780-BS1, B300780-BSD1, S068128-CCV1

The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Lisa A. Worthington
Technical Representative

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 333 Adelaide Ave, Providence, RI

Sample Description:

Work Order: 22B0405

Date Received: 2/8/2022

Field Sample #: MW-D-20220208

Sampled: 2/8/2022 09:00

Sample ID: 22B0405-01

Sample Matrix: Ground Water

Sample Flags: RL-11

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	1000	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Acrylonitrile	ND	100	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
tert-Amyl Methyl Ether (TAME)	ND	10	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Benzene	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Bromobenzene	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Bromochloromethane	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Bromodichloromethane	ND	10	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Bromoform	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Bromomethane	ND	100	µg/L	20	V-34	SW-846 8260D	2/9/22	2/9/22 20:43	LBD
2-Butanone (MEK)	ND	400	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
tert-Butyl Alcohol (TBA)	ND	400	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
n-Butylbenzene	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
sec-Butylbenzene	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
tert-Butylbenzene	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
tert-Butyl Ethyl Ether (TBEE)	ND	10	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Carbon Disulfide	ND	100	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Carbon Tetrachloride	ND	100	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Chlorobenzene	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Chlorodibromomethane	ND	10	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Chloroethane	ND	40	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Chloroform	ND	40	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Chloromethane	ND	40	µg/L	20	V-05, V-34	SW-846 8260D	2/9/22	2/9/22 20:43	LBD
2-Chlorotoluene	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
4-Chlorotoluene	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
1,2-Dibromo-3-chloropropane (DBCP)	ND	100	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
1,2-Dibromoethane (EDB)	ND	10	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Dibromomethane	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
1,2-Dichlorobenzene	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
1,3-Dichlorobenzene	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
1,4-Dichlorobenzene	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
trans-1,4-Dichloro-2-butene	ND	40	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Dichlorodifluoromethane (Freon 12)	ND	40	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
1,1-Dichloroethane	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
1,2-Dichloroethane	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
1,1-Dichloroethylene	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
cis-1,2-Dichloroethylene	70	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
trans-1,2-Dichloroethylene	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
1,2-Dichloropropane	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
1,3-Dichloropropane	ND	10	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
2,2-Dichloropropane	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
1,1-Dichloropropene	ND	40	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
cis-1,3-Dichloropropene	ND	10	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
trans-1,3-Dichloropropene	ND	10	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Diethyl Ether	ND	40	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 333 Adelaide Ave, Providence, RI

Sample Description:

Work Order: 22B0405

Date Received: 2/8/2022

Field Sample #: MW-D-20220208

Sampled: 2/8/2022 09:00

Sample ID: 22B0405-01

Sample Matrix: Ground Water

Sample Flags: RL-11

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	10	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
1,4-Dioxane	ND	1000	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Ethylbenzene	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Hexachlorobutadiene	ND	12	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
2-Hexanone (MBK)	ND	200	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Isopropylbenzene (Cumene)	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
p-Isopropyltoluene (p-Cymene)	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Methyl Acetate	ND	20	µg/L	20	V-05	SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Methyl tert-Butyl Ether (MTBE)	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Methyl Cyclohexane	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Methylene Chloride	ND	100	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
4-Methyl-2-pentanone (MIBK)	ND	200	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Naphthalene	ND	40	µg/L	20	V-05	SW-846 8260D	2/9/22	2/9/22 20:43	LBD
n-Propylbenzene	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Styrene	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
1,1,1,2-Tetrachloroethane	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
1,1,2,2-Tetrachloroethane	ND	10	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Tetrachloroethylene	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Tetrahydrofuran	ND	200	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Toluene	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
1,2,3-Trichlorobenzene	ND	100	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
1,2,4-Trichlorobenzene	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
1,3,5-Trichlorobenzene	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
1,1,1-Trichloroethane	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
1,1,2-Trichloroethane	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Trichloroethylene	1300	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Trichlorofluoromethane (Freon 11)	ND	40	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
1,2,3-Trichloropropane	ND	40	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
1,2,4-Trimethylbenzene	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
1,3,5-Trimethylbenzene	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Vinyl Chloride	ND	40	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
m+p Xylene	ND	40	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
o-Xylene	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD
Xylenes (total)	ND	20	µg/L	20		SW-846 8260D	2/9/22	2/9/22 20:43	LBD

Surrogates	% Recovery	Recovery Limits	Flag/Qual
1,2-Dichloroethane-d4	81.9	70-130	2/9/22 20:43
Toluene-d8	96.1	70-130	2/9/22 20:43
4-Bromofluorobenzene	98.4	70-130	2/9/22 20:43

