SANBORN HEAD

Building Trust. Engineering Success.

U.S. Environmental Protection Agency
Office of Ecosystem Protection
EPA/OEP RGP Applications Coordinator
5 Post Office Square, Suite 100 (OEP06-01)
Boston, MA 02109-3912

March 30, 2022
File No. 4893.00

Re: Notice of Intent for the Remediation General Permit
Temporary Construction Dewatering
22 Willow Street
Chelsea, Massachusetts

Dear Sir/Madam:

On behalf of HUSPP 250 Marginal, LLC (Client), Sanborn, Head & Associates, Inc (Sanborn Head) is submitting this Notice of Intent (NOI) to the United States Environmental Protection Agency (USEPA) for coverage under the National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) MAG910000 at the above-referenced property (the Site). This letter and supporting documentation were prepared in accordance with the general requirements of the NPDES RGP and related guidance documentation provided by USEPA. HUSPP 250 Marginal, LLC is the owner of the Site and will have responsibility for the contractors/subcontractors performing the dewatering activities at the Site. Contractors and subcontractors working for the Client on the project will be required to meet the requirements of this NOI and the RGP. The completed NOI for the Remediation General Permit form is included as Appendix A.

This NOI has been prepared for the management of groundwater that may be generated during dewatering activities associated with construction of a new logistics facility. The work is anticipated to be completed within 12 months. New utilities will also be installed to support the future building planned for the Site. The location of the Site and the discharge locations into the Chelsea River via municipal and private on-Site storm water catch basins are shown on Figure 1.

The Site is approximately 5.4-acres and is occupied by four industrial buildings constructed circa 1900 which cover the majority of the 22 Willow Street property and will be demolished prior to redevelopment. The Site is bounded to the north by Congress Avenue and residential properties, to the east by Willow Street and parking lots, to the west by Highland Street and parking lots, to the southwest by the Carbone Metal Fabricator facility at 240 Marginal Street, and to the south by 250 Marginal Street, across which are commercial buildings including Harbor Food Service Equipment, a restaurant supply store, at 229 Marginal Street.

The proposed structure to be constructed at the Site will provide up to 146,410 square feet of gross floor space and will cover much of the northern portion of the parcel. The remaining

portion of the Site will provide surface parking, and limited areas of landscaping are proposed for the perimeter of the Site.

Groundwater is anticipated to be encountered between approximately 6 and 7 feet below ground surface (bgs). Groundwater that requires dewatering and cannot be discharged back into the ground will be treated prior to discharge to the existing storm water system and associated municipal and private on-Site catch basins such that the discharged effluent meets the effluent limitations established by NPDES Part 2.1 and Appendix V of the RGP Application.

On February 10 and 11, 2022, Sanborn, Head & Associates, Inc., the project's environmental consultant, collected two water samples to characterize the source waters in support of this NOI. The source water samples were collected from groundwater monitoring wells identified as IES-106 and IES-118, as shown on Figure 2. The water samples were collected using dedicated, disposable bailers and were submitted to Alpha Analytical Laboratories, Inc. (Alpha) of Westborough, MA for analysis for the 2017 NPDES suite of parameters.

On March 11, 2022, Sanborn Head, collected two receiving water samples from the surface water immediately downstream of the closest outlets, which empty into Chelsea River. The water samples were collected using dedicated, disposable bailers and were submitted to Eurofins Microbiology, Inc. of North Kingstown, RI for analysis for the 2017 NPDES suite of parameters.

The discharge point for the treatment system will be municipal and on-Site private storm water catch basins, which connect to the City of Chelsea's municipal storm drain system and ultimately discharge into Chelsea River. The intent of this permit application is to enable discharge to the catch basin during construction dewatering to accommodate total flow rates of up to 200 gallons per minute (GPM).

Information regarding the receiving water was collected from the Massachusetts Year 2016 Integrated List of Waters which is included in Appendix B. Receiving water calculations are included in Appendix C. Analytical laboratory data for on-Site and surface water sampling is summarized in Tables 1 and 2, respectively, and analytical data reports are included in Appendix D. Iron was detected in the source groundwater above the respective NPDES RGP Effluent Limitation. To meet effluent standards, source water will undergo treatment that includes bag filtration prior to discharge. A water treatment system schematic is provided as Figure 3, and additional treatment system information is provided in Appendix E.

One (1) chemical aided settling system for the application of LRT E-50 coagulant and LRT nonionic dry polymer (flocculant) will be used to control total suspended solids (TSS) in the effluent. The chemical aided settling system will be installed at the influent tank at the head of the water treatment system. The system will include two chemical feed pumps, mixers, injection tubing and a flocculant "make-down" system used to prepare batches of dry polymer. The appropriate chemical dosing necessary for efficient TSS settling will be determined in the field via a "jar test". Dosing can vary throughout the project with changes in influent water characteristics such as flowrate, pH, TSS concentrations.

The dosing concentration for both the coagulant and dry polymer typically ranges from 25-50 parts per million (ppm). The actual dosing concentration is based on visual observations in the field and will be adjusted and calibrated by the operator during startup of the additional components to achieve the appropriate set-point for the system. Dosing is continuous at the set concentration while the system is running. It is important to note that although the dosing concentration is 25-50 ppm, the detected concentration in the carryover (post bag filter) is in the parts per trillion (ppt) range (about 6 orders of magnitude less than the dosing concentration). This is because nearly all the applied chemical becomes incorporated in the sludge and removed from the waste stream as a solid from the weir tank and as part of typical system operations and maintenance. The only waste generated will be incorporated with the sludge and removed as a solid.

The SDS Sheets for the chemicals used in the chemical aided settling system are attached in Appendix E (E50 Coagulant and 9911 Polymer).

Part F of the RGP NOI requires that chemical additives be identified if applied to the effluent prior to discharge. To satisfy the confirmation requirements of RGP Part 2.5.3.d.ii:

1. The addition of the coagulant and flocculant will not add any pollutants in concentrations which exceed permit effluent limitations;

2. The addition of the coagulant and flocculant will not result in the exceedance of any applicable water quality standard; and

3. The addition of the coagulant and flocculant will not add any pollutants that would justify the application of permit conditions that are different from or absent in the permit.

The addition of coagulants and flocculants to control TSS values is a standard treatment technique for temporary construction dewatering; it is not expected to exceed applicable permit limitations and water quality standards or alter conditions in the receiving water. No additional testing is considered necessary for use of this product or to demonstrate that use of this product will not adversely affect the receiving water.

A pH adjustment system that is capable of raising pH will be implemented if required to meet the permit requirements. The pH system is designed to raise the pH with sodium hydroxide and includes an automatic metered acid feed system with a mix tank, acid feed pumps and setpoint controls that maintain the pH approved by the permit, usually set between 6.5 and 8.3. The pH is continuously monitored, and the sodium hydroxide will only be added if the setpoints are exceeded. The sodium hydroxide will be stored in 55-gallon drums with secondary containment systems in place (overpack drum). Please note that the realistic average use of sodium hydroxide/day will be 0.5 gallons or less. The maximum application concentration for sodium hydroxide would be 166 mg/L.

Part F of the RGP NOI requires that chemical additives be identified if applied to the effluent prior to discharge. To satisfy the confirmation requirements of RGP Part 2.5.3.d.ii:

1. The addition of a pH conditioner will not add any pollutants in concentrations which exceed permit effluent limitations;

2. The addition of a pH conditioner will not result in the exceedance of any applicable water quality standard; and

3. The addition of a pH conditioner will not add any pollutants that would justify the application of permit conditions that are different from or absent in the permit.

The addition of sodium hydroxide to control and adjust pH is a standard treatment technique for temporary construction dewatering; it is not expected to exceed applicable permit limitations and water quality standards or alter conditions in the receiving water. No additional testing is considered necessary for use of this product or to demonstrate that use of this product will not adversely affect the receiving water.

According to the Information for Planning and Conservation (IPaC), available through the U.S. Fish and Wildlife Service (FWS) website, the proposed on-Site dewatering activities will not impact Areas of Critical Environmental Concern (ACEC) or Habitats of Rare Wetland Wildlife. A letter from the FWS is included in Appendix F. An email requesting information regarding federally listed species in the project discharge area of the Chelsea River was sent to the National Oceanic and Atmospheric Administration (NOAA), and their response, included in Appendix F, requests the use of their mapper of Section 7 species. While the FWS identified no threatened/endangered/candidate species or critical habitats in the area, the mapper tool indicates that there are several Section 7 Species, as shown in Appendix F.

A review of the National Register of Historic Places within Chelsea was performed. Based on the review, the discharge and discharge-related activities do not have the potential to cause effects on historic properties. A list of the properties reviewed is included in Appendix G.

Thank you for your consideration of this NOI/Permit. Please feel free to contact us if you wish to discuss the information contained in this application, or if any additional information is needed.

Very truly yours,
SANBORN, HEAD & ASSOCIATES, INC.

Samantha L. Slater, PG
Senior Project Manager

Patricia M. Pinto, P.E., LSP
Senior Vice President/Principal

Encl. Table 1 – Summary of Influent Water Quality Data
Table 2 – Summary of Receiving Water Quality Data
Figure 1 – Locus Plan
Figure 2 – Exploration Location Plan

Figure 3 – Proposed Groundwater Treatment Schematic
Appendix A – Notice of Intent Form
Appendix B – Massachusetts Category 5 Waters and Site Assessment Map
Appendix C – Receiving Water Calculations
Appendix D – Analytical Data Reports
Appendix E – Treatment System Chemical Additive Details
Appendix F – NOAA and US Fishery and Wildlife Services
Appendix G – National Register of Historic Places – Chelsea, MA

cc: City of Chelsea Board of Health
DEP Bureau of Water Resources

P:\4800s\4893.00\Source Files\RGP\20220330 NPDES RGP NOI.docx

TABLES

Table 1
Summary of Influent Water Quality Data
22 Willow Street
Chelsea, Massachusetts

LOCATION	NPDES Effluent Limitations			Units	IES-106	IES-118
SAMPLING DATE					2/11/2022	2/10/2022
LAB SAMPLE ID	TBEL	WQBEL	Compliance Level		L2207590-01	L2207311-01
SAMPLE TYPE					GW	GW
General Chemistry						
Chromium, Trivalent	**323**	100.0	-	µg/L	<10	<10
Solids, Total Suspended	**30**	-	-	mg/L	**1,400**	**500**
Cyanide, Total	**178**	0.001	-	mg/L	<0.005	<0.005
Chlorine, Total Residual	200	7.5	**50**	µg/L	<20	<20
Nitrogen, Ammonia	Report mg/L			mg/L	**6.18**	**0.302**
TPH, SGT-HEM	**5.0**	-	-	mg/L	<4	<3.6
Phenolics, Total	**1,080**	300	-	µg/L	**36**	<30
Chromium, Hexavalent	**323**	50	-	µg/L	<10	<10
Total Hardness	**-**	-	-	mg/L	**267**	**47.2**
Anions						
Chloride	Report µg/L			µg/L	**201,000**	**8,330**
Dissolved Metals						
Antimony, Dissolved	**206**	640	-	µg/L	<4	**7.4**
Arsenic, Dissolved	**104**	36	-	µg/L	**5.9**	**5.2**
Cadmium, Dissolved	**10.2**	8.9	-	µg/L	<0.2	**0.3**
Chromium, Dissolved	**323**	100	-	µg/L	<1	<1
Copper, Dissolved	242	**3.7**	**-**	µg/L	**1.9**	**13.4**
Iron, Dissolved	**5,000**	-	-	µg/L	**5,770**	**728**
Lead, Dissolved	160	**8.5**	**-**	µg/L	**7.6**	**45.7**
Mercury, Dissolved	**0.739**	1.11	-	µg/L	<0.2	<0.2
Nickel, Dissolved	1,450	**8.3**	**-**	µg/L	**2.1**	**2.6**
Selenium, Dissolved	**235.8**	71	-	µg/L	<5	<5
Silver, Dissolved	**35.1**	2.2	-	µg/L	<0.4	<0.4
Zinc, Dissolved	420	**86**	**-**	µg/L	**16.3**	**297.4**
Total Metals						
Antimony, Total	**206**	640	-	µg/L	<4	**6.6**
Arsenic, Total	**104**	36	-	µg/L	**14.41**	**12.65**
Cadmium, Total	**10.2**	8.9	-	µg/L	**1.04**	**2.41**
Chromium, Total	**323**	100	-	µg/L	**8.7**	**6.66**
Copper, Total	242	**3.7**	**-**	µg/L	**75.87**	**95.96**
Iron, Total	**5,000**	-	-	µg/L	**28,600**	**6,440**
Lead, Total	160	**8.5**	**-**	µg/L	**1,564**	**486.2**
Mercury, Total	**0.739**	1.11	-	µg/L	**5.5**	**0.91**
Nickel, Total	1,450	**8.3**	**-**	µg/L	**11.65**	**8.29**
Selenium, Total	**235.8**	71	-	µg/L	<5	<5
Silver, Total	**35.1**	2.2	-	µg/L	<0.4	<0.4
Zinc, Total	420	**86**	**-**	µg/L	**576.5**	**2,654**
Microextractables						
1,2-Dibromoethane	**0.05**	-	-	µg/L	<0.01	<0.01
1,2-Dibromo-3-chloropropane	-	-	-	µg/L	<0.01	<0.01
1,2,3-Trichloropropane	-	-	-	µg/L	<0.03	<0.03
Polychlorinated Biphenyls						
Aroclor 1016	See "Total PCBs"	-	-	µg/L	<0.25	<0.25
Aroclor 1221	See "Total PCBs"	-	-	µg/L	<0.25	<0.25
Aroclor 1232	See "Total PCBs"	-	-	µg/L	<0.25	<0.25
Aroclor 1242	See "Total PCBs"	-	-	µg/L	<0.25	<0.25
Aroclor 1248	See "Total PCBs"	-	-	µg/L	<0.25	<0.25
Aroclor 1254	See "Total PCBs"	-	-	µg/L	<0.25	<0.25
Aroclor 1260	See "Total PCBs"	-	-	µg/L	<0.2	**0.386**
Total PCBs	0.000064	-	**0.5**	µg/L	ND	**0.386**
Semivolatile Organic Compounds						
Bis(2-ethylhexyl)phthalate	**101** See "Total Phthalates"	-	-	µg/L	**4.14**	**24.2**
Butyl benzyl phthalate	See "Total Phthalates"	-	-	µg/L	<5	<5
Di-n-butylphthalate	See "Total Phthalates"	-	-	µg/L	<5	<5
Di-n-octylphthalate	See "Total Phthalates"	-	-	µg/L	<5	<5
Diethyl phthalate	See "Total Phthalates"	-	-	µg/L	<5	<5
Dimethyl phthalate	See "Total Phthalates"	-	-	µg/L	<5	<5
Acenaphthene	See "Total Group 2 PAHs"	-	-	µg/L	**0.219**	**0.144**
Fluoranthene	See "Total Group 2 PAHs"	-	-	µg/L	**0.69**	**0.719**
Naphthalene	**20** See "Total Group 2 PAHs"	-	-	µg/L	**0.747**	<0.1
Benzo(a)anthracene	See "Total Group 1 PAHs"	0.0038	**0.1**	µg/L	**0.478**	**0.429**
Benzo(a)pyrene	See "Total Group 1 PAHs"	0.0038	**0.1**	µg/L	**0.72**	**0.528**
Benzo(b)fluoranthene	See "Total Group 1 PAHs"	0.0038	**0.1**	µg/L	**0.868**	**0.544**
Benzo(k)fluoranthene	See "Total Group 1 PAHs"	0.0038	**0.1**	µg/L	**0.445**	**0.292**
Chrysene	See "Total Group 1 PAHs"	0.0038	**0.1**	µg/L	**0.581**	**0.429**
Acenaphthylene	See "Total Group 2 PAHs"	-	-	µg/L	**0.126**	<0.1
Anthracene	See "Total Group 2 PAHs"	-	-	µg/L	**0.204**	**0.182**
Benzo(ghi)perylene	See "Total Group 2 PAHs"	-	-	µg/L	**1.5**	**0.451**
Fluorene	See "Total Group 2 PAHs"	-	-	µg/L	<0.1	**0.12**
Phenanthrene	See "Total Group 2 PAHs"	-	-	µg/L	**0.463**	**0.413**
Dibenzo(a,h)anthracene	See "Total Group 1 PAHs"	0.0038	**0.1**	µg/L	**0.159**	<0.1
Indeno(1,2,3-cd)pyrene	See "Total Group 1 PAHs"	0.0038	**0.1**	µg/L	**0.652**	**0.37**
Pyrene	See "Total Group 2 PAHs"	-	-	µg/L	**0.69**	**0.73**
Pentachlorophenol	**1**	1	-	µg/L	<1	<1
Total Group 1 PAHs	**1**	-	-	µg/L	**3.903**	**2.592**
Total Group 2 PAHs	**100**	-	-	µg/L	**4.639**	**2.759**
Total Phthalates	**190**	-	-	µg/L	**4.14**	**24.2**

Table 1
Summary of Influent Water Quality Data
22 Willow Street
Chelsea, Massachusetts

LOCATION	NPDES Effluent Limitations			Units	IES-106	IES-118
SAMPLING DATE					2/11/2022	2/10/2022
LAB SAMPLE ID	TBEL	WQBEL	Compliance Level		L2207590-01	L2207311-01
SAMPLE TYPE					GW	GW
Volatile Organic Compounds						
Methylene chloride	**4.6**	-	-	µg/L	<1	<2
1,1-Dichloroethane	**70**	-	-	µg/L	<1.5	<3
Carbon tetrachloride	**4.4**	1.6	-	µg/L	<1	*<2*
1,1,2-Trichloroethane	**5.0**	-	-	µg/L	<1.5	<3
Tetrachloroethene	**5.0**	3.3	-	µg/L	<1	<2
1,2-Dichloroethane	**5.0**	-	-	µg/L	<1.5	<3
1,1,1-Trichloroethane	**200**	-	-	µg/L	<2	<4
Benzene	**5.0** See "Total BTEX"	-	-	µg/L	<1	<2
Toluene	See "Total BTEX"	-	-	µg/L	<1	<2
Ethylbenzene	See "Total BTEX"	-	-	µg/L	<1	<2
Vinyl chloride	**2.0**	-	-	µg/L	<1	*<2*
1,1-Dichloroethene	**3.2**	-	-	µg/L	<1	<2
cis-1,2-Dichloroethene	**70**	-	-	µg/L	<1	<2
Trichloroethene	**5.0**	-	-	µg/L	<1	<2
1,2-Dichlorobenzene	**600**	-	-	µg/L	<5	<10
1,3-Dichlorobenzene	**320**	-	-	µg/L	<5	<10
1,4-Dichlorobenzene	**5.0**	-	-	µg/L	<5	<10
p/m-Xylene	See "Total BTEX"	-	-	µg/L	<2	<4
o-xylene	See "Total BTEX"	-	-	µg/L	<1	<2
Xylenes, Total	See "Total BTEX"	-	-	µg/L	<1	<2
Acetone	**7.97**	-	-	mg/L	<0.01	0.01
Methyl tert butyl ether	**70**	20	-	µg/L	<10	<20
Tert-Butyl Alcohol	**120**	-	-	µg/L	<100	<200
Tertiary-Amyl Methyl Ether	**90**	-	-	µg/L	<20	<40
1,4-Dioxane	**200**	-	-	µg/L	<5	<10
Total BTEX	**100**	-	-	µg/L	ND	ND

NOTES:

1. Groundwater samples were collected by Sanborn, Head & Associates, Inc. (Sanborn Head) on the indicated dates and were analyzed by Alpha Analytical, Inc. of Westborough, MA.

2. National Pollutant Discharge Elimination System (NPDES) Technology-Based Effluent Limitations (TBEL), Water Quality-Based Effluent Limitations (WQBEL), and Compliance Levels are calculated based on Table 2 in the "National Pollutant Discharge Elimination System (npdes) General Permit For Remediation Activity Discharges " dated March 9, 2017.

3. Where multiple effluent limitations are shown, the bolded value applies.

4. Bolded analytical values indicate detections above laboratory reporting limits. Shaded values indicate exceedances of the applicable effluent limitation.

5. Abbreviations:
NPDES = National Pollutant Discharge Elimination System
TBEL = Technology-Based Effluent Limitations
WQBEL = Water Quality-Based Effluent Limitations
BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes
TPH = Total Petroleum Hydrocarbons
SGT-HEM = Silica Gel Treated Hexane Extractable Material
PAH = Polycyclic Aromatic Hydrocarbons
PCB = Polychlorinated Biphenyls
GW = Groundwater
ND = Not Detected
'-' = No applicable value
< = the analyte was not detected above the following laboratory reporting limit
mg/L = milligrams per liter
µg/L = microgram per liter

Table 2
Summary of Receiving Water Quality Data
22 Willow Street
Chelsea, Massachusetts

SAMPLE NAME	Effluent Limitations		Units	20220311-HIGHLAND	20220311-WILLOW
SAMPLE DATE	TBEL	WQBEL		3/11/2022	3/11/2022
General Chemistry					
Salinity	-	-	ppt	**26.1**	**5.09**
Ammonia	Report mg/L		mg/L	<0.2	**1.63**
Chromium III	**323**	100	mg/L	<0.01	<0.01
Chromium VI	**323**	50	mg/L	<0.01	<0.01
Hardness as CaCO3	-	-	mg/L	**580**	**520**
pH	-	-	SU	**7.7**	**7.2**
Metals					
Iron	**5,000**	-	ug/L	**307**	**3,690**
Antimony	**206**	640	ug/L	<5	<1
Arsenic	**104**	36	ug/L	<5	**1.57**
Cadmium	**10.2**	8.9	ug/L	<2.5	<0.5
Copper	242	**3.7**	ug/L	<5	**5.62**
Lead	160	**8.5**	ug/L	**4.00**	**5.72**
Nickel	1,450	**8.3**	ug/L	<5	**3.83**
Selenium	**235.8**	71	ug/L	<1	<1
Silver	**35.1**	2.2	ug/L	<2.5	<0.5
Zinc	420	**86**	ug/L	<50	**89.1**
Mercury	**0.739**	1.11	ug/L	<120	<0.2

NOTES:

1. Groundwater samples were collected by Sanborn, Head & Associates, Inc. (Sanborn Head) on the indicated dates and were analyzed by Alpha Analytical, Inc. of Westborough, MA.

2. National Pollutant Discharge Elimination System (NPDES) Technology-Based Effluent Limitations (TBEL) and Water Quality-Based Effluent Limitations (WQBEL) are calculated based on Table 2 in the "National Pollutant Discharge Elimination System (npdes) General Permit For Remediation Activity Discharges " dated March 9, 2017.

3. Where multiple effluent limitations are shown, the bolded value applies.

4. Abbreviations:
'-' = No applicable value
< = the analyte was not detected above the following laboratory reporting limit
ppt = parts per trillion
mg/L = milligrams per liter
SU = standard unit
µg/L = microgram per liter

FIGURES

N
W E
S

NOTES:
Base map was taken from the "Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Information Technology Division"
7.5 minute USGS Quadrangle Maps: Chelsea, Massachusetts, REV: 1985

Drawn By: M.Revere
Designed By: L.Aborn
Reviewed By: P.Pinto
Project No: 4893.00
Date: March 2022

SCALE: 1:25,000

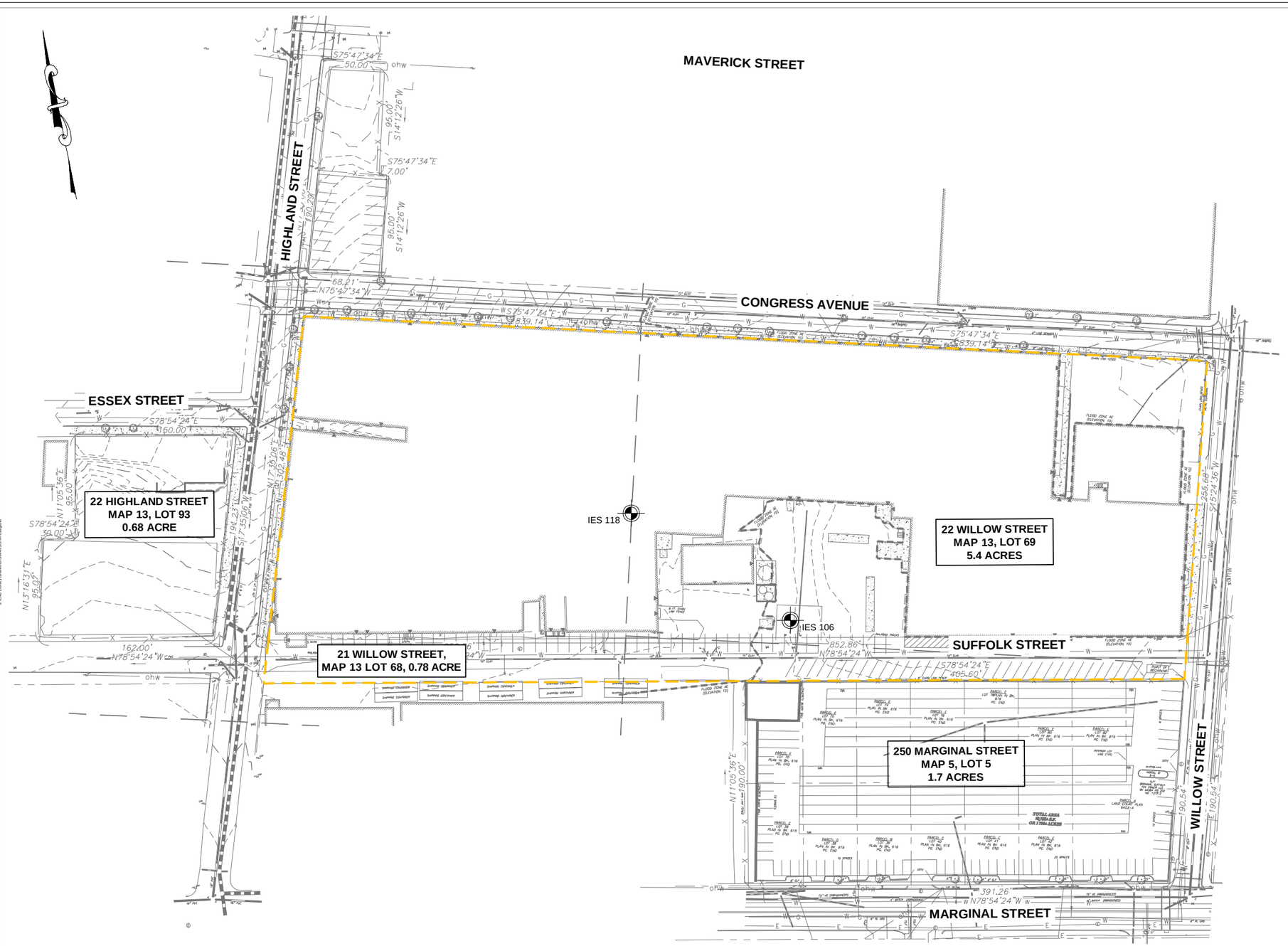
SANBORN HEAD

Figure 1

Locus Plan

NPDES Remediation General Permi

22 Willow Street, 250 Marginal Street, and 22 Highland Street
Chelsea, Massachusetts



NOTES:

1. THE BASE MAP WAS DRAWN FROM A CAD FILE, "19119_SURVEY.DWG", PREPARED BY RJO'CONNEL & ASSOCIATES, INC OF STONEHAM, MA.
2. THE EXISTING EXPLORATIONS WERE DRAWN FROM A PLAN TITLED, "ASSESSMENT AREAS", PREPARED BY CAPITAL ENGINEERING SERVICES, INC. OF PLYMOUTH, MA, DATED JULY 24, 2019 WITH AN ORIGINAL SCALE OF 1" = 40'.

LEGEND:

- APPROXIMATE SITE
- APPROXIMATE LOCATION OF GROUNDWATER MONITORING WELL PREVIOUSLY INSTALLED BY OTHERS

SANBORN HEAD

GRAPHICAL SCALE
50' 25' 0' 50' 100'

NO.	DATE	DESCRIPTION	BY

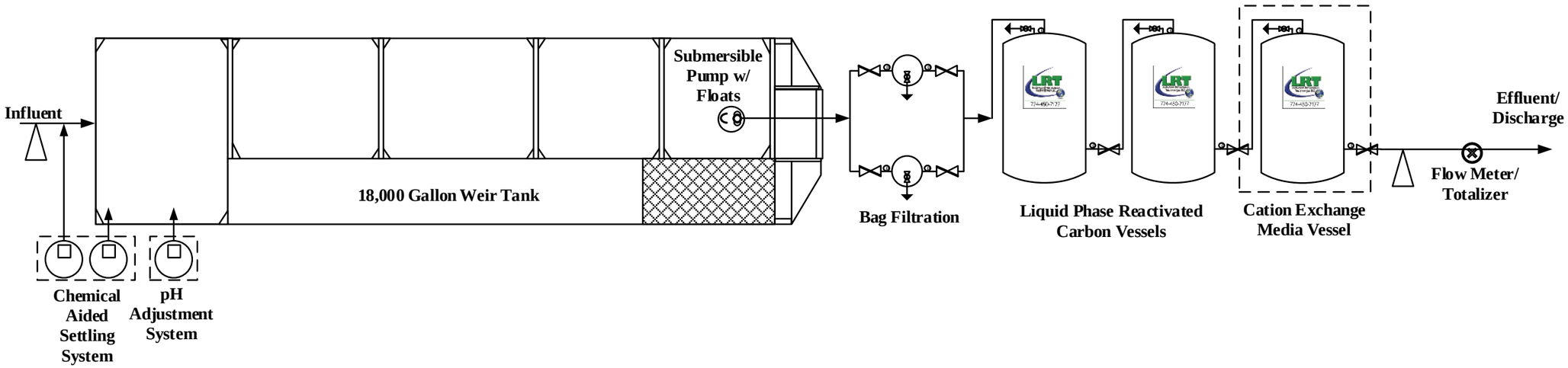
DRAWN BY: M. REVERE
DESIGNED BY: L.ABORN
REVIEWED BY: P.PINTO
PROJECT MGR: S.SLATER
PIC: P.PINTO
DATE: MARCH 2022

NPDES REMEDIATION GENERAL PERMIT
22 WILLOW STREET, 250 MARGINAL STREET,
AND 22 HIGHLAND STREET
CHELSEA, MASSACHUSETTS

PROJECT NUMBER: 4893.00

SITE PLAN

FIGURE NUMBER: 2



Key:

Piping/Hose	→
Sample Port	▷
Ball Valve	⋈
Butterfly Valve	⋈
Pressure Gauge	Ⓟ
Contingency	– – – – –

Notes:

1.) Figure is not to scale
2.) System rated for 200 GPM

Lockwood Remediation Technologies, LLC
89 Crawford Street
Leominster, MA 01453
Office: 774-450-7177

DESIGNED BY: LRT **DRAWN BY:** JHJ

CHECKED BY: **DATE:**

Water Treatment System Schematic

22 Willow Point
Chelsea, MA

PROJECT No.

FIGURE No.

SANBORN HEAD

NO.	DATE	DESCRIPTION	BY

DRAWN BY: A. CAMPBELL
DESIGNED BY: A. CAMPBELL
REVIEWED BY: P. PINTO
PROJECT MGR: S. SLATER
PIC: P. PINTO
DATE: MARCH 2022

REPORT NAME
22 WILLOW STREET
CHELSEA, MA

WATER TREATMENT SYSTEM SCHEMATIC

PROJECT NUMBER: 4893.00

SHEET NUMBER: 3 of 3

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APPENDIX A

NOTICE OF INTENT FORM

II. Suggested Format for the Remediation General Permit Notice of Intent (NOI)

A. General site information:

<table>
<tr><td rowspan="2">1. Name of site:
22 Willow Street Chelsea</td><td colspan="3">Site address: 22
Street: Willow Street</td></tr>
<tr><td>City: Chelsea</td><td>State: MA</td><td>Zip: 02150</td></tr>
<tr><td rowspan="4">2. Site owner
HUSPP 250 Marginal LLC

Owner is (check one): ☐ Federal ☐ State/Tribal ■ Private
☐ Other; if so, specify:</td><td colspan="3">Contact Person: Michael Francis</td></tr>
<tr><td colspan="2">Telephone: 617-261-2260</td><td>Email: michael.francis@hines.com</td></tr>
<tr><td colspan="3">Mailing address: One International Place, Suite 1120
Street:</td></tr>
<tr><td>City: Boston</td><td>State: MA</td><td>Zip: 02110</td></tr>
<tr><td rowspan="4">3. Site operator, if different than owner</td><td colspan="3">Contact Person:</td></tr>
<tr><td colspan="2">Telephone:</td><td>Email:</td></tr>
<tr><td colspan="3">Mailing address:
Street:</td></tr>
<tr><td>City:</td><td>State:</td><td>Zip:</td></tr>
<tr><td colspan="2">4. NPDES permit number assigned by EPA:
NA

NPDES permit is (check all that apply: ☐ RGP ☐ DGP ☐ CGP
☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:</td><td colspan="2">5. Other regulatory program(s) that apply to the site (check all that apply):
■ MA Chapter 21e; list RTN(s):
3-14181, 3-14339, 3-31999, 3-32285
☐ NH Groundwater Management Permit or Groundwater Release Detection Permit:
☐ CERCLA
☐ UIC Program
☐ POTW Pretreatment
☐ CWA Section 404</td></tr>
</table>

B. Receiving water information:

1. Name of receiving water(s):	Waterbody identification of receiving water(s):	Classification of receiving water(s):
Chelsea River	MA71-06	SB(CSO)

Receiving water is (check any that apply): ☐ Outstanding Resource Water ☐ Ocean Sanctuary ☐ territorial sea ☐ Wild and Scenic River

2. Has the operator attached a location map in accordance with the instructions in B, above? (check one): ■ Yes ☐ No

Are sensitive receptors present near the site? (check one): ☐ Yes ■ No
If yes, specify:

3. Indicate if the receiving water(s) is listed in the State's Integrated List of Waters (i.e., CWA Section 303(d)). Include which designated uses are impaired, and any pollutants indicated. Also, indicate if a final TMDL is available for any of the indicated pollutants. For more information, contact the appropriate State as noted in Part 4.6 of the RGP. Refer to Appendix B for Listed Impairments and TMDLs.

