New Bedford Harbor, Sawyer Street CDF Final Groundwater Sampling Report

New Bedford Harbor Superfund Site, New Bedford MA

February 7, 2022

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Site Information

A. Site Name:	New Bedford Harbor Superfund Site
B. Location:	Sawyer Street, New Bedford MA
C. EPA Site Contacts:	Natalie Burgo (SEMD) – Remedial Project Manager (RPM) Burgo.Natalie@epa.gov
D. EPA ID Number:	MAD980731335

Background Information

A. Dates of Site Work and:	September 6, 2021: Sunny mid 70's^{o}F
Weather Conditions	September 7, 2021: Sunny mid 70's^{o}F
B. FSB Sample Leader:	William Sommer (LSASD - FSB)
C. US EPA Field Personnel:	Shannon Brunelle (LSASD-FSB)
D. State/Local Representative(s):	None

The purpose of this report is to summarize all field work performed by EPA Region 1's Field Services Branch (FSB) at the Sawyer street (CDF), New Bedford Harbor Superfund Site in the city of New Bedford, MA on September 6 and 7, 2021. FSB investigators conducted groundwater sampling for the analysis of Polychlorinated Biphenyls (PCBs), Volatile Organic Compounds (VOCs), metals, and Total Suspended Solids (TSS).

Site Background

The New Bedford Harbor Superfund Site (herein referred to as "the site") is an 18,000 acre urban estuary with sediment that is highly contaminated with PCBs and heavy metals. Contamination results from improper disposal practices of industrial wastes from several manufacturing operations into the Acushnet river and the harbor. High levels of PCBs exist in the sediments and the ambient water of the harbor and continue to pose a risk within the seafood chain of the harbor. The harbor has been closed to fishing since 1979.

The portion of the site of interest is the Sawyer Street CDF, a land-based area used for the storage of remediation derived sediment and debris consisting of three "cells" which were constructed for sediment storage (Cell 1) and water treatment operations (Cells 2 and 3), as well as a "Debris Disposal Area" (DDA). In 2021, Cell 3 was drained, liner removed, and backfilled. Figure 1 in Attachment 1 shows this current configuration. The DDA contains approximately 19,000 yd3 of contaminated sediments (weighted PCB average between 200 and 260ppm) deposited from 1989-2014. Cell 1 contains approximately 20,941 cy of TSCA waste or mixed (RCRA and TSCA) waste. The RCRA waste was identified as material with trichloroethylene (TCE) toxicity characteristic leaching procedure (TCLP) values greater than 500 micrograms per liter (µg/L). The DDA area is underlain by a low permeability clay layer, minimizing the risk of contaminant migration. Additionally, Cell 1 is underlain with a 60-mil high density polypropylene (HDPE) liner. To ensure this design is protective of human health and the environment, the 2001 Explanation of Significant Differences (ESD) documented that annual groundwater monitoring would be performed.

Baseline groundwater monitoring began in 2001. The monitoring program consists of six wells, which are located around the perimeter of the Sawyer Street CDF (see Figure 1). Low-flow samples collected from these wells are tested for PCB aroclors, metals, VOCs, and total suspended solids and compared to the Massachusetts Contingency Plan Method 1 Cleanup Standards Groundwater 3 standards (MCP GW-3), which apply to all groundwater in the Commonwealth. These standards are intended to address the adverse ecological effects that could result from discharge of oil or hazardous materials to surface water. . Historically, contaminant levels observed in these wells have been low or non-detect.

Sampling Summary

Groundwater Sampling:

FSB personnel collected a total of 18 groundwater samples from monitoring wells and one sample from an onsite treatment system during the event. The monitoring well samples were collected in accordance with the Standard Operating Procedure (SOP) for the Low Flow Method [4], and the signed sampling and analysis plan (attachment 7). Sampling began by opening wells and cutting sampling tubing to a length approximately to the midpoint of the well screen. The static water level was measured and other identifying features about the well were recorded onto purge log-sheets (refer to attachment 8). Each well was outfitted with a peristaltic or bladder pump, YSI ProDSS water quality Sonde, and Hach turbidimeter to monitor the well during the sampling. Flow was recorded using a stopwatch and a graduated cylinder. Readings were documented on purge sheets every ten minutes to begin, and then every five minutes until equilibrium standards were reached. Equilibrium goals for purging are as follows:

- Turbidity (±10% for values greater than 5 NTU)
- Temperature (±3%)
- pH (±0.1 unit)
- ORP (±10 millivolts)
- Specific conductance (±3%)
- DO (±10% for values greater than 0.5 mg/L).

YSI Sondes were used for the water quality readings in accordance with the FSB SOP for the ProDSS Sondes [7]. Prior to entering the field, calibration of the sondes was completed using the National Institute of Standards and Technology (NIST) traceable reference solution. After each day of sampling, a post check verification was completed and if required; recalibrated. Calibration notes were recorded in dedicated logbooks to the instruments. Upon reaching equilibrium or after continuous pumping for at least two hours, the connection from the peristaltic pump to the YSI ProDSS was rerouted using a T-valve and directed into the sampling container. Refer to Table 1 of Appendix A for information of the well sampling including monitoring well construction and sample set-ups.

Sample Locations

The monitoring wells sampled were selected by the RPM prior to sampling. The well's construction and locations were as follows; the screen intervals of the wells are unknown:

Summary of Monitoring Well Sample Locations				
Well ID	**Well Diameter (inches)**	**Screen Intervals**	**Well Depth (ft)**	**Expected Groundwater Depth (ft)**
MW-1	2	UNK	23.96	16.78
MW-3	2	UNK	23.94	14.49
MW-4A	2	UNK	23.5	11.33
MW-5	2	UNK	18.6	10.38
MW-6	2	UNK	18.9	12.87
MW-7A	2	UNK	14.25	11.45

Figure 1: Monitoring Well Locations Sawyer Street CDF
New Bedford Harbor Superfund Site
Aerial photograph courtesy of Ed Pepin

Investigation Results

Field Grab Results

In-situ field parameter readings were collected in the field using a YSI ProDSS Sonde in accordance with the FSB SOP for the YSI ProDSS sonde [7]. The results were instantly memorialized in writing in the dedicated site logbook. Readings were collected for pH using Standard method (SM) 4500 H and 4500 B, specific conductivity using SM EPA 120.1, temperature using SM 2550 B, and dissolved oxygen using the ASTM method D888-09©, and ORP using SM 2580 B.

The final field parameter readings at each location are as follows, and are also listed in Table 2 of Appendix A.

Sample ID	Date and Time	pH	DO (mg/L)	SPC (µs/cm)	Temp (°C)	ORP (mV)	Turbidity (FNU)
MW-6	9/7/2021 12:33	7.16	0.1	4149	16.1	-105.5	4.92
MW-4A	9/7/2021 15:04	7.03	0.1	12273	16.6	-323.1	2.19
MW-5	9/7/2021 16:10	7.45	0	10682	16.7	-231.4	2.94
MW-1	9/8/2021 9:23	6.81	1.1	709	19.2	69.9	0.97
MW-7A	9/8/2021 11:03	6.65	0.2	817	18.3	131	0.3
MW-3	9/8/2021 12:32	6.32	0.1	5629	17	146.8	1.27

Analytical Results

All laboratory analytical reports (metals by ICP-MS, PCB Aroclors in water, total suspended solids (TSS) in water, and VOAs in water) for this sampling event are included in attachments 2, 3, 4 and 5, respectively, of Appendix B.

Metals:

Metals samples were analyzed by the LSB SOP for metals by ICP-MS [10]. All monitoring wells yielded a detectable concentration for ICP-MS metals. One exceedance MCP GW-3 standard occurred in MW-3, specifically for cadmium. The MCP GW-3 standard is 4 ug/L and the sample result for MW-3 was 4.5 ug/L. Please refer to Table 3 of Appendix A.

PCBs:

PCBs were analyzed using the LSB SOP for Pesticides/PCBs in aqueous samples-low level [12]. The laboratory analysis indicated all samples were below the laboratory reporting limit of 0.5 ug/L and therefore Non-Detect (ND). There were no exceedances of the MCP GW-3 standards.

TSS:

TSS were analyzed using the LSB SOP for Non-Filterable, Filterable, and Volatile Residue [11]. TSS were detected above the laboratory reporting limit of 2.5mg/L at MW-6, MW-5, and MW-3. There is no standard for TSS under the MCP GW-3 standards. TSS results are flagged to be considered estimated due to failure of the field duplicate to meet the precision requirement. For more detailed information regarding the field duplicate and precision requirement, please refer to the quality assurance/quality control section of this report below.

VOCs:

VOCs were analyzed using a gas chromatograph/mass spectrometry in accordance with the LSB SOP for GCMS Operation for VOCs [9]. VOCs were detected above the laboratory reporting limit of 1.0 ug/L at MW-6, MW-4A, and MW-5, for 2-butanone (MEK) and at MW-3 for tetrachloroethylene. None of the detections were above the MCP GW-3 standards. MEK results were flagged and are considered to be estimated due to a detection in the trip blanks. Refer to the quality assurance/quality control section of this report below.

Quality Assurance/Quality Control

As part of the data review process, pre- and post- calibrations were checked for completeness and accuracy. Record keeping for each sampling date includes chain of custody, laboratory results, field logbook data and calibration records with post-calibration checks. All Laboratory Services and Applied Sciences Division (LSASD) laboratory analytical results were reviewed by the LSASD laboratory leads according to the most current version of the LSASD Quality Manual.

Field duplicates:

A field duplicate was collected at MW-6. The relative percent difference of the duplicate and sample data was calculated and is summarized in Figure 3 of Appendix A. The analyses for VOCs, PCBs, and metals by ICP-MS all yielded results passing the 30% precision requirement. The precision requirement was not met for TSS, therefore, the results are flagged as estimated.

Sonde readings:

A YSI ProDSS sonde was used to collect in-situ water quality readings in the field. The instrument was calibrated in accordance with the FSB SOP for the YSI ProDSS sonde [7] using NIST traceable standards. The acceptance criteria called for in the SOP is as follows:

Field Measurement Parameter	Sample Matrix	Post Calibration Requirements[1]
Dissolved Oxygen	Water	+/-10%
Temperature	Water	n/a
pH[2]	Water	+/- 0.3 S.U.
Specific[2] conductance	Water	+/- 10%
Oxidation Reduction Potential	Water	+/-10 mV

Any data not meeting the outlined criteria was flagged and is considered to be estimated. Verification of oxidation reduction potential (ORP) readings on September 7, 2021 and dissolved oxygen (DO) on September 8, 2021 failed and therefore have been flagged.

Trip Blanks:

Trip blanks were prepared prior to mobilization for VOC samples. Trip blanks yielded a small result of 1.2 ug/L for MEK, all other results were non-detect. Results for MEK have been flagged and are to be considered estimated.

References

1. EPA R1 LSASD-FSB Generic QAPP, EIAGENERICQAPP. 8/29/2018.

2. EPA R1 LSASD-FSB SOP for General Field Equipment cleaning, preparation, and decon, FSBSOP-EQUIPDECONSOP1. 7/17/2020

3. EPA R1 LSASD-FSB SOP for Groundwater Sampling, FSBSOP-GW_SAMPSOP3, 9/9/2020.

4. EPA R1 LSASD-FSB SOP for Low flow procedure for groundwater sampling FSBSOP-LOWFLOWGWSOP5, 11/5/2020.

5. EPA R1 LSASD-FSB SOP for Report Preparation, Review, and Distribution, FSBSOP-REPORTPREP_REVIEW_DISTR0, 10/2/2020.

6. EPA R1 LSASD-FSB SOP for the MultiRAE Plus Multiple Gas Monitor, FSBSOP-MULTIRAEPID1. 2/25/2021.

7. EPA R1 LSASD-FSB SOP for the YSI ProDSS Sonde and Datalogger, FSBSOP-PRODSS_SONDE0, 7/13/2020.

8. EPA R1 LSASD-LSB SOP for Evidentiary Sample Tracking, LSBSOP-ADMEVID11, 2/3/2021.

9. EPA R1 LSASD-LSB SOP for GC/MS Operation for VOCs, LSBSOP-VOAGCMS11, 11/8/2021.

10. EPA R1 LSASD-LSB SOP for Metals by ICP-MS, LSBSOP-INGICPMS6, 11/7/2019.

11. EPA R1 LSASD-LSB SOP for Non-Filterable, Filterable, and Volatile Residue, LSBSOP-TSS-TDS7, 9/8/2021.

12. EPA R1 LSASD-LSB SOP for Pesticides/PCBs in Aqueous Samples-Low Level, LSBSOP-PESWALL8, 10/29/2020.

13. EPA R1 LSASD-LSB SOP for Sample Login, Tracking, and Sample Disposition, LSBSOP-ADMLOG19, 6/5/2020.

Appendix A: Tables

Table 1: Summary of Monitoring Well Construction, Sample Set-ups, and Final Water Quality Results.

Monitoring Well Information									Final Water Quality Results						Comments
Monitoring Well	**Sample collection date and time**	**Total Depth** ft.	**Diameter** in.	**Purge Begin**	**Static Water level** ft.	**Pump Type**	**Samplers**	**Intake Depth** ft.	**pH**	**Dissolved Oxygen** mg/L	**Specific conductivity** µs/cm	**Temp.** °C	**ORP** mV	**Turbidity** FNU	
MW-6	9/7/2021 12:33	18.9	2	11:06	11.6	Peristaltic	WS, SB	16.5	7.16	0.1	4149	16.1	-105.5*	4.92	
MW-4A	9/7/2021 15:04	25.5	2	14:16	8.3	Peristaltic	WS, SB	22	7.03	0.1	12273	16.6	-323.1*	2.19	
MW-5	9/7/2021 16:10	18.6	2	15:10	7.7	Peristaltic	WS, SB	17	7.45	0	10682	16.7	-231.4*	2.94	
MW-1	9/8/2021 9:23	23.96	2	7:40	14.3	Peristaltic	WS, SB	22.5	6.81	1.1*	709	19.2	69.9	0.97	
MW-7A	9/8/2021 11:03	14.25	2	10:13	9.6	Peristaltic	WS, SB	13.5	6.65	0.2*	817	18.3	131	0.3	
MW-3	9/8/2021 12:32	23.94	2	11:50	13.2	Peristaltic	WS, SB	22.5	6.32	0.1*	5629	17	146.8	1.27	Well continued to draw down despite pump being set on lowest speed setting. Sample was collected before the well ran out of water.

WS = William Sommer, SB = Shannon Brunelle, *=Data flag due to post-verification fail. Result is considered estimated.

Table 2: Summary of YSI Post-verification Results.

Event Date	YSI ID	Parameter		Pre Reading Date/Time	Pre-Reading	Post Date/Time	Post Reading	Post Verification Acceptance Criteria	Pass/ Fail	Post Signature
Tuesday 9/7/2021	3	pH	4	9/7/2021 7:40	3.92	9/7/2021 16:15	4.07	±0.3	Pass	SB
			10		9.98		10.1	±0.3	Pass	
			7		7		7.02	±0.3	Pass	
		SPC	1000 us/cm		1000		1024	10%	Pass	
		DO	100%		100		100	±2%	Pass	
		ORP	Pre-calibration: 234.5 mV, Post-verification: 228 mV		233.9		214.4 (calibrated)	±10mV	Fail	
Wednesday 9/8/2021	3	pH	4	9/7/21 16:15	4.07	9/8/2021 12:35	4.06	±0.3	Pass	SB
			10		10.1		10.03	±0.3	Pass	
			7		7.02		6.98	±0.3	Pass	
		SPC	1001 us/cm		1024		1024	10%	Pass	
		DO	200%		100		108%	±2%	Fail	
		ORP	Pre-verification: 228 mV, Post-verification: 234.5 mV		228.1		236.7	±10mV	Pass	

Table 3: Laboratory Data and Comparisons with MCP GW-3 Standards

Sample ID	Sample Date/Time	Analysis[5]	Analyte	CAS	Sample[3,4] Result (ug/L)	MCP[4] GW-3 (ug/L)
MW-6	9/7/21 12:33	Metals by ICP-MS (mg/L)[(a)]	Vanadium	7440-62-2	**0.61**	4000
			Nickel	7440-02-0	**1.4**	200
			Copper	7440-50-8	**2.6**	-
			Arsenic	7440-38-2	**3.7**	900
			Selenium	7782-49-2	**4.9**	100
			Barium	7440-39-3	**140**	50000
			Cadmium	7440-43-9	**ND (Non-detect)**	4
			Chromium	7440-47-3	**ND**	300
			Lead	7439-92-1	**ND**	10
		Total Suspended Solids (mg/L)	Total Suspended Solids[2]	-	**4***	-
		VOCs by GCMS (ug/L)[(b)]	2-Butanone (MEK)[1]	78-93-3	**1.1***	50000
		Pesticides/PCBs in Aqueous Samples-Low Level[(c)]	Total PCB Aroclors	-	**ND**	10

Sample ID	Sample Date/Time	Analysis[5]	Analyte	CAS	Sample[3,4] Result (ug/L)	MCP[4] GW-3 (ug/L)
MW-4A	9/7/21 15:04	Metals by ICP-MS (ug/L)[(a)]	Chromium	7440-47-3	**0.57**	300
			Nickel	7440-02-0	**3.1**	200
			Copper	7440-50-8	**9.8**	-
			Arsenic	7440-38-2	**4.2**	900
			Selenium	7782-49-2	**21**	100
			Barium	7440-39-3	**170**	50000
			Cadmium	7440-43-9	**ND**	4
			Chromium	7440-47-3	**ND**	300
			Lead	7439-92-1	**ND**	10
		Total Suspended Solids (mg/L)	Total Suspended Solids[2]	-	**ND**	-
		VOCs by GCMS (ug/L)[(b)]	2-Butanone (MEK)[1]	78-93-3	**1.5***	50000
		Pesticides/PCBs in Aqueous Samples-Low Level[(c)]	Total PCB Aroclors	-	**ND**	10

Sample ID	Sample Date/Time	Analysis[5]	Analyte	CAS	Sample[3,4] Result (ug/L)	MCP[4] GW-3 (ug/L)
MW-5	9/7/21 16:10	Metals by ICP-MS (ug/L)[(a)]	Chromium	7440-47-3	**1.1**	300
			Nickel	7440-02-0	**3.3**	200
			Copper	7440-50-8	**11**	-
			Arsenic	7440-38-2	**3.4**	900
			Selenium	7782-49-2	**17**	100
			Barium	7440-39-3	**160**	50000
			Cadmium	7440-43-9	**ND**	4
			Chromium	7440-47-3	**ND**	300
			Lead	7439-92-1	**ND**	10
		Total Suspended Solids (mg/L)	Total Suspended Solids[2]	-	**5.6***	-
		VOCs by GCMS (ug/L)[(b)]	2-Butanone (MEK)[1]	78-93-3	**1.4***	50000
		Pesticides/PCBs in Aqueous Samples-Low Level[(c)]	Total PCB Aroclors	-	**ND**	10

Sample ID	Sample Date/Time	Analysis[5]	Analyte	CAS	Sample[3,4] Result (ug/L)	MCP[4] GW-3 (ug/L)
MW-1	9/8/21 9:22	Metals by ICP-MS (ug/L)[(a)]	Chromium	7440-47-3	**0.7**	300
			Nickel	7440-02-0	**6.8**	200
			Copper	7440-50-8	**2.5**	-
			Zinc	7440-66-6	**120**	900
			Arsenic	7440-38-2	**1.9**	900
			Cadmium	7440-43-9	**0.49**	4
			Barium	7440-39-3	**240**	50000
			Lead	7439-92-1	**0.29**	10
		Total Suspended Solids (mg/L)	Total Suspended Solids[2]	-	**ND**	-
		VOCs by GCMS (ug/L)[(b)]	2-Butanone (MEK)[1]	78-93-3		50000
		Pesticides/PCBs in Aqueous Samples-Low Level[(c)]	Total PCB Aroclors	-	**ND**	10

Sample ID	Sample Date/Time	Analysis[5]	Analyte	CAS	Sample[3,4] Result (ug/L)	MCP[4] GW-3 (ug/L)
MW-7A	9/8/21 11:03	Metals by ICP-MS (ug/L)[(a)]	Vanadium	7440-62-2	**13**	4000
			Nickel	7440-02-0	**12**	200
			Copper	7440-50-8	**2.4**	-
			Zinc	7440-66-6	**340**	900
			Selenium	7782-49-2	**1.2**	100
			Cadmium	7440-43-9	**0.36**	4
			Barium	7440-39-3	**1.5**	50000
			Antimony	7440-36-0	**110**	8000
			Chromium	7440-47-3	**ND**	300
			Lead	7439-92-1	**ND**	10
		Total Suspended Solids (mg/L)	Total Suspended Solids[2]	-	**ND**	-
		VOCs by GCMS (ug/L)[(b)]	2-Butanone (MEK)[1]	78-93-3	**ND**	50000
		Pesticides/PCBs in Aqueous Samples-Low Level[(c)]	Total PCB aroclors	-	**ND**	10

Sample ID	Sample Date/Time	Analysis[5]	Analyte	CAS	Sample[3,4] Result (ug/L)	MCP[4] GW-3 (ug/L)
MW-3	9/8/21 12:32	Metals by ICP-MS (ug/L)[(a)]	Chromium	7440-47-3	**0.54**	300
			Nickel	7440-02-0	**41**	200
			Copper	7440-50-8	**7.8**	-
			Zinc	7440-66-6	**480**	900
			Arsenic	7440-38-2	**2.2**	900
			Selenium	7782-49-2	**7.6**	100
			Cadmium	7440-43-9	**4.5**	4
			Barium	7440-39-3	**100**	50000
			Lead	7439-92-1	**ND**	10
		Total Suspended Solids (mg/L)	Total Suspended Solids[2]	-	**2.6***	-
		VOCs by GCMS (ug/L)[(b)]	Tetrachloroethylene	127-18-4	**1.6***	30000
		Pesticides/PCBs in Aqueous Samples-Low Level[(c)]	Total PCB Aroclors	-	**ND**	10
Trip Blanks	9/7/21 8:00	VOCs by GCMS (ug/L)[(c)]	2-Butanone (MEK)[1]	78-93-3	**1.2**	QC Sample; see QC section of narrative and footnote 1.