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Sample Extraction Data

Prep Method: SW-846 5030B Analytical Method: SW-846 8260D

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22B0405-01 [MW-D-20220208]	B300780	0.25	5.00	02/09/22

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B300780 - SW-846 5030B										
Blank (B300780-BLK1)										
Prepared & Analyzed: 02/09/22										
Acetone	ND	50	µg/L							
Acrylonitrile	ND	5.0	µg/L							
tert-Amyl Methyl Ether (TAME)	ND	0.50	µg/L							
Benzene	ND	1.0	µg/L							
Bromobenzene	ND	1.0	µg/L							
Bromochloromethane	ND	1.0	µg/L							
Bromodichloromethane	ND	0.50	µg/L							
Bromoform	ND	1.0	µg/L							
Bromomethane	ND	2.0	µg/L							V-34
2-Butanone (MEK)	ND	20	µg/L							
tert-Butyl Alcohol (TBA)	ND	20	µg/L							
n-Butylbenzene	ND	1.0	µg/L							
sec-Butylbenzene	ND	1.0	µg/L							
tert-Butylbenzene	ND	1.0	µg/L							
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	µg/L							
Carbon Disulfide	ND	5.0	µg/L							
Carbon Tetrachloride	ND	5.0	µg/L							
Chlorobenzene	ND	1.0	µg/L							
Chlorodibromomethane	ND	0.50	µg/L							
Chloroethane	ND	2.0	µg/L							
Chloroform	ND	2.0	µg/L							
Chloromethane	ND	2.0	µg/L							V-05, V-34
2-Chlorotoluene	ND	1.0	µg/L							
4-Chlorotoluene	ND	1.0	µg/L							
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	µg/L							
1,2-Dibromoethane (EDB)	ND	0.50	µg/L							
Dibromomethane	ND	1.0	µg/L							
1,2-Dichlorobenzene	ND	1.0	µg/L							
1,3-Dichlorobenzene	ND	1.0	µg/L							
1,4-Dichlorobenzene	ND	1.0	µg/L							
trans-1,4-Dichloro-2-butene	ND	2.0	µg/L							
Dichlorodifluoromethane (Freon 12)	ND	2.0	µg/L							
1,1-Dichloroethane	ND	1.0	µg/L							
1,2-Dichloroethane	ND	1.0	µg/L							
1,1-Dichloroethylene	ND	1.0	µg/L							
cis-1,2-Dichloroethylene	ND	1.0	µg/L							
trans-1,2-Dichloroethylene	ND	1.0	µg/L							
1,2-Dichloropropane	ND	1.0	µg/L							
1,3-Dichloropropane	ND	0.50	µg/L							
2,2-Dichloropropane	ND	1.0	µg/L							
1,1-Dichloropropene	ND	2.0	µg/L							
cis-1,3-Dichloropropene	ND	0.50	µg/L							
trans-1,3-Dichloropropene	ND	0.50	µg/L							
Diethyl Ether	ND	2.0	µg/L							
Diisopropyl Ether (DIPE)	ND	0.50	µg/L							
1,4-Dioxane	ND	50	µg/L							
Ethylbenzene	ND	1.0	µg/L							
Hexachlorobutadiene	ND	0.60	µg/L							
2-Hexanone (MBK)	ND	10	µg/L							
Isopropylbenzene (Cumene)	ND	1.0	µg/L							
p-Isopropyltoluene (p-Cymene)	ND	1.0	µg/L							
Methyl Acetate	ND	1.0	µg/L							