4. Indicate the seven day-ten-year low flow (7Q10) of the receiving water determined in accordance with the instructions in Appendix V for sites located in Massachusetts and Appendix VI for sites located in New Hampshire.	NA
5. Indicate the requested dilution factor for the calculation of water quality-based effluent limitations (WQBELs) determined in accordance with the instructions in Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire.	1

6. Has the operator received confirmation from the appropriate State for the 7Q10and dilution factor indicated? (check one): ■ Yes ☐ No
If yes, indicate date confirmation received: 03/17/2022

7. Has the operator attached a summary of receiving water sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ■ Yes ☐ No

C. Source water information:

1. Source water(s) is (check any that apply):

■ Contaminated groundwater Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ■ Yes ☐ No	☐ Contaminated surface water Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ☐ Yes ☐ No	☐ The receiving water ☐ A surface water other than the receiving water; if so, indicate waterbody:	☐ Potable water; if so, indicate municipality or origin: ☐ Other; if so, specify:

2. Source water contaminants: TSS, Ammonia Nitrogen, Total Phenolics, Chloride, Metals, SVOCs	
a. For source waters that are contaminated groundwater or contaminated surface water, indicate are any contaminants present that are not included in the RGP? (check one): ☐ Yes ■ No If yes, indicate the contaminant(s) and the maximum concentration present in accordance with the instructions in Appendix VIII.	b. For a source water that is a surface water other than the receiving water, potable water or other, indicate any contaminants present at the maximum concentration in accordance with the instructions in Appendix VIII? (check one): ☐ Yes ☐ No
3. Has the source water been previously chlorinated or otherwise contains residual chlorine? (check one): ☐ Yes ■ No	

D. Discharge information

1.The discharge(s) is a(n) (check any that apply): ☐ Existing discharge ■ New discharge ☐ New source	
Outfall(s): Chelsea River	Outfall location(s): (Latitude, Longitude) Lat: 42.386261, Long: -71.023687 Lat: 42.385918, Long: -71.031378
Discharges enter the receiving water(s) via (check any that apply): ☐ Direct discharge to the receiving water ■ Indirect discharge, if so, specify: Discharge through public/private storm water system ■ A private storm sewer system ■ A municipal storm sewer system If the discharge enters the receiving water via a private or municipal storm sewer system: Has notification been provided to the owner of this system? (check one): ■ Yes ☐ No Has the operator has received permission from the owner to use such system for discharges? (check one): ☐ Yes ■ No, if so, explain, with an estimated timeframe for obtaining permission: Prior to discharge, the operator will obtain the necessary City of Chelsea permits Has the operator attached a summary of any additional requirements the owner of this system has specified? (check one): ☐ Yes ■ No	
Provide the expected start and end dates of discharge(s) (month/year): 6/2022 - 6/2023 Indicate if the discharge is expected to occur over a duration of: ■ less than 12 months ☐ 12 months or more ☐ is an emergency discharge	
Has the operator attached a site plan in accordance with the instructions in D, above? (check one): ■ Yes ☐ No See Figure 2	

<table>
<tr><td>2. Activity Category: (check all that apply)</td><td colspan="2">3. Contamination Type Category: (check all that apply)</td></tr>
<tr><td rowspan="4">☐ I – Petroleum-Related Site Remediation
☐ II – Non-Petroleum-Related Site Remediation
■ III – Contaminated Site Dewatering
☐ IV – Dewatering of Pipelines and Tanks
☐ V – Aquifer Pump Testing
☐ VI – Well Development/Rehabilitation
☐ VII – Collection Structure Dewatering/Remediation
☐ VIII – Dredge-Related Dewatering</td><td colspan="2">a. If Activity Category I or II: (check all that apply)

☐ A. Inorganics
☐ B. Non-Halogenated Volatile Organic Compounds
☐ C. Halogenated Volatile Organic Compounds
☐ D. Non-Halogenated Semi-Volatile Organic Compounds
☐ E. Halogenated Semi-Volatile Organic Compounds
☐ F. Fuels Parameters</td></tr>
<tr><td colspan="2">b. If Activity Category III, IV, V, VI, VII or VIII: (check either G or H)</td></tr>
<tr><td>■ G. Sites with Known Contamination</td><td>☐ H. Sites with Unknown Contamination</td></tr>
<tr><td>c. If Category III-G, IV-G, V-G, VI-G, VII-G or VIII-G: (check all that apply)

■ A. Inorganics
☐ B. Non-Halogenated Volatile Organic Compounds
☐ C. Halogenated Volatile Organic Compounds
■ D. Non-Halogenated Semi-Volatile Organic Compounds
☐ E. Halogenated Semi-Volatile Organic Compounds
☐ F. Fuels Parameters</td><td>d. If Category III-H, IV-H, V-H, VI-H, VII-H or VIII-H Contamination Type Categories A through F apply</td></tr>
</table>

4. Influent and Effluent Characteristics

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
A. Inorganics									
Ammonia		✔	2	4500NH3-	75	6180	3240	Report mg/L	---
Chloride		✔	2	300.0	500	201000	105000	Report µg/l	---
Total Residual Chlorine	✔		2	4500CL-D	20	ND	ND	0.2 mg/L	7.5
Total Suspended Solids		✔	2	2540D	34000	1400000	950000	30 mg/L	---
Antimony		✔	2	200.8	4.0	7.4	7.4	206 µg/L	
Arsenic		✔	2	200.8	1.0	5.9	5.55	104 µg/L	
Cadmium		✔	2	200.8	0.2	0.3	0.3	10.2 µg/L	
Chromium III	✔		2	200.8	10	ND	ND	323 µg/L	
Chromium VI	✔		2	7196A	10	ND	ND	323 µg/L	
Copper		✔	2	200.8	1.0	13.4	7.65	242 µg/L	3.7
Iron		✔	2	19,200.7	50	5770	3250	5,000 µg/L	
Lead		✔	2	200.8	1.0	45.7	26.7	160 µg/L	8.5
Mercury	✔		2	245.1	0.2	ND	ND	0.739 µg/L	
Nickel		✔	2	200.8	2	11.65	9.97	1,450 µg/L	8.3
Selenium	✔		2	200.8	5	ND	ND	235.8 µg/L	
Silver	✔		2	200.8	0.4	ND	ND	35.1 µg/L	
Zinc		✔	2	200.8	10	2654	1620	420 µg/L	86
Cyanide	✔		2	4500CN-C	5	ND	ND	178 mg/L	
B. Non-Halogenated VOCs									
Total BTEX	✔		2	multiple	1	ND	ND	100 µg/L	---
Benzene	✔		2	624.1	1	ND	ND	5.0 µg/L	---
1,4 Dioxane	✔		2	624.1-SIM	5	ND	ND	200 µg/L	---
Acetone	✔		2	624.1	10	ND	ND	7.97 mg/L	---
Phenol	✔		2	4420.1	30	ND	ND	1,080 µg/L	

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
C. Halogenated VOCs									
Carbon Tetrachloride	✔		2	624.1	1	ND	ND	4.4 µg/L	
1,2 Dichlorobenzene	✔		2	624.1	5	ND	ND	600 µg/L	---
1,3 Dichlorobenzene	✔		2	624.1	5	ND	ND	320 µg/L	---
1,4 Dichlorobenzene	✔		2	624.1	5	ND	ND	5.0 µg/L	---
Total dichlorobenzene	✔		2	624.1	5	ND	ND	763 µg/L in NH	---
1,1 Dichloroethane	✔		2	624.1	1.5	ND	ND	70 µg/L	---
1,2 Dichloroethane	✔		2	624.1	1.5	ND	ND	5.0 µg/L	---
1,1 Dichloroethylene	✔		2	624.1	1	ND	ND	3.2 µg/L	---
Ethylene Dibromide	✔		2	504.1	0.01	ND	ND	0.05 µg/L	---
Methylene Chloride	✔		2	624.1	1	ND	ND	4.6 µg/L	---
1,1,1 Trichloroethane	✔		2	624.1	2	ND	ND	200 µg/L	---
1,1,2 Trichloroethane	✔		2	624.1	1.5	ND	ND	5.0 µg/L	---
Trichloroethylene	✔		2	624.1	1	ND	ND	5.0 µg/L	---
Tetrachloroethylene	✔		2	624.1	1	ND	ND	5.0 µg/L	
cis-1,2 Dichloroethylene	✔		2	624.1	1	ND	ND	70 µg/L	---
Vinyl Chloride	✔		2	624.1	1	ND	ND	2.0 ~~µg/L~~	~~---~~
~~D.~~ Non-Halogenated SVOCs									
Total Phthalates		✔	2	625.1	2.2	24.2	14.2	190 µg/L	----
Diethylhexyl phthalate		✔	2	625.1	5	24.2	14.2	101 µg/L	2.2
Total Group I PAHs		✔	2	625.1	0.1	3.90	3.25	1.0 µg/L	---
Benzo(a)anthracene		✔	2	625.1	0.1	0.478	0.454	As Total PAHs	0.0038
Benzo(a)pyrene		✔	2	625.1	0.1	0.72	0.624		0.0038
Benzo(b)fluoranthene		✔	2	625.1	0.1	0.868	0.706		0.0038
Benzo(k)fluoranthene		✔	2	625.1	0.1	0.445	0.369		0.0038
Chrysene		✔	2	625.1	0.1	0.581	0.505		0.0038
Dibenzo(a,h)anthracene		✔	2	625.1	0.1	0.159	0.159		0.0038
Indeno(1,2,3-cd)pyrene		✔	2	625.1	0.1	0.652	0.511		0.0038

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
Total Group II PAHs		✔	2	625.1	0.1	4.64	3.70	100 µg/L	---
Naphthalene		✔	2	625.1	0.1	0.747	0.747	20 µg/L	---
E. Halogenated SVOCs									
Total PCBs		✔	2	608.3	0.25	0.386	0.386	0.000064 µg/L	---
Pentachlorophenol	✔		2	625.1	1	ND	ND	1.0 µg/L	---
F. Fuels Parameters									
Total Petroleum Hydrocarbons	✔		2	140,1664B	4000	ND	ND	5.0 mg/L	---
Ethanol	✔		2	1671A	20000	ND	ND	Report mg/L	---
Methyl-tert-Butyl Ether	✔		2	624.1	10	ND	ND	70 µg/L	
tert-Butyl Alcohol	✔		2	624.1	100	ND	ND	120 µg/L in MA 40 µg/L in NH	---
tert-Amyl Methyl Ether	✔		2	624.1	20	ND	ND	90 µg/L in MA 140 µg/L in NH	---
Other (i.e., pH, temperature, hardness, salinity, LC_{50}, additional pollutants present); if so, specify:									
pH		✔	2		NA	8.14	7.89		
Hardness		✔	2	19,200.7	0.660	267	157		

E. Treatment system information

1. Indicate the type(s) of treatment that will be applied to effluent prior to discharge: (check all that apply)

☐ Adsorption/Absorption ☐ Advanced Oxidation Processes ☐ Air Stripping ■ Granulated Activated Carbon ("GAC")/Liquid Phase Carbon Adsorption

■ Ion Exchange ■ Precipitation/Coagulation/Flocculation ■ Separation/Filtration ■ Other; if so, specify:

pH adjustment, as needed

2. Provide a written description of all treatment system(s) or processes that will be applied to the effluent prior to discharge.

Water encountered during construction activities will be pumped into a treatment system prior to discharge into existing catch basin. The first element of the treatment system will be a chemical aided settling system for the application of LRT E-50 coagulant and LRT nonionic dry polymer (flocculant) which will include two chemical feed pumps, mixers, injection tubing and a flocculant "make-down" system used to prepare batches of dry polymer. Then, sodium hydroxide will be added to adjust pH, if needed. The water will then pass through the following as necessary: a bag filter, two liquid phase reactivated carbon vessels, and one cation resin vessel plumbed in series. The effluent will be discharged to the existing catch basin.

Identify each major treatment component (check any that apply):

■ Fractionation tanks☐ Equalization tank ☐ Oil/water separator ☐ Mechanical filter ☐ Media filter

☐ Chemical feed tank ☐ Air stripping unit ■ Bag filter ■ Other; if so, specify: chemical aided settling system, pH adjustment, cation resin vessel and/or liquid phase reactivated carbon vessels if needed

Indicate if either of the following will occur (check any that apply):

☐ Chlorination ☐ De-chlorination

3. Provide the **design flow capacity** in gallons per minute (gpm) of the most limiting component. Indicate the most limiting component: Bag filters Is use of a flow meter feasible? (check one): ■ Yes ☐ No, if so, provide justification:	200
Provide the proposed maximum effluent flow in gpm.	200
Provide the average effluent flow in gpm.	80
If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:	NA

4. Has the operator attached a schematic of flow in accordance with the instructions in E, above? (check one): ■ Yes ☐ No

F. Chemical and additive information

1. Indicate the type(s) of chemical or additive that will be applied to effluent prior to discharge or that may otherwise be present in the discharge(s): (check all that apply)

☐ Algaecides/biocides ☐ Antifoams ■ Coagulants ☐ Corrosion/scale inhibitors ☐ Disinfectants ■ Flocculants ☐ Neutralizing agents ☐ Oxidants ☐ Oxygen ☐ scavengers ■ pH conditioners ☐ Bioremedial agents, including microbes ☐ Chlorine or chemicals containing chlorine ☐ Other; if so, specify:

2. Provide the following information for each chemical/additive, using attachments, if necessary:
See Appendix E
a. Product name, chemical formula, and manufacturer of the chemical/additive;
b. Purpose or use of the chemical/additive or remedial agent;
c. Material Safety Data Sheet (MSDS) and Chemical Abstracts Service (CAS) Registry number for each chemical/additive;
d. The frequency (hourly, daily, etc.), duration (hours, days), quantity (maximum and average), and method of application for the chemical/additive;
e. Any material compatibility risks for storage and/or use including the control measures used to minimize such risks; and
f. If available, the vendor's reported aquatic toxicity (NOAEL and/or LC50 in percent for aquatic organism(s)).

3. Has the operator attached an explanation which demonstrates that the addition of such chemicals/additives may be authorized under this general permit in accordance with the instructions in F, above? (check one): ■ Yes ☐ No; if no, has the operator attached data that demonstrates each of the 126 priority pollutants in CWA Section 307(a) and 40 CFR Part 423.15(j)(1) are non-detect in discharges with the addition of the proposed chemical/additive?
(check one): ☐ Yes ☐ No

G. Endangered Species Act eligibility determination

1. Indicate under which criterion the discharge(s) is eligible for coverage under this general permit:

☐ **FWS Criterion A**: No endangered or threatened species or critical habitat are in proximity to the discharges or related activities or come in contact with the "action area".

■ **FWS Criterion B**: Formal or informal consultation with the FWS under section 7 of the ESA resulted in either a no jeopardy opinion (formal consultation) or a written concurrence by FWS on a finding that the discharges and related activities are "not likely to adversely affect" listed species or critical habitat (informal consultation). Has the operator completed consultation with FWS? (check one): ■ Yes ☐ No; if no, is consultation underway? (check one): ☐ Yes ☐ No

☐ **FWS Criterion C**: Using the best scientific and commercial data available, the effect of the discharges and related activities on listed species and critical habitat have been evaluated. Based on those evaluations, a determination is made by EPA, or by the operator and affirmed by EPA, that the discharges and related activities will have "no effect" on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the FWS. This determination was made by: (check one) ☐ the operator ☐ EPA ☐ Other; if so, specify:

■ **NMFS Criterion**: A determination made by EPA is affirmed by the operator that the discharges and related activities will have "no effect" or are "not likely to adversely affect" any federally threatened or endangered listed species or critical habitat under the jurisdiction of NMFS and will not result in any take of listed species. Has the operator previously completed consultation with NMFS? (check one): ☐ Yes ■ No

2. Has the operator attached supporting documentation of ESA eligibility in accordance with the instructions in Appendix I, and G, above? (check one): ■ Yes ☐ No

Does the supporting documentation include any written concurrence or finding provided by the Services? (check one): ■ Yes ☐ No; if yes, attach. See Appendix F

H. National Historic Preservation Act eligibility determination

1. Indicate under which criterion the discharge(s) is eligible for coverage under this general permit:

■ **Criterion A**: No historic properties are present. The discharges and discharge-related activities (e.g., BMPs) do not have the potential to cause effects on historic properties. See Appendix G

☐ **Criterion B**: Historic properties are present. Discharges and discharge related activities do not have the potential to cause effects on historic properties.

☐ **Criterion C**: Historic properties are present. The discharges and discharge-related activities have the potential to have an effect or will have an adverse effect on historic properties.

2. Has the operator attached supporting documentation of NHPA eligibility in accordance with the instructions in H, above? (check one): ■ Yes ☐ No

See Appendix G

Does the supporting documentation include any written agreement with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (TPHO), or other tribal representative that outlines measures the operator will carry out to mitigate or prevent any adverse effects on historic properties? (check one): ☐ Yes ■ No

I. Supplemental information

Describe any supplemental information being provided with the NOI. Include attachments if required or otherwise necessary.

Appendix B includes the Massachusetts Category 5 Waters Listings and Site Assessment Map
Appendix C includes Receiving Water Calculations
Appendix D includes analytical laboratory data
Appendix E includes chemical additive information
Appendix F includes correspondence from US Fishery and Wildlife Service
Appendix G includes a list of Historic Places in Chelsea

Has the operator attached data, including any laboratory case narrative and chain of custody used to support the application? (check one): ■ Yes ☐ No

Has the operator attached the certification requirement for the Best Management Practices Plan (BMPP)? (check one): ■ Yes ☐ No

J. Certification requirement

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

BMPP certification statement:	A BMPP meeting the requirements of this general permit will be developed and implemented upon initiation of discharge.
Notification provided to the appropriate State, including a copy of this NOI, if required.	Check one: Yes ■ No ☐
Notification provided to the municipality in which the discharge is located, including a copy of this NOI, if requested.	Check one: Yes ■ No ☐
Notification provided to the owner of a private or municipal storm sewer system, if such system is used for site discharges, including a copy of this NOI, if requested.	Check one: Yes ■ No ☐ NA ☐
Permission obtained from the owner of a private or municipal storm sewer system, if such system is used for site discharges. If yes, attach additional conditions. If no, attach explanation and timeframe for obtaining permission.	Check one: Yes ■ No ☐ NA ☐
Notification provided to the owner/operator of the area associated with activities covered by an additional discharge permit(s). Additional discharge permit is (check one): ☐ RGP ☐ DGP ☐ CGP ☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:	Check one: Yes ☐ No ☐ NA ■
Signature: [signature]	Date: 3/30/22
Print Name and Title: Michael B. Francis Managing Director	on behalf of HUSPP 250 Marshall LLC

APPENDIX B

MASSACHUSETTS CATEGORY 5 WATERS AND SITE ASSESSMENT MAP

Category 5 waters listed alphabetically by major watershed
The 303(d) List – "Waters requiring a TMDL"

Waterbody	AU_ID	Description	Size	Units	Impairment	ATTAINS Action ID
					Sediment Bioassay [Chronic Toxicity Freshwater]	
					Transparency / Clarity	
					Trash	
Belle Isle Inlet	MA71-14	From tidegate at Bennington Street, Boston/Revere to confluence with Winthrop Bay, Boston/Winthrop.	0.12	Square Miles	Cause Unknown [Contaminants in Fish and/or Shellfish]	
					Fecal Coliform	R1_MA_2019_01
					PCBs in Fish Tissue	
Blacks Nook	MA71005	Cambridge.	2.00	Acres	(Water Chestnut*)	
					Nutrient/Eutrophication Biological Indicators	
					Transparency / Clarity	
Chelsea River	MA71-06	From confluence with Mill Creek, Chelsea/Revere to confluence with Boston Inner Harbor, Chelsea/East Boston.	0.37	Square Miles	(Debris*)	
					Ammonia, Un-ionized	
					Cause Unknown [Contaminants in Fish and/or Shellfish; Sediment Screening Value (Exceedance)]	
					Fecal Coliform	R1_MA_2019_01
					Odor	
					PCBs in Fish Tissue	
					Petroleum Hydrocarbons	
					Trash	
					Turbidity	
Clay Pit Pond	MA71011	Belmont.	12.00	Acres	Chlordane in Fish Tissue	
Cummings Brook	MA71-10	Headwaters east of Wright Street, Woburn to confluence with Fowle Brook, Woburn.	2.10	Miles	Escherichia Coli (E. Coli)	
Ell Pond	MA71014	Melrose.	23.00	Acres	Chlorophyll-a	
					Fecal Coliform	
					Harmful Algal Blooms	
					Phosphorus, Total	
					Total Suspended Solids (TSS)	
					Transparency / Clarity	
Fellsmere Pond	MA71016	Malden.	5.00	Acres	Harmful Algal Blooms	
Horn Pond	MA71019	Woburn.	108.00	Acres	(Curly-leaf Pondweed*)	
					(Fish Passage Barrier*)	
					DDT in Fish Tissue	
					Dissolved Oxygen	
					Harmful Algal Blooms	
					Phosphorus, Total	

MassDEP - Bureau of Waste Site Cleanup

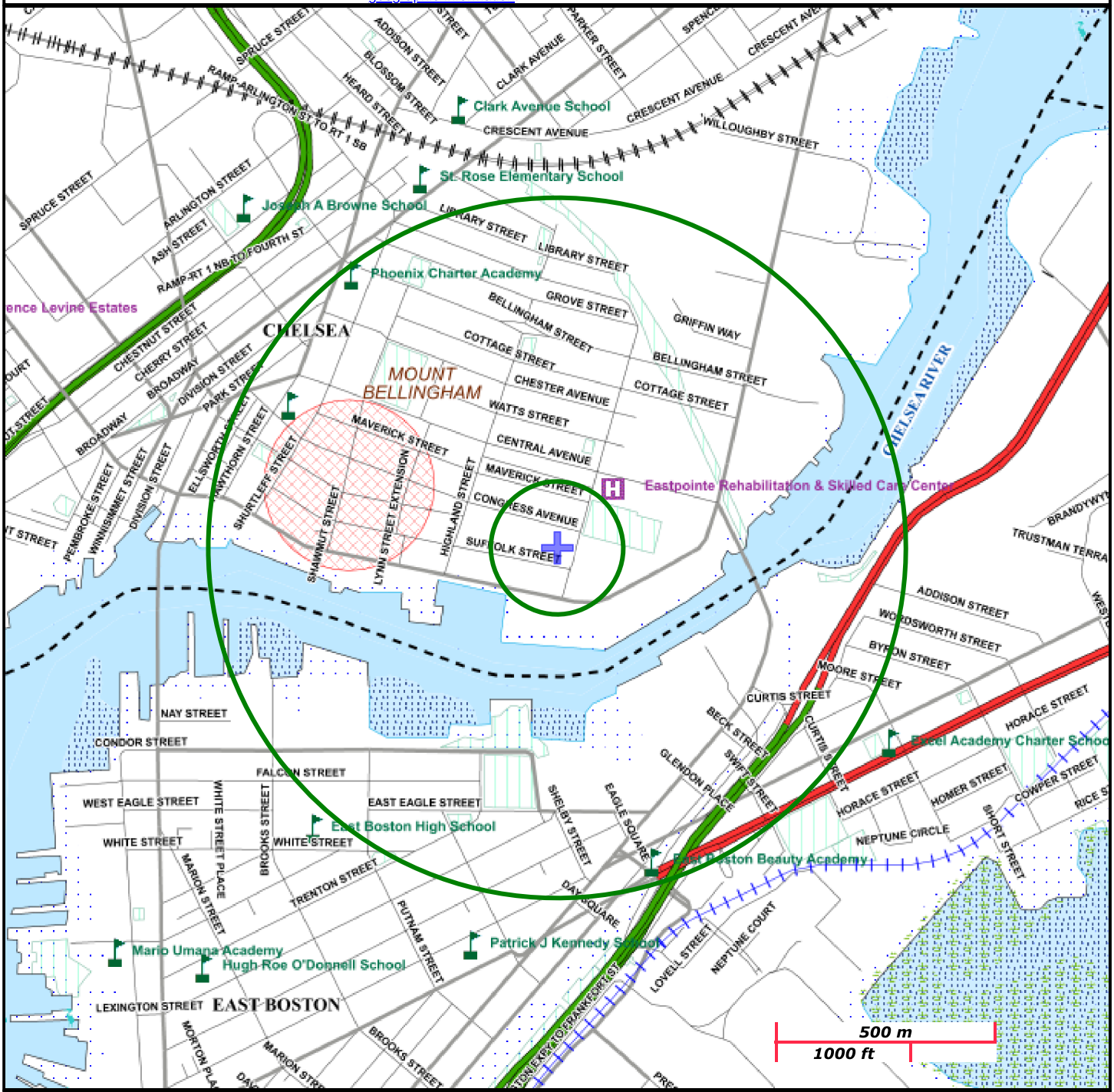
Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii

Site Information:
22 WILLOW STREET
22 WILLOW STREET CHELSEA, MA
3-000014181

NAD83 UTM Meters:
4694714mN , 333052mE (Zone: 19)
March 16, 2022

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

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection



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

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

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

Aquifers: Medium Yield, High Yield, EPA Sole Source

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

PWS Protection Areas: Zone II, IWPA, Zone A

Hydrography: Open Water, PWS Reservoir, Tidal Flat

Wetlands: Freshwater, Saltwater, Cranberry Bog

FEMA 100yr Floodplain; Protected Open Space; ACEC

Est. Rare Wetland Wildlife Hab; Vernal Pool: Cert., Potential

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

APPENDIX C

RECEIVING WATER CALCULATIONS

Lindsey Aborn

From: Ruan, Xiaodan (DEP) <xiaodan.ruan@state.ma.us>
Sent: Thursday, March 17, 2022 11:41 AM
To: Lindsey Aborn
Cc: Samantha Slater; Anna Campbell; Coniaris, Catherine (DEP)
Subject: RE: 22 Willow Street, Chelsea, MA

Hi Aborn,

Thank you for your email.

Chelsea River is classified as SB water, tidally influenced. For discharge to saltwater, no dilution factor is allowed unless there is modeling that shows dilution. You were correct that the dilution factor will be 1 or 0, meaning no dilution.

Here is water quality information assisting you in filling out the NOI:

> Waterbody and ID: Chelsea River (MA71-06)
> Classification: SB(CSO)
> Outstanding Resource Water?: No
> The state's most recent Integrated List is located here: https://www.mass.gov/doc/final-massachusetts-integrated-list-of-waters-for-the-clean-water-act-20182020-reporting-cycle/download, search for "MA71-06" to see the causes of impairments.
> TMDLs: There is one approved TMDL for pathogens for this segment.

If this is not a *current* MCP site, then in addition to submitting the NOI to EPA, you need to apply with MassDEP and submit a $500 fee (unless fee exempt, e.g., municipality) using ePLACE. Instructions on how to apply are located here: https://www.mass.gov/how-to/wm-15-npdes-general-permit-notice-of-intent and information on how to get ePLACE technical assistance is available on the ePLACE Portal webpage: https://eplace.eea.mass.gov/citizenaccess/.

Please let me know if you have any questions.

Thanks,
Xiaodan

Xiaodan Ruan
Environmental Engineer
Massachusetts Department of Environmental Protection
One Winter Street, Boston, MA 02108
(857)-256-4172
xiaodan.ruan@mass.gov

From: Lindsey Aborn <laborn@sanbornhead.com>
Sent: Monday, March 14, 2022 5:30 PM
To: Ruan, Xiaodan (DEP) <xiaodan.ruan@mass.gov>; Coniaris, Catherine (DEP) <Catherine.Coniaris@mass.gov>
Cc: Samantha Slater <sslater@sanbornhead.com>; Anna Campbell <acampbell@sanbornhead.com>
Subject: 22 Willow Street, Chelsea, MA
Importance: High

Good afternoon, Xiaodan and Catherine,

As part of the NPDES RGP NOI, dewatering for the 22 Willow Street project located in Chelsea, MA may require discharge to storm drains that discharge to the Chelsea River in Chelsea, MA. The approximate location of the outfalls are 42.386261, -71.023687 and 42.385918, -71.031378.

After delineating the basin on StreamStats a 7Q10 is not directly available. I have provided the StreamStats report showing the basin and peak-flow statistics; however, is it correct to assume a dilution factor of 1?

Please let me know at your earliest convenience if my assessment provided above is correct?

Thank you,
Lindsey

Lindsey Aborn
Senior Project Geologist
Not professionally licensed

SANBORN | HEAD & ASSOCIATES, INC.
D 857.327.9742 | M 781.248.5730 | 98 N. Washington Street, Suite 101, Boston, MA 02114

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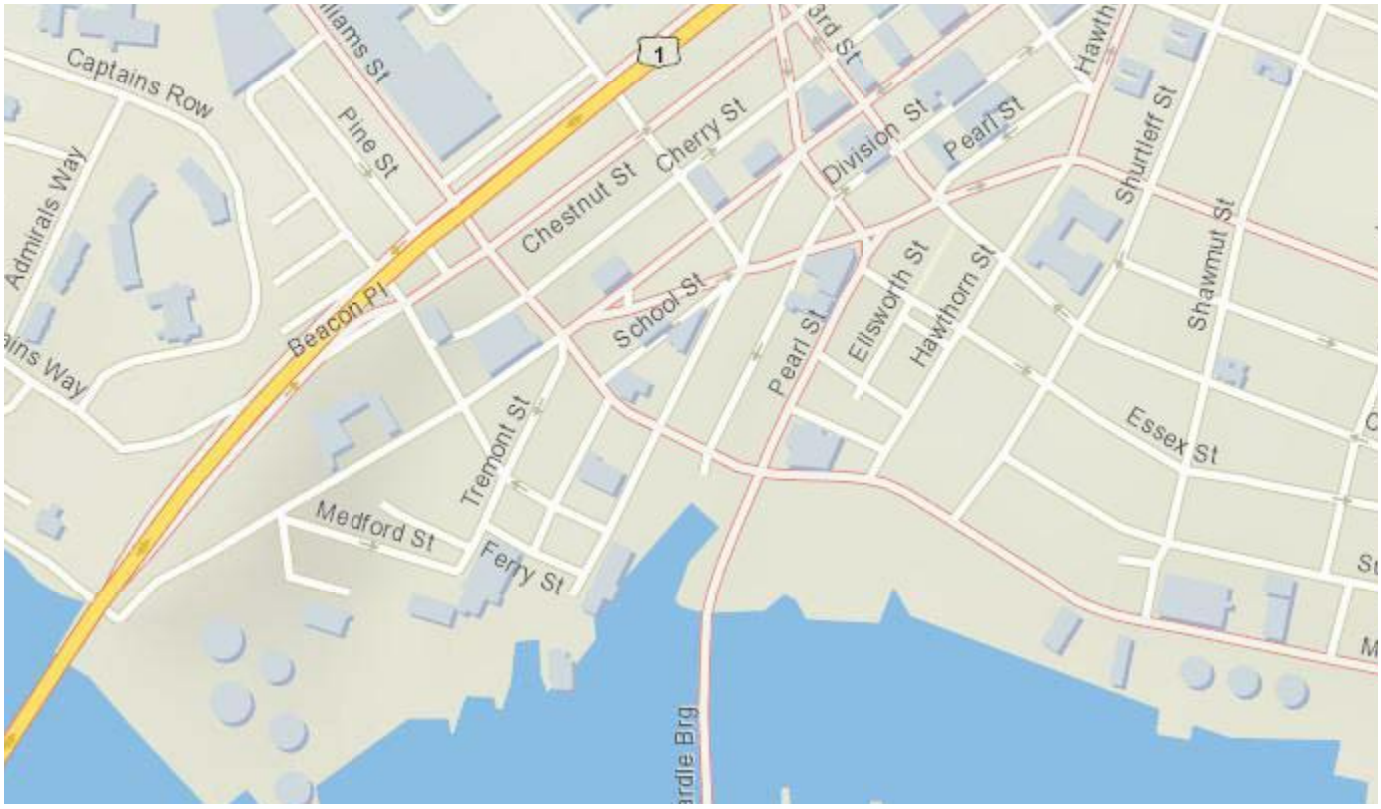
22 Willow Street - NPDES RGP

Region ID: MA
Workspace ID: MA20220314204850116000
Clicked Point (Latitude, Longitude): 42.38630, -71.02715
Time: 2022-03-14 16:49:09 -0400



As part of the NPDES RGP NOI, dewatering for the 22 Willow Street project located in Chelsea, MA may require discharge to a storm drain which empties to the Chelsea River through outfalls. The outfalls are located at approximately 42.386261, -71.023687 and 42.385918, -71.031378.

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.0353	square miles
ELEV	Mean Basin Elevation	26.8	feet
LC06STOR	Percentage of water bodies and wetlands determined from the NLCD 2006	0	percent
BSLDEM250	Mean basin slope computed from 1:250K DEM	3.054	percent

Parameter Code	Parameter Description	Value	Unit
DRFTPERSTR	Area of stratified drift per unit of stream length	-100000	square mile per mile
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless
PCTSNDGRV	Percentage of land surface underlain by sand and gravel deposits	60.22	percent
FOREST	Percentage of area covered by forest	0	percent

Peak-Flow Statistics Parameters [Peak Statewide 2016 5156]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0353	square miles	0.16	512
ELEV	Mean Basin Elevation	26.8	feet	80.6	1948
LC06STOR	Percent Storage from NLCD2006	0	percent	0	32.3

Peak-Flow Statistics Disclaimers [Peak Statewide 2016 5156]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Peak-Flow Statistics Flow Report [Peak Statewide 2016 5156]

Statistic	Value	Unit
50-percent AEP flood	2.97	ft^3/s
20-percent AEP flood	5.13	ft^3/s
10-percent AEP flood	6.9	ft^3/s
4-percent AEP flood	9.52	ft^3/s
2-percent AEP flood	11.7	ft^3/s
1-percent AEP flood	14.1	ft^3/s
0.5-percent AEP flood	16.7	ft^3/s

Statistic	Value	Unit
0.2-percent AEP flood	20.5	ft^3/s

Peak-Flow Statistics Citations

Zarriello, P.J.,2017, Magnitude of flood flows at selected annual exceedance probabilities for streams in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2016–5156, 99 p. (https://dx.doi.org/10.3133/sir20165156)

Low-Flow Statistics Parameters [Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0353	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	3.054	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	-100000	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

Low-Flow Statistics Flow Report [Statewide Low Flow WRIR00 4135]

Statistic	Value	Unit

Low-Flow Statistics Citations

Flow-Duration Statistics Parameters [Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0353	square miles	1.61	149
DRFTPERSTR	Stratified Drift per Stream Length	-100000	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1
BSLDEM250	Mean Basin Slope from 250K DEM	3.054	percent	0.32	24.6

Flow-Duration Statistics Flow Report [Statewide Low Flow WRIR00 4135]

Statistic	Value	Unit

Flow-Duration Statistics Citations

Probability Statistics Parameters [Perennial Flow Probability]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0353	square miles	0.01	1.99
PCTSNDGRV	Percent Underlain By Sand And Gravel	60.22	percent	0	100
FOREST	Percent Forest	0	percent	0	100
MAREGION	Massachusetts Region	0	dimensionless	0	1

Probability Statistics Flow Report [Perennial Flow Probability]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PC
Probability Stream Flowing Perennially	0.543	dim	71

Probability Statistics Citations

Bent, G.C., and Steeves, P.A.,2006, A revised logistic regression equation and an automated procedure for mapping the probability of a stream flowing perennially in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2006–5031, 107 p. (http://pubs.usgs.gov/sir/2006/5031/pdfs/SIR_2006-5031rev.pdf)

functionality of the software and related material nor shall the fact of release constitute any such warranty. Furthermore, the software is released on condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from its authorized or unauthorized use.

USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Application Version: 4.7.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.1.2

Dilution Factor	1.0					
A. Inorganics	TBEL applies if bolded		WQBEL applies if bolded		Compliance Level applies if shown	
Ammonia	**Report**	mg/L	---			
Chloride	**Report**	µg/L	---			
Total Residual Chlorine	0.2	mg/L	**7.5**	µg/L	50	µg/L
Total Suspended Solids	**30**	mg/L	---			
Antimony	**206**	µg/L	640	µg/L		
Arsenic	**104**	µg/L	36	µg/L		
Cadmium	**10.2**	µg/L	8.9	µg/L		
Chromium III	**323**	µg/L	100.0	µg/L		
Chromium VI	**323**	µg/L	50	µg/L		
Copper	242	µg/L	**3.7**	µg/L		
Iron	**5000**	µg/L	---	µg/L		
Lead	160	µg/L	**8.5**	µg/L		
Mercury	**0.739**	µg/L	1.11	µg/L		
Nickel	1450	µg/L	**8.3**	µg/L		
Selenium	**235.8**	µg/L	71	µg/L		
Silver	**35.1**	µg/L	2.2	µg/L		
Zinc	420	µg/L	**86**	µg/L		
Cyanide	**178**	mg/L	1.0	µg/L	---	µg/L
B. Non-Halogenated VOCs						
Total BTEX	**100**	µg/L	---			
Benzene	**5.0**	µg/L	---			
1,4 Dioxane	**200**	µg/L	---			
Acetone	**7.97**	mg/L	---			
Phenol	**1,080**	µg/L	300	µg/L		
C. Halogenated VOCs						
Carbon Tetrachloride	**4.4**		1.6	µg/L		
1,2 Dichlorobenzene	**600**	µg/L	---			
1,3 Dichlorobenzene	**320**	µg/L	---			
1,4 Dichlorobenzene	**5.0**	µg/L	---			
Total dichlorobenzene	**---**	µg/L	---			
1,1 Dichloroethane	**70**	µg/L	---			
1,2 Dichloroethane	**5.0**	µg/L	---			
1,1 Dichloroethylene	**3.2**	µg/L	---			
Ethylene Dibromide	**0.05**	µg/L	---			
Methylene Chloride	**4.6**	µg/L	---			
1,1,1 Trichloroethane	**200**	µg/L	---			
1,1,2 Trichloroethane	**5.0**	µg/L	---			
Trichloroethylene	**5.0**	µg/L	---			
Tetrachloroethylene	**5.0**	µg/L	3.3	µg/L		
cis-1,2 Dichloroethylene	**70**	µg/L	---			
Vinyl Chloride	**2.0**	µg/L	---			
D. Non-Halogenated SVOCs						
Total Phthalates	190	µg/L	---	µg/L		
Diethylhexyl phthalate	101	µg/L	**2.2**	µg/L		

Total Group I Polycyclic Aromatic Hydrocarbons	**1.0**	µg/L	---			
Benzo(a)anthracene	1.0	µg/L	**0.0038**	µg/L	0.1	µg/L
Benzo(a)pyrene	1.0	µg/L	**0.0038**	µg/L	0.1	µg/L
Benzo(b)fluoranthene	1.0	µg/L	**0.0038**	µg/L	0.1	µg/L
Benzo(k)fluoranthene	1.0	µg/L	**0.0038**	µg/L	0.1	µg/L
Chrysene	1.0	µg/L	**0.0038**	µg/L	0.1	µg/L
Dibenzo(a,h)anthracene	1.0	µg/L	**0.0038**	µg/L	0.1	µg/L
Indeno(1,2,3-cd)pyrene	1.0	µg/L	**0.0038**	µg/L	0.1	µg/L
Total Group II Polycyclic Aromatic Hydrocarbons	**100**	µg/L	---			
Naphthalene	**20**	µg/L	---			
E. Halogenated SVOCs						
Total Polychlorinated Biphenyls	**0.000064**	µg/L	---		0.5	µg/L
Pentachlorophenol	**1.0**	µg/L	---			
F. Fuels Parameters						
Total Petroleum Hydrocarbons	**5.0**	mg/L	---			
Ethanol	**Report**	mg/L	---			
Methyl-tert-Butyl Ether	**70**	µg/L	20	µg/L		
tert-Butyl Alcohol	**120**	µg/L	---			
tert-Amyl Methyl Ether	**90**	µg/L	---			

APPENDIX D

ANALYTICAL DATA REPORTS

ANALYTICAL REPORT

Lab Number:	L2207311
Client:	Sanborn, Head & Associates, Inc. 1 Technology Park Drive Westford, MA 01886
ATTN:	Samantha Slater
Phone:	(857) 327-9739
Project Name:	22 WILLOW ST.
Project Number:	4893.00
Report Date:	03/17/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207311
Report Date: 03/17/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207311-01	IES-118	WATER	CHELSEA, MA	02/10/22 14:50	02/10/22

Project Name:	22 WILLOW ST.	**Lab Number:**	L2207311
Project Number:	4893.00	**Report Date:**	03/17/22

Case Narrative

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

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

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

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

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

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

Project Name:	22 WILLOW ST.	**Lab Number:**	L2207311
Project Number:	4893.00	**Report Date:**	03/17/22

Case Narrative (continued)

Report Revision

March 17, 2022: This report includes the results of the Hardness performed on L2207311-01.

Report Submission

February 28, 2022: This final report includes the results of all requested analyses.

February 24, 2022: This is a preliminary report.

The analysis of Ethanol was subcontracted. A copy of the laboratory report is included as an addendum.

Please note: This data is only available in PDF format and is not available on Data Merger.

Volatile Organics by Method 624

L2207311-01D: The sample has elevated detection limits due to the dilution required by the sample matrix. Sample is cloudy and has particles.

Volatile Organics by SIM

L2207311-01D: The sample has elevated detection limits due to the dilution required by the sample matrix. Sample is cloudy and has particles.

The WG1604767-3 LCS recovery, associated with L2207311-01D, is above the acceptance criteria for 1,4-dioxane (156%); however, the associated sample is non-detect to the RL for this target analyte. The results of the original analysis are reported.

Microextractables

The WG1605181-2 LCS recovery for 1,2-dibromo-3-chloropropane (128%), associated with L2207311-01, is outside Alpha's acceptance criteria, but within the acceptance criteria specified in the method.

Dissolved Metals

The WG1605693-4 Laboratory Duplicate RPD for antimony (31%), performed on L2207311-01, is above the

Project Name:	22 WILLOW ST.	**Lab Number:**	L2207311
Project Number:	4893.00	**Report Date:**	03/17/22

Case Narrative (continued)

acceptance criteria; however, the sample and duplicate results are less than five times the reporting limit. Therefore, the RPD is valid.

Chlorine, Total Residual

The WG1603789-4 MS recovery, performed on L2207311-01, is outside the acceptance criteria for chlorine, total residual (64%); however, the associated LCS recovery is within criteria. No further action was taken.

Nitrogen, Ammonia

WG1605359: A Matrix Spike and Laboratory Duplicate were prepared with the sample batch, however, the native sample was not available for reporting; therefore, the results could not be reported.