Footnotes:

1. Trip blanks yielded a detectable result of 1.2 ug/L. Results have been flagged and are considered to be estimated.
2. Total suspended solids results failed the 30% field precision requirement. Results have been flagged and are considered to be estimated.
3. *= data flags due to precision exceedance of the field duplicate.
4. Red = MCP GW-3 exceedance.
5. (a). The metals contaminants of concern for this site are cadmium, chromium, copper, and lead. A full list of compounds detected by the method and their reporting limits (RL) is included in the laboratory reports in appendix B. Non-detects (ND) of the contaminants of concern are included in this table, ND's of other compounds are not included. (b). A full list of compounds detectable by the method and their RLs are included in the laboratory reports in Appendix B. (c). Total PCB Aroclors are calculated as the sum of Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260, 1262, and 1268.

Table 4: Calculation of field duplicate precision.

Sample ID	Dup ID	Sample Date/Time	Analysis	Analyte	Sample[1] Result (mg/L)	Duplicate[1] Result (mg/L)	RPD[1] (%)
MW-6	Dup-1	9/7/2021	Metals by ICP-MS	Vanadium	0.61	0.64	4.800
				Nickel	1.4	1.5	6.897
				Copper	2.6	2.6	0.000
				Arsenic	3.7	3.8	2.667
				Selenium	4.9	5.2	5.941
				Barium	140	140	0.000
			Total Suspended Solids	Total Suspended Solids	4	9.8	84.058
			VOCs by GCMS	2-Butanone (MEK)	1.1	1.1	0.000

Footnotes:
1. Red = exceedance of 30% precision requirement for field duplicates.

Appendix B: Attachments

Attachment 1: Site map displaying locations of monitoring wells sampled during sampling event.

Attachment 2: Copy of LSB analytical report for Metals by ICP-MS.

Attachment 3: Copy of LSB analytical report for PCB Aroclors in water.

Attachment 4: Copy of LSB analytical report for total suspended solids in water.

Attachment 5: Copy of LSB analytical report for VOAs in water by GCMS.

Attachment 6: Copy of LSB chain of custody.

Attachment 7: Copy of Signed Sampling and Analysis Plan for Groundwater Sampling at the New Bedford Harbor Superfund Site.

Attachment 8: Scan of field observation logbooks.

Attachment 9: Scan of YSI calibration logbooks.

Attachment 1:

Site map displaying locations of monitoring wells sampled during sampling event.

Figure 1: Monitoring Well Locations Sawyer Street CDF

New Bedford Harbor Superfund Site

Aerial photograph courtesy of Ed Pepin

Attachment 2:

Copy of LSB analytical report for Metals by ICP-MS.

United States Environmental Protection Agency
Laboratory Services and Applied Science Division
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

October 05, 2021

Natalie Burgo - Mail Code 07-1
Will Sommer - LFSB
US EPA New England Region 1

Project Number: 21090018
Project: New Bedford Harbor- New Bedford, MA
Analysis: Metals in Water by ICP-MS
EPA Chemist: Michael Dowling

Date Samples Received by the Laboratory: 09/09/2021

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, LSB-INGICPMS6.

Samples were prepared following USEPA New England Sample Prep SOP: EIA-INGPREP8.SOP.

Samples were analyzed for Total Recoverable Metals using an Agilent 7800 inductively coupled plasma mass spectrometer. Preparation and analysis SOP is based on Methods 200.8, as stated in "Methods for the Determination of Metals in Environmental Samples, Supplement I (EPA/600/R-94/111), Rev. 5.4, May 1994."

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340 .

Sincerely,

DANIEL BOUDREAU

Digitally signed by DANIEL BOUDREAU
Date: 2021.10.05 14:45:10 -04'00'

21090018$MTMSW

Qualifiers:

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

New Bedford Harbor- New Bedford, MA

Metals in Water by ICP-MS

Client Sample ID:	MW-6	Lab Sample ID:	AB94616
Date of Collection:	9/07/2021	Matrix:	Ground / Well Water
Date of Preparation:	10/01/2021	Amount Prepared:	25 mL
Date of Analysis:	10/04/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	25 mL	GPC Factor:	N/A
Final Volume:	25 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-41-7	Beryllium	ND	0.20	
7440-62-2	Vanadium	**0.61**	0.50	
7440-47-3	Chromium	ND	0.50	
7440-02-0	Nickel	**1.4**	0.50	
7440-50-8	Copper	**2.6**	0.20	
7440-66-6	Zinc	ND	5.0	
7440-38-2	Arsenic	**3.7**	0.50	
7782-49-2	Selenium	**4.9**	1.0	
7440-22-4	Silver	ND	0.20	
7440-43-9	Cadmium	ND	0.20	
7440-36-0	Antimony	ND	0.50	
7440-39-3	Barium	**140**	0.20	
7440-28-0	Thallium	ND	0.50	
7439-92-1	Lead	ND	0.20	

New Bedford Harbor- New Bedford, MA

Metals in Water by ICP-MS

Client Sample ID:	Dup-1	Lab Sample ID:	AB94617
Date of Collection:	9/07/2021	Matrix:	Ground / Well Water
Date of Preparation:	10/01/2021	Amount Prepared:	25 mL
Date of Analysis:	10/04/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	25 mL	GPC Factor:	N/A
Final Volume:	25 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-41-7	Beryllium	ND	0.20	
7440-62-2	Vanadium	**0.64**	0.50	
7440-47-3	Chromium	ND	0.50	
7440-02-0	Nickel	**1.5**	0.50	
7440-50-8	Copper	**2.6**	0.20	
7440-66-6	Zinc	ND	5.0	
7440-38-2	Arsenic	**3.8**	0.50	
7782-49-2	Selenium	**5.2**	1.0	
7440-22-4	Silver	ND	0.20	
7440-43-9	Cadmium	ND	0.20	
7440-36-0	Antimony	ND	0.50	
7440-39-3	Barium	**140**	0.20	
7440-28-0	Thallium	ND	0.50	
7439-92-1	Lead	ND	0.20	

New Bedford Harbor- New Bedford, MA

Metals in Water by ICP-MS

Client Sample ID:	MW-4A	Lab Sample ID:	AB94618
Date of Collection:	9/07/2021	Matrix:	Ground / Well Water
Date of Preparation:	10/01/2021	Amount Prepared:	25 mL
Date of Analysis:	10/04/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	25 mL	GPC Factor:	N/A
Final Volume:	25 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-41-7	Beryllium	ND	0.20	
7440-62-2	Vanadium	ND	0.50	
7440-47-3	Chromium	**0.57**	0.50	
7440-02-0	Nickel	**3.1**	0.50	
7440-50-8	Copper	**9.8**	0.20	
7440-66-6	Zinc	ND	5.0	
7440-38-2	Arsenic	**4.2**	0.50	
7782-49-2	Selenium	**21**	1.0	
7440-22-4	Silver	ND	0.20	
7440-43-9	Cadmium	ND	0.20	
7440-36-0	Antimony	ND	0.50	
7440-39-3	Barium	**170**	0.20	
7440-28-0	Thallium	ND	0.50	J
7439-92-1	Lead	ND	0.20	J

Comments: The thallium and lead results are estimated since the internal standard recovery was outside the acceptance limits.

New Bedford Harbor- New Bedford, MA

Metals in Water by ICP-MS

Client Sample ID:	MW-5	Lab Sample ID:	AB94619
Date of Collection:	9/07/2021	Matrix:	Ground / Well Water
Date of Preparation:	10/01/2021	Amount Prepared:	25 mL
Date of Analysis:	10/04/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	25 mL	GPC Factor:	N/A
Final Volume:	25 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-41-7	Beryllium	ND	0.20	
7440-62-2	Vanadium	ND	0.50	
7440-47-3	Chromium	**1.1**	0.50	
7440-02-0	Nickel	**3.3**	0.50	
7440-50-8	Copper	**11**	0.20	
7440-66-6	Zinc	ND	5.0	
7440-38-2	Arsenic	**3.4**	0.50	
7782-49-2	Selenium	**17**	1.0	
7440-22-4	Silver	ND	0.20	
7440-43-9	Cadmium	ND	0.20	
7440-36-0	Antimony	ND	0.50	
7440-39-3	Barium	**160**	0.20	
7440-28-0	Thallium	ND	0.50	J
7439-92-1	Lead	ND	0.20	J

Comments: The thallium and lead results are estimated since the internal standard recovery was outside the acceptance limits.

New Bedford Harbor- New Bedford, MA

Metals in Water by ICP-MS

Client Sample ID:	MW-1	Lab Sample ID:	AB94620
Date of Collection:	9/08/2021	Matrix:	Ground / Well Water
Date of Preparation:	10/01/2021	Amount Prepared:	25 mL
Date of Analysis:	10/04/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	25 mL	GPC Factor:	N/A
Final Volume:	25 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-41-7	Beryllium	ND	0.20	
7440-62-2	Vanadium	ND	0.50	
7440-47-3	Chromium	**0.70**	0.50	
7440-02-0	Nickel	**6.8**	0.50	
7440-50-8	Copper	**2.5**	0.20	
7440-66-6	Zinc	**120**	5.0	
7440-38-2	Arsenic	**1.9**	0.50	
7782-49-2	Selenium	ND	1.0	
7440-22-4	Silver	ND	0.20	
7440-43-9	Cadmium	**0.49**	0.20	
7440-36-0	Antimony	ND	0.50	
7440-39-3	Barium	**240**	0.20	
7440-28-0	Thallium	ND	0.50	
7439-92-1	Lead	**0.29**	0.20	

New Bedford Harbor- New Bedford, MA

Metals in Water by ICP-MS

Client Sample ID:	MW-7A	Lab Sample ID:	AB94621
Date of Collection:	9/08/2021	Matrix:	Ground / Well Water
Date of Preparation:	10/01/2021	Amount Prepared:	25 mL
Date of Analysis:	10/04/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	25 mL	GPC Factor:	N/A
Final Volume:	25 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-41-7	Beryllium	ND	0.20	
7440-62-2	Vanadium	**13**	0.50	
7440-47-3	Chromium	ND	0.50	
7440-02-0	Nickel	**12**	0.50	
7440-50-8	Copper	**2.4**	0.20	
7440-66-6	Zinc	**340**	5.0	
7440-38-2	Arsenic	ND	0.50	
7782-49-2	Selenium	**1.2**	1.0	
7440-22-4	Silver	ND	0.20	
7440-43-9	Cadmium	**0.36**	0.20	
7440-36-0	Antimony	**1.5**	0.50	
7440-39-3	Barium	**110**	0.20	
7440-28-0	Thallium	ND	0.50	
7439-92-1	Lead	ND	0.20	

New Bedford Harbor- New Bedford, MA

Metals in Water by ICP-MS

Client Sample ID:	MW-3	Lab Sample ID:	AB94622
Date of Collection:	9/08/2021	Matrix:	Ground / Well Water
Date of Preparation:	10/01/2021	Amount Prepared:	25 mL
Date of Analysis:	10/04/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	25 mL	GPC Factor:	N/A
Final Volume:	25 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-41-7	Beryllium	ND	0.20	
7440-62-2	Vanadium	ND	0.50	
7440-47-3	Chromium	**0.54**	0.50	
7440-02-0	Nickel	**41**	0.50	
7440-50-8	Copper	**7.8**	0.20	
7440-66-6	Zinc	**480**	5.0	
7440-38-2	Arsenic	**2.2**	0.50	
7782-49-2	Selenium	**7.6**	1.0	
7440-22-4	Silver	ND	0.20	
7440-43-9	Cadmium	**4.5**	0.20	
7440-36-0	Antimony	ND	0.50	
7440-39-3	Barium	**100**	0.20	
7440-28-0	Thallium	ND	0.50	
7439-92-1	Lead	ND	0.20	

New Bedford Harbor- New Bedford, MA

Laboratory Reagent Blank Result (ug/L)

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Ground / Well Water
Date of Preparation:	10/01/2021	Amount Prepared:	25 mL
Date of Analysis:	10/04/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	25 mL	GPC Factor:	N/A
Final Volume:	25 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-41-7	Beryllium	ND	0.20	
7440-62-2	Vanadium	ND	0.50	
7440-47-3	Chromium	ND	0.50	
7440-02-0	Nickel	ND	0.50	
7440-50-8	Copper	ND	0.20	
7440-66-6	Zinc	ND	5.0	
7440-38-2	Arsenic	ND	0.50	
7782-49-2	Selenium	ND	1.0	
7440-22-4	Silver	ND	0.20	
7440-43-9	Cadmium	ND	0.20	
7440-36-0	Antimony	ND	0.50	
7440-39-3	Barium	ND	0.20	
7440-28-0	Thallium	ND	0.50	
7439-92-1	Lead	ND	0.20	

New Bedford Harbor- New Bedford, MA

MATRIX SPIKE (MS) RECOVERY

Sample ID: AB94620

PARAMETER	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC	QC LIMITS (% REC)
Antimony	40.0	ND	44.0	110	70 - 130
Arsenic	40.0	1.9	42.0	100	70 - 130
Barium	40.0	240	260	R	70 - 130
Beryllium	40.0	ND	42.0	105	70 - 130
Cadmium	40.0	0.49	39.0	96	70 - 130
Chromium	40.0	0.70	37.0	91	70 - 130
Copper	40.0	2.5	38.0	89	70 - 130
Lead	40.0	0.29	43.0	107	70 - 130
Nickel	40.0	6.8	43.0	91	70 - 130
Selenium	40.0	ND	40.0	100	70 - 130
Silver	40.0	ND	41.0	102	70 - 130
Thallium	40.0	ND	43.0	108	70 - 130
Vanadium	40.0	ND	38.0	95	70 - 130
Zinc	40.0	120	150	75	70 - 130

New Bedford Harbor- New Bedford, MA

Laboratory Duplicate Results

Sample ID: AB94618

PARAMETER	SAMPLE RESULT ug/L	SAMPLE DUPLICATE RESULT ug/L	PRECISION RPD %	QC LIMITS
Antimony	ND	ND	NC	20
Arsenic	4.2	4.6	9.1	20
Barium	170	180	5.7	20
Beryllium	ND	ND	NC	20
Cadmium	ND	ND	NC	20
Chromium	0.57	0.59	3.4	20
Copper	9.8	11.0	12	20
Lead	ND	ND	NC	20
Nickel	3.1	3.1	0.0	20
Selenium	21.0	22.0	4.7	20
Silver	ND	ND	NC	20
Thallium	ND	ND	NC	20
Vanadium	ND	ND	NC	20
Zinc	ND	ND	NC	20

New Bedford Harbor- New Bedford, MA

Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ug/L	LFB RESULT ug/L	LFB RECOVERY %	QC LIMITS %
Antimony	40	41.0	102	85 - 115
Arsenic	40	40.0	100	85 - 115
Barium	40	40.0	100	85 - 115
Beryllium	40	41.0	102	85 - 115
Cadmium	40	39.0	98	85 - 115
Chromium	40	41.0	102	85 - 115
Copper	40	43.0	108	85 - 115
Lead	40	42.0	105	85 - 115
Nickel	40	43.0	108	85 - 115
Selenium	40	41.0	102	85 - 115
Silver	40	42.0	105	85 - 115
Thallium	40	41.0	102	85 - 115
Vanadium	40	41.0	102	85 - 115
Zinc	40	41.0	102	85 - 115

Comments:

Samples in Batch: AB94616, AB94617, AB94618, AB94619, AB94620, AB94621, AB94622

Attachment 3:

Copy of LSB analytical report for PCB Aroclors in water.

United States Environmental Protection Agency
Laboratory Services and Applied Science Division
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

September 20, 2021

Natalie Burgo - Mail Code 07-1
Will Sommer - LFSB
US EPA New England Region 1

Project Number: 21090018
Project: New Bedford Harbor- New Bedford, MA
Analysis: PCBs in Water Low Level
EPA Chemist: Phillip Gudgel

Date Samples Received by the Laboratory: 09/09/2021

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, LSBSOP-PESWALL8.

The SOP is based on "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, Method 608.3 - Organochlorine Pesticides and PCBS".

The analysis was carried out using high resolution capillary column chromatography. The 30 meter dual capillary system consists of J&W DB-5 and J&W DB-1701 columns both with a 0.25 mm ID.

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

If you have any questions please call me at 617-918-8340 .