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QUALITY CONTROL
Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B300780 - SW-846 5030B										
Blank (B300780-BLK1)										
Prepared & Analyzed: 02/09/22										
Methyl tert-Butyl Ether (MTBE)	ND	1.0	µg/L							
Methyl Cyclohexane	ND	1.0	µg/L							
Methylene Chloride	ND	5.0	µg/L							
4-Methyl-2-pentanone (MIBK)	ND	10	µg/L							
Naphthalene	ND	2.0	µg/L							V-05
n-Propylbenzene	ND	1.0	µg/L							
Styrene	ND	1.0	µg/L							
1,1,1,2-Tetrachloroethane	ND	1.0	µg/L							
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L							
Tetrachloroethylene	ND	1.0	µg/L							
Tetrahydrofuran	ND	10	µg/L							
Toluene	ND	1.0	µg/L							
1,2,3-Trichlorobenzene	ND	5.0	µg/L							
1,2,4-Trichlorobenzene	ND	1.0	µg/L							
1,3,5-Trichlorobenzene	ND	1.0	µg/L							
1,1,1-Trichloroethane	ND	1.0	µg/L							
1,1,2-Trichloroethane	ND	1.0	µg/L							
Trichloroethylene	ND	1.0	µg/L							
Trichlorofluoromethane (Freon 11)	ND	2.0	µg/L							
1,2,3-Trichloropropane	ND	2.0	µg/L							
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	1.0	µg/L							
1,2,4-Trimethylbenzene	ND	1.0	µg/L							
1,3,5-Trimethylbenzene	ND	1.0	µg/L							
Vinyl Chloride	ND	2.0	µg/L							
m+p Xylene	ND	2.0	µg/L							
o-Xylene	ND	1.0	µg/L							
Xylenes (total)	ND	1.0	µg/L							
Surrogate: 1,2-Dichloroethane-d4	20.8		µg/L	25.0		83.1	70-130			
Surrogate: Toluene-d8	24.1		µg/L	25.0		96.2	70-130			
Surrogate: 4-Bromofluorobenzene	23.8		µg/L	25.0		95.2	70-130			
LCS (B300780-BS1)										
Prepared & Analyzed: 02/09/22										
Acetone	93.5	50	µg/L	100		93.5	70-160			†
Acrylonitrile	9.55	5.0	µg/L	10.0		95.5	70-130			
tert-Amyl Methyl Ether (TAME)	9.83	0.50	µg/L	10.0		98.3	70-130			
Benzene	9.46	1.0	µg/L	10.0		94.6	70-130			
Bromobenzene	10.2	1.0	µg/L	10.0		102	70-130			
Bromochloromethane	11.5	1.0	µg/L	10.0		115	70-130			
Bromodichloromethane	9.88	0.50	µg/L	10.0		98.8	70-130			
Bromoform	11.8	1.0	µg/L	10.0		118	70-130			
Bromomethane	19.0	2.0	µg/L	10.0		190 *	40-160			L-02, V-20, V-34 †
2-Butanone (MEK)	86.5	20	µg/L	100		86.5	40-160			†
tert-Butyl Alcohol (TBA)	94.9	20	µg/L	100		94.9	40-160			†
n-Butylbenzene	8.97	1.0	µg/L	10.0		89.7	70-130			
sec-Butylbenzene	9.59	1.0	µg/L	10.0		95.9	70-130			
tert-Butylbenzene	10.2	1.0	µg/L	10.0		102	70-130			
tert-Butyl Ethyl Ether (TBEE)	9.32	0.50	µg/L	10.0		93.2	70-130			
Carbon Disulfide	89.0	5.0	µg/L	100		89.0	70-130			
Carbon Tetrachloride	10.4	5.0	µg/L	10.0		104	70-130			
Chlorobenzene	10.7	1.0	µg/L	10.0		107	70-130			
Chlorodibromomethane	10.9	0.50	µg/L	10.0		109	70-130			
Chloroethane	10.3	2.0	µg/L	10.0		103	70-130			