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

Authorized Signature: Caitlin Walukevich

Caitlin Walukevich

Title: Technical Director/Representative

Date: 03/17/22

ORGANICS

VOLATILES

Project Name: 22 WILLOW ST.
Project Number: 4893.00
Lab Number: L2207311
Report Date: 03/17/22

SAMPLE RESULTS

Lab ID: L2207311-01
Client ID: IES-118
Sample Location: CHELSEA, MA

Date Collected: 02/10/22 14:50
Date Received: 02/10/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 02/15/22 18:17
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 02/15/22 14:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	--	1	B
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	--	1	B
1,2,3-Trichloropropane	ND		ug/l	0.030	--	1	B

Project Name: 22 WILLOW ST. **Lab Number:** L2207311

Project Number: 4893.00 **Report Date:** 03/17/22

SAMPLE RESULTS

Lab ID: L2207311-01 D
Client ID: IES-118
Sample Location: CHELSEA, MA

Date Collected: 02/10/22 14:50
Date Received: 02/10/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 02/11/22 12:24
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	2
1,1-Dichloroethane	ND		ug/l	3.0	--	2
Carbon tetrachloride	ND		ug/l	2.0	--	2
1,1,2-Trichloroethane	ND		ug/l	3.0	--	2
Tetrachloroethene	ND		ug/l	2.0	--	2
1,2-Dichloroethane	ND		ug/l	3.0	--	2
1,1,1-Trichloroethane	ND		ug/l	4.0	--	2
Benzene	ND		ug/l	2.0	--	2
Toluene	ND		ug/l	2.0	--	2
Ethylbenzene	ND		ug/l	2.0	--	2
Vinyl chloride	ND		ug/l	2.0	--	2
1,1-Dichloroethene	ND		ug/l	2.0	--	2
cis-1,2-Dichloroethene	ND		ug/l	2.0	--	2
Trichloroethene	ND		ug/l	2.0	--	2
1,2-Dichlorobenzene	ND		ug/l	10	--	2
1,3-Dichlorobenzene	ND		ug/l	10	--	2
1,4-Dichlorobenzene	ND		ug/l	10	--	2
p/m-Xylene	ND		ug/l	4.0	--	2
o-xylene	ND		ug/l	2.0	--	2
Xylenes, Total	ND		ug/l	2.0	--	2
Acetone	ND		ug/l	20	--	2
Methyl tert butyl ether	ND		ug/l	20	--	2
Tert-Butyl Alcohol	ND		ug/l	200	--	2
Tertiary-Amyl Methyl Ether	ND		ug/l	40	--	2

Project Name: 22 WILLOW ST. **Lab Number:** L2207311

Project Number: 4893.00 **Report Date:** 03/17/22

SAMPLE RESULTS

Lab ID: L2207311-01 D
Client ID: IES-118
Sample Location: CHELSEA, MA

Date Collected: 02/10/22 14:50
Date Received: 02/10/22
Field Prep: Refer to COC

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	100		60-140
Fluorobenzene	99		60-140
4-Bromofluorobenzene	102		60-140

Project Name: 22 WILLOW ST. **Lab Number:** L2207311

Project Number: 4893.00 **Report Date:** 03/17/22

SAMPLE RESULTS

Lab ID: L2207311-01 D
Client ID: IES-118
Sample Location: CHELSEA, MA

Date Collected: 02/10/22 14:50
Date Received: 02/10/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1-SIM
Analytical Date: 02/11/22 12:24
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS-SIM - Westborough Lab						
1,4-Dioxane	ND		ug/l	10	--	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	105		60-140
4-Bromofluorobenzene	101		60-140

Project Name: 22 WILLOW ST.
Project Number: 4893.00
Lab Number: L2207311
Report Date: 03/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 02/11/22 10:06
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1603638-10					
Methylene chloride	ND		ug/l	1.0	--
1,1-Dichloroethane	ND		ug/l	1.5	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.5	--
Tetrachloroethene	ND		ug/l	1.0	--
1,2-Dichloroethane	ND		ug/l	1.5	--
1,1,1-Trichloroethane	ND		ug/l	2.0	--
Benzene	ND		ug/l	1.0	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Vinyl chloride	ND		ug/l	1.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--
1,2-Dichlorobenzene	ND		ug/l	5.0	--
1,3-Dichlorobenzene	ND		ug/l	5.0	--
1,4-Dichlorobenzene	ND		ug/l	5.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-xylene	ND		ug/l	1.0	--
Xylenes, Total	ND		ug/l	1.0	--
Acetone	ND		ug/l	10	--
Methyl tert butyl ether	ND		ug/l	10	--
Tert-Butyl Alcohol	ND		ug/l	100	--
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--

Project Name: 22 WILLOW ST. **Lab Number:** L2207311

Project Number: 4893.00 **Report Date:** 03/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 02/11/22 10:06
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1603638-10					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	99		60-140
Fluorobenzene	98		60-140
4-Bromofluorobenzene	100		60-140

Project Name: 22 WILLOW ST. **Lab Number:** L2207311

Project Number: 4893.00 **Report Date:** 03/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1-SIM
Analytical Date: 02/11/22 10:06
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1604767-4					
1,4-Dioxane	ND		ug/l	5.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	106		60-140
4-Bromofluorobenzene	106		60-140

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207311
Report Date: 03/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 02/15/22 17:11
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 02/15/22 14:30

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 01 Batch: WG1605181-1						
1,2-Dibromoethane	ND		ug/l	0.010	--	B
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	--	B
1,2,3-Trichloropropane	ND		ug/l	0.030	--	B

Lab Control Sample Analysis
Batch Quality Control

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207311
Report Date: 03/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1603638-9								
Methylene chloride	95		-		60-140	-		28
1,1-Dichloroethane	95		-		50-150	-		49
Carbon tetrachloride	100		-		70-130	-		41
1,1,2-Trichloroethane	90		-		70-130	-		45
Tetrachloroethene	100		-		70-130	-		39
1,2-Dichloroethane	100		-		70-130	-		49
1,1,1-Trichloroethane	100		-		70-130	-		36
Benzene	100		-		65-135	-		61
Toluene	100		-		70-130	-		41
Ethylbenzene	90		-		60-140	-		63
Vinyl chloride	115		-		5-195	-		66
1,1-Dichloroethene	100		-		50-150	-		32
cis-1,2-Dichloroethene	95		-		60-140	-		30
Trichloroethene	95		-		65-135	-		48
1,2-Dichlorobenzene	100		-		65-135	-		57
1,3-Dichlorobenzene	95		-		70-130	-		43
1,4-Dichlorobenzene	100		-		65-135	-		57
p/m-Xylene	88		-		60-140	-		30
o-xylene	80		-		60-140	-		30
Acetone	102		-		40-160	-		30
Methyl tert butyl ether	100		-		60-140	-		30
Tert-Butyl Alcohol	120		-		60-140	-		30
Tertiary-Amyl Methyl Ether	90		-		60-140	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207311

Report Date: 03/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1603638-9								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Pentafluorobenzene	101				60-140
Fluorobenzene	101				60-140
4-Bromofluorobenzene	100				60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207311

Report Date: 03/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1604767-3								
1,4-Dioxane	**156**	Q	-		60-140	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Fluorobenzene	109				60-140
4-Bromofluorobenzene	104				60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207311

Report Date: 03/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01 Batch: WG1605181-2									
1,2-Dibromoethane	100		-		80-120	-			B
1,2-Dibromo-3-chloropropane	**128**	Q	-		80-120	-			B
1,2,3-Trichloropropane	96		-		80-120	-			B

Matrix Spike Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207311

Report Date: 03/17/22

Parameter	*Native Sample*	*MS Added*	*MS Found*	*MS %Recovery*	*Qual*	*MSD Found*	*MSD %Recovery*	*Qual*	*Recovery Limits*	*RPD*	*Qual*	*RPD Limits*	*Column*
Microextractables by GC - Westborough Lab	Associated sample(s): 01	QC Batch ID: WG1605181-3		QC Sample: L2207762-01		Client ID: MS Sample							
1,2-Dibromoethane	ND	0.252	0.250	99		-	-		80-120	-		20	B
1,2-Dibromo-3-chloropropane	ND	0.252	0.330	**131**	Q	-	-		80-120	-		20	B
1,2,3-Trichloropropane	ND	0.252	0.243	96		-	-		80-120	-		20	B

SEMIVOLATILES

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207311
Report Date: 03/17/22

SAMPLE RESULTS

Lab ID: L2207311-01
Client ID: IES-118
Sample Location: CHELSEA, MA

Date Collected: 02/10/22 14:50
Date Received: 02/10/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 02/18/22 04:36
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 02/15/22 21:08

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Bis(2-ethylhexyl)phthalate	24.2		ug/l	2.20	--	1
Butyl benzyl phthalate	ND		ug/l	5.00	--	1
Di-n-butylphthalate	ND		ug/l	5.00	--	1
Di-n-octylphthalate	ND		ug/l	5.00	--	1
Diethyl phthalate	ND		ug/l	5.00	--	1
Dimethyl phthalate	ND		ug/l	5.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	63		42-122
2-Fluorobiphenyl	63		46-121
4-Terphenyl-d14	68		47-138

Project Name: 22 WILLOW ST.
Project Number: 4893.00
Lab Number: L2207311
Report Date: 03/17/22

SAMPLE RESULTS

Lab ID: L2207311-01
Client ID: IES-118
Sample Location: CHELSEA, MA

Date Collected: 02/10/22 14:50
Date Received: 02/10/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1-SIM
Analytical Date: 02/17/22 13:59
Analyst: RP

Extraction Method: EPA 625.1
Extraction Date: 02/15/22 21:09

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	0.144		ug/l	0.100	--	1
Fluoranthene	0.719		ug/l	0.100	--	1
Naphthalene	ND		ug/l	0.100	--	1
Benzo(a)anthracene	0.429		ug/l	0.100	--	1
Benzo(a)pyrene	0.528		ug/l	0.100	--	1
Benzo(b)fluoranthene	0.544		ug/l	0.100	--	1
Benzo(k)fluoranthene	0.292		ug/l	0.100	--	1
Chrysene	0.429		ug/l	0.100	--	1
Acenaphthylene	ND		ug/l	0.100	--	1
Anthracene	0.182		ug/l	0.100	--	1
Benzo(ghi)perylene	0.451		ug/l	0.100	--	1
Fluorene	0.120		ug/l	0.100	--	1
Phenanthrene	0.413		ug/l	0.100	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.100	--	1
Indeno(1,2,3-cd)pyrene	0.370		ug/l	0.100	--	1
Pyrene	0.730		ug/l	0.100	--	1
Pentachlorophenol	ND		ug/l	1.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	39		25-87
Phenol-d6	29		16-65
Nitrobenzene-d5	77		42-122
2-Fluorobiphenyl	74		46-121
2,4,6-Tribromophenol	74		45-128
4-Terphenyl-d14	68		47-138

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207311
Report Date: 03/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
Analytical Date: 02/17/22 10:18
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 02/15/22 21:08

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1605322-1					
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.20	--
Butyl benzyl phthalate	ND		ug/l	5.00	--
Di-n-butylphthalate	ND		ug/l	5.00	--
Di-n-octylphthalate	ND		ug/l	5.00	--
Diethyl phthalate	ND		ug/l	5.00	--
Dimethyl phthalate	ND		ug/l	5.00	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	64		42-122
2-Fluorobiphenyl	64		46-121
4-Terphenyl-d14	74		47-138

Project Name: 22 WILLOW ST.
Project Number: 4893.00
Lab Number: L2207311
Report Date: 03/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1-SIM
Analytical Date: 02/17/22 09:33
Analyst: DV

Extraction Method: EPA 625.1
Extraction Date: 02/15/22 21:09

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1605323-1					
Acenaphthene	ND		ug/l	0.100	--
Fluoranthene	ND		ug/l	0.100	--
Naphthalene	ND		ug/l	0.100	--
Benzo(a)anthracene	ND		ug/l	0.100	--
Benzo(a)pyrene	ND		ug/l	0.100	--
Benzo(b)fluoranthene	ND		ug/l	0.100	--
Benzo(k)fluoranthene	ND		ug/l	0.100	--
Chrysene	ND		ug/l	0.100	--
Acenaphthylene	ND		ug/l	0.100	--
Anthracene	ND		ug/l	0.100	--
Benzo(ghi)perylene	ND		ug/l	0.100	--
Fluorene	ND		ug/l	0.100	--
Phenanthrene	ND		ug/l	0.100	--
Dibenzo(a,h)anthracene	ND		ug/l	0.100	--
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.100	--
Pyrene	ND		ug/l	0.100	--
Pentachlorophenol	ND		ug/l	1.00	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	47		25-87
Phenol-d6	34		16-65
Nitrobenzene-d5	83		42-122
2-Fluorobiphenyl	88		46-121
2,4,6-Tribromophenol	74		45-128
4-Terphenyl-d14	102		47-138

Lab Control Sample Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207311

Report Date: 03/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1605322-2								
Bis(2-ethylhexyl)phthalate	90		-		29-137	-		82
Butyl benzyl phthalate	87		-		1-140	-		60
Di-n-butylphthalate	87		-		8-120	-		47
Di-n-octylphthalate	89		-		19-132	-		69
Diethyl phthalate	79		-		1-120	-		100
Dimethyl phthalate	77		-		1-120	-		183

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	76				42-122
2-Fluorobiphenyl	75				46-121
4-Terphenyl-d14	80				47-138

Lab Control Sample Analysis
Batch Quality Control

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207311
Report Date: 03/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1605323-2								
Acenaphthene	81		-		60-132	-		30
Fluoranthene	86		-		43-121	-		30
Naphthalene	78		-		36-120	-		30
Benzo(a)anthracene	83		-		42-133	-		30
Benzo(a)pyrene	94		-		32-148	-		30
Benzo(b)fluoranthene	83		-		42-140	-		30
Benzo(k)fluoranthene	94		-		25-146	-		30
Chrysene	83		-		44-140	-		30
Acenaphthylene	93		-		54-126	-		30
Anthracene	85		-		43-120	-		30
Benzo(ghi)perylene	84		-		1-195	-		30
Fluorene	82		-		70-120	-		30
Phenanthrene	83		-		65-120	-		30
Dibenzo(a,h)anthracene	87		-		1-200	-		30
Indeno(1,2,3-cd)pyrene	84		-		1-151	-		30
Pyrene	86		-		70-120	-		30
Pentachlorophenol	55		-		38-152	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207311

Report Date: 03/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits

Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1605323-2

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	51				25-87
Phenol-d6	37				16-65
Nitrobenzene-d5	82				42-122
2-Fluorobiphenyl	84				46-121
2,4,6-Tribromophenol	78				45-128
4-Terphenyl-d14	88				47-138

PCBS

Project Name: 22 WILLOW ST.
Project Number: 4893.00
Lab Number: L2207311
Report Date: 03/17/22

SAMPLE RESULTS

Lab ID: L2207311-01
Client ID: IES-118
Sample Location: CHELSEA, MA

Date Collected: 02/10/22 14:50
Date Received: 02/10/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 02/26/22 10:54
Analyst: AWS

Extraction Method: EPA 608.3
Extraction Date: 02/25/22 03:31
Cleanup Method: EPA 3665A
Cleanup Date: 02/26/22
Cleanup Method: EPA 3660B
Cleanup Date: 02/26/22

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	ND		ug/l	0.250	--	1	A
Aroclor 1248	ND		ug/l	0.250	--	1	A
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	0.386		ug/l	0.200	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	86		37-123	B
Decachlorobiphenyl	66		38-114	B
2,4,5,6-Tetrachloro-m-xylene	80		37-123	A
Decachlorobiphenyl	57		38-114	A

Project Name: 22 WILLOW ST.
Project Number: 4893.00
Lab Number: L2207311
Report Date: 03/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 127,608.3
Analytical Date: 02/26/22 10:00
Analyst: AWS

Extraction Method: EPA 608.3
Extraction Date: 02/25/22 03:31
Cleanup Method: EPA 3665A
Cleanup Date: 02/26/22
Cleanup Method: EPA 3660B
Cleanup Date: 02/26/22

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01 Batch: WG1609077-1						
Aroclor 1016	ND		ug/l	0.250	--	A
Aroclor 1221	ND		ug/l	0.250	--	A
Aroclor 1232	ND		ug/l	0.250	--	A
Aroclor 1242	ND		ug/l	0.250	--	A
Aroclor 1248	ND		ug/l	0.250	--	A
Aroclor 1254	ND		ug/l	0.250	--	A
Aroclor 1260	ND		ug/l	0.200	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	86		37-123	B
Decachlorobiphenyl	86		38-114	B
2,4,5,6-Tetrachloro-m-xylene	83		37-123	A
Decachlorobiphenyl	89		38-114	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207311

Report Date: 03/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 Batch: WG1609077-2									
Aroclor 1016	98		-		50-140	-		36	A
Aroclor 1260	95		-		8-140	-		38	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	88				37-123	B
Decachlorobiphenyl	100				38-114	B
2,4,5,6-Tetrachloro-m-xylene	86				37-123	A
Decachlorobiphenyl	90				38-114	A

METALS

Project Name: 22 WILLOW ST.
Lab Number: L2207311
Project Number: 4893.00
Report Date: 03/17/22

SAMPLE RESULTS

Lab ID: L2207311-01
Client ID: IES-118
Sample Location: CHELSEA, MA
Date Collected: 02/10/22 14:50
Date Received: 02/10/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.00660		mg/l	0.00400	--	1	02/15/22 16:24	02/15/22 21:34	EPA 3005A	3,200.8	SV
Arsenic, Total	0.01265		mg/l	0.00100	--	1	02/15/22 16:24	02/15/22 21:34	EPA 3005A	3,200.8	SV
Cadmium, Total	0.00241		mg/l	0.00020	--	1	02/15/22 16:24	02/15/22 21:34	EPA 3005A	3,200.8	SV
Chromium, Total	0.00666		mg/l	0.00100	--	1	02/15/22 16:24	02/15/22 21:34	EPA 3005A	3,200.8	SV
Copper, Total	0.09596		mg/l	0.00100	--	1	02/15/22 16:24	02/15/22 21:34	EPA 3005A	3,200.8	SV
Iron, Total	6.44		mg/l	0.050	--	1	02/15/22 16:24	02/16/22 23:35	EPA 3005A	19,200.7	EW
Lead, Total	0.4862		mg/l	0.00100	--	1	02/15/22 16:24	02/15/22 21:34	EPA 3005A	3,200.8	SV
Mercury, Total	0.00091		mg/l	0.00020	--	1	02/15/22 17:56	02/16/22 20:33	EPA 245.1	3,245.1	BV
Nickel, Total	0.00829		mg/l	0.00200	--	1	02/15/22 16:24	02/15/22 21:34	EPA 3005A	3,200.8	SV
Selenium, Total	ND		mg/l	0.00500	--	1	02/15/22 16:24	02/15/22 21:34	EPA 3005A	3,200.8	SV
Silver, Total	ND		mg/l	0.00040	--	1	02/15/22 16:24	02/15/22 21:34	EPA 3005A	3,200.8	SV
Zinc, Total	2.654		mg/l	0.01000	--	1	02/15/22 16:24	02/15/22 21:34	EPA 3005A	3,200.8	SV
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	47.2		mg/l	0.660	NA	1	02/15/22 16:24	02/16/22 23:35	EPA 3005A	19,200.7	EW
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		02/15/22 21:34	NA	107,-	
Dissolved Metals - Mansfield Lab											
Antimony, Dissolved	0.0074		mg/l	0.0040	--	1	02/17/22 08:44	02/17/22 15:38	EPA 3005A	3,200.8	SV
Arsenic, Dissolved	0.0052		mg/l	0.0010	--	1	02/17/22 08:44	02/17/22 15:38	EPA 3005A	3,200.8	SV
Cadmium, Dissolved	0.0003		mg/l	0.0002	--	1	02/17/22 08:44	02/17/22 15:38	EPA 3005A	3,200.8	SV
Chromium, Dissolved	ND		mg/l	0.0010	--	1	02/17/22 08:44	02/17/22 15:38	EPA 3005A	3,200.8	SV
Copper, Dissolved	0.0134		mg/l	0.0010	--	1	02/17/22 08:44	02/17/22 15:38	EPA 3005A	3,200.8	SV
Iron, Dissolved	0.728		mg/l	0.050	--	1	02/17/22 08:44	02/27/22 17:49	EPA 3005A	19,200.7	EW
Lead, Dissolved	0.0457		mg/l	0.0010	--	1	02/17/22 08:44	02/17/22 15:38	EPA 3005A	3,200.8	SV
Mercury, Dissolved	ND		mg/l	0.00020	--	1	02/17/22 09:45	02/24/22 10:50	EPA 245.1	3,245.1	AC

Project Name: 22 WILLOW ST.
Lab Number: L2207311
Project Number: 4893.00
Report Date: 03/17/22

SAMPLE RESULTS

Lab ID: L2207311-01
Client ID: IES-118
Sample Location: CHELSEA, MA
Date Collected: 02/10/22 14:50
Date Received: 02/10/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Nickel, Dissolved	0.0026		mg/l	0.0020	--	1	02/17/22 08:44	02/17/22 15:38	EPA 3005A	3,200.8	SV
Selenium, Dissolved	ND		mg/l	0.0050	--	1	02/17/22 08:44	02/17/22 15:38	EPA 3005A	3,200.8	SV
Silver, Dissolved	ND		mg/l	0.0004	--	1	02/17/22 08:44	02/17/22 15:38	EPA 3005A	3,200.8	SV
Zinc, Dissolved	0.2974		mg/l	0.0100	--	1	02/17/22 08:44	02/17/22 15:38	EPA 3005A	3,200.8	SV

Project Name: 22 WILLOW ST. **Lab Number:** L2207311

Project Number: 4893.00 **Report Date:** 03/17/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1605164-1										
Iron, Total	ND		mg/l	0.050	--	1	02/15/22 16:24	02/16/22 22:19	19,200.7	EW

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 01 Batch: WG1605164-1										
Hardness	ND		mg/l	0.660	NA	1	02/15/22 16:24	02/16/22 22:19	19,200.7	EW

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1605178-1										
Antimony, Total	ND		mg/l	0.00400	--	1	02/15/22 16:24	02/15/22 20:50	3,200.8	SV
Arsenic, Total	ND		mg/l	0.00100	--	1	02/15/22 16:24	02/15/22 20:50	3,200.8	SV
Cadmium, Total	ND		mg/l	0.00020	--	1	02/15/22 16:24	02/15/22 20:50	3,200.8	SV
Chromium, Total	ND		mg/l	0.00100	--	1	02/15/22 16:24	02/15/22 20:50	3,200.8	SV
Copper, Total	ND		mg/l	0.00100	--	1	02/15/22 16:24	02/15/22 20:50	3,200.8	SV
Lead, Total	ND		mg/l	0.00100	--	1	02/15/22 16:24	02/15/22 20:50	3,200.8	SV
Nickel, Total	ND		mg/l	0.00200	--	1	02/15/22 16:24	02/15/22 20:50	3,200.8	SV
Selenium, Total	ND		mg/l	0.00500	--	1	02/15/22 16:24	02/15/22 20:50	3,200.8	SV
Silver, Total	ND		mg/l	0.00040	--	1	02/15/22 16:24	02/15/22 20:50	3,200.8	SV
Zinc, Total	ND		mg/l	0.01000	--	1	02/15/22 16:24	02/15/22 20:50	3,200.8	SV

Prep Information

Digestion Method: EPA 3005A

Project Name: 22 WILLOW ST. **Lab Number:** L2207311

Project Number: 4893.00 **Report Date:** 03/17/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1605179-1										
Mercury, Total	ND		mg/l	0.00020	--	1	02/15/22 17:56	02/16/22 20:16	3,245.1	BV

Prep Information

Digestion Method: EPA 245.1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01 Batch: WG1605691-1										
Iron, Dissolved	ND		mg/l	0.050	--	1	02/17/22 08:44	02/27/22 17:41	19,200.7	EW

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01 Batch: WG1605693-1										
Antimony, Dissolved	ND		mg/l	0.0040	--	1	02/17/22 08:44	02/17/22 15:10	3,200.8	SV
Arsenic, Dissolved	ND		mg/l	0.0010	--	1	02/17/22 08:44	02/17/22 15:10	3,200.8	SV
Cadmium, Dissolved	ND		mg/l	0.0002	--	1	02/17/22 08:44	02/17/22 15:10	3,200.8	SV
Chromium, Dissolved	ND		mg/l	0.0010	--	1	02/17/22 08:44	02/17/22 15:10	3,200.8	SV
Copper, Dissolved	ND		mg/l	0.0010	--	1	02/17/22 08:44	02/17/22 15:10	3,200.8	SV
Lead, Dissolved	ND		mg/l	0.0010	--	1	02/17/22 08:44	02/17/22 15:10	3,200.8	SV
Nickel, Dissolved	ND		mg/l	0.0020	--	1	02/17/22 08:44	02/17/22 15:10	3,200.8	SV
Selenium, Dissolved	ND		mg/l	0.0050	--	1	02/17/22 08:44	02/17/22 15:10	3,200.8	SV
Silver, Dissolved	ND		mg/l	0.0004	--	1	02/17/22 08:44	02/17/22 15:10	3,200.8	SV
Zinc, Dissolved	ND		mg/l	0.0100	--	1	02/17/22 08:44	02/17/22 15:10	3,200.8	SV

Prep Information

Digestion Method: EPA 3005A

Project Name: 22 WILLOW ST.
Project Number: 4893.00
Lab Number: L2207311
Report Date: 03/17/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01 Batch: WG1605696-1										
Mercury, Dissolved	ND		mg/l	0.00020	--	1	02/17/22 09:45	02/24/22 10:23	3,245.1	AC

Prep Information

Digestion Method: EPA 245.1

Lab Control Sample Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207311

Report Date: 03/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1605164-2								
Iron, Total	93		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 Batch: WG1605164-2								
Hardness	100		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1605178-2								
Antimony, Total	93		-		85-115	-		
Arsenic, Total	98		-		85-115	-		
Cadmium, Total	95		-		85-115	-		
Chromium, Total	98		-		85-115	-		
Copper, Total	95		-		85-115	-		
Lead, Total	96		-		85-115	-		
Nickel, Total	95		-		85-115	-		
Selenium, Total	96		-		85-115	-		
Silver, Total	98		-		85-115	-		
Zinc, Total	96		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1605179-2								
Mercury, Total	104		-		85-115	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207311

Report Date: 03/17/22

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1605691-2					
Iron, Dissolved	100	-	85-115	-	
Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1605693-2					
Antimony, Dissolved	85	-	85-115	-	
Arsenic, Dissolved	96	-	85-115	-	
Cadmium, Dissolved	95	-	85-115	-	
Chromium, Dissolved	88	-	85-115	-	
Copper, Dissolved	92	-	85-115	-	
Lead, Dissolved	92	-	85-115	-	
Nickel, Dissolved	88	-	85-115	-	
Selenium, Dissolved	97	-	85-115	-	
Silver, Dissolved	101	-	85-115	-	
Zinc, Dissolved	92	-	85-115	-	
Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1605696-2					
Mercury, Dissolved	100	-	85-115	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207311
Report Date: 03/17/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605164-3 QC Sample: L2207736-01 Client ID: MS Sample												
Iron, Total	0.767	1	1.83	106		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605164-3 QC Sample: L2207736-01 Client ID: MS Sample												
Hardness	98.1	66.2	164	100		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605164-7 QC Sample: L2207736-02 Client ID: MS Sample												
Iron, Total	ND	1	0.974	97		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605164-7 QC Sample: L2207736-02 Client ID: MS Sample												
Hardness	107	66.2	172	98		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605178-3 QC Sample: L2207736-01 Client ID: MS Sample												
Antimony, Total	ND	0.5	0.4792	96		-	-		70-130	-		20
Arsenic, Total	0.00150	0.12	0.1207	99		-	-		70-130	-		20
Cadmium, Total	ND	0.053	0.05074	96		-	-		70-130	-		20
Chromium, Total	0.00299	0.2	0.1966	97		-	-		70-130	-		20
Copper, Total	0.05390	0.25	0.2905	95		-	-		70-130	-		20
Lead, Total	0.01355	0.53	0.5077	93		-	-		70-130	-		20
Nickel, Total	0.01218	0.5	0.4733	92		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1156	96		-	-		70-130	-		20
Silver, Total	ND	0.05	0.04924	98		-	-		70-130	-		20
Zinc, Total	0.09979	0.5	0.5894	98		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605179-3 QC Sample: L2207777-01 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00501	100		-	-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207311
Report Date: 03/17/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605691-3 QC Sample: L2207311-01 Client ID: IES-118									
Iron, Dissolved	0.728	1	1.75	102	-	-	75-125	-	20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605693-3 QC Sample: L2207311-01 Client ID: IES-118									
Antimony, Dissolved	0.0074	0.5	0.4383	86	-	-	70-130	-	20
Arsenic, Dissolved	0.0052	0.12	0.1238	99	-	-	70-130	-	20
Cadmium, Dissolved	0.0003	0.053	0.0511	96	-	-	70-130	-	20
Chromium, Dissolved	ND	0.2	0.1846	92	-	-	70-130	-	20
Copper, Dissolved	0.0134	0.25	0.2490	94	-	-	70-130	-	20
Lead, Dissolved	0.0457	0.53	0.5408	93	-	-	70-130	-	20
Nickel, Dissolved	0.0026	0.5	0.4448	88	-	-	70-130	-	20
Selenium, Dissolved	ND	0.12	0.1190	99	-	-	70-130	-	20
Silver, Dissolved	ND	0.05	0.0510	102	-	-	70-130	-	20
Zinc, Dissolved	0.2974	0.5	0.7890	98	-	-	70-130	-	20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605696-3 QC Sample: L2207957-01 Client ID: MS Sample									
Mercury, Dissolved	ND	0.005	0.00477	95	-	-	75-125	-	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207311
Report Date: 03/17/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605164-4 QC Sample: L2207736-01 Client ID: DUP Sample						
Iron, Total	0.767	0.887	mg/l	15		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605164-4 QC Sample: L2207736-01 Client ID: DUP Sample						
Hardness	98.1	95.1	mg/l	3		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605164-8 QC Sample: L2207736-02 Client ID: DUP Sample						
Iron, Total	ND	ND	mg/l	NC		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605164-8 QC Sample: L2207736-02 Client ID: DUP Sample						
Hardness	107	105	mg/l	2		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605178-4 QC Sample: L2207736-01 Client ID: DUP Sample						
Antimony, Total	ND	0.00618	mg/l	NC		20
Arsenic, Total	0.00150	0.00159	mg/l	6		20
Cadmium, Total	ND	ND	mg/l	NC		20
Chromium, Total	0.00299	0.00313	mg/l	5		20
Copper, Total	0.05390	0.05390	mg/l	0		20
Lead, Total	0.01355	0.01380	mg/l	2		20
Nickel, Total	0.01218	0.01233	mg/l	1		20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	0.09979	0.1009	mg/l	1		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207311

Report Date: 03/17/22

Parameter	Native Sample	Duplicate Sample	Units	RPD		RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605179-4 QC Sample: L2207777-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605691-4 QC Sample: L2207311-01 Client ID: IES-118						
Iron, Dissolved	0.728	0.776	mg/l	6		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605693-4 QC Sample: L2207311-01 Client ID: IES-118						
Antimony, Dissolved	0.0074	0.0101	mg/l	**31**	Q	20
Arsenic, Dissolved	0.0052	0.0053	mg/l	0		20
Cadmium, Dissolved	0.0003	0.0003	mg/l	4		20
Chromium, Dissolved	ND	ND	mg/l	NC		20
Copper, Dissolved	0.0134	0.0143	mg/l	7		20
Lead, Dissolved	0.0457	0.0459	mg/l	0		20
Nickel, Dissolved	0.0026	0.0027	mg/l	6		20
Selenium, Dissolved	ND	ND	mg/l	NC		20
Silver, Dissolved	ND	ND	mg/l	NC		20
Zinc, Dissolved	0.2974	0.3006	mg/l	1		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605696-4 QC Sample: L2207957-01 Client ID: DUP Sample						
Mercury, Dissolved	ND	ND	mg/l	NC		20

INORGANICS
&
MISCELLANEOUS

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207311
Report Date: 03/17/22

SAMPLE RESULTS

Lab ID: L2207311-01
Client ID: IES-118
Sample Location: CHELSEA, MA

Date Collected: 02/10/22 14:50
Date Received: 02/10/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total Suspended	500		mg/l	34	NA	6.7	-	02/16/22 19:45	121,2540D	MD
Cyanide, Total	ND		mg/l	0.005	--	1	02/15/22 05:00	02/15/22 12:32	121,4500CN-CE	JO
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	02/10/22 22:46	121,4500CL-D	AS
Nitrogen, Ammonia	0.302		mg/l	0.075	--	1	02/16/22 03:33	02/17/22 18:31	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	3.60	--	.9	02/15/22 19:30	02/15/22 21:15	140,1664B	TL
Phenolics, Total	ND		mg/l	0.030	--	1	02/11/22 07:04	02/11/22 10:04	4,420.1	KP
Chromium, Hexavalent	ND		mg/l	0.010	--	1	02/11/22 07:05	02/11/22 07:13	1,7196A	KA
Anions by Ion Chromatography - Westborough Lab										
Chloride	8.33		mg/l	0.500	--	1	-	02/15/22 20:11	44,300.0	SH

Project Name: 22 WILLOW ST.
Project Number: 4893.00
Lab Number: L2207311
Report Date: 03/17/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1603789-1										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	02/10/22 22:46	121,4500CL-D	AS
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1603860-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	02/11/22 07:05	02/11/22 07:12	1,7196A	KA
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1603861-1										
Phenolics, Total	ND		mg/l	0.030	--	1	02/11/22 07:04	02/11/22 09:58	4,420.1	KP
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1604901-1										
Cyanide, Total	ND		mg/l	0.005	--	1	02/15/22 05:00	02/15/22 12:23	121,4500CN-CE	JO
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1605199-1										
TPH, SGT-HEM	ND		mg/l	4.00	--	1	02/15/22 19:30	02/15/22 21:15	140,1664B	TL
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1605343-1										
Chloride	ND		mg/l	0.500	--	1	-	02/15/22 16:00	44,300.0	SH
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1605359-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	02/16/22 03:33	02/17/22 18:14	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1605804-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	02/16/22 19:45	121,2540D	MD

Lab Control Sample Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207311

Report Date: 03/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1603789-2								
Chlorine, Total Residual	100		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1603860-2								
Chromium, Hexavalent	105		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1603861-2								
Phenolics, Total	108		-		70-130	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1604901-2								
Cyanide, Total	96		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1605199-2								
TPH	76		-		64-132	-		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG1605343-2								
Chloride	101		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1605359-2								
Nitrogen, Ammonia	104		-		80-120	-		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207311

Report Date: 03/17/22

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1605804-2					
Solids, Total Suspended	92	-	80-120	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207311
Report Date: 03/17/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1603789-4 QC Sample: L2207311-01 Client ID: IES-118												
Chlorine, Total Residual	ND	0.25	0.16	**64**	Q	-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1603860-4 QC Sample: L2207311-01 Client ID: IES-118												
Chromium, Hexavalent	ND	0.1	0.104	104		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1603861-4 QC Sample: L2206591-01 Client ID: MS Sample												
Phenolics, Total	ND	0.4	0.42	104		-	-		70-130	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1604901-4 QC Sample: L2207590-01 Client ID: MS Sample												
Cyanide, Total	ND	0.2	0.188	94		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1605199-4 QC Sample: L2207736-02 Client ID: MS Sample												
TPH	ND	19.2	15.6	81		-	-		64-132	-		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1605343-3 QC Sample: L2207311-01 Client ID: IES-118												
Chloride	8.33	4	12.2	98		-	-		90-110	-		18

Lab Duplicate Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207311

Report Date: 03/17/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1603789-3 QC Sample: L2207311-01 Client ID: IES-118						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1603860-3 QC Sample: L2207311-01 Client ID: IES-118						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1603861-3 QC Sample: L2206591-01 Client ID: DUP Sample						
Phenolics, Total	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1604901-3 QC Sample: L2207311-01 Client ID: IES-118						
Cyanide, Total	ND	ND	mg/l	NC		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1605199-3 QC Sample: L2207736-01 Client ID: DUP Sample						
TPH	ND	ND	mg/l	NC		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1605343-4 QC Sample: L2207311-01 Client ID: IES-118						
Chloride	8.33	8.35	mg/l	0		18
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1605804-3 QC Sample: L2207311-01 Client ID: IES-118						
Solids, Total Suspended	500	540	mg/l	8		29

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207311
Report Date: 03/17/22

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207311-01A	Vial Na2S2O3 preserved	A	NA		4.2	Y	Absent		624.1-SIM-RGP(7)
L2207311-01B	Vial Na2S2O3 preserved	A	NA		4.2	Y	Absent		624.1-SIM-RGP(7)
L2207311-01C	Vial Na2S2O3 preserved	A	NA		4.2	Y	Absent		624.1-SIM-RGP(7)
L2207311-01D	Vial Na2S2O3 preserved	A	NA		4.2	Y	Absent		624.1-RGP(7)
L2207311-01E	Vial Na2S2O3 preserved	A	NA		4.2	Y	Absent		624.1-RGP(7)
L2207311-01F	Vial Na2S2O3 preserved	A	NA		4.2	Y	Absent		624.1-RGP(7)
L2207311-01G	Vial Na2S2O3 preserved	A	NA		4.2	Y	Absent		504(14)
L2207311-01H	Vial Na2S2O3 preserved	A	NA		4.2	Y	Absent		504(14)
L2207311-01I	Vial unpreserved	A	NA		4.2	Y	Absent		SUB-ETHANOL(14)
L2207311-01J	Vial unpreserved	A	NA		4.2	Y	Absent		SUB-ETHANOL(14)
L2207311-01K	Vial unpreserved	A	NA		4.2	Y	Absent		SUB-ETHANOL(14)
L2207311-01L	Plastic 250ml HNO3 preserved	A	<2	<2	4.2	Y	Absent		AG-2008S(180),FE-RI(180),CR-2008S(180),PB-2008S(180),ZN-2008S(180),AS-2008S(180),NI-2008S(180),SE-2008S(180),CD-2008S(180),SB-2008S(180),CU-2008S(180),HG-R(28)
L2207311-01M	Plastic 250ml HNO3 preserved	A	<2	<2	4.2	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),AS-2008T(180),HG-U(28),AG-2008T(180),SE-2008T(180),CR-2008T(180),SB-2008T(180),PB-2008T(180)
L2207311-01N	Plastic 250ml NaOH preserved	A	>12	>12	4.2	Y	Absent		TCN-4500(14)
L2207311-01O	Plastic 500ml H2SO4 preserved	A	<2	<2	4.2	Y	Absent		NH3-4500(28)
L2207311-01P	Plastic 950ml unpreserved	A	7	7	4.2	Y	Absent		CL-300(28),HEXCR-7196(1),TRC-4500(1)
L2207311-01Q	Plastic 950ml unpreserved	A	7	7	4.2	Y	Absent		TSS-2540(7)
L2207311-01R	Amber 950ml H2SO4 preserved	A	<2	<2	4.2	Y	Absent		TPHENOL-420(28)
L2207311-01S	Amber 1000ml Na2S2O3	A	7	7	4.2	Y	Absent		PCB-608.3(365)

*Values in parentheses indicate holding time in days

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207311
Report Date: 03/17/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207311-01T	Amber 1000ml Na2S2O3	A	7	7	4.2	Y	Absent		PCB-608.3(365)
L2207311-01U	Amber 1000ml Na2S2O3	A	7	7	4.2	Y	Absent		625.1-RGP(7)
L2207311-01V	Amber 1000ml Na2S2O3	A	7	7	4.2	Y	Absent		625.1-RGP(7)
L2207311-01W	Amber 1000ml Na2S2O3	A	7	7	4.2	Y	Absent		625.1-SIM-RGP(7)
L2207311-01X	Amber 1000ml Na2S2O3	A	7	7	4.2	Y	Absent		625.1-SIM-RGP(7)
L2207311-01Y	Amber 1000ml HCl preserved	A	NA		4.2	Y	Absent		TPH-1664(28)
L2207311-01Z	Amber 1000ml HCl preserved	A	NA		4.2	Y	Absent		TPH-1664(28)

*Values in parentheses indicate holding time in days

Project Name:	22 WILLOW ST.	**Lab Number:**	L2207311
Project Number:	4893.00	**Report Date:**	03/17/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report

Project Name:	22 WILLOW ST.	**Lab Number:**	L2207311
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Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where

Report Format: Data Usability Report

Project Name:	22 WILLOW ST.	**Lab Number:**	L2207311
Project Number:	4893.00	**Report Date:**	03/17/22

Data Qualifiers

the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: Data Usability Report

Project Name:	22 WILLOW ST.	**Lab Number:**	L2207311
Project Number:	4893.00	**Report Date:**	03/17/22

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

4 Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. Revised March 1983.