Sincerely,

DANIEL BOUDREAU

Digitally signed by DANIEL BOUDREAU
Date: 2021.09.20 09:42:37 -04'00'

21090018$PCBW

Qualifiers:

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

New Bedford Harbor- New Bedford, MA

PCBs in Water Low Level

Client Sample ID:	MW-6	Lab Sample ID:	AB94616
Date of Collection:	9/07/2021	Matrix:	Ground / Well Wate
Date of Preparation:	9/10/2021	Amount Prepared:	1000 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	7.00
Volume Extracted:	1000 mL	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
12674-11-2	Aroclor-1016	ND	0.50	
11104-28-2	Aroclor-1221	ND	0.50	
11141-16-5	Aroclor-1232	ND	0.50	
53469-21-9	Aroclor-1242	ND	0.50	
12672-29-6	Aroclor-1248	ND	0.50	
11097-69-1	Aroclor-1254	ND	0.50	
11096-82-5	Aroclor-1260	ND	0.50	
37324-23-5	Aroclor-1262	ND	0.50	
11100-14-4	Aroclor-1268	ND	0.50	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	73	59 - 95
Decachlorobiphenyl	82	33 - 106

New Bedford Harbor- New Bedford, MA

Blank for PCBs Water

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Ground / Well Wate
Date of Preparation:	9/10/2021	Amount Prepared:	1000 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	5.50
Volume Extracted:	1000 mL	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
12674-11-2	Aroclor-1016	ND	0.50	
11104-28-2	Aroclor-1221	ND	0.50	
11141-16-5	Aroclor-1232	ND	0.50	
53469-21-9	Aroclor-1242	ND	0.50	
12672-29-6	Aroclor-1248	ND	0.50	
11097-69-1	Aroclor-1254	ND	0.50	
11096-82-5	Aroclor-1260	ND	0.50	
37324-23-5	Aroclor-1262	ND	0.50	
11100-14-4	Aroclor-1268	ND	0.50	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	66	32 - 91
Decachlorobiphenyl	102	8 - 139

New Bedford Harbor- New Bedford, MA

PCBs in Water Low Level

Client Sample ID:	Dup-1	Lab Sample ID:	AB94617
Date of Collection:	9/07/2021	Matrix:	Ground / Well Wate
Date of Preparation:	9/10/2021	Amount Prepared:	1000 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	7.00
Volume Extracted:	1000 mL	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
12674-11-2	Aroclor-1016	ND	0.50	
11104-28-2	Aroclor-1221	ND	0.50	
11141-16-5	Aroclor-1232	ND	0.50	
53469-21-9	Aroclor-1242	ND	0.50	
12672-29-6	Aroclor-1248	ND	0.50	
11097-69-1	Aroclor-1254	ND	0.50	
11096-82-5	Aroclor-1260	ND	0.50	
37324-23-5	Aroclor-1262	ND	0.50	
11100-14-4	Aroclor-1268	ND	0.50	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	67	59 - 95
Decachlorobiphenyl	73	33 - 106

New Bedford Harbor- New Bedford, MA

PCBs in Water Low Level

Client Sample ID:	MW-4A	Lab Sample ID:	AB94618
Date of Collection:	9/07/2021	Matrix:	Ground / Well Wate
Date of Preparation:	9/10/2021	Amount Prepared:	1000 mL
Date of Analysis:	9/15/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	7.00
Volume Extracted:	1000 mL	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
12674-11-2	Aroclor-1016	ND	0.50	
11104-28-2	Aroclor-1221	ND	0.50	
11141-16-5	Aroclor-1232	ND	0.50	
53469-21-9	Aroclor-1242	ND	0.50	
12672-29-6	Aroclor-1248	ND	0.50	
11097-69-1	Aroclor-1254	ND	0.50	
11096-82-5	Aroclor-1260	ND	0.50	
37324-23-5	Aroclor-1262	ND	0.50	
11100-14-4	Aroclor-1268	ND	0.50	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	68	59 - 95
Decachlorobiphenyl	91	33 - 106

New Bedford Harbor- New Bedford, MA

PCBs in Water Low Level

Client Sample ID:	MW-5	Lab Sample ID:	AB94619
Date of Collection:	9/07/2021	Matrix:	Ground / Well Wate
Date of Preparation:	9/10/2021	Amount Prepared:	1000 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	7.00
Volume Extracted:	1000 mL	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
12674-11-2	Aroclor-1016	ND	0.50	
11104-28-2	Aroclor-1221	ND	0.50	
11141-16-5	Aroclor-1232	ND	0.50	
53469-21-9	Aroclor-1242	ND	0.50	
12672-29-6	Aroclor-1248	ND	0.50	
11097-69-1	Aroclor-1254	ND	0.50	
11096-82-5	Aroclor-1260	ND	0.50	
37324-23-5	Aroclor-1262	ND	0.50	
11100-14-4	Aroclor-1268	ND	0.50	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	71	59 - 95
Decachlorobiphenyl	72	33 - 106

New Bedford Harbor- New Bedford, MA

PCBs in Water Low Level

Client Sample ID:	MW-1	Lab Sample ID:	AB94620
Date of Collection:	9/08/2021	Matrix:	Ground / Well Wate
Date of Preparation:	9/10/2021	Amount Prepared:	1000 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	7.00
Volume Extracted:	1000 mL	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
12674-11-2	Aroclor-1016	ND	0.50	
11104-28-2	Aroclor-1221	ND	0.50	
11141-16-5	Aroclor-1232	ND	0.50	
53469-21-9	Aroclor-1242	ND	0.50	
12672-29-6	Aroclor-1248	ND	0.50	
11097-69-1	Aroclor-1254	ND	0.50	
11096-82-5	Aroclor-1260	ND	0.50	
37324-23-5	Aroclor-1262	ND	0.50	
11100-14-4	Aroclor-1268	ND	0.50	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	68	59 - 95
Decachlorobiphenyl	70	33 - 106

New Bedford Harbor- New Bedford, MA

PCBs in Water Low Level

Client Sample ID:	MW-7A	Lab Sample ID:	AB94621
Date of Collection:	9/08/2021	Matrix:	Ground / Well Wate
Date of Preparation:	9/10/2021	Amount Prepared:	1000 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	6.00
Volume Extracted:	1000 mL	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
12674-11-2	Aroclor-1016	ND	0.50	
11104-28-2	Aroclor-1221	ND	0.50	
11141-16-5	Aroclor-1232	ND	0.50	
53469-21-9	Aroclor-1242	ND	0.50	
12672-29-6	Aroclor-1248	ND	0.50	
11097-69-1	Aroclor-1254	ND	0.50	
11096-82-5	Aroclor-1260	ND	0.50	
37324-23-5	Aroclor-1262	ND	0.50	
11100-14-4	Aroclor-1268	ND	0.50	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	70	59 - 95
Decachlorobiphenyl	96	33 - 106

New Bedford Harbor- New Bedford, MA

PCBs in Water Low Level

Client Sample ID:	MW-3	Lab Sample ID:	AB94622
Date of Collection:	9/08/2021	Matrix:	Ground / Well Wate
Date of Preparation:	9/10/2021	Amount Prepared:	1000 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	6.00
Volume Extracted:	1000 mL	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
12674-11-2	Aroclor-1016	ND	0.50	
11104-28-2	Aroclor-1221	ND	0.50	
11141-16-5	Aroclor-1232	ND	0.50	
53469-21-9	Aroclor-1242	ND	0.50	
12672-29-6	Aroclor-1248	ND	0.50	
11097-69-1	Aroclor-1254	ND	0.50	
11096-82-5	Aroclor-1260	ND	0.50	
37324-23-5	Aroclor-1262	ND	0.50	
11100-14-4	Aroclor-1268	ND	0.50	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	69	59 - 95
Decachlorobiphenyl	74	33 - 106

New Bedford Harbor- New Bedford, MA

MATRIX SPIKE (MS) RECOVERY

Sample ID: AB94616

PARAMETER	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC	QC LIMITS (% REC)
Aroclor-1016	4.0	ND	3.6	90	33 - 149
Aroclor-1260	4.0	ND	4.0	100	46 - 146

New Bedford Harbor- New Bedford, MA

Laboratory Duplicate Results

Sample ID: AB94616

PARAMETER	SAMPLE RESULT ug/L	SAMPLE DUPLICATE RESULT ug/L	PRECISION RPD %	QC LIMITS
Aroclor-1016	ND	ND	NC	50
Aroclor-1221	ND	ND	NC	50
Aroclor-1232	ND	ND	NC	50
Aroclor-1242	ND	ND	NC	50
Aroclor-1248	ND	ND	NC	50
Aroclor-1254	ND	ND	NC	50
Aroclor-1260	ND	ND	NC	50
Aroclor-1262	ND	ND	NC	50
Aroclor-1268	ND	ND	NC	50

New Bedford Harbor- New Bedford, MA

Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ug/L	LFB RESULT ug/L	LFB RECOVERY %	QC LIMITS %
Aroclor-1016	4.0	3.6	90	36 - 143
Aroclor-1254	4.0	4.1	103	70 - 130

Comments:

Samples in Batch: AB94616, AB94617, AB94618, AB94619, AB94620, AB94621, AB94622

Attachment 4:

Copy of LSB analytical report for Total Suspended Solids (TSS) in water.

United States Environmental Protection Agency
Laboratory Services and Applied Science Division
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Results

September 14, 2021

Natalie Burgo - Mail Code 07-1
Will Sommer - LFSB
US EPA New England Region 1

Project No: 21090018
Project: New Bedford Harbor- New Bedford, MA
Analysis: Total Suspended Solids in Water
EPA Chemist: Phillip Gudgel

Date Samples Received by the Laboratory: 09/09/2021

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, INGTSS-TDS-VRES6.

The SOP is based on SM 2540 D.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

If you have any questions please call me at 617-918-8340.

Sincerely,

DANIEL BOUDREAU

Digitally signed by DANIEL BOUDREAU
Date: 2021.09.14 09:40:00 -04'00'

Qualifiers:

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

New Bedford Harbor- New Bedford, MA

Total Suspended Solids in Water

Matrix: Ground / Well Water

Sample Number	Lab ID	Collected	Analysis	Concentration mg/L	RL mg/L	Qualifier
MW-6	AB94616	09/07/2021 12:33	09/10/2021	**4.0**	2.5	
Comments:						
Dup-1	AB94617	09/07/2021 12:33	09/10/2021	**9.8**	2.5	
Comments:						
MW-4A	AB94618	09/07/2021 15:04	09/10/2021	ND	2.5	
Comments:						
MW-5	AB94619	09/07/2021 16:10	09/10/2021	**5.6**	2.5	
Comments:						
MW-1	AB94620	09/08/2021 9:22	09/10/2021	ND	2.5	
Comments:						
MW-7A	AB94621	09/08/2021 11:03	09/10/2021	ND	2.5	
Comments:						
MW-3	AB94622	09/08/2021 12:32	09/10/2021	**2.6**	2.5	
Comments:						
Blank			09/10/2021	**ND**	2.5	
Comments:						

New Bedford Harbor- New Bedford, MA

Laboratory Duplicate Results

SAMPLE ID	PARAMETER	SAMPLE RESULT mg/L	SAMPLE DUP RESULT mg/L	PRECISION RPD %	QC LIMITS (%RPD)
AB94621	Total Suspended Solids in Water	ND	ND	NC	25

Attachment 5:

Copy of LSB analytical report for VOCs in water by GCMS.

United States Environmental Protection Agency
Laboratory Services and Applied Science Division
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

September 22, 2021

Natalie Burgo - Mail Code 07-1
Will Sommer - LFSB
US EPA New England Region 1

Project Number: 21090018
Project: New Bedford Harbor- New Bedford, MA
Analysis: VOAs in Water
EPA Chemist: Allison Connors

Date Samples Received by the Laboratory: 09/09/2021

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, LSBSOP-VOAGCMS10.

Samples were analyzed by GC/MS. Samples were introduced to the GC via a Tekmar pre-concentrator and an Archon autosampler. The analysis SOP is based on US EPA Method 8260B, method 5030B, rev 2.0 SW-846, Rev 2.0,1996. Method 624, 40CFR Part 136 Appendix A, July 1, 1992, and USEPA CLP SOW for Organic Analysis OLM04.2, 1999.

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340 .

Sincerely,

DANIEL BOUDREAU

Digitally signed by DANIEL BOUDREAU
Date: 2021.09.22 14:39:28 -04'00'

21090018$VOAMW

Qualifiers:

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

New Bedford Harbor- New Bedford, MA

VOAs in Water

Client Sample ID:	MW-6	Lab Sample ID:	AB94616
Date of Collection:	9/07/2021	Matrix:	Ground / Well Water
Date of Preparation:	9/14/2021	Amount Prepared:	5 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
74-87-3	Chloromethane	ND	1.0	
75-01-4	Vinyl Chloride	ND	1.0	
74-83-9	Bromomethane	ND	1.0	
75-00-3	Chloroethane	ND	1.0	
75-69-4	Trichlorofluoromethane	ND	1.0	
60-29-7	Ethyl Ether	ND	1.0	
67-64-1	2-Propanone (acetone)	ND	5.0	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	1.0	
75-35-4	1,1-Dichloroethylene	ND	1.0	
75-15-0	Carbon Disulfide	ND	1.0	
75-71-8	Dichlorodifluoromethane	ND	1.0	
75-09-2	Methylene Chloride	ND	1.0	
107-13-1	Acrylonitrile	ND	1.0	
1634-04-4	Methyl-t-Butyl Ether	ND	1.0	
156-60-5	Trans-1,2-Dichloroethylene	ND	1.0	
75-34-3	1,1-dichloroethane	ND	1.0	
108-05-4	Vinyl Acetate	ND	1.0	
78-93-3	2-Butanone (MEK)	**1.1**	1.0	
594-20-7	2,2-Dichloropropane	ND	1.0	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	
67-66-3	Chloroform	ND	1.0	
74-97-5	Bromochloromethane	ND	1.0	
109-99-9	Tetrahydrofuran	ND	1.0	
71-55-6	1,1,1-Trichloroethane	ND	1.0	
107-06-2	1,2-Dichloroethane	ND	1.0	
56-23-5	Carbon tetrachloride	ND	1.0	
71-43-2	Benzene	ND	1.0	
10061-01-5	c-1,3-dichloropropene	ND	1.0	
108-88-3	Toluene	ND	1.0	
10061-02-6	t-1,3-Dichloropropene	ND	1.0	
79-00-5	1,1,2-Trichloroethane	ND	1.0	
124-48-1	Dibromochloromethane	ND	1.0	
108-90-7	Chlorobenzene	ND	1.0	
563-58-6	1,1-Dichloropropene	ND	1.0	
79-01-6	Trichloroethylene	ND	1.0	
78-87-5	1,2-Dichloropropane	ND	1.0	
75-27-4	Bromodichloromethane	ND	1.0	
74-95-3	Dibromomethane	ND	1.0	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	1.0	
142-28-9	1,3-Dichloropropane	ND	1.0	
127-18-4	Tetrachloroethylene	ND	1.0	
106-93-4	1,2-Dibromoethane	ND	1.0	
591-78-6	2-Hexanone	ND	1.0	

New Bedford Harbor- New Bedford, MA

VOAs in Water

Client Sample ID:	MW-6	Lab Sample ID:	AB94616
Date of Collection:	9/07/2021	Matrix:	Ground / Well Water
Date of Preparation:	9/14/2021	Amount Prepared:	5 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	
100-41-4	Ethylbenzene	ND	1.0	
108-38-3/106-42-3	M/P Xylene	ND	2.0	
95-47-6	Ortho Xylene	ND	1.0	
100-42-5	Styrene	ND	1.0	
75-25-2	Bromoform	ND	1.0	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	
98-82-8	Isopropylbenzene	ND	1.0	
108-86-1	Bromobenzene	ND	1.0	
96-18-4	1,2,3-Trichloropropane	ND	1.0	
103-65-1	N-Propylbenzene	ND	1.0	
95-49-8	2-Chlorotoluene	ND	1.0	
106-43-4	4-Chlorotoluene	ND	1.0	
98-06-6	Tert-Butylbenzene	ND	1.0	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	
95-63-6	1,2,4-Trimethylbenzene	ND	1.0	
135-98-8	Sec-Butylbenzene	ND	1.0	
541-73-1	1,3-Dichlorobenzene	ND	1.0	
99-87-6	Para-Isopropyltoluene	ND	1.0	
106-46-7	1,4-Dichlorobenzene	ND	1.0	
95-50-1	1,2-Dichlorobenzene	ND	1.0	
104-51-8	N-Butylbenzene	ND	1.0	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	1.0	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	
87-68-3	Hexachlorobutadiene	ND	1.0	
91-20-3	Naphthalene	ND	1.0	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	102	93 - 113
Toluene-D8	100	85 - 126
1,4-Bromofluorobenzene	96	87 - 105

New Bedford Harbor- New Bedford, MA

VOAs in Water

Client Sample ID:	Dup-1	Lab Sample ID:	AB94617
Date of Collection:	9/07/2021	Matrix:	Ground / Well Water
Date of Preparation:	9/14/2021	Amount Prepared:	5 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
74-87-3	Chloromethane	ND	1.0	
75-01-4	Vinyl Chloride	ND	1.0	
74-83-9	Bromomethane	ND	1.0	
75-00-3	Chloroethane	ND	1.0	
75-69-4	Trichlorofluoromethane	ND	1.0	
60-29-7	Ethyl Ether	ND	1.0	
67-64-1	2-Propanone (acetone)	ND	5.0	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	1.0	
75-35-4	1,1-Dichloroethylene	ND	1.0	
75-15-0	Carbon Disulfide	ND	1.0	
75-71-8	Dichlorodifluoromethane	ND	1.0	
75-09-2	Methylene Chloride	ND	1.0	
107-13-1	Acrylonitrile	ND	1.0	
1634-04-4	Methyl-t-Butyl Ether	ND	1.0	
156-60-5	Trans-1,2-Dichloroethylene	ND	1.0	
75-34-3	1,1-dichloroethane	ND	1.0	
108-05-4	Vinyl Acetate	ND	1.0	
78-93-3	2-Butanone (MEK)	**1.1**	1.0	
594-20-7	2,2-Dichloropropane	ND	1.0	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	
67-66-3	Chloroform	ND	1.0	
74-97-5	Bromochloromethane	ND	1.0	
109-99-9	Tetrahydrofuran	ND	1.0	
71-55-6	1,1,1-Trichloroethane	ND	1.0	
107-06-2	1,2-Dichloroethane	ND	1.0	
56-23-5	Carbon tetrachloride	ND	1.0	
71-43-2	Benzene	ND	1.0	
10061-01-5	c-1,3-dichloropropene	ND	1.0	
108-88-3	Toluene	ND	1.0	
10061-02-6	t-1,3-Dichloropropene	ND	1.0	
79-00-5	1,1,2-Trichloroethane	ND	1.0	
124-48-1	Dibromochloromethane	ND	1.0	
108-90-7	Chlorobenzene	ND	1.0	
563-58-6	1,1-Dichloropropene	ND	1.0	
79-01-6	Trichloroethylene	ND	1.0	
78-87-5	1,2-Dichloropropane	ND	1.0	
75-27-4	Bromodichloromethane	ND	1.0	
74-95-3	Dibromomethane	ND	1.0	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	1.0	
142-28-9	1,3-Dichloropropane	ND	1.0	
127-18-4	Tetrachloroethylene	ND	1.0	
106-93-4	1,2-Dibromoethane	ND	1.0	
591-78-6	2-Hexanone	ND	1.0	