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QUALITY CONTROL
Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B300780 - SW-846 5030B										
LCS (B300780-BS1)										
Prepared & Analyzed: 02/09/22										
Chloroform	9.41	2.0	µg/L	10.0		94.1	70-130			
Chloromethane	4.27	2.0	µg/L	10.0		42.7	40-160			V-05, V-34 †
2-Chlorotoluene	10.4	1.0	µg/L	10.0		104	70-130			
4-Chlorotoluene	10.6	1.0	µg/L	10.0		106	70-130			
1,2-Dibromo-3-chloropropane (DBCP)	9.09	5.0	µg/L	10.0		90.9	70-130			
1,2-Dibromoethane (EDB)	10.5	0.50	µg/L	10.0		105	70-130			
Dibromomethane	10.6	1.0	µg/L	10.0		106	70-130			
1,2-Dichlorobenzene	10.0	1.0	µg/L	10.0		100	70-130			
1,3-Dichlorobenzene	10.1	1.0	µg/L	10.0		101	70-130			
1,4-Dichlorobenzene	9.96	1.0	µg/L	10.0		99.6	70-130			
trans-1,4-Dichloro-2-butene	10.6	2.0	µg/L	10.0		106	70-130			
Dichlorodifluoromethane (Freon 12)	9.23	2.0	µg/L	10.0		92.3	40-160			†
1,1-Dichloroethane	9.37	1.0	µg/L	10.0		93.7	70-130			
1,2-Dichloroethane	10.3	1.0	µg/L	10.0		103	70-130			
1,1-Dichloroethylene	10.5	1.0	µg/L	10.0		105	70-130			
cis-1,2-Dichloroethylene	9.53	1.0	µg/L	10.0		95.3	70-130			
trans-1,2-Dichloroethylene	10.4	1.0	µg/L	10.0		104	70-130			
1,2-Dichloropropane	9.91	1.0	µg/L	10.0		99.1	70-130			
1,3-Dichloropropane	9.79	0.50	µg/L	10.0		97.9	70-130			
2,2-Dichloropropane	9.26	1.0	µg/L	10.0		92.6	40-130			†
1,1-Dichloropropene	9.44	2.0	µg/L	10.0		94.4	70-130			
cis-1,3-Dichloropropene	9.21	0.50	µg/L	10.0		92.1	70-130			
trans-1,3-Dichloropropene	9.02	0.50	µg/L	10.0		90.2	70-130			
Diethyl Ether	9.63	2.0	µg/L	10.0		96.3	70-130			
Diisopropyl Ether (DIPE)	9.07	0.50	µg/L	10.0		90.7	70-130			
1,4-Dioxane	107	50	µg/L	100		107	40-130			†
Ethylbenzene	10.8	1.0	µg/L	10.0		108	70-130			
Hexachlorobutadiene	8.62	0.60	µg/L	10.0		86.2	70-130			
2-Hexanone (MBK)	95.5	10	µg/L	100		95.5	70-160			†
Isopropylbenzene (Cumene)	11.3	1.0	µg/L	10.0		113	70-130			
p-Isopropyltoluene (p-Cymene)	10.0	1.0	µg/L	10.0		100	70-130			
Methyl Acetate	7.55	1.0	µg/L	10.0		75.5	70-130			V-05
Methyl tert-Butyl Ether (MTBE)	9.52	1.0	µg/L	10.0		95.2	70-130			
Methyl Cyclohexane	10.1	1.0	µg/L	10.0		101	70-130			
Methylene Chloride	9.03	5.0	µg/L	10.0		90.3	70-130			
4-Methyl-2-pentanone (MIBK)	101	10	µg/L	100		101	70-160			†
Naphthalene	8.21	2.0	µg/L	10.0		82.1	40-130			V-05 †
n-Propylbenzene	10.5	1.0	µg/L	10.0		105	70-130			
Styrene	10.8	1.0	µg/L	10.0		108	70-130			
1,1,1,2-Tetrachloroethane	12.0	1.0	µg/L	10.0		120	70-130			
1,1,2,2-Tetrachloroethane	10.3	0.50	µg/L	10.0		103	70-130			
Tetrachloroethylene	11.8	1.0	µg/L	10.0		118	70-130			
Tetrahydrofuran	9.70	10	µg/L	10.0		97.0	70-130			
Toluene	9.89	1.0	µg/L	10.0		98.9	70-130			
1,2,3-Trichlorobenzene	8.74	5.0	µg/L	10.0		87.4	70-130			
1,2,4-Trichlorobenzene	9.54	1.0	µg/L	10.0		95.4	70-130			
1,3,5-Trichlorobenzene	9.63	1.0	µg/L	10.0		96.3	70-130			
1,1,1-Trichloroethane	10.2	1.0	µg/L	10.0		102	70-130			
1,1,2-Trichloroethane	10.2	1.0	µg/L	10.0		102	70-130			
Trichloroethylene	10.2	1.0	µg/L	10.0		102	70-130			
Trichlorofluoromethane (Freon 11)	9.59	2.0	µg/L	10.0		95.9	70-130			
1,2,3-Trichloropropane	11.0	2.0	µg/L	10.0		110	70-130			