14 Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water. EPA/600/4-88/039, Revised July 1991.

19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.

107 Alpha Analytical - In-house calculation method.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

127 Method 608.3: Organochlorine Pesticides and PCBs by GC/HSD, EPA 821-R-16-009, December 2016.

128 Method 624.1: Purgeables by GC/MS, EPA 821-R-16-008, December 2016.

129 Method 625.1: Base/Neutrals and Acids by GC/MS, EPA 821-R-16-007, December 2016.

140 Method 1664,Revision B: N-Hexane Extractable Material (HEM; Oil & Grease) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry, EPA-821-R-10-001, February 2010.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

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

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

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

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

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

CHAIN OF CUSTODY

PAGE ____ OF ____

Date Rec'd in Lab: 2/10/22

ALPHA Job #: L2207311

ALPHA ANALYTICAL
8 Walkup Drive, Westboro, MA 01581, Tel: 508-898-9220
320 Forbes Blvd, Mansfield, MA 02048, Tel: 508-822-9300

Project Information

Project Name: 22 Willow St.
Project Location: Chelsea, MA
Project #: 4893.00
Project Manager: SSlater
ALPHA Quote #:

Report Information - Data Deliverables

☒ ADEx ☒ EMAIL

Billing Information

☒ Same as Client info PO #:

Client Information

Client: Sanborn Head & Assoc.
Address: 1 Technology Park Dr
Westford MA 01886
Phone: 978-392-0900
Email: SSlater, accampbell, kegner@sanbornhead.com

Regulatory Requirements & Project Information Requirements

☐ Yes ☐ No MA MCP Analytical Methods ☐ Yes ☐ No CT RCP Analytical Methods
☐ Yes ☐ No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
☐ Yes ☐ No GW1 Standards (Info Required for Metals & EPH with Targets)
☒ Yes ☐ No NPDES RGP
☐ Other State /Fed Program ____ Criteria ____

Turn-Around Time

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

Additional Project Information:
See attached for additional analyses

ANALYSIS

VOC: ☐ 8260 ☒ 624 ☐ 524.2
SVOC: ☐ ABN ☒ PAH
METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15
METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13
EPH: ☐ Ranges & Targets ☐ Ranges Only
VPH: ☐ Ranges & Targets ☐ Ranges Only
☐ PCB ☐ PEST
TPH: ☐ Quant Only ☐ Fingerprint
NPDES RGP
Dissolved metals

SAMPLE INFO

Filtration
☐ Field
☐ Lab to do
Preservation
☐ Lab to do

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	VOC	SVOC	METALS	METALS	EPH	VPH	PCB	TPH	NPDES RGP	Dissolved metals	Sample Comments	TOTAL # BOTTLES
07311-01	IES-118	2/10/22	1450	GW	KAE	X	X							X	X	One bottle for dissolved metals FF 20	

Container Type
Preservative

Container Type
P= Plastic
A= Amber glass
V= Vial
G= Glass
B= Bacteria cup
C= Cube
O= Other
E= Encore
D= BOD Bottle

Preservative
A= None
B= HCl
C= HNO_3
D= H_2SO_4
E= NaOH
F= MeOH
G= $NaHSO_4$
H = $Na_2S_2O_3$
I= Ascorbic Acid
J = NH_4Cl
K= Zn Acetate
O= Other

Relinquished By:	Date/Time	Received By:	Date/Time
W. Sandoval AAL	2/10/22 17:15	W. Sandoval AAL	2/10/22 17:15
W. Sandoval AAL	2/10/22 18:30	Meghan Murphy	2/10/22 1830

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 12-Mar-2012)

ALPHA ANALYTICAL
World Class Chemistry

Subcontract Chain of Custody

Tek Lab, Inc.
5445 Horsehoe Lake Road
Collinsville, IL 62234-7425

Alpha Job Number
L2207311

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 508.439.5176
Email: senright@alphalab.com

Project Information

Project Location: MA
Project Manager: Scott Enright

Turnaround & Deliverables Information

Due Date:
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:

Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2207311

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	IES-118	02-10-22 14:50	WATER	Ethanol by EPA 1671 Revision A	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		2/14/22		
Form No: AL_subcoc				

Teklab, Inc.
Environmental Laboratory

http://www.teklabinc.com/

February 21, 2022

Scott Enright
Alpha Analytical
145 Flanders Road
Westborough, MA 01581
TEL: (508) 439-5176
FAX:

Illinois	100226
Kansas	E-10374
Louisiana	05002
Louisiana	05003
Oklahoma	9978

RE: L2207311 **WorkOrder:** 22020814

Dear Scott Enright:

TEKLAB, INC received 1 sample on 2/15/2022 9:40:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Marvin L. Darling II

Marvin L. Darling
Project Manager
(618)344-1004 ex 41
mdarling@teklabinc.com

Teklab, Inc.
Environmental Laboratory

Report Contents

http://www.teklabinc.com/

Client: Alpha Analytical
Work Order: 22020814
Client Project: L2207311
Report Date: 21-Feb-22

This reporting package includes the following:

Teklab, Inc. Environmental Laboratory

Definitions

http://www.teklabinc.com/

Client: Alpha Analytical **Work Order:** 22020814

Client Project: L2207311 **Report Date:** 21-Feb-22

Abbr Definition

*	Analytes on report marked with an asterisk are not NELAP accredited
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
CRQL	A Client Requested Quantitation Limit is a reporting limit that varies according to customer request. The CRQL may not be less than the MDL.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilution factors.
DNI	Did not ignite
DUP	Laboratory duplicate is a replicate aliquot prepared under the same laboratory conditions and independently analyzed to obtain a measure of precision.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample is a sample matrix, free from the analytes of interest,spiked with verified known amounts of analytes and analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	"The method detection limit is defined as the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results."
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
NC	Data is not acceptable for compliance purposes
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions.
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Teklab, Inc. Environmental Laboratory

Definitions

http://www.teklabinc.com/

Client: Alpha Analytical

Work Order: 22020814

Client Project: L2207311

Report Date: 21-Feb-22

Qualifiers

- # - Unknown hydrocarbon
- B - Analyte detected in associated Method Blank
- C - RL shown is a Client Requested Quantitation Limit
- E - Value above quantitation range
- H - Holding times exceeded
- I - Associated internal standard was outside method criteria
- J - Analyte detected below quantitation limits
- M - Manual Integration used to determine area response
- ND - Not Detected at the Reporting Limit
- R - RPD outside accepted recovery limits
- S - Spike Recovery outside recovery limits
- T - TIC(Tentatively identified compound)
- X - Value exceeds Maximum Contaminant Level

Teklab, Inc.
Environmental Laboratory

Case Narrative

http://www.teklabinc.com/

Client: Alpha Analytical
Client Project: L2207311

Work Order: 22020814
Report Date: 21-Feb-22

Cooler Receipt Temp: 2.2 °C

Locations

Collinsville

Address 5445 Horseshoe Lake Road
Collinsville, IL 62234-7425
Phone (618) 344-1004
Fax (618) 344-1005
Email jhriley@teklabinc.com

Springfield

Address 3920 Pintail Dr
Springfield, IL 62711-9415
Phone (217) 698-1004
Fax (217) 698-1005
Email KKlostermann@teklabinc.com

Kansas City

Address 8421 Nieman Road
Lenexa, KS 66214
Phone (913) 541-1998
Fax (913) 541-1998
Email jhriley@teklabinc.com

Collinsville Air

Address 5445 Horseshoe Lake Road
Collinsville, IL 62234-7425
Phone (618) 344-1004
Fax (618) 344-1005
Email EHurley@teklabinc.com

Chicago

Address 1319 Butterfield Rd.
Downers Grove, IL 60515
Phone (630) 324-6855
Fax
Email arenner@teklabinc.com

Teklab, Inc. Environmental Laboratory

Accreditations

http://www.teklabinc.com/

Client: Alpha Analytical

Client Project: L2207311

Work Order: 22020814

Report Date: 21-Feb-22

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2023	Collinsville
Kansas	KDHE	E-10374	NELAP	4/30/2022	Collinsville
Louisiana	LDEQ	05002	NELAP	6/30/2022	Collinsville
Louisiana	LDEQ	05003	NELAP	6/30/2022	Collinsville
Oklahoma	ODEQ	9978	NELAP	8/31/2022	Collinsville
Arkansas	ADEQ	88-0966		3/14/2022	Collinsville
Illinois	IDPH	17584		5/31/2023	Collinsville
Kentucky	UST	0073		1/31/2023	Collinsville
Missouri	MDNR	00930		5/31/2023	Collinsville
Missouri	MDNR	930		1/31/2025	Collinsville

Teklab, Inc. Environmental Laboratory

Laboratory Results

http://www.teklabinc.com/

Client: Alpha Analytical
Work Order: 22020814
Client Project: L2207311
Report Date: 21-Feb-22
Lab ID: 22020814-001
Client Sample ID: IES-118
Matrix: AQUEOUS
Collection Date: 02/10/2022 14:50

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 1671A, PHARMACEUTICAL MANUFACTURING INDUSTRY NON-PURGEABLE VOLATILE ORGANICS								
Ethanol	*	20		**ND**	mg/L	1	02/17/2022 14:11	R307207

Teklab, Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Alpha Analytical

Client Project: L2207311

Work Order: 22020814

Report Date: 21-Feb-22

EPA 600 1671A, PHARMACEUTICAL MANUFACTURING INDUSTRY NON-PURGEABLE VOLATILE OR

Batch R307207 **SampType:** MBLK Units **mg/L**
SampID: MBLK-021722

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethanol	*	20		**ND**						02/17/2022

Batch R307207 **SampType:** LCS Units **mg/L**
SampID: LCS-021722

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethanol	*	20		**310**	250.0	0	125.5	70	132	02/17/2022

Batch R307207 **SampType:** MS Units **mg/L**
SampID: 22020890-001BMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethanol	*	20		**330**	250.0	8.502	128.6	70	132	02/17/2022

Batch R307207 **SampType:** MSD Units **mg/L** RPD Limit: **30**
SampID: 22020890-001BMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ethanol	*	20		**320**	250.0	8.502	123.8	330.0	3.67	02/17/2022

Teklab, Inc.
Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Alpha Analytical
Client Project: L2207311

Work Order: 22020814
Report Date: 21-Feb-22

Carrier: UPS

Received By: PRY

Completed by: Mary E. Kemp
On: 15-Feb-22
Mary E. Kemp

Reviewed by: Elizabeth A. Hurley
On: 15-Feb-22
Elizabeth A. Hurley

Pages to follow: Chain of custody 1 Extra pages included 0

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C	2.2	
Type of thermal preservation?	None ☐	Ice ☑	Blue Ice ☐	Dry Ice	☐	
Chain of custody present?	Yes ☑	No ☐				
Chain of custody signed when relinquished and received?	Yes ☑	No ☐				
Chain of custody agrees with sample labels?	Yes ☑	No ☐				
Samples in proper container/bottle?	Yes ☑	No ☐				
Sample containers intact?	Yes ☑	No ☐				
Sufficient sample volume for indicated test?	Yes ☑	No ☐				
All samples received within holding time?	Yes ☑	No ☐				
Reported field parameters measured:	Field ☐	Lab ☐	NA ☑			
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐				

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?	Yes ☑	No ☐	No VOA vials ☐
Water - TOX containers have zero headspace?	Yes ☐	No ☐	No TOX containers ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	NA ☐
NPDES/CWA TCN interferences checked/treated in the field?	Yes ☐	No ☐	NA ☑

Any No responses must be detailed below or on the COC.

22020814

Subcontract Chain of Custody

Tek Lab, Inc.
5445 Horsehoe Lake Road
Collinsville, IL 62234-7425

Alpha Job Number
L2207311

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 508.439.5176
Email: senright@alphalab.com

Project Information

Project Location: MA
Project Manager: Scott Enright

Turnaround & Deliverables Information

Due Date:
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:
Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2207311

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com 2.2°C LTG 3 OHS MEK 2/15/22

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
22020814-001	ES-118	02-10-22 14:50	WATER	Ethanol by EPA 1671 Revision A	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		2/14/22	UPS	2/15/22 0940
Form No: AL_subcoc				

PNT 2/15/22

ANALYTICAL REPORT

Lab Number:	L2207590
Client:	Sanborn, Head & Associates, Inc. 1 Technology Park Drive Westford, MA 01886
ATTN:	Samantha Slater
Phone:	(857) 327-9739
Project Name:	22 WILLOW ST.
Project Number:	4893.00
Report Date:	03/17/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207590
Report Date: 03/17/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207590-01	IES-106	WATER	CHELSEA, MA	02/11/22 13:35	02/11/22

Project Name:	22 WILLOW ST.	**Lab Number:**	L2207590
Project Number:	4893.00	**Report Date:**	03/17/22

Case Narrative

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

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

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

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

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

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

Project Name:	22 WILLOW ST.	**Lab Number:**	L2207590
Project Number:	4893.00	**Report Date:**	03/17/22

Case Narrative (continued)

Report Revision

March 17, 2022: This report includes the results of the Hardness performed on L2207590-01.

Report Submission

February 28, 2022: This final report includes the results of all requested analyses.

February 24, 2022: This is a preliminary report.

The analysis of Ethanol was subcontracted. A copy of the laboratory report is included as an addendum.

Please note: This data is only available in PDF format and is not available on Data Merger.

Microextractables

The WG1605181-2 LCS recovery for 1,2-dibromo-3-chloropropane (128%), associated with L2207590-01, is outside Alpha's acceptance criteria, but within the acceptance criteria specified in the method.

Nitrogen, Ammonia

WG1605359: A Matrix Spike and Laboratory Duplicate were prepared with the sample batch, however, the native sample was not available for reporting; therefore, the results could not be reported.

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

Authorized Signature: Caitlin Walukevich

Caitlin Walukevich

Title: Technical Director/Representative

Date: 03/17/22

ORGANICS

VOLATILES

Project Name: 22 WILLOW ST.
Project Number: 4893.00
Lab Number: L2207590
Report Date: 03/17/22

SAMPLE RESULTS

Lab ID: L2207590-01
Client ID: IES-106
Sample Location: CHELSEA, MA

Date Collected: 02/11/22 13:35
Date Received: 02/11/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 02/14/22 17:18
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	1.0	--	1
1,1-Dichloroethane	ND		ug/l	1.5	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.5	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethane	ND		ug/l	1.5	--	1
1,1,1-Trichloroethane	ND		ug/l	2.0	--	1
Benzene	ND		ug/l	1.0	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	5.0	--	1
1,3-Dichlorobenzene	ND		ug/l	5.0	--	1
1,4-Dichlorobenzene	ND		ug/l	5.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-xylene	ND		ug/l	1.0	--	1
Xylenes, Total	ND		ug/l	1.0	--	1
Acetone	ND		ug/l	10	--	1
Methyl tert butyl ether	ND		ug/l	10	--	1
Tert-Butyl Alcohol	ND		ug/l	100	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--	1

Project Name: 22 WILLOW ST. **Lab Number:** L2207590

Project Number: 4893.00 **Report Date:** 03/17/22

SAMPLE RESULTS

Lab ID: L2207590-01 Date Collected: 02/11/22 13:35

Client ID: IES-106 Date Received: 02/11/22

Sample Location: CHELSEA, MA Field Prep: Refer to COC

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	99		60-140
Fluorobenzene	97		60-140
4-Bromofluorobenzene	105		60-140

Project Name: 22 WILLOW ST.
Project Number: 4893.00
Lab Number: L2207590
Report Date: 03/17/22

SAMPLE RESULTS

Lab ID: L2207590-01
Client ID: IES-106
Sample Location: CHELSEA, MA

Date Collected: 02/11/22 13:35
Date Received: 02/11/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1-SIM
Analytical Date: 02/14/22 17:18
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS-SIM - Westborough Lab						
1,4-Dioxane	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	101		60-140
4-Bromofluorobenzene	102		60-140

Project Name: 22 WILLOW ST.
Project Number: 4893.00
Lab Number: L2207590
Report Date: 03/17/22

SAMPLE RESULTS

Lab ID: L2207590-01
Client ID: IES-106
Sample Location: CHELSEA, MA

Date Collected: 02/11/22 13:35
Date Received: 02/11/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 02/15/22 18:25
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 02/15/22 14:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	--	1	B
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	--	1	B
1,2,3-Trichloropropane	ND		ug/l	0.030	--	1	B

Project Name: 22 WILLOW ST.
Project Number: 4893.00
Lab Number: L2207590
Report Date: 03/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 02/14/22 15:03
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1604803-4					
Methylene chloride	ND		ug/l	1.0	--
1,1-Dichloroethane	ND		ug/l	1.5	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.5	--
Tetrachloroethene	ND		ug/l	1.0	--
1,2-Dichloroethane	ND		ug/l	1.5	--
1,1,1-Trichloroethane	ND		ug/l	2.0	--
Benzene	ND		ug/l	1.0	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Vinyl chloride	ND		ug/l	1.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--
1,2-Dichlorobenzene	ND		ug/l	5.0	--
1,3-Dichlorobenzene	ND		ug/l	5.0	--
1,4-Dichlorobenzene	ND		ug/l	5.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-xylene	ND		ug/l	1.0	--
Xylenes, Total	ND		ug/l	1.0	--
Acetone	ND		ug/l	10	--
Methyl tert butyl ether	ND		ug/l	10	--
Tert-Butyl Alcohol	ND		ug/l	100	--
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--

Project Name: 22 WILLOW ST. **Lab Number:** L2207590

Project Number: 4893.00 **Report Date:** 03/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 02/14/22 15:03
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1604803-4					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	101		60-140
Fluorobenzene	95		60-140
4-Bromofluorobenzene	100		60-140

Project Name: 22 WILLOW ST. **Lab Number:** L2207590

Project Number: 4893.00 **Report Date:** 03/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1-SIM
Analytical Date: 02/14/22 15:03
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1605095-4					
1,4-Dioxane	ND		ug/l	5.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	101		60-140
4-Bromofluorobenzene	106		60-140

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207590
Report Date: 03/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 02/15/22 17:11
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 02/15/22 14:30

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 01 Batch: WG1605181-1						
1,2-Dibromoethane	ND		ug/l	0.010	--	B
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	--	B
1,2,3-Trichloropropane	ND		ug/l	0.030	--	B

Lab Control Sample Analysis
Batch Quality Control

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207590
Report Date: 03/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1604803-3								
Methylene chloride	115		-		60-140	-		28
1,1-Dichloroethane	115		-		50-150	-		49
Carbon tetrachloride	115		-		70-130	-		41
1,1,2-Trichloroethane	100		-		70-130	-		45
Tetrachloroethene	110		-		70-130	-		39
1,2-Dichloroethane	110		-		70-130	-		49
1,1,1-Trichloroethane	115		-		70-130	-		36
Benzene	110		-		65-135	-		61
Toluene	105		-		70-130	-		41
Ethylbenzene	100		-		60-140	-		63
Vinyl chloride	115		-		5-195	-		66
1,1-Dichloroethene	115		-		50-150	-		32
cis-1,2-Dichloroethene	105		-		60-140	-		30
Trichloroethene	105		-		65-135	-		48
1,2-Dichlorobenzene	110		-		65-135	-		57
1,3-Dichlorobenzene	100		-		70-130	-		43
1,4-Dichlorobenzene	110		-		65-135	-		57
p/m-Xylene	98		-		60-140	-		30
o-xylene	90		-		60-140	-		30
Acetone	102		-		40-160	-		30
Methyl tert butyl ether	100		-		60-140	-		30
Tert-Butyl Alcohol	100		-		60-140	-		30
Tertiary-Amyl Methyl Ether	85		-		60-140	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207590

Report Date: 03/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1604803-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Pentafluorobenzene	101				60-140
Fluorobenzene	99				60-140
4-Bromofluorobenzene	99				60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207590

Report Date: 03/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1605095-3								
1,4-Dioxane	124		-		60-140	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Fluorobenzene	105				60-140
4-Bromofluorobenzene	101				60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207590

Report Date: 03/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01 Batch: WG1605181-2									
1,2-Dibromoethane	100		-		80-120	-			B
1,2-Dibromo-3-chloropropane	**128**	Q	-		80-120	-			B
1,2,3-Trichloropropane	96		-		80-120	-			B

Matrix Spike Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207590

Report Date: 03/17/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1605181-3 QC Sample: L2207762-01 Client ID: MS Sample													
1,2-Dibromoethane	ND	0.252	0.250	99		-	-		80-120	-		20	B
1,2-Dibromo-3-chloropropane	ND	0.252	0.330	**131**	Q	-	-		80-120	-		20	B
1,2,3-Trichloropropane	ND	0.252	0.243	96		-	-		80-120	-		20	B

SEMIVOLATILES

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207590
Report Date: 03/17/22

SAMPLE RESULTS

Lab ID: L2207590-01
Client ID: IES-106
Sample Location: CHELSEA, MA

Date Collected: 02/11/22 13:35
Date Received: 02/11/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 02/17/22 19:49
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 02/15/22 21:47

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Bis(2-ethylhexyl)phthalate	4.14		ug/l	2.20	--	1
Butyl benzyl phthalate	ND		ug/l	5.00	--	1
Di-n-butylphthalate	ND		ug/l	5.00	--	1
Di-n-octylphthalate	ND		ug/l	5.00	--	1
Diethyl phthalate	ND		ug/l	5.00	--	1
Dimethyl phthalate	ND		ug/l	5.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	75		42-122
2-Fluorobiphenyl	76		46-121
4-Terphenyl-d14	79		47-138

Project Name: 22 WILLOW ST.
Project Number: 4893.00
Lab Number: L2207590
Report Date: 03/17/22

SAMPLE RESULTS

Lab ID: L2207590-01
Client ID: IES-106
Sample Location: CHELSEA, MA

Date Collected: 02/11/22 13:35
Date Received: 02/11/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1-SIM
Analytical Date: 02/17/22 12:01
Analyst: RP

Extraction Method: EPA 625.1
Extraction Date: 02/15/22 21:09

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	0.219		ug/l	0.100	--	1
Fluoranthene	0.690		ug/l	0.100	--	1
Naphthalene	0.747		ug/l	0.100	--	1
Benzo(a)anthracene	0.478		ug/l	0.100	--	1
Benzo(a)pyrene	0.720		ug/l	0.100	--	1
Benzo(b)fluoranthene	0.868		ug/l	0.100	--	1
Benzo(k)fluoranthene	0.445		ug/l	0.100	--	1
Chrysene	0.581		ug/l	0.100	--	1
Acenaphthylene	0.126		ug/l	0.100	--	1
Anthracene	0.204		ug/l	0.100	--	1
Benzo(ghi)perylene	1.50		ug/l	0.100	--	1
Fluorene	ND		ug/l	0.100	--	1
Phenanthrene	0.463		ug/l	0.100	--	1
Dibenzo(a,h)anthracene	0.159		ug/l	0.100	--	1
Indeno(1,2,3-cd)pyrene	0.652		ug/l	0.100	--	1
Pyrene	0.690		ug/l	0.100	--	1
Pentachlorophenol	ND		ug/l	1.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	42		25-87
Phenol-d6	31		16-65
Nitrobenzene-d5	79		42-122
2-Fluorobiphenyl	79		46-121
2,4,6-Tribromophenol	80		45-128
4-Terphenyl-d14	78		47-138

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207590
Report Date: 03/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
Analytical Date: 02/17/22 10:18
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 02/15/22 21:08

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1605322-1					
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.20	--
Butyl benzyl phthalate	ND		ug/l	5.00	--
Di-n-butylphthalate	ND		ug/l	5.00	--
Di-n-octylphthalate	ND		ug/l	5.00	--
Diethyl phthalate	ND		ug/l	5.00	--
Dimethyl phthalate	ND		ug/l	5.00	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	64		42-122
2-Fluorobiphenyl	64		46-121
4-Terphenyl-d14	74		47-138

Project Name: 22 WILLOW ST. **Lab Number:** L2207590

Project Number: 4893.00 **Report Date:** 03/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1-SIM
Analytical Date: 02/17/22 09:33
Analyst: DV

Extraction Method: EPA 625.1
Extraction Date: 02/15/22 21:09

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1605323-1					
Acenaphthene	ND		ug/l	0.100	--
Fluoranthene	ND		ug/l	0.100	--
Naphthalene	ND		ug/l	0.100	--
Benzo(a)anthracene	ND		ug/l	0.100	--
Benzo(a)pyrene	ND		ug/l	0.100	--
Benzo(b)fluoranthene	ND		ug/l	0.100	--
Benzo(k)fluoranthene	ND		ug/l	0.100	--
Chrysene	ND		ug/l	0.100	--
Acenaphthylene	ND		ug/l	0.100	--
Anthracene	ND		ug/l	0.100	--
Benzo(ghi)perylene	ND		ug/l	0.100	--
Fluorene	ND		ug/l	0.100	--
Phenanthrene	ND		ug/l	0.100	--
Dibenzo(a,h)anthracene	ND		ug/l	0.100	--
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.100	--
Pyrene	ND		ug/l	0.100	--
Pentachlorophenol	ND		ug/l	1.00	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	47		25-87
Phenol-d6	34		16-65
Nitrobenzene-d5	83		42-122
2-Fluorobiphenyl	88		46-121
2,4,6-Tribromophenol	74		45-128
4-Terphenyl-d14	102		47-138

Lab Control Sample Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207590

Report Date: 03/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1605322-2								
Bis(2-ethylhexyl)phthalate	90		-		29-137	-		82
Butyl benzyl phthalate	87		-		1-140	-		60
Di-n-butylphthalate	87		-		8-120	-		47
Di-n-octylphthalate	89		-		19-132	-		69
Diethyl phthalate	79		-		1-120	-		100
Dimethyl phthalate	77		-		1-120	-		183

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	76				42-122
2-Fluorobiphenyl	75				46-121
4-Terphenyl-d14	80				47-138

Lab Control Sample Analysis
Batch Quality Control

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207590
Report Date: 03/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1605323-2								
Acenaphthene	81		-		60-132	-		30
Fluoranthene	86		-		43-121	-		30
Naphthalene	78		-		36-120	-		30
Benzo(a)anthracene	83		-		42-133	-		30
Benzo(a)pyrene	94		-		32-148	-		30
Benzo(b)fluoranthene	83		-		42-140	-		30
Benzo(k)fluoranthene	94		-		25-146	-		30
Chrysene	83		-		44-140	-		30
Acenaphthylene	93		-		54-126	-		30
Anthracene	85		-		43-120	-		30
Benzo(ghi)perylene	84		-		1-195	-		30
Fluorene	82		-		70-120	-		30
Phenanthrene	83		-		65-120	-		30
Dibenzo(a,h)anthracene	87		-		1-200	-		30
Indeno(1,2,3-cd)pyrene	84		-		1-151	-		30
Pyrene	86		-		70-120	-		30
Pentachlorophenol	55		-		38-152	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207590

Report Date: 03/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1605323-2								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	51				25-87
Phenol-d6	37				16-65
Nitrobenzene-d5	82				42-122
2-Fluorobiphenyl	84				46-121
2,4,6-Tribromophenol	78				45-128
4-Terphenyl-d14	88				47-138

PCBS

Project Name: 22 WILLOW ST.
Project Number: 4893.00
Lab Number: L2207590
Report Date: 03/17/22

SAMPLE RESULTS

Lab ID: L2207590-01
Client ID: IES-106
Sample Location: CHELSEA, MA

Date Collected: 02/11/22 13:35
Date Received: 02/11/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 02/26/22 11:04
Analyst: AWS

Extraction Method: EPA 608.3
Extraction Date: 02/25/22 03:31
Cleanup Method: EPA 3665A
Cleanup Date: 02/26/22
Cleanup Method: EPA 3660B
Cleanup Date: 02/26/22

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	ND		ug/l	0.250	--	1	A
Aroclor 1248	ND		ug/l	0.250	--	1	A
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	ND		ug/l	0.200	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	80		37-123	B
Decachlorobiphenyl	81		38-114	B
2,4,5,6-Tetrachloro-m-xylene	78		37-123	A
Decachlorobiphenyl	73		38-114	A

Project Name: 22 WILLOW ST.
Project Number: 4893.00
Lab Number: L2207590
Report Date: 03/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 127,608.3
Analytical Date: 02/26/22 10:00
Analyst: AWS

Extraction Method: EPA 608.3
Extraction Date: 02/25/22 03:31
Cleanup Method: EPA 3665A
Cleanup Date: 02/26/22
Cleanup Method: EPA 3660B
Cleanup Date: 02/26/22

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01 Batch: WG1609077-1						
Aroclor 1016	ND		ug/l	0.250	--	A
Aroclor 1221	ND		ug/l	0.250	--	A
Aroclor 1232	ND		ug/l	0.250	--	A
Aroclor 1242	ND		ug/l	0.250	--	A
Aroclor 1248	ND		ug/l	0.250	--	A
Aroclor 1254	ND		ug/l	0.250	--	A
Aroclor 1260	ND		ug/l	0.200	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	86		37-123	B
Decachlorobiphenyl	86		38-114	B
2,4,5,6-Tetrachloro-m-xylene	83		37-123	A
Decachlorobiphenyl	89		38-114	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207590

Report Date: 03/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 Batch: WG1609077-2									
Aroclor 1016	98		-		50-140	-		36	A
Aroclor 1260	95		-		8-140	-		38	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	88				37-123	B
Decachlorobiphenyl	100				38-114	B
2,4,5,6-Tetrachloro-m-xylene	86				37-123	A
Decachlorobiphenyl	90				38-114	A

METALS

Project Name: 22 WILLOW ST.
Lab Number: L2207590
Project Number: 4893.00
Report Date: 03/17/22

SAMPLE RESULTS

Lab ID: L2207590-01
Client ID: IES-106
Sample Location: CHELSEA, MA
Date Collected: 02/11/22 13:35
Date Received: 02/11/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.00400	--	1	02/15/22 16:24	02/15/22 21:44	EPA 3005A	3,200.8	SV
Arsenic, Total	0.01441		mg/l	0.00100	--	1	02/15/22 16:24	02/15/22 21:44	EPA 3005A	3,200.8	SV
Cadmium, Total	0.00104		mg/l	0.00020	--	1	02/15/22 16:24	02/15/22 21:44	EPA 3005A	3,200.8	SV
Chromium, Total	0.00870		mg/l	0.00100	--	1	02/15/22 16:24	02/15/22 21:44	EPA 3005A	3,200.8	SV
Copper, Total	0.07587		mg/l	0.00100	--	1	02/15/22 16:24	02/15/22 21:44	EPA 3005A	3,200.8	SV
Iron, Total	28.6		mg/l	0.050	--	1	02/15/22 16:24	02/17/22 12:45	EPA 3005A	19,200.7	GD
Lead, Total	1.564		mg/l	0.00100	--	1	02/15/22 16:24	02/15/22 21:44	EPA 3005A	3,200.8	SV
Mercury, Total	0.00550		mg/l	0.00020	--	1	02/15/22 17:56	02/16/22 20:43	EPA 245.1	3,245.1	BV
Nickel, Total	0.01165		mg/l	0.00200	--	1	02/15/22 16:24	02/15/22 21:44	EPA 3005A	3,200.8	SV
Selenium, Total	ND		mg/l	0.00500	--	1	02/15/22 16:24	02/15/22 21:44	EPA 3005A	3,200.8	SV
Silver, Total	ND		mg/l	0.00040	--	1	02/15/22 16:24	02/15/22 21:44	EPA 3005A	3,200.8	SV
Zinc, Total	0.5765		mg/l	0.01000	--	1	02/15/22 16:24	02/15/22 21:44	EPA 3005A	3,200.8	SV
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	267		mg/l	0.660	NA	1	02/15/22 16:24	02/17/22 12:45	EPA 3005A	19,200.7	GD
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		02/15/22 21:44	NA	107,-	
Dissolved Metals - Mansfield Lab											
Antimony, Dissolved	ND		mg/l	0.0040	--	1	02/17/22 08:44	02/17/22 16:04	EPA 3005A	3,200.8	SV
Arsenic, Dissolved	0.0059		mg/l	0.0010	--	1	02/17/22 08:44	02/17/22 16:04	EPA 3005A	3,200.8	SV
Cadmium, Dissolved	ND		mg/l	0.0002	--	1	02/17/22 08:44	02/17/22 16:04	EPA 3005A	3,200.8	SV
Chromium, Dissolved	ND		mg/l	0.0010	--	1	02/17/22 08:44	02/17/22 16:04	EPA 3005A	3,200.8	SV
Copper, Dissolved	0.0019		mg/l	0.0010	--	1	02/17/22 08:44	02/17/22 16:04	EPA 3005A	3,200.8	SV
Iron, Dissolved	5.77		mg/l	0.050	--	1	02/17/22 08:44	02/27/22 17:18	EPA 3005A	19,200.7	EW
Lead, Dissolved	0.0076		mg/l	0.0010	--	1	02/17/22 08:44	02/17/22 16:04	EPA 3005A	3,200.8	SV
Mercury, Dissolved	ND		mg/l	0.00020	--	1	02/17/22 09:45	02/24/22 10:53	EPA 245.1	3,245.1	AC

Project Name: 22 WILLOW ST.
Lab Number: L2207590
Project Number: 4893.00
Report Date: 03/17/22

SAMPLE RESULTS

Lab ID: L2207590-01
Client ID: IES-106
Sample Location: CHELSEA, MA
Date Collected: 02/11/22 13:35
Date Received: 02/11/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Nickel, Dissolved	0.0021		mg/l	0.0020	--	1	02/17/22 08:44	02/17/22 16:04	EPA 3005A	3,200.8	SV
Selenium, Dissolved	ND		mg/l	0.0050	--	1	02/17/22 08:44	02/17/22 16:04	EPA 3005A	3,200.8	SV
Silver, Dissolved	ND		mg/l	0.0004	--	1	02/17/22 08:44	02/17/22 16:04	EPA 3005A	3,200.8	SV
Zinc, Dissolved	0.0163		mg/l	0.0100	--	1	02/17/22 08:44	02/17/22 16:04	EPA 3005A	3,200.8	SV

Project Name: 22 WILLOW ST. **Lab Number:** L2207590

Project Number: 4893.00 **Report Date:** 03/17/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1605164-1										
Iron, Total	ND		mg/l	0.050	--	1	02/15/22 16:24	02/16/22 22:19	19,200.7	EW

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 01 Batch: WG1605164-1										
Hardness	ND		mg/l	0.660	NA	1	02/15/22 16:24	02/16/22 22:19	19,200.7	EW

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1605178-1										
Antimony, Total	ND		mg/l	0.00400	--	1	02/15/22 16:24	02/15/22 20:50	3,200.8	SV
Arsenic, Total	ND		mg/l	0.00100	--	1	02/15/22 16:24	02/15/22 20:50	3,200.8	SV
Cadmium, Total	ND		mg/l	0.00020	--	1	02/15/22 16:24	02/15/22 20:50	3,200.8	SV
Chromium, Total	ND		mg/l	0.00100	--	1	02/15/22 16:24	02/15/22 20:50	3,200.8	SV
Copper, Total	ND		mg/l	0.00100	--	1	02/15/22 16:24	02/15/22 20:50	3,200.8	SV
Lead, Total	ND		mg/l	0.00100	--	1	02/15/22 16:24	02/15/22 20:50	3,200.8	SV
Nickel, Total	ND		mg/l	0.00200	--	1	02/15/22 16:24	02/15/22 20:50	3,200.8	SV
Selenium, Total	ND		mg/l	0.00500	--	1	02/15/22 16:24	02/15/22 20:50	3,200.8	SV
Silver, Total	ND		mg/l	0.00040	--	1	02/15/22 16:24	02/15/22 20:50	3,200.8	SV
Zinc, Total	ND		mg/l	0.01000	--	1	02/15/22 16:24	02/15/22 20:50	3,200.8	SV

Prep Information

Digestion Method: EPA 3005A

Project Name: 22 WILLOW ST. **Lab Number:** L2207590

Project Number: 4893.00 **Report Date:** 03/17/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1605179-1										
Mercury, Total	ND		mg/l	0.00020	--	1	02/15/22 17:56	02/16/22 20:16	3,245.1	BV

Prep Information

Digestion Method: EPA 245.1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01 Batch: WG1605691-1										
Iron, Dissolved	ND		mg/l	0.050	--	1	02/17/22 08:44	02/27/22 17:41	19,200.7	EW

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01 Batch: WG1605693-1										
Antimony, Dissolved	ND		mg/l	0.0040	--	1	02/17/22 08:44	02/17/22 15:10	3,200.8	SV
Arsenic, Dissolved	ND		mg/l	0.0010	--	1	02/17/22 08:44	02/17/22 15:10	3,200.8	SV
Cadmium, Dissolved	ND		mg/l	0.0002	--	1	02/17/22 08:44	02/17/22 15:10	3,200.8	SV
Chromium, Dissolved	ND		mg/l	0.0010	--	1	02/17/22 08:44	02/17/22 15:10	3,200.8	SV
Copper, Dissolved	ND		mg/l	0.0010	--	1	02/17/22 08:44	02/17/22 15:10	3,200.8	SV
Lead, Dissolved	ND		mg/l	0.0010	--	1	02/17/22 08:44	02/17/22 15:10	3,200.8	SV
Nickel, Dissolved	ND		mg/l	0.0020	--	1	02/17/22 08:44	02/17/22 15:10	3,200.8	SV
Selenium, Dissolved	ND		mg/l	0.0050	--	1	02/17/22 08:44	02/17/22 15:10	3,200.8	SV
Silver, Dissolved	ND		mg/l	0.0004	--	1	02/17/22 08:44	02/17/22 15:10	3,200.8	SV
Zinc, Dissolved	ND		mg/l	0.0100	--	1	02/17/22 08:44	02/17/22 15:10	3,200.8	SV

Prep Information

Digestion Method: EPA 3005A

Project Name: 22 WILLOW ST.
Project Number: 4893.00
Lab Number: L2207590
Report Date: 03/17/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01 Batch: WG1605696-1										
Mercury, Dissolved	ND		mg/l	0.00020	--	1	02/17/22 09:45	02/24/22 10:23	3,245.1	AC

Prep Information

Digestion Method: EPA 245.1

Lab Control Sample Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207590

Report Date: 03/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1605164-2								
Iron, Total	93		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 Batch: WG1605164-2								
Hardness	100		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1605178-2								
Antimony, Total	93		-		85-115	-		
Arsenic, Total	98		-		85-115	-		
Cadmium, Total	95		-		85-115	-		
Chromium, Total	98		-		85-115	-		
Copper, Total	95		-		85-115	-		
Lead, Total	96		-		85-115	-		
Nickel, Total	95		-		85-115	-		
Selenium, Total	96		-		85-115	-		
Silver, Total	98		-		85-115	-		
Zinc, Total	96		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1605179-2								
Mercury, Total	104		-		85-115	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207590

Report Date: 03/17/22

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1605691-2					
Iron, Dissolved	100	-	85-115	-	
Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1605693-2					
Antimony, Dissolved	85	-	85-115	-	
Arsenic, Dissolved	96	-	85-115	-	
Cadmium, Dissolved	95	-	85-115	-	
Chromium, Dissolved	88	-	85-115	-	
Copper, Dissolved	92	-	85-115	-	
Lead, Dissolved	92	-	85-115	-	
Nickel, Dissolved	88	-	85-115	-	
Selenium, Dissolved	97	-	85-115	-	
Silver, Dissolved	101	-	85-115	-	
Zinc, Dissolved	92	-	85-115	-	
Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1605696-2					
Mercury, Dissolved	100	-	85-115	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207590
Report Date: 03/17/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605164-3 QC Sample: L2207736-01 Client ID: MS Sample												
Iron, Total	0.767	1	1.83	106		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605164-3 QC Sample: L2207736-01 Client ID: MS Sample												
Hardness	98.1	66.2	164	100		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605164-7 QC Sample: L2207736-02 Client ID: MS Sample												
Iron, Total	ND	1	0.974	97		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605164-7 QC Sample: L2207736-02 Client ID: MS Sample												
Hardness	107	66.2	172	98		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605178-3 QC Sample: L2207736-01 Client ID: MS Sample												
Antimony, Total	ND	0.5	0.4792	96		-	-		70-130	-		20
Arsenic, Total	0.00150	0.12	0.1207	99		-	-		70-130	-		20
Cadmium, Total	ND	0.053	0.05074	96		-	-		70-130	-		20
Chromium, Total	0.00299	0.2	0.1966	97		-	-		70-130	-		20
Copper, Total	0.05390	0.25	0.2905	95		-	-		70-130	-		20
Lead, Total	0.01355	0.53	0.5077	93		-	-		70-130	-		20
Nickel, Total	0.01218	0.5	0.4733	92		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1156	96		-	-		70-130	-		20
Silver, Total	ND	0.05	0.04924	98		-	-		70-130	-		20
Zinc, Total	0.09979	0.5	0.5894	98		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605179-3 QC Sample: L2207777-01 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00501	100		-	-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207590
Report Date: 03/17/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605691-3 QC Sample: L2207311-01 Client ID: MS Sample									
Iron, Dissolved	0.728	1	1.75	102	-	-	75-125	-	20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605693-3 QC Sample: L2207311-01 Client ID: MS Sample									
Antimony, Dissolved	0.0074	0.5	0.4383	86	-	-	70-130	-	20
Arsenic, Dissolved	0.0052	0.12	0.1238	99	-	-	70-130	-	20
Cadmium, Dissolved	0.0003	0.053	0.0511	96	-	-	70-130	-	20
Chromium, Dissolved	ND	0.2	0.1846	92	-	-	70-130	-	20
Copper, Dissolved	0.0134	0.25	0.2490	94	-	-	70-130	-	20
Lead, Dissolved	0.0457	0.53	0.5408	93	-	-	70-130	-	20
Nickel, Dissolved	0.0026	0.5	0.4448	88	-	-	70-130	-	20
Selenium, Dissolved	ND	0.12	0.1190	99	-	-	70-130	-	20
Silver, Dissolved	ND	0.05	0.0510	102	-	-	70-130	-	20
Zinc, Dissolved	0.2974	0.5	0.7890	98	-	-	70-130	-	20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605696-3 QC Sample: L2207957-01 Client ID: MS Sample									
Mercury, Dissolved	ND	0.005	0.00477	95	-	-	75-125	-	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207590
Report Date: 03/17/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605164-4 QC Sample: L2207736-01 Client ID: DUP Sample						
Iron, Total	0.767	0.887	mg/l	15		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605164-4 QC Sample: L2207736-01 Client ID: DUP Sample						
Hardness	98.1	95.1	mg/l	3		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605164-8 QC Sample: L2207736-02 Client ID: DUP Sample						
Iron, Total	ND	ND	mg/l	NC		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605164-8 QC Sample: L2207736-02 Client ID: DUP Sample						
Hardness	107	105	mg/l	2		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605178-4 QC Sample: L2207736-01 Client ID: DUP Sample						
Antimony, Total	ND	0.00618	mg/l	NC		20
Arsenic, Total	0.00150	0.00159	mg/l	6		20
Cadmium, Total	ND	ND	mg/l	NC		20
Chromium, Total	0.00299	0.00313	mg/l	5		20
Copper, Total	0.05390	0.05390	mg/l	0		20
Lead, Total	0.01355	0.01380	mg/l	2		20
Nickel, Total	0.01218	0.01233	mg/l	1		20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	0.09979	0.1009	mg/l	1		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207590

Report Date: 03/17/22

Parameter	Native Sample	Duplicate Sample	Units	RPD		RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605179-4 QC Sample: L2207777-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605691-4 QC Sample: L2207311-01 Client ID: DUP Sample						
Iron, Dissolved	0.728	0.776	mg/l	6		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605693-4 QC Sample: L2207311-01 Client ID: DUP Sample						
Antimony, Dissolved	0.0074	0.0101	mg/l	**31**	Q	20
Arsenic, Dissolved	0.0052	0.0053	mg/l	0		20
Cadmium, Dissolved	0.0003	0.0003	mg/l	4		20
Chromium, Dissolved	ND	ND	mg/l	NC		20
Copper, Dissolved	0.0134	0.0143	mg/l	7		20
Lead, Dissolved	0.0457	0.0459	mg/l	0		20
Nickel, Dissolved	0.0026	0.0027	mg/l	6		20
Selenium, Dissolved	ND	ND	mg/l	NC		20
Silver, Dissolved	ND	ND	mg/l	NC		20
Zinc, Dissolved	0.2974	0.3006	mg/l	1		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1605696-4 QC Sample: L2207957-01 Client ID: DUP Sample						
Mercury, Dissolved	ND	ND	mg/l	NC		20

INORGANICS
&
MISCELLANEOUS

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207590
Report Date: 03/17/22

SAMPLE RESULTS

Lab ID: L2207590-01
Client ID: IES-106
Sample Location: CHELSEA, MA

Date Collected: 02/11/22 13:35
Date Received: 02/11/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total Suspended	1400		mg/l	50	NA	10	-	02/16/22 19:45	121,2540D	MD
Cyanide, Total	ND		mg/l	0.005	--	1	02/15/22 05:00	02/15/22 12:36	121,4500CN-CE	JO
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	02/11/22 22:14	121,4500CL-D	AS
Nitrogen, Ammonia	6.18		mg/l	0.075	--	1	02/16/22 03:33	02/17/22 18:32	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	4.00	--	1	02/15/22 19:30	02/15/22 21:15	140,1664B	TL
Phenolics, Total	0.036		mg/l	0.030	--	1	02/17/22 07:09	02/18/22 11:53	4,420.1	KP
Chromium, Hexavalent	ND		mg/l	0.010	--	1	02/12/22 06:45	02/12/22 06:57	1,7196A	KA
Anions by Ion Chromatography - Westborough Lab										
Chloride	201.		mg/l	5.00	--	10	-	02/15/22 19:16	44,300.0	SH

Project Name: 22 WILLOW ST.
Project Number: 4893.00
Lab Number: L2207590
Report Date: 03/17/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1604223-1										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	02/11/22 22:14	121,4500CL-D	AS
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1604289-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	02/12/22 06:45	02/12/22 06:54	1,7196A	KA
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1604901-1										
Cyanide, Total	ND		mg/l	0.005	--	1	02/15/22 05:00	02/15/22 12:23	121,4500CN-CE	JO
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1605199-1										
TPH, SGT-HEM	ND		mg/l	4.00	--	1	02/15/22 19:30	02/15/22 21:15	140,1664B	TL
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1605343-1										
Chloride	ND		mg/l	0.500	--	1	-	02/15/22 16:00	44,300.0	SH
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1605359-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	02/16/22 03:33	02/17/22 18:14	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1605804-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	02/16/22 19:45	121,2540D	MD
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1605948-1										
Phenolics, Total	ND		mg/l	0.030	--	1	02/17/22 07:09	02/18/22 11:51	4,420.1	KP

Lab Control Sample Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207590

Report Date: 03/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1604223-2								
Chlorine, Total Residual	104		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1604289-2								
Chromium, Hexavalent	104		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1604901-2								
Cyanide, Total	96		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1605199-2								
TPH	76		-		64-132	-		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG1605343-2								
Chloride	101		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1605359-2								
Nitrogen, Ammonia	104		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1605804-2								
Solids, Total Suspended	92		-		80-120	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207590

Report Date: 03/17/22

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1605948-2					
Phenolics, Total	106	-	70-130	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207590
Report Date: 03/17/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1604223-4 QC Sample: L2207529-01 Client ID: MS Sample												
Chlorine, Total Residual	ND	0.025	0.03	120		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1604289-4 QC Sample: L2207590-01 Client ID: IES-106												
Chromium, Hexavalent	ND	0.1	0.102	102		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1604901-4 QC Sample: L2207590-01 Client ID: IES-106												
Cyanide, Total	ND	0.2	0.188	94		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1605199-4 QC Sample: L2207736-02 Client ID: MS Sample												
TPH	ND	19.2	15.6	81		-	-		64-132	-		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1605343-3 QC Sample: L2207311-01 Client ID: MS Sample												
Chloride	8.33	4	12.2	98		-	-		90-110	-		18
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1605948-4 QC Sample: L2207736-02 Client ID: MS Sample												
Phenolics, Total	ND	0.4	0.39	98		-	-		70-130	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: 22 WILLOW ST.

Project Number: 4893.00

Lab Number: L2207590

Report Date: 03/17/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1604223-3 QC Sample: L2207529-01 Client ID: DUP Sample						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1604289-3 QC Sample: L2207590-01 Client ID: IES-106						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1604901-3 QC Sample: L2207311-01 Client ID: DUP Sample						
Cyanide, Total	ND	ND	mg/l	NC		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1605199-3 QC Sample: L2207736-01 Client ID: DUP Sample						
TPH	ND	ND	mg/l	NC		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1605343-4 QC Sample: L2207311-01 Client ID: DUP Sample						
Chloride	8.33	8.35	mg/l	0		18
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1605804-3 QC Sample: L2207311-01 Client ID: DUP Sample						
Solids, Total Suspended	500	540	mg/l	8		29
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1605948-3 QC Sample: L2207736-02 Client ID: DUP Sample						
Phenolics, Total	ND	ND	mg/l	NC		20

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207590
Report Date: 03/17/22

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207590-01A	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2207590-01A1	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2207590-01B	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2207590-01B1	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2207590-01C	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2207590-01C1	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2207590-01D	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		504(14)
L2207590-01E	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		504(14)
L2207590-01F	Vial unpreserved	A	NA		3.2	Y	Absent		SUB-ETHANOL(14)
L2207590-01G	Vial unpreserved	A	NA		3.2	Y	Absent		SUB-ETHANOL(14)
L2207590-01H	Vial unpreserved	A	NA		3.2	Y	Absent		SUB-ETHANOL(14)
L2207590-01I	Plastic 250ml NaOH preserved	A	>12	>12	3.2	Y	Absent		TCN-4500(14)
L2207590-01J	Plastic 250ml HNO3 preserved	A	<2	<2	3.2	Y	Absent		FE-RI(180),CR-2008S(180),AG-2008S(180),PB-2008S(180),AS-2008S(180),NI-2008S(180),CD-2008S(180),CU-2008S(180),HG-R(28)
L2207590-01K	Plastic 250ml HNO3 preserved	A	<2	<2	3.2	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),FE-UI(180),CU-2008T(180),ZN-2008S(180),HG-U(28),SE-2008S(180),AG-2008T(180),SE-2008T(180),AS-2008T(180),SB-2008S(180),PB-2008T(180),CR-2008T(180),SB-2008T(180)
L2207590-01L	Plastic 500ml H2SO4 preserved	A	<2	<2	3.2	Y	Absent		NH3-4500(28)
L2207590-01M	Plastic 950ml unpreserved	A	7	7	3.2	Y	Absent		HEXCR-7196(1),CL-300(28),TRC-4500(1)
L2207590-01N	Plastic 950ml unpreserved	A	7	7	3.2	Y	Absent		TSS-2540(7)
L2207590-01O	Amber 950ml H2SO4 preserved	A	<2	<2	3.2	Y	Absent		TPHENOL-420(28)
L2207590-01P	Amber 1000ml Na2S2O3	A	7	7	3.2	Y	Absent		PCB-608.3(365)

*Values in parentheses indicate holding time in days

Project Name: 22 WILLOW ST.
Project Number: 4893.00

Lab Number: L2207590
Report Date: 03/17/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207590-01Q	Amber 1000ml Na2S2O3	A	7	7	3.2	Y	Absent		PCB-608.3(365)
L2207590-01R	Amber 1000ml Na2S2O3	A	7	7	3.2	Y	Absent		625.1-RGP(7)
L2207590-01S	Amber 1000ml Na2S2O3	A	7	7	3.2	Y	Absent		625.1-RGP(7)
L2207590-01T	Amber 1000ml Na2S2O3	A	7	7	3.2	Y	Absent		625.1-SIM-RGP(7)
L2207590-01U	Amber 1000ml Na2S2O3	A	7	7	3.2	Y	Absent		625.1-SIM-RGP(7)
L2207590-01V	Amber 1000ml HCl preserved	A	NA		3.2	Y	Absent		TPH-1664(28)
L2207590-01W	Amber 1000ml HCl preserved	A	NA		3.2	Y	Absent		TPH-1664(28)

*Values in parentheses indicate holding time in days

Project Name:	22 WILLOW ST.	**Lab Number:**	L2207590
Project Number:	4893.00	**Report Date:**	03/17/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report

Project Name:	22 WILLOW ST.	**Lab Number:**	L2207590
Project Number:	4893.00	**Report Date:**	03/17/22

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where

Report Format: Data Usability Report

Project Name:	22 WILLOW ST.	**Lab Number:**	L2207590
Project Number:	4893.00	**Report Date:**	03/17/22

Data Qualifiers

the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: Data Usability Report

Project Name:	22 WILLOW ST.	**Lab Number:**	L2207590
Project Number:	4893.00	**Report Date:**	03/17/22

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

4 Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. Revised March 1983.

14 Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water. EPA/600/4-88/039, Revised July 1991.

19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.

107 Alpha Analytical - In-house calculation method.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

127 Method 608.3: Organochlorine Pesticides and PCBs by GC/HSD, EPA 821-R-16-009, December 2016.

128 Method 624.1: Purgeables by GC/MS, EPA 821-R-16-008, December 2016.

129 Method 625.1: Base/Neutrals and Acids by GC/MS, EPA 821-R-16-007, December 2016.

140 Method 1664,Revision B: N-Hexane Extractable Material (HEM; Oil & Grease) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry, EPA-821-R-10-001, February 2010.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

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

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

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

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

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

CHAIN OF CUSTODY

PAGE ____ OF ____

Date Rec'd in Lab: 2/11/22

ALPHA Job #: L2207580

ALPHA ANALYTICAL
8 Walkup Drive, Westboro, MA 01581, Tel: 508-898-9220
320 Forbes Blvd, Mansfield, MA 02048, Tel: 508-822-9300

Client Information

Client: Sanborn Head and Assoc.
Address: 1 Technology Park Dr. Westford MA 01836
Phone: 978-392-0900
Email: Slater, acampbell, kesmer@sanbornhead.com
Additional Project Information:

Project Information

Project Name: 22 Willow St.
Project Location: Chelsea, MA
Project #: 4893.00
Project Manager: SSlater
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due:

Report Information - Data Deliverables

☒ ADEx ☒ EMAIL

Billing Information

☒ Same as Client Info PO #:

Regulatory Requirements & Project Information Requirements

☐ Yes ☐ No MA MCP Analytical Methods ☐ Yes ☐ No CT RCP Analytical Methods
☐ Yes ☐ No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
☐ Yes ☐ No GW1 Standards (Info Required for Metals & EPH with Targets)
☒ Yes ☐ No NPDES RGP
☐ Other State /Fed Program ____ Criteria ____

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	VOC: ☐ 8260 ☒ 624 ☐ 524.2	SVOC: ☐ ABN ☒ PAH	METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15	METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13	EPH: ☐ Ranges & Targets ☐ Ranges Only	VPH: ☐ Ranges & Targets ☐ Ranges Only	☐ PCB ☐ PEST	TPH: ☐ Quant Only ☐ Fingerprint	NPDES RGP	Dissolved Metals	Sample Comments	TOTAL # BOTTLES
07580-01	IES-106	2/11/22	1335	GW	KAE	X	X							X	X	One bottle for dissolved metals FF	2

SAMPLE INFO
Filtration ☐ Field ☐ Lab to do
Preservation ☐ Lab to do

Container Type																	
Preservative																	

Container Type
P= Plastic
A= Amber glass
V= Vial
G= Glass
B= Bacteria cup
C= Cube
O= Other
E= Encore
D= BOD Bottle

Preservative
A= None
B= HCl
C= HNO_3
D= H_2SO_4
E= NaOH
F= MeOH
G= $NaHSO_4$
H = $Na_2S_2O_3$
I= Ascorbic Acid
J = NH_4Cl
K= Zn Acetate
O= Other

Relinquished By:	Date/Time	Received By:	Date/Time
	2/11/22	Plum FedEx	2/11/22 1510
	2/11/20 1735		2/11/22 1735

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.
FORM NO: 01-01 (rev. 12-Mar-2012)

ALPHA ANALYTICAL
World Class Chemistry

Subcontract Chain of Custody

Tek Lab, Inc.
5445 Horsehoe Lake Road
Collinsville, IL 62234-7425

Alpha Job Number
L2207590

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 508.439.5176
Email: senright@alphalab.com

Project Information

Project Location: MA
Project Manager: Scott Enright

Turnaround & Deliverables Information

Due Date:
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:

Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2207590

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	ES-106	02-11-22 13:35	WATER	Ethanol by EPA 1671 Revision A	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		2/14/22		
Form No: AL_subcoc				

Teklab, Inc.
Environmental Laboratory
http://www.teklabinc.com/

February 21, 2022

Scott Enright
Alpha Analytical
145 Flanders Road
Westborough, MA 01581
TEL: (508) 439-5176
FAX:

Illinois	100226
Kansas	E-10374
Louisiana	05002
Louisiana	05003
Oklahoma	9978

RE: L2207590 **WorkOrder:** 22020813

Dear Scott Enright:

TEKLAB, INC received 1 sample on 2/15/2022 9:40:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Marvin L. Darling II

Marvin L. Darling
Project Manager
(618)344-1004 ex 41
mdarling@teklabinc.com

Report Contents

http://www.teklabinc.com/

Client: Alpha Analytical
Client Project: L2207590

Work Order: 22020813
Report Date: 21-Feb-22

This reporting package includes the following:

Teklab, Inc. Environmental Laboratory

Definitions

http://www.teklabinc.com/

Client: Alpha Analytical **Work Order:** 22020813

Client Project: L2207590 **Report Date:** 21-Feb-22

Abbr	Definition
*	Analytes on report marked with an asterisk are not NELAP accredited
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
CRQL	A Client Requested Quantitation Limit is a reporting limit that varies according to customer request. The CRQL may not be less than the MDL.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilution factors.
DNI	Did not ignite
DUP	Laboratory duplicate is a replicate aliquot prepared under the same laboratory conditions and independently analyzed to obtain a measure of precision.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample is a sample matrix, free from the analytes of interest,spiked with verified known amounts of analytes and analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	"The method detection limit is defined as the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results."
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
NC	Data is not acceptable for compliance purposes
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions.
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Teklab, Inc. Environmental Laboratory

Definitions

http://www.teklabinc.com/

Client: Alpha Analytical

Work Order: 22020813

Client Project: L2207590

Report Date: 21-Feb-22

Qualifiers

# - Unknown hydrocarbon	B - Analyte detected in associated Method Blank
C - RL shown is a Client Requested Quantitation Limit	E - Value above quantitation range
H - Holding times exceeded	I - Associated internal standard was outside method criteria
J - Analyte detected below quantitation limits	M - Manual Integration used to determine area response
ND - Not Detected at the Reporting Limit	R - RPD outside accepted recovery limits
S - Spike Recovery outside recovery limits	T - TIC(Tentatively identified compound)
X - Value exceeds Maximum Contaminant Level	

Teklab, Inc.
Environmental Laboratory

Case Narrative

http://www.teklabinc.com/

Client: Alpha Analytical
Client Project: L2207590

Work Order: 22020813
Report Date: 21-Feb-22

Cooler Receipt Temp: 2.0 °C

Locations

Collinsville

Address 5445 Horseshoe Lake Road
Collinsville, IL 62234-7425
Phone (618) 344-1004
Fax (618) 344-1005
Email jhriley@teklabinc.com

Springfield

Address 3920 Pintail Dr
Springfield, IL 62711-9415
Phone (217) 698-1004
Fax (217) 698-1005
Email KKlostermann@teklabinc.com

Kansas City

Address 8421 Nieman Road
Lenexa, KS 66214
Phone (913) 541-1998
Fax (913) 541-1998
Email jhriley@teklabinc.com

Collinsville Air

Address 5445 Horseshoe Lake Road
Collinsville, IL 62234-7425
Phone (618) 344-1004
Fax (618) 344-1005
Email EHurley@teklabinc.com

Chicago

Address 1319 Butterfield Rd.
Downers Grove, IL 60515
Phone (630) 324-6855
Fax
Email arenner@teklabinc.com

Teklab, Inc. Environmental Laboratory

Accreditations

http://www.teklabinc.com/

Client: Alpha Analytical

Client Project: L2207590

Work Order: 22020813

Report Date: 21-Feb-22

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2023	Collinsville
Kansas	KDHE	E-10374	NELAP	4/30/2022	Collinsville
Louisiana	LDEQ	05002	NELAP	6/30/2022	Collinsville
Louisiana	LDEQ	05003	NELAP	6/30/2022	Collinsville
Oklahoma	ODEQ	9978	NELAP	8/31/2022	Collinsville
Arkansas	ADEQ	88-0966		3/14/2022	Collinsville
Illinois	IDPH	17584		5/31/2023	Collinsville
Kentucky	UST	0073		1/31/2023	Collinsville
Missouri	MDNR	00930		5/31/2023	Collinsville
Missouri	MDNR	930		1/31/2025	Collinsville

Teklab, Inc. Environmental Laboratory

Laboratory Results

http://www.teklabinc.com/

Client: Alpha Analytical
Work Order: 22020813
Client Project: L2207590
Report Date: 21-Feb-22
Lab ID: 22020813-001
Client Sample ID: IES-106
Matrix: AQUEOUS
Collection Date: 02/11/2022 13:35

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 1671A, PHARMACEUTICAL MANUFACTURING INDUSTRY NON-PURGEABLE VOLATILE ORGANICS								
Ethanol	*	20		**ND**	mg/L	1	02/17/2022 14:42	R307207

Teklab, Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Alpha Analytical
Work Order: 22020813
Client Project: L2207590
Report Date: 21-Feb-22

EPA 600 1671A, PHARMACEUTICAL MANUFACTURING INDUSTRY NON-PURGEABLE VOLATILE OR

Batch R307207 **SampType:** MBLK Units **mg/L**
SampID: MBLK-021722

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethanol	*	20		**ND**						02/17/2022

Batch R307207 **SampType:** LCS Units **mg/L**
SampID: LCS-021722

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethanol	*	20		**310**	250.0	0	125.5	70	132	02/17/2022

Batch R307207 **SampType:** MS Units **mg/L**
SampID: 22020890-001BMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethanol	*	20		**330**	250.0	8.502	128.6	70	132	02/17/2022

Batch R307207 **SampType:** MSD Units **mg/L** RPD Limit: **30**
SampID: 22020890-001BMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ethanol	*	20		**320**	250.0	8.502	123.8	330.0	3.67	02/17/2022

Teklab, Inc.
Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Alpha Analytical
Client Project: L2207590

Work Order: 22020813
Report Date: 21-Feb-22

Carrier: UPS

Received By: PRY

Completed by: Mary E. Kemp
On: 15-Feb-22
Mary E. Kemp

Reviewed by: Elizabeth A. Hurley
On: 15-Feb-22
Elizabeth A. Hurley

Pages to follow: Chain of custody 1 Extra pages included 0

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C 2.0
Type of thermal preservation?	None ☐	Ice ☑	Blue Ice ☐	Dry Ice ☐
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Reported field parameters measured:	Field ☐	Lab ☐	NA ☑	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐		

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?	Yes ☑	No ☐	No VOA vials ☐
Water - TOX containers have zero headspace?	Yes ☐	No ☐	No TOX containers ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	NA ☐
NPDES/CWA TCN interferences checked/treated in the field?	Yes ☐	No ☐	NA ☑

Any No responses must be detailed below or on the COC.

2202081 3

Subcontract Chain of Custody

Tek Lab, Inc.
5445 Horsehoe Lake Road
Collinsville, IL 62234-7425

Alpha Job Number
L2207590

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 508.439.5176 Email: senright@alphalab.com	Project Location: MA Project Manager: Scott Enright **Turnaround & Deliverables Information** Due Date: Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2207590

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com 2.0°C LTG 3 OHS MEK 2/15/22

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
22020813-001	IES-106	02-11-22 13:35	WATER	Ethanol by EPA 1671 Revision A	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		2/14/22		2/15/22 0945
Form No: AL_subcoc				

RNT 2/15/22

eurofins | Environment Testing New England

ANALYTICAL REPORT

Eurofins New England
646 Camp Ave
North Kingstown, RI 02852
Tel: (413)789-9018

Laboratory Job ID: 620-3408-1
Client Project/Site: 22 Willow Street - Chelsea, MA

For:
Sanborn Head & Associates Inc
1 Technology Park Drive
Westford, Massachusetts 01886

Attn: Samantha Slater

Authorized for release by:
3/23/2022 11:16:03 PM

Agnes Huntley, Project Manager
(401)372-3482
agnes.huntley@eurofinset.com

Table of Contents

Definitions/Glossary

Client: Sanborn Head & Associates Inc
Project/Site: 22 Willow Street - Chelsea, MA

Job ID: 620-3408-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Subcontract

Qualifier	Qualifier Description
U	Analyte included in the analysis, but not detected

Glossary

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

Job ID: 620-3408-1

Laboratory: Eurofins New England

Narrative

Job Narrative
620-3408-1

Comments
No additional comments.

Receipt
The samples were received on 3/11/2022 3:52 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.4º C.

Metals
Method 245.1: Due to interference with the sample matrix, the standard mercury preparation procedure was inadequate for the following samples(s): 20220311-HIGHLAND (620-3408-1). This was demonstrated when the potassium permanganate reagent was added and the characteristic purple color faded rapidly. This loss of color indicates oxidizing conditions were not maintained. The sample(s) was prepared and analyzed at a 1:600 dilution, which maintained the purple color during digestion.

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

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

Subcontract Work
Method Hexavalent Chromium by 3500: This method was subcontracted to ESS Laboratory. The subcontract laboratory certification is different from that of the facility issuing the final report.

Detection Summary

Client: Sanborn Head & Associates Inc
Project/Site: 22 Willow Street - Chelsea, MA

Job ID: 620-3408-1

Client Sample ID: 20220311-HIGHLAND — Lab Sample ID: 620-3408-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Iron	0.307		0.0500		mg/L	1		200.7 Rev 4.4	Total/NA
Lead	4.00		1.00		ug/L	1		200.8	Total/NA
Hardness as calcium carbonate	580		4.00		mg/L	1		SM 2340C	Total/NA
Salinity	26.1		2.00		ppth	1		SM 2520B	Total/NA
pH	7.7	HF			SU	1		SM 4500 H+ B	Total/NA

Client Sample ID: 20220311-WILLOW — Lab Sample ID: 620-3408-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Iron	3.69		0.0500		mg/L	1		200.7 Rev 4.4	Total/NA
Arsenic	1.57		1.00		ug/L	1		200.8	Total/NA
Copper	5.62		1.00		ug/L	1		200.8	Total/NA
Lead	5.72		1.00		ug/L	1		200.8	Total/NA
Nickel	3.83		1.00		ug/L	1		200.8	Total/NA
Zinc	89.1		10.0		ug/L	1		200.8	Total/NA
Ammonia	1.63		0.200		mg/L	1		350.1	Total/NA
Hardness as calcium carbonate	520		4.00		mg/L	1		SM 2340C	Total/NA
Salinity	5.09		2.00		ppth	1		SM 2520B	Total/NA
pH	7.2	HF			SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Sanborn Head & Associates Inc
Project/Site: 22 Willow Street - Chelsea, MA

Job ID: 620-3408-1

Client Sample ID: 20220311-HIGHLAND

Date Collected: 03/11/22 12:50
Date Received: 03/11/22 15:52

Lab Sample ID: 620-3408-1

Matrix: Water

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Iron	**0.307**		0.0500		mg/L		03/16/22 09:22	03/22/22 21:40	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		5.00		ug/L		03/16/22 08:57	03/17/22 17:00	5
Arsenic	ND		5.00		ug/L		03/16/22 08:57	03/17/22 17:00	5
Cadmium	ND		2.50		ug/L		03/16/22 08:57	03/17/22 17:00	5
Copper	ND		5.00		ug/L		03/16/22 08:57	03/17/22 17:00	5
Lead	**4.00**		1.00		ug/L		03/16/22 08:57	03/16/22 15:20	1
Nickel	ND		5.00		ug/L		03/16/22 08:57	03/17/22 17:00	5
Selenium	ND		1.00		ug/L		03/16/22 08:57	03/16/22 15:20	1
Silver	ND		2.50		ug/L		03/16/22 08:57	03/17/22 17:00	5
Zinc	ND		50.0		ug/L		03/16/22 08:57	03/17/22 17:00	5

Method: 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.120		mg/L		03/16/22 11:40	03/16/22 14:47	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.200		mg/L		03/21/22 07:00	03/21/22 13:11	1
Hardness as calcium carbonate	**580**		4.00		mg/L			03/22/22 16:36	1
Salinity	**26.1**		2.00		ppth			03/16/22 11:49	1
Cr (III)	ND		0.0100		mg/L			03/21/22 11:03	1
pH	**7.7**	**HF**			SU			03/21/22 11:05	1

Method: Hexavalent Chromium by 3500 - SM 3500 Cr B - Hexavalent Chromium

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexavalent Chromium	ND	U	0.010		mg/L		03/14/22 19:00	03/14/22 19:00	1

Client Sample Results

Client: Sanborn Head & Associates Inc
Project/Site: 22 Willow Street - Chelsea, MA

Job ID: 620-3408-1

Client Sample ID: 20220311-WILLOW

Date Collected: 03/11/22 13:25
Date Received: 03/11/22 15:52

Lab Sample ID: 620-3408-2

Matrix: Water

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Iron	**3.69**		0.0500		mg/L		03/16/22 09:22	03/18/22 17:31	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.00		ug/L		03/16/22 08:57	03/16/22 15:23	1
Arsenic	**1.57**		1.00		ug/L		03/16/22 08:57	03/16/22 15:23	1
Cadmium	ND		0.500		ug/L		03/16/22 08:57	03/16/22 15:23	1
Copper	**5.62**		1.00		ug/L		03/16/22 08:57	03/16/22 15:23	1
Lead	**5.72**		1.00		ug/L		03/16/22 08:57	03/16/22 15:23	1
Nickel	**3.83**		1.00		ug/L		03/16/22 08:57	03/16/22 15:23	1
Selenium	ND		1.00		ug/L		03/16/22 08:57	03/16/22 15:23	1
Silver	ND		0.500		ug/L		03/16/22 08:57	03/16/22 15:23	1
Zinc	**89.1**		10.0		ug/L		03/16/22 08:57	03/16/22 15:23	1

Method: 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		03/16/22 11:40	03/16/22 14:48	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	**1.63**		0.200		mg/L		03/21/22 07:00	03/21/22 13:14	1
Hardness as calcium carbonate	**520**		4.00		mg/L			03/22/22 16:36	1
Salinity	**5.09**		2.00		ppth			03/16/22 11:46	1
Cr (III)	ND		0.0100		mg/L			03/21/22 11:03	1
pH	**7.2**	**HF**			SU			03/21/22 11:05	1

Method: Hexavalent Chromium by 3500 - SM 3500 Cr B - Hexavalent Chromium

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexavalent Chromium	ND	U	0.010		mg/L		03/14/22 19:00	03/14/22 19:00	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 480-617941/1-A
Matrix: Water
Analysis Batch: 618769

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 617941

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.0500		mg/L		03/16/22 09:22	03/22/22 21:03	1

Lab Sample ID: LCS 480-617941/2-A
Matrix: Water
Analysis Batch: 618769

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 617941

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Iron			10.0	9.811		mg/L		98	85 - 115		

Lab Sample ID: 620-3408-1 MS
Matrix: Water
Analysis Batch: 618769

Client Sample ID: 20220311-HIGHLAND
Prep Type: Total/NA
Prep Batch: 617941

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Iron	0.307		10.0	9.593		mg/L		93	70 - 130		

Lab Sample ID: 620-3408-1 MSD
Matrix: Water
Analysis Batch: 618769

Client Sample ID: 20220311-HIGHLAND
Prep Type: Total/NA
Prep Batch: 617941

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	0.307		10.0	9.371		mg/L		91	70 - 130	2	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 480-617942/1-A
Matrix: Water
Analysis Batch: 618132

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 617942

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.00		ug/L		03/16/22 08:57	03/16/22 15:02	1
Arsenic	ND		1.00		ug/L		03/16/22 08:57	03/16/22 15:02	1
Cadmium	ND		0.500		ug/L		03/16/22 08:57	03/16/22 15:02	1
Copper	ND		1.00		ug/L		03/16/22 08:57	03/16/22 15:02	1
Lead	ND		1.00		ug/L		03/16/22 08:57	03/16/22 15:02	1
Nickel	ND		1.00		ug/L		03/16/22 08:57	03/16/22 15:02	1
Selenium	ND		1.00		ug/L		03/16/22 08:57	03/16/22 15:02	1
Silver	ND		0.500		ug/L		03/16/22 08:57	03/16/22 15:02	1
Zinc	ND		10.0		ug/L		03/16/22 08:57	03/16/22 15:02	1

Lab Sample ID: LCS 480-617942/2-A
Matrix: Water
Analysis Batch: 618132

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 617942

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Antimony			20.0	20.70		ug/L		103	85 - 115		
Arsenic			20.0	19.08		ug/L		95	85 - 115		
Cadmium			20.0	19.12		ug/L		96	85 - 115		
Copper			20.0	19.24		ug/L		96	85 - 115		
Lead			20.0	20.19		ug/L		101	85 - 115		

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 480-617942/2-A
Matrix: Water
Analysis Batch: 618132

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 617942

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nickel	20.0	18.15		ug/L		91	85 - 115
Selenium	20.0	20.86		ug/L		104	85 - 115
Silver	20.0	17.98		ug/L		90	85 - 115
Zinc	50.0	47.51		ug/L		95	85 - 115

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 480-618037/1-A
Matrix: Water
Analysis Batch: 618151

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 618037

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200		mg/L		03/16/22 11:40	03/16/22 14:31	1

Lab Sample ID: LCS 480-618037/2-A
Matrix: Water
Analysis Batch: 618151

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 618037

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00667	0.006617		mg/L		99	85 - 115

Lab Sample ID: LCSD 480-618037/3-A
Matrix: Water
Analysis Batch: 618151

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 618037

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.00667	0.006617		mg/L		99	85 - 115	0	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 480-617976/1-B
Matrix: Water
Analysis Batch: 618518

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 618495

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		4.00		mg/L		03/21/22 07:00	03/21/22 13:17	1

Lab Sample ID: MB 480-618518/45
Matrix: Water
Analysis Batch: 618518

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.200		mg/L			03/21/22 12:24	1

Lab Sample ID: LCS 480-618518/46
Matrix: Water
Analysis Batch: 618518

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	0.9598		mg/L		96	90 - 110
Ammonia as NH3	1.22	1.167		mg/L		96	90 - 110

Method: SM 2340C - Hardness, Total (mg/l as CaC03)

Lab Sample ID: MB 480-618686/3
Matrix: Water
Analysis Batch: 618686

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	ND		2.00		mg/L			03/22/22 16:36	1

Lab Sample ID: LCS 480-618686/4
Matrix: Water
Analysis Batch: 618686

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Hardness as calcium carbonate			193	200.0		mg/L		104	90 - 110		

Method: SM 2520B - Salinity

Lab Sample ID: MB 680-711117/8
Matrix: Water
Analysis Batch: 711117

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Salinity	ND		2.00		ppth			03/16/22 11:39	1

Lab Sample ID: LCS 680-711117/10
Matrix: Water
Analysis Batch: 711117

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Salinity			3.60	4.220		ppth		117	70 - 130		

Lab Sample ID: LCSD 680-711117/38
Matrix: Water
Analysis Batch: 711117

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Salinity			3.60	4.130		ppth		115	70 - 130	2	30

Lab Sample ID: 620-3408-2 DU
Matrix: Water
Analysis Batch: 711117

Client Sample ID: 20220311-WILLOW
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Salinity	5.09			5.100		ppth				0.2	30

Method: SM 4500 H+ B - pH

Lab Sample ID: LCDSRM 620-9140/5
Matrix: Water
Analysis Batch: 9140

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

Analyte			Spike Added	LCDSRM Result	LCDSRM Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
pH			6.00	6.1		SU		101.2	97.5 - 102.5	0	

Method: SM 4500 H+ B - pH (Continued)

Lab Sample ID: LCSSRM 620-9140/1
Matrix: Water
Analysis Batch: 9140

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

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits		
pH			6.00	6.1		SU		101.3	97.5 - 102.5		

Lab Sample ID: 620-3408-1 DU
Matrix: Water
Analysis Batch: 9140

Client Sample ID: 20220311-HIGHLAND
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.7	HF		7.6		SU				0.4	5

Method: Hexavalent Chromium by 3500 - SM 3500 Cr B - Hexavalent Chromium

Lab Sample ID: DC21460-BLK1
Matrix: Aqueous
Analysis Batch: DC21460

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: DC21460_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexavalent Chromium	ND	U	0.010		mg/L		03/14/22 19:00	03/14/22 19:00	1

Lab Sample ID: DC21460-BS1
Matrix: Aqueous
Analysis Batch: DC21460

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: DC21460_P

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Hexavalent Chromium			0.4998	0.524		mg/L		105	90 - 110		

Lab Sample ID: DC21460-BSD1
Matrix: Aqueous
Analysis Batch: DC21460

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: DC21460_P

Analyte			Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hexavalent Chromium			0.4998	0.523		mg/L		105	90 - 110	0.3	20

Metals

Prep Batch: 617941

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-3408-1	20220311-HIGHLAND	Total/NA	Water	200.7	
620-3408-2	20220311-WILLOW	Total/NA	Water	200.7	
MB 480-617941/1-A	Method Blank	Total/NA	Water	200.7	
LCS 480-617941/2-A	Lab Control Sample	Total/NA	Water	200.7	
620-3408-1 MS	20220311-HIGHLAND	Total/NA	Water	200.7	
620-3408-1 MSD	20220311-HIGHLAND	Total/NA	Water	200.7	

Prep Batch: 617942

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-3408-1	20220311-HIGHLAND	Total/NA	Water	200.8	
620-3408-2	20220311-WILLOW	Total/NA	Water	200.8	
MB 480-617942/1-A	Method Blank	Total/NA	Water	200.8	
LCS 480-617942/2-A	Lab Control Sample	Total/NA	Water	200.8	

Prep Batch: 618037

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-3408-1	20220311-HIGHLAND	Total/NA	Water	245.1	
620-3408-2	20220311-WILLOW	Total/NA	Water	245.1	
MB 480-618037/1-A	Method Blank	Total/NA	Water	245.1	
LCS 480-618037/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 480-618037/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	

Analysis Batch: 618132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-3408-1	20220311-HIGHLAND	Total/NA	Water	200.8	617942
620-3408-2	20220311-WILLOW	Total/NA	Water	200.8	617942
MB 480-617942/1-A	Method Blank	Total/NA	Water	200.8	617942
LCS 480-617942/2-A	Lab Control Sample	Total/NA	Water	200.8	617942

Analysis Batch: 618151

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-3408-1	20220311-HIGHLAND	Total/NA	Water	245.1	618037
620-3408-2	20220311-WILLOW	Total/NA	Water	245.1	618037
MB 480-618037/1-A	Method Blank	Total/NA	Water	245.1	618037
LCS 480-618037/2-A	Lab Control Sample	Total/NA	Water	245.1	618037
LCSD 480-618037/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	618037

Analysis Batch: 618333

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-3408-1	20220311-HIGHLAND	Total/NA	Water	200.8	617942

Analysis Batch: 618464

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-3408-2	20220311-WILLOW	Total/NA	Water	200.7 Rev 4.4	617941

Analysis Batch: 618769

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-3408-1	20220311-HIGHLAND	Total/NA	Water	200.7 Rev 4.4	617941
MB 480-617941/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	617941
LCS 480-617941/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	617941
620-3408-1 MS	20220311-HIGHLAND	Total/NA	Water	200.7 Rev 4.4	617941

Metals (Continued)

Analysis Batch: 618769 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-3408-1 MSD	20220311-HIGHLAND	Total/NA	Water	200.7 Rev 4.4	617941

General Chemistry

Analysis Batch: 9139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-3408-1	20220311-HIGHLAND	Total/NA	Water	SM 3500 CR B	
620-3408-2	20220311-WILLOW	Total/NA	Water	SM 3500 CR B	

Analysis Batch: 9140

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-3408-1	20220311-HIGHLAND	Total/NA	Water	SM 4500 H+ B	
620-3408-2	20220311-WILLOW	Total/NA	Water	SM 4500 H+ B	
LCDSRM 620-9140/5	Lab Control Sample Dup	Total/NA	Water	SM 4500 H+ B	
LCSSRM 620-9140/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
620-3408-1 DU	20220311-HIGHLAND	Total/NA	Water	SM 4500 H+ B	

Leach Batch: 617976

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-617976/1-B	Method Blank	Total/NA	Water	D3987-85	

Prep Batch: 618495

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-3408-1	20220311-HIGHLAND	Total/NA	Water	Distill/Ammonia	
620-3408-2	20220311-WILLOW	Total/NA	Water	Distill/Ammonia	
MB 480-617976/1-B	Method Blank	Total/NA	Water	Distill/Ammonia	617976

Analysis Batch: 618518

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-3408-1	20220311-HIGHLAND	Total/NA	Water	350.1	618495
620-3408-2	20220311-WILLOW	Total/NA	Water	350.1	618495
MB 480-617976/1-B	Method Blank	Total/NA	Water	350.1	618495
MB 480-618518/45	Method Blank	Total/NA	Water	350.1	
LCS 480-618518/46	Lab Control Sample	Total/NA	Water	350.1	

Analysis Batch: 618686

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-3408-1	20220311-HIGHLAND	Total/NA	Water	SM 2340C	
620-3408-2	20220311-WILLOW	Total/NA	Water	SM 2340C	
MB 480-618686/3	Method Blank	Total/NA	Water	SM 2340C	
LCS 480-618686/4	Lab Control Sample	Total/NA	Water	SM 2340C	

Analysis Batch: 711117

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-3408-1	20220311-HIGHLAND	Total/NA	Water	SM 2520B	
620-3408-2	20220311-WILLOW	Total/NA	Water	SM 2520B	
MB 680-711117/8	Method Blank	Total/NA	Water	SM 2520B	
LCS 680-711117/10	Lab Control Sample	Total/NA	Water	SM 2520B	
LCSD 680-711117/38	Lab Control Sample Dup	Total/NA	Water	SM 2520B	
620-3408-2 DU	20220311-WILLOW	Total/NA	Water	SM 2520B	

QC Association Summary

Client: Sanborn Head & Associates Inc
Project/Site: 22 Willow Street - Chelsea, MA

Job ID: 620-3408-1

Subcontract

Analysis Batch: DC21460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-3408-1	20220311-HIGHLAND	Total/NA	Water	Hexavalent Chromium by 3500	DC21460_P
620-3408-2	20220311-WILLOW	Total/NA	Water	Hexavalent Chromium by 3500	DC21460_P
DC21460-BLK1	Method Blank	Total/NA	Aqueous	Hexavalent Chromium by 3500	DC21460_P
DC21460-BS1	Lab Control Sample	Total/NA	Aqueous	Hexavalent Chromium by 3500	DC21460_P
DC21460-BSD1	Lab Control Sample Dup	Total/NA	Aqueous	Hexavalent Chromium by 3500	DC21460_P

Prep Batch: DC21460_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
620-3408-1	20220311-HIGHLAND	Total/NA	Water	General Preparation	
620-3408-2	20220311-WILLOW	Total/NA	Water	General Preparation	
DC21460-BLK1	Method Blank	Total/NA	Aqueous	General Preparation	
DC21460-BS1	Lab Control Sample	Total/NA	Aqueous	General Preparation	
DC21460-BSD1	Lab Control Sample Dup	Total/NA	Aqueous	General Preparation	

Lab Chronicle

Client: Sanborn Head & Associates Inc
Project/Site: 22 Willow Street - Chelsea, MA

Job ID: 620-3408-1

Client Sample ID: 20220311-HIGHLAND

Lab Sample ID: 620-3408-1

Date Collected: 03/11/22 12:50

Matrix: Water

Date Received: 03/11/22 15:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.7			617941	03/16/22 09:22	NBS	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	618769	03/22/22 21:40	LMH	TAL BUF
Total/NA	Prep	200.8			617942	03/16/22 08:57	NBS	TAL BUF
Total/NA	Analysis	200.8		1	618132	03/16/22 15:20	BMB	TAL BUF
Total/NA	Prep	200.8			617942	03/16/22 08:57	NBS	TAL BUF
Total/NA	Analysis	200.8		5	618333	03/17/22 17:00	BMB	TAL BUF
Total/NA	Prep	245.1			618037	03/16/22 11:40	NVK	TAL BUF
Total/NA	Analysis	245.1		1	618151	03/16/22 14:47	BMB	TAL BUF
Total/NA	Prep	Distill/Ammonia			618495	03/21/22 07:00	CLT	TAL BUF
Total/NA	Analysis	350.1		1	618518	03/21/22 13:11	CLT	TAL BUF
Total/NA	Analysis	SM 2340C		1	618686	03/22/22 16:36	PRD	TAL BUF
Total/NA	Analysis	SM 2520B		1	711117	03/16/22 11:49	DR	TAL SAV
Total/NA	Analysis	SM 3500 CR B		1	9139	03/21/22 11:03	ARH	ENE
Total/NA	Analysis	SM 4500 H+ B		1	9140	03/21/22 11:05	PN	ENE
Total/NA	Prep	General Preparation		1	DC21460_P	03/14/22 19:00		
Total/NA	Analysis	Hexavalent Chromium by 3500		1	DC21460	03/14/22 19:00	EAM	

Client Sample ID: 20220311-WILLOW

Lab Sample ID: 620-3408-2

Date Collected: 03/11/22 13:25

Matrix: Water

Date Received: 03/11/22 15:52

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.7			617941	03/16/22 09:22	NBS	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	618464	03/18/22 17:31	LMH	TAL BUF
Total/NA	Prep	200.8			617942	03/16/22 08:57	NBS	TAL BUF
Total/NA	Analysis	200.8		1	618132	03/16/22 15:23	BMB	TAL BUF
Total/NA	Prep	245.1			618037	03/16/22 11:40	NVK	TAL BUF
Total/NA	Analysis	245.1		1	618151	03/16/22 14:48	BMB	TAL BUF
Total/NA	Prep	Distill/Ammonia			618495	03/21/22 07:00	CLT	TAL BUF
Total/NA	Analysis	350.1		1	618518	03/21/22 13:14	CLT	TAL BUF
Total/NA	Analysis	SM 2340C		1	618686	03/22/22 16:36	PRD	TAL BUF
Total/NA	Analysis	SM 2520B		1	711117	03/16/22 11:46	DR	TAL SAV
Total/NA	Analysis	SM 3500 CR B		1	9139	03/21/22 11:03	ARH	ENE
Total/NA	Analysis	SM 4500 H+ B		1	9140	03/21/22 11:05	PN	ENE
Total/NA	Prep	General Preparation		1	DC21460_P	03/14/22 19:00		
Total/NA	Analysis	Hexavalent Chromium by 3500		1	DC21460	03/14/22 19:00	EAM	

Laboratory References:

= Cranston, RI, 185 Frances Ave, Cranston, RI 02910, TEL (401)461-7181

ENE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018

TAL BUF = Eurofins Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Accreditation/Certification Summary

Client: Sanborn Head & Associates Inc
Job ID: 620-3408-1
Project/Site: 22 Willow Street - Chelsea, MA

Laboratory: Eurofins New England

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Massachusetts	State	M-RI907	06-30-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
SM 3500 CR B		Water	Cr (III)
SM 4500 H+ B		Water	pH

Laboratory: Eurofins Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Massachusetts	State	M-NY044	06-30-22

Laboratory: Eurofins Savannah

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Massachusetts	State	M-GA006	06-30-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
SM 2520B		Water	Salinity

Method Summary

Client: Sanborn Head & Associates Inc
Project/Site: 22 Willow Street - Chelsea, MA

Job ID: 620-3408-1

Method	Method Description	Protocol	Laboratory
200.7 Rev 4.4	Metals (ICP)	EPA	TAL BUF
200.8	Metals (ICP/MS)	EPA	TAL BUF
245.1	Mercury (CVAA)	EPA	TAL BUF
350.1	Nitrogen, Ammonia	MCAWW	TAL BUF
SM 2340C	Hardness, Total (mg/l as CaC03)	SM	TAL BUF
SM 2520B	Salinity	SM	TAL SAV
SM 3500 CR B	Chromium, Trivalent	SM	ENE
SM 4500 H+ B	pH	SM	ENE
3500 Cr B	SM 3500 Cr B - Hexavalent Chromium	SM	
200.7	Preparation, Total Metals	EPA	TAL BUF
200.8	Preparation, Total Metals	EPA	TAL BUF
245.1	Preparation, Mercury	EPA	TAL BUF
Distill/Ammonia	Distillation, Ammonia	None	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

= Cranston, RI, 185 Frances Ave, Cranston, RI 02910, TEL (401)461-7181
ENE = Eurofins New England, 646 Camp Ave, North Kingstown, RI 02852, TEL (413)789-9018
TAL BUF = Eurofins Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600
TAL SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Sample Summary

Client: Sanborn Head & Associates Inc
Project/Site: 22 Willow Street - Chelsea, MA

Job ID: 620-3408-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
620-3408-1	20220311-HIGHLAND	Water	03/11/22 12:50	03/11/22 15:52
620-3408-2	20220311-WILLOW	Water	03/11/22 13:25	03/11/22 15:52

620-3408 Chain of Custody

ment Testing
New England

CHAIN OF CUSTODY RECORD

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Special Handling:
☐ Standard TAT 7 to 10 business days
☒ Rush TAT Date Needed: 3/18/22
All TATs subject to laboratory approval
Min. 24-hr notification needed for rushes
Samples disposed after 30 days unless otherwise instructed.

Report To: Sanborn Head & Assoc
1 Technology Park Dr
Westford, MA
Telephone #: 978-577-1000
Project Mgr: S Slater

Invoice To: Same as report
P.O No. ____ Quote #: ____

Project No: 4893.01
Site Name: 22 Willow St
Location: Chelsea State: MA
Sampler(s): KAE

F=Field Filtered 1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
7=CH_3OH 8=$NaHSO_4$ 9=Deionized Water 10=H_3PO_4 11= None 12= ____

DW=Drinking Water GW=Groundwater SW=Surface Water WW=Waste Water
O=Oil SO=Soil SL=Sludge A=Indoor/Ambient Air SG=Soil Gas
X1= ____ X2= ____ X3= ____

G= Grab C=Compsite

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Total Metals	Nitrate	Hex Cr	Salinity	pH	Hardness	Check If Chlorinated
	20220311-HIGHLAND	3/11/22	1250	G	SW				6	2	1	1	1	1	1	☐
	20220311-WILLOW	3/11/22	1325	G	SW				6	2	1	1	1	1	1	☐
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																☐
																☐
																☐
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																☐
																☐

List Preservative Code below: 4 3 11

QA/QC Reporting Notes:
* additional charges may apply

MA DEP MCP CAM Report? ☐ Yes ☐ No
CT DPH RCP Report? ☐ Yes ☐ No
☐ Standard ☐ No QC ☐ DQA*
☐ ASP A* ☐ ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ Tier II* ☐ Tier IV*
☒ Other: NPDES
State-specific reporting standards:

Relinquished by:	Received by:	Date:	Time:	Temp °C
		3/11/22	15.52	Observed 0.4
				Correction Factor +1
				Corrected 1.4
				IR ID # 6

☒ EDD format:
☒ E-mail to: kester, accampbell, sslater @ sanbornhead.com

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☒ Iced ☐ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

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3/23/2022

646 Camp Ave
North Kingstown, RI 02852
Phone: 413-789-9018

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Huntley, Agnes R	Carrier Tracking No(s):	COC No: 620-3191.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: agnes.huntley@eurofinset.com	State of Origin: Massachusetts	Page: Page 1 of 1
Company: Eurofins Environment Testing Northeast,		Accreditations Required (See note): State - Massachusetts		Job #: 620-3408-1
Address: 10 Hazelwood Drive, ,	Due Date Requested: 3/17/2022			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228-2298				
Phone: 716-691-2600(Tel) 716-691-7991(Fax)	PO #:			
Email:	WO #:			
Project Name: 22 Willow Street - Chelsea, MA	Project #: 62001138			
Site:	SSOW#:			

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	350.1/Distill_Ammonia	245.1/245.1_Prep	200.8/200.8_P_TOT Sb,As,Cd,Cr,Cu,Pb,Ni,Se,Ag,Zn	200.7/200.7_P_TOT (MOD) Fe	2340C	Total Number of containers	Special Instructions/Note:
			Preservation Code:										
20220311-HIGHLAND (620-3408-1)	3/11/22	12:50 Eastern		Water			X	X	X	X	X	3	
20220311-WILLOW (620-3408-2)	3/11/22	13:25 Eastern		Water			X	X	X	X	X	3	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northeast, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northeast, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northeast, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Environment Testing Northeast, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	[signature]	3/14/22 17:47	ENG			
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time:	Company	Received by: [signature]	Date/Time: 3/15/22 1000	Company TAB

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.9 #1 ICE

3/23/2022

Eurofins New England
646 Camp Ave
North Kingstown RI 02852
Phone. 413-789-9018

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler	Lab PM. Huntley, Agnes R	Carrier Tracking No(s):	COC No: 620-3190 1
Client Contact: Shipping/Receiving	Phone:	E-Mail: agnes huntley@eurofinset.com	State of Origin: Massachusetts	Page: Page 1 of 1
Company: Eurofins Environment Testing Southeast,		Accreditations Required (See note) State - Massachusetts		Job #: 620-3408-1
Address: 5102 LaRoche Avenue, ,	Due Date Requested 3/17/2022			
City: Savannah	TAT Requested (days)			
State Zip: GA, 31404				
Phone: 912-354-7858(Tel) 912-352-0165(Fax)	PO #:			
Email:	WO #:			
Project Name: 22 Willow Street - Chelsea, MA	Project #: 62001138			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SM2520_B	Total Number of containers	Special Instructions/Note.
			Preservation Code:						
20220311-HIGHLAND (620-3408-1)	3/11/22	12.50 Eastern		Water			X	1	
20220311-WILLOW (620-3408-2)	3/11/22	13 25 Eastern		Water			X	1	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northeast, LLC places the ownership of method analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Environment Testing Northeast, LLC laboratory or other instructions will be provided Any changes to accreditation status should be brought to Eurofins Environment Testing Northeast, LLC attention immediately If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Environment Testing Northeast, LLC.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested I, II, III, IV Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements

Empty Kit Relinquished by:	Date.	Time	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		3/14/22 12:32	ENE		3/15 1100	
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks: 3.4-4.0

Login Sample Receipt Checklist

Client: Sanborn Head & Associates Inc

Job Number: 620-3408-1

Login Number: 3408
List Number: 1
Creator: Makhoul, Elie

List Source: Eurofins New England

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Sanborn Head & Associates Inc

Job Number: 620-3408-1

Login Number: 3408
List Number: 2
Creator: Sabuda, Brendan D

List Source: Eurofins Buffalo
List Creation: 03/15/22 12:24 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.9 #1 ICE
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	True	

Login Sample Receipt Checklist

Client: Sanborn Head & Associates Inc

Job Number: 620-3408-1

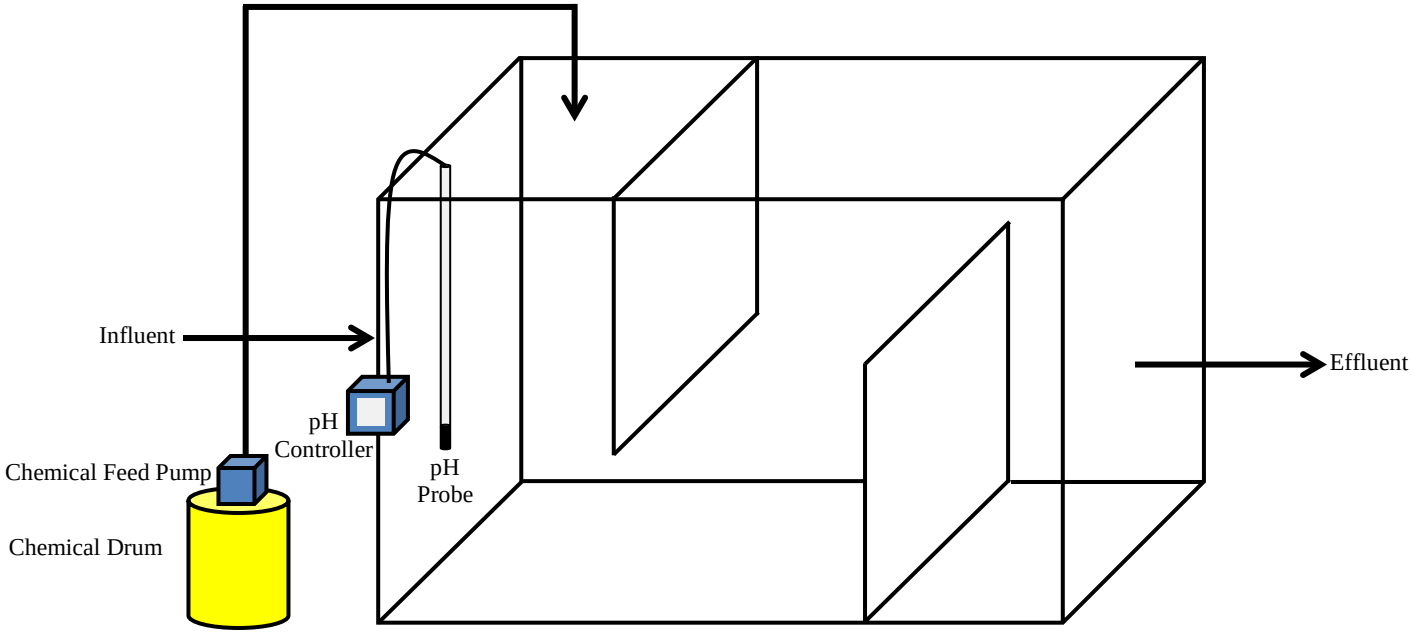
Login Number: 3408
List Number: 3
Creator: Watters, David

List Source: Eurofins Savannah
List Creation: 03/15/22 01:25 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX E

TREATMENT SYSTEM CHEMICAL ADDITIVE DETAILS



Notes:

1.) Figure is not to scale.
2.) System layout can vary with site conditions.

89 Crawford Street
Leominster, Massachusetts 01453
Tel: 774.450.7177
Fax: 888.835.0617
www.lrt-llc.net

Configuration of pH Adjustment System

Lockwood Remediation Technologies, LLC

One Controller for the Broadest Range of Sensors.

Choose from 30 digital and analog sensor families for up to 17 di:erent parameters.

Maximum Versatility

The sc200 controller allows the use of digital and analog sensors, either alone or in combination, to provide compatibility with Hach's broad range of sensors, eliminating the need for dedicated, parameter-specific controllers.

Ease of Use and Confidence in Results

Large, high-resolution, transreflective display provides optimal viewing resolution in any lighting condition. Guided calibration procedures in 19 languages minimize complexity and reduce operator error. Password-protected SD card reader o:ers a simple solution for data download and transfer. Visual warning system provides critical alerts.

Wide Variety of Communication Options

Utilize two to five analog outputs to transmit primary and secondary values for each sensor, or integrate Hach sensors and analyzers into MODBUS RS232/RS485, Profibus® DP, and HART networks.

Password protected SD card reader offers a simple solution for data download and transfer, and sc200 and digital sensor configuration file duplication and backup.

Controller Comparison

Features	Previous Models sc100™ Controller	Previous Models GLI53 Controller	sc200™ Controller	Benefits
Display	64 x 128 pixels 33 x 66 mm (1.3 x 2.6 in.)	64 x 128 pixels 33 x 66 mm (1.3 x 2.6 in.)	160 x 240 pixels 48 x 68 mm (1.89 x 2.67 in.) Transreflective	• Improved user interface—50% bigger • Easier to read in daylight and sunlight
Data Management	irDA Port/PDA Service Cable	N/A	SD Card Service Cable	• Simplifies data transfer • Standardized accessories/max compatibility
Sensor Inputs	2 Max Direct Digital Analog via External Gateway	2 Max Analog Depending on Parameter	2 Max Digital and/or Analog with Sensor Card	• Simplifies analog sensor connections • Works with analog and digital sensors
Analog Inputs	N/A	N/A	1 Analog Input Signal Analog 4-20mA Card	• Enables non-sc analyzer monitoring • Accepts mA signals from other analyzers for local display • Consolidates analog mA signals to a digital output
4-20 mA Outputs	2 Standard	2 Standard	2 Standard Optional 3 Additional	• Total of five (5) 4-20 mA outputs allows multiple mA outputs per sensor input
Digital Communication	MODBUS RS232/RS485 Profibus DP V1.0	HART	MODBUS RS232/RS485 Profibus DP V1.0 HART 7.2	• Unprecedented combination of sensor breadth and digital communication options

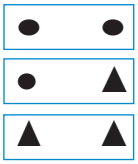
Choose from Hach's Broad Range of Digital and Analog Sensors

Parameter	Sensor	Digital or Analog
Ammonia	AMTAX™ sc, NH4D sc, AISE sc, AN-ISE sc	●
Chlorine	CLF10 sc, CLT10 sc, 9184 sc	●
Chlorine Dioxide	9185 sc	●
Conductivity	GLI 3400 Contacting, GLI 3700 Inductive	▲
Dissolved Oxygen	LDO® Model 2, 5740 sc	●
Dissolved Oxygen	5500	▲
Flow	U53, F53 Sensors	▲
Nitrate	NITRATAX™ sc, NO3D sc, NISE sc, AN-ISE sc	●
Oil in Water	FP360 sc	●
Organics	UVAS sc	●
Ozone	9187 sc	●
pH/ORP	pHD	●
pH/ORP	pHD, pH Combination, LCP	▲
Phosphate	PHOSPHAX™ sc	●
Sludge Level	SONATAX™ sc	●
Suspended Solids	SOLITAX™ sc, TSS sc	●
Turbidity	1720E, FT660 sc, SS7 sc, ULTRATURB sc, SOLITAX sc, TSS sc	●
Ultra Pure Conductivity	8310, 8311, 8312, 8315, 8316, 8317 Contacting	▲
Ultra Pure pH/ORP	8362	▲

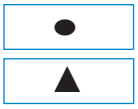
● = Digital ▲ = Analog

Connect up to two of any of the sensors listed above, in any combination, to meet your application needs. The diagrams below demonstrate the potential configurations. Operation of analog sensors requires the controller to be equipped with the appropriate sensor module. Contact Hach Technical Support for help with selecting the appropriate module.

2 Channel Configurations



1 Channel Configurations



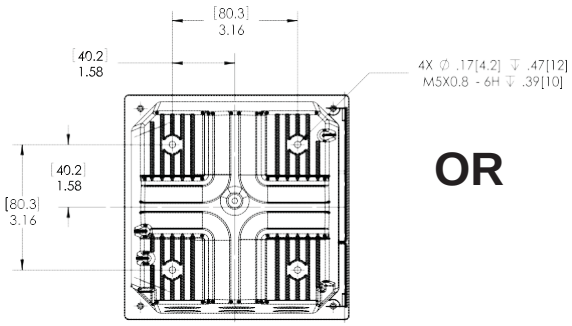
Specifications*

Dimensions (H x W x D)	5.7 in x 5.7 in x 7.1 in (144 mm x 144 mm x 181 mm)
Display	Graphic dot matrix LCD with LED backlighting, transreflective
Display Size	1.9 x 2.7 in. (48 mm x 68 mm)
Display Resolution	240 x 160 pixels
Weight	3.75 lbs. (1.70 kg)
Power Requirements (Voltage)	100 - 240 V AC, 24 V DC
Power Requirements (Hz)	50/60 Hz
Operating Temperature Range	-20 to 60 °C , 0 to 95% RH non-condensing
Analog Outputs	Two (Five with optional expansion module) to isolated current outputs, max 550 Ω , Accuracy: ± 0.1% of FS (20mA) at 25 °C, ± 0.5% of FS over -20 °C to 60 °C range Operational Mode: measurement or calculated value
Analog Output Functional Mode	Linear, Logarithmic, Bi-linear, PID
Security Levels	2 password-protected levels
Mounting Configurations	Wall, pole, and panel mounting
Enclosure Rating	NEMA 4X/IP66
Conduit Openings	1/2 in NPT Conduit
Relay: Operational Mode	Primary or secondary measurement, calculated value (dual channel only) or timer
Relay Functions	Scheduler (Timer), Alarm, Feeder Control, Event Control, Pulse Width Modulation, Frequency Control, and Warning
Relays	Four electromechanical SPDT (Form C) contacts, 1200 W, 5 A
Communication	MODBUS RS232/RS485, PROFIBUS DPV1, or HART 7.2 optional
Memory Backup	Flash memory
Electrical Certifications	EMC CE compliant for conducted and radiated emissions: - CISPR 11 (Class A limits) - EMC Immunity EN 61326-1 (Industrial limits) Safety cETLus safety mark for: - General Locations per ANSI/UL 61010-1 & CAN/CSA C22.2. No. 61010-1 - Hazardous Location Class I, Division 2, Groups A,B,C & D (Zone 2, Group IIC) per FM 3600 / FM 3611 & CSA C22.2 No. 213 M1987 with approved options and appropriately rated Class I, Division 2 or Zone 2 sensors cULus safety mark - General Locations per UL 61010-1 & CAN/CSA C22.2. No. 61010-1

**Subject to change without notice.*

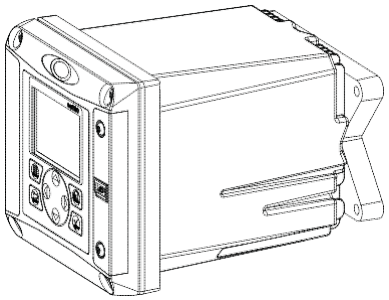
Dimensions

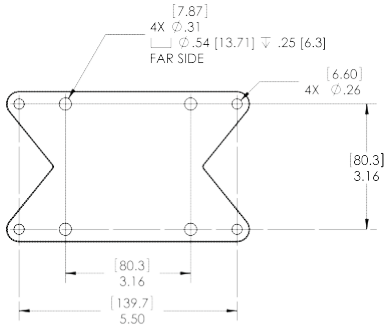
Surface Mounting Dimensions



Mounting Dimensions
(Rear View)

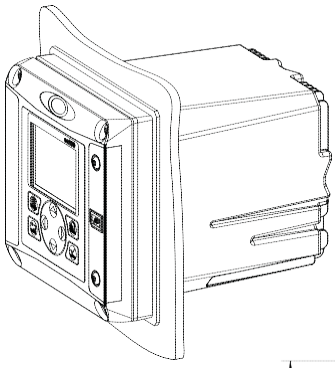
OR

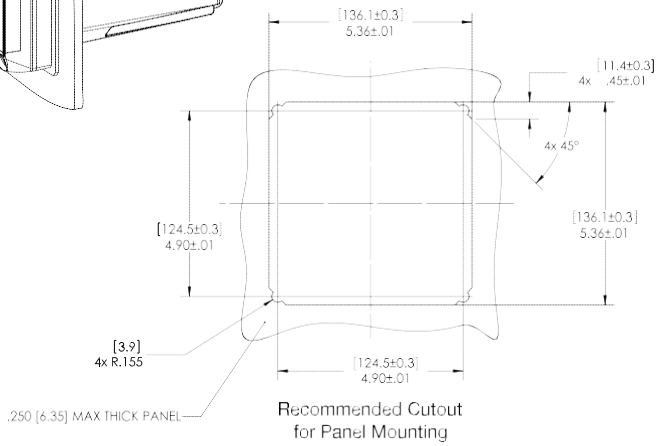




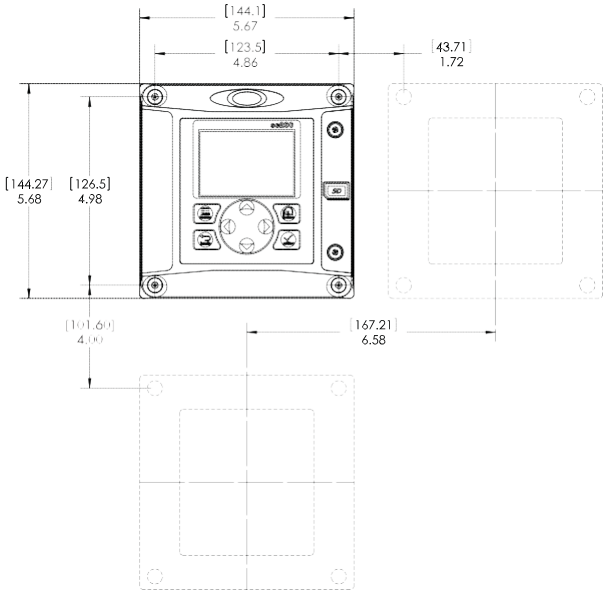
Bracket (supplied) for Surface Mounting
(Not compatible with Weather and Sun Shield p/n 9220600 when surface mounting.)

Panel Mounting Dimensions



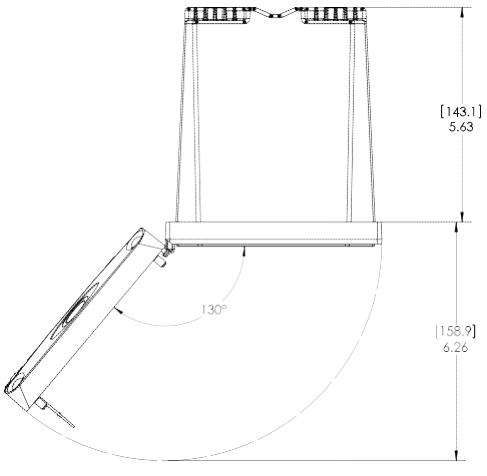


Recommended Cutout
for Panel Mounting

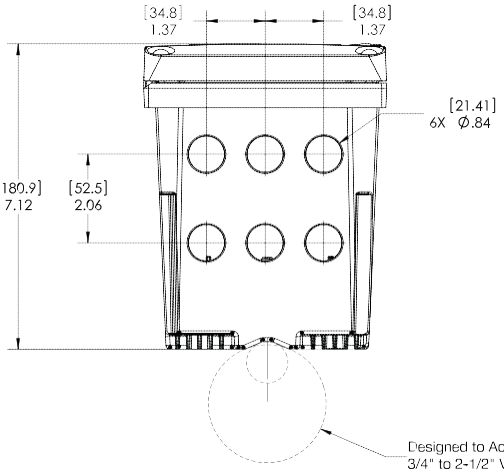


Minimum Spacing Dimensions
for Group Mounting

Top and Bottom Views

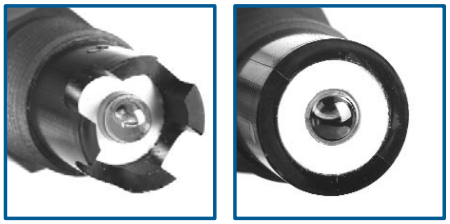


Door Opening Details



3/4-inch Combination pH and ORP Sensor Kits

Use the Digital Gateway to make any Hach analog combination pH or ORP sensor compatible with the Hach sc1000 Controller.



Digital combination pH and ORP sensors are available in convertible, insertion, and sanitary mounting styles. Choose from rugged dome electrodes or "easy-to-clean" flat glass electrodes.

Features and Benefits

Low Price—High Performance

These combination sensors are designed for specialty applications for immersion or in-line mounting. The reference cell features a double-junction design for extended service life, and a built-in solution ground. The body is molded from chemically-resistant Ryton® or PVDF, and the reference junction is coaxial porous Teflon®. All sensors are rated 0 to 105ºC up to 100 psig, and have integral 4.5 m (15 ft.) cables with tinned leads. The PC-series (for pH) and RC-series (for ORP) combination sensors are ideal for measuring mild and aggressive media.

Special Electrode Configurations

Sensors with rugged dome electrodes, "easy-to-clean" flat glass electrodes, and even HF (hydrofluoric acid) resistant glass electrodes are available for a wide variety of process solutions.

Temperature Compensation Element Option

The PC-series combination pH sensors are available with or without a Pt 1000 ohm RTD temperature element. The RC-series combination ORP sensors are supplied without a temperature element.

Versatile Mounting Styles

Sensors are available in three mounting styles—convertible, insertion, and sanitary. Please turn to page 3 for more information.

Full-Featured "Plug and Play" Hach sc Digital Controllers

There are no complicated wiring or set up procedures with any Hach sc controller. Just plug in any combination of Hach digital sensors and it's ready to use—it's "plug and play."

One or multiple sensors—The sc controller family allows you to receive data from up to eight Hach digital sensors in any combination using a single controller.

Communications—Multiple alarm/control schemes are available using the relays and PID control outputs. Available communications include analog 4-20 mA, digital MODBUS® (RS485 and RS232) or Profibus DP protocols. (Other digital protocols are available. Contact your Hach representative for details.)

Data logger—A built-in data logger collects measurement data, calibration, verification points, and alarm history.

Specifications*

Most pH applications fall in the 2.5-12.5 pH range. General purpose pH glass electrodes perform well in this range. Some industrial applications require accurate measurements and control at pH values below 2 or above 12. Consult Hach Technical Support for details on these applications.

Combination pH Sensors

Measuring Range
0 to 14 pH

Accuracy
Less than 0.1 pH under reference conditions

Temperature Range
0 to 105ºC (32 to 221ºF)

Flow Rate
0 to 2 m/s (0 to 6.6 ft./s); non-abrasive

Pressure Range
0 to 6.9 bar at 100ºC (0 to 100 psig at 212ºF)

Signal Transmission Distance
100 m (328 ft.) when used with the Hach Digital Gateway and a Hach sc Digital Controller.

1000 m (3280 ft.) when used with the Hach Digital Gateway, Termination Box, and a Hach sc Digital Controller.

Sensor Cable
Integral coaxial cable (plus two conductors for temperature compensator option); 4.5 m (15 ft.) long

Wetted Materials

Convertible style: Ryton® body (glass filled)

Insertion style: PVDF body (Kynar®)

Sanitary style: 316 stainless steel sleeved PVDF body

Common materials for all sensor styles include PTFE Teflon double junction, glass process electrode, and Viton® O-rings

Warranty
90 days

Combination ORP Sensors

Measuring Range
-2000 to +2000 millivolts

Accuracy
Limited to calibration solution accuracy (± 20 mV)

Temperature Range
0 to 105ºC (32 to 221ºF)

Flow Rate
0 to 2 m/s (0 to 6.6 ft./s); non-abrasive

Pressure Range
0 to 6.9 bar at 100ºC (0 to 100 psig at 212ºF)

Signal Transmission Distance
100 m (328 ft.) when used with the Hach Digital Gateway and a Hach sc Digital Controller.

1000 m (3280 ft.) when used with the Hach Digital Gateway, Termination Box, and a Hach sc Digital Controller.

Sensor Cable
Integral coaxial cable; 4.5 m (15 ft.) long; terminated with stripped and tinned wires

Wetted Materials

Convertible style: Ryton® body (glass filled)

Insertion style: PVDF body (Kynar®)

Common materials for all sensor styles include PTFE Teflon double junction, glass with platinum process electrode, and Viton® O-rings

Warranty
90 days

**Specifications subject to change without notice.*

Engineering Specifications

1. The pH sensor shall be available in convertible, insertion or sanitary styles. The ORP sensor shall be available in only convertible or insertion styles.
2. The convertible style sensor shall have a Ryton® body. The insertion style sensor shall have a PVDF body. The sanitary style sensor shall have a 316 stainless steel sleeved PVDF body. Common materials for all sensor styles shall include a PTFE Teflon® double junction, and Viton® O-rings. The pH sensor shall have a glass pH electrode. The ORP sensor shall have a platinum ORP electrode.
3. The convertible style pH sensor shall be available with or without a built-in Pt 1000 ohm RTD temperature element. Insertion and sanitary style pH sensors shall have a built-in Pt 1000 ohm RTD temperature element. Convertible and insertion style ORP sensors shall not have a built-in temperature element.
4. The sensor shall communicate via MODBUS® RS-485 to a Hach sc Digital Controller.
5. The sensor shall be Hach Company Model PC sc or PC-series for pH measurement or Model PC sc or RC-series for ORP measurement.

Dimensions

Convertible Style Sensor

The convertible style sensor has a Ryton® body that features 3/4-inch NPT threads on both ends. The sensor can be directly mounted into a standard 3/4-inch pipe tee for flow-through mounting or fastened onto the end of a pipe for immersion mounting. The convertible style sensor enables inventory consolidation, thereby reducing associated costs. Mounting tees and immersion mounting hardware are offered in a variety of materials to suit application requirements.

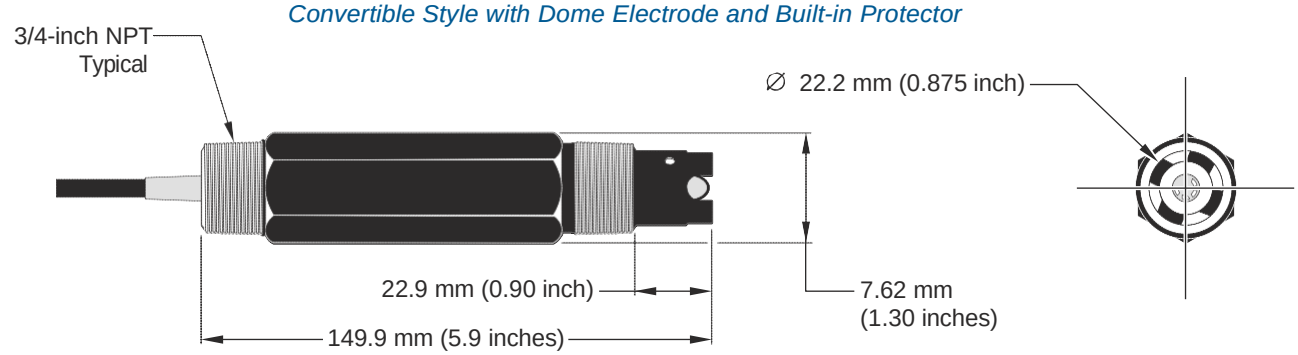
Insertion Style Sensor

Insertion style sensors feature a longer, non-threaded PVDF body with two Viton® O-rings, providing a seal when used with the optional Hach insertion mount hardware assembly. This ball valve hardware enables sensor insertion and retraction from a pipe or vessel without having to stop the process flow.

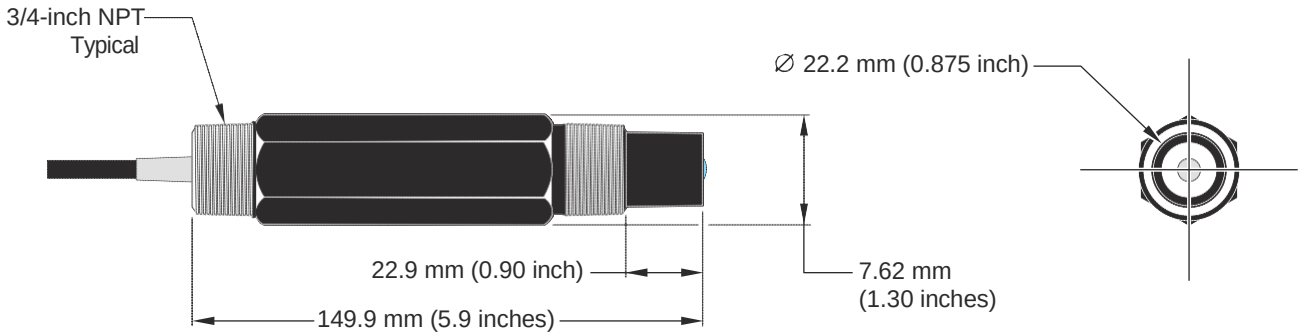
Sanitary Style Sensor

The sanitary style sensor, offered for pH measurement, has a 316 stainless steel-sleeved PVDF body with a 2-inch flange. The sensor mates to a standard 2-inch Tri-Clover fitting. The optional Hach sanitary mounting hardware includes a standard 2-inch sanitary tee, sanitary clamp, and Viton® sanitary gasket.

Convertible Style with Dome Electrode and Built-in Protector



Convertible Style with Flat Electrode



Lockwood Remediation Technologies, LLC

The Pulsatron Series A Plus offers manual function controls over stroke length and stroke rate as standard with the option to select external pace for automatic control.

Ten distinct models are available, having pressure capabilities to 250 PSIG (17 BAR) @ 12 GPO (1.9 lph), and flow capacities to 58 GPO (9.1 lph) @ 100 PSIG (7.0 BAR), with a standard turndown ratio of 100:1, and optional ratio of 1000:1. Metering performance is reproducible to within ± 3% of maximum capacity.

Features

- Manual Control by on-line adjustable stroke rate and stroke length.
- Highly Reliable timing circuit.
- Circuit Protection against voltage and current upsets.
- Solenoid Protection by thermal overload with auto-reset.
- Water Resistant, for outdoor and indoor applications.
- Internally Dampened To Reduce Noise.
- Guided Ball Check Valve Systems, to reduce back flow and enhance outstanding priming characteristics.
- Few Moving Parts and Wall Mountable.
- Safe & Easy Priming with durable leak-free bleed valve assembly (standard).
- Optional Control: External pace with auto/manual selection.

Controls

Manual Stroke Rate

Manual Stroke Length

External Pacing - Optional

External Pace With Stop - Optional (125 SPM only)

Controls Options		
Feature	Standard Configuration	Optional Configuration [1]
External Pacing	--	Auto / Manual Selection
External Pace w/ Stop (125 SPM only)	--	Auto / Manual Selection [2]
Manual Stroke Rate	10:1 Ratio	100:1 Raio
Manual Stroke Length	10:1 Ratio	10:1 Ratio
Total Turndown Ratio	100:1 Ratio	1000:1 Ratio

Note 1: On S2, S3 & S4 sizes only.

Note 2: Not available on 1000:1 turndown pumps.

Operating Benefits

- Reliable metering performance.
- Rated "hot" for continuous duty.
- High viscosity capability.
- Leak-free, sealless, liquid end.

Aftermarket

- KOPkits
- Gauges
- Dampeners
- Pressure Relief Valves
- Tanks
- Pre-Engineered Systems
- Process Controllers (PULSAblue, MicroVision)

Series A Plus
Electronic Metering Pumps

Lockwood Remediation Technologies, LLC

Series A Plus

Specifications and Model Selection

MODEL			LBC2	LB02	LBC3	LB03	LB04	LB64	LBC4	LBS2	LBS3	LBS4
Capacity nominal (max.)		GPH	0.25	0.25	0.42	0.50	1.00	1.25	2.00	0.50	1.38	2.42
		GPO	6	6	10	12	24	30	48	12	33	58
		LPH	0.9	0.9	1.6	1.9	3.8	4.7	7.6	1.9	5.2	9.14
Pressure[3] (max.)	GFPP, PVDF, 316SS or PVC <;N code) wITFE Seats)	PSIG (Bar)	250 (17)	150 (10)	250 (17)	150 (10)	100 (7)	100 (7)	50 (3.3)	250 (17)	150 (10)	100 (7)
	PVC (V code) Viton or CSPE Seats IDegas Liquid End		150 (10)							150 (10)		
Connections:		Tubina	1.14" ID X 3.18" OD						3.18" D X 1.12" OD	1.14" D X 3.18" OD		
		Pioina	1.14" FNPT									
Strokes/Minute		SPM	125							250		

Note 3: Pumps with rated pressure above 150 PSI will be de-rated to 150 PSI Max. when selecting certain valve options, see Price Book for details.

Engineering Data

Pump Head Materials Available:	GFPPL
	PVC
	PVDF
	316 SS
Diaphragm:	PTFE-faced CSPE-backed
Check Valves Materials Available:	
Seats/0-Rings:	PTFE
	CSPE
	Viton
Balls:	Ceramic
	PTFE
	316 SS
	Alloy C
Fittings Materials Available:	GFPPL
	PVC
	PVDF
Bleed Valve:	Same as fitting and check valve selected, except 316SS
Injection Valve & Foot Valve Assy:	Same as fitting and check valve selected
Tubing:	Clear PVC
	White PE

Important: Material Code - GFPPL=Glass-filled Polypropylene, PVC=Polyvinyl Chloride, PE=Polyethylene, PVDF=Polyvinylidene Fluoride, CSPE=Generic formulation of Hypalon, a registered trademark of E.I. DuPont Company. Viton is a registered trademark of E.I. DuPont Company. PVC wetted end recommended for sodium hypochlorite.

Engineering Data

Reproducibility:	+/- 3% at maximum capacty
Viscosity Max CPS:	1000 CPS
Stroke Frequency Max SPM:	125 / 250 by Model
Stroke Frequency Turn-Down Ratio:	10:1 / 100:1 by Model
Stroke Length Turn-Down Ratio:	10:1
Power Input:	115 VAC/50-60 HZ/1 ph
	230 VAC/50-60 HZ/1 ph
Average Current Draw:	
@ 115 VAC; Amps:	0.6 Amps
@ 230 VAC; Amps:	0.3 Amps
Peak hput Power:	130 Watts
Average Input Power @ Max SPM:	50 Watts

Custom Engineered Designs - Pre-Engineered Systems

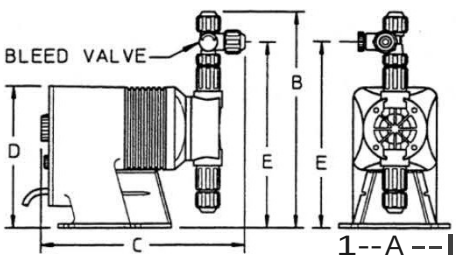
Pre-Engineered Systems

Pulsafeeder's Pre-Engineered Systems are designed to provide complete chemical feed solutions for all electronic metering applications. From stand alone simplex pH control applications to full-featured, redundant sodium hypochlorite disinfection metering, these rugged fabricated assemblies offer turn-key simplicity and industrial-grade durability. The UV-stabilized, high-grade HOPE frame offers maximum chemical compatibility and structural rigidity. Each system is factory assembled and hydrostatically tested prior to shipment.

Dimensions

Series A PLUS Dimensions (inches)						
Model No.	A	B	C	D	E	Shipping Weight
LB02 IS2	5.0	9.6	9.5	6.5	8.2	10
LBC2	5.0	9.9	9.5	6.5	8.5	10
LBC3	5.0	9.9	9.5	6.5	8.5	10
LB03 IS3	5.0	9.9	9.5	6.5	8.5	10
LB0B4	5.0	9.9	9.5	6.5	8.5	10
LB64	5.0	9.9	9.5	6.5	8.5	10
LBC4	5.0	9.9	9.5	6.5	8.5	10

NOTE: Inches X 2.54 cm



95-Gallon OverPack - 32" dia x 41.5", 1 each/package

Stock a SpillTech® OverPack with sorbents for emergency spill response, or use it as a salvage drum to ship damaged containers or hazardous waste.

- DOT-Approved for Salvage: All SpillTech® OverPacks are DOT-approved and X-rated for use as salvage drums. Helps companies conform to federal regulations when shipping damaged or leaking containers of hazardous materials, or absorbents contaminated with hazardous substances.
- Perfect for Spill Kits: Stores sorbent products (not included) for easy access as needed for spill control. Saves time when quick response is necessary.
- Sturdy Construction: 100% polyethylene OverPack resists chemicals, rust and corrosion for years of use. Integrated handles make them easy to lift, move or carry with standard material handling equipment. Twist-on, double-wall lid with closed-cell gasket provides sealed, secure closure to prevent leaks and protect contents from moisture, dirt and damage. Durable to withstand rough handling.
- Customized for You: We can customize a Spill Kit to your exact specifications, including the container, its contents and accessories, with no upcharge! Contact your local Distributor for details.

A95OVER Specifications

Dimensions:	ext. dia. 32" x 41.5" H
Shipping Dimensions:	31.75" W x 41.5" L x 31.75" H
Sold as:	1 per package
Color:	Yellow
Composition:	Polyethylene
# per Pallet:	3
Incinerable:	No
Ship Class:	250

Metric Equivalent Specifications

Dimensions:	ext. dia. 81.3cm x 105.4cm H
Shipping Dimensions:	80.6cm W x 105.4cm L x 80.6cm H

A95OVER Technical Information

Warnings & Restrictions:
There are no known warnings and restrictions for this product.

Regulations and Compliance:
49 CFR 173.3(c)(1) - If a container of hazardous waste is damaged or leaking, it can be placed in a compatible salvage drum that meets UN criteria for shipping

49 CFR 173.12(b)(2)(iv) - When labpacking, "Inner packagings…must be surrounded by a chemically compatible absorbent material in sufficient quantity to absorb the total liquid contents."

49 CFR 173.12(b) - A container used for labpacking must be "a UN 1A2 or UN 1B2 metal drum, a UN 1D plywood drum, a UN 1G fiber drum or a UN 1H2 plastic drum tested and marked at least for the Packing Group III performance level for liquids or solids."

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Telephone: (508) 675 0096

SAFETY DATA SHEET

SECTION 1. IDENTIFICATION

Product identifier used on the label

: **Sulfuric Acid 71-100%**

Product Code(s) : Not available.

Recommended use of the chemical and restrictions on use

: Reagent ;Chemical intermediate.
Use pattern: Professional Use Only
Recommended restrictions: None known.

Chemical family : Inorganic acid

Name, address, and telephone number of the supplier:

Borden & Remington Corp

63 Water St.
PO Box 2573
Fall River, MA, USA
02722

Name, address, and telephone number of the manufacturer:

Refer to supplier

Supplier's Telephone # : 508-675-0096

24 Hr. Emergency Tel # : Chemtrec: 1-800-424-9300 (Within Continental U.S.); 703-527-3887.

SECTION 2. HAZARDS IDENTIFICATION

Classification of the chemical

Clear to cloudy liquid. Odorless.

This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015).

Hazard classification :

Corrosive to metals: Category 1
Acute toxicity, inhalation - Category 2 (mist)
Eye damage/irritation: Category 1
Skin corrosion/irritation: Category 1
Specific Target Organ Toxicity, Single Exposure -Category 3 (respiratory)

Label elements

Hazard pictogram(s)

Signal Word

DANGER!

Hazard statement(s)

May be corrosive to metals.
Fatal if inhaled.
Causes severe skin burns and eye damage.
May cause respiratory irritation.

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Precautionary statement(s)

Keep only in original container.
Wash thoroughly after handling.
Do not breathe mists.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/clothing and eye/face protection.
[In case of inadequate ventilation] wear respiratory protection.

If swallowed: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
Wash contaminated clothing before reuse.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
Immediately call a POISON CENTER or doctor/physician.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
Immediately call a POISON CENTER or doctor/physician.
Absorb spillage to prevent material damage.

Store in corrosive resistant container with a resistant inner liner.
Store locked up.
Store in a well-ventilated place. Keep container tightly closed.

Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards

Other hazards which do not result in classification:

Ingestion may cause severe irritation to the mouth, throat and stomach.Contact with metals may release small amounts of flammable hydrogen gas.Prolonged skin contact may cause dermatitis (rash), characterized by red, dry, itching skin.Prolonged or repeated inhalation of fumes or vapours, may cause chronic lung effects, such as bronchitis, and tooth enamel erosion. Chronic skin contact with low concentrations may cause dermatitis.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance

Chemical name	Common name and synonyms	CAS #	Concentration
Sulfuric acid	Battery acid; Hydrogen sulfate; Oil of vitriol	7664-93-9	**71.0 - 100.0**
Water	H2O	7732-18-5	**Balance**

SECTION 4. FIRST-AID MEASURES

Description of first aid measures

Ingestion : Do NOT induce vomiting. Have victim rinse mouth with water, then give one to two glasses of water to drink. Seek immediate medical attention/advice. Never give anything by mouth if victim is unconscious.

Inhalation : Immediately remove person to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen by qualified medical personnel only. Seek immediate medical attention/advice.

Skin contact : Take off all contaminated clothing immediately. Immediately flush skin with gently flowing, running water for at least 20 minutes. Do not rub area of contact. Cover wound with sterile dressing. Seek immediate medical attention/advice. Wash contaminated clothing before reuse. Leather and shoes that have been contaminated with the solution may need to be destroyed.

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Eye contact : Immediately flush eyes with running water for at least 20 minutes. Protect unharmed eye. Seek immediate medical attention/advice.

Most important symptoms and effects, both acute and delayed

: May cause serious eye irritation or damage. Symptoms may include redness, pain, tearing and conjunctivitis. Direct skin contact may cause corrosive skin burns, deep ulcerations and possibly permanent scarring. May cause severe irritation and corrosive damage in the mouth, throat and stomach. Symptoms may include abdominal pain, vomiting, burns, perforations, bleeding and eventually death. May cause severe irritation to the nose, throat and respiratory tract. Symptoms may include coughing, choking and wheezing. Could result in pulmonary edema (fluid accumulation). Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed. Prolonged or repeated inhalation of fumes or vapours, may cause chronic lung effects, such as bronchitis, and tooth enamel erosion.

Indication of any immediate medical attention and special treatment needed

: Immediate medical attention is required. Causes burns. Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media

: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water with caution. Contact with water will generate considerable heat.

Unsuitable extinguishing media

: Do not use a solid water stream as it may scatter and spread fire.

Special hazards arising from the substance or mixture / Conditions of flammability

: Not considered flammable. Burning produces obnoxious and toxic fumes. Contact with metals may release small amounts of flammable hydrogen gas. Reacts violently with a wide variety of organic and inorganic chemicals including alcohol, carbides, chlorates, picrates, nitrates and metals. Contact with water will generate considerable heat.

Flammability classification (OSHA 29 CFR 1910.106)

: Non-flammable.

Hazardous combustion products

: Sulphur oxides. Carbon dioxide and carbon monoxide. Oxygen.

Special protective equipment and precautions for firefighters

Protective equipment for fire-fighters

: Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

Special fire-fighting procedures

: Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode. A full-body chemical resistant suit should be worn. Move containers from fire area if safe to do so. Water spray may be useful in cooling equipment exposed to heat and flame. Dike for water control. Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

: All persons dealing with clean-up should wear the appropriate protective equipment including self-contained breathing apparatus. Keep all other personnel upwind and away from the spill/release. Restrict access to area until completion of clean-up. Refer to Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION, for additional information on acceptable personal protective equipment.

Environmental precautions : Do not allow material to contaminate ground water system. For large spills, dike the area to prevent spreading.

Methods and material for containment and cleaning up

SAFETY DATA SHEET

: Remove all sources of ignition. Ventilate area of release. Stop spill or leak at source if safely possible. Dike for water control. Neutralize with sodium bicarbonate or a mixture of soda ash/slaked lime. Contain and absorb spilled liquid with non-combustible, inert absorbent material (e.g. sand), then place absorbent material into a container for later disposal (see Section 13). Contact the proper local authorities.

Special spill response procedures

: If a spill/release in excess of the EPA reportable quantity is made into the environment, immediately notify the national response center in the United States (phone: 1-800-424-8802).
US CERCLA Reportable quantity (RQ): Sulfuric acid (1000 lbs / 454 kg)

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling

: Use in a well-ventilated area. Wear protective gloves/clothing and eye/face protection. See Section 8 for additional personal protection advice when handling this product. Do not ingest. Avoid breathing vapour or mist. Avoid contact with skin, eyes and clothing. Keep away from extreme heat and flame. Keep away from bases, metals and other incompatibles. Keep container tightly closed when not in use. Keep only in original container. Wash thoroughly after handling. During preparation or dilution, always add liquid slowly to water and with constant stirring.

Conditions for safe storage : Store in a cool, dry, well-ventilated area. Store locked up. Store away from incompatibles and out of direct sunlight. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. Store in corrosion-resistant containers. Keep only in original container.

Incompatible materials : Strong oxidizing agents;Metals (e.g. Aluminum, brass, copper); Alkalies; Aldehydes ; Reducing agents; Water; Organic materials; Acids Chlorate . .

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits:

Chemical Name	ACGIH TLV		OSHA PEL	
	TWA	STEL	PEL	STEL
Sulfuric acid	0.2 mg/m³ (thoracic fraction)	N/Av	1 mg/m³	N/Av
Water	N/Av	N/Av	N/Av	N/Av

Exposure controls

Ventilation and engineering measures

: Use general or local exhaust ventilation to maintain air concentrations below recommended exposure limits.

Respiratory protection : If the TLV is exceeded, a NIOSH/MSHA-approved respirator is advised. Confirmation of which type of respirator is most suitable for the intended application should be obtained from respiratory protection suppliers. Respirators should be selected based on the form and concentration of contaminants in air, and in accordance with OSHA (29 CFR 1910.134) or CSA Z94.4-02.

Skin protection : Wear chemically protective gloves (impervious), boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear impervious gloves, such as butyl rubber. Unsuitable material: polyvinyl alcohol. Advice should be sought from glove suppliers.

Eye / face protection : Chemical splash goggles must be worn when handling this material. A full face shield may also be necessary.

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Other protective equipment	:	Other equipment may be required depending on workplace standards. An eyewash station and safety shower should be made available in the immediate working area.
General hygiene considerations	:	Do not breathe mist or vapor. Avoid contact with skin, eyes and clothing. Do not eat, drink, smoke or use cosmetics while working with this product. Upon completion of work, wash hands before eating, drinking, smoking or use of toilet facilities. Remove and wash contaminated clothing before re-use. Do not take contaminated clothing home.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Clear, oily, colourless liquid
Odour	:	Odorless.
Odour threshold	:	N/Av
pH	:	<1.0
Melting/Freezing point	:	-40°C (-40°F)
Initial boiling point and boiling range	:	102°C (215.6°F)
Flash point	:	Not applicable.
Flashpoint (Method)	:	Not applicable.
Evaporation rate (BuAe = 1)	:	Slower than ether.
Flammability (solid, gas)	:	Not applicable.
Lower flammable limit (% by vol.)	:	Not applicable.
Upper flammable limit (% by vol.)	:	Not applicable.
Oxidizing properties	:	None known.
Explosive properties	:	Not explosive
Vapour pressure	:	<0.3 mmHg @75°F
Vapour density	:	3.4
Relative density / Specific gravity	:	1.84
Solubility in water	:	Soluble
Other solubility(ies)	:	None known.
Partition coefficient: n-octanol/water or Coefficient of water/oil distribution	:	N/Av
Auto-ignition temperature	:	N/Ap
Decomposition temperature	:	Not available.
Viscosity	:	N/Av
Volatiles (% by weight)	:	Not available.
Volatile organic Compounds (VOC's)	:	Not available.
Absolute pressure of container	:	N/Ap
Flame projection length	:	N/Ap
Other physical/chemical comments	:	None.

SECTION 10. STABILITY AND REACTIVITY

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Reactivity	:	Contact with metals may release small amounts of flammable hydrogen gas. Corrosive in contact with metals Avoid contact with incompatible materials. Contact with water will generate considerable heat. Reacts vigorously, violently or explosively with many organic and inorganic chemicals, such as strong acids, acid chlorides, acid anhydrides, ketones, glycols, and organic peroxides.
Chemical stability	:	Stable under the recommended storage and handling conditions prescribed.
Possibility of hazardous reactions	:	Hazardous polymerization does not occur. Contact with metals may release small amounts of flammable hydrogen gas.
Conditions to avoid	:	Avoid heat and open flame. Ensure adequate ventilation, especially in confined areas. Avoid contact with incompatible materials.
Incompatible materials	:	Strong oxidizing agents;Metals (e.g. Aluminum, brass, copper); Alkalies; Aldehydes ; Reducing agents; Water; Organic materials; Acids Chlorate . .
Hazardous decomposition products	:	Decomposes at 340 deg C into sulfur trioxide and water.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure:

Routes of entry inhalation	:	YES
Routes of entry skin & eye	:	YES
Routes of entry Ingestion	:	YES
Routes of exposure skin absorption	:	NO

Potential Health Effects:

Signs and symptoms of short-term (acute) exposure

Sign and symptoms Inhalation	:	Fatal if inhaled. Inhalation of high concentrations of fumes or mists may cause severe irritation and corrosive damage to the nose, throat and upper respiratory tract. Symptoms may include coughing, choking and wheezing. Could result in pulmonary edema (fluid accumulation). Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed.
Sign and symptoms ingestion	:	May be harmful if swallowed. May cause severe irritation and corrosive damage in the mouth, throat and stomach. Symptoms may include abdominal pain, vomiting, burns, perforations, bleeding and eventually death.
Sign and symptoms skin	:	This material is classified as hazardous under OSHA regulations (29CFR 1910.1200) (Hazcom 2012). Classification: Skin corrosion/irritation: Category 1 Causes severe skin burns and eye damage. Direct skin contact may cause corrosive skin burns, deep ulcerations and possibly permanent scarring.
Sign and symptoms eyes	:	This material is classified as hazardous under OSHA regulations (29CFR 1910.1200) (Hazcom 2012). Classification: Eye damage/irritation: Category 1 Causes serious eye damage. Symptoms may include severe pain, tearing, redness, swelling and blurred vision. Contact may lead to permanent injury and blindness.
Potential Chronic Health Effects	:	Chronic skin contact with low concentrations may cause dermatitis. Prolonged or repeated inhalation of fumes or vapours, may cause chronic lung effects, such as bronchitis, and tooth enamel erosion.
Mutagenicity	:	Not expected to be mutagenic in humans.

SAFETY DATA SHEET

Carcinogenicity : This material is not classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Strong inorganic acid mist containing sulfuric acid is classified as a Group 1 Human Carcinogen by the IARC. However, this classification does not apply to liquid forms of sulfuric acid.

Reproductive effects & Teratogenicity

: Not expected to cause reproductive effects.

Sensitization to material : Not expected to be a skin or respiratory sensitizer.

Specific target organ effects : Target Organs:: Eyes, skin, respiratory system and digestive system.

This material is classified as hazardous under OSHA regulations (29CFR 1910.1200) (Hazcom 2012). Classification:
Specific target organ toxicity, single exposure -Category 3
May cause respiratory irritation.

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Medical conditions aggravated by overexposure

: Pre-existing skin, eye and respiratory disorders.

Synergistic materials : Not available.

Toxicological data : See below for toxicological data on the substance.
The calculated ATE values for this mixture are:
ATE inhalation (mists) = 0.5 mg/L (75%)

Chemical name	LC_{50}(4hr) inh, rat	LD_{50} (Oral, rat)	LD_{50} (Rabbit, dermal)
Sulfuric acid	0.375mg/L	2140 mg/kg	N/Av
Water	N/Av	>90 mL/kg	N/Av

Other important toxicological hazards

: None known or reported by the manufacturer.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity : Because of the low pH of this product, it would be expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems. The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters.

Ecotoxicity data:

Ingredients	CAS No	Toxicity to Fish		
		LC50 / 96h	NOEC / 21 day	M Factor
Sulfuric acid	7664-93-9	N/Av	N/Av	None.
Water	7732-18-5	No information available.	No information available.	Not applicable.

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Ingredients	CAS No	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
Sulfuric acid	7664-93-9	N/Av	N/Av	None.
Water	7732-18-5	No information available.	No information available.	Not applicable.

Ingredients	CAS No	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
Sulfuric acid	7664-93-9	>100mg/L(Green algae)	N/Av	None.
Water	7732-18-5	No information available.	No information available.	Not applicable.

Persistence and degradability

: Biodegradation is not applicable to inorganic materials.

Bioaccumulation potential : No data is available on the product itself.

Components	Partition coefficent n-octanol/ater (log Kow)	Bioconcentration factor (BCF)
Sulfuric acid (CAS 7664-93-9)	N/Ap	no bioaccumulation
Water (CAS 7732-18-5)	N/Ap	N/Ap

Mobility in soil : No data is available on the product itself.

Other Adverse Environmental effects

: No additional information.

SECTION 13. DISPOSAL CONSIDERATIONS

Handling for Disposal : Handle waste according to recommendations in Section 7. Empty containers retain residue (liquid and/or vapour) and can be dangerous.

Methods of Disposal : Dispose in accordance with all applicable federal, state, provincial and local regulations.

RCRA : If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method. For disposal of unused or waste material, check with local, state and federal environmental agencies.

SECTION 14. TRANSPORTATION INFORMATION

Regulatory Information	UN Number	UN proper shipping name	Transport hazard class(es)	Packing Group	Label
49CFR/DOT	UN1830	SULFURIC ACID ; or SULPHURIC ACID	8	II	
49CFR/DOT Additional information	May be shipped as a limited quantity in receptacles not exceeding 1.0 Liters, according to 49 CFR 173.154.				
TDG	UN1830	SULPHURIC ACID	8	II	

Borden & Remington Corp
63 Water St. PO Box 2573
Fall River, MA, USA, 02722
Telephone: (508) 675 0096

SAFETY DATA SHEET

TDG Additional information	May be shipped as LIMITED QUANTITY when transported in containers no larger than 1.0 Litre, in packages not exceeding 30 kg gross mass.				
ICAO/IATA	UN1830	Sulphuric acid	8	II	
ICAO/IATA Additional information	Refer to ICAO/IATA Packing Instruction				
IMDG	UN1830	SULFURIC ACID or SULPHURIC ACID	8	II	
IMDG Additional information	May be shipped as a limited quantity. Consult the IMDG regulations for more information.				

Special precautions for user : None known.

Environmental hazards : See ECOLOGICAL INFORMATION, Section 12.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

: Not applicable.

SECTION 15 - REGULATORY INFORMATION

US Federal Information:

Components listed below are present on the following U.S. Federal chemical lists:

Ingredients	CAS #	TSCA Inventory	CERCLA Reportable Quantity(RQ) (40 CFR 117.302):	SARA TITLE III: Sec. 302, Extremely Hazardous Substance, 40 CFR 355:	SARA TITLE III: Sec. 313, 40 CFR 372, Specific Toxic Chemical	
					Toxic Chemical	de minimus Concentration
Sulfuric acid	7664-93-9	Yes	1000 lb/ 454 kg	1000 lb TPQ	Yes	1%
Water	7732-18-5	Yes	N/Ap	N/Av	No	N/Ap

SARA TITLE III: Sec. 311 and 312, SDS Requirements, 40 CFR 370 Hazard Classes: Acute Health Hazard. Chronic Health Hazard

Under SARA Sections 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are 500 pounds for the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

US State Right to Know Laws:

The following chemicals are specifically listed by individual States:

Ingredients	CAS #	California Proposition 65		State "Right to Know" Lists					
		Listed	Type of Toxicity	CA	MA	MN	NJ	PA	RI
Sulfuric acid	7664-93-9	No	N/Ap	Yes	Yes	Yes	Yes	Yes	Yes
Water	7732-18-5	No	N/Ap	No	No	No	No	No	No

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Canadian Information:

Canadian Environmental Protection Act (CEPA) information: All ingredients listed appear on the Domestic Substances List (DSL).

WHMIS information: Refer to Section 2 for a WHMIS Classification for this product.

International Information:

Components listed below are present on the following International Inventory list:

Ingredients	CAS #	European EINECs	Australia AICS	Philippines PICCS	Japan ENCS	Korea KECI/KECL	China IECSC	NewZealand IOC
Sulfuric acid	7664-93-9	231-639-5	Present	Present	(1)-724; (1)-430	KE-32570	Present	HSR001572, HSR001573, HSR001588 (dilution)
Water	7732-18-5	231-791-2	Present	Listed	Listed	KE-35400	Present	Listed

SECTION 16. OTHER INFORMATION

Legend : ACGIH: American Conference of Governmental Industrial Hygienists
CA: California
CAS: Chemical Abstract Services
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR: Code of Federal Regulations
DOT: Department of Transportation
EPA: Environmental Protection Agency
HMIS: Hazardous Materials Identification System
HSDB: Hazardous Substances Data Bank
IARC: International Agency for Research on Cancer
Inh: Inhalation
IUCLID: International Uniform ChemicaL Information Database
MA: Massachusetts
MN: Minnesota
MSHA: Mine Safety and Health Administration
N/Ap: Not Applicable
N/Av: Not Available
NFPA: National Fire Protection Association
NIOSH: National Institute of Occupational Safety and Health
NJ: New Jersey
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
PA: Pennsylvania
PEL: Permissible exposure limit
RCRA: Resource Conservation and Recovery Act
RI: Rhode Island
RTECS: Registry of Toxic Effects of Chemical Substances
SARA: Superfund Amendments and Reauthorization Act
STEL: Short Term Exposure Limit
TDG: Canadian Transportation of Dangerous Goods Act & Regulations
TLV: Threshold Limit Values
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Identification System

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Fall River, MA, USA, 02722
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SAFETY DATA SHEET

References : Canadian Centre for Occupational Health and Safety, CCInfoWeb Databases, 2015 (Chempendium, RTECs, HSDB, INCHEM).
European Chemicals Agency, Classification Legislation, 2015
Material Safety Data Sheet from manufacturer
OECD - The Global Portal to Information on Chemical Substances - eChemPortal, 2015

Preparation Date (mm/dd/yyyy)

: 10/13/2015

Other special considerations for handling

: Provide adequate information, instruction and training for operators.

HMIS Rating : *- Chronic hazard 0 - Minimal 1 - Slight 2 - Moderate 3 - Serious 4 - Severe

Health: 3 *Flammability:* 0 *Reactivity:* 2

NFPA Rating

0 - Minimal 1 - Slight 2 - Moderate 3 - Serious 4 - Severe

: *Health:* 3 *Flammability:* 0 *Instability:* 2 *Special Hazards:* None.

Prepared for: Borden & Remington Corp 63 Water St. Fall River, MA 02722 Telephone: 508-675-0096	
Prepared by: ICC The Compliance Center Inc. Telephone: (888) 442-9628 (U.S.): (888) 977-4834 (Canada) http://www.thecompliancecenter.com	

DISCLAIMER

This Safety Data Sheet was prepared by ICC The Compliance Center Inc using information provided by / obtained from Borden & Remington Corp and CCOHS' Web Information Service. The information in the Safety Data Sheet is offered for your consideration and guidance when exposed to this product. ICC The Compliance Center Inc and Borden & Remington Corp .expressly disclaim all expressed or implied warranties and assume no responsibilities for the accuracy or completeness of the data contained herein. The data in this SDS does not apply to use with any other product or in any other process.
This Safety Data Sheet may not be changed, or altered in any way without the expressed knowledge and permission of ICC The Compliance Center Inc and Borden & Remington Corp.

END OF DOCUMENT

The Pulsatron Series HV designed for high viscosity applications for precise and accurate metering control. The Series HV offers manual control over stroke length and stroke rate as standard with the option to choose between 4-20mA and external pace inputs for automatic control.

Five distinct models are available, having pressure capabilities to 150 PSIG (10 BAR) @ 12 GPD (1.9 lph), and flow capacities to 240 GPD (37.9 lph) @ 80 PSIG (5.6 BAR), with a turndown ratio of 100:1. Metering performance is reproducible to within ± 2% of maximum capacity.

Features

- Automatic Control, available with 4-20mADC direct or external pacing, with stop function.
- Manual Control by on-line adjustable stroke rate and stroke length.
- Auto-Off-Manual switch.
- Highly Reliable timing circuit.
- Circuit Protection against voltage and current upsets.
- Panel Mounted Fuse.
- Solenoid Protection by thermal overload with auto-reset.
- Water Resistant, for outdoor and indoor applications.
- Indicator Lights, panel mounted.
- Guided Ball Check Valve Systems, to reduce back flow and enhance outstanding priming characteristics.
- Viscosities to 20,000 CPS.

Controls

Manual Stroke Rate

- Turn-Down Ratio 10:1

Manual Stroke Length

- Turn-Down Ratio 10:1

4-20mA or 20-4mA Input

- Automatic Control

Operating Benefits

- Reliable metering performance.
- Rated "hot" for continuous duty.
- High viscosity capability.
- Leak-free, sealless, liquid end.

Aftermarket

- KOPkits
- Gauges
- Dampeners
- Pressure Relief Valves
- Tanks
- Pre-Engineered Systems
- Process Controllers (PULSAblue, MicroVision)

Series HV

Specifications and Model Selection

MODEL		LVB3	LVF4	LVG4	LVG5	LVH7
Capacity	GPH	0.50	1.00	2.00	4.00	10.00
nominal	GPD	12	24	48	96	240
(max.)	LPH	1.9	3.8	7.6	15.1	37.9
Pressure	PSIG	150	150	110	110	80
(max.)	BAR	10	10	7	7	5.6
Connections:	Tubing	(S) .50" I.D. X .75" O.D. .38" I.D. X .50" OD (LVB3 & F4 only) (S & D) .50" I.D. X .75" O.D. (LVG4,G5 & H7 only)				

Engineering Data

Pump Head Materials Available: GFPPL, PVC, PVDF, 316 SS

Diaphragm: PTFE-faced CSPE-backed

Check Valves Materials Available:

Seats/O-Rings: PTFE, CSPE, Viton

Balls: Ceramic, PTFE, 316 SS, Alloy C

Fittings Materials Available: GFPPL, PVC, PVDF

Bleed Valve: Same as fitting and check valve selected, except 316SS

Injection Valve & Foot Valve Assy: Same as fitting and check valve selected

Tubing: Clear PVC, White PE

Important: Material Code - GFPPL=Glass-filled Polypropylene, PVC=Polyvinyl Chloride, PE=Polyethylene, PVDF=Polyvinylidene Fluoride, CSPE=Generic formulation of Hypalon, a registered trademark of E.I. DuPont Company. Viton is a registered trademark of E.I. DuPont Company. PVC wetted end recommended for sodium hypochlorite.