New Bedford Harbor- New Bedford, MA

VOAs in Water

Client Sample ID:	Dup-1	Lab Sample ID:	AB94617
Date of Collection:	9/07/2021	Matrix:	Ground / Well Water
Date of Preparation:	9/14/2021	Amount Prepared:	5 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	
100-41-4	Ethylbenzene	ND	1.0	
108-38-3/106-42-3	M/P Xylene	ND	2.0	
95-47-6	Ortho Xylene	ND	1.0	
100-42-5	Styrene	ND	1.0	
75-25-2	Bromoform	ND	1.0	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	
98-82-8	Isopropylbenzene	ND	1.0	
108-86-1	Bromobenzene	ND	1.0	
96-18-4	1,2,3-Trichloropropane	ND	1.0	
103-65-1	N-Propylbenzene	ND	1.0	
95-49-8	2-Chlorotoluene	ND	1.0	
106-43-4	4-Chlorotoluene	ND	1.0	
98-06-6	Tert-Butylbenzene	ND	1.0	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	
95-63-6	1,2,4-Trimethylbenzene	ND	1.0	
135-98-8	Sec-Butylbenzene	ND	1.0	
541-73-1	1,3-Dichlorobenzene	ND	1.0	
99-87-6	Para-Isopropyltoluene	ND	1.0	
106-46-7	1,4-Dichlorobenzene	ND	1.0	
95-50-1	1,2-Dichlorobenzene	ND	1.0	
104-51-8	N-Butylbenzene	ND	1.0	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	1.0	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	
87-68-3	Hexachlorobutadiene	ND	1.0	
91-20-3	Naphthalene	ND	1.0	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	100	93 - 113
Toluene-D8	100	85 - 126
1,4-Bromofluorobenzene	96	87 - 105

New Bedford Harbor- New Bedford, MA

VOAs in Water

Client Sample ID:	MW-4A	Lab Sample ID:	AB94618
Date of Collection:	9/07/2021	Matrix:	Ground / Well Water
Date of Preparation:	9/14/2021	Amount Prepared:	5 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
74-87-3	Chloromethane	ND	1.0	
75-01-4	Vinyl Chloride	ND	1.0	
74-83-9	Bromomethane	ND	1.0	
75-00-3	Chloroethane	ND	1.0	
75-69-4	Trichlorofluoromethane	ND	1.0	
60-29-7	Ethyl Ether	ND	1.0	
67-64-1	2-Propanone (acetone)	ND	5.0	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	1.0	
75-35-4	1,1-Dichloroethylene	ND	1.0	
75-15-0	Carbon Disulfide	ND	1.0	
75-71-8	Dichlorodifluoromethane	ND	1.0	
75-09-2	Methylene Chloride	ND	1.0	
107-13-1	Acrylonitrile	ND	1.0	
1634-04-4	Methyl-t-Butyl Ether	ND	1.0	
156-60-5	Trans-1,2-Dichloroethylene	ND	1.0	
75-34-3	1,1-dichloroethane	ND	1.0	
108-05-4	Vinyl Acetate	ND	1.0	
78-93-3	2-Butanone (MEK)	**1.5**	1.0	
594-20-7	2,2-Dichloropropane	ND	1.0	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	
67-66-3	Chloroform	ND	1.0	
74-97-5	Bromochloromethane	ND	1.0	
109-99-9	Tetrahydrofuran	ND	1.0	
71-55-6	1,1,1-Trichloroethane	ND	1.0	
107-06-2	1,2-Dichloroethane	ND	1.0	
56-23-5	Carbon tetrachloride	ND	1.0	
71-43-2	Benzene	ND	1.0	
10061-01-5	c-1,3-dichloropropene	ND	1.0	
108-88-3	Toluene	ND	1.0	
10061-02-6	t-1,3-Dichloropropene	ND	1.0	
79-00-5	1,1,2-Trichloroethane	ND	1.0	
124-48-1	Dibromochloromethane	ND	1.0	
108-90-7	Chlorobenzene	ND	1.0	
563-58-6	1,1-Dichloropropene	ND	1.0	
79-01-6	Trichloroethylene	ND	1.0	
78-87-5	1,2-Dichloropropane	ND	1.0	
75-27-4	Bromodichloromethane	ND	1.0	
74-95-3	Dibromomethane	ND	1.0	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	1.0	
142-28-9	1,3-Dichloropropane	ND	1.0	
127-18-4	Tetrachloroethylene	ND	1.0	
106-93-4	1,2-Dibromoethane	ND	1.0	
591-78-6	2-Hexanone	ND	1.0	

New Bedford Harbor- New Bedford, MA

VOAs in Water

Client Sample ID:	MW-4A	Lab Sample ID:	AB94618
Date of Collection:	9/07/2021	Matrix:	Ground / Well Water
Date of Preparation:	9/14/2021	Amount Prepared:	5 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	
100-41-4	Ethylbenzene	ND	1.0	
108-38-3/106-42-3	M/P Xylene	ND	2.0	
95-47-6	Ortho Xylene	ND	1.0	
100-42-5	Styrene	ND	1.0	
75-25-2	Bromoform	ND	1.0	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	
98-82-8	Isopropylbenzene	ND	1.0	
108-86-1	Bromobenzene	ND	1.0	
96-18-4	1,2,3-Trichloropropane	ND	1.0	
103-65-1	N-Propylbenzene	ND	1.0	
95-49-8	2-Chlorotoluene	ND	1.0	
106-43-4	4-Chlorotoluene	ND	1.0	
98-06-6	Tert-Butylbenzene	ND	1.0	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	
95-63-6	1,2,4-Trimethylbenzene	ND	1.0	
135-98-8	Sec-Butylbenzene	ND	1.0	
541-73-1	1,3-Dichlorobenzene	ND	1.0	
99-87-6	Para-Isopropyltoluene	ND	1.0	
106-46-7	1,4-Dichlorobenzene	ND	1.0	
95-50-1	1,2-Dichlorobenzene	ND	1.0	
104-51-8	N-Butylbenzene	ND	1.0	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	1.0	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	
87-68-3	Hexachlorobutadiene	ND	1.0	
91-20-3	Naphthalene	ND	1.0	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	102	93 - 113
Toluene-D8	101	85 - 126
1,4-Bromofluorobenzene	96	87 - 105

New Bedford Harbor- New Bedford, MA

VOAs in Water

Client Sample ID:	MW-5	Lab Sample ID:	AB94619
Date of Collection:	9/07/2021	Matrix:	Ground / Well Water
Date of Preparation:	9/14/2021	Amount Prepared:	5 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
74-87-3	Chloromethane	ND	1.0	
75-01-4	Vinyl Chloride	ND	1.0	
74-83-9	Bromomethane	ND	1.0	
75-00-3	Chloroethane	ND	1.0	
75-69-4	Trichlorofluoromethane	ND	1.0	
60-29-7	Ethyl Ether	ND	1.0	
67-64-1	2-Propanone (acetone)	ND	5.0	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	1.0	
75-35-4	1,1-Dichloroethylene	ND	1.0	
75-15-0	Carbon Disulfide	ND	1.0	
75-71-8	Dichlorodifluoromethane	ND	1.0	
75-09-2	Methylene Chloride	ND	1.0	
107-13-1	Acrylonitrile	ND	1.0	
1634-04-4	Methyl-t-Butyl Ether	ND	1.0	
156-60-5	Trans-1,2-Dichloroethylene	ND	1.0	
75-34-3	1,1-dichloroethane	ND	1.0	
108-05-4	Vinyl Acetate	ND	1.0	
78-93-3	2-Butanone (MEK)	**1.4**	1.0	
594-20-7	2,2-Dichloropropane	ND	1.0	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	
67-66-3	Chloroform	ND	1.0	
74-97-5	Bromochloromethane	ND	1.0	
109-99-9	Tetrahydrofuran	ND	1.0	
71-55-6	1,1,1-Trichloroethane	ND	1.0	
107-06-2	1,2-Dichloroethane	ND	1.0	
56-23-5	Carbon tetrachloride	ND	1.0	
71-43-2	Benzene	ND	1.0	
10061-01-5	c-1,3-dichloropropene	ND	1.0	
108-88-3	Toluene	ND	1.0	
10061-02-6	t-1,3-Dichloropropene	ND	1.0	
79-00-5	1,1,2-Trichloroethane	ND	1.0	
124-48-1	Dibromochloromethane	ND	1.0	
108-90-7	Chlorobenzene	ND	1.0	
563-58-6	1,1-Dichloropropene	ND	1.0	
79-01-6	Trichloroethylene	ND	1.0	
78-87-5	1,2-Dichloropropane	ND	1.0	
75-27-4	Bromodichloromethane	ND	1.0	
74-95-3	Dibromomethane	ND	1.0	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	1.0	
142-28-9	1,3-Dichloropropane	ND	1.0	
127-18-4	Tetrachloroethylene	ND	1.0	
106-93-4	1,2-Dibromoethane	ND	1.0	
591-78-6	2-Hexanone	ND	1.0	

New Bedford Harbor- New Bedford, MA

VOAs in Water

Client Sample ID:	MW-5	Lab Sample ID:	AB94619
Date of Collection:	9/07/2021	Matrix:	Ground / Well Water
Date of Preparation:	9/14/2021	Amount Prepared:	5 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	
100-41-4	Ethylbenzene	ND	1.0	
108-38-3/106-42-3	M/P Xylene	ND	2.0	
95-47-6	Ortho Xylene	ND	1.0	
100-42-5	Styrene	ND	1.0	
75-25-2	Bromoform	ND	1.0	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	
98-82-8	Isopropylbenzene	ND	1.0	
108-86-1	Bromobenzene	ND	1.0	
96-18-4	1,2,3-Trichloropropane	ND	1.0	
103-65-1	N-Propylbenzene	ND	1.0	
95-49-8	2-Chlorotoluene	ND	1.0	
106-43-4	4-Chlorotoluene	ND	1.0	
98-06-6	Tert-Butylbenzene	ND	1.0	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	
95-63-6	1,2,4-Trimethylbenzene	ND	1.0	
135-98-8	Sec-Butylbenzene	ND	1.0	
541-73-1	1,3-Dichlorobenzene	ND	1.0	
99-87-6	Para-Isopropyltoluene	ND	1.0	
106-46-7	1,4-Dichlorobenzene	ND	1.0	
95-50-1	1,2-Dichlorobenzene	ND	1.0	
104-51-8	N-Butylbenzene	ND	1.0	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	1.0	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	
87-68-3	Hexachlorobutadiene	ND	1.0	
91-20-3	Naphthalene	ND	1.0	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	103	93 - 113
Toluene-D8	100	85 - 126
1,4-Bromofluorobenzene	95	87 - 105

New Bedford Harbor- New Bedford, MA

Laboratory Blank for $VOAMW

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Ground / Well Water
Date of Preparation:	9/14/2021	Amount Prepared:	5.0 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	5.0 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
74-87-3	Chloromethane	ND	1.0	
75-01-4	Vinyl Chloride	ND	1.0	
74-83-9	Bromomethane	ND	1.0	
75-00-3	Chloroethane	ND	1.0	
75-69-4	Trichlorofluoromethane	ND	1.0	
60-29-7	Ethyl Ether	ND	1.0	
67-64-1	2-Propanone (acetone)	ND	5.0	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	1.0	
75-35-4	1,1-Dichloroethylene	ND	1.0	
75-15-0	Carbon Disulfide	ND	1.0	
75-71-8	Dichlorodifluoromethane	ND	1.0	
75-09-2	Methylene Chloride	ND	1.0	
107-13-1	Acrylonitrile	ND	1.0	
1634-04-4	Methyl-t-Butyl Ether	ND	1.0	
156-60-5	Trans-1,2-Dichloroethylene	ND	1.0	
75-34-3	1,1-dichloroethane	ND	1.0	
108-05-4	Vinyl Acetate	ND	1.0	
78-93-3	2-Butanone (MEK)	ND	1.0	
594-20-7	2,2-Dichloropropane	ND	1.0	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	
67-66-3	Chloroform	ND	1.0	
74-97-5	Bromochloromethane	ND	1.0	
109-99-9	Tetrahydrofuran	ND	1.0	
71-55-6	1,1,1-Trichloroethane	ND	1.0	
107-06-2	1,2-Dichloroethane	ND	1.0	
56-23-5	Carbon tetrachloride	ND	1.0	
71-43-2	Benzene	ND	1.0	
10061-01-5	c-1,3-dichloropropene	ND	1.0	
108-88-3	Toluene	ND	1.0	
10061-02-6	t-1,3-Dichloropropene	ND	1.0	
79-00-5	1,1,2-Trichloroethane	ND	1.0	
124-48-1	Dibromochloromethane	ND	1.0	
108-90-7	Chlorobenzene	ND	1.0	
563-58-6	1,1-Dichloropropene	ND	1.0	
79-01-6	Trichloroethylene	ND	1.0	
78-87-5	1,2-Dichloropropane	ND	1.0	
75-27-4	Bromodichloromethane	ND	1.0	
74-95-3	Dibromomethane	ND	1.0	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	1.0	
142-28-9	1,3-Dichloropropane	ND	1.0	
127-18-4	Tetrachloroethylene	ND	1.0	
106-93-4	1,2-Dibromoethane	ND	1.0	
591-78-6	2-Hexanone	ND	1.0	

New Bedford Harbor- New Bedford, MA

Laboratory Blank for $VOAMW

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Ground / Well Water
Date of Preparation:	9/14/2021	Amount Prepared:	5.0 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	5.0 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	
100-41-4	Ethylbenzene	ND	1.0	
108-38-3/106-42-3	M/P Xylene	ND	2.0	
95-47-6	Ortho Xylene	ND	1.0	
100-42-5	Styrene	ND	1.0	
75-25-2	Bromoform	ND	1.0	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	
98-82-8	Isopropylbenzene	ND	1.0	
108-86-1	Bromobenzene	ND	1.0	
96-18-4	1,2,3-Trichloropropane	ND	1.0	
103-65-1	N-Propylbenzene	ND	1.0	
95-49-8	2-Chlorotoluene	ND	1.0	
106-43-4	4-Chlorotoluene	ND	1.0	
98-06-6	Tert-Butylbenzene	ND	1.0	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	
95-63-6	1,2,4-Trimethylbenzene	ND	1.0	
135-98-8	Sec-Butylbenzene	ND	1.0	
541-73-1	1,3-Dichlorobenzene	ND	1.0	
99-87-6	Para-Isopropyltoluene	ND	1.0	
106-46-7	1,4-Dichlorobenzene	ND	1.0	
95-50-1	1,2-Dichlorobenzene	ND	1.0	
104-51-8	N-Butylbenzene	ND	1.0	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	1.0	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	
87-68-3	Hexachlorobutadiene	ND	1.0	
91-20-3	Naphthalene	ND	1.0	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	99	93 - 113
Toluene-D8	100	85 - 126
1,4-Bromofluorobenzene	95	87 - 105

Comments: Method Blank for all samples.

New Bedford Harbor- New Bedford, MA

VOAs in Water

Client Sample ID:	MW-1	Lab Sample ID:	AB94620
Date of Collection:	9/08/2021	Matrix:	Ground / Well Water
Date of Preparation:	9/14/2021	Amount Prepared:	5 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
74-87-3	Chloromethane	ND	1.0	
75-01-4	Vinyl Chloride	ND	1.0	
74-83-9	Bromomethane	ND	1.0	
75-00-3	Chloroethane	ND	1.0	
75-69-4	Trichlorofluoromethane	ND	1.0	
60-29-7	Ethyl Ether	ND	1.0	
67-64-1	2-Propanone (acetone)	ND	5.0	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	1.0	
75-35-4	1,1-Dichloroethylene	ND	1.0	
75-15-0	Carbon Disulfide	ND	1.0	
75-71-8	Dichlorodifluoromethane	ND	1.0	
75-09-2	Methylene Chloride	ND	1.0	
107-13-1	Acrylonitrile	ND	1.0	
1634-04-4	Methyl-t-Butyl Ether	ND	1.0	
156-60-5	Trans-1,2-Dichloroethylene	ND	1.0	
75-34-3	1,1-dichloroethane	ND	1.0	
108-05-4	Vinyl Acetate	ND	1.0	
78-93-3	2-Butanone (MEK)	ND	1.0	
594-20-7	2,2-Dichloropropane	ND	1.0	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	
67-66-3	Chloroform	ND	1.0	
74-97-5	Bromochloromethane	ND	1.0	
109-99-9	Tetrahydrofuran	ND	1.0	
71-55-6	1,1,1-Trichloroethane	ND	1.0	
107-06-2	1,2-Dichloroethane	ND	1.0	
56-23-5	Carbon tetrachloride	ND	1.0	
71-43-2	Benzene	ND	1.0	
10061-01-5	c-1,3-dichloropropene	ND	1.0	
108-88-3	Toluene	ND	1.0	
10061-02-6	t-1,3-Dichloropropene	ND	1.0	
79-00-5	1,1,2-Trichloroethane	ND	1.0	
124-48-1	Dibromochloromethane	ND	1.0	
108-90-7	Chlorobenzene	ND	1.0	
563-58-6	1,1-Dichloropropene	ND	1.0	
79-01-6	Trichloroethylene	ND	1.0	
78-87-5	1,2-Dichloropropane	ND	1.0	
75-27-4	Bromodichloromethane	ND	1.0	
74-95-3	Dibromomethane	ND	1.0	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	1.0	
142-28-9	1,3-Dichloropropane	ND	1.0	
127-18-4	Tetrachloroethylene	ND	1.0	
106-93-4	1,2-Dibromoethane	ND	1.0	
591-78-6	2-Hexanone	ND	1.0	

New Bedford Harbor- New Bedford, MA

VOAs in Water

Client Sample ID:	MW-1	Lab Sample ID:	AB94620
Date of Collection:	9/08/2021	Matrix:	Ground / Well Water
Date of Preparation:	9/14/2021	Amount Prepared:	5 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	
100-41-4	Ethylbenzene	ND	1.0	
108-38-3/106-42-3	M/P Xylene	ND	2.0	
95-47-6	Ortho Xylene	ND	1.0	
100-42-5	Styrene	ND	1.0	
75-25-2	Bromoform	ND	1.0	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	
98-82-8	Isopropylbenzene	ND	1.0	
108-86-1	Bromobenzene	ND	1.0	
96-18-4	1,2,3-Trichloropropane	ND	1.0	
103-65-1	N-Propylbenzene	ND	1.0	
95-49-8	2-Chlorotoluene	ND	1.0	
106-43-4	4-Chlorotoluene	ND	1.0	
98-06-6	Tert-Butylbenzene	ND	1.0	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	
95-63-6	1,2,4-Trimethylbenzene	ND	1.0	
135-98-8	Sec-Butylbenzene	ND	1.0	
541-73-1	1,3-Dichlorobenzene	ND	1.0	
99-87-6	Para-Isopropyltoluene	ND	1.0	
106-46-7	1,4-Dichlorobenzene	ND	1.0	
95-50-1	1,2-Dichlorobenzene	ND	1.0	
104-51-8	N-Butylbenzene	ND	1.0	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	1.0	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	
87-68-3	Hexachlorobutadiene	ND	1.0	
91-20-3	Naphthalene	ND	1.0	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	102	93 - 113
Toluene-D8	99	85 - 126
1,4-Bromofluorobenzene	94	87 - 105