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QUALITY CONTROL
Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B300780 - SW-846 5030B										
LCS (B300780-BS1)										
Prepared & Analyzed: 02/09/22										
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	11.1	1.0	µg/L	10.0		111	70-130			
1,2,4-Trimethylbenzene	9.94	1.0	µg/L	10.0		99.4	70-130			
1,3,5-Trimethylbenzene	11.3	1.0	µg/L	10.0		113	70-130			
Vinyl Chloride	9.35	2.0	µg/L	10.0		93.5	40-160			†
m+p Xylene	21.9	2.0	µg/L	20.0		110	70-130			
o-Xylene	10.7	1.0	µg/L	10.0		107	70-130			
Xylenes (total)	32.6	1.0	µg/L	30.0		109	0-200			
Surrogate: 1,2-Dichloroethane-d4	19.9		µg/L	25.0		79.7	70-130			
Surrogate: Toluene-d8	23.7		µg/L	25.0		94.8	70-130			
Surrogate: 4-Bromofluorobenzene	24.8		µg/L	25.0		99.0	70-130			
LCS Dup (B300780-BSD1)										
Prepared & Analyzed: 02/09/22										
Acetone	89.8	50	µg/L	100		89.8	70-160	4.06	25	†
Acrylonitrile	10.1	5.0	µg/L	10.0		101	70-130	5.60	25	
tert-Amyl Methyl Ether (TAME)	10.0	0.50	µg/L	10.0		100	70-130	2.01	25	
Benzene	9.93	1.0	µg/L	10.0		99.3	70-130	4.85	25	
Bromobenzene	10.6	1.0	µg/L	10.0		106	70-130	3.07	25	
Bromochloromethane	11.8	1.0	µg/L	10.0		118	70-130	2.92	25	
Bromodichloromethane	10.3	0.50	µg/L	10.0		103	70-130	4.55	25	
Bromoform	11.8	1.0	µg/L	10.0		118	70-130	0.0844	25	
Bromomethane	18.3	2.0	µg/L	10.0		183 *	40-160	3.27	25	L-02, V-20, V-34 †
2-Butanone (MEK)	84.0	20	µg/L	100		84.0	40-160	3.01	25	†
tert-Butyl Alcohol (TBA)	87.8	20	µg/L	100		87.8	40-160	7.74	25	†
n-Butylbenzene	9.02	1.0	µg/L	10.0		90.2	70-130	0.556	25	
sec-Butylbenzene	9.79	1.0	µg/L	10.0		97.9	70-130	2.06	25	
tert-Butylbenzene	10.3	1.0	µg/L	10.0		103	70-130	1.56	25	
tert-Butyl Ethyl Ether (TBEE)	9.67	0.50	µg/L	10.0		96.7	70-130	3.69	25	
Carbon Disulfide	95.0	5.0	µg/L	100		95.0	70-130	6.47	25	
Carbon Tetrachloride	11.0	5.0	µg/L	10.0		110	70-130	5.77	25	
Chlorobenzene	11.0	1.0	µg/L	10.0		110	70-130	2.75	25	
Chlorodibromomethane	11.5	0.50	µg/L	10.0		115	70-130	5.43	25	
Chloroethane	10.4	2.0	µg/L	10.0		104	70-130	0.580	25	
Chloroform	9.59	2.0	µg/L	10.0		95.9	70-130	1.89	25	
Chloromethane	4.21	2.0	µg/L	10.0		42.1	40-160	1.42	25	V-05, V-34 †
2-Chlorotoluene	10.3	1.0	µg/L	10.0		103	70-130	1.45	25	
4-Chlorotoluene	10.7	1.0	µg/L	10.0		107	70-130	0.940	25	
1,2-Dibromo-3-chloropropane (DBCP)	8.66	5.0	µg/L	10.0		86.6	70-130	4.85	25	
1,2-Dibromoethane (EDB)	10.8	0.50	µg/L	10.0		108	70-130	3.18	25	
Dibromomethane	11.0	1.0	µg/L	10.0		110	70-130	4.44	25	
1,2-Dichlorobenzene	10.2	1.0	µg/L	10.0		102	70-130	2.27	25	
1,3-Dichlorobenzene	10.3	1.0	µg/L	10.0		103	70-130	1.97	25	
1,4-Dichlorobenzene	10.2	1.0	µg/L	10.0		102	70-130	1.89	25	
trans-1,4-Dichloro-2-butene	10.4	2.0	µg/L	10.0		104	70-130	1.90	25	
Dichlorodifluoromethane (Freon 12)	9.26	2.0	µg/L	10.0		92.6	40-160	0.325	25	†
1,1-Dichloroethane	9.71	1.0	µg/L	10.0		97.1	70-130	3.56	25	
1,2-Dichloroethane	10.8	1.0	µg/L	10.0		108	70-130	4.56	25	
1,1-Dichloroethylene	11.1	1.0	µg/L	10.0		111	70-130	5.38	25	
cis-1,2-Dichloroethylene	9.95	1.0	µg/L	10.0		99.5	70-130	4.31	25	
trans-1,2-Dichloroethylene	10.6	1.0	µg/L	10.0		106	70-130	2.38	25	
1,2-Dichloropropane	10.5	1.0	µg/L	10.0		105	70-130	5.40	25	
1,3-Dichloropropane	10.4	0.50	µg/L	10.0		104	70-130	5.85	25	
2,2-Dichloropropane	9.80	1.0	µg/L	10.0		98.0	40-130	5.67	25	†