Engineering Data

Reproducibility: +/- 2% at maximum capacity

Viscosity Max CPS: 20,000 CPS

Stroke Frequency Max SPM: 125

Stroke Frequency Turn-Down Ratio: 10:1

Stroke Length Turn-Down Ratio: 10:1

Power Input: 115 VAC/50-60 HZ/1 ph, 230 VAC/50-60 HZ/1 ph

Average Current Draw:

@ 115 VAC; Amps: 1.0 Amps

@ 230 VAC; Amps: 0.5 Amps @ 230 VAC

Peak Input Power: 300 Watts

Average Input Power @ Max SPM: 130 Watts

Custom Engineered Designs – Pre-Engineered Systems

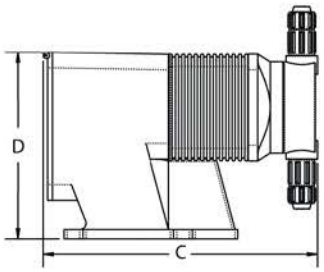
Pre-Engineered Systems

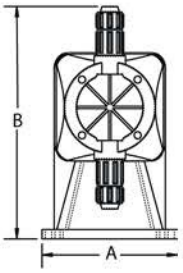
Pulsafeeder's Pre-Engineered Systems are designed to provide complete chemical feed solutions for all electronic metering applications. From stand alone simplex pH control applications to full-featured, redundant sodium hypochlorite disinfection metering, these rugged fabricated assemblies offer turn-key simplicity and industrial-grade durability. The UV-stabilized, high-grade HDPE frame offers maximum chemical compatibility and structural rigidity. Each system is factory assembled and hydrostatically tested prior to shipment.

Dimensions

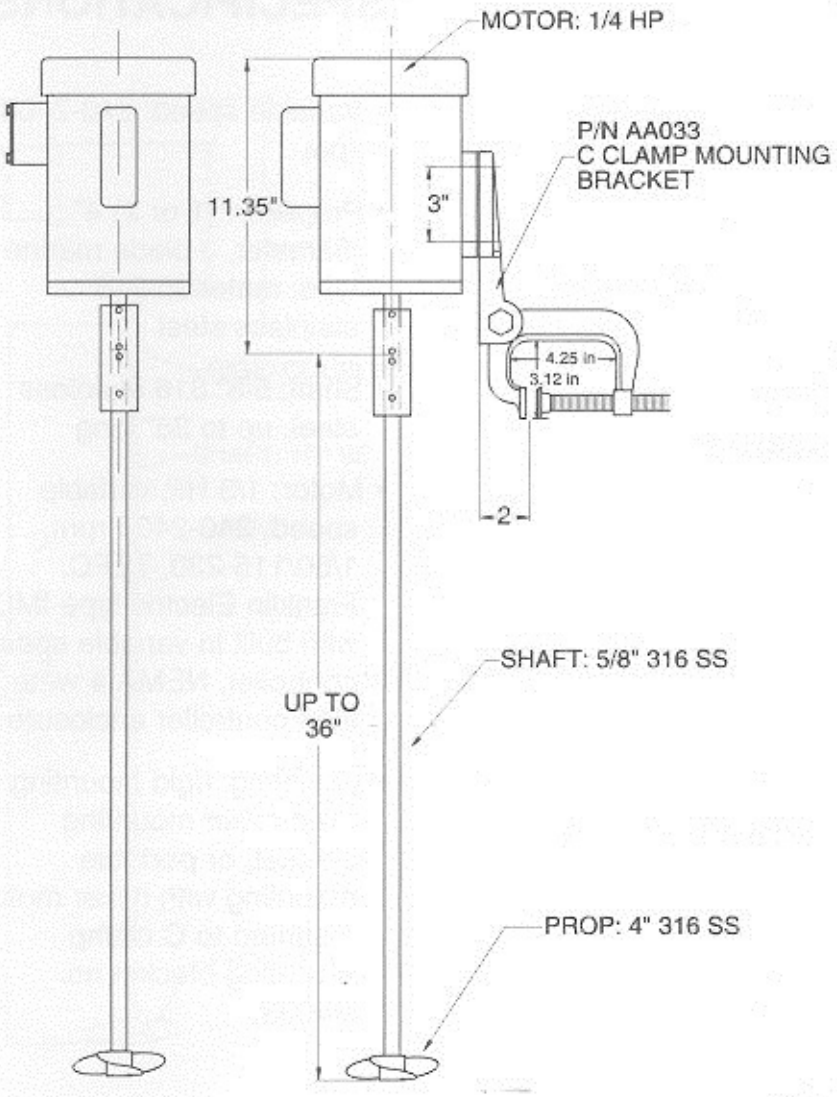
Series HV Dimensions (inches)					
Model No.	A	B	C	D	Shipping Weight
LVB3	5.4	9.3	9.5	7.5	13
LVF4	5.4	10.8	10.8	7.5	18
LVG4	5.4	9.5	10.6	7.5	18
LVG5	5.4	10.8	10.8	7.5	18
LVH7	6.1	11.5	11	8.2	25

NOTE: Inches X 2.54 = cm





MIXER MODEL NO. AA102A



AA102A

SPECIFICATIONS

- Speed: 1,725 rpm
- Propeller: (1 or 2) 4" diameter, 3 blade marine type, material: 316 stainless steel
- Shaft: 5/8" 316 stainless steel, up to 36" long
- Motor: 1/4 HP, 1,725 rpm, 1/60/115-230, capacitor start, or 3/60/230-460, TEFC
- Mounting: rigid mounting to fixed mixer mounting bracket, or portable mounting with mixer motor mounted to C clamp mounting bracket no. AA033.

Revision date 2019-15-4

SAFETY DATA SHEET

Revision number 1

SECTION 1) CHEMICAL PRODUCT AND SUPPLIER'S IDENTIFICATION

Product Name:	Redux E50
Product Use:	Water and Wastewater Treatment Coagulant/Flocculant
Revision Date:	Apr 15, 2019
Supersedes Date:	Mar 5, 2015
Manufacturer's Name:	Azure Water Services
Address:	280 Callegari Dr. West Haven CT, 06516
Emergency Phone:	Chemtrec, (1) 800-424-9300, in US and Canada only

SECTION 2) HAZARDS IDENTIFICATION

Classification

Corrosive to metals - Category 1

Eye Irritation - Category 2

Skin Irritation - Category 2

Pictograms

Signal Word

Warning

Hazardous Statements - Health

Causes serious eye irritation

Causes skin irritation

Hazardous Statements - Physical

May be corrosive to metals

Precautionary Statements - General

If medical advice is needed, have product container or label at hand.

Keep out of reach of children.

Read label before use.

Precautionary Statements - Prevention

Keep only in original packaging.

Wash thoroughly after handling.

Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary Statements - Response

Absorb spillage to prevent material damage.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

IF ON SKIN: Wash with plenty of water.

Specific treatment (see first-aid on this SDS).

If skin irritation occurs: Get medical advice/attention.

Take off contaminated clothing. And wash it before reuse.

Precautionary Statements - Storage

Store in a corrosive resistant container with a resistant inner liner.

Precautionary Statements - Disposal

No precautionary statement available.

Hazards Not Otherwise Classified (HNOC)

None.

SECTION 3) COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Chemical Name	% By Weight
PROPRIETARY	Trade Secret Ingredient	45 - 55%

Specific chemical identity and/or exact percentage (concentration) of the composition has been withheld to protect confidentiality.

SECTION 4) FIRST-AID MEASURES

Inhalation

Remove source of exposure or move person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor/. If breathing has stopped, trained personnel should begin rescue breathing or, if the heart has stopped, immediately start cardiopulmonary resuscitation (CPR) or automated external defibrillation (AED).

Eye Contact

Remove source of exposure or move person to fresh air. Rinse eyes cautiously with lukewarm, gently flowing water for several minutes, while holding the eyelids open. Remove contact lenses, if present and easy to do. Continue rinsing for a flushing duration of 30 minutes. Take care not to rinse contaminated water into the unaffected eye or onto the face. Immediately call a POISON CENTER/doctor.

Skin Contact

Take off immediately all contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Rinse skin with lukewarm, gently flowing water/shower for a duration of 30 minutes or until medical aid is available. Immediately call a POISON CENTER/doctor. Wash contaminated clothing before re-use or discard.

Ingestion

Rinse mouth with water. Do NOT induce vomiting. Give 1 to 2 cups of milk or water to drink. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, lie on your side, in the recovery position. Immediately call a POISON CENTER/doctor.

Most Important Symptoms and Effects, Both acute and Delayed

No data available.

Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available.

SECTION 5) FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Dry chemical, foam, carbon dioxide. Sand or earth may be used for small fires only.

Use extinguishing agent suitable for type of surrounding fire.

Unsuitable Extinguishing Media

Do not use direct water stream since this may cause fire to spread.

Specific Hazards in Case of Fire

In case of fire, hazardous decomposition products may include sulphur oxides.

Fire-Fighting Procedures

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Water may be ineffective but can be used to cool containers exposed to heat or flame. Caution should be exercised when using water or foam as frothing may occur, especially if sprayed into containers of hot, burning liquid. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

Special Protective Actions

Wear protective pressure self-contained breathing apparatus (SCBA) and full turnout gear.

SECTION 6) ACCIDENTAL RELEASE MEASURES

Emergency Procedure

Isolate hazard area and keep unnecessary people away. Remove all possible sources of ignition in the surrounding area. Notify authorities if any exposure to the general public or the environment occurs or is likely to occur.

Absorb spill with absorbent material or vacuum spill into polyethylene lined steel or plastic drums.

Do not touch or walk through spilled material.

If spilled material is cleaned up using a regulated solvent, the resulting waste mixture may be regulated.

Recommended Equipment

Positive pressure, full-facepiece self-contained breathing apparatus (SCBA), or positive pressure supplied air respirator with escape SCBA (NIOSH approved).

Personal Precautions

Avoid breathing vapor or mist. Avoid contact with skin, eye or clothing. Ensure adequate ventilation. Do not touch damaged containers or spilled materials unless wearing appropriate protective clothing.

Environmental Precautions

Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems and natural waterways by using sand, earth, or other appropriate barriers.

Methods and Materials for Containment and Cleaning Up

Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Contaminated absorbent material may pose the same hazard as the spilled product.

SECTION 7) HANDLING AND STORAGE

General

Wash hands after use.
Do not get in eyes, on skin or on clothing.
Do not breathe vapors or mists.
Use good personal hygiene practices.
Eating, drinking and smoking in work areas is prohibited.
Remove contaminated clothing and protective equipment before entering eating areas.
Eyewash stations and showers should be available in areas where this material is used and stored.

Ventilation Requirements

Use only with adequate ventilation to control air contaminants to their exposure limits. The use of local ventilation is recommended to control emissions near the source.

Storage Room Requirements

Keep container(s) tightly closed and properly labeled. Store in cool, dry, well-ventilated areas away from heat, direct sunlight and strong oxidizers. Store in approved containers and protect against physical damage. Keep containers securely sealed when not in use. Indoor storage should meet OSHA standards and appropriate fire codes. Containers that have been opened must be carefully resealed to prevent leakage. Empty containers retain residue and may be dangerous.

Use non-sparking ventilation systems, approved explosion-proof equipment and intrinsically safe electrical systems in areas where this product is used and stored.

SECTION 8) EXPOSURE CONTROLS, PERSONAL PROTECTION

Eye Protection

Wear eye protection with side shields or goggles. Wear indirect-vent, impact and splash resistant goggles when working with liquids. If additional protection is needed for entire face, use in combination with a face shield.

Skin Protection

Use of gloves approved to relevant standards made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Use of an apron and over-boots of chemically impervious materials such as neoprene or nitrile rubber is recommended to avoid skin sensitization. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Launder soiled clothes or properly disposed of contaminated material, which cannot be decontaminated.

Respiratory Protection

If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker, a respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed. Check with respiratory protective equipment suppliers.

Appropriate Engineering Controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

SECTION 9) PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Density	11.10 lb/gal
Specific Gravity	1.33 - 1.35
Appearance	Colorless to yellow liquid
pH	3 - 4
Odor Threshold	N/A
Odor Description	N/A
Water Solubility	complete
Viscosity	< 100cps @20C
Vapor Pressure	Similar to water
Vapor Density	N/A
Freezing Point	<19 °F
Boiling Point	>212 °F
Evaporation Rate	N/A
Flammability	Will not burn

SECTION 10) STABILITY AND REACTIVITY

Stability

Stable under normal storage and handling conditions.

Conditions To Avoid

Avoid heat, sparks, flame, high temperature and contact with incompatible materials.

Hazardous Reactions/Polymerization

Hazardous polymerization will not occur.

Incompatible Materials

Strong bases, acids, oxidizing and reducing agents.

Hazardous Decomposition Products

May produce carbon monoxide, carbon dioxide.

SECTION 11) TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

Inhalation LC50 : Not Available
Oral LD50 : Not Available
Dermal LD50 : Not Available

Acute Toxicity

Component	weight-%	Oral LD50	Dermal LD50	Inhalation LC50
Trade Secret Ingredient	45 - 55%	= 9187 mg/kg (Rat)	> 2000 mg/k (Rat)	--

Aspiration Hazard

No Data Available

Respiratory/Skin Sensitization

No Data Available

Serious Eye Damage/Irritation

Causes serious eye irritation

Skin Corrosion/Irritation

Causes skin irritation

Specific Target Organ Toxicity - Repeated Exposure

No Data Available

Specific Target Organ Toxicity - Single Exposure

No Data Available

SECTION 12) ECOLOGICAL INFORMATION

Ecotoxicity

Acute aquatic toxicity - Product Information

Fish
LC 50 (96 hour, static) 776.4 mg/L *Pimephales promelas* (Fathead Minnow) [1]
EC 50 (96 hour, static) 265.5 mg/L *Pimephales promelas* (Fathead Minnow) [1]

Crustacea
LC 50 (48 hour, static) 803.8 mg/L *Ceriodaphnia dubia* (Water Flea) [1]
EC 50 (48 hour, static) 33.2 mg/L *Ceriodaphnia dubia* (Water Flea) [1]

Algae/aquatic plants
No information available

Acute aquatic toxicity - Component Information

Component	weight-%	Algae/aquatic plants	Fish	Toxicity to daphnia and other aquatic invertebrates
Trade Secret Ingredient	45 - 55%	--	LC50 (96 h static) 100 - 500 mg/L (Brachydanio rerio)	--

Mobility in Soil

No data available.

Bio-accumulative Potential

No data available.

Persistence and Degradability

No data available.

Other Adverse Effect

No data available.

SECTION 13) DISPOSAL CONSIDERATIONS

Waste Disposal

Under RCRA it is the responsibility of the user of the product to determine at the time of disposal whether the product meets RCRA criteria for hazardous waste. Waste management should be in full compliance with federal, state and local laws.
Empty Containers retain product residue which may exhibit hazards of material, therefore do not pressurize, cut, glaze, weld or use for any other purposes. Return drums to reclamation centers for proper cleaning and reuse.

SECTION 14) TRANSPORT INFORMATION

U.S. DOT Information

NOT REGULATED FOR TRANSPORTATION

This product is excepted from DOT regulations under 49 CFR 173.154(d) when shipped by road or railway. The product exception is referenced in 49 CFR 172.101 Table. Packaging material must not be aluminum, steel or be degraded by this product

SECTION 15) REGULATORY INFORMATION

CAS	Chemical Name	% By Weight	Regulation List
No applicable CAS	No applicable chemical	-	-

SECTION 16) OTHER INFORMATION

Glossary

ACGIH- American Conference of Governmental Industrial Hygienists; ANSI- American National Standards Institute; Canadian TDGCanadian Transportation of Dangerous Goods; CAS- Chemical Abstract Service; Chemtrec- Chemical Transportation Emergency Center(US); CHIP- Chemical Hazard Information and Packaging; DSL- Domestic Substances List; EC- Equivalent Concentration; EH40 (UK)- HSE Guidance Note EH40 Occupational Exposure Limits; EPCRA- Emergency Planning and Community Right-To-Know Act; ESL Effects screening levels; HMIS- Hazardous Material Information Service; LC- Lethal Concentration; LD- Lethal Dose; NFPA- National Fire Protection Association; OEL- Occupational Exposure Limits; OSHA- Occupational Safety and Health Administration, US Department of Labor; PEL- Permissible Exposure Limit; SARA (Title III)- Superfund Amendments and Reauthorization Act; SARA 313- Superfund Amendments and Reauthorization Act, Section 313; SCBA- Self Contained Breathing Apparatus; STEL-Short Term Exposure Limit; TCEQ Texas Commission on Environmental Quality; TLV- Threshold Limit Value; TSCA- Toxic Substances Control Act Public Law 94-469; TWA Time Weighted Value; US DOT- US Department of Transportation; WHMIS- Workplace Hazardous Materials Information System.

Additional Information

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Version 1.0:

Revision Date: Apr 15,2019

First Edition.

DISCLAIMER

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

SAFETY DATA SHEET

Revision date 2019-27-9

Revision number 2

SECTION 1) CHEMICAL PRODUCT AND SUPPLIER'S IDENTIFICATION

Product ID:	FOC ND-9911
Product Name:	Waste/Water Treatment. For industrial use only
Revision Date:	Sep 27,2019
Supersedes Date:	April 28, 2019
Manufacturer's Name:	Azure Water Services
Address:	280 Callegari Drive West Haven, CT, US, 06516
Emergency Phone:	Chemtrec 800-424-9300, in US and Canada only

SECTION 2) HAZARDS IDENTIFICATION

Classification

Eye Irritation - Category 2

Skin Irritation - Category 3

Pictograms

Signal Word

Warning

Hazardous Statements - Health

Causes serious eye irritation

Causes mild skin irritation

Precautionary Statements - General

If medical advice is needed, have product container or label at hand.

Keep out of reach of children.

Read label before use.

Precautionary Statements - Prevention

Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary Statements - Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

If skin irritation occurs: Get medical advice/attention.

Precautionary Statements - Storage

No precautionary statement available.

Precautionary Statements - Disposal

No precautionary statement available.

Hazards Not Otherwise Classified (HNOC)

None.

SECTION 3) COMPOSITION / INFORMATION ON INGREDIENTS

Substances/Mixtures

Chemical nature: Anionic Polyacrylamide

This product is not classified as Hazardous under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

All of the product's ingredients are either listed or exempt from the TSCA Inventory.

Some specific chemical identity is being withheld as a trade secrets
None of the chemicals in this product are hazardous according to the GHS.

SECTION 4) FIRST-AID MEASURES

Inhalation

Remove source of exposure or move person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor/. If breathing has stopped, trained personnel should begin rescue breathing or, if the heart has stopped, immediately start cardiopulmonary resuscitation (CPR) or automated external defibrillation (AED).

Eye Contact

Remove source of exposure or move person to fresh air. Rinse eyes cautiously with lukewarm, gently flowing water for several minutes, while holding the eyelids open. Remove contact lenses, if present and easy to do. Continue rinsing for a flushing duration of 30 minutes. Take care not to rinse contaminated water into the unaffected eye or onto the face. Immediately call a POISON CENTER/doctor.

Skin Contact

Take off immediately all contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Rinse skin with lukewarm, gently flowing water/shower for a duration of 30 minutes or until medical aid is available. Immediately call a POISON CENTER/doctor. Wash contaminated clothing before re-use or discard.

Ingestion

Rinse mouth with water. Do NOT induce vomiting. Give 1 to 2 cups of milk or water to drink. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, lie on your side, in the recovery position. Immediately call a POISON CENTER/doctor.

Most Important Symptoms and Effects, Both acute and Delayed

No data available.

Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available.

SECTION 5) FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Dry chemical, foam, carbon dioxide. Sand or earth may be used for small fires only.

Use extinguishing agent suitable for type of surrounding fire.

Unsuitable Extinguishing Media

Do not use direct water stream since this may cause fire to spread.

Specific Hazards in Case of Fire

In case of fire, hazardous decomposition products may include sulphur oxides.

Fire-Fighting Procedures

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Water may be ineffective but can be used to cool containers exposed to heat or flame. Caution should be exercised when using water or foam as frothing may occur, especially if sprayed into containers of hot, burning liquid. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

Special Protective Actions

Wear protective pressure self-contained breathing apparatus (SCBA) and full turnout gear.

SECTION 6) ACCIDENTAL RELEASE MEASURES

Emergency Procedure

Isolate hazard area and keep unnecessary people away. Remove all possible sources of ignition in the surrounding area. Notify authorities if any exposure to the general public or the environment occurs or is likely to occur.

Absorb spill with absorbent material or vacuum spill into polyethylene lined steel or plastic drums.

Do not touch or walk through spilled material.

If spilled material is cleaned up using a regulated solvent, the resulting waste mixture may be regulated.

Recommended Equipment

Positive pressure, full-facepiece self-contained breathing apparatus (SCBA), or positive pressure supplied air respirator with escape SCBA (NIOSH approved).

Personal Precautions

Avoid breathing vapor or mist. Avoid contact with skin, eye or clothing. Ensure adequate ventilation. Do not touch damaged containers or spilled materials unless wearing appropriate protective clothing.

Environmental Precautions

Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems and natural waterways by using sand, earth, or other appropriate barriers.

Methods and Materials for Containment and Cleaning Up

Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Contaminated absorbent material may pose the same hazard as the spilled product.

SECTION 7) HANDLING AND STORAGE

General

Wash hands after use.
Do not get in eyes, on skin or on clothing.
Do not breathe vapors or mists.
Use good personal hygiene practices.
Eating, drinking and smoking in work areas is prohibited.
Remove contaminated clothing and protective equipment before entering eating areas.
Eyewash stations and showers should be available in areas where this material is used and stored.

Ventilation Requirements

Use only with adequate ventilation to control air contaminants to their exposure limits. The use of local ventilation is recommended to control emissions near the source.

Storage Room Requirements

Keep container(s) tightly closed and properly labeled. Store in cool, dry, well-ventilated areas away from heat, direct sunlight and strong oxidizers. Store in approved containers and protect against physical damage. Keep containers securely sealed when not in use. Indoor storage should meet OSHA standards and appropriate fire codes. Containers that have been opened must be carefully resealed to prevent leakage. Empty containers retain residue and may be dangerous.
Use ventilation systems where this product is used and stored.

SECTION 8) EXPOSURE CONTROLS, PERSONAL PROTECTION

Eye Protection

Wear eye protection with side shields or goggles. Wear indirect-vent, impact and splash resistant goggles when working with liquids. If additional protection is needed for entire face, use in combination with a face shield.

Skin Protection

Use of gloves approved to relevant standards made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Use of an apron and over-boots of chemically impervious materials such as neoprene or nitrile rubber is recommended to avoid skin sensitization. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Launder soiled clothes or properly disposed of contaminated material, which cannot be decontaminated.

Respiratory Protection

If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker, a respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed. Check with respiratory protective equipment suppliers.

Appropriate Engineering Controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

SECTION 9) PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Density	5.85 lb/gal
Specific Gravity	0.65 - 0.85
Appearance	Off white granular solid
pH	6.0 - 8.0
Odor Threshold	N/A
Odor Description	characteristic odor
Water Solubility	< 2%
Viscosity	N/A
Vapor Pressure	Similar to water
Vapor Density	N/A
Freezing Point	<32 °F
Boiling Point	>212 °F
Evaporation Rate	N/A
Flammability	Flash point at or above 200°F/93°C

SECTION 10) STABILITY AND REACTIVITY

Stability

Stable under normal storage and handling conditions.

Conditions To Avoid

Avoid heat, sparks, flame, high temperature and contact with incompatible materials.

Hazardous Reactions/Polymerization

Hazardous polymerization will not occur.

Incompatible Materials

Strong bases, acids, oxidizing and reducing agents.

Hazardous Decomposition Products

May produce carbon monoxide, carbon dioxide.

SECTION 11) TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

Inhalation, ingestion, skin absorption.

Acute Toxicity

Acute Oral Toxicity: Results displayed may not be the result of actual testing of this material but based on a similar tested material
LD50, Rat, 4 hr > 2,500 mg/kg (estimated)
Acute Inhalation Toxicity: LC50, Rat, 4 hr, > 20mg/l (estimated)
Acute Dermal Toxicity: LD50, Rabbit, > 10,000 mg/kg (estimated)

Carcinogenicity

Based on available data, the classification criteria are not meet.

Respiratory/Skin Sensitization

No Data Available

Serious Eye Damage/Irritation

Causes serious eye irritation

Skin Corrosion/Irritation

Causes mild skin irritation

Specific Target Organ Toxicity - Repeated Exposure

No Data Available

Specific Target Organ Toxicity - Single Exposure

No Data Available

SECTION 12) ECOLOGICAL INFORMATION

Ecotoxicity effects

Aquatic Toxicity: Ecotoxicological information provided is based on a structurally or compositionally similar product.

LC50, Bluegill sunfish (Lepomis macrochirus), 96 hr, > 100 mg/kg	OECD Test Guideline 203
LC50, Rainbow Trout (Oncorhynchus mykiss), 96 hr, > 100 mg/l	OECD Test Guideline 203
EC50, Water Flea (Daphina Magna), 48 hr, > 100 mg/l	OECD Test Guideline 202
EC50, Amphipoda (Corophium Volutator), 10 d, 1415 mg/l	OECD Test Guideline 202
EC50, Copepod (Acartia Tonsa), 48 hr, 342 mg/l	OECD Test Guideline 202
IC50, Green Algae (Selenastrum capricornutum), 72 hr, > 100mg/l	OECD Test Guideline 201
IC50, Diatom (Skeletonema Costatum), 72 hr, 2,276 mg/l	OECD Test Guideline 201

Mobility in Soil

Water Solubility: Limited by viscosity.
Surface Tension: Not applicable

Persistence and degradability

Ecotoxicological information provided is based on a structurally or compositionally similar product.

Not Readily Biodegradable.

Ready Biodegradability: d:< 10%	OECD Test Guideline 301 D/28
Biodegradability in Seawater: d: 1.7%	OECD Test Guideline 306/28

Bioaccumulative potential

Bioaccumulation is unlikely. Because of the high molecular weight of the polymer diffusion through biological membranes is very small.

Partion coefficient

N-octanol/water: Not applicable

Other adverse effects

This material is not classified as dangerous for the environment .

SECTION 13) DISPOSAL CONSIDERATIONS

Waste Disposal

Under RCRA it is the responsibility of the user of the product to determine at the time of disposal whether the product meets RCRA criteria for hazardous waste. Waste management should be in full compliance with federal, state and local laws.
Empty Containers retain product residue which may exhibit hazards of material, therefore do not pressurize, cut, glaze, weld or use for any other purposes. Return drums to reclamation centers for proper cleaning and reuse.

SECTION 14) TRANSPORT INFORMATION

U.S. DOT Information

For all transportation accidents, call CHEMTREC at 800/424-9300. All spills and leaks of this material must be handled in accordance with local, state, and federal regulations.

DOT Shipping Designation:

Non-hazardous under 29-CFR 1910.1200. Water treatment compound

SECTION 15) REGULATORY INFORMATION

CAS	Chemical Name	% By Weight	Regulation List
No applicable CAS	No applicable chemical	-	-

SECTION 16) OTHER INFORMATION

Glossary

ACGIH- American Conference of Governmental Industrial Hygienists; ANSI- American National Standards Institute; Canadian TDGCanadian Transportation of Dangerous Goods; CAS- Chemical Abstract Service; Chemtrec- Chemical Transportation Emergency Center(US); CHIP- Chemical Hazard Information and Packaging; DSL- Domestic Substances List; EC- Equivalent Concentration; EH40 (UK)- HSE Guidance Note EH40 Occupational Exposure Limits; EPCRA- Emergency Planning and Community Right-To-Know Act; ESL Effects screening levels; HMIS- Hazardous Material Information Service; LC- Lethal Concentration; LD- Lethal Dose; NFPA- National Fire Protection Association; OEL- Occupational Exposure Limits; OSHA- Occupational Safety and Health Administration, US Department of Labor; PEL- Permissible Exposure Limit; SARA (Title III)- Superfund Amendments and Reauthorization Act; SARA 313- Superfund Amendments and Reauthorization Act, Section 313; SCBA- Self Contained Breathing Apparatus; STEL-Short Term Exposure Limit; TCEQ Texas Commission on Environmental Quality; TLV- Threshold Limit Value; TSCA- Toxic Substances Control Act Public Law 94-469; TWA Time Weighted Value; US DOT- US Department of Transportation; WHMIS- Workplace Hazardous Materials Information System.

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

DISCLAIMER

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

APPENDIX F

NOAA AND US FISHERY AND WILDLIFE SERVICES

Anna Campbell

From: Lindsey Aborn
Sent: Thursday, March 24, 2022 10:28 AM
To: Anna Campbell
Subject: FW: 22 Willow Street, Chelsea, MA RGP

Lindsey Aborn
Senior Project Geologist
Not professionally licensed

SANBORN | HEAD & ASSOCIATES, INC.
D 857.327.9742 | M 781.248.5730 | 98 N. Washington Street, Suite 101, Boston, MA 02114

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From: Meagan Riley - NOAA Federal <meagan.riley@noaa.gov>
Sent: Tuesday, March 22, 2022 3:02 PM
To: Lindsey Aborn <laborn@sanbornhead.com>
Subject: Re: 22 Willow Street, Chelsea, MA RGP

Hi, Lindsey. Please see our ESA Section 7 Mapper for information about which Endangered Species Act (ESA)-listed species, the time of year, and the different life stages that are expected to be present in the Chelsea River.

Thanks,
Meagan

Meagan Riley
Section 7 Biologist, Greater Atlantic Regional Fisheries Office
NOAA Fisheries | U.S. Department of Commerce
Office: (978) 281-9339

NOAA FISHERIES

---------- Forwarded message ---------
From: **Lindsey Aborn** <laborn@sanbornhead.com>
Date: Wed, Mar 16, 2022 at 10:51 AM
Subject: 22 Willow Street, Chelsea, MA RGP
To: nmfs.gar.esa.section7@noaa.gov <nmfs.gar.esa.section7@noaa.gov>

Good afternoon,

I am requesting information to be included as part of a Notice of Intent (NOI) for a Remediation General Permit (RGP). The NOI is for construction dewatering during excavation activities in the vicinity of 22 Willow Street in Chelsea, Massachusetts. Effluent will be discharged to the Chelsea River via a private onsite catch basin.

As part of the application to the USEPA for the RPG, we need to investigate whether this proposed temporary discharge has the potential to adversely affect any federally listed species in the reach of the Chelsea River located downstream of the discharge point.

The approximate discharge locations are:

Latitude: 42.386261 Longitude: -71. 023687, and;

Latitude: 42.385918 Longitude: -71.031378.

Attached is the species list generated from IPaC.

Thank you in advance for your assistance, and please let me know if you require further information.

Lindsey

Lindsey Aborn
Senior Project Geologist

Not professionally licensed

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D 857.327.9742 | M 781.248.5730 | 98 N. Washington Street, Suite 101, Boston, MA 02114

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Drawn Action Area & Overlapping S7 Consultation Areas

Area of Interest (AOI) Information

Area : 2,369.04 acres

Mar 15 2022 13:32:53 Eastern Daylight Time

Summary

Name	Count	Area(acres)	Length(mi)
Atlantic Sturgeon	2	881.74	N/A
Shortnose Sturgeon	1	440.87	N/A
Atlantic Salmon	0	0	N/A
Sea Turtles	4	635.32	N/A
Atlantic Large Whales	4	946.16	N/A
In or Near Critical Habitat	0	0	N/A

Atlantic Sturgeon

#	Feature ID	Species	Life Stage	Behavior	Zone	From	Until	From (2)	Until (2)	Area(acres)
1	ANS_C50_ADU_MAF	Atlantic sturgeon	Adult	Migrating & Foraging	N/A	01/01	12/31	N/A	N/A	440.87
2	ANS_C50_SUB_MAF	Atlantic sturgeon	Subadult	Migrating & Foraging	N/A	01/01	12/31	N/A	N/A	440.87

Shortnose Sturgeon

#	Feature ID	Species	Life Stage	Behavior	Zone	From	Until	From (2)	Until (2)	Area(acres)
1	SNS_C50_ADU_MAF	Shortnose sturgeon	Adult	Migrating & Foraging	N/A	04/01	11/30	N/A	N/A	440.87

Sea Turtles

#	Feature ID	Species	Life Stage	Behavior	Zone	From	Until	From (2)	Until (2)	Area(acres)
1	GRN_STN_AJV_MAF	Green sea turtle	Adults and juveniles	Migrating & Foraging	Maine to Massachusetts (N of Cape Cod)	6/1	11/30	*No Data*	*No Data*	158.83
2	KMP_STN_AJV_MAF	Kemp's ridley sea turtle	Adults and juveniles	Migrating & Foraging	Maine to Massachusetts (N of Cape Cod)	6/1	11/30	*No Data*	*No Data*	158.83
3	LTR_STN_AJV_MAF	Leatherback sea turtle	Adults and juveniles	Migrating & Foraging	Maine to Massachusetts (N of Cape Cod)	6/1	11/30	*No Data*	*No Data*	158.83
4	LOG_STN_AJV_MAF	Loggerhead sea turtle	Adults and juveniles	Migrating & Foraging	Maine to Massachusetts (N of Cape Cod)	6/1	11/30	*No Data*	*No Data*	158.83

Atlantic Large Whales

#	Feature ID	Species	Life Stage	Behavior	Zone	From	Until	From (2)	Until (2)	Area(acres)
1	RIT_WRN_AJV_FOR	North Atlantic right whale	Adults and juveniles	Foraging	Northeast (ME to Cape Cod, MA)	1/1	12/31	*No Data*	*No Data*	236.54
2	RIT_WRN_AJV_WIN	North Atlantic right whale	Adults and juveniles	Overwintering	Northeast (ME to Cape Cod, MA)	11/1	1/31	*No Data*	*No Data*	236.54
3	FIN_WFN_AJV_WIN	Fin whale	Adults and juveniles	Overwintering	Northeast (ME to Cape Cod, MA)	11/1	3/31	*No Data*	*No Data*	236.54
4	FIN_WFN_AJV_FOR	Fin whale	Adults and juveniles	Foraging	Northeast (ME to Cape Cod, MA)	1/1	12/31	*No Data*	*No Data*	236.54

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To:
Project Code: 2022-0020360
Project Name: 22 Willow Street

March 16, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Please review this letter each time you request an Official Species List, we will continue to update it with additional information and links to websites may change.

About Official Species Lists

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Federal and non-Federal project proponents have responsibilities under the Act to consider effects on listed species.

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested by returning to an existing project's page in IPaC.

Endangered Species Act Project Review

Please visit the "**New England Field Office Endangered Species Project Review and Consultation**" website for step-by-step instructions on how to consider effects on listed

species and prepare and submit a project review package if necessary:

https://www.fws.gov/newengland/endangeredspecies/project-review/index.html

NOTE Please do not use the **Consultation Package Builder** tool in IPaC except in specific situations following coordination with our office. Please follow the project review guidance on our website instead and reference your **Project Code** in all correspondence.

Additional Info About Section 7 of the Act
Under section 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether projects may affect threatened and endangered species and/or designated critical habitat. If a Federal agency, or its non-Federal representative, determines that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Federal agency also may need to consider proposed species and proposed critical habitat in the consultation. 50 CFR 402.14(c)(1) specifies the information required for consultation under the Act regardless of the format of the evaluation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

In addition to consultation requirements under Section 7(a)(2) of the ESA, please note that under sections 7(a)(1) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Please contact NEFO if you would like more information.

Candidate species that appear on the enclosed species list have no current protections under the ESA. The species' occurrence on an official species list does not convey a requirement to consider impacts to this species as you would a proposed, threatened, or endangered species. The ESA does not provide for interagency consultations on candidate species under section 7, however, the Service recommends that all project proponents incorporate measures into projects to benefit candidate species and their habitats wherever possible.

Migratory Birds

In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see:

https://www.fws.gov/birds/policies-and-regulations.php

Please feel free to contact us at **newengland@fws.gov** with your **Project Code** in the subject line if you need more information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat.

Attachment(s): Official Species List

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Project Code: 2022-0020360
Event Code: None
Project Name: 22 Willow Street
Project Type: Mixed-Use Construction
Project Description: The location is 22 Willow Street in Chelsea, MA 02150. The property is approximately 8 acres. Lat: 42.386790, Long: -71.029009. The proposed construction is the development of a new commercial/industrial building.
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.38671565,-71.02889142491205,14z

Counties: Suffolk County, Massachusetts

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Roseate Tern *Sterna dougallii dougallii* Population: Northeast U.S. nesting population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2083	Endangered

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

IPaC User Contact Information

Agency: Sanborn Head & Associates, Inc.
Name: Lindsey Aborn
Address: 98 North Washington Street
City: Boston
State: MA
Zip: 02114
Email laborn@sanbornhead.com
Phone: 7812485730

APPENDIX G

NATIONAL REGISTER OF HISTORICAL PLACES, CHELSEA, MASSACHUSETTS

Appendix G
National Register of Historic Places
Research Documentation
Chelsea, Massachusetts

Reference Number	Property Name	State	County	City	Street & Number	Listed Date
01000089	Chelsea Garden Cemetery	MASSACHUSETTS	Suffolk	Chelsea	70 Central Ave. (formerly Shawmut St.)	2/9/2001
09000144	Chelsea Square Historic District	MASSACHUSETTS	Suffolk	Chelsea	Roughly area around Broadway, Medford. Tremont, Park, Cross and Winnisimmet Sts.	4/8/1982
73000851	Naval Hospital Boston Historic District	MASSACHUSETTS	Suffolk	Chelsea	1 Broadway	8/14/1973
74000908	Bellingham-Cary House	MASSACHUSETTS	Suffolk	Chelsea	34 Parker St.	9/6/1974
82004464	Kimball, C. Henry, House	MASSACHUSETTS	Suffolk	Chelsea	295 Washington St.	4/15/1982
85000030	Bellingham Square Historic District	MASSACHUSETTS	Suffolk	Chelsea	Roughly bounded by Broadway, Shawmut, Chestnut, and Shurtleff Sts.	1/3/1985
88000718	Downtown Chelsea Residential Historic District	MASSACHUSETTS	Suffolk	Chelsea	Roughly bounded by Shurtleff, Marginal, and Division Sts. and Bellingham Sq.	6/22/1988
93000283	Congregation Agudath Shalom	MASSACHUSETTS	Suffolk	Chelsea	145 Walnut St.	4/16/1993