New Bedford Harbor- New Bedford, MA

VOAs in Water

Client Sample ID:	MW-7A	Lab Sample ID:	AB94621
Date of Collection:	9/08/2021	Matrix:	Ground / Well Water
Date of Preparation:	9/14/2021	Amount Prepared:	5 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
74-87-3	Chloromethane	ND	1.0	
75-01-4	Vinyl Chloride	ND	1.0	
74-83-9	Bromomethane	ND	1.0	
75-00-3	Chloroethane	ND	1.0	
75-69-4	Trichlorofluoromethane	ND	1.0	
60-29-7	Ethyl Ether	ND	1.0	
67-64-1	2-Propanone (acetone)	ND	5.0	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	1.0	
75-35-4	1,1-Dichloroethylene	ND	1.0	
75-15-0	Carbon Disulfide	ND	1.0	
75-71-8	Dichlorodifluoromethane	ND	1.0	
75-09-2	Methylene Chloride	ND	1.0	
107-13-1	Acrylonitrile	ND	1.0	
1634-04-4	Methyl-t-Butyl Ether	ND	1.0	
156-60-5	Trans-1,2-Dichloroethylene	ND	1.0	
75-34-3	1,1-dichloroethane	ND	1.0	
108-05-4	Vinyl Acetate	ND	1.0	
78-93-3	2-Butanone (MEK)	ND	1.0	
594-20-7	2,2-Dichloropropane	ND	1.0	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	
67-66-3	Chloroform	ND	1.0	
74-97-5	Bromochloromethane	ND	1.0	
109-99-9	Tetrahydrofuran	ND	1.0	
71-55-6	1,1,1-Trichloroethane	ND	1.0	
107-06-2	1,2-Dichloroethane	ND	1.0	
56-23-5	Carbon tetrachloride	ND	1.0	
71-43-2	Benzene	ND	1.0	
10061-01-5	c-1,3-dichloropropene	ND	1.0	
108-88-3	Toluene	ND	1.0	
10061-02-6	t-1,3-Dichloropropene	ND	1.0	
79-00-5	1,1,2-Trichloroethane	ND	1.0	
124-48-1	Dibromochloromethane	ND	1.0	
108-90-7	Chlorobenzene	ND	1.0	
563-58-6	1,1-Dichloropropene	ND	1.0	
79-01-6	Trichloroethylene	ND	1.0	
78-87-5	1,2-Dichloropropane	ND	1.0	
75-27-4	Bromodichloromethane	ND	1.0	
74-95-3	Dibromomethane	ND	1.0	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	1.0	
142-28-9	1,3-Dichloropropane	ND	1.0	
127-18-4	Tetrachloroethylene	ND	1.0	
106-93-4	1,2-Dibromoethane	ND	1.0	
591-78-6	2-Hexanone	ND	1.0	

New Bedford Harbor- New Bedford, MA

VOAs in Water

Client Sample ID:	MW-7A	Lab Sample ID:	AB94621
Date of Collection:	9/08/2021	Matrix:	Ground / Well Water
Date of Preparation:	9/14/2021	Amount Prepared:	5 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	
100-41-4	Ethylbenzene	ND	1.0	
108-38-3/106-42-3	M/P Xylene	ND	2.0	
95-47-6	Ortho Xylene	ND	1.0	
100-42-5	Styrene	ND	1.0	
75-25-2	Bromoform	ND	1.0	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	
98-82-8	Isopropylbenzene	ND	1.0	
108-86-1	Bromobenzene	ND	1.0	
96-18-4	1,2,3-Trichloropropane	ND	1.0	
103-65-1	N-Propylbenzene	ND	1.0	
95-49-8	2-Chlorotoluene	ND	1.0	
106-43-4	4-Chlorotoluene	ND	1.0	
98-06-6	Tert-Butylbenzene	ND	1.0	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	
95-63-6	1,2,4-Trimethylbenzene	ND	1.0	
135-98-8	Sec-Butylbenzene	ND	1.0	
541-73-1	1,3-Dichlorobenzene	ND	1.0	
99-87-6	Para-Isopropyltoluene	ND	1.0	
106-46-7	1,4-Dichlorobenzene	ND	1.0	
95-50-1	1,2-Dichlorobenzene	ND	1.0	
104-51-8	N-Butylbenzene	ND	1.0	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	1.0	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	
87-68-3	Hexachlorobutadiene	ND	1.0	
91-20-3	Naphthalene	ND	1.0	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	104	93 - 113
Toluene-D8	100	85 - 126
1,4-Bromofluorobenzene	95	87 - 105

New Bedford Harbor- New Bedford, MA

VOAs in Water

Client Sample ID:	MW-3	Lab Sample ID:	AB94622
Date of Collection:	9/08/2021	Matrix:	Ground / Well Water
Date of Preparation:	9/14/2021	Amount Prepared:	5 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
74-87-3	Chloromethane	ND	1.0	
75-01-4	Vinyl Chloride	ND	1.0	
74-83-9	Bromomethane	ND	1.0	
75-00-3	Chloroethane	ND	1.0	
75-69-4	Trichlorofluoromethane	ND	1.0	
60-29-7	Ethyl Ether	ND	1.0	
67-64-1	2-Propanone (acetone)	ND	5.0	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	1.0	
75-35-4	1,1-Dichloroethylene	ND	1.0	
75-15-0	Carbon Disulfide	ND	1.0	
75-71-8	Dichlorodifluoromethane	ND	1.0	
75-09-2	Methylene Chloride	ND	1.0	
107-13-1	Acrylonitrile	ND	1.0	
1634-04-4	Methyl-t-Butyl Ether	ND	1.0	
156-60-5	Trans-1,2-Dichloroethylene	ND	1.0	
75-34-3	1,1-dichloroethane	ND	1.0	
108-05-4	Vinyl Acetate	ND	1.0	
78-93-3	2-Butanone (MEK)	ND	1.0	
594-20-7	2,2-Dichloropropane	ND	1.0	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	
67-66-3	Chloroform	ND	1.0	
74-97-5	Bromochloromethane	ND	1.0	
109-99-9	Tetrahydrofuran	ND	1.0	
71-55-6	1,1,1-Trichloroethane	ND	1.0	
107-06-2	1,2-Dichloroethane	ND	1.0	
56-23-5	Carbon tetrachloride	ND	1.0	
71-43-2	Benzene	ND	1.0	
10061-01-5	c-1,3-dichloropropene	ND	1.0	
108-88-3	Toluene	ND	1.0	
10061-02-6	t-1,3-Dichloropropene	ND	1.0	
79-00-5	1,1,2-Trichloroethane	ND	1.0	
124-48-1	Dibromochloromethane	ND	1.0	
108-90-7	Chlorobenzene	ND	1.0	
563-58-6	1,1-Dichloropropene	ND	1.0	
79-01-6	Trichloroethylene	ND	1.0	
78-87-5	1,2-Dichloropropane	ND	1.0	
75-27-4	Bromodichloromethane	ND	1.0	
74-95-3	Dibromomethane	ND	1.0	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	1.0	
142-28-9	1,3-Dichloropropane	ND	1.0	
127-18-4	Tetrachloroethylene	**1.6**	1.0	
106-93-4	1,2-Dibromoethane	ND	1.0	
591-78-6	2-Hexanone	ND	1.0	

New Bedford Harbor- New Bedford, MA

VOAs in Water

Client Sample ID:	MW-3	Lab Sample ID:	AB94622
Date of Collection:	9/08/2021	Matrix:	Ground / Well Water
Date of Preparation:	9/14/2021	Amount Prepared:	5 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	
100-41-4	Ethylbenzene	ND	1.0	
108-38-3/106-42-3	M/P Xylene	ND	2.0	
95-47-6	Ortho Xylene	ND	1.0	
100-42-5	Styrene	ND	1.0	
75-25-2	Bromoform	ND	1.0	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	
98-82-8	Isopropylbenzene	ND	1.0	
108-86-1	Bromobenzene	ND	1.0	
96-18-4	1,2,3-Trichloropropane	ND	1.0	
103-65-1	N-Propylbenzene	ND	1.0	
95-49-8	2-Chlorotoluene	ND	1.0	
106-43-4	4-Chlorotoluene	ND	1.0	
98-06-6	Tert-Butylbenzene	ND	1.0	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	
95-63-6	1,2,4-Trimethylbenzene	ND	1.0	
135-98-8	Sec-Butylbenzene	ND	1.0	
541-73-1	1,3-Dichlorobenzene	ND	1.0	
99-87-6	Para-Isopropyltoluene	ND	1.0	
106-46-7	1,4-Dichlorobenzene	ND	1.0	
95-50-1	1,2-Dichlorobenzene	ND	1.0	
104-51-8	N-Butylbenzene	ND	1.0	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	1.0	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	
87-68-3	Hexachlorobutadiene	ND	1.0	
91-20-3	Naphthalene	ND	1.0	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	102	93 - 113
Toluene-D8	101	85 - 126
1,4-Bromofluorobenzene	95	87 - 105

New Bedford Harbor- New Bedford, MA

VOAs in Water

Client Sample ID:	Trip Blanks	Lab Sample ID:	AB94623
Date of Collection:	9/07/2021	Matrix:	Ground / Well Water
Date of Preparation:	9/14/2021	Amount Prepared:	5 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
74-87-3	Chloromethane	ND	1.0	
75-01-4	Vinyl Chloride	ND	1.0	
74-83-9	Bromomethane	ND	1.0	
75-00-3	Chloroethane	ND	1.0	
75-69-4	Trichlorofluoromethane	ND	1.0	
60-29-7	Ethyl Ether	ND	1.0	
67-64-1	2-Propanone (acetone)	ND	5.0	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	1.0	
75-35-4	1,1-Dichloroethylene	ND	1.0	
75-15-0	Carbon Disulfide	ND	1.0	
75-71-8	Dichlorodifluoromethane	ND	1.0	
75-09-2	Methylene Chloride	ND	1.0	
107-13-1	Acrylonitrile	ND	1.0	
1634-04-4	Methyl-t-Butyl Ether	ND	1.0	
156-60-5	Trans-1,2-Dichloroethylene	ND	1.0	
75-34-3	1,1-dichloroethane	ND	1.0	
108-05-4	Vinyl Acetate	ND	1.0	
78-93-3	2-Butanone (MEK)	**1.2**	1.0	
594-20-7	2,2-Dichloropropane	ND	1.0	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	
67-66-3	Chloroform	ND	1.0	
74-97-5	Bromochloromethane	ND	1.0	
109-99-9	Tetrahydrofuran	ND	1.0	
71-55-6	1,1,1-Trichloroethane	ND	1.0	
107-06-2	1,2-Dichloroethane	ND	1.0	
56-23-5	Carbon tetrachloride	ND	1.0	
71-43-2	Benzene	ND	1.0	
10061-01-5	c-1,3-dichloropropene	ND	1.0	
108-88-3	Toluene	ND	1.0	
10061-02-6	t-1,3-Dichloropropene	ND	1.0	
79-00-5	1,1,2-Trichloroethane	ND	1.0	
124-48-1	Dibromochloromethane	ND	1.0	
108-90-7	Chlorobenzene	ND	1.0	
563-58-6	1,1-Dichloropropene	ND	1.0	
79-01-6	Trichloroethylene	ND	1.0	
78-87-5	1,2-Dichloropropane	ND	1.0	
75-27-4	Bromodichloromethane	ND	1.0	
74-95-3	Dibromomethane	ND	1.0	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	1.0	
142-28-9	1,3-Dichloropropane	ND	1.0	
127-18-4	Tetrachloroethylene	ND	1.0	
106-93-4	1,2-Dibromoethane	ND	1.0	
591-78-6	2-Hexanone	ND	1.0	

New Bedford Harbor- New Bedford, MA

VOAs in Water

Client Sample ID:	Trip Blanks	Lab Sample ID:	AB94623
Date of Collection:	9/07/2021	Matrix:	Ground / Well Water
Date of Preparation:	9/14/2021	Amount Prepared:	5 mL
Date of Analysis:	9/14/2021	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	
100-41-4	Ethylbenzene	ND	1.0	
108-38-3/106-42-3	M/P Xylene	ND	2.0	
95-47-6	Ortho Xylene	ND	1.0	
100-42-5	Styrene	ND	1.0	
75-25-2	Bromoform	ND	1.0	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	
98-82-8	Isopropylbenzene	ND	1.0	
108-86-1	Bromobenzene	ND	1.0	
96-18-4	1,2,3-Trichloropropane	ND	1.0	
103-65-1	N-Propylbenzene	ND	1.0	
95-49-8	2-Chlorotoluene	ND	1.0	
106-43-4	4-Chlorotoluene	ND	1.0	
98-06-6	Tert-Butylbenzene	ND	1.0	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	
95-63-6	1,2,4-Trimethylbenzene	ND	1.0	
135-98-8	Sec-Butylbenzene	ND	1.0	
541-73-1	1,3-Dichlorobenzene	ND	1.0	
99-87-6	Para-Isopropyltoluene	ND	1.0	
106-46-7	1,4-Dichlorobenzene	ND	1.0	
95-50-1	1,2-Dichlorobenzene	ND	1.0	
104-51-8	N-Butylbenzene	ND	1.0	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	1.0	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	
87-68-3	Hexachlorobutadiene	ND	1.0	
91-20-3	Naphthalene	ND	1.0	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	101	93 - 113
Toluene-D8	99	85 - 126
1,4-Bromofluorobenzene	96	87 - 105

New Bedford Harbor- New Bedford, MA

MATRIX SPIKE (MS) RECOVERY

Sample ID: AB94619

PARAMETER	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC	QC LIMITS (% REC)
1,1,1,2-Tetrachloroethane	20.0	ND	16.0	80	79 - 128
1,1,1-Trichloroethane	20.0	ND	21.0	105	68 - 140
1,1,2,2-Tetrachloroethane	20.0	ND	20.0	100	67 - 130
1,1,2-Trichloro-1,2,2-Trifluoroetha	20.0	ND	19.0	95	60 - 145
1,1,2-Trichloroethane	20.0	ND	21.0	105	72 - 129
1,1-Dichloroethylene	20.0	ND	22.0	110	57 - 137
1,1-Dichloropropene	20.0	ND	22.0	110	74 - 132
1,1-dichloroethane	20.0	ND	21.0	105	66 - 135
1,2,3-Trichlorobenzene	20.0	ND	20.0	100	45 - 133
1,2,3-Trichloropropane	20.0	ND	20.0	100	46 - 139
1,2,4-Trichlorobenzene	20.0	ND	20.0	100	49 - 131
1,2,4-Trimethylbenzene	20.0	ND	22.0	110	74 - 132
1,2-Dibromo-3-Chloropropane	20.0	ND	18.0	90	42 - 132
1,2-Dibromoethane	20.0	ND	21.0	105	66 - 128
1,2-Dichlorobenzene	20.0	ND	20.0	100	70 - 124
1,2-Dichloroethane	20.0	ND	21.0	105	70 - 134
1,2-Dichloropropane	20.0	ND	21.0	105	75 - 124
1,3,5-Trimethylbenzene	20.0	ND	21.0	105	67 - 129
1,3-Dichlorobenzene	20.0	ND	20.0	100	69 - 127
1,3-Dichloropropane	20.0	ND	20.0	100	68 - 129
1,4-Dichlorobenzene	20.0	ND	20.0	100	70 - 123
2,2-Dichloropropane	20.0	ND	15.0	75	58 - 139
2-Butanone (MEK)	20.0	1.4	18.0	83	19 - 109
2-Chlorotoluene	20.0	ND	20.0	100	65 - 127
2-Hexanone	20.0	ND	20.0	100	21 - 124
2-Propanone (acetone)	20.0	ND	18.0	90	29 - 164
4-Chlorotoluene	20.0	ND	21.0	105	69 - 129
4-Methyl-2-Pentanone(MIBK)	20.0	ND	23.0	115	31 - 149
Acrylonitrile	20.0	ND	21.0	105	40 - 145
Benzene	20.0	ND	21.0	105	71 - 125
Bromobenzene	20.0	ND	20.0	100	66 - 125
Bromochloromethane	20.0	ND	20.0	100	64 - 136
Bromodichloromethane	20.0	ND	21.0	105	74 - 132
Bromoform	20.0	ND	15.0	75	61 - 133
Bromomethane	20.0	ND	8.3	42	50 - 162
Carbon Disulfide	20.0	ND	22.0	110	56 - 138
Carbon tetrachloride	20.0	ND	17.0	85	73 - 133
Chlorobenzene	20.0	ND	21.0	105	72 - 127
Chloroethane	20.0	ND	22.0	110	62 - 150
Chloroform	20.0	ND	21.0	105	65 - 147
Chloromethane	20.0	ND	19.0	95	64 - 166
Dibromochloromethane	20.0	ND	17.0	85	71 - 130
Dibromomethane	20.0	ND	20.0	100	71 - 130
Dichlorodifluoromethane	20.0	ND	20.0	100	30 - 132
Ethyl Ether	20.0	ND	20.0	100	60 - 145
Ethylbenzene	20.0	ND	21.0	105	80 - 125
Hexachlorobutadiene	20.0	ND	19.0	95	57 - 120
Isopropylbenzene	20.0	ND	21.0	105	65 - 131

New Bedford Harbor- New Bedford, MA

MATRIX SPIKE (MS) RECOVERY

Sample ID: AB94619

PARAMETER	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC	QC LIMITS (% REC)
M/P Xylene	40.0	ND	42.0	105	83 - 121
Methyl-t-Butyl Ether	20.0	ND	20.0	100	50 - 124
Methylene Chloride	20.0	ND	23.0	115	55 - 151
N-Butylbenzene	20.0	ND	20.0	100	67 - 133
N-Propylbenzene	20.0	ND	21.0	105	62 - 132
Naphthalene	20.0	ND	22.0	110	33 - 134
Ortho Xylene	20.0	ND	21.0	105	76 - 126
Para-Isopropyltoluene	20.0	ND	22.0	110	70 - 134
Sec-Butylbenzene	20.0	ND	21.0	105	66 - 132
Styrene	20.0	ND	21.0	105	54 - 148
Tert-Butylbenzene	20.0	ND	21.0	105	63 - 134
Tetrachloroethylene	20.0	ND	21.0	105	65 - 124
Tetrahydrofuran	20.0	ND	20.0	100	37 - 139
Toluene	20.0	ND	22.0	110	72 - 128
Trans-1,2-Dichloroethylene	20.0	ND	21.0	105	66 - 131
Trichloroethylene	20.0	ND	22.0	110	72 - 129
Trichlorofluoromethane	20.0	ND	21.0	105	67 - 151
Vinyl Acetate	20.0	ND	20.0	100	32 - 147
Vinyl Chloride	20.0	ND	21.0	105	65 - 151
c-1,3-dichloropropene	20.0	ND	15.0	75	68 - 126
cis-1,2-Dichloroethylene	20.0	ND	20.0	100	54 - 141
t-1,3-Dichloropropene	20.0	ND	14.0	70	68 - 130