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QUALITY CONTROL
Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B300780 - SW-846 5030B										
LCS Dup (B300780-BSD1)										
Prepared & Analyzed: 02/09/22										
1,1-Dichloropropene	9.74	2.0	µg/L	10.0		97.4	70-130	3.13	25	
cis-1,3-Dichloropropene	9.59	0.50	µg/L	10.0		95.9	70-130	4.04	25	
trans-1,3-Dichloropropene	9.58	0.50	µg/L	10.0		95.8	70-130	6.02	25	
Diethyl Ether	10.2	2.0	µg/L	10.0		102	70-130	5.94	25	
Diisopropyl Ether (DIPE)	9.65	0.50	µg/L	10.0		96.5	70-130	6.20	25	
1,4-Dioxane	111	50	µg/L	100		111	40-130	4.25	50	† ‡
Ethylbenzene	10.9	1.0	µg/L	10.0		109	70-130	0.369	25	
Hexachlorobutadiene	8.61	0.60	µg/L	10.0		86.1	70-130	0.116	25	
2-Hexanone (MBK)	92.7	10	µg/L	100		92.7	70-160	3.04	25	†
Isopropylbenzene (Cumene)	11.5	1.0	µg/L	10.0		115	70-130	1.84	25	
p-Isopropyltoluene (p-Cymene)	10.1	1.0	µg/L	10.0		101	70-130	0.993	25	
Methyl Acetate	7.42	1.0	µg/L	10.0		74.2	70-130	1.74	25	V-05
Methyl tert-Butyl Ether (MTBE)	9.73	1.0	µg/L	10.0		97.3	70-130	2.18	25	
Methyl Cyclohexane	10.6	1.0	µg/L	10.0		106	70-130	4.36	25	
Methylene Chloride	9.76	5.0	µg/L	10.0		97.6	70-130	7.77	25	
4-Methyl-2-pentanone (MIBK)	98.3	10	µg/L	100		98.3	70-160	2.42	25	†
Naphthalene	8.04	2.0	µg/L	10.0		80.4	40-130	2.09	25	V-05 †
n-Propylbenzene	10.6	1.0	µg/L	10.0		106	70-130	1.04	25	
Styrene	11.2	1.0	µg/L	10.0		112	70-130	4.00	25	
1,1,1,2-Tetrachloroethane	12.3	1.0	µg/L	10.0		123	70-130	2.80	25	
1,1,2,2-Tetrachloroethane	10.1	0.50	µg/L	10.0		101	70-130	2.06	25	
Tetrachloroethylene	12.3	1.0	µg/L	10.0		123	70-130	3.97	25	
Tetrahydrofuran	9.39	10	µg/L	10.0		93.9	70-130	3.25	25	
Toluene	10.3	1.0	µg/L	10.0		103	70-130	4.35	25	
1,2,3-Trichlorobenzene	8.58	5.0	µg/L	10.0		85.8	70-130	1.85	25	
1,2,4-Trichlorobenzene	9.72	1.0	µg/L	10.0		97.2	70-130	1.87	25	
1,3,5-Trichlorobenzene	9.81	1.0	µg/L	10.0		98.1	70-130	1.85	25	
1,1,1-Trichloroethane	10.6	1.0	µg/L	10.0		106	70-130	3.17	25	
1,1,2-Trichloroethane	11.1	1.0	µg/L	10.0		111	70-130	8.26	25	
Trichloroethylene	10.8	1.0	µg/L	10.0		108	70-130	5.34	25	
Trichlorofluoromethane (Freon 11)	9.75	2.0	µg/L	10.0		97.5	70-130	1.65	25	
1,2,3-Trichloropropane	11.0	2.0	µg/L	10.0		110	70-130	0.273	25	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	11.6	1.0	µg/L	10.0		116	70-130	4.32	25	
1,2,4-Trimethylbenzene	10.4	1.0	µg/L	10.0		104	70-130	4.23	25	
1,3,5-Trimethylbenzene	11.4	1.0	µg/L	10.0		114	70-130	1.32	25	
Vinyl Chloride	9.67	2.0	µg/L	10.0		96.7	40-160	3.36	25	†
m+p Xylene	22.1	2.0	µg/L	20.0		111	70-130	0.772	25	
o-Xylene	10.8	1.0	µg/L	10.0		108	70-130	1.03	25	
Xylenes (total)	32.9	1.0	µg/L	30.0		110	0-200	0.855		
Surrogate: 1,2-Dichloroethane-d4	20.3		µg/L	25.0		81.2	70-130			
Surrogate: Toluene-d8	24.2		µg/L	25.0		96.7	70-130			
Surrogate: 4-Bromofluorobenzene	24.7		µg/L	25.0		98.7	70-130			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
L-02	Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.
RL-11	Elevated reporting limit due to high concentration of target compounds.
V-05	Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.
V-20	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.
V-34	Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8260D in Water</i>	
Acetone	CT,ME,NH,VA,NY
Acrylonitrile	CT,ME,NH,VA,NY
tert-Amyl Methyl Ether (TAME)	ME,NH,VA,NY
Benzene	CT,ME,NH,VA,NY
Bromobenzene	ME,NY
Bromochloromethane	ME,NH,VA,NY
Bromodichloromethane	CT,ME,NH,VA,NY
Bromoform	CT,ME,NH,VA,NY
Bromomethane	CT,ME,NH,VA,NY
2-Butanone (MEK)	CT,ME,NH,VA,NY
tert-Butyl Alcohol (TBA)	ME,NH,VA,NY
n-Butylbenzene	ME,VA,NY
sec-Butylbenzene	ME,VA,NY
tert-Butylbenzene	ME,VA,NY
tert-Butyl Ethyl Ether (TBEE)	ME,NH,VA,NY
Carbon Disulfide	CT,ME,NH,VA,NY
Carbon Tetrachloride	CT,ME,NH,VA,NY
Chlorobenzene	CT,ME,NH,VA,NY
Chlorodibromomethane	CT,ME,NH,VA,NY
Chloroethane	CT,ME,NH,VA,NY
Chloroform	CT,ME,NH,VA,NY
Chloromethane	CT,ME,NH,VA,NY
2-Chlorotoluene	ME,NH,VA,NY
4-Chlorotoluene	ME,NH,VA,NY
1,2-Dibromo-3-chloropropane (DBCP)	ME,NY
1,2-Dibromoethane (EDB)	ME,NY
Dibromomethane	ME,NH,VA,NY
1,2-Dichlorobenzene	CT,ME,NH,VA,NY
1,3-Dichlorobenzene	CT,ME,NH,VA,NY
1,4-Dichlorobenzene	CT,ME,NH,VA,NY
trans-1,4-Dichloro-2-butene	ME,NH,VA,NY
Dichlorodifluoromethane (Freon 12)	ME,NH,VA,NY
1,1-Dichloroethane	CT,ME,NH,VA,NY
1,2-Dichloroethane	CT,ME,NH,VA,NY
1,1-Dichloroethylene	CT,ME,NH,VA,NY
cis-1,2-Dichloroethylene	ME,NY
trans-1,2-Dichloroethylene	CT,ME,NH,VA,NY
1,2-Dichloropropane	CT,ME,NH,VA,NY
1,3-Dichloropropane	ME,VA,NY
2,2-Dichloropropane	ME,NH,VA,NY
1,1-Dichloropropene	ME,NH,VA,NY
cis-1,3-Dichloropropene	CT,ME,NH,VA,NY
trans-1,3-Dichloropropene	CT,ME,NH,VA,NY
Diethyl Ether	ME,NY
Diisopropyl Ether (DIPE)	ME,NH,VA,NY
1,4-Dioxane	ME,NY
Ethylbenzene	CT,ME,NH,VA,NY

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8260D in Water</i>	
Hexachlorobutadiene	CT,ME,NH,VA,NY
2-Hexanone (MBK)	CT,ME,NH,VA,NY
Isopropylbenzene (Cumene)	ME,VA,NY
p-Isopropyltoluene (p-Cymene)	CT,ME,NH,VA,NY
Methyl Acetate	ME,NY
Methyl tert-Butyl Ether (MTBE)	CT,ME,NH,VA,NY
Methyl Cyclohexane	NY
Methylene Chloride	CT,ME,NH,VA,NY
4-Methyl-2-pentanone (MIBK)	CT,ME,NH,VA,NY
Naphthalene	ME,NH,VA,NY
n-Propylbenzene	CT,ME,NH,VA,NY
Styrene	CT,ME,NH,VA,NY
1,1,1,2-Tetrachloroethane	CT,ME,NH,VA,NY
1,1,2,2-Tetrachloroethane	CT,ME,NH,VA,NY
Tetrachloroethylene	CT,ME,NH,VA,NY
Toluene	CT,ME,NH,VA,NY
1,2,3-Trichlorobenzene	ME,NH,VA,NY
1,2,4-Trichlorobenzene	CT,ME,NH,VA,NY
1,3,5-Trichlorobenzene	ME
1,1,1-Trichloroethane	CT,ME,NH,VA,NY
1,1,2-Trichloroethane	CT,ME,NH,VA,NY
Trichloroethylene	CT,ME,NH,VA,NY
Trichlorofluoromethane (Freon 11)	CT,ME,NH,VA,NY
1,2,3-Trichloropropane	ME,NH,VA,NY
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	VA,NY
1,2,4-Trimethylbenzene	ME,VA,NY
1,3,5-Trimethylbenzene	ME,VA,NY
Vinyl Chloride	CT,ME,NH,VA,NY
m+p Xylene	CT,ME,NH,VA,NY
o-Xylene	CT,ME,NH,VA,NY
Xylenes (total)	ME,NY