New Bedford Harbor- New Bedford, MA

MATRIX SPIKE DUPLICATE (MSD) RECOVERY

Sample ID:AB94619

PARAMETER	MSD SPIKE ADDED	MSD CONCENTRATION ug/L	MSD % REC	RPD %	QC LIMITS RPD
1,1,1,2-Tetrachloroethane	20.0	16.0	80	0.00	40
1,1,1-Trichloroethane	20.0	20.0	100	4.88	16
1,1,2,2-Tetrachloroethane	20.0	20.0	100	0.00	40
1,1,2-Trichloro-1,2,2-Trifluoroetha	20.0	18.0	90	5.41	40
1,1,2-Trichloroethane	20.0	20.0	100	4.88	40
1,1-Dichloroethylene	20.0	21.0	105	4.65	35
1,1-Dichloropropene	20.0	22.0	110	0.00	40
1,1-dichloroethane	20.0	21.0	105	0.00	40
1,2,3-Trichlorobenzene	20.0	19.0	95	5.13	40
1,2,3-Trichloropropane	20.0	20.0	100	0.00	40
1,2,4-Trichlorobenzene	20.0	18.0	90	10.5	40
1,2,4-Trimethylbenzene	20.0	21.0	105	4.65	40
1,2-Dibromo-3-Chloropropane	20.0	20.0	100	10.5	40
1,2-Dibromoethane	20.0	21.0	105	0.00	40
1,2-Dichlorobenzene	20.0	20.0	100	0.00	40
1,2-Dichloroethane	20.0	21.0	105	0.00	23
1,2-Dichloropropane	20.0	21.0	105	0.00	40
1,3,5-Trimethylbenzene	20.0	21.0	105	0.00	40
1,3-Dichlorobenzene	20.0	20.0	100	0.00	40
1,3-Dichloropropane	20.0	20.0	100	0.00	40
1,4-Dichlorobenzene	20.0	20.0	100	0.00	21
2,2-Dichloropropane	20.0	15.0	75	0.00	40
2-Butanone (MEK)	20.0	17.0	78	6.21	40
2-Chlorotoluene	20.0	20.0	100	0.00	40
2-Hexanone	20.0	20.0	100	0.00	40
2-Propanone (acetone)	20.0	17.0	85	5.71	40
4-Chlorotoluene	20.0	21.0	105	0.00	40
4-Methyl-2-Pentanone(MIBK)	20.0	24.0	120	4.26	40
Acrylonitrile	20.0	20.0	100	4.88	40
Benzene	20.0	21.0	105	0.00	14
Bromobenzene	20.0	20.0	100	0.00	40
Bromochloromethane	20.0	20.0	100	0.00	40
Bromodichloromethane	20.0	21.0	105	0.00	21
Bromoform	20.0	15.0	75	0.00	40
Bromomethane	20.0	9.50	48	13.5	40
Carbon Disulfide	20.0	21.0	105	4.65	40
Carbon tetrachloride	20.0	17.0	85	0.00	19
Chlorobenzene	20.0	20.0	100	4.88	40
Chloroethane	20.0	21.0	105	4.65	40
Chloroform	20.0	21.0	105	0.00	16
Chloromethane	20.0	20.0	100	5.13	40
Dibromochloromethane	20.0	17.0	85	0.00	36
Dibromomethane	20.0	20.0	100	0.00	40
Dichlorodifluoromethane	20.0	19.0	95	5.13	40
Ethyl Ether	20.0	20.0	100	0.00	40
Ethylbenzene	20.0	21.0	105	0.00	40
Hexachlorobutadiene	20.0	19.0	95	0.00	40
Isopropylbenzene	20.0	21.0	105	0.00	40
M/P Xylene	40.0	42.0	105	0.00	40

New Bedford Harbor- New Bedford, MA

MATRIX SPIKE DUPLICATE (MSD) RECOVERY

Sample ID:AB94619

PARAMETER	MSD SPIKE ADDED	MSD CONCENTRATION ug/L	MSD % REC	RPD %	QC LIMITS RPD
Methyl-t-Butyl Ether	20.0	21.0	105	4.88	40
Methylene Chloride	20.0	21.0	105	9.09	40
N-Butylbenzene	20.0	19.0	95	5.13	40
N-Propylbenzene	20.0	21.0	105	0.00	40
Naphthalene	20.0	22.0	110	0.00	40
Ortho Xylene	20.0	21.0	105	0.00	40
Para-Isopropyltoluene	20.0	21.0	105	4.65	40
Sec-Butylbenzene	20.0	21.0	105	0.00	40
Styrene	20.0	21.0	105	0.00	40
Tert-Butylbenzene	20.0	21.0	105	0.00	40
Tetrachloroethylene	20.0	21.0	105	0.00	40
Tetrahydrofuran	20.0	20.0	100	0.00	40
Toluene	20.0	21.0	105	4.65	40
Trans-1,2-Dichloroethylene	20.0	21.0	105	0.00	40
Trichloroethylene	20.0	22.0	110	0.00	22
Trichlorofluoromethane	20.0	21.0	105	0.00	40
Vinyl Acetate	20.0	20.0	100	0.00	40
Vinyl Chloride	20.0	20.0	100	4.88	19
c-1,3-dichloropropene	20.0	16.0	80	6.45	40
cis-1,2-Dichloroethylene	20.0	20.0	100	0.00	40
t-1,3-Dichloropropene	20.0	14.0	70	0.00	40

New Bedford Harbor- New Bedford, MA

Laboratory Duplicate Results

Sample ID: AB94619

PARAMETER	SAMPLE RESULT ug/L	SAMPLE DUPLICATE RESULT ug/L	PRECISION RPD %	QC LIMITS
1,1,1,2-Tetrachloroethane	ND	ND	NC	30
1,1,1-Trichloroethane	ND	ND	NC	30
1,1,2,2-Tetrachloroethane	ND	ND	NC	30
1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	ND	NC	30
1,1,2-Trichloroethane	ND	ND	NC	30
1,1-Dichloroethylene	ND	ND	NC	30
1,1-Dichloropropene	ND	ND	NC	30
1,1-dichloroethane	ND	ND	NC	30
1,2,3-Trichlorobenzene	ND	ND	NC	30
1,2,3-Trichloropropane	ND	ND	NC	30
1,2,4-Trichlorobenzene	ND	ND	NC	30
1,2,4-Trimethylbenzene	ND	ND	NC	30
1,2-Dibromo-3-Chloropropane	ND	ND	NC	30
1,2-Dibromoethane	ND	ND	NC	30
1,2-Dichlorobenzene	ND	ND	NC	30
1,2-Dichloroethane	ND	ND	NC	30
1,2-Dichloropropane	ND	ND	NC	30
1,3,5-Trimethylbenzene	ND	ND	NC	30
1,3-Dichlorobenzene	ND	ND	NC	30
1,3-Dichloropropane	ND	ND	NC	30
1,4-Dichlorobenzene	ND	ND	NC	30
2,2-Dichloropropane	ND	ND	NC	30
2-Butanone (MEK)	1.4	1.5	6.23	30
2-Chlorotoluene	ND	ND	NC	30
2-Hexanone	ND	ND	NC	30
2-Propanone (acetone)	ND	ND	NC	30
4-Chlorotoluene	ND	ND	NC	30
4-Methyl-2-Pentanone(MIBK)	ND	ND	NC	30
Acrylonitrile	ND	ND	NC	30
Benzene	ND	ND	NC	30
Bromobenzene	ND	ND	NC	30
Bromochloromethane	ND	ND	NC	30
Bromodichloromethane	ND	ND	NC	30
Bromoform	ND	ND	NC	30
Bromomethane	ND	ND	NC	30
Carbon Disulfide	ND	ND	NC	30
Carbon tetrachloride	ND	ND	NC	30
Chlorobenzene	ND	ND	NC	30
Chloroethane	ND	ND	NC	30
Chloroform	ND	ND	NC	30
Chloromethane	ND	ND	NC	30
Dibromochloromethane	ND	ND	NC	30
Dibromomethane	ND	ND	NC	30
Dichlorodifluoromethane	ND	ND	NC	30
Ethyl Ether	ND	ND	NC	30
Ethylbenzene	ND	ND	NC	30
Hexachlorobutadiene	ND	ND	NC	30
Isopropylbenzene	ND	ND	NC	30
M/P Xylene	ND	ND	NC	30
Methyl-t-Butyl Ether	ND	ND	NC	30
Methylene Chloride	ND	ND	NC	30
N-Butylbenzene	ND	ND	NC	30

New Bedford Harbor- New Bedford, MA

Laboratory Duplicate Results

Sample ID: AB94619

PARAMETER	SAMPLE RESULT ug/L	SAMPLE DUPLICATE RESULT ug/L	PRECISION RPD %	QC LIMITS
N-Propylbenzene	ND	ND	NC	30
Naphthalene	ND	ND	NC	30
Ortho Xylene	ND	ND	NC	30
Para-Isopropyltoluene	ND	ND	NC	30
Sec-Butylbenzene	ND	ND	NC	30
Styrene	ND	ND	NC	30
Tert-Butylbenzene	ND	ND	NC	30
Tetrachloroethylene	ND	ND	NC	30
Tetrahydrofuran	ND	ND	NC	30
Toluene	ND	ND	NC	30
Trans-1,2-Dichloroethylene	ND	ND	NC	30
Trichloroethylene	ND	ND	NC	30
Trichlorofluoromethane	ND	ND	NC	30
Vinyl Acetate	ND	ND	NC	30
Vinyl Chloride	ND	ND	NC	30
c-1,3-dichloropropene	ND	ND	NC	30
cis-1,2-Dichloroethylene	ND	ND	NC	30
t-1,3-Dichloropropene	ND	ND	NC	30

New Bedford Harbor- New Bedford, MA

Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ug/mL	LFB RESULT ug/mL	LFB RECOVERY %	QC LIMITS %
1,1,1,2-Tetrachloroethane	20	18.0	90	80 - 128
1,1,1-Trichloroethane	20	21.0	105	72 - 140
1,1,2,2-Tetrachloroethane	20	19.0	95	77 - 120
1,1,2-Trichloro-1,2,2-Trifluoroetha	20	19.0	95	53 - 153
1,1,2-Trichloroethane	20	19.0	95	79 - 121
1,1-Dichloroethylene	20	19.0	95	59 - 137
1,1-Dichloropropene	20	21.0	105	80 - 132
1,1-dichloroethane	20	20.0	100	74 - 127
1,2,3-Trichlorobenzene	20	19.0	95	58 - 125
1,2,3-Trichloropropane	20	18.0	90	66 - 119
1,2,4-Trichlorobenzene	20	19.0	95	64 - 123
1,2,4-Trimethylbenzene	20	21.0	105	79 - 131
1,2-Dibromo-3-Chloropropane	20	18.0	90	57 - 118
1,2-Dibromoethane	20	19.0	95	74 - 121
1,2-Dichlorobenzene	20	20.0	100	77 - 120
1,2-Dichloroethane	20	20.0	100	80 - 120
1,2-Dichloropropane	20	20.0	100	78 - 122
1,3,5-Trimethylbenzene	20	20.0	100	77 - 127
1,3-Dichlorobenzene	20	19.0	95	76 - 119
1,3-Dichloropropane	20	19.0	95	79 - 117
1,4-Dichlorobenzene	20	19.0	95	75 - 119
2,2-Dichloropropane	20	17.0	85	69 - 143
2-Butanone (MEK)	20	16.0	80	27 - 105
2-Chlorotoluene	20	20.0	100	75 - 122
2-Hexanone	20	15.0	75	34 - 114
2-Propanone (acetone)	20	15.0	75	12 - 209
4-Chlorotoluene	20	20.0	100	77 - 123
4-Methyl-2-Pentanone(MIBK)	20	19.0	95	45 - 142
Acrylonitrile	20	20.0	100	64 - 125
Benzene	20	20.0	100	78 - 120
Bromobenzene	20	19.0	95	73 - 119
Bromochloromethane	20	21.0	105	67 - 135
Bromodichloromethane	20	21.0	105	81 - 123
Bromoform	20	18.0	90	63 - 137
Bromomethane	20	19.0	95	54 - 162
Carbon Disulfide	20	20.0	100	55 - 141
Carbon tetrachloride	20	19.0	95	75 - 134
Chlorobenzene	20	20.0	100	76 - 122
Chloroethane	20	21.0	105	63 - 145
Chloroform	20	21.0	105	73 - 135
Chloromethane	20	22.0	110	59 - 168
Dibromochloromethane	20	19.0	95	79 - 128
Dibromomethane	20	20.0	100	80 - 121
Dichlorodifluoromethane	20	20.0	100	39 - 154
Ethyl Ether	20	19.0	95	69 - 127
Ethylbenzene	20	20.0	100	85 - 118
Hexachlorobutadiene	20	19.0	95	67 - 121
Isopropylbenzene	20	20.0	100	75 - 127
M/P Xylene	40	41.0	103	85 - 121
Methyl-t-Butyl Ether	20	19.0	95	68 - 129
Methylene Chloride	20	20.0	100	70 - 134
N-Butylbenzene	20	19.0	95	75 - 133
N-Propylbenzene	20	20.0	100	76 - 124
Naphthalene	20	20.0	100	45 - 129

New Bedford Harbor- New Bedford, MA

Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ug/mL	LFB RESULT ug/mL	LFB RECOVERY %	QC LIMITS %
Ortho Xylene	20	21.0	105	77 - 127
Para-Isopropyltoluene	20	21.0	105	72 - 138
Sec-Butylbenzene	20	21.0	105	74 - 131
Styrene	20	21.0	105	81 - 131
Tert-Butylbenzene	20	21.0	105	73 - 130
Tetrachloroethylene	20	20.0	100	72 - 118
Tetrahydrofuran	20	19.0	95	62 - 121
Toluene	20	20.0	100	77 - 124
Trans-1,2-Dichloroethylene	20	20.0	100	66 - 135
Trichloroethylene	20	20.0	100	78 - 122
Trichlorofluoromethane	20	22.0	110	65 - 149
Vinyl Acetate	20	19.0	95	61 - 125
Vinyl Chloride	20	21.0	105	57 - 157
c-1,3-dichloropropene	20	17.0	85	75 - 128
cis-1,2-Dichloroethylene	20	19.0	95	67 - 137
t-1,3-Dichloropropene	20	17.0	85	79 - 125

Comments:

New Bedford Harbor- New Bedford, MA

LABORATORY FORTIFIED DUPLICATE (LFB Dup) RECOVERY

COMPOUND	LFB Dup CONCENTRATION ug/L	LFB Dup RECOVERY %	RPD %	QC LIMITS RPD
1,1,1,2-Tetrachloroethane	17	85	6	50
1,1,1-Trichloroethane	21	105	0	50
1,1,2,2-Tetrachloroethane	19	95	0	50
1,1,2-Trichloro-1,2,2-Trifluoroetha	18	90	5	50
1,1,2-Trichloroethane	19	95	0	50
1,1-Dichloroethylene	19	95	0	52
1,1-Dichloropropene	20	100	5	50
1,1-dichloroethane	19	95	5	50
1,2,3-Trichlorobenzene	19	95	0	50
1,2,3-Trichloropropane	19	95	5	50
1,2,4-Trichlorobenzene	18	90	5	50
1,2,4-Trimethylbenzene	20	100	5	50
1,2-Dibromo-3-Chloropropane	17	85	6	50
1,2-Dibromoethane	18	90	5	50
1,2-Dichlorobenzene	19	95	5	50
1,2-Dichloroethane	19	95	5	50
1,2-Dichloropropane	19	95	5	50
1,3,5-Trimethylbenzene	20	100	0	50
1,3-Dichlorobenzene	19	95	0	50
1,3-Dichloropropane	19	95	0	50
1,4-Dichlorobenzene	19	95	0	50
2,2-Dichloropropane	16	80	6	50
2-Butanone (MEK)	15	75	7	50
2-Chlorotoluene	19	95	5	50
2-Hexanone	16	80	7	50
2-Propanone (acetone)	15	75	0	50
4-Chlorotoluene	19	95	5	50
4-Methyl-2-Pentanone(MIBK)	19	95	0	50
Acrylonitrile	19	95	5	50
Benzene	19	95	5	50
Bromobenzene	19	95	0	50
Bromochloromethane	19	95	10	50
Bromodichloromethane	20	100	5	50
Bromoform	17	85	6	50
Bromomethane	18	90	5	50
Carbon Disulfide	19	95	5	50
Carbon tetrachloride	18	90	5	50
Chlorobenzene	19	95	5	50
Chloroethane	20	100	5	50
Chloroform	20	100	5	50
Chloromethane	22	110	0	50
Dibromochloromethane	18	90	5	50
Dibromomethane	19	95	5	50
Dichlorodifluoromethane	19	95	5	50
Ethyl Ether	19	95	0	50
Ethylbenzene	20	100	0	50
Hexachlorobutadiene	19	95	0	50
Isopropylbenzene	19	95	5	50
M/P Xylene	40	100	3	50
Methyl-t-Butyl Ether	19	95	0	50
Methylene Chloride	20	100	0	50
N-Butylbenzene	18	90	5	50

New Bedford Harbor- New Bedford, MA

LABORATORY FORTIFIED DUPLICATE (LFB Dup) RECOVERY

COMPOUND	LFB Dup CONCENTRATION ug/L	LFB Dup RECOVERY %	RPD %	QC LIMITS RPD
N-Propylbenzene	20	100	0	50
Naphthalene	21	105	5	50
Ortho Xylene	20	100	5	50
Para-Isopropyltoluene	20	100	5	50
Sec-Butylbenzene	20	100	5	50
Styrene	20	100	5	50
Tert-Butylbenzene	20	100	5	50
Tetrachloroethylene	20	100	0	50
Tetrahydrofuran	19	95	0	50
Toluene	20	100	0	50
Trans-1,2-Dichloroethylene	19	95	5	50
Trichloroethylene	19	95	5	50
Trichlorofluoromethane	21	105	5	50
Vinyl Acetate	19	95	0	50
Vinyl Chloride	20	100	5	50
c-1,3-dichloropropene	17	85	0	50
cis-1,2-Dichloroethylene	19	95	0	50
t-1,3-Dichloropropene	17	85	0	50

Samples in Batch: AB94616, AB94617, AB94618, AB94619, AB94620, AB94621, AB94622, AB94623

Attachment 6:

Copy of LSB Chain of Custody

US EPA Region 1

CHAIN OF CUSTODY RECORD

Page: 1 of 1

EPA Project No: 21090018

Project Name & Location: New Bedford Harbor, New Bedford MA

Sampler's Name and Signature: Will Sommer Shannon Brunelle

Matrix (insert #)
1. Drinking water
2. Ground/Well water
3. Storm water
4. Surface water
5. Waste water
6. Soil/Sediment/Solid
7. Oil/Solvent/Liquid
8. Soil Gas
9. Air Canister
10.

Preservative (insert letter)
A. Ice
B. H_2SO_4, pH<2
C. HNO_3, pH<2
D. HCl, pH<2
E. $Na_2S_2O_3$
F. NaOH, pH>12
G. Ascorbic Acid
H. MeOH
I. Other
J. Other

Location ID	Date	Time	Comp	Grab	Matrix	Preserv.	# of Containers	Metals (HNO3)	PCBs	TSS	VOCs (HCl)	Analysis Requested
MW-6	9/7/21	12:33	☐	✔	2	A A	9	✔	✔	✔	✔	
Dup-1	9/7/21	12:33	☐	✔	2	A A	7	✔	✔	✔	✔	
MW-4A	9/7/21	15:04	☐	✔	2	A A	7	✔	✔	✔	✔	
MW-5	9/7/21	16:10	☐	✔	2	A A	7	✔	✔	✔	✔	
MW-1	9/8/21	09:22	☐	✔	2	A A	7	✔	✔	✔	✔	
MW-7A	9/8/21	11:03	☐	✔	2	A A	7	✔	✔	✔	✔	
MW-3	9/8/21	12:32	☐	✔	2	A A	7	✔	✔	✔	✔	
Trip Blanks	9/7/21	08:00	☐	✔	2	A D	2	☐	☐	☐	✔	
			☐	☐				☐	☐	☐	☐	
			☐	☐				☐	☐	☐	☐	
			☐	☐				☐	☐	☐	☐	
			☐	☐				☐	☐	☐	☐	
			☐	☐				☐	☐	☐	☐	
			☐	☐				☐	☐	☐	☐	
			☐	☐				☐	☐	☐	☐	

Sample Log-In Contacts/Info
1st - Doris Guzman: 617-918-8618
2nd - Dan Casey: 617-918-8648
3rd - Vinora Nicholls: 617-918-8394

If after hours or nobody is available, please leave the cooler and signed COC in the walk-in Fridge (4°C) Lab-Room 190A.

Sample Specific Comments

Relinquished by: (Signature) Shannon Brunelle 9/9/21 1010	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Received for Laboratory by: (Signature) ESAT	Date 9-9-21	Time 10:10

Remarks

Metals by ICP-MS ($MTMSW), Preserved with HNO3 to pH<2.

VOCs preserved with HCl to pH<2.

PCBs and TSS on ice only.

3.0 C
2 °C

Distribution: Original Accompanies Shipment. Copy to Coordinator Field Files

Attachment 7:

Copy of Signed Sampling and Analysis plan for Groundwater Sampling at the New Bedford Harbor Superfund Site.

New Bedford Harbor Superfund Site
New Bedford MA

Collection of Groundwater Samples
for Analysis of TSS, PCBs, VOCs,
and Metals

Sampling and Analysis Plan

September 2, 2021

U.S. Environmental Protection Agency
Region 1 – Laboratory Services and Applied Science Division
Field Services Branch
Investigations Team

Project Manager- SEMD/RRI: Natalie Burgo, Remedial Project Manager

Signature: Natalie Burgo Digitally signed by Natalie Burgo Date: 2021.09.02 16:40:14 -04'00' Date: _____

Prepared By- LSASD/FSB: William Sommer, FSB Field Investigator

Signature: Sommer, William Digitally signed by Sommer, William Date: 2021.09.02 16:34:04 -04'00' Date: _____

Field Team Leader- LSASD/FSB: Jerry Keefe, Investigations Team Leader

Signature: Keefe, Jerome C. Digitally signed by Keefe, Jerome C. Date: 2021.09.08 08:38:42 -04'00' Date: _____

Lab Acceptance- LSASD/LSB: Dan Boudreau, Chemistry Team Leader

Signature: DANIEL BOUDREAU Digitally signed by DANIEL BOUDREAU Date: 2021.09.07 11:03:55 -04'00' Date: _____

This site-specific Sampling and Analysis Plan (SAP) was written in conjunction with the FSB generic SAP dated 08/29/2018. The general project goals, procedures, and quality control criteria in the generic SAP are included in the specific SAP by reference. This SAP includes any additional site-specific information not included in the generic SAP, along with a site map, sample locations, the number and type of samples to be collected, the project manager and sampling team members, and any other pertinent information related to this project.

1. **Project Name:** New Bedford Harbor Collection of Groundwater Samples for Analysis of PCBs, TSS, Metals, and VOCs.

2. **Site ID No.:** MAD980731335 _

3. **Project Requested by:** Natalie Burgo (SEMD)

4. **Date of Request:** January 2021

5. **Date of Project Initiation:** September 2021

6. **Project Manager:** Natalie Burgo (SEMD)

7. **Project Description:**

A. Objective and Scope Statement:

The EPA Region 1 (EPA) Laboratory Services and Applied Science Division (LSASD) Field Services Branch (FSB) Investigations Team has been requested to conduct a groundwater samplingat the New Bedford Harbor Superfund Site in New Bedford Massachusetts. The effort is being requested as part of regular annual sampling that is occurring at the site to evaluate the integrity of the Sawyer Street confined disposal facility (CDF) and the contaminants that may leach from sediments that are processed and stored at the Sawyer Street location. Results from the sampling are compared to the Massachusetts Contingency Plan (MCP) GW-3 standards and support compliance of ongoing remediation activities at the Sawyer Street CDF.

Site Background

The New Bedford Harbor Superfund Site (herein referred to as "the site") is an 18,000 acre urban estuary with sediment that is highly contaminated with PCBs and heavy metals. Contamination results from improper disposal practices of industrial wastes from several manufacturing operations into the Acushnet river and the harbor. High levels of PCBs exist in the sediments and the ambient water of the harbor and continue to pose a risk within the seafood chain of the harbor. The harbor has been closed to fishing since 1979.

The portion of the site of interest is the Sawyer Street CDF, a land based area used for the storage of remediation derived sediment and debris consisting of three "cells" which were constructed for sediment storage (Cell 1) and water treatment operations (Cells 2 and 3), as well as a "Debris Disposal Area" (DDA). In 2021, Cell 3 was drained, liner removed ,and backfilled. Figure 1 (attached) shows this current configuration. The DDA contains approximately 19,000 yd^3 of contaminated sediments (weighted PCB average between 200 and 260ppm) deposited from 1989-2014. Cell 1 contains approximately 20,941 cy of TSCA waste or mixed (RCRA and TSCA) waste. The RCRA waste was identified as material with trichloroethene (TCE) TCLP values greater than 500 micrograms per liter (µg/L).

The DDA area is underlain by a low permeability clay layer, minimizing the risk of contaminant migration. Additionally, Cell 1 is underlain with a 60 mil high density polypropylene (HDPE) liner. To ensure this design is protective of human health and the environment, the 2001 Explanation of Significant Differences (ESD) documented that annual groundwater monitoring would be performed. Baseline

groundwater monitoring begin in 2001. The monitoring program consists of six wells, which are located around the perimeter of the Sawyer Street CDF (see Figure 1). Low-flow samples collected from these wells are tested for PCB aroclors, metals (cadmium, chromium, copper, and lead), VOCs, and total suspended solids. Historically, contaminant levels observed in these wells have been very low or non-detect.

B. Data Usage:

Contaminant levels will be compared to those collected in historical sampling events to ensure no significant amount of contamination is migrating from the Sawyer Street CDF area to surrounding groundwater.

C. Sampling Event Design:

Sampling Design:

FSB personnel will collect groundwater samples according to the Standard Operating Procedure (SOP) for groundwater sampling [3]. Six monitoring wells will be sampled in accordance with the USEPA Region 1 Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells [4] with the exception of MW-3 which will be collected via peristaltic pump due to an obstruction in the well which does not allow for the use of a bladder pump.

Field quality control (QC) samples will include the following:

- VOCs: 1 field duplicate, 1 set of trip blanks.
- Metals: 1 field duplicate
- PCBs: 1 field duplicate
- TSS: 1 field duplicate

The monitoring wells of interest are as follows:

Well ID	Well Diameter	Screen Intervals	Well Depth[2]	Expected Groundwater Depth[3]
MW-1	2	UNK	23.96	16.78
MW-3	2	UNK	23.94	14.49
MW-4A	2	UNK	23.5	11.33
MW-5	2	UNK	18.6	10.38
MW-6	2	UNK	18.9	12.87
MW-7A	2	UNK	14.25	11.45

D. Monitoring and Measurement Parameters:

Monitoring Parameter	# of Samples[3]	Matrix	Analytical Method[1,2]	Sample Container	Sample Preservation	Holding Time

VOCs	6 + 1 Field Dup. + 1 Trip Blank	Ground Water	LSBSOP-VOAGCMS#	4 x 40mL Amber Vials w/ Septa Caps	HCL pH < 2, 4°C	14 Days
Metals	6 + 1 Field Duplicate	Ground Water	LSBSOP-INGICPMS#	250 mL HDPE	HNO3 pH <2 4°C	6 Months
PCB Aroclors	6 + 1 Field Dup.	Ground Water	LSBSOP-PESWALL#	1 L Amber glass Jar	4°C	None
TSS	6 + 1 Field Dup.	Ground Water	LSBSOP-INGTSS-TDS-VRES#	1 L HDPE	4°C	7 Days
Field Measurement Parameter	# of Samples	Matrix	Analytical Method	Sample Container	Sample Preservation	Holding Time
pH	6	Ground Water	SM 4500-H+B	250/500 mL	n/a	15 min
Dissolved Oxygen	6	Ground Water	ASTM Method D888-09©	250/500 mL	n/a	15 min
Specific Conductance	6	Ground Water	SM EPA 120.1	250/500 mL	n/a	15 min
Temperature	6	Ground Water	SM 2550 B	250/500 mL	n/a	15 min
Oxidation Reduction Potential	6	Ground Water	SM 2580 B	250/500 mL	n/a	15 min

Footnotes:
1) This column lists the EPA LSASD analytical SOPs and corresponding analyses codes
2) Specific LSASD SOPs are located on the LSASD document control system

E. Health and Safety

FSB field samplers should follow appropriate Health and Safety (H&S) procedures/protocol and use best professional judgment during this sampling event to ensure safe working conditions. Based upon the contractor's job hazard plan; the respiratory protection will be OSHA Level D. Modifications to respiratory protection shall be determined by the sampling leader with consideration from the project manager, and investigations team leader. Please refer to the site-specific health & safety plan. The sampling leader must have prior experience in the collection of field samples, proper preservation, shipping and chain of custody techniques sampling. Additionally, all sampling personnel should have a minimum of a bachelor's degree, up-to-date OSHA 40 Hour HAZWOPER training, and at least one year of field experience.

COVID-19 Safety Guidelines

EPA staff will adhere to all EPA issued and State required social distancing guidelines while conducting field work to avoid any unnecessary exposure to the COVID-19 virus. At a minimum this will include the following:

- When possible, maintain a minimum of 6-foot physical distancing when sampling.
- Face masks should be worn when the sampling team cannot maintain 6 feet of distance.
- To the extent possible, field personnel shall set up separate work zones to help maintain social distancing. Job tasks should not change throughout the day unless absolutely necessary.

- Personnel will travel in separate vehicles (GOVs or POVs). GOVs will be disinfected following LSASD protocols using provided supplies.
- Each team member will have their own gloves, masks, and hand sanitizer. If possible, field equipment will be designated and touched only by one individual and not shared or passed back and forth.
- Each EPA Team member will follow the LSASD Re-Entry Document procedures (including self-assessment procedures).

8. EPA Project Organization and Responsibility:

The following is a list of key project personnel and their responsibilities:

EPA Project Manager/RPM	Natalie Burgo (SEMD)
Sampling Leader	William Sommer (FSB)
Field Sampling and QC	Shannon Brunelle (FSB)
	Others TBD
Laboratory Chemistry Leader	Dan Boudreau (LSB)
Laboratory Analyses	NERL Chemists
Overall Performance Coordination	Jerry Keefe (FSB)

9. Schedule of Tasks and Products:

January 2021	Request for LSASD field/lab support
September 7 – 9, 2021	Groundwater Sampling
September 2021	Samples delivered to LSASD for analysis
30 Days after sample receipt	Data Package Provided to RPM
60 Days after sample receipt	Final Summary Report provided to RPM

10. Data Quality Requirements:

Accuracy and Precision values are for method internal QA/QC. The values are to be considered as goals because some specific compounds are known outside these goals.

Analytical Requirements

Parameter					

	Sample Matrix	Reporting Limits	Accuracy [2] (%)	Precision [3] (%)	Field Precision (%)
VOCs	Groundwater	1.0 µg/L[1]	70-130%	70-130%	50%
PCB Aroclors	Groundwater	0.5 µg/L[1]	85-115%	85-115%	30%
TSS	Groundwater	See footnote 1	See footnote 2	See footnote 3	30%
Metals	Groundwater	See footnote 1	See footnote 2	See footnote 3	30%

Footnotes:
1. The reporting/detection limits are discussed in the applicable laboratory SOPs.
2. Accuracy is based on a lab matrix spike (MS) recovery and will be determined by Laboratory.
3. Precision is based on a matrix spike duplicate (MSD), laboratory duplicate, or lab fortified blanks (LFBs), and will be determined by the Laboratory.

Field Requirements

Field Measurement Parameter	Sample Matrix	Post Calibration Requirements
pH	Ground Water	± 0.3 S.U.
Dissolved Oxygen	Ground Water	± 10%
Specific Conductance	Ground Water	± 10%
Temperature	Ground Water	n/a
Oxidation Reduction Potential	Ground Water	±10mV

Footnotes:
1. The calibrations are discussed in the applicable Sonde SOP.
2. Confidence solution will be used for post calibration checks and ranges are on each individual container, see logbook.

11. Data Representativeness/Comparability:

The contaminant levels in the collected samples will verify that the wastes in the Sawyer Street CDF are not mobilizing into groundwater.

Data Comparability: The same field procedures and analytical methods will be used for each of the sample locations throughout the sampling event so that data can be compared. Field duplicates will be used to measure the precision of the method and heterogeneity of the sample matrix.

Data Completeness: The target requirement of valid data for completeness is 90%, however an evaluation of critical samples will determine if data are incomplete, and the Project Manager and FSB Field Team Leader will determine if additional sampling is needed.

12. Sampling Procedures:

FSB personnel shall mobilize on the site to collect groundwater samples from six existing monitoring wells on the site during the annual groundwater monitoring event. FSB personnel shall utilize the FSB SOP for low-flow groundwater sampling [4]. FSB shall utilize a multiRAE PID multiple gas sensor to monitor gaseous VOCs upon opening the monitoring wells [7]. Sampling begins by removing the well cover and determining the static water level. The well is then fitted with HDPE tubing at approximately midway between the screen interval and a YSI ProDSS water quality probe. Water will be flowed to the flow-through cell such that the volume of water in the flow through will be turned over for each reading. The following parameters shall be recorded in purge logs every 5-10 minutes.

- Turbidity (±10% for values greater than 5 NTU)
- Temperature (±3%)
- pH (±0.1 unit)
- ORP (±10 millivolts)
- Specific conductance (±3%)
- DO (±10% for values greater than 0.5 mg/L).

Purged water will be further directed from the flow through into a 5-gallon bucket for a cumulative volume determination. A sample shall be collected when 3 consecutive readings of the above parameters are reached. The sample will be collected by disconnecting the flow-through cell of the YSI and allowing the pump to direct the sample water into the appropriate containers. The final pH, DO, specific conductivity, ORP, and temperature reading will be recorded and reported [8]. Please refer to section D of this SAP for the desired analytes, proper bottle ware, and preservation procedures.

Any equipment being used between locations shall be decontaminated in accordance with section 16 of this SAP. All samples shall be transported back to NERL in North Chelmsford, MA after the site work.

13. Sample Custody Procedures:

Samples collected will be handled in accordance with the Region 1 SOP for Evidentiary Sample tracking [12] Each sample will be given a unique identification number which corresponds with the assigned monitoring well/sampling location number. Samples will be handled by LSB chemistry staff according to the SOP for Sample Login, Tracking, and Sample Disposition [14].

14. Calibration Procedures and Preventative Maintenance:

The equipment for field measurements (conductivity, pH, temperature, ORP and DO) will be signed out electronically, calibrated at the beginning of the project according to the FSB SOP for the YSI ProDSS Sonde [8] and as needed by the manufacturer's recommendations. At the end of each day or the morning of the next day of sampling, the field equipment will be checked with a confidence solution for conductivity, and pH. Post field check will be according to the ProDSS SOP [8]. If the check does not meet come within the acceptable ranges listed in this SAP or the ProDSS SOP , a note will be made in the

field logbook and the equipment will be recalibrated prior to use. All calibrations will be documented in the field logbook and the equipment logbook (SOP field data sheets may also be used). Hach turbidimeters will be calibrated according to manufacturer instructions.

PIDs shall be used and calibrated according to manufacturer instructions and the SOP for the MultiRAE Plus Multiple Gas Monitor [7]. Hach Turbidimeters shall be calibrated prior to entering the field in accordance with manufacturer instructions. Calibration results shall be documented in dedicated logbooks. Sampling equipment will be checked for proper operations and cleanliness prior to use in the field. All field equipment shall be Decontaminated prior to use. Decontamination will follow the general decon SOP [2].

15. Documentation, Data Reduction, and Reporting:

Documentation: Purging data shall be recorded on the data table provided by the FSB SOP for Groundwater sampling [3]. All surface water field observations and other site data will be recorded in a field logbook (in addition to completion of all chain of custody forms, labels, etc.). All equipment calibrations including field calibrations and/or checks shall be documented in dedicated logbooks for each equipment.

Data Reduction and Reporting: The data will be tabulated and reported to the project manager in accordance to LSASD procedures and the FSB Generic QAP. FSB field reporting will be in accordance with FSB's SOP for Report Preparation, Review, and Distribution [5], available on the LSASD Document Control System.

16. Data Validation:

Data will be reviewed by routine laboratory procedures as specified in the LSASD QAP (peer review by LSB chemist or review by the Chemistry Laboratory Services Coordinator for completeness). Data will be validated against the criteria presented in sections 7D, 8, 11, 12 and 13 of this SAP. Any limitations on the use of data will be documented and explained to the project manager.

17. Corrective Action:

Any corrective action will be determined by the Field Sampling Leader and documented in the field logbook as necessary and discussed with the Project Manager and FSB Field Team Leader. Any significant issue with laboratory performance identified by the laboratory will require that the Project Manager be notified immediately, and appropriate corrective action taken.

18. Final Reports:

Preparation and sign-off of analytical reports is the responsibility of the LSB Chemistry staff and the Laboratory services coordinator. The analytical report will be posted to the intranet site. A summary of the field event and analytical data will be delivered to:

Natalie Burgo
Remedial Project Manager (SEMD)
New Bedford Harbor Superfund Site, New Bedford MA
Burgo.Natalie@epa.gov

19. References:

1. EPA R1 LSASD-FSB Generic QAPP, EIAGENERICQAPP. 8/29/2018.
2. EPA R1 LSASD-FSB SOP for General Field Equipment Cleaning, Preparation, and Decon, FSBSOP-EQUIPDECONSOP1. 7/17/2020.
3. EPA R1 LSASD-FSB SOP for Groundwater Sampling, FSBSOP-GW_SAMPSOP3, 9/9/2020.
4. EPA R1 LSASD-FSB SOP for Low-Flow Procedure for Groundwater Sampling FSBSOP-LOWFLOWGWSOP5, 11/5/2020.
5. EPA R1 LSASD-FSB SOP for Report Preparation, Review, and Distribution, FSBSOP-REPORTPREP_REVIEW_DISTR0, 10/2/2020.
6. EPA R1 LSASD-FSB SOP for the Collection of Chemical and Biological NPDES Wastewater and Water Samples, FSBSOP-NPDESWATERSOP2, 12/10/2020.
7. EPA R1 LSASD-FSB SOP for the MultiRAE Plus Multiple Gas Monitor, FSBSOP-MULTIRAEPID1. 2/25/2021.
8. EPA R1 LSASD-FSB SOP for the YSI ProDSS Sonde and Datalogger, FSBSOP-PRODSS_SONDE0, 7/13/2020.
9. EPA R1 LSASD-LSB SOP for the Analysis of Organochlorine Pesticides and PCBs in Aqueous Samples with Quantitation of PCBs as Aroclors. LSBSOP-PESWALL8, 9/23/2020.
10. EPA R1 LSASD-LSB SOP for the Determination of Filterable, Non-Filterable, and Volatile Residue. LSBSOP-INGTSS/TDS/VRES6, 01/22/2014.
11. EPA RE LSASD-LSB SOP for the Determination of Metals in Environmental Samples using Dual View Inductively coupled Mass Spectroscopy (ICP-MS). LSBSOP-OPTIMAS1, 12/21/2020.
12. EPA R1 LSASD-LSB SOP for Evidentiary Sample Tracking, LSBSOP-ADMEVID11, 2/3/2021
13. EPA R1 LSASD-LSB SOP for GC/MS Operation for Volatile Organic Compounds. LSBSOP-VOAGCMS10, 8/20/2019.
14. EPA R1 LSASD-LSB SOP for Sample Login, Tracking, and Sample Disposition, LSBSOP-ADMLOG19, 6/5/2020.

Attachments

1. Map displaying locations of monitoring wells.

Attachment 1: Map displaying monitoring well locations

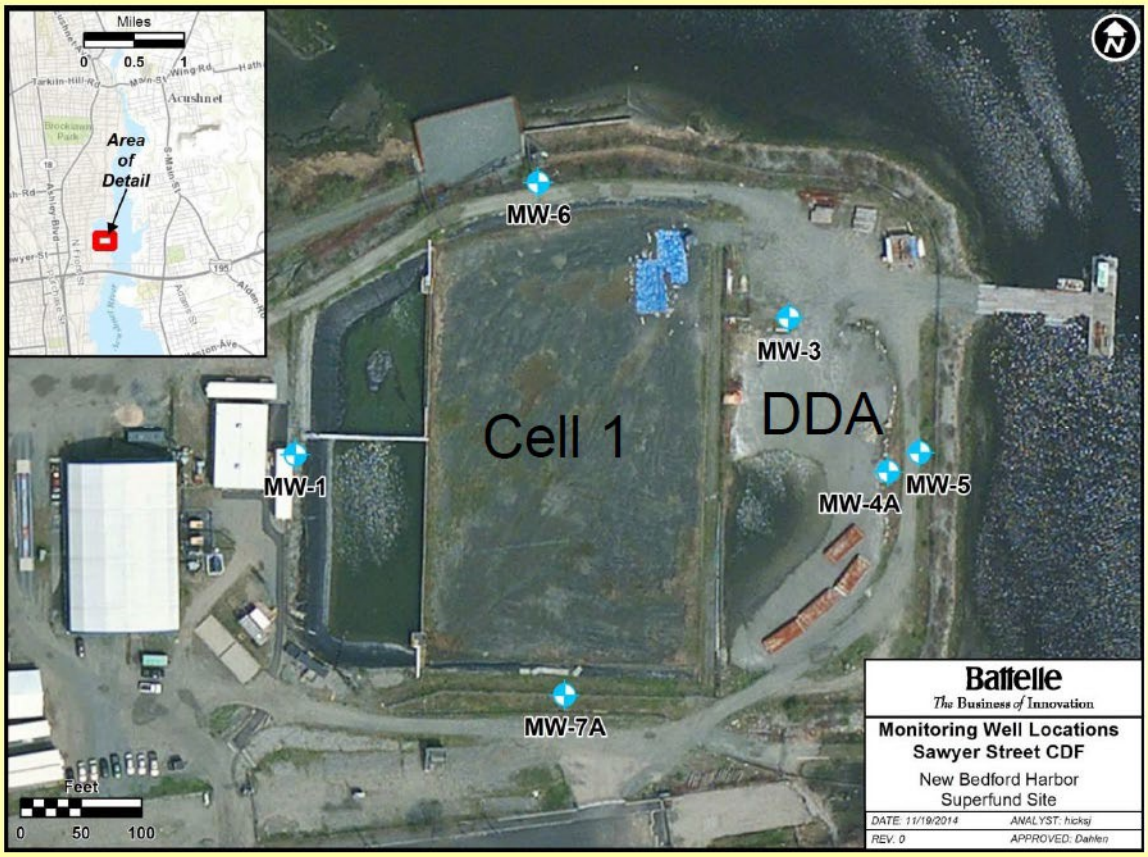

Figure 1. Sawyer Street CDF Monitoring Well Locations

Attachment 8:

Scan of field observation logbooks.

Field Logbook: Team 1 of 1

New Bedford Harbor
Superfund Site
Sawyer Street CDF
New Bedford, MA

Collection of Groundwater Samples for Analyses
Of VOCs, TSS, PCBs, and Metals

Sampling Date(s): 9/7/21 -> 9/8/21

U.S. Environmental Protection Agency
Region 1 – Laboratory Services and Applied Science Division
Field Services Branch
Investigations Team

PARTICIPANTS

Sample Leader: Will Sommer Signature: [signature]

Sample Support: Shannon Brunelle Signature: [signature]

Sample Support: _____ Signature: _____

Sample Support: _____ Signature: _____

Monitoring Well Purge and Sample Data Sheet

FSBSOP-GW_SampSOP3

Site Name: NBD
Well #: MW-6
Date: 7/7/21
Static Water Level (ft.): 11.6
Identify MP: Blk Mark on PVC
Purge Start Time: 1106
Purging Device (pump type): peristaltic #1

Sampling Organization: EPA
Samplers: W. Sommer S. Brunelle
Total Depth (ft.): 18.9
Well Diameter: 2"
Screen Interval:
Formation:
Water Quality Instrument Type/ID#: YSI #3

turbidity #2
Pump Intake (ft. below MP): 16.5

Time	Water Level	Flow	DO	Temp.	Cond.	pH	ORP	Turb.	Vol. Purged	Comments
24 hr	ft. below MP	mL/min	mg/L	°C	mS or µS	S.U.	mV	NTU	Liters	
1115	12.30	100	1.4	17.0	3597	7.23	-67.5	74.4	~~74.4~~ SB	9/7/21
1125	12.40	68	0.6	16.9	3796	7.24	-87.1	24.5		
1135	12.45	96	0.5	16.6	3808	7.23	-92.1	18.1		
1140	12.50	96	0.3	16.3	3890	7.21	-95.2	12.1		
1145	12.60	96	0.3	16.2	3936	7.20	-95.6	12.3		
1150	12.62	108	0.2	16.3	3937	7.20	-98.1	9.77		
1155	12.60	108	0.2	16.3	3966	7.19	-98.7	8.08		
1200	12.60	96	0.2	16.3	3990	7.18	-98.6	8.31		
1205	12.61	96	0.2	16.3	4032	7.18	-99.7	8.27		
1210	12.65	92	0.2	16.4	4047	7.18	-100.4	~~7.88~~ SB 5.88		
1215	12.67	92	0.1	16.3	4085	7.18	-102.1	6.90		
1220	12.70	100	0.1	16.2	4110	7.17	-102.7	5.94		
1225	12.70	100	0.1	16.1	4147	7.17	-104.5	5.23		
1230	12.72	100	0.1	16.1	4149	7.16	-105.5	4.92		
12										Sample @ 12:33

Equilibrium Goals: 3 consecutive readings btw. 3-5 min. apart

Cond. ± 3%
Turbidity ± 10%
Temp. ± 3%
DO ± 10%
pH ± 0.1
ORP ± 10 mV

MP = Measuring point (i.e. top of inner or outer well casing)

mL/Ft. info:

3/4" well = 87 mL/ft.
2" well = 617 mL/ft.
4" well = 2470 mL/ft.

Record all instrument calibrations in instrument cal. log book/data sheet and field log book

Cumulative volume purged (L): 2.5 gal/1
Sample #:
Field Duplicate sample #:
Analytical Parameters:

Monitoring Well Purge and Sample Data Sheet

FSBSOP-GW_SampSOP3

Site Name: New Bedford
Well #: MW-4A
Date: 9/7/2021
Static Water Level (ft.): 8.3
Identify MP: black mark at top of PVC
Purge Start Time: 1416
Purging Device (pump type): peristaltic #2

Sampling Organization: EPA
Samplers: W. Sommer S. Brunelle
Total Depth (ft.): 23.5
Well Diameter: 2"
Screen Interval:
Formation:
Water Quality Instrument Type/ID#: 3

turbidity #2
Pump Intake (ft. below MP): 22

Time	Water Level	Flow	DO	Temp.	Cond.	pH	ORP	Turb.	Vol. Purged	Comments
24 hr	ft. below MP	mL/min	mg/L	°C	mS or µS	S.U.	mV	NTU	Liters	
1420	9.30	120	0.0	16.8	12408	6.96	-321.2	1.17	~~9/7/21~~	sulfur odor
1425	9.70	92	0.0	17.4	12391	6.97	-327.2	0.74		
1430	10.0	104	0.1	17.3	12333	6.98	-328.7	1.00		pump shut off
1435	10.20	100	0.1	17.0	12227	7.00	-326.5	2.28		
1440	10.45	112	0.1	16.8	12189	7.00	-326.8	1.45		
1445	11.60	100	0.1	17.0	12212	7.01	-325.7	2.13		
1450	11.80	100	0.1	16.7	12250	7.02	-323.7	2.53		
1455	11.50	112	0.1	16.6	12273	7.03	~~-323.1~~ -325.1	2.19		
										Sample @ 1502

Equilibrium Goals: 3 consecutive readings btw. 3-5 min. apart

Cond. ± 3% DO ± 10%
Turbidity ± 10% pH ± 0.1
Temp. ± 3% ORP ± 10 mV

MP = Measuring point (i.e. top of inner or outer well casing)

mL/Ft. info:

3/4" well = 87 mL/ft.
2" well = 617 mL/ft.
4" well = 2470 mL/ft.

Record all instrument calibrations in instrument cal. log book/data sheet and field log book

Cumulative volume purged (L): 2L
Sample #:
Field Duplicate sample #:
Analytical Parameters:

Monitoring Well Purge and Sample Data Sheet

FSBSOP-GW_SampSOP3

Site Name: New Bedford
Well #: MW-5
Date: 9/7/21
Static Water Level (ft.): 7.7
Identify MP: top of PVC
Purge Start Time: 1510
Purging Device (pump type): Peristaltic #2

Sampling Organization: EPA
Samplers: W. Sommer S. Brunelle
Total Depth (ft.): 18.6
Well Diameter: 2"
Screen Interval:
Formation:
Water Quality Instrument Type/ID#: 3

turbidity #2
Pump Intake (ft. below MP): 17

Time	Water Level	Flow	DO	Temp.	Cond.	pH	ORP	Turb.	Vol. Purged	Comments
24 hr	ft. below MP	mL/min	mg/L	°C	mS or µS	S.U.	mV	NTU	Liters	
1525	8.3	-	0.4	16.9	10463	7.57	-146.3	7.30		
1535	8.9	100	0.1	17.2	10480	7.45	-216.2	4.59		
1545	9.4	104	0.0	16.6	10562	7.45	-226.7	4.90		
1550	9.0	100	0.0	16.6	10573	7.45	-229.9	3.95		
1555	9.1	104	0.0	16.5	10621	7.45	-229.2	5.47		
1600	9.8	102	0.0	16.5	10641	7.45	-229.7	3.17		
1605	9.6	103	0.0	16.7	10682	7.45	-231.4	3.94		
										16:10 Sample

Equilibrium Goals: 3 consecutive readings btw. 3-5 min. apart

Cond. ± 3% DO ± 10%
Turbidity ± 10% pH ± 0.1
Temp. ± 3% ORP ± 10 mV

MP = Measuring point (i.e. top of inner or outer well casing)

mL/Ft. info:

3/4" well = 87 mL/ft.
2" well = 617 mL/ft.
4" well = 2470 mL/ft.

Record all instrument calibrations in instrument cal. log book/data sheet and field log book

Cumulative volume purged (L): 2
Sample #:
Field Duplicate sample #:
Analytical Parameters:

Monitoring Well Purge and Sample Data Sheet

FSBSOP-GW_SampSOP3

Site Name: New Bedford
Well #: MW-1
Date: 9/8/21
Static Water Level (ft.): 14.3
Identify MP: Top of PVC Blue Mark
Purge Start Time: 07:40
Purging Device (pump type): Peristaltic

Sampling Organization: FSB
Samplers: Summer V, Brunelle
Total Depth (ft.): 23.5
Well Diameter: 2" PVC
Screen Interval: ?
Formation:
Water Quality Instrument Type/ID#: YSI #3

Hach #2

Pump Intake (ft. below MP): 22.5

Time	Water Level	Flow	DO	Temp.	Cond.	pH	ORP	Turb.	Vol. Purged	Comments
24 hr	ft. below MP	mL/min	mg/L	°C	mS or µS	S.U.	mV	NTU	Liters	
750	15.5	88	0.41	17.7	915	6.66	177.2	0.78		
800	16.7	96	0.2	17.9	897	6.69	168.4	0.95		
810	17.4	96	0.2	18.1	874	6.73	163.0	0.91		
~~810~~ 815	17.7	92	0.3	18.3	869	6.75	160.7	1.02		switched to peri pump #2
820	17.4	60	0.9	19.7	859	6.78	159.4	1.48		Pump 1 wasn't slow enough
825	17.45	62	0.9	19.3	881	6.74	159.1	0.96		
830	17.45	62	0.7	19.0	817	6.77	155.2	0.99		
835	17.47	63	1.6	18.9	688	6.82	147.7	1.11		
840	17.47	63	2.0	18.5	640	6.83	137.0	1.18		
845	17.47	65	2.1	18.8	638	6.83	120.3	1.04		
850	17.49	65	1.9	18.6	658	6.83	108.6	1.01		
855	17.50	65	1.6	18.3	668	6.82	92.2	0.97		
900	17.50	65	1.4	18.5	680	6.82	85.5	1.39		
905	17.50	65	1.3	18.7	690	6.82	80.6	0.86		
910	17.51	65	1.2	18.9	698	6.81	77.5	0.65		
915	17.51	65	1.1	19.0	700	6.81	73.3	0.59	~2.5gal	~2.5 L Gal
920	17.51	65	1.1	19.2	709	6.81	69.9	0.97		
										Sample @ 09:22

Equilibrium Goals: 3 consecutive readings btw. 3-5 min. apart
Cond. ± 3%
DO ± 10%
Turbidity ± 10%
pH ± 0.1
Temp. ± 3%
ORP ± 10 mV

MP = Measuring point (i.e. top of inner or outer well casing)

mL/Ft. info:
3/4" well = 87 mL/ft.
2" well = 617 mL/ft.
4" well = 2470 mL/ft.

Record all instrument calibrations in instrument cal. log book/data sheet and field log book

Cumulative volume purged (L):
Sample #:
Field Duplicate sample #:
Analytical Parameters:

Monitoring Well Purge and Sample Data Sheet

FSBSOP-GW_SampSOP3

Site Name: New Bedford
Well #: MW-7A
Date: 9/8/21
Static Water Level (ft.): 9.6
Identify MP: top of inner PVC
Purge Start Time: ~~1005~~ SB 9/8/21 1013
Purging Device (pump type): peristaltic #2

Sampling Organization: EPA
Samplers: W. Sommer S. Brunelle
Total Depth (ft.): 14.25
Well Diameter: 2"
Screen Interval: ?
Formation:
Water Quality Instrument Type/ID#: 3

turbidity #2
Pump Intake (ft. below MP): 13.5

Time	Water Level	Flow	DO	Temp.	Cond.	pH	ORP	Turb.	Vol. Purged	Comments
24 hr	ft. below MP	mL/min	mg/L	°C	mS or µS	S.U.	mV	NTU	Liters	
1025	10.3	104	0.5	18.5	940	6.69	130.3	1.32		
1035	10.3	112	0.4	18.3	875	6.68	130.3	0.53		
1040	9.75	112	0.3	18.3	858	6.67	130.9	0.65		
1045	9.75	116	0.3	18.2	857	6.67	131.0	0.46		
1050	9.70	120	0.2	18.0	838	6.66	130.9	0.43		
1055	9.70	108	0.2	18.2	829	6.66	131.3	0.37		
1100	9.70	108	0.2	18.3	817	6.65	131.0	0.30		Sample @ 1105

Equilibrium Goals: 3 consecutive readings btw. 3-5 min. apart

Cond. ± 3% DO ± 10%
Turbidity ± 10% pH ± 0.1
Temp. ± 3% ORP ± 10 mV

MP = Measuring point (i.e. top of inner or outer well casing)

mL/Ft. info:

3/4" well = 87 mL/ft.
2" well = 617 mL/ft.
4" well = 2470 mL/ft.

Record all instrument calibrations in instrument cal. log book/data sheet and field log book

Cumulative volume purged (L): 26 gal
Sample #: MW-7A
Field Duplicate sample #:
Analytical Parameters:

Monitoring Well Purge and Sample Data Sheet

FSBSOP-GW_SampSOP3

Site Name: NEW Bedford
Well #: MW-3
Date: 9/8/21
Static Water Level (ft.): 13.3
Identify MP: Top of PVC Blk Mark
Purge Start Time: 1150
Purging Device (pump type): Peristaltic #2

Sampling Organization: EPA
Samplers: W. Sommer S. Brunelle
Total Depth (ft.): 23.94
Well Diameter: 2"
Screen Interval: ?
Formation:
Water Quality Instrument Type/ID#: 3

turbidity #2
Pump Intake (ft. below MP): 22.5

Time	Water Level	Flow	DO	Temp.	Cond.	pH	ORP	Turb.	Vol. Purged	Comments
24 hr	ft. below MP	mL/min	mg/L	°C	mS or µS	S.U.	mV	NTU	Liters	
1155	14.3	100	0.5	16.8	5543	6.82	149.8	0.82		
9/8/21 1205	15.0	100	0.3	18.7	5516	6.80	149.0	0.76		
1210	16.1	90	0.2	17.5	5527	6.70	148.1	0.70		
1215	16.8	100	0.1	17.6	5508	6.52	150.9	1.0		
1220	17.7	97	0.1	17.2	5501	6.36	153.2	0.61		
1225	18.1	99	0.1	17.6	5529	6.34	153.1	1.0		cannot slow pump speed without pump shutting off
1230	18.7	100	0.1	17.0	5629	6.32	146.8	1.27	~1.5 Gal	sampling before well runs out of water
										sample taken @ 9/8/21 1232

Equilibrium Goals: 3 consecutive readings btw. 3-5 min. apart
Cond. ± 3% DO ± 10%
Turbidity ± 10% pH ± 0.1
Temp. ± 3% ORP ± 10 mV

MP = Measuring point (i.e. top of inner or outer well casing)

mL/Ft. info:
3/4" well = 87 mL/ft.
2" well = 617 mL/ft.
4" well = 2470 mL/ft.

Record all instrument calibrations in instrument cal. log book/data sheet and field log book

Cumulative volume purged (L): 1.5 Gallons
Sample #: MW-3
Field Duplicate sample #:
Analytical Parameters:

Attachment 9:

Scan of YSI calibration logbooks.

07sept21 New Bedford Harbor
Pre Cal @ NERL 0740

Barcode	Exp	Parameter	Pre	Post
26697	4/23	pH 4.00	3.92	3.94
26698	4/23	10.00	10.03	9.98
26699	4/23	7.00	6.98	7.00
26694	5/22	SPC 1000 ms/cm	1035	1000
		DO 100%	126%	100%
24842	2/23	ORP 234.5 @ 20C	234.4	233.9

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07sept21 New Bedford Post Check
In field 16:15

Barcode	Exp	Param	Reading
26697	4/23	pH 4.00	4.07
26698	4/23	10.00	10.10
26699	4/23	7.00	7.02
26691	4/23	SPC 1000 ms/cm	1024 post cal
24842	2/23	ORP 228.0 @ 25C	214.4 → 228.1
		DO 100%	106%

Shannon Brunelle

08sept21 New Bedford Post Check
In field 1235

Barcode	Exp	Param	Reading
26697	4/23	pH 4.00	4.06
26698	4/23	pH 10.00	10.03
26699	4/23	pH 7.00	6.98
26691	4/23	SPC 1000 ms/cm	1024
24842	2/23	ORP ~~228.0 @ 24C~~	234.5 @ 22°C 236.7
		DO 100%	108%

Shannon Brunelle

04Oct21 Durham Meadows Monthly @ NERL 0730

Parameter	Barcode/Exp	Pre	Post
pH 4.00	26696/4/23	~~3.99~~ 3.96	4.01
10.00	26691/4/23	~~10.04~~ 10.01	10.00
7.00	26701/4/23	6.95	7.00
SPC 1000 us/cm	26695/5/22	994	1000
ORP 233 @ 21°C	24842/2/23	238.0	232.9
DO 100%	/	103%	100%

M. Combs