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Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2024
MA	Massachusetts DEP	M-MA100	06/30/2022
CT	Connecticut Department of Public Health	PH-0165	12/31/2022
NY	New York State Department of Health	10899 NELAP	04/1/2022
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2023
RI	Rhode Island Department of Health	LAO00373	12/30/2022
NC	North Carolina Div. of Water Quality	652	12/31/2022
NJ	New Jersey DEP	MA007 NELAP	06/30/2022
FL	Florida Department of Health	E871027 NELAP	06/30/2022
VT	Vermont Department of Health Lead Laboratory	LL720741	07/30/2022
ME	State of Maine	MA00100	06/9/2023
VA	Commonwealth of Virginia	460217	12/14/2022
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2022
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2022
NC-DW	North Carolina Department of Health	25703	07/31/2022
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2022
MI	Dept. of Env, Great Lakes, and Energy	9100	09/6/2022

2260405

Doc # 381 Rev 5.07/13/2021



Phone: 413-525-2332
Fax: 413-525-6405

Access, COC's and Support Requests

Company Name: ARTIM
Address: 150 ROYAL ST CHANDLER, MA
Phone: 1-617-794-1767
Project Name: TEXARON FAVORITE
Project Location: 333 ADRIANO AVE PROV, RI
Project Number: 631010697
Project Manager: CATHERINE JOE
Pace Quote Name/Number: 216834
Invoice Recipient: CATHERINE JOE
Sampled By: DAN CHANNON

39 Spruce Street
East Longmeadow, MA 01028

CHAIN OF CUSTODY RECORD

7-Day PFAS 10-Day (std) 10-Day Field Filtered Lab to Filter
Rush Approval Samples
1-Day 3-Day Field Filtered Lab to Filter
2-Day 4-Day
Format: PDF EXCEL
Other: SOXHLET
CLP Like Data Pkg Required:
Email To: CATHERINE.JOE@ARTIM.COM
Fax To #: NON SOXHLET

ANALYSIS REQUESTED

Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	Matrix Code	Conc Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE	Preservation Code
MW-D-2020208-1802-010	7/18/22 0900		GRAB	GW	U	2	2				Couriers Use Only Total Number Of: VIALS <u>2</u> GLASS PLASTIC BACTERIA ENCORE Glassware in the fridge? <input checked="" type="checkbox"/> N Glassware in freezer? <input checked="" type="checkbox"/> Y Prepackaged Coolers? <input checked="" type="checkbox"/> N
											1 Matrix Codes: GW = Ground Water WW = Waste Water DW = Drinking Water A = Air S = Soil SL = Sludge SOL = Solid O = Other (please define)
											2 Preservation Codes: 1 = Iced H = HCL M = Methanol N = Nitric Acid S = Sulfuric Acid B = Sodium Bisulfate X = Sodium Hydroxide T = Sodium Thiosulfate O = Other (please define)

Client Comments:

Relinquished by: (signature) [Signature] Date/Time: 7/23/22 12:30
 Received by: (signature) [Signature] Date/Time: 7-23-22 12:30
 Relinquished by: (signature) [Signature] Date/Time: 7-23-22 12:30
 Received by: (signature) [Signature] Date/Time: 7-23-22 12:30
 Relinquished by: (signature) [Signature] Date/Time: 7-23-22 12:30
 Received by: (signature) [Signature] Date/Time: 7-23-22 12:30

Special Requirements
 MA MCP Required
 MCP Certification Form Required
 CT RCP Required
 RCP Certification Form Required
 MA State DW Required
 PWSID # _____
 Project Entity: Government Federal City
 Municipality: 21 J
 MWRA School MBTA
 WRTA Chromatogram
 AIHA-LAP, LLC

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
 H - High; M - Medium; L - Low; C - Clean; U - Unknown

NEIAC and AIHA-LAP, LLC Accredited

Disclaimer: Pace Analytical is not responsible for any omitted information on the Chain of Custody. The Chain of Custody is a legal document that must be complete and accurate and is used to determine what analyses the laboratory will perform. Any missing information is not the laboratory's responsibility. Pace Analytical values your partnership on each project and will try to assist with missing information, but will not be held accountable.

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples _____



con-test
ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client Aptim

Received by OK Date 2-8-22 Time 10:55

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____
 Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C T By Gun # 9 Actual Temp - 5.4
 By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? NA Were Samples Tampered with? NA
 Was COC Relinquished? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T
 Did COC include all pertinent information? Client T Analysis T Sampler Name F
 Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? F
 Are there Lab to Filters? F Who was notified? _____
 Are there Rushes? F Who was notified? _____
 Are there Short Holds? F Who was notified? _____

Is there enough Volume? F
 Is there Headspace where applicable? F MS/MSD? F
 Proper Media/Containers Used? T Is splitting samples required? F
 Were trip blanks received? F On COC? F
 Do all samples have the proper pH? NA Acid _____ Base _____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-	<u>2</u>	500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments: