CONSIGLI
Est. 1905

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

February 22, 2022
File No. 3175.14

Re: Notice of Intent for the Remediation General Permit
Temporary Construction Dewatering for Site Redevelopment
Assembly Row Block 7A
350 Assembly Row, Somerville, Massachusetts

To whom it may concern:

On behalf of Federal Realty Investment Trust, Consigli Construction is submitting this Notice of Intent (NOI) to the U.S. Environmental Protection Agency (U.S. EPA) for coverage under the National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) MAG910000 for the Assembly Row Block 7A property located at 350 Assembly Row in Somerville, Massachusetts (the Site). This letter and supporting documentation were prepared in accordance with the U.S. EPA guidance for construction dewatering under the RGP program. Consigli Construction is the general contractor for the project and will have direct responsibility of the subcontractors performing the dewatering activities at the Site. Subcontractors working for Consigli Construction on the project will be required to meet the requirements of this NOI and the RGP. The location of the Site and the discharge location via a storm drain outfall are shown on Figure 1 and the extent of the Site area is shown on Figure 2. The completed NOI for the Remediation General Permit form is included as Appendix A.

The Site is located at 350 Assembly Row in the eastern portion of Somerville, Massachusetts, in the Assembly Square area south of the Mystic River as shown on Figure 1. Redevelopment activities at the Site include construction of a multi-story retail and office building with below grade parking, and installation of new utility systems. These activities will require temporary construction dewatering. The Site consists of a portion of the former property identified as 85 Foley Street. Block 7A is identified by the City of Somerville as Map 99 Block A Lot 13 with an address of 300-398 Grand Union Boulevard. Portions of the Massachusetts Contingency Plan (MCP) sites associated with Release Tracking Numbers (RTNs) 3-3937, 3-25033, and 3-11886 are located within Block 7A as shown on Figure 2. The temporary construction dewatering will discharge via a 72-inch storm drain outfall which was installed as part of the Assembly Row development. The 72-inch storm drain outfall discharges to the Mystic River below the Amelia Earhart DAM (Figure 2).

The earthwork to prepare the Site for redevelopment will require excavation of soil to approximately 30 feet below ground surface (bgs) within the proposed building footprint and some shallow excavations in the surrounding site areas. Groundwater is anticipated to be encountered between 10 and 15 feet bgs. The excavations will be supported and groundwater that flows into the excavations during construction activities will be treated prior to discharge to an existing storm drain such that the discharged effluent meets the effluent limitations established by NPDES Part 2.1 and Appendix V of the RGP Application. Figure 3 includes a schematic of the proposed dewatering treatment system.

The contingent pH adjustment system associated with the water treatment system design includes an automated feed system with a mix tank, chemical feed pumps and setpoint controls that maintain the pH to within discharge permit parameters. The maximum application concentration for sulfuric acid or sodium hydroxide would be 166 mg/L.

The addition of pH conditioners will 1) not add any pollutants in concentrations which exceed permit effluent limitations; 2) not result in the exceedance of any applicable water quality standard; and 3) not add any pollutants that would justify the application of permit conditions that are different from or absent in this permit. The addition of sulfuric acid or sodium hydroxide to control pH is a standard treatment for temporary construction dewatering and 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 chemical aided settling system may be used to control total suspended solids (TSS) in the effluent if necessary to meet the permit requirements. The contingent chemical aided settling system includes coagulant (LRT-E-50) and flocculant (LRT-9911) will be added into the influent stream in the primary weir tank. The coagulant and flocculant continually dose as dewatering activities occur at the maximum dosage rate of 25 parts per million (ppm). Although dosage rate for the coagulant and flocculant will be 25ppm, the detected concentration in the post bag filter (carryover) has been recorded in the parts per trillion (ppt) range, (about 6 order of magnitude less than the dosing concentration). This is because nearly all the chemical becomes incorporated in the sludge and removed from the waste stream as solids from the frac and weir tanks.

The addition of chemical aided settling system chemicals will not add any pollutant in contractions which exceed permit effluent limitations, will not exceed any applicable water quality standard, and will not add any pollutants that would be justify the application of permit conditions that different from or absent in this permit.

The safety data sheets (SDS)s for the chemicals used in the chemical aided settling system and the pH adjustment System are included in Appendix H.

On December 3, 2021, Sanborn Head & Associates, the project's environmental consultant, collected samples to characterize the receiving and source waters in support of this NOI. The source water samples were collected from existing groundwater monitoring wells B7A-SH-17W and B7A-SH-30W, which are representative of site groundwater conditions and are shown on Figure 2. The receiving water was collected from the Mystic River adjacent to the proposed outfall discharge location. The groundwater samples were submitted to Alpha Analytical Laboratory (Alpha) of Westborough, MA for analysis of the 2017 NPDES suite of parameters.

The receiving waterbody for the treatment system will be the Mystic River. Information regarding the receiving water was collected from the Massachusetts Year 2016 Integrated List of Waters which is included in Appendix B. Dilution calculation information including correspondence with DEP is 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. Prior to discharge, Consigli Construction will obtain the necessary City of Somerville permits, including but not limited to dewatering and discharge permits, if applicable. The approximate locations of drainage structures and infrastructure proposed to convey the discharge to the outfall along the Mystic River are highlighted on plans included in Appendix E.

According to the Information for Planning and Conservation (IPaC) via the United States Fish and Wildlife Service (US FWS) website, the excavation activities will not impact Areas of Critical Environmental Concern (ACEC) or Habitats of Rare Wetland Wildlife. A review of the information on the US FWS and National Oceanic and Atmospheric Administration (NOAA) websites indicated that federally-listed threatened or endangered species are present in the project area, including monarch butterflies, roseate terns, Atlantic sturgeon, and shortnose sturgeon. Based on the scope of the dewatering program and the migratory nature of the present species, it is unlikely that the dewatering activities will adversely impact these species. Correspondence with these federal agencies is included in Appendix F.

A review of the National Register of Historic Places within Somerville 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,

Consigli Construction

Andrew Rouille
Senior Project Manager

Encl. Table 1 – Summary of Groundwater Quality Data
Table 2 – Summary of Surface Water Quality

Figure 1 – Locus Plan
Figure 2 – Site Plan with Target Discharge Point
Figure 3 – Proposed Groundwater Treatment Schematic
Appendix A – Notice of Intent Form
Appendix B – Massachusetts Category 5 Waters "Waters requiring a TDML"
Appendix C – Mystic River Dilution Calculations
Appendix D – Analytical Data Reports
Appendix E – Maps of Relevant Infrastructure
Appendix F – Federal Correspondence
Appendix G – National Register of Historic Places, Somerville, Massachusetts
Appendix H – Safety Data Sheets

cc: City of Somerville Board of Health
DEP Bureau of Water Resources
Mr. Brad Dutton ~ Federal Realty Investment Trust

TABLES

Table 1
Summary of Groundwater Quality Data
Assembly Row, Block 7A
Somerville, MA

LOCATION	Units	B7A-SH-17W	B7A-SH-30W	Maximum Detection	Average Detection
SAMPLE DATE		12/3/2021	12/3/2021		
SAMPLE TYPE		Groundwater	Groundwater		
General Chemistry					
Hardness	mg/L	**310**	**329**	**329**	**319.5**
Salinity	SU	<2	<2	ND	ND
Total Suspended Solids	mg/L	**260**	**80**	**260**	**170**
Chloride	mg/L	**677**	**715**	**715**	**696**
Phenolics (Total)	ug/L	<30	<30	ND	ND
Total Residual Chlorine	ug/L	<20	<20	ND	ND
Cyanide	ug/L	<5	<5	ND	ND
pH	SU	**6.7**	**7.2**	**7.2**	**6.95**
Ammonia	mg/L	**5.00**	**2.28**	**5**	**3.64**
Dissolved Metals					
Antimony	ug/L	<4	<4	ND	ND
Arsenic	ug/L	<1	<1	ND	ND
Cadmium	ug/L	<0.2	<0.2	ND	ND
Chromium	ug/L	<1	**1.7**	**1.7**	**1.7**
Copper	ug/L	<1	<1	ND	ND
Iron	ug/L	**926**	<50	**926**	**926**
Lead	ug/L	<1	<1	ND	ND
Mercury	ug/L	<0.2	<0.2	ND	ND
Nickel	ug/L	**4.7**	<2	**4.7**	**4.7**
Selenium	ug/L	<5	<5	ND	ND
Silver	ug/L	<0.4	<0.4	ND	ND
Zinc	ug/L	<10	<10	ND	ND
Total Metals					
Antimony	ug/L	<4	<4	ND	ND
Arsenic	ug/L	**36.77**	**15.31**	**36.77**	**26.04**
Cadmium	ug/L	<0.2	<0.2	ND	ND
Chromium, Total	ug/L	<1	<1	ND	ND
Chromium VI	ug/L	<10	<10	ND	ND
Chromium III	ug/L	<10	<10	ND	ND
Copper	ug/L	**3.23**	**2.3**	**3.23**	**2.765**
Iron	ug/L	**69,600**	**38,000**	**69,600**	**53,800**
Lead	ug/L	**1.14**	<1	**1.14**	**1.14**
Nickel	ug/L	**6.26**	**3.63**	**6.26**	**4.945**
Selenium	ug/L	<5	<5	ND	ND
Silver	ug/L	<0.4	<0.4	ND	ND
Zinc	ug/L	**19.63**	**13.54**	**19.63**	**16.585**
Mercury	ug/L	<0.2	<0.2	ND	ND
Petroleum Hydrocarbon Quantitation					
TPH	ug/L	<4000	<4000	ND	ND
Polychlorinated Biphenyls					
Aroclor 1016	ug/L	<0.25	<0.25	ND	ND
Aroclor 1221	ug/L	<0.25	<0.25	ND	ND
Aroclor 1232	ug/L	<0.25	<0.25	ND	ND
Aroclor 1242	ug/L	<0.25	<0.25	ND	ND
Aroclor 1248	ug/L	<0.25	<0.25	ND	ND
Aroclor 1254	ug/L	<0.25	<0.25	ND	ND
Aroclor 1260	ug/L	<0.2	<0.2	ND	ND
Microextractables					
Dibromo-3-chloropropane (1,2-) (DBCP)	ug/L	<0.01	<0.01	ND	ND
Dibromoethane (1,2-) (Ethylene Dibromide)	ug/L	<0.01	<0.01	ND	ND
Trichloropropane (1,2,3-)	ug/L	<0.031	<0.03	ND	ND
Volatile Organic Compounds					
Acetone	ug/L	<10	<10	ND	ND
Benzene	ug/L	<1	<1	ND	ND
Carbon tetrachloride	ug/L	<1	<1	ND	ND
Dichlorobenzene (1,2-)	ug/L	<5	<5	ND	ND
Dichlorobenzene (1,3-)	ug/L	<5	<5	ND	ND

Table 1
Summary of Groundwater Quality Data
Assembly Row, Block 7A
Somerville, MA

LOCATION	Units	B7A-SH-17W	B7A-SH-30W	Maximum Detection	Average Detection
SAMPLE DATE		12/3/2021	12/3/2021		
SAMPLE TYPE		Groundwater	Groundwater		
Volatile Organic Compounds (cont.)					
Dichlorobenzene (1,4-)	ug/L	<5	<5	ND	ND
Dichloroethane (1,1-)	ug/L	<1.5	<1.5	ND	ND
Dichloroethane (1,2-)	ug/L	<1.5	<1.5	ND	ND
Dichloroethene (1,1-)	ug/L	<1	<1	ND	ND
Dichloroethene (cis-1,2-)	ug/L	<1	<1	ND	ND
Ethylbenzene	ug/L	<1	<1	ND	ND
Methylene Chloride (Dichloromethane)	ug/L	<1	<1	ND	ND
Methyl-tert Butyl Ether (MTBE)	ug/L	<10	<10	ND	ND
Tert Amyl Methyl Ether (TAME)	ug/L	<20	<20	ND	ND
Tert Butyl Alcohol (TBA) (tert-Butanol)	ug/L	<100	<100	ND	ND
Tetrachloroethene (PCE)	ug/L	<1	<1	ND	ND
Toluene	ug/L	<1	<1	ND	ND
Trichloroethane (1,1,1-)	ug/L	<2	<2	ND	ND
Trichloroethane (1,1,2-)	ug/L	<1.5	<1.5	ND	ND
Trichloroethene (TCE)	ug/L	<1	<1	ND	ND
Vinyl chloride	ug/L	<1	<1	ND	ND
Xylene (m,p-)	ug/L	<2	<2	ND	ND
Xylene (o-)	ug/L	<1	<1	ND	ND
Xylenes (total)	ug/L	<1	<1	ND	ND
Dioxane (1,4-)	ug/L	<5	<5	ND	ND
bis(2-Ethylhexyl)phthalate (Di(ethylhexyl)phthalate)	ug/L	<2.2	<2.2	ND	ND
Butylbenzylphthalate	ug/L	<5	<5	ND	ND
Diethylphthalate	ug/L	<5	<5	ND	ND
Dimethylphthalate	ug/L	<5	<5	ND	ND
Di-n-butylphthalate (Dibutylphthalate)	ug/L	<5	<5	ND	ND
Di-n-octylphthalate	ug/L	<5	<5	ND	ND
Semivolatile Organic Compounds					
Acenaphthene	ug/L	<0.1	<0.1	ND	ND
Acenaphthylene	ug/L	<0.1	<0.1	ND	ND
Anthracene	ug/L	<0.1	<0.1	ND	ND
Benzo(a)anthracene	ug/L	<0.1	<0.1	ND	ND
Benzo(a)pyrene	ug/L	<0.1	<0.1	ND	ND
Benzo(b)fluoranthene	ug/L	<0.1	<0.1	ND	ND
Benzo(g,h,i)perylene	ug/L	<0.1	<0.1	ND	ND
Benzo(k)fluoranthene	ug/L	<0.1	<0.1	ND	ND
Chrysene	ug/L	<0.1	<0.1	ND	ND
Dibenz(a,h)anthracene	ug/L	<0.1	<0.1	ND	ND
Fluoranthene	ug/L	<0.1	<0.1	ND	ND
Fluorene	ug/L	<0.1	<0.1	ND	ND
Indeno(1,2,3-cd)pyrene	ug/L	<0.1	<0.1	ND	ND
Naphthalene	ug/L	<0.1	<0.1	ND	ND
Pentachlorophenol	ug/L	<1	<1	ND	ND
Phenanthrene	ug/L	<0.1	<0.1	ND	ND
Pyrene	ug/L	<0.1	<0.1	ND	ND

Notes:
1. The samples were collected by Sanborn, Head & Associates, Inc. on the date indicated and analyzed by Alpha Analytical Laboratories, Inc. of Westborough, Massachuestts.

2. Average concentrations for each analyte were calculated as an average of detected concentrations where half of the detection limit was used where analytes were not detected.

3. Bolded values indicate detections of that analyte above laboratory reporting limits.

4. Abbreviations:
mg/L = milligrams per liter
ug/L = micrograms per liter
SU = Standard Units
"<" = analyte was not detected above the laboratory reporting limit shown

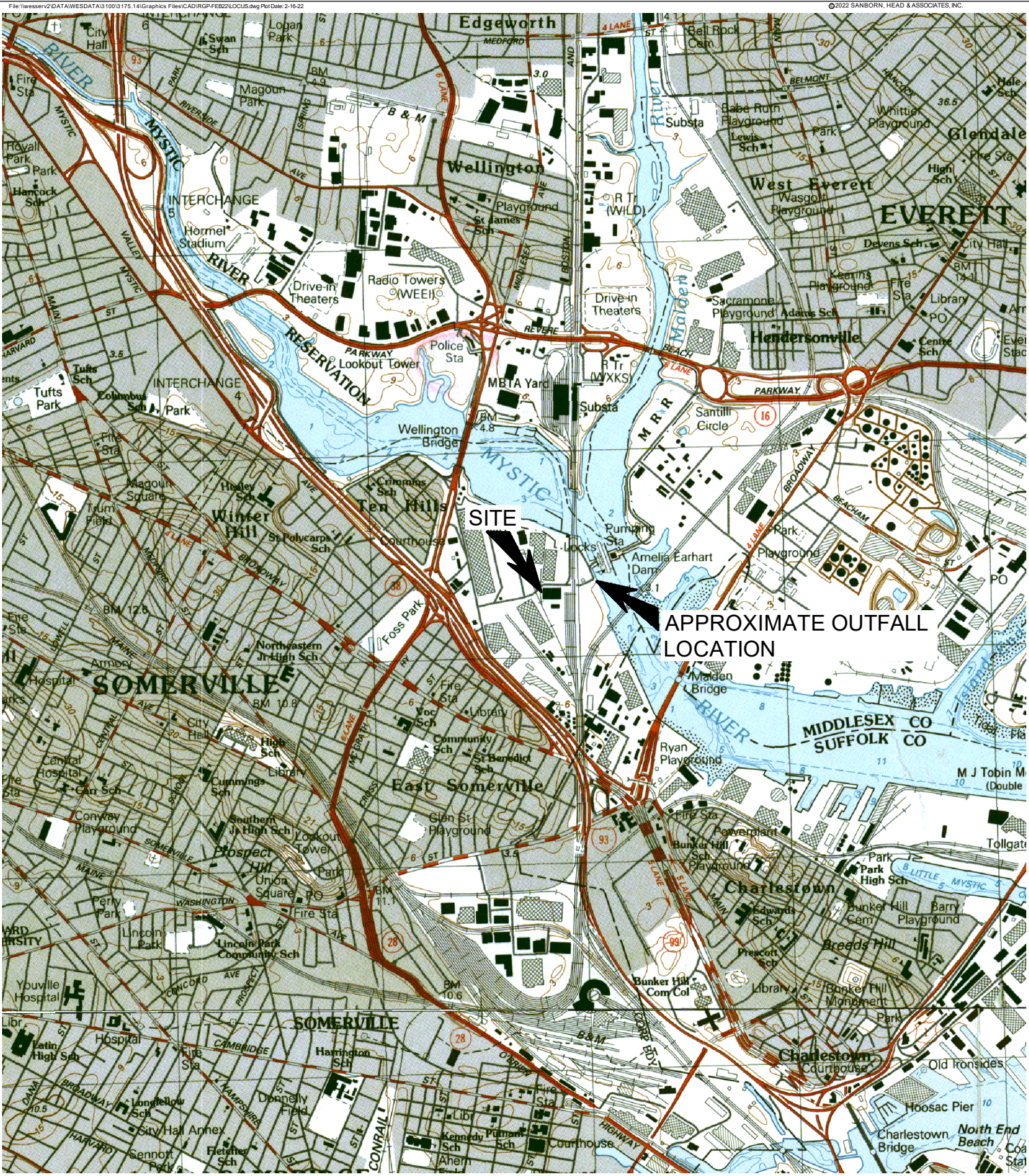
Table 2
Summary of Surface Water Quality Data
Assembly Row, Block 7A
Somerville, MA

LOCATION	Units	MYSTIC
SAMPLE DATE		12/3/2021
SAMPLE TYPE		Surface Water
General Chemistry		
Hardness	mg/L	**5240**
Salinity	SU	**31**
pH	SU	**7.5**
Ammonia	mg/L	**0.125**
Total Metals		
Antimony	ug/L	<20
Arsenic	ug/L	<5
Cadmium	ug/L	<1
Chromium, Total	ug/L	<5
Copper	ug/L	**8.67**
Iron	ug/L	**90**
Lead	ug/L	<5
Nickel	ug/L	**32.28**
Selenium	ug/L	<25
Silver	ug/L	<2
Zinc	ug/L	<50
Mercury	ug/L	<0.2

Notes:
1. The sample was collected by Sanborn, Head & Associates, Inc. on the date indicated and analyzed by Alpha Analytical Laboratories, Inc. of Westborough, Massachuestts.

2. Abbreviations:
mg/L = milligrams per liter
ug/L = micrograms per liter
SU = Standard Units
"<" = analyte was not detected above the laboratory reporting limit shown

FIGURES



NOTES:
Base map taken from "Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs"
7.5 minute USGS Quadrangle Maps: Boston North, MA,Revised 1985

Drawn By: M. Revere
Designed By: H. Sanderson
Reviewed By: K. Walker
Project No: 3175.14
Date: February 2022

SCALE: 1:25,000

SANBORN HEAD

FIGURE 1

Locus Plan

Notice of Intent for Remediation General Permit

Assembly Row Block 7A
Somerville, Massachusetts

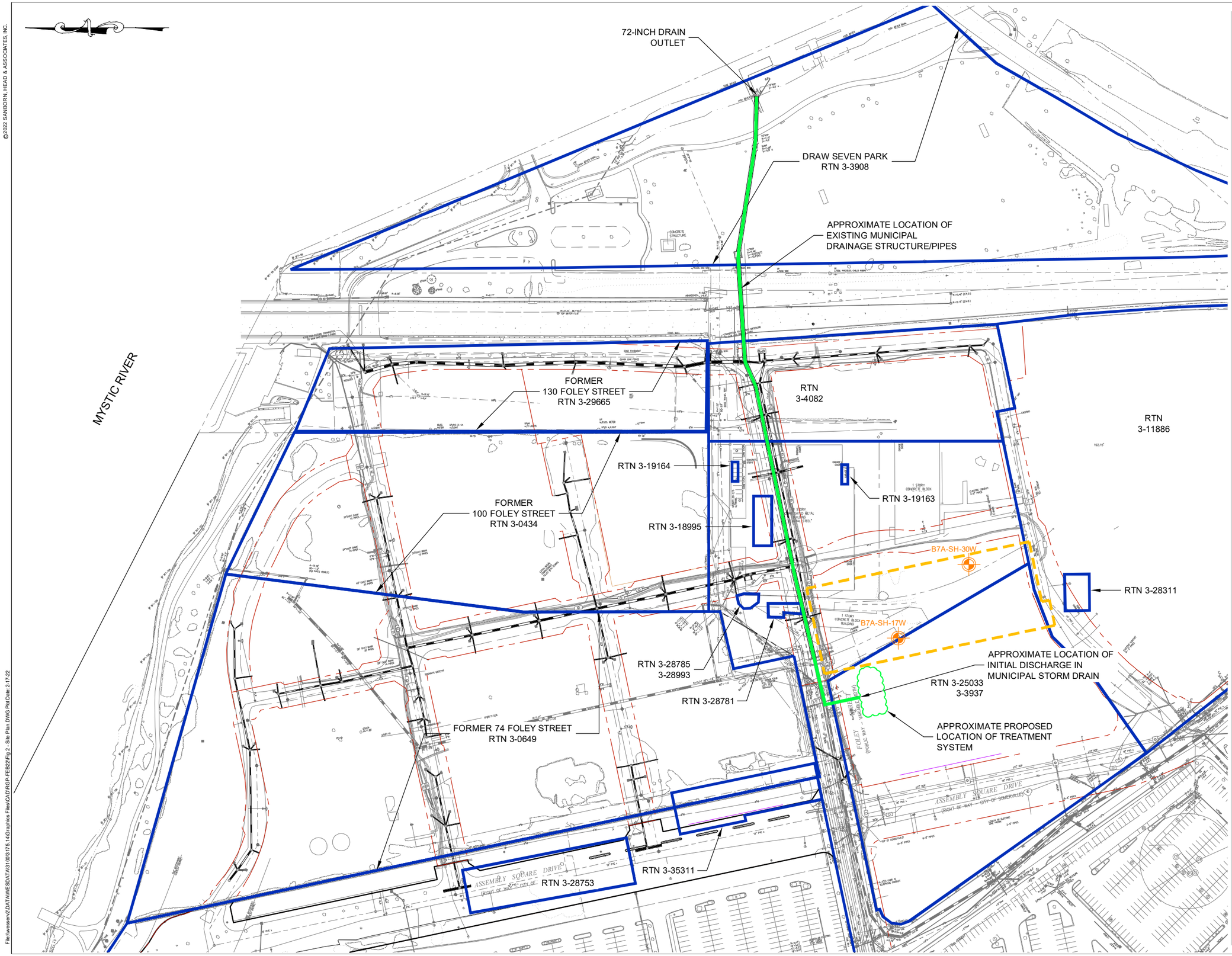


Figure No. 2

Site Plan with Target Discharge Point

Notice of Intent for Remediation General Permit

Assembly Row Block 7A
Somerville, Massachusetts

Drawn By: M. Revere
Designed By: H. Sanderson
Reviewed By: K.Walker
Project No: 3175.14
Date: February 2022

Figure Narrative

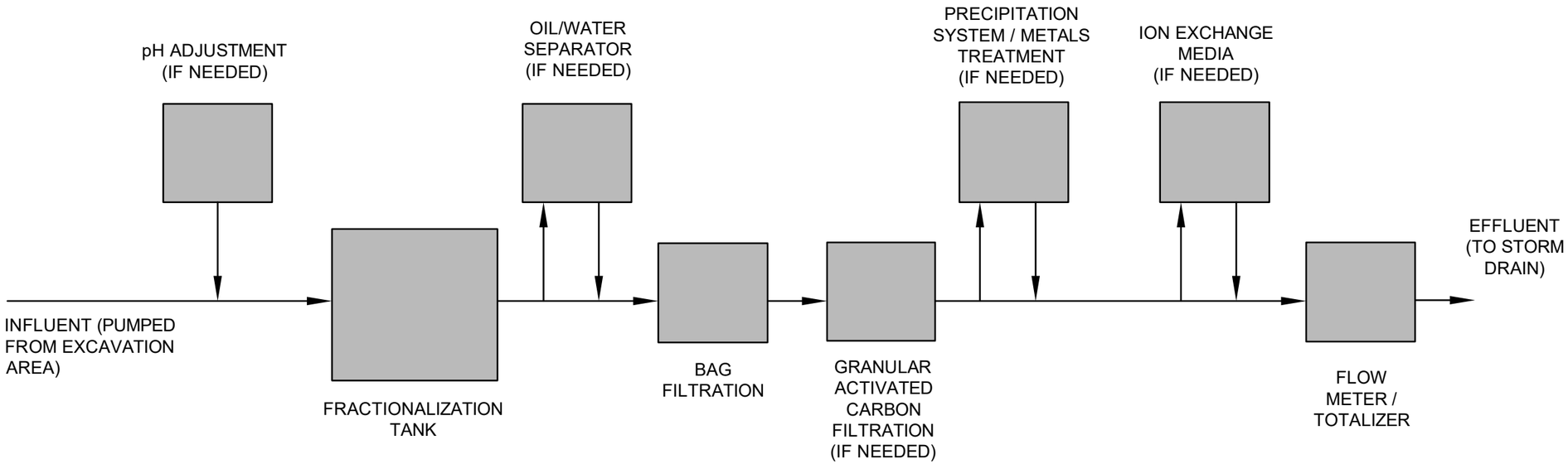
The base map was drawn from a plan entitled, "Existing Conditions Plan, Super Stop & Shop, Somerville, Massachusetts", prepared by Vanasse, Hangen & Brustlin, Inc (VHB) of Watertown, MA, dated February 3, 1995, with an original scale of 1" = 40'.

Legend

- Approximate Block 7A boundary and limits of proposed excavation and dewatering activities
- Current property line
- MCP RTN boundary areas
- B7A-SH-17W — Approximate location and designation of monitoring well installed between November 22, 2021 & December 2, 2021

80 40 0 80 160 Feet

SANBORN HEAD



NOTES:
1. SYSTEM ASSUMES A MAXIMUM FLOW OF 200 GALLONS PER MINUTE (GPM).
2. SAMPLING PORTS TO BE LOCATED ON ALL TREATMENT SYSTEM COMPONENTS.

NOT TO SCALE

Figure No. 3

Proposed Groundwater Treatment Schematic

Notice of Intent for
Remediation General Permit

Assembly Row Block 7A
Somerville, Massachusetts

Drawn By: M. Revere
Designed By: H. Sanderson
Reviewed By: K.Walker
Project No: 3175.14
Date: February 2022

Figure Narrative

Details of Treatment System may vary from the system indicated on left. Specific means and methods of treatment are to be selected by the subcontractor. Water discharged at the effluent point shall meet required effluent standards as specified in Appendix III and IV of the RGP.

SANBORN HEAD

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:
Assembly Row - Block 7A</td><td colspan="3">Site address: 350 Assembly Row
Street:</td></tr>
<tr><td>City: Somerville</td><td>State: MA</td><td>Zip: 02145</td></tr>
<tr><td rowspan="4">2. Site owner
Federal Realty Investment Trust

Owner is (check one): ☐ Federal ☐ State/Tribal ■ Private
☐ Other; if so, specify:</td><td colspan="3">Contact Person: Brad Dutton</td></tr>
<tr><td colspan="2">Telephone: (617) 684-1510</td><td>Email: bdutton@federalrealty.com</td></tr>
<tr><td colspan="3">Mailing address: 450 Artisan Way, Suite 320
Street:</td></tr>
<tr><td>City: Somerville</td><td>State: MA</td><td>Zip: 02145</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):
3-3937, 3-25033, 3-11886
☐ 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):
Mystic River	MA71-03	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. See Appendix B

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.	1.89 MGD - See Appendix C
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: 1/20/2022

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 See Table 1 and Appendix D

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, Chloride, Ammonia, Chromium, Iron, Nickel, Arsenic, Copper, Lead, Zinc	
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): City of Somerville 72-inch drain outlet to Mystic River (MA71-03)	Outfall location(s): (Latitude, Longitude) 42.3935, -71.0756
Discharges enter the receiving water(s) via (check any that apply): ☐ Direct discharge to the receiving water ■ Indirect discharge, if so, specify: Effluent will enter an existing storm water drainage system that discharges directly into the Mystic River at the approximate coordinates specified above ☐ 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 Somerville 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): Start: 4/1/2022 End: 4/1/2023 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	

<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-BH	75	5.00	3.64	Report mg/L	---
Chloride		✔	2	300.0	12,500	715,000	696,000	Report µg/l	---
Total Residual Chlorine	✔		2 2 2	4500CL-D	20	ND	ND	0.2 mg/L	
Total Suspended Solids		✔	2	2540D	5000	260	170	30 mg/L	---
Antimony	✔		2	200.8	4	ND	ND	206 µg/L	
Arsenic		✔	2	200.8	1	36.77	26.04	104 µg/L	
Cadmium	✔		2	200.8	0.2	ND	ND	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	3.23	2.765	242 µg/L	
Iron		✔	2	200.7	50	69,600	53,800	5,000 µg/L	
Lead		✔	2	200.8	1	1.14	1.14	160 µg/L	
Mercury	✔		2	245.1	0.2	ND	ND	0.739 µg/L	
Nickel		✔	2	200.8	2	6.26	4.945	1,450 µg/L	
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	19.63	16.585	420 µg/L	
Cyanide	✔		2	4500CN-CE	5	ND	ND	178 mg/L	
B. Non-Halogenated VOCs									
Total BTEX	✔		2	624.1	1	ND	ND	100 µg/L	---
Benzene	✔		2	624.1	1	ND	ND	5.0 µg/L	---
1,4 Dioxane	✔		2	624.1	5	ND	ND	200 µg/L	---
Acetone	✔		2	624.1	10	ND	ND	7.97 mg/L	---
Phenol	✔		2	420.1	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	5	ND	ND	190 µg/L	
Diethylhexyl phthalate	✔		2	625.1	2.2	ND	ND	101 µg/L	
Total Group I PAHs	✔		2	625.1	0.1	ND	ND	1.0 µg/L	---
Benzo(a)anthracene	✔		2	625.1	0.1	ND	ND	As Total PAHs	
Benzo(a)pyrene	✔		2	625.1	0.1	ND	ND		
Benzo(b)fluoranthene	✔		2	625.1	0.1	ND	ND		
Benzo(k)fluoranthene	✔		2	625.1	0.1	ND	ND		
Chrysene	✔		2	625.1	0.1	ND	ND		
Dibenzo(a,h)anthracene	✔		2	625.1	0.1	ND	ND		
Indeno(1,2,3-cd)pyrene	✔		2	625.1	0.1	ND	ND		

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	ND	ND	100 µg/L	---
Naphthalene	✔		2	625.1	0.1	ND	ND	20 µg/L	---
E. Halogenated SVOCs									
Total PCBs	✔		2	608.3	0.25	ND	ND	0.000064 µg/L	---
Pentachlorophenol	✔		2	625.1	1	ND	ND	1.0 µg/L	---
F. Fuels Parameters									
Total Petroleum Hydrocarbons	✔		2	1664B	4,000	ND	ND	5.0 mg/L	---
Ethanol	✔		2	1671A	20,000	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 (s.u.)		✔	2	4500H+-B	--	7.2	6.95		
Hardness (ug/L)		✔	2	200.7	660	329,000	319,500		
Salinity	✔		2	2520B	2.0 SU	ND	ND		

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:

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

The treatment system will include a fractionation tank for solid settling followed by the following elements, as needed: a bag filter, a granular activated carbon vessel, and a cation resin vessel. The effluent will be discharged to an existing catch basin on-site which discharges to the existing storm drain system.

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:

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: Fractionation tank 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.	50
If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:	

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:

Refer to cover letter

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.

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.

☐ **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 H

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 "Waters requiring a TMDL" and lists pollutants for the Mystic River
Appendix C includes calculations for the dilution factor
Appendix D includes the analytical data collected by Sanborn, Head & Associates, Inc.
Appendix E includes maps of relevant infrastructure
Appendix F includes correspondence from the National Oceanic and Atmospheric Administration and the US Fish and Wildlife Service
Appendix G includes a list of Historic Places in Somerville, Massachusetts.
Appendix H includes SDS sheets for the contingent chemical additives

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:	Date: February 22nd, 2022
Print Name and Title:	Andrew Rouille - Senior Project Manager

APPENDIX B

MASSACHUSETTS CATEGORY 5 WATERS
"WATERS REQUIRING A TMDL"

APPENDIX B

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

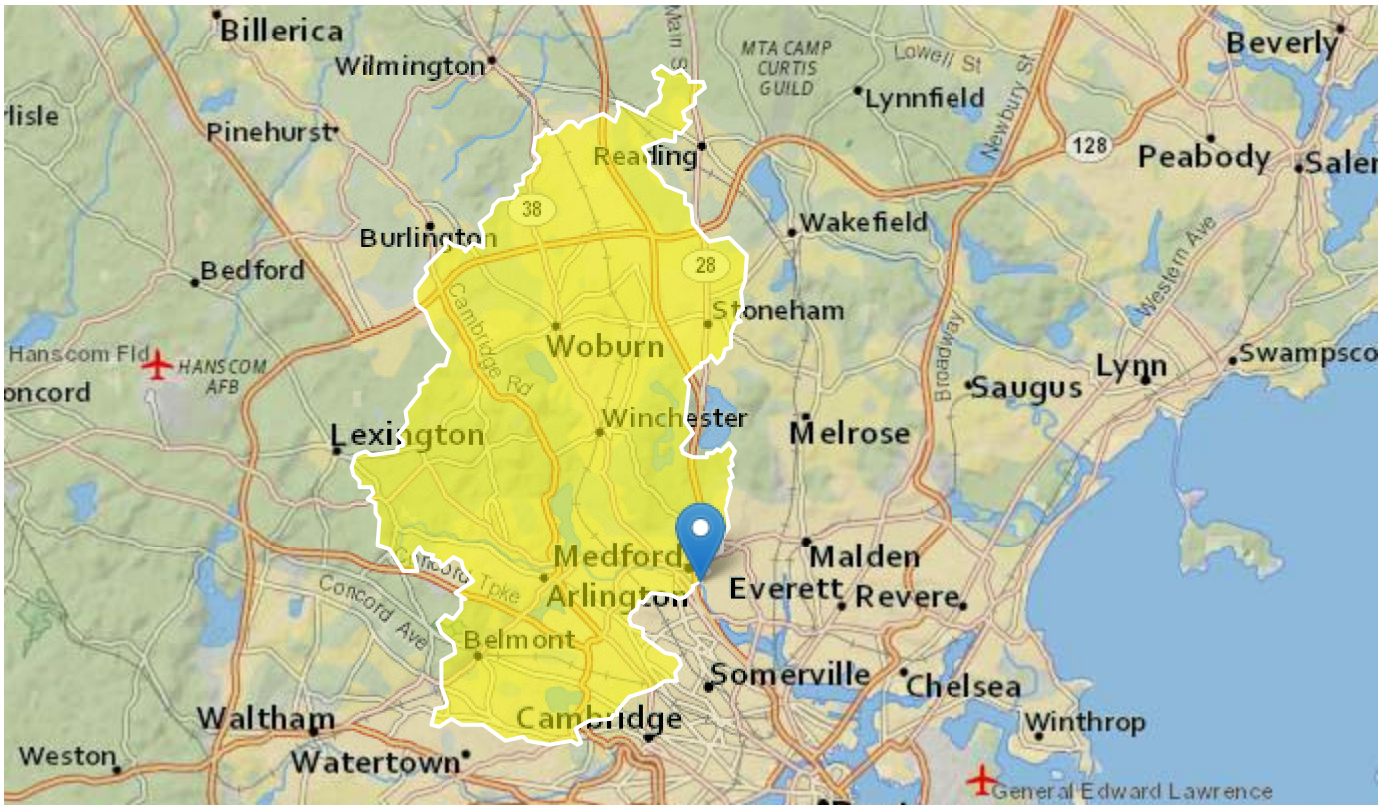
Water Body	Segment ID	Description	Size	Units	Impairment	EPA TMDL No.
Mystic River	MA71-02	Outlet Lower Mystic Lake, Arlington/Medford to Amelia Earhart Dam, Somerville/Everett.	5.00	Miles	(Fish Passage Barrier*)	
					(Non-Native Aquatic Plants*)	
					Arsenic	
					Chlordane in Fish Tissue	
					Chlorophyll-a	
					DDT in Fish Tissue	
					Dissolved Oxygen Supersaturation	
					Escherichia Coli (E. Coli)	
					PCBs In Fish Tissue	
					Phosphorus, Total	
					Sediment Bioassay (Chronic Toxicity Freshwater)	
					Transparency / Clarity	
Mystic River	MA71-03	Amelia Earhart Dam, Somerville/Everett to confluence with Boston Inner Harbor, Chelsea/Charlestown (Includes Island End River).	0.49	Square Miles	Ammonia, Un-ionized	
					Cause Unknown (Contaminants in Fish and/or Shellfish; Sediment Screening Value (Exceedence))	
					Dissolved Oxygen	
					Fecal Coliform	
					Flocculant Masses	
					Odor	
					Oil And Grease	
					PCBs In Fish Tissue	
					Petroleum Hydrocarbons	
					Scum/Foam	
Shaker Glen Brook	MA71-11	Headwaters, west of Dix Road Extention, Woburn to confluence with Fowle Brook, Woburn (portion culverted underground).	1.50	Miles	Escherichia Coli (E. Coli)	
Spy Pond	MA71040	Arlington.	98.00	Acres	(Eurasian Water Milfoil, Myriophyllum spicatum*)	
					Chlordane in Fish Tissue	
					DDT in Fish Tissue	
					Dissolved Oxygen	
					Harmful Algal Blooms	
					Phosphorus, Total	
Unnamed Tributary	MA71-13	Unnamed tributary locally known as 'Meetinghouse Brook', from emergence south of Route 16/east of Winthrop Street, Medford to confluence with the Mystic River, Medford. (brook not apparent on 1985 Boston North USGS quad - 2005 orthophotos used to delineate stream).	0.10	Miles	Escherichia Coli (E. Coli)	

APPENDIX C

MYSTIC RIVER DILUTION CALCULATIONS

StreamStats Report

Region ID: MA
Workspace ID: MA20220105170254311000
Clicked Point (Latitude, Longitude): 42.41449, -71.10279
Time: 2022-01-05 12:03:20 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	48.2	square miles
BSLDEM250	Mean basin slope computed from 1:250K DEM	2.429	percent
DRFTPERSTR	Area of stratified drift per unit of stream length	0.26	square mile per mile
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless

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

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	48.2	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	2.429	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0.26	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

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

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

Statistic	Value	Unit	PII	PIu	SE	ASEp
7 Day 2 Year Low Flow	7.31	ft^3/s	2.2	23.4	49.5	49.5
7 Day 10 Year Low Flow	3.52	ft^3/s	0.866	13.3	70.8	70.8

Low-Flow Statistics Citations

Ries, K.G., III,2000, Methods for estimating low-flow statistics for Massachusetts streams: U.S. Geological Survey Water Resources Investigations Report 00-4135, 81 p. (http://pubs.usgs.gov/wri/wri004135/)

Application Version: 4.6.2

StreamStats Services Version: 1.2.22

NSS Services Version: 2.1.2

Helen Sanderson

From: Ruan, Xiaodan (DEP) <xiaodan.ruan@state.ma.us>
Sent: Thursday, January 20, 2022 4:43 PM
To: Helen Sanderson
Cc: Vakalopoulos, Catherine (DEP)
Subject: RE: Somerville MA RGP

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Helen,

You were correct that the DF should be 1 or no dilution for the proposed discharge from the project site at 85 Foley Street, Somerville, MA. The lower Mystic River from Amelia Earhart Dam to the confluence with the 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.

Here is the water quality information to assist you with filling out the NOI (in case you still need it):

> Waterbody and ID: Mystic River (MA71-03)
> Classification: SB(CSO)
> Outstanding Resource Water?: No
> The state's most recent Integrated List is located here: https://www.epa.gov/sites/production/files/2020-01/documents/2016-ma-303d-list-report.pdf, search for "MA71-03" to see the causes of impairments.
> TMDLs: There is one approved TMDL for pathogens for this segment.

As you may know, 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: Helen Sanderson <hsanderson@sanbornhead.com>
Sent: Monday, January 10, 2022 11:23 AM
To: Vakalopoulos, Catherine (DEP) <catherine.vakalopoulos@mass.gov>
Subject: Somerville MA RGP

Good morning,

I would like to confirm the following 7Q10 value for an upcoming RGP project located in Somerville, MA. The StreamStats data for the nearest available upstream location in the Mystic River is attached.

Site address: 85 Foley Street, Somerville MA
Type of discharge: Construction dewatering via municipal storm drain to outlet in the Mystic River just downstream of the Amelia Earhart dam, with approximate discharge coordinates indicated below.
Approximate discharge outfall coordinates:
Latitude: 42.393485 Longitude: -71.075629
Approximate basin delineation point selected:
Latitude: 42.41449 Longitude: -71.10279
Design discharge flow: 50 gpm (0.072 MGD)
Upstream StreamStats generated 7Q10: 3.52 cfs (1.89 MGD)
Dilution factor: DF = 1 (saltwater receiving water)

Please let me know if this is correct for this location, or if there is any additional information I can provide for this request.

Thank you for your help.

Helen

Helen Sanderson, EIT
Project Engineer
EIT in MA

SANBORN | HEAD & ASSOCIATES, INC.
D 978.577.1031 | M 503.816.2294 | 1 Technology Park Drive, Westford, MA 01886

Click here to follow us on LinkedIn | Twitter | Facebook | sanbornhead.com

APPENDIX D

ANALYTICAL DATA REPORTS

ANALYTICAL REPORT

Lab Number:	L2166627
Client:	Sanborn, Head & Associates, Inc. 1 Technology Park Drive Westford, MA 01886
ATTN:	Kent Walker
Phone:	(978) 577-1003
Project Name:	BLOCK 7A
Project Number:	3175.14
Report Date:	12/14/21

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: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2166627-01	20211203 MYSTIC	WATER	SOMERVILLE, MA	12/03/21 09:30	12/03/21
L2166627-02	20211203 B7A-SH-30W	WATER	SOMERVILLE, MA	12/03/21 11:30	12/03/21
L2166627-03	20211203 B7A-SH-17W	WATER	SOMERVILLE, MA	12/03/21 13:30	12/03/21

Project Name:	BLOCK 7A	**Lab Number:**	L2166627
Project Number:	3175.14	**Report Date:**	12/14/21

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: BLOCK 7A **Lab Number:** L2166627
Project Number: 3175.14 **Report Date:** 12/14/21

Case Narrative (continued)

Report Submission

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.

Sample Receipt

The analyses performed were specified by the client.

L2166627-02: The sample was received above the appropriate pH for the Total Phenol - EPA 420.1 analysis. The laboratory added additional H2SO4 to a pH <2.

Total Metals

L2166627-01: The sample has elevated detection limits due to the dilution required by the sample matrix.

Dissolved Metals

The WG1581361-1 Method Blank, associated with L2166627-02 and -03, has a concentration above the reporting limit for copper. Since the associated sample concentrations are either greater than 10x the blank concentration or non-detect to the RL for this target analyte, no corrective action is required. Any results detected below the reporting limit are qualified with a "B".

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: Sebastian Corbin

Title: Technical Director/Representative Date: 12/14/21

ORGANICS

VOLATILES

Project Name: BLOCK 7A
Project Number: 3175.14
Lab Number: L2166627
Report Date: 12/14/21

SAMPLE RESULTS

Lab ID: L2166627-02
Client ID: 20211203 B7A-SH-30W
Sample Location: SOMERVILLE, MA
Date Collected: 12/03/21 11:30
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 12/05/21 21:28
Analyst: GT

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: BLOCK 7A
Project Number: 3175.14
Lab Number: L2166627
Report Date: 12/14/21

SAMPLE RESULTS

Lab ID: L2166627-02
Client ID: 20211203 B7A-SH-30W
Sample Location: SOMERVILLE, MA
Date Collected: 12/03/21 11:30
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	91		60-140
Fluorobenzene	108		60-140
4-Bromofluorobenzene	100		60-140

Project Name: BLOCK 7A
Project Number: 3175.14
Lab Number: L2166627
Report Date: 12/14/21

SAMPLE RESULTS

Lab ID: L2166627-02
Client ID: 20211203 B7A-SH-30W
Sample Location: SOMERVILLE, MA
Date Collected: 12/03/21 11:30
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1-SIM
Analytical Date: 12/05/21 21:28
Analyst: GT

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	111		60-140
4-Bromofluorobenzene	99		60-140

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

SAMPLE RESULTS

Lab ID: L2166627-02
Client ID: 20211203 B7A-SH-30W
Sample Location: SOMERVILLE, MA

Date Collected: 12/03/21 11:30
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 12/07/21 13:54
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 12/07/21 11:11

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

Project Name: BLOCK 7A
Project Number: 3175.14
Lab Number: L2166627
Report Date: 12/14/21

SAMPLE RESULTS

Lab ID: L2166627-03
Client ID: 20211203 B7A-SH-17W
Sample Location: SOMERVILLE, MA
Date Collected: 12/03/21 13:30
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 12/05/21 22:04
Analyst: GT

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: BLOCK 7A
Project Number: 3175.14
Lab Number: L2166627
Report Date: 12/14/21

SAMPLE RESULTS

Lab ID: L2166627-03
Client ID: 20211203 B7A-SH-17W
Sample Location: SOMERVILLE, MA
Date Collected: 12/03/21 13:30
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	88		60-140
Fluorobenzene	107		60-140
4-Bromofluorobenzene	96		60-140

Project Name: BLOCK 7A
Project Number: 3175.14
Lab Number: L2166627
Report Date: 12/14/21

SAMPLE RESULTS

Lab ID: L2166627-03
Client ID: 20211203 B7A-SH-17W
Sample Location: SOMERVILLE, MA
Date Collected: 12/03/21 13:30
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1-SIM
Analytical Date: 12/05/21 22:04
Analyst: GT

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	111		60-140
4-Bromofluorobenzene	99		60-140

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

SAMPLE RESULTS

Lab ID: L2166627-03
Client ID: 20211203 B7A-SH-17W
Sample Location: SOMERVILLE, MA

Date Collected: 12/03/21 13:30
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 12/07/21 14:02
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 12/07/21 11:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	--	1	A
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	--	1	A
1,2,3-Trichloropropane	ND		ug/l	0.031	--	1	A

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 12/05/21 11:51
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02-03 Batch: WG1579611-4					
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: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 12/05/21 11:51
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02-03 Batch: WG1579611-4					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	95		60-140
Fluorobenzene	106		60-140
4-Bromofluorobenzene	96		60-140

Project Name: BLOCK 7A
Project Number: 3175.14
Lab Number: L2166627
Report Date: 12/14/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1-SIM
Analytical Date: 12/05/21 13:39
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 02-03 Batch: WG1579621-4					
1,4-Dioxane	ND		ug/l	5.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	109		60-140
4-Bromofluorobenzene	102		60-140

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 12/07/21 12:47
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 12/07/21 11:11

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 02-03 Batch: WG1580083-1						
1,2-Dibromoethane	ND		ug/l	0.010	--	A
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	--	A
1,2,3-Trichloropropane	ND		ug/l	0.030	--	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-03 Batch: WG1579611-3								
Methylene chloride	90		-		60-140	-		28
1,1-Dichloroethane	90		-		50-150	-		49
Carbon tetrachloride	95		-		70-130	-		41
1,1,2-Trichloroethane	95		-		70-130	-		45
Tetrachloroethene	90		-		70-130	-		39
1,2-Dichloroethane	90		-		70-130	-		49
1,1,1-Trichloroethane	90		-		70-130	-		36
Benzene	100		-		65-135	-		61
Toluene	100		-		70-130	-		41
Ethylbenzene	100		-		60-140	-		63
Vinyl chloride	80		-		5-195	-		66
1,1-Dichloroethene	85		-		50-150	-		32
cis-1,2-Dichloroethene	95		-		60-140	-		30
Trichloroethene	100		-		65-135	-		48
1,2-Dichlorobenzene	100		-		65-135	-		57
1,3-Dichlorobenzene	95		-		70-130	-		43
1,4-Dichlorobenzene	95		-		65-135	-		57
p/m-Xylene	98		-		60-140	-		30
o-xylene	90		-		60-140	-		30
Acetone	94		-		40-160	-		30
Methyl tert butyl ether	85		-		60-140	-		30
Tert-Butyl Alcohol	88		-		60-140	-		30
Tertiary-Amyl Methyl Ether	80		-		60-140	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-03 Batch: WG1579611-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Pentafluorobenzene	95				60-140
Fluorobenzene	108				60-140
4-Bromofluorobenzene	98				60-140

Lab Control Sample Analysis
Batch Quality Control

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 02-03 Batch: WG1579621-3								
1,4-Dioxane	100		-		60-140	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Fluorobenzene	113				60-140
4-Bromofluorobenzene	101				60-140

Lab Control Sample Analysis
Batch Quality Control

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 02-03 Batch: WG1580083-2									
1,2-Dibromoethane	89		-		80-120	-			A
1,2-Dibromo-3-chloropropane	86		-		80-120	-			A
1,2,3-Trichloropropane	107		-		80-120	-			A

Matrix Spike Analysis

Batch Quality Control

Project Name: BLOCK 7A

Project Number: 3175.14

Lab Number: L2166627

Report Date: 12/14/21

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): 02-03 QC Batch ID: WG1580083-3 QC Sample: L2165897-02 Client ID: MS Sample													
1,2-Dibromoethane	ND	0.245	0.225	92		-	-		80-120	-		20	A
1,2-Dibromo-3-chloropropane	ND	0.245	0.214	87		-	-		80-120	-		20	A
1,2,3-Trichloropropane	ND	0.245	0.267	109		-	-		80-120	-		20	A

SEMIVOLATILES

Project Name: BLOCK 7A
Project Number: 3175.14
Lab Number: L2166627
Report Date: 12/14/21

SAMPLE RESULTS

Lab ID: L2166627-02
Client ID: 20211203 B7A-SH-30W
Sample Location: SOMERVILLE, MA

Date Collected: 12/03/21 11:30
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 12/06/21 23:57
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 12/05/21 00:34

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Bis(2-ethylhexyl)phthalate	ND		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	116		42-122
2-Fluorobiphenyl	85		46-121
4-Terphenyl-d14	98		47-138

Project Name: BLOCK 7A
Project Number: 3175.14
Lab Number: L2166627
Report Date: 12/14/21

SAMPLE RESULTS

Lab ID: L2166627-02
Client ID: 20211203 B7A-SH-30W
Sample Location: SOMERVILLE, MA

Date Collected: 12/03/21 11:30
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1-SIM
Analytical Date: 12/05/21 15:57
Analyst: RP

Extraction Method: EPA 625.1
Extraction Date: 12/05/21 00:36

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	56		25-87
Phenol-d6	46		16-65
Nitrobenzene-d5	84		42-122
2-Fluorobiphenyl	78		46-121
2,4,6-Tribromophenol	109		45-128
4-Terphenyl-d14	76		47-138

Project Name: BLOCK 7A
Project Number: 3175.14
Lab Number: L2166627
Report Date: 12/14/21

SAMPLE RESULTS

Lab ID: L2166627-03
Client ID: 20211203 B7A-SH-17W
Sample Location: SOMERVILLE, MA

Date Collected: 12/03/21 13:30
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 12/14/21 07:01
Analyst: WR

Extraction Method: EPA 625.1
Extraction Date: 12/05/21 00:34

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Bis(2-ethylhexyl)phthalate	ND		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	85		42-122
2-Fluorobiphenyl	77		46-121
4-Terphenyl-d14	66		47-138

Project Name: BLOCK 7A
Project Number: 3175.14
Lab Number: L2166627
Report Date: 12/14/21

SAMPLE RESULTS

Lab ID: L2166627-03
Client ID: 20211203 B7A-SH-17W
Sample Location: SOMERVILLE, MA

Date Collected: 12/03/21 13:30
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1-SIM
Analytical Date: 12/14/21 13:08
Analyst: WR

Extraction Method: EPA 625.1
Extraction Date: 12/05/21 00:36

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	63		25-87
Phenol-d6	45		16-65
Nitrobenzene-d5	85		42-122
2-Fluorobiphenyl	78		46-121
2,4,6-Tribromophenol	120		45-128
4-Terphenyl-d14	85		47-138

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
Analytical Date: 12/06/21 13:22
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 12/04/21 07:52

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 02-03 Batch: WG1579070-1					
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	96		42-122
2-Fluorobiphenyl	90		46-121
4-Terphenyl-d14	103		47-138

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1-SIM
Analytical Date: 12/05/21 14:19
Analyst: DV

Extraction Method: EPA 625.1
Extraction Date: 12/04/21 07:51

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 02-03 Batch: WG1579076-1					
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	50		25-87
Phenol-d6	35		16-65
Nitrobenzene-d5	86		42-122
2-Fluorobiphenyl	83		46-121
2,4,6-Tribromophenol	106		45-128
4-Terphenyl-d14	87		47-138

Lab Control Sample Analysis
Batch Quality Control

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-03 Batch: WG1579070-2								
Bis(2-ethylhexyl)phthalate	93		-		29-137	-		82
Butyl benzyl phthalate	81		-		1-140	-		60
Di-n-butylphthalate	85		-		8-120	-		47
Di-n-octylphthalate	88		-		19-132	-		69
Diethyl phthalate	80		-		1-120	-		100
Dimethyl phthalate	75		-		1-120	-		183

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	68				42-122
2-Fluorobiphenyl	68				46-121
4-Terphenyl-d14	79				47-138

Lab Control Sample Analysis
Batch Quality Control

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 02-03 Batch: WG1579076-3								
Acenaphthene	75		-		60-132	-		30
Fluoranthene	87		-		43-121	-		30
Naphthalene	74		-		36-120	-		30
Benzo(a)anthracene	79		-		42-133	-		30
Benzo(a)pyrene	81		-		32-148	-		30
Benzo(b)fluoranthene	83		-		42-140	-		30
Benzo(k)fluoranthene	82		-		25-146	-		30
Chrysene	72		-		44-140	-		30
Acenaphthylene	88		-		54-126	-		30
Anthracene	79		-		43-120	-		30
Benzo(ghi)perylene	81		-		1-195	-		30
Fluorene	82		-		70-120	-		30
Phenanthrene	75		-		65-120	-		30
Dibenzo(a,h)anthracene	89		-		1-200	-		30
Indeno(1,2,3-cd)pyrene	82		-		1-151	-		30
Pyrene	84		-		70-120	-		30
Pentachlorophenol	71		-		38-152	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 02-03 Batch: WG1579076-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	45				25-87
Phenol-d6	34				16-65
Nitrobenzene-d5	77				42-122
2-Fluorobiphenyl	76				46-121
2,4,6-Tribromophenol	110				45-128
4-Terphenyl-d14	78				47-138

PCBS

Project Name: BLOCK 7A
Project Number: 3175.14
Lab Number: L2166627
Report Date: 12/14/21

SAMPLE RESULTS

Lab ID: L2166627-02
Client ID: 20211203 B7A-SH-30W
Sample Location: SOMERVILLE, MA

Date Collected: 12/03/21 11:30
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 12/05/21 20:50
Analyst: JWL

Extraction Method: EPA 608.3
Extraction Date: 12/04/21 22:46
Cleanup Method: EPA 3665A
Cleanup Date: 12/05/21
Cleanup Method: EPA 3660B
Cleanup Date: 12/05/21

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	59		37-123	B
Decachlorobiphenyl	48		38-114	B
2,4,5,6-Tetrachloro-m-xylene	56		37-123	A
Decachlorobiphenyl	48		38-114	A

Project Name: BLOCK 7A
Project Number: 3175.14
Lab Number: L2166627
Report Date: 12/14/21

SAMPLE RESULTS

Lab ID: L2166627-03
Client ID: 20211203 B7A-SH-17W
Sample Location: SOMERVILLE, MA

Date Collected: 12/03/21 13:30
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 12/05/21 20:59
Analyst: JWL

Extraction Method: EPA 608.3
Extraction Date: 12/04/21 22:46
Cleanup Method: EPA 3665A
Cleanup Date: 12/05/21
Cleanup Method: EPA 3660B
Cleanup Date: 12/05/21

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	63		37-123	B
Decachlorobiphenyl	51		38-114	B
2,4,5,6-Tetrachloro-m-xylene	60		37-123	A
Decachlorobiphenyl	51		38-114	A

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 127,608.3
Analytical Date: 12/05/21 19:45
Analyst: JM

Extraction Method: EPA 608.3
Extraction Date: 12/04/21 22:46
Cleanup Method: EPA 3665A
Cleanup Date: 12/05/21
Cleanup Method: EPA 3660B
Cleanup Date: 12/05/21

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 02-03 Batch: WG1579232-1						
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	67		37-123	B
Decachlorobiphenyl	71		38-114	B
2,4,5,6-Tetrachloro-m-xylene	63		37-123	A
Decachlorobiphenyl	69		38-114	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 02-03 Batch: WG1579232-2									
Aroclor 1016	67		-		50-140	-		36	A
Aroclor 1260	67		-		8-140	-		38	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	63				37-123	B
Decachlorobiphenyl	70				38-114	B
2,4,5,6-Tetrachloro-m-xylene	61				37-123	A
Decachlorobiphenyl	70				38-114	A

METALS

Project Name: BLOCK 7A
Project Number: 3175.14
Lab Number: L2166627
Report Date: 12/14/21

SAMPLE RESULTS

Lab ID: L2166627-01
Client ID: 20211203 MYSTIC
Sample Location: SOMERVILLE, MA
Sample Depth:
Matrix: Water

Date Collected: 12/03/21 09:30
Date Received: 12/03/21
Field Prep: Not Specified

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	0.02000	--	5	12/08/21 12:20	12/08/21 21:33	EPA 3005A	3,200.8	CD
Arsenic, Total	ND		mg/l	0.00500	--	5	12/08/21 12:20	12/09/21 22:46	EPA 3005A	3,200.8	PS
Cadmium, Total	ND		mg/l	0.00100	--	5	12/08/21 12:20	12/08/21 21:33	EPA 3005A	3,200.8	CD
Chromium, Total	ND		mg/l	0.00500	--	5	12/08/21 12:20	12/08/21 21:33	EPA 3005A	3,200.8	CD
Copper, Total	0.00867		mg/l	0.00500	--	5	12/08/21 12:20	12/08/21 21:33	EPA 3005A	3,200.8	CD
Iron, Total	0.090		mg/l	0.050	--	1	12/08/21 12:20	12/09/21 22:33	EPA 3005A	19,200.7	DL
Lead, Total	ND		mg/l	0.00500	--	5	12/08/21 12:20	12/08/21 21:33	EPA 3005A	3,200.8	CD
Mercury, Total	ND		mg/l	0.00020	--	1	12/08/21 13:26	12/08/21 20:27	EPA 245.1	3,245.1	AC
Nickel, Total	0.03228		mg/l	0.01000	--	5	12/08/21 12:20	12/08/21 21:33	EPA 3005A	3,200.8	CD
Selenium, Total	ND		mg/l	0.02500	--	5	12/08/21 12:20	12/09/21 22:46	EPA 3005A	3,200.8	PS
Silver, Total	ND		mg/l	0.00200	--	5	12/08/21 12:20	12/08/21 21:33	EPA 3005A	3,200.8	CD
Zinc, Total	ND		mg/l	0.05000	--	5	12/08/21 12:20	12/08/21 21:33	EPA 3005A	3,200.8	CD
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	5240		mg/l	6.60	NA	10	12/08/21 12:20	12/10/21 08:54	EPA 3005A	19,200.7	SV

Project Name: BLOCK 7A
Project Number: 3175.14
Lab Number: L2166627
Report Date: 12/14/21

SAMPLE RESULTS

Lab ID: L2166627-02
Client ID: 20211203 B7A-SH-30W
Sample Location: SOMERVILLE, MA
Date Collected: 12/03/21 11:30
Date Received: 12/03/21
Field Prep: Not Specified

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	12/08/21 12:20	12/08/21 21:29	EPA 3005A	3,200.8	CD
Arsenic, Total	0.01531		mg/l	0.00100	--	1	12/08/21 12:20	12/08/21 21:29	EPA 3005A	3,200.8	CD
Cadmium, Total	ND		mg/l	0.00020	--	1	12/08/21 12:20	12/08/21 21:29	EPA 3005A	3,200.8	CD
Chromium, Total	ND		mg/l	0.00100	--	1	12/08/21 12:20	12/08/21 21:29	EPA 3005A	3,200.8	CD
Copper, Total	0.00230		mg/l	0.00100	--	1	12/08/21 12:20	12/08/21 21:29	EPA 3005A	3,200.8	CD
Iron, Total	38.0		mg/l	0.050	--	1	12/08/21 12:20	12/09/21 23:24	EPA 3005A	19,200.7	DL
Lead, Total	ND		mg/l	0.00100	--	1	12/08/21 12:20	12/08/21 21:29	EPA 3005A	3,200.8	CD
Mercury, Total	ND		mg/l	0.00020	--	1	12/08/21 13:26	12/08/21 19:06	EPA 245.1	3,245.1	AC
Nickel, Total	0.00363		mg/l	0.00200	--	1	12/08/21 12:20	12/08/21 21:29	EPA 3005A	3,200.8	CD
Selenium, Total	ND		mg/l	0.00500	--	1	12/08/21 12:20	12/09/21 22:51	EPA 3005A	3,200.8	PS
Silver, Total	ND		mg/l	0.00040	--	1	12/08/21 12:20	12/08/21 21:29	EPA 3005A	3,200.8	CD
Zinc, Total	0.01354		mg/l	0.01000	--	1	12/08/21 12:20	12/08/21 21:29	EPA 3005A	3,200.8	CD
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	329		mg/l	0.660	NA	1	12/08/21 12:20	12/09/21 23:24	EPA 3005A	19,200.7	DL
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		12/08/21 21:29	NA	107,-	
Dissolved Metals - Mansfield Lab											
Antimony, Dissolved	ND		mg/l	0.0040	--	1	12/10/21 07:50	12/10/21 14:13	EPA 3005A	3,200.8	CD
Arsenic, Dissolved	ND		mg/l	0.0010	--	1	12/10/21 07:50	12/10/21 14:13	EPA 3005A	3,200.8	CD
Cadmium, Dissolved	ND		mg/l	0.0002	--	1	12/10/21 07:50	12/10/21 14:13	EPA 3005A	3,200.8	CD
Chromium, Dissolved	0.0017		mg/l	0.0010	--	1	12/10/21 07:50	12/10/21 14:13	EPA 3005A	3,200.8	CD
Copper, Dissolved	ND		mg/l	0.0010	--	1	12/10/21 07:50	12/10/21 14:13	EPA 3005A	3,200.8	CD
Iron, Dissolved	ND		mg/l	0.050	--	1	12/10/21 07:50	12/10/21 18:58	EPA 3005A	19,200.7	BV
Lead, Dissolved	ND		mg/l	0.0010	--	1	12/10/21 07:50	12/10/21 14:13	EPA 3005A	3,200.8	CD
Mercury, Dissolved	ND		mg/l	0.00020	--	1	12/10/21 10:17	12/10/21 13:30	EPA 245.1	3,245.1	NB

Project Name: BLOCK 7A
Project Number: 3175.14
Lab Number: L2166627
Report Date: 12/14/21

SAMPLE RESULTS

Lab ID: L2166627-02
Client ID: 20211203 B7A-SH-30W
Sample Location: SOMERVILLE, MA
Sample Depth:
Matrix: Water

Date Collected: 12/03/21 11:30
Date Received: 12/03/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Nickel, Dissolved	ND		mg/l	0.0020	--	1	12/10/21 07:50	12/10/21 14:13	EPA 3005A	3,200.8	CD
Selenium, Dissolved	ND		mg/l	0.0050	--	1	12/10/21 07:50	12/10/21 14:13	EPA 3005A	3,200.8	CD
Silver, Dissolved	ND		mg/l	0.0004	--	1	12/10/21 07:50	12/10/21 14:13	EPA 3005A	3,200.8	CD
Zinc, Dissolved	ND		mg/l	0.0100	--	1	12/10/21 07:50	12/10/21 14:13	EPA 3005A	3,200.8	CD

Project Name: BLOCK 7A
Project Number: 3175.14
Lab Number: L2166627
Report Date: 12/14/21

SAMPLE RESULTS

Lab ID: L2166627-03
Client ID: 20211203 B7A-SH-17W
Sample Location: SOMERVILLE, MA
Date Collected: 12/03/21 13:30
Date Received: 12/03/21
Field Prep: Not Specified

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	12/08/21 12:20	12/08/21 21:21	EPA 3005A	3,200.8	CD
Arsenic, Total	0.03677		mg/l	0.00100	--	1	12/08/21 12:20	12/08/21 21:21	EPA 3005A	3,200.8	CD
Cadmium, Total	ND		mg/l	0.00020	--	1	12/08/21 12:20	12/08/21 21:21	EPA 3005A	3,200.8	CD
Chromium, Total	ND		mg/l	0.00100	--	1	12/08/21 12:20	12/08/21 21:21	EPA 3005A	3,200.8	CD
Copper, Total	0.00323		mg/l	0.00100	--	1	12/08/21 12:20	12/08/21 21:21	EPA 3005A	3,200.8	CD
Iron, Total	69.6		mg/l	0.050	--	1	12/08/21 12:20	12/09/21 23:29	EPA 3005A	19,200.7	DL
Lead, Total	0.00114		mg/l	0.00100	--	1	12/08/21 12:20	12/08/21 21:21	EPA 3005A	3,200.8	CD
Mercury, Total	ND		mg/l	0.00020	--	1	12/08/21 13:26	12/08/21 19:23	EPA 245.1	3,245.1	AC
Nickel, Total	0.00626		mg/l	0.00200	--	1	12/08/21 12:20	12/08/21 21:21	EPA 3005A	3,200.8	CD
Selenium, Total	ND		mg/l	0.00500	--	1	12/08/21 12:20	12/09/21 23:33	EPA 3005A	3,200.8	PS
Silver, Total	ND		mg/l	0.00040	--	1	12/08/21 12:20	12/08/21 21:21	EPA 3005A	3,200.8	CD
Zinc, Total	0.01963		mg/l	0.01000	--	1	12/08/21 12:20	12/08/21 21:21	EPA 3005A	3,200.8	CD
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	310		mg/l	0.660	NA	1	12/08/21 12:20	12/09/21 23:29	EPA 3005A	19,200.7	DL
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		12/08/21 21:21	NA	107,-	
Dissolved Metals - Mansfield Lab											
Antimony, Dissolved	ND		mg/l	0.0040	--	1	12/10/21 07:50	12/10/21 15:27	EPA 3005A	3,200.8	CD
Arsenic, Dissolved	ND		mg/l	0.0010	--	1	12/10/21 07:50	12/10/21 15:27	EPA 3005A	3,200.8	CD
Cadmium, Dissolved	ND		mg/l	0.0002	--	1	12/10/21 07:50	12/10/21 15:27	EPA 3005A	3,200.8	CD
Chromium, Dissolved	ND		mg/l	0.0010	--	1	12/10/21 07:50	12/10/21 15:27	EPA 3005A	3,200.8	CD
Copper, Dissolved	ND		mg/l	0.0010	--	1	12/10/21 07:50	12/10/21 15:27	EPA 3005A	3,200.8	CD
Iron, Dissolved	0.926		mg/l	0.050	--	1	12/10/21 07:50	12/10/21 19:11	EPA 3005A	19,200.7	BV
Lead, Dissolved	ND		mg/l	0.0010	--	1	12/10/21 07:50	12/10/21 15:27	EPA 3005A	3,200.8	CD
Mercury, Dissolved	ND		mg/l	0.00020	--	1	12/10/21 10:17	12/10/21 13:49	EPA 245.1	3,245.1	NB

Project Name: BLOCK 7A
Project Number: 3175.14
Lab Number: L2166627
Report Date: 12/14/21

SAMPLE RESULTS

Lab ID: L2166627-03
Client ID: 20211203 B7A-SH-17W
Sample Location: SOMERVILLE, MA
Sample Depth:
Matrix: Water

Date Collected: 12/03/21 13:30
Date Received: 12/03/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Nickel, Dissolved	0.0047		mg/l	0.0020	--	1	12/10/21 07:50	12/10/21 15:27	EPA 3005A	3,200.8	CD
Selenium, Dissolved	ND		mg/l	0.0050	--	1	12/10/21 07:50	12/10/21 15:27	EPA 3005A	3,200.8	CD
Silver, Dissolved	ND		mg/l	0.0004	--	1	12/10/21 07:50	12/10/21 15:27	EPA 3005A	3,200.8	CD
Zinc, Dissolved	ND		mg/l	0.0100	--	1	12/10/21 07:50	12/10/21 15:27	EPA 3005A	3,200.8	CD

Project Name: BLOCK 7A
Project Number: 3175.14
Lab Number: L2166627
Report Date: 12/14/21

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): 01-03 Batch: WG1580319-1										
Iron, Total	ND		mg/l	0.050	--	1	12/08/21 12:20	12/09/21 20:13	19,200.7	DL

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): 01-03 Batch: WG1580319-1										
Hardness	ND		mg/l	0.660	NA	1	12/08/21 12:20	12/09/21 20:13	19,200.7	DL

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): 01-03 Batch: WG1580320-1										
Antimony, Total	ND		mg/l	0.00400	--	1	12/08/21 12:20	12/08/21 19:14	3,200.8	CD
Arsenic, Total	ND		mg/l	0.00100	--	1	12/08/21 12:20	12/08/21 19:14	3,200.8	CD
Cadmium, Total	ND		mg/l	0.00020	--	1	12/08/21 12:20	12/08/21 19:14	3,200.8	CD
Chromium, Total	ND		mg/l	0.00100	--	1	12/08/21 12:20	12/08/21 19:14	3,200.8	CD
Copper, Total	ND		mg/l	0.00100	--	1	12/08/21 12:20	12/08/21 19:14	3,200.8	CD
Lead, Total	ND		mg/l	0.00100	--	1	12/08/21 12:20	12/08/21 19:14	3,200.8	CD
Nickel, Total	ND		mg/l	0.00200	--	1	12/08/21 12:20	12/08/21 19:14	3,200.8	CD
Selenium, Total	ND		mg/l	0.00500	--	1	12/08/21 12:20	12/08/21 19:14	3,200.8	CD
Silver, Total	ND		mg/l	0.00040	--	1	12/08/21 12:20	12/08/21 19:14	3,200.8	CD
Zinc, Total	ND		mg/l	0.01000	--	1	12/08/21 12:20	12/08/21 19:14	3,200.8	CD

Prep Information

Digestion Method: EPA 3005A

Project Name: BLOCK 7A
Project Number: 3175.14
Lab Number: L2166627
Report Date: 12/14/21

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): 01-03 Batch: WG1580322-1										
Mercury, Total	ND		mg/l	0.00020	--	1	12/08/21 13:26	12/08/21 19:00	3,245.1	AC

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): 02-03 Batch: WG1581361-1										
Antimony, Dissolved	ND		mg/l	0.0040	--	1	12/10/21 07:50	12/10/21 13:35	3,200.8	CD
Arsenic, Dissolved	ND		mg/l	0.0010	--	1	12/10/21 07:50	12/10/21 13:35	3,200.8	CD
Cadmium, Dissolved	ND		mg/l	0.0002	--	1	12/10/21 07:50	12/10/21 13:35	3,200.8	CD
Chromium, Dissolved	ND		mg/l	0.0010	--	1	12/10/21 07:50	12/10/21 13:35	3,200.8	CD
Copper, Dissolved	0.0020		mg/l	0.0010	--	1	12/10/21 07:50	12/10/21 13:35	3,200.8	CD
Lead, Dissolved	ND		mg/l	0.0010	--	1	12/10/21 07:50	12/10/21 13:35	3,200.8	CD
Nickel, Dissolved	ND		mg/l	0.0020	--	1	12/10/21 07:50	12/10/21 13:35	3,200.8	CD
Selenium, Dissolved	ND		mg/l	0.0050	--	1	12/10/21 07:50	12/10/21 13:35	3,200.8	CD
Silver, Dissolved	ND		mg/l	0.0004	--	1	12/10/21 07:50	12/10/21 13:35	3,200.8	CD
Zinc, Dissolved	ND		mg/l	0.0100	--	1	12/10/21 07:50	12/10/21 13:35	3,200.8	CD

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): 02-03 Batch: WG1581362-1										
Iron, Dissolved	ND		mg/l	0.050	--	1	12/10/21 07:50	12/10/21 18:49	19,200.7	BV

Prep Information

Digestion Method: EPA 3005A

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

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): 02-03 Batch: WG1581365-1										
Mercury, Dissolved	ND		mg/l	0.00020	--	1	12/10/21 10:17	12/10/21 13:23	3,245.1	NB

Prep Information

Digestion Method: EPA 245.1

Lab Control Sample Analysis
Batch Quality Control

Project Name: BLOCK 7A
Project Number: 3175.14
Lab Number: L2166627
Report Date: 12/14/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03 Batch: WG1580319-2								
Iron, Total	103		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-03 Batch: WG1580319-2								
Hardness	108		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01-03 Batch: WG1580320-2								
Antimony, Total	92		-		85-115	-		
Arsenic, Total	100		-		85-115	-		
Cadmium, Total	101		-		85-115	-		
Chromium, Total	102		-		85-115	-		
Copper, Total	100		-		85-115	-		
Lead, Total	98		-		85-115	-		
Nickel, Total	99		-		85-115	-		
Selenium, Total	102		-		85-115	-		
Silver, Total	102		-		85-115	-		
Zinc, Total	97		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01-03 Batch: WG1580322-2								
Mercury, Total	97		-		85-115	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 02-03 Batch: WG1581361-2					
Antimony, Dissolved	87	-	85-115	-	
Arsenic, Dissolved	103	-	85-115	-	
Cadmium, Dissolved	101	-	85-115	-	
Chromium, Dissolved	105	-	85-115	-	
Copper, Dissolved	101	-	85-115	-	
Lead, Dissolved	92	-	85-115	-	
Nickel, Dissolved	101	-	85-115	-	
Selenium, Dissolved	100	-	85-115	-	
Silver, Dissolved	102	-	85-115	-	
Zinc, Dissolved	97	-	85-115	-	
Dissolved Metals - Mansfield Lab Associated sample(s): 02-03 Batch: WG1581362-2					
Iron, Dissolved	105	-	85-115	-	
Dissolved Metals - Mansfield Lab Associated sample(s): 02-03 Batch: WG1581365-2					
Mercury, Dissolved	104	-	85-115	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

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): 01-03 QC Batch ID: WG1580319-3 QC Sample: L2166867-02 Client ID: MS Sample												
Iron, Total	56.5	1	50.6	**0**	Q	-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1580319-3 QC Sample: L2166867-02 Client ID: MS Sample												
Hardness	123	66.2	182	89		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1580319-7 QC Sample: L2166867-03 Client ID: MS Sample												
Iron, Total	0.068	1	1.11	104		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1580319-7 QC Sample: L2166867-03 Client ID: MS Sample												
Hardness	53.6	66.2	124	106		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1580320-3 QC Sample: L2166867-02 Client ID: MS Sample												
Antimony, Total	ND	0.5	0.4073	81		-	-		70-130	-		20
Arsenic, Total	0.02240	0.12	0.1284	88		-	-		70-130	-		20
Cadmium, Total	0.00021	0.053	0.05258	99		-	-		70-130	-		20
Chromium, Total	0.04962	0.2	0.2305	90		-	-		70-130	-		20
Copper, Total	0.06472	0.25	0.2999	94		-	-		70-130	-		20
Lead, Total	0.02499	0.53	0.5208	94		-	-		70-130	-		20
Nickel, Total	0.05973	0.5	0.5206	92		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1139	95		-	-		70-130	-		20
Silver, Total	ND	0.05	0.04803	96		-	-		70-130	-		20
Zinc, Total	0.1391	0.5	0.6001	92		-	-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1580320-5 QC Sample: L2166867-03 Client ID: MS Sample									
Antimony, Total	ND	0.5	0.4110	82	-	-	70-130	-	20
Arsenic, Total	ND	0.12	0.1071	89	-	-	70-130	-	20
Cadmium, Total	ND	0.053	0.04946	93	-	-	70-130	-	20
Chromium, Total	ND	0.2	0.1800	90	-	-	70-130	-	20
Copper, Total	ND	0.25	0.2295	92	-	-	70-130	-	20
Lead, Total	ND	0.53	0.4761	90	-	-	70-130	-	20
Nickel, Total	ND	0.5	0.4565	91	-	-	70-130	-	20
Selenium, Total	ND	0.12	0.1187	99	-	-	70-130	-	20
Silver, Total	ND	0.05	0.04688	94	-	-	70-130	-	20
Zinc, Total	0.01315	0.5	0.4605	89	-	-	70-130	-	20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1580322-3 QC Sample: L2166627-02 Client ID: 20211203 B7A-SH-30W									
Mercury, Total	ND	0.005	0.00453	91	-	-	70-130	-	20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1580322-5 QC Sample: L2166627-03 Client ID: 20211203 B7A-SH-17W									
Mercury, Total	ND	0.005	0.00430	86	-	-	70-130	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

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): 02-03 QC Batch ID: WG1581361-3 QC Sample: L2166627-02 Client ID: 20211203 B7A-SH-30W									
Antimony, Dissolved	ND	1	1.014	101	-	-	70-130	-	20
Arsenic, Dissolved	ND	0.24	0.2327	97	-	-	70-130	-	20
Cadmium, Dissolved	ND	0.106	0.1046	99	-	-	70-130	-	20
Chromium, Dissolved	0.0017	0.4	0.3845	96	-	-	70-130	-	20
Copper, Dissolved	ND	0.5	0.4699	94	-	-	70-130	-	20
Lead, Dissolved	ND	1.06	1.024	97	-	-	70-130	-	20
Nickel, Dissolved	ND	1	0.9237	92	-	-	70-130	-	20
Selenium, Dissolved	ND	0.24	0.2332	97	-	-	70-130	-	20
Silver, Dissolved	ND	0.1	0.0982	98	-	-	70-130	-	20
Zinc, Dissolved	ND	1	0.9183	92	-	-	70-130	-	20
Dissolved Metals - Mansfield Lab Associated sample(s): 02-03 QC Batch ID: WG1581362-3 QC Sample: L2166627-02 Client ID: 20211203 B7A-SH-30W									
Iron, Dissolved	ND	2	1.96	98	-	-	75-125	-	20
Dissolved Metals - Mansfield Lab Associated sample(s): 02-03 QC Batch ID: WG1581365-3 QC Sample: L2166627-02 Client ID: 20211203 B7A-SH-30W									
Mercury, Dissolved	ND	0.005	0.00468	94	-	-	75-125	-	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1580319-4 QC Sample: L2166867-02 Client ID: DUP Sample						
Iron, Total	56.5	46.4	mg/l	20		20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1580319-8 QC Sample: L2166867-03 Client ID: DUP Sample						
Iron, Total	0.068	0.074	mg/l	9		20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1580320-4 QC Sample: L2166867-02 Client ID: DUP Sample						
Antimony, Total	ND	ND	mg/l	NC		20
Arsenic, Total	0.02240	0.01947	mg/l	14		20
Cadmium, Total	0.00021	0.00022	mg/l	4		20
Chromium, Total	0.04962	0.04187	mg/l	17		20
Copper, Total	0.06472	0.05930	mg/l	9		20
Lead, Total	0.02499	0.02421	mg/l	3		20
Nickel, Total	0.05973	0.05235	mg/l	13		20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	0.1391	0.1253	mg/l	10		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1580320-6 QC Sample: L2166867-03 Client ID: DUP Sample					
Antimony, Total	ND	0.00445	mg/l	NC	20
Arsenic, Total	ND	ND	mg/l	NC	20
Cadmium, Total	ND	ND	mg/l	NC	20
Chromium, Total	ND	ND	mg/l	NC	20
Copper, Total	ND	0.1861	mg/l	NC	20
Lead, Total	ND	ND	mg/l	NC	20
Nickel, Total	ND	ND	mg/l	NC	20
Selenium, Total	ND	ND	mg/l	NC	20
Silver, Total	ND	ND	mg/l	NC	20
Zinc, Total	0.01315	0.01323	mg/l	1	20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1580322-4 QC Sample: L2166627-02 Client ID: 20211203 B7A-SH-30W					
Mercury, Total	ND	0.00027	mg/l	NC	20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1580322-6 QC Sample: L2166627-03 Client ID: 20211203 B7A-SH-17W					
Mercury, Total	ND	ND	mg/l	NC	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 02-03 QC Batch ID: WG1581361-4 QC Sample: L2166627-03 Client ID: 20211203 B7A-SH-17W					
Antimony, Dissolved	ND	ND	mg/l	NC	20
Arsenic, Dissolved	ND	ND	mg/l	NC	20
Cadmium, Dissolved	ND	ND	mg/l	NC	20
Chromium, Dissolved	ND	ND	mg/l	NC	20
Copper, Dissolved	ND	ND	mg/l	NC	20
Lead, Dissolved	ND	ND	mg/l	NC	20
Nickel, Dissolved	0.0047	0.0046	mg/l	3	20
Selenium, Dissolved	ND	ND	mg/l	NC	20
Silver, Dissolved	ND	ND	mg/l	NC	20
Zinc, Dissolved	ND	0.0107	mg/l	NC	20
Dissolved Metals - Mansfield Lab Associated sample(s): 02-03 QC Batch ID: WG1581362-4 QC Sample: L2166627-03 Client ID: 20211203 B7A-SH-17W					
Iron, Dissolved	0.926	0.919	mg/l	1	20
Dissolved Metals - Mansfield Lab Associated sample(s): 02-03 QC Batch ID: WG1581365-4 QC Sample: L2166627-03 Client ID: 20211203 B7A-SH-17W					
Mercury, Dissolved	ND	ND	mg/l	NC	20

INORGANICS
&
MISCELLANEOUS

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

SAMPLE RESULTS

Lab ID: L2166627-01
Client ID: 20211203 MYSTIC
Sample Location: SOMERVILLE, MA

Date Collected: 12/03/21 09:30
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
SALINITY	31		SU	2.0	--	1	-	12/08/21 18:32	121,2520B	AS
pH (H)	7.5		SU	-	NA	1	-	12/03/21 23:42	121,4500H+-B	AS
Nitrogen, Ammonia	0.125		mg/l	0.075	--	1	12/10/21 03:10	12/10/21 22:27	121,4500NH3-BH	AT

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

SAMPLE RESULTS

Lab ID: L2166627-02
Client ID: 20211203 B7A-SH-30W
Sample Location: SOMERVILLE, MA

Date Collected: 12/03/21 11:30
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
SALINITY	ND		SU	2.0	--	1	-	12/06/21 19:18	121,2520B	AS
Solids, Total Suspended	80.		mg/l	5.0	NA	1	-	12/09/21 12:00	121,2540D	MG
Cyanide, Total	ND		mg/l	0.005	--	1	12/07/21 06:30	12/07/21 10:54	121,4500CN-CE	CS
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	12/04/21 07:02	121,4500CL-D	KA
pH (H)	7.2		SU	-	NA	1	-	12/03/21 23:42	121,4500H+-B	AS
Nitrogen, Ammonia	2.28		mg/l	0.075	--	1	12/10/21 03:10	12/10/21 22:28	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	4.00	--	1	12/09/21 09:45	12/09/21 11:45	140,1664B	NP
Phenolics, Total	ND		mg/l	0.030	--	1	12/06/21 07:33	12/06/21 10:27	4,420.1	KP
Chromium, Hexavalent	ND		mg/l	0.010	--	1	12/04/21 08:50	12/04/21 09:06	1,7196A	KA
Anions by Ion Chromatography - Westborough Lab										
Chloride	715.		mg/l	12.5	--	25	-	12/12/21 20:52	44,300.0	SH

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

SAMPLE RESULTS

Lab ID: L2166627-03
Client ID: 20211203 B7A-SH-17W
Sample Location: SOMERVILLE, MA

Date Collected: 12/03/21 13:30
Date Received: 12/03/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
SALINITY	ND		SU	2.0	--	1	-	12/06/21 19:18	121,2520B	AS
Solids, Total Suspended	260		mg/l	5.0	NA	1	-	12/09/21 12:00	121,2540D	MG
Cyanide, Total	ND		mg/l	0.005	--	1	12/07/21 06:30	12/07/21 10:55	121,4500CN-CE	CS
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	12/04/21 07:02	121,4500CL-D	KA
pH (H)	6.7		SU	-	NA	1	-	12/03/21 23:42	121,4500H+-B	AS
Nitrogen, Ammonia	5.00		mg/l	0.075	--	1	12/10/21 03:10	12/10/21 22:29	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	4.00	--	1	12/09/21 09:45	12/09/21 11:45	140,1664B	NP
Phenolics, Total	ND		mg/l	0.030	--	1	12/06/21 07:33	12/06/21 10:28	4,420.1	KP
Chromium, Hexavalent	ND		mg/l	0.010	--	1	12/04/21 08:50	12/04/21 09:06	1,7196A	KA
Anions by Ion Chromatography - Westborough Lab										
Chloride	677.		mg/l	12.5	--	25	-	12/12/21 21:03	44,300.0	SH

Project Name: BLOCK 7A
Project Number: 3175.14
Lab Number: L2166627
Report Date: 12/14/21

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): 02-03 Batch: WG1579059-1										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	12/04/21 07:02	121,4500CL-D	KA
General Chemistry - Westborough Lab for sample(s): 02-03 Batch: WG1579072-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	12/04/21 08:50	12/04/21 09:02	1,7196A	KA
General Chemistry - Westborough Lab for sample(s): 02-03 Batch: WG1579462-1										
Phenolics, Total	ND		mg/l	0.030	--	1	12/06/21 07:33	12/06/21 10:23	4,420.1	KP
General Chemistry - Westborough Lab for sample(s): 02-03 Batch: WG1579897-1										
Cyanide, Total	ND		mg/l	0.005	--	1	12/07/21 06:30	12/07/21 10:36	121,4500CN-CE	CS
General Chemistry - Westborough Lab for sample(s): 02-03 Batch: WG1580597-1										
TPH, SGT-HEM	ND		mg/l	4.00	--	1	12/09/21 09:45	12/09/21 11:45	140,1664B	NP
General Chemistry - Westborough Lab for sample(s): 02-03 Batch: WG1580983-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	12/09/21 12:00	121,2540D	MG
General Chemistry - Westborough Lab for sample(s): 01-03 Batch: WG1581433-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	12/10/21 03:10	12/10/21 22:24	121,4500NH3-BH	AT
Anions by Ion Chromatography - Westborough Lab for sample(s): 02-03 Batch: WG1582335-1										
Chloride	ND		mg/l	0.500	--	1	-	12/12/21 12:13	44,300.0	SH

Lab Control Sample Analysis
Batch Quality Control

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG1578996-1								
pH	100		-		99-101	-		5
General Chemistry - Westborough Lab Associated sample(s): 02-03 Batch: WG1579059-2								
Chlorine, Total Residual	96		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 02-03 Batch: WG1579072-2								
Chromium, Hexavalent	102		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 02-03 Batch: WG1579462-2								
Phenolics, Total	102		-		70-130	-		
General Chemistry - Westborough Lab Associated sample(s): 02-03 Batch: WG1579833-1								
SALINITY	100		-			-		
General Chemistry - Westborough Lab Associated sample(s): 02-03 Batch: WG1579897-2								
Cyanide, Total	101		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 02-03 Batch: WG1580597-2								
TPH	73		-		64-132	-		34

Lab Control Sample Analysis
Batch Quality Control

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1580859-1					
SALINITY	101	-		-	
General Chemistry - Westborough Lab Associated sample(s): 02-03 Batch: WG1580983-2					
Solids, Total Suspended	95	-	80-120	-	
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG1581433-2					
Nitrogen, Ammonia	95	-	80-120	-	20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 02-03 Batch: WG1582335-2					
Chloride	100	-	90-110	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

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): 02-03 QC Batch ID: WG1579059-4 QC Sample: L2166691-01 Client ID: MS Sample												
Chlorine, Total Residual	ND	0.25	ND	0	Q	-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 02-03 QC Batch ID: WG1579072-4 QC Sample: L2166627-03 Client ID: 20211203 B7A-SH-17W												
Chromium, Hexavalent	ND	0.1	0.101	101		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 02-03 QC Batch ID: WG1579462-4 QC Sample: L2166691-01 Client ID: MS Sample												
Phenolics, Total	ND	0.4	0.38	96		-	-		70-130	-		20
General Chemistry - Westborough Lab Associated sample(s): 02-03 QC Batch ID: WG1579897-4 QC Sample: L2166358-01 Client ID: MS Sample												
Cyanide, Total	ND	0.2	0.181	90		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 02-03 QC Batch ID: WG1580597-4 QC Sample: L2166627-03 Client ID: 20211203 B7A-SH-17W												
TPH	ND	19.6	15.5	79		-	-		64-132	-		34
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1581433-4 QC Sample: L2165582-01 Client ID: MS Sample												
Nitrogen, Ammonia	0.122	4	3.93	95		-	-		80-120	-		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 02-03 QC Batch ID: WG1582335-3 QC Sample: L2166627-02 Client ID: 20211203 B7A-SH-30W												
Chloride	715	4	809	95		-	-		90-110	-		18

Lab Duplicate Analysis
Batch Quality Control

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1578996-2 QC Sample: L2165734-01 Client ID: DUP Sample						
pH	6.7	6.7	SU	0		5
General Chemistry - Westborough Lab Associated sample(s): 02-03 QC Batch ID: WG1579059-3 QC Sample: L2166627-02 Client ID: 20211203 B7A-SH-30W						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 02-03 QC Batch ID: WG1579072-3 QC Sample: L2166627-02 Client ID: 20211203 B7A-SH-30W						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 02-03 QC Batch ID: WG1579462-3 QC Sample: L2166691-01 Client ID: DUP Sample						
Phenolics, Total	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 02-03 QC Batch ID: WG1579833-2 QC Sample: L2166657-02 Client ID: DUP Sample						
SALINITY	ND	ND	SU	NC		
General Chemistry - Westborough Lab Associated sample(s): 02-03 QC Batch ID: WG1579897-3 QC Sample: L2166627-03 Client ID: 20211203 B7A-SH-17W						
Cyanide, Total	ND	ND	mg/l	NC		30
General Chemistry - Westborough Lab Associated sample(s): 02-03 QC Batch ID: WG1580597-3 QC Sample: L2166627-02 Client ID: 20211203 B7A-SH-30W						
TPH, SGT-HEM	ND	ND	mg/l	NC		34
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1580859-2 QC Sample: L2167180-01 Client ID: DUP Sample						
SALINITY	ND	ND	SU	NC		

Lab Duplicate Analysis
Batch Quality Control

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Parameter	Native Sample	Duplicate Sample	Units	RPD		RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 02-03 QC Batch ID: WG1580983-3 QC Sample: L2166657-01 Client ID: DUP Sample						
Solids, Total Suspended	800	1100	mg/l	**32**	Q	29
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1581433-3 QC Sample: L2165582-01 Client ID: DUP Sample						
Nitrogen, Ammonia	0.122	0.108	mg/l	12		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 02-03 QC Batch ID: WG1582335-4 QC Sample: L2166627-02 Client ID: 20211203 B7A-SH-30W						
Chloride	715	716	mg/l	0		18

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2166627-01A	Vial Na2S2O3 preserved	A	NA		5.0	Y	Absent		HOLD-624(7)
L2166627-01B	Vial Na2S2O3 preserved	A	NA		5.0	Y	Absent		HOLD-624(7)
L2166627-01C	Vial Na2S2O3 preserved	A	NA		5.0	Y	Absent		HOLD-624(7)
L2166627-01D	Vial Na2S2O3 preserved	A	NA		5.0	Y	Absent		HOLD-624(7)
L2166627-01E	Vial Na2S2O3 preserved	A	NA		5.0	Y	Absent		HOLD-624(7)
L2166627-01F	Vial Na2S2O3 preserved	A	NA		5.0	Y	Absent		HOLD-624(7)
L2166627-01G	Vial Na2S2O3 preserved	A	NA		5.0	Y	Absent		HOLD-624(7)
L2166627-01H	Vial Na2S2O3 preserved	A	NA		5.0	Y	Absent		HOLD-624(7)
L2166627-01I	Vial unpreserved	A	NA		5.0	Y	Absent		HOLD-SUB()
L2166627-01J	Vial unpreserved	A	NA		5.0	Y	Absent		HOLD-SUB()
L2166627-01K	Vial unpreserved	A	NA		5.0	Y	Absent		HOLD-SUB()
L2166627-01L	Amber 120ml unpreserved	A	7	7	5.0	Y	Absent		SALINITY(28)
L2166627-01M	Plastic 250ml HNO3 preserved	A	<2	<2	5.0	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),HARDU(180),FE-UI(180),AS-2008T(180),HG-U(28),AG-2008T(180),SE-2008T(180),SB-2008T(180),CR-2008T(180),PB-2008T(180)
L2166627-01N	Plastic 250ml NaOH preserved	A	>12	>12	5.0	Y	Absent		HOLD-WETCHEM()
L2166627-01O	Plastic 500ml H2SO4 preserved	A	<2	<2	5.0	Y	Absent		NH3-4500(28)
L2166627-01P	Plastic 950ml unpreserved	A	7	7	5.0	Y	Absent		HOLD-WETCHEM(),PH-4500(.01)
L2166627-01Q	Plastic 950ml unpreserved	A	7	7	5.0	Y	Absent		HOLD-WETCHEM()
L2166627-01R	Amber 950ml H2SO4 preserved	A	<2	<2	5.0	Y	Absent		HOLD-WETCHEM()
L2166627-01S	Amber 1000ml Na2S2O3	A	7	7	5.0	Y	Absent		HOLD-608(7)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2166627-01T	Amber 1000ml Na2S2O3	A	7	7	5.0	Y	Absent		HOLD-608(7)
L2166627-01U	Amber 1000ml Na2S2O3	A	7	7	5.0	Y	Absent		HOLD-608(7)
L2166627-01V	Amber 1000ml Na2S2O3	A	7	7	5.0	Y	Absent		HOLD-625(7)
L2166627-01W	Amber 1000ml Na2S2O3	A	7	7	5.0	Y	Absent		HOLD-625(7)
L2166627-01X	Amber 1000ml Na2S2O3	A	7	7	5.0	Y	Absent		HOLD-625(7)
L2166627-01Y	Amber 1000ml HCl preserved	A	N/A	N/A	5.0	Y	Absent		HOLD-WETCHEM()
L2166627-01Z	Amber 1000ml HCl preserved	A	N/A	N/A	5.0	Y	Absent		HOLD-WETCHEM()
L2166627-02A	Vial Na2S2O3 preserved	B	NA		3.3	Y	Absent		624.1-SIM-RGP(7)
L2166627-02B	Vial Na2S2O3 preserved	B	NA		3.3	Y	Absent		624.1-SIM-RGP(7)
L2166627-02C	Vial Na2S2O3 preserved	B	NA		3.3	Y	Absent		624.1-SIM-RGP(7)
L2166627-02D	Vial Na2S2O3 preserved	B	NA		3.3	Y	Absent		504(14)
L2166627-02E	Vial Na2S2O3 preserved	B	NA		3.3	Y	Absent		504(14)
L2166627-02F	Vial Na2S2O3 preserved	B	NA		3.3	Y	Absent		624.1-RGP(7)
L2166627-02G	Vial Na2S2O3 preserved	B	NA		3.3	Y	Absent		624.1-RGP(7)
L2166627-02H	Vial Na2S2O3 preserved	B	NA		3.3	Y	Absent		624.1-RGP(7)
L2166627-02I	Vial unpreserved	B	NA		3.3	Y	Absent		SUB-ETHANOL(14)
L2166627-02J	Vial unpreserved	B	NA		3.3	Y	Absent		SUB-ETHANOL(14)
L2166627-02K	Vial unpreserved	B	NA		3.3	Y	Absent		SUB-ETHANOL(14)
L2166627-02L	Amber 120ml unpreserved	B	7	7	3.3	Y	Absent		SALINITY(28)
L2166627-02M	Plastic 250ml HNO3 preserved	B	<2	<2	3.3	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),FE-UI(180),CU-2008T(180),HARDU(180),SE-2008T(180),AG-2008T(180),AS-2008T(180),HG-U(28),SB-2008T(180),PB-2008T(180),CR-2008T(180)
L2166627-02N	Plastic 250ml NaOH preserved	B	>12	>12	3.3	Y	Absent		TCN-4500(14)
L2166627-02O	Plastic 120ml unpreserved split	B	7	7	3.3	Y	Absent		-
L2166627-02P	Plastic 500ml H2SO4 preserved	B	<2	<2	3.3	Y	Absent		NH3-4500(28)
L2166627-02Q	Plastic 950ml unpreserved	B	7	7	3.3	Y	Absent		CL-300(28),HEXCR-7196(1),TRC-4500(1),PH-4500(.01)
L2166627-02R	Plastic 950ml unpreserved	B	7	7	3.3	Y	Absent		TSS-2540(7)
L2166627-02S	Amber 950ml H2SO4 preserved	B	4	<2	3.3	N	Absent		TPHENOL-420(28)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2166627-02T	Amber 1000ml Na2S2O3	B	7	7	3.3	Y	Absent		PCB-608.3(365)
L2166627-02U	Amber 1000ml Na2S2O3	B	7	7	3.3	Y	Absent		PCB-608.3(365)
L2166627-02V	Amber 1000ml Na2S2O3	B	7	7	3.3	Y	Absent		625.1-RGP(7)
L2166627-02W	Amber 1000ml Na2S2O3	B	7	7	3.3	Y	Absent		625.1-RGP(7)
L2166627-02X	Amber 1000ml Na2S2O3	B	7	7	3.3	Y	Absent		625.1-SIM-RGP(7)
L2166627-02X1	Plastic 120ml HNO3 preserved Filtrates	B	NA		3.3	Y	Absent		CR-2008S(180),FE-RI(180),AG-2008S(180),AS-2008S(180),ZN-2008S(180),PB-2008S(180),SE-2008S(180),NI-2008S(180),CD-2008S(180),SB-2008S(180),CU-2008S(180),HG-R(28)
L2166627-02Y	Amber 1000ml Na2S2O3	B	7	7	3.3	Y	Absent		625.1-SIM-RGP(7)
L2166627-02Z	Amber 1000ml HCl preserved	B	NA		3.3	Y	Absent		TPH-1664(28)
L2166627-02Z1	Amber 1000ml HCl preserved	B	NA		3.3	Y	Absent		TPH-1664(28)
L2166627-03A	Vial Na2S2O3 preserved	C	NA		4.7	Y	Absent		624.1-SIM-RGP(7)
L2166627-03B	Vial Na2S2O3 preserved	C	NA		4.7	Y	Absent		624.1-SIM-RGP(7)
L2166627-03C	Vial Na2S2O3 preserved	C	NA		4.7	Y	Absent		624.1-SIM-RGP(7)
L2166627-03D	Vial Na2S2O3 preserved	C	NA		4.7	Y	Absent		504(14)
L2166627-03E	Vial Na2S2O3 preserved	C	NA		4.7	Y	Absent		504(14)
L2166627-03F	Vial Na2S2O3 preserved	C	NA		4.7	Y	Absent		624.1-RGP(7)
L2166627-03G	Vial Na2S2O3 preserved	C	NA		4.7	Y	Absent		624.1-RGP(7)
L2166627-03H	Vial Na2S2O3 preserved	C	NA		4.7	Y	Absent		624.1-RGP(7)
L2166627-03I	Vial unpreserved	C	NA		4.7	Y	Absent		SUB-ETHANOL(14)
L2166627-03J	Vial unpreserved	C	NA		4.7	Y	Absent		SUB-ETHANOL(14)
L2166627-03K	Vial unpreserved	C	NA		4.7	Y	Absent		SUB-ETHANOL(14)
L2166627-03L	Amber 120ml unpreserved	C	7	7	4.7	Y	Absent		SALINITY(28)
L2166627-03M	Plastic 250ml HNO3 preserved	C	<2	<2	4.7	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),FE-UI(180),HARDU(180),CU-2008T(180),AG-2008T(180),AS-2008T(180),SE-2008T(180),HG-U(28),SB-2008T(180),PB-2008T(180),CR-2008T(180)
L2166627-03N	Plastic 250ml NaOH preserved	C	>12	>12	4.7	Y	Absent		TCN-4500(14)
L2166627-03O	Plastic 120ml unpreserved split	C	7	7	4.7	Y	Absent		-

*Values in parentheses indicate holding time in days

Project Name: BLOCK 7A
Project Number: 3175.14

Lab Number: L2166627
Report Date: 12/14/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2166627-03P	Plastic 500ml H2SO4 preserved	C	<2	<2	4.7	Y	Absent		NH3-4500(28)
L2166627-03Q	Plastic 950ml unpreserved	C	7	7	4.7	Y	Absent		HEXCR-7196(1),CL-300(28),TRC-4500(1),PH-4500(.01)
L2166627-03R	Plastic 950ml unpreserved	C	7	7	4.7	Y	Absent		TSS-2540(7)
L2166627-03S	Amber 950ml H2SO4 preserved	C	<2	<2	4.7	Y	Absent		TPHENOL-420(28)
L2166627-03T	Amber 1000ml Na2S2O3	C	7	7	4.7	Y	Absent		PCB-608.3(365)
L2166627-03U	Amber 1000ml Na2S2O3	C	7	7	4.7	Y	Absent		PCB-608.3(365)
L2166627-03V	Amber 1000ml Na2S2O3	C	7	7	4.7	Y	Absent		625.1-RGP(7)
L2166627-03W	Amber 1000ml Na2S2O3	C	7	7	4.7	Y	Absent		625.1-RGP(7)
L2166627-03X	Amber 1000ml Na2S2O3	C	7	7	4.7	Y	Absent		625.1-SIM-RGP(7)
L2166627-03X1	Plastic 120ml HNO3 preserved Filtrates	C	NA		4.7	Y	Absent		FE-RI(180),CR-2008S(180),AG-2008S(180),PB-2008S(180),ZN-2008S(180),AS-2008S(180),SE-2008S(180),NI-2008S(180),CD-2008S(180),CU-2008S(180),SB-2008S(180),HG-R(28)
L2166627-03Y	Amber 1000ml Na2S2O3	C	7	7	4.7	Y	Absent		625.1-SIM-RGP(7)
L2166627-03Z	Amber 1000ml HCl preserved	C	NA		4.7	Y	Absent		TPH-1664(28)
L2166627-03Z1	Amber 1000ml HCl preserved	C	NA		4.7	Y	Absent		TPH-1664(28)

*Values in parentheses indicate holding time in days

Project Name:	BLOCK 7A	**Lab Number:**	L2166627
Project Number:	3175.14	**Report Date:**	12/14/21

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:	BLOCK 7A	**Lab Number:**	L2166627
Project Number:	3175.14	**Report Date:**	12/14/21

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:	BLOCK 7A	**Lab Number:**	L2166627
Project Number:	3175.14	**Report Date:**	12/14/21

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.)

Project Name: BLOCK 7A **Lab Number:** L2166627

Project Number: 3175.14 **Report Date:** 12/14/21

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 1 OF 1

Date Rec'd in Lab: 12/3/21

ALPHA Job #: L2166607

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
Address: 1 TECHNOLOGY PARK DR
WESTFORD MA
Phone: 978 577 1000
Email: kwalker@sanbornhead.com

Additional Project Information:

Project Information

Project Name: BLOCK 7A
Project Location: SOMERVILLE MA
Project #: 3175.14
Project Manager: KENT WALKER
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 Packages/ethanol	pH	salinity	hardness			Sample Comments	TOTAL # BOTTLES
66607-01	20211203 MYSTIC	12/3/2021	9:30	water	HGS									X	X	X	X				
-02	20211203 B7A-SH-30W	↓	11:30	↓	↓									X	X	X	X				
-03	20211203 B7A-SH-17W		13:30											X	X	X	X				

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

Container Type																					
Preservative																					

Relinquished By:	Date/Time	Received By:	Date/Time
	12/3/21 15:15	ALPHAL	12/3/21 1515
	12/3/21 1842		12/3/1842

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

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

Subcontract Chain of Custody

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

Alpha Job Number
L2166627

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: L2166627

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
	20211203 B7A-SH-30W	12-03-21 11:30	WATER	Ethanol by EPA 1671 Revision A	
	20211203 B7A-SH-17W	12-03-21 13:30	WATER	Ethanol by EPA 1671 Revision A	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		12/6/21		
Form No: AL_subcoc				

December 10, 2021

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

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

RE: L2166627 **WorkOrder:** 21120401

Dear Scott Enright:

TEKLAB, INC received 2 samples on 12/7/2021 9:57:00 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,

Elizabeth A. Hurley
Project Manager
(618)344-1004 ex 33
ehurley@teklabinc.com

Report Contents

http://www.teklabinc.com/

Client: Alpha Analytical
Work Order: 21120401
Client Project: L2166627
Report Date: 10-Dec-21

This reporting package includes the following:

Definitions

http://www.teklabinc.com/

Client: Alpha Analytical **Work Order:** 21120401

Client Project: L2166627 **Report Date:** 10-Dec-21

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)

Definitions

http://www.teklabinc.com/

Client: Alpha Analytical **Work Order:** 21120401

Client Project: L2166627 **Report Date:** 10-Dec-21

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

Case Narrative

http://www.teklabinc.com/

Client: Alpha Analytical
Work Order: 21120401
Client Project: L2166627
Report Date: 10-Dec-21

Cooler Receipt Temp: 1.0 °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

Accreditations

http://www.teklabinc.com/

Client: Alpha Analytical
Work Order: 21120401
Client Project: L2166627
Report Date: 10-Dec-21

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2022	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		1/31/2022	Collinsville
Missouri	MDNR	00930		5/31/2023	Collinsville
Missouri	MDNR	930		1/31/2025	Collinsville

Laboratory Results

http://www.teklabinc.com/

Client: Alpha Analytical
Work Order: 21120401
Client Project: L2166627
Report Date: 10-Dec-21
Lab ID: 21120401-001
Client Sample ID: 20211203 B7A-SH-30W
Matrix: AQUEOUS
Collection Date: 12/03/2021 11:30

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	12/07/2021 15:53	R303549

Laboratory Results

http://www.teklabinc.com/

Client: Alpha Analytical
Work Order: 21120401
Client Project: L2166627
Report Date: 10-Dec-21
Lab ID: 21120401-002
Client Sample ID: 20211203 B7A-SH-17W
Matrix: AQUEOUS
Collection Date: 12/03/2021 13:30

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	12/07/2021 16:30	R303549

Quality Control Results

http://www.teklabinc.com/

Client: Alpha Analytical
Work Order: 21120401
Client Project: L2166627
Report Date: 10-Dec-21

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

Batch R303549 **SampType:** MBLK Units **mg/L**
SampID: MBLK-120721

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethanol	*	20		**ND**						12/07/2021

Batch R303549 **SampType:** LCS Units **mg/L**
SampID: LCS-120721

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethanol	*	20		**260**	250.0	0	105.2	70	132	12/07/2021

Batch R303549 **SampType:** MS Units **mg/L**
SampID: 21120402-001AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethanol	*	20		**260**	250.0	0	105.8	70	132	12/07/2021

Batch R303549 **SampType:** MSD Units **mg/L** RPD Limit: **30**
SampID: 21120402-001AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ethanol	*	20		**300**	250.0	0	118.4	264.6	11.23	12/07/2021

Receiving Check List

http://www.teklabinc.com/

Client: Alpha Analytical
Client Project: L2166627

Work Order: 21120401
Report Date: 10-Dec-21

Carrier: UPS

Received By: MEK

Completed by: Mary E. Kemp
On: 07-Dec-21

Reviewed by: Elizabeth A. Hurley
On: 07-Dec-21

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

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C 1.0
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.

21120401

Subcontract Chain of Custody

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

Alpha Job Number
L2166627

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: L2166627

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
21120401-001 ↓ 002	20211203 B7A-SH-30W 20211203 B7A-SH-17W	12-03-21 11:30 12-03-21 13:30	WATER WATER	Ethanol by EPA 1671 Revision A Ethanol by EPA 1671 Revision A	

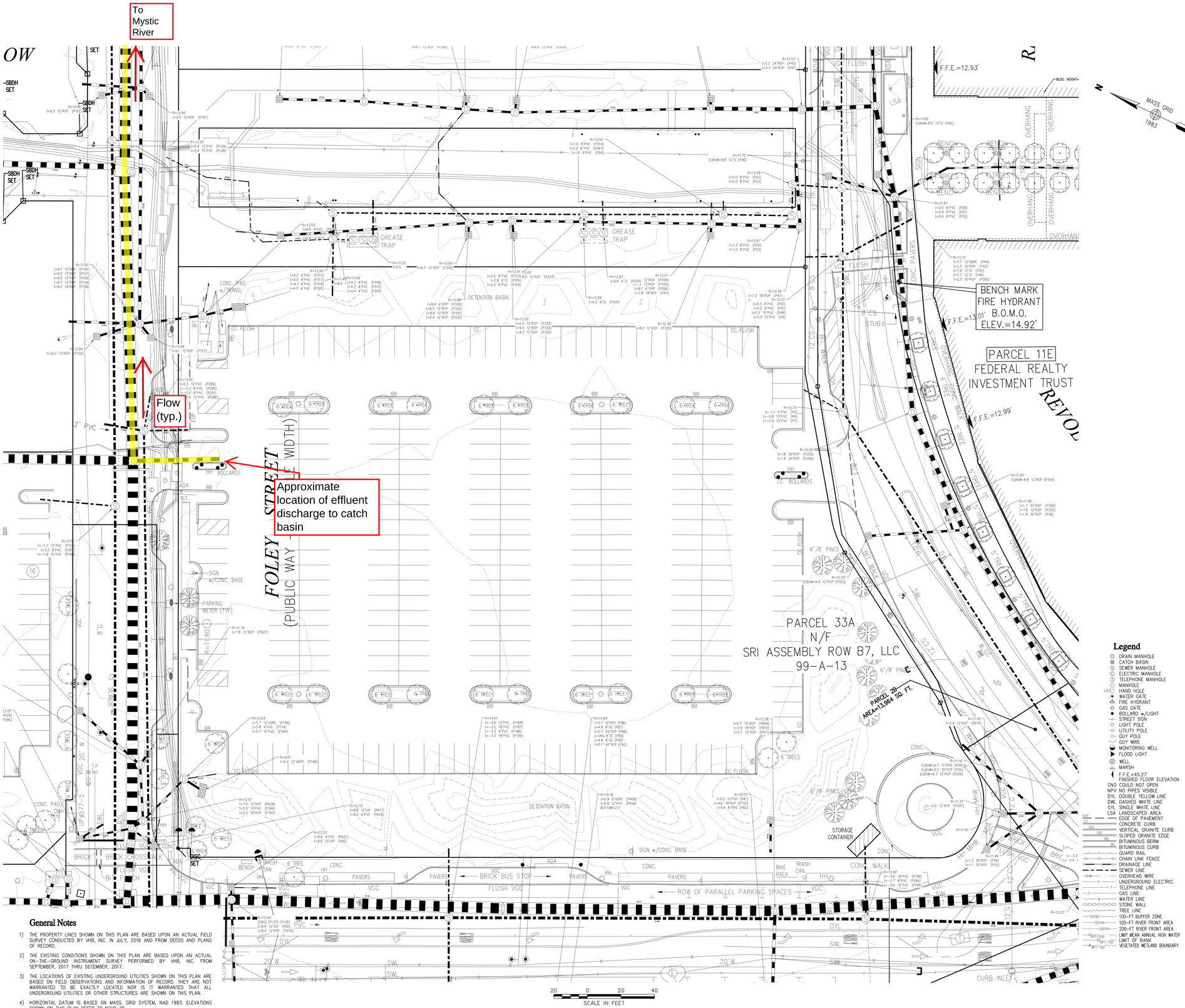
1.0°C LT51

Ø HS PL 12/7/21

	Relinquished By:	Date/Time:	Received By:	Date/Time:
	[signature]	12/6/21	Mary Kay (UPS)	12/7/21 0957
Form No: AL_subcoc				

APPENDIX E

MAPS OF RELEVANT INFRASTRUCTURE



General Notes

1) THE PROPERTY LINES SHOWN ON THIS PLAN ARE BASED UPON AN ACTUAL FIELD SURVEY CONDUCTED BY VHB, INC. IN JULY, 2016 AND FROM DEEDS AND PLANS OF RECORD.

2) THE EXISTING CONDITIONS SHOWN ON THIS PLAN ARE BASED UPON AN ACTUAL ON-THE-GROUND INSTRUMENT SURVEY PERFORMED BY VHB, INC. FROM SEPTEMBER, 2017 THRU DECEMBER, 2017..

3) THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED ON FIELD OBSERVATIONS AND INFORMATION OF RECORD. THEY ARE NOT WARRANTED TO BE EXACTLY LOCATED NOR IS IT WARRANTED THAT ALL UNDERGROUND UTILITIES OR OTHER STRUCTURES ARE SHOWN ON THIS PLAN.

4) HORIZONTAL DATUM IS BASED ON MASS. GRID SYSTEM, NAD 1983. ELEVATIONS SHOWN ON THIS PLAN REFER TO NGVD 29.

Legend

- DRAIN MANHOLE
- CATCH BASIN
- SEWER MANHOLE
- ELECTRIC MANHOLE
- TELEPHONE MANHOLE
- MANHOLE
- HAND HOLE
- WATER GATE
- FIRE HYDRANT
- GAS GATE
- BOLLARD w/LIGHT
- STREET SIGN
- LIGHT POLE
- UTILITY POLE
- GUY POLE
- GUY WIRE
- MONITORING WELL
- FLOOD LIGHT
- WELL
- MARSH
- F.F.E.=45.27' FINISHED FLOOR ELEVATION
- CNO COULD NOT OPEN
- NPV NO PIPES VISIBLE
- DYL DOUBLE YELLOW LINE
- DWL DASHED WHITE LINE
- SYL SINGLE YELLOW LINE
- LSA LANDSCAPED AREA
- EOP EDGE OF PAVEMENT
- CC CONCRETE CURB
- VGC VERTICAL GRANITE CURB
- SGC SLOPED GRANITE EDGE
- BB BITUMINOUS BERM
- BC BITUMINOUS CURB
- GR GUARD RAIL
- CHAIN LINK FENCE
- DRAINAGE LINE
- SEWER LINE
- OHW OVERHEAD WIRE
- E UNDERGROUND ELECTRIC
- T TELEPHONE LINE
- G GAS LINE
- W WATER LINE
- STONE WALL
- TREE LINE
- 100' BZ 100-FT BUFFER ZONE
- 100' RA 100-FT RIVER FRONT AREA
- 200' RA 200-FT RIVER FRONT AREA
- LIMIT MEAN ANNUAL HIGH WATER
- LIMIT OF BANK
- VEGETATED WETLAND BOUNDARY

Jacobs
120 Saint James Avenue, 5th Floor
Boston, Massachusetts 02116
P: 617.242.9222
F: 617.532.4399
www.jacobs.com

Consultant:
101 Walnut Street
PO Box 9151
Watertown, MA 02471
617.924.1770
vhb

Seals:

Project Client:
Federal Realty Investment Trust
FEDERAL REALTY INVESTMENT TRUST
450 Artisan Way, Suite 320
Somerville, MA 02145
P: 617.684.1500
W: federalrealty.com

BLOCK 7a
350 Assembly Row, Somerville, MA

SCHEMATIC DESIGN
8/18/2021

Number	Description	Date
A	Schematic Design	2021-08-18

Key Plan:

CAD File:
Project No.: L1011001

Drawing Sheet Title:
EXISTING CONDITIONS PLAN OF LAND

Drawing Sheet Number:
C0.06.00

APPENDIX F

FEDERAL CORRESPONDENCE

From: meagan.riley@noaa.gov on behalf of NMFS.GAR ESA.Section7 - NOAA Service Account
To: Helen Sanderson
Subject: Re: Somerville MA RGP
Date: Wednesday, January 12, 2022 10:59:55 AM

Hi, Helen. There are ESA-listed species present. Please see our ESA Section 7 Mapper for more information: https://noaa.maps.arcgis.com/apps/webappviewer/index.html?id=1bc332edc5204e03b250ac11f9914a27

Meagan

On Mon, Jan 10, 2022 at 12:20 PM Helen Sanderson <hsanderson@sanbornhead.com> wrote:

> Good morning,
>
> I would like to request information to be included as part of a Remediation General Permit application for upcoming construction dewatering at 85 Foley Street in Somerville, MA. Effluent will be discharged to the Mystic River segment MA71-03 via a storm drain outfall just downstream of the Amelia Earhart dam. The coordinates of the outfall are provided below.
>
> Latitude: 42.393485 Longitude: -71.075629
>
> Are there any federally listed species downstream of this location that may be affected by this discharge? Please let me know if any additional information is needed.
>
> Thank you,
>
> Helen
>
> **Helen Sanderson, EIT**
> Project Engineer
>
> EIT in MA
>
> **SANBORN | HEAD & ASSOCIATES, INC.**
>
> D 978.577.1031 | M 503.816.2294 | 1 Technology Park Drive, Westford, MA 01886

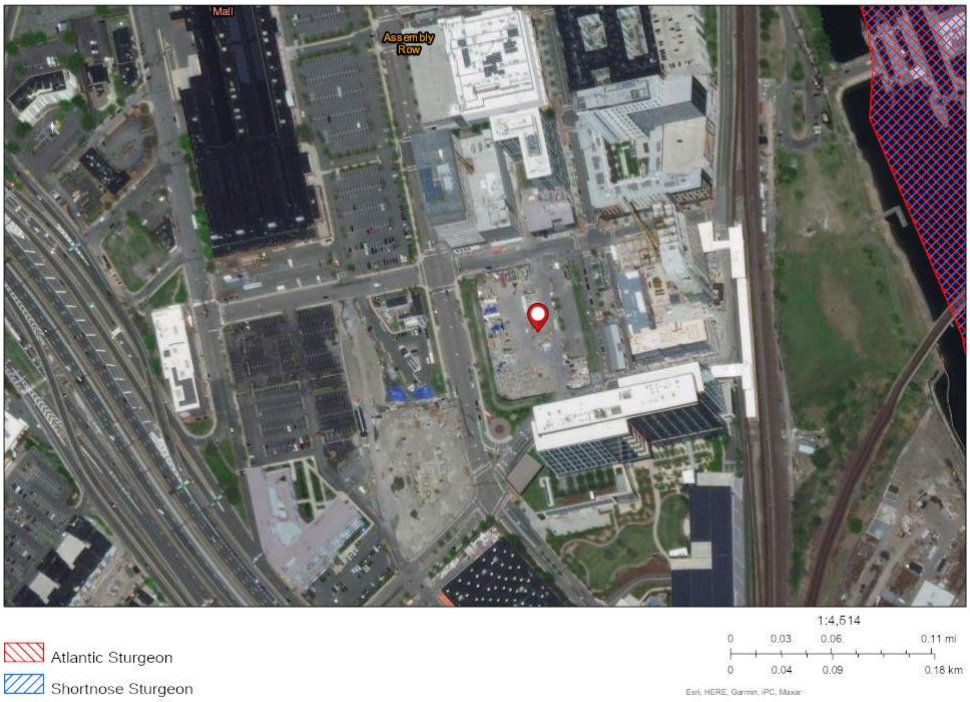
Click here to follow us on LinkedIn | Twitter | Facebook | sanbornhead.com

Drawn Action Area & Overlapping S7 Consultation Areas

Area of Interest (AOI) Information

Area : 2,009.02 acres

Jan 18 2022 15:08:02 Eastern Standard Time



Summary

Name	Count	Area(acres)	Length(mi)
Atlantic Sturgeon	2	586.56	N/A
Shortnose Sturgeon	1	293.28	N/A
Atlantic Salmon	0	0	N/A
Sea Turtles	0	0	N/A
Atlantic Large Whales	0	0	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	293.28
2	ANS_C50_SUB_MAF	Atlantic sturgeon	Subadult	Migrating & Foraging	N/A	01/01	12/31	N/A	N/A	293.28

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	293.28

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: January 10, 2022
Consultation Code: 05E1NE00-2022-SLI-1115
Event Code: 05E1NE00-2022-E-03962
Project Name: Assembly Row Block 7A

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:

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 feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. 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. This verification can be completed formally or informally as desired. 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 through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

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. Under sections 7(a)(1) and 7(a)(2) 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 and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, 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 Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. 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

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

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

Consultation Code: 05E1NE00-2022-SLI-1115
Event Code: Some(05E1NE00-2022-E-03962)
Project Name: Assembly Row Block 7A
Project Type: DEVELOPMENT
Project Description: Construction dewatering will occur during excavations up to 30 feet below grade at the block bounded by Foley Street, Assembly Row, Revolution Drive, and Grand Union Boulevard. Groundwater will be treated as needed and discharged to a municipal storm drain which discharges at an outfall in the Mystic River within the area shown on the location figure.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.3931005,-71.07774275352543,14z

Counties: Middlesex 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.

APPENDIX G

NATIONAL REGISTER OF HISTORICAL PLACES, SOMERVILLE, MASSACHUSETTS

Appendix G
National Register of Historic Places
Research Documentation
Somerville, Massachusetts

Reference Number	Property Name	State	County	City	Street & Number	Federal Agencies	Listed Date	Name of Multiple Property Listing	Other Names
75000287	Powder House Park	MASSACHUSETTS	Middlesex	Somerville	Powder House Circle		4/21/1975		Nathan Tufts Park
76000274	Bow Street Historic District	MASSACHUSETTS	Middlesex	Somerville	Bow St.		3/26/1976		
84002530	Carr, Martin W., School	MASSACHUSETTS	Middlesex	Somerville	25 Atherton St.		7/5/1984		Carr School
86001247	US Post Office-Somerville Main	MASSACHUSETTS	Middlesex	Somerville	237 Washington St.	U.S. POSTAL SERVICE	5/30/1986		Somerville Main Post Office
89001221	Westwood Road Historic District	MASSACHUSETTS	Middlesex	Somerville	Roughly bounded by Summer St., Benton Rd., Westwood Rd., and Central St.		9/18/1989	Somerville MPS	
89001222	Spring Hill Historic District	MASSACHUSETTS	Middlesex	Somerville	Roughly bounded by Summer, Central, Atherton, and Spring		9/18/1989	Somerville MPS	
89001223	Mt. Vernon Street Historic District	MASSACHUSETTS	Middlesex	Somerville	8--24 Mt. Vernon St.		9/18/1989	Somerville MPS	
89001224	Keyes, Amos, House	MASSACHUSETTS	Middlesex	Somerville	12 Adams St.		9/18/1989	Somerville MPS	
89001225	Downer Rowhouses (Adams Street)	MASSACHUSETTS	Middlesex	Somerville	55 Adams St.		9/18/1989	Somerville MPS	
89001226	Williams, F. G., House	MASSACHUSETTS	Middlesex	Somerville	37 Albion St.		9/18/1989	Somerville MPS	
89001227	Mystic Water Works	MASSACHUSETTS	Middlesex	Somerville	Alewife Brook Pkwy. and Capen St.		9/18/1989	Somerville MPS	
89001228	Williams, Charles, Jr., House	MASSACHUSETTS	Middlesex	Somerville	1 Arlington St.		9/18/1989	Somerville MPS	
89001230	House at 10 Arlington Street	MASSACHUSETTS	Middlesex	Somerville	10 Arlington St.		9/18/1989	Somerville MPS	
89001232	Houses at 28-36 Beacon Street	MASSACHUSETTS	Middlesex	Somerville	28--36 Beacon St.		9/18/1989	Somerville MPS	
89001233	Wyatt, George, House	MASSACHUSETTS	Middlesex	Somerville	33 Beacon St.		9/18/1989	Somerville MPS	
89001234	Snow, Lemuel, Jr., House	MASSACHUSETTS	Middlesex	Somerville	81 Benton Rd.		9/18/1989	Somerville MPS	
89001236	Crowell, C. C., House	MASSACHUSETTS	Middlesex	Somerville	85 Benton Rd.		9/18/1989	Somerville MPS	
89001237	Langmaid Terrace	MASSACHUSETTS	Middlesex	Somerville	359--365 Broadway		9/18/1989	Somerville MPS	
89001238	Broadway Winter Hill Congregational Church	MASSACHUSETTS	Middlesex	Somerville	404 Broadway		9/18/1989	Somerville MPS	
89001239	Adams-Magoun House	MASSACHUSETTS	Middlesex	Somerville	438 Broadway		9/18/1989	Somerville MPS	
89001240	Adams, Charles-Woodbury Locke House	MASSACHUSETTS	Middlesex	Somerville	178 Central St.		9/18/1989	Somerville MPS	
89001241	Downer Rowhouses (Central Street)	MASSACHUSETTS	Middlesex	Somerville	192--200 Central St.		9/18/1989	Somerville MPS	
89001244	Bacon, Clifton, House	MASSACHUSETTS	Middlesex	Somerville	27 Chester St.		9/18/1989	Somerville MPS	
89001245	House at 14 Chestnut Street	MASSACHUSETTS	Middlesex	Somerville	14 Chestnut St.		9/18/1989	Somerville MPS	
89001247	House at 25 Clyde Street	MASSACHUSETTS	Middlesex	Somerville	25 Clyde St.		9/18/1989	Somerville MPS	
89001248	West Somerville Branch Library	MASSACHUSETTS	Middlesex	Somerville	40 College Ave.		9/18/1989	Somerville MPS	
89001249	Lockhardt, Charles H., House	MASSACHUSETTS	Middlesex	Somerville	88 College Ave.		9/18/1989	Somerville MPS	
89001250	Cook, Thomas, House	MASSACHUSETTS	Middlesex	Somerville	21 College Hill Rd.		9/18/1989	Somerville MPS	
89001251	Brooks, James H., House	MASSACHUSETTS	Middlesex	Somerville	61 Columbus Ave.		9/18/1989	Somerville MPS	
89001252	Brackett, S. E., House	MASSACHUSETTS	Middlesex	Somerville	63 Columbus Ave.		9/18/1989	Somerville MPS	
89001253	Williams, Charles, House	MASSACHUSETTS	Middlesex	Somerville	108 Cross St.		9/18/1989	Somerville MPS	
89001254	House at 72R Dane Street	MASSACHUSETTS	Middlesex	Somerville	72R Dane St.		9/18/1989	Somerville MPS	
89001255	House at 21 Dartmouth Street	MASSACHUSETTS	Middlesex	Somerville	21 Dartmouth St.		9/18/1989	Somerville MPS	
89001256	Knight, R. A.-Eugene Lacount House	MASSACHUSETTS	Middlesex	Somerville	34 Day St.		9/18/1989	Somerville MPS	
89001257	Cooper-Davenport Tavern Wing	MASSACHUSETTS	Middlesex	Somerville	81 Eustis St.		9/18/1989	Somerville MPS	
89001259	Langmaid Building	MASSACHUSETTS	Middlesex	Somerville	48--52 Highland Ave.		9/18/1989	Somerville MPS	
89001260	Highland, The	MASSACHUSETTS	Middlesex	Somerville	66 Highland St.		9/18/1989	Somerville MPS	
89001261	Somerville High School	MASSACHUSETTS	Middlesex	Somerville	93 Highland St.		9/18/1989	Somerville MPS	Somerville Town Hall;Somerville City Hall
89001262	First Universalist Church	MASSACHUSETTS	Middlesex	Somerville	125 Highland St.		9/18/1989	Somerville MPS	
89001263	Loring, George, House	MASSACHUSETTS	Middlesex	Somerville	76 Highland Ave.		9/18/1989	Somerville MPS	
89001264	First Unitarian Church	MASSACHUSETTS	Middlesex	Somerville	130 Highland Ave.		9/18/1989	Somerville MPS	
89001265	Gaut, Samuel, House	MASSACHUSETTS	Middlesex	Somerville	137 Highland Ave.		9/18/1989	Somerville MPS	
89001266	Barnes, Walter S. and Melissa E., House	MASSACHUSETTS	Middlesex	Somerville	140 Highland Ave.		3/8/1990	Somerville MPS	
89001267	House at 343 Highland Avenue	MASSACHUSETTS	Middlesex	Somerville	343 Highland Ave.		9/18/1989	Somerville MPS	
89001269	House at 6 Kent Court	MASSACHUSETTS	Middlesex	Somerville	6 Kent Ct.		9/18/1989	Somerville MPS	
89001270	Foster, Alexander, House	MASSACHUSETTS	Middlesex	Somerville	45 Laurel St.		9/18/1989	Somerville MPS	
89001272	Worthen, Daniel, House	MASSACHUSETTS	Middlesex	Somerville	8 Mt. Pleasant St.		9/18/1989	Somerville MPS	
89001273	House at 197 Morrison Avenue	MASSACHUSETTS	Middlesex	Somerville	197 Morrison Ave.		9/18/1989	Somerville MPS	
89001274	Central Library	MASSACHUSETTS	Middlesex	Somerville	79 Highland Ave.		9/18/1989	Somerville MPS	
89001275	Grandview, The	MASSACHUSETTS	Middlesex	Somerville	82 Munroe St.		9/18/1989	Somerville MPS	
89001276	Niles, Louville V., House	MASSACHUSETTS	Middlesex	Somerville	97 Munroe St.		9/18/1989	Somerville MPS	
89001277	House at 81 Pearl Street	MASSACHUSETTS	Middlesex	Somerville	81 Pearl St.		9/18/1989	Somerville MPS	
89001278	Prescott, Gustavus G., House	MASSACHUSETTS	Middlesex	Somerville	65--67 Perkins St.		9/18/1989	Somerville MPS	
89001279	House at 16-18 Preston Road	MASSACHUSETTS	Middlesex	Somerville	16--18 Preston Rd.		9/18/1989	Somerville MPS	
89001280	Cliff, Z. E., House	MASSACHUSETTS	Middlesex	Somerville	29 Powderhouse Terr.		9/18/1989	Somerville MPS	
89001281	House at 5 Prospect Hill	MASSACHUSETTS	Middlesex	Somerville	5 Prospect Hill		9/18/1989	Somerville MPS	
89001282	Russell, Philemon, House	MASSACHUSETTS	Middlesex	Somerville	25 Russell St.		9/18/1989	Somerville MPS	
89001283	Warren, H., House	MASSACHUSETTS	Middlesex	Somerville	205 School St.		9/18/1989	Somerville MPS	
89001284	Hopkins, Elisha, House	MASSACHUSETTS	Middlesex	Somerville	237 School St.		9/18/1989	Somerville MPS	
89001285	Nichols, John F., House	MASSACHUSETTS	Middlesex	Somerville	17 Summit St.		9/18/1989	Somerville MPS	
89001286	Russell, Susan, House	MASSACHUSETTS	Middlesex	Somerville	58 Sycamore St.		9/18/1989	Somerville MPS	
89001287	Tufts, Peter and Oliver, House	MASSACHUSETTS	Middlesex	Somerville	78 Sycamore St.		9/18/1989	Somerville MPS	
89001288	House at 35 Temple Street	MASSACHUSETTS	Middlesex	Somerville	35 Temple St.		9/18/1989	Somerville MPS	
89001289	Otis-Wyman House	MASSACHUSETTS	Middlesex	Somerville	67 Thurston St.		9/18/1989	Somerville MPS	
89001290	House at 42 Vinal Avenue	MASSACHUSETTS	Middlesex	Somerville	42 Vinal Ave.		9/18/1989	Somerville MPS	
89001291	Parker-Burnett House	MASSACHUSETTS	Middlesex	Somerville	48 Vinal Ave.		9/18/1989	Somerville MPS	
89001292	House at 49 Vinal Avenue	MASSACHUSETTS	Middlesex	Somerville	49 Vinal Ave.		9/18/1989	Somerville MPS	
89001293	Wright House	MASSACHUSETTS	Middlesex	Somerville	54 Vinal Ave.		9/18/1989	Somerville MPS	
89001294	Munroe, Robert, House	MASSACHUSETTS	Middlesex	Somerville	37 Walnut St.		9/18/1989	Somerville MPS	
89001295	Niles, Louville, House	MASSACHUSETTS	Middlesex	Somerville	45 Walnut St.		9/18/1989	Somerville MPS	
89001296	Hollander Blocks	MASSACHUSETTS	Middlesex	Somerville	Walnut St. and Pleasant Ave.		9/18/1989	Somerville MPS	
89001297	Lovejoy, A. L., House	MASSACHUSETTS	Middlesex	Somerville	30 Warren Ave.		9/18/1989	Somerville MPS	
89001298	Schuebeler, Charles, House	MASSACHUSETTS	Middlesex	Somerville	384 Washington St.		9/18/1989	Somerville MPS	
89001299	Ireland, Samuel, House	MASSACHUSETTS	Middlesex	Somerville	117 Washington		9/18/1989	Somerville MPS	
89001300	Somerville Journal Building	MASSACHUSETTS	Middlesex	Somerville	8--10 Walnut St.		9/18/1989	Somerville MPS	
89001301	Old Cemetery	MASSACHUSETTS	Middlesex	Somerville	Somerville Ave. and School St.		9/18/1989	Somerville MPS	

Appendix G
National Register of Historic Places
Research Documentation
Somerville, Massachusetts

89001302	House at 29 Mt. Vernon Street	MASSACHUSETTS	Middlesex	Somerville	29 Mt. Vernon St.		9/18/1989	Somerville MPS	
89002255	Mystic Pumping Station	MASSACHUSETTS	Middlesex	Somerville	Alewife Brook Pkwy.		1/18/1990	Water Supply System of Metropolitan Boston MPS	
89002330	Somerville Theatre	MASSACHUSETTS	Middlesex	Somerville	55 Davis Sq.		1/26/1990	Somerville MPS	Hobbs Building
98000095	James, Joseph K., House	MASSACHUSETTS	Middlesex	Somerville	83 Belmont St.		2/11/1998	Somerville MPS	
99001125	Rosebud, The	MASSACHUSETTS	Middlesex	Somerville	381 Summer St.		9/22/1999	Diners of Massachusetts MPS	

Notes:
Sanborn, Head & Associates, Inc. (Sanborn Head) conducted a review of the National Register of Historic Places within Somerville, Massachusetts.
The search returned 81 results within Somerville. The Site is not listed on the National Register of Historical Places.

APPENDIX H

SDS Sheets

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

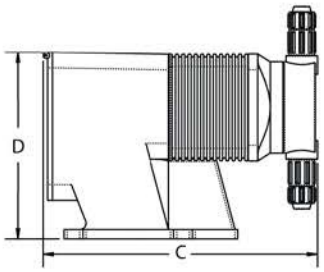
Pre-Engineered Systems

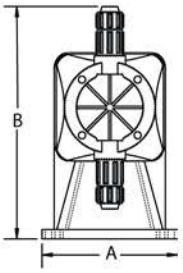
Pulsafeeder's Pre-Engineered Systems are designed to provide complete chemical feed solutions for all electronic metering applications. From stand alone simplex pH control applications to full-featured, redundant sodium hypochlorite disinfection metering, these rugged fabricated assemblies offer turn-key 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

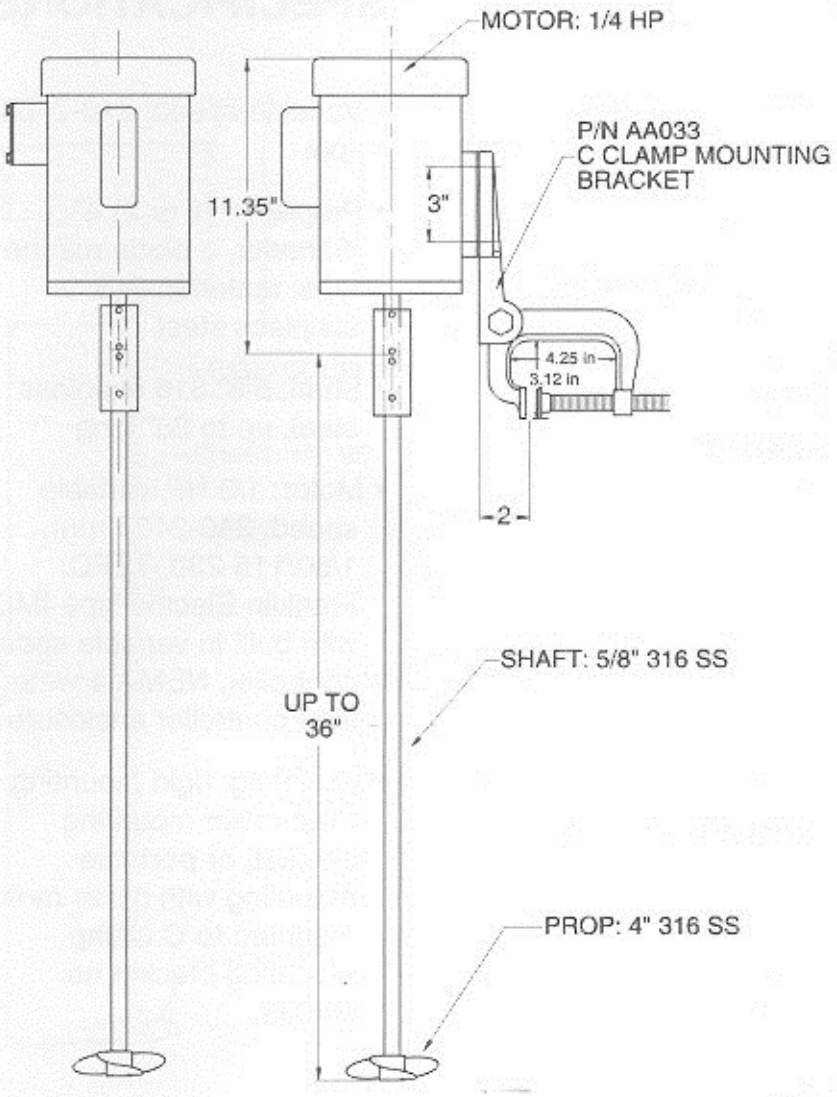
Series HV Dimensions (inches)					
Model No.	A	B	C	D	Shipping Weight
LVB3	5.4	9.3	9.5	7.5	13
LVF4	5.4	10.8	10.8	7.5	18
LVG4	5.4	9.5	10.6	7.5	18
LVG5	5.4	10.8	10.8	7.5	18
LVH7	6.1	11.5	11	8.2	25

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

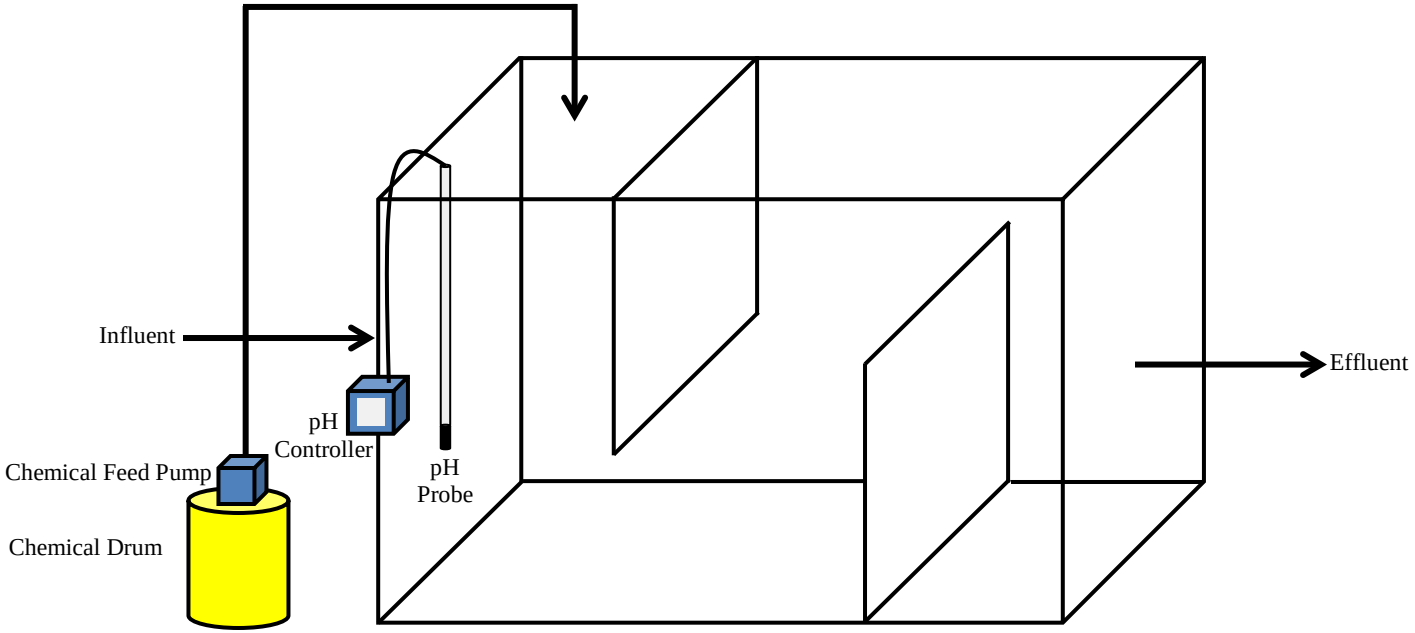
Glossary

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.



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

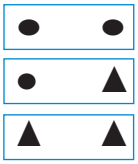
Choose from Hach's Broad Range of Digital and Analog Sensors

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	▲

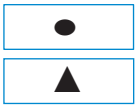
● = Digital ▲ = Analog

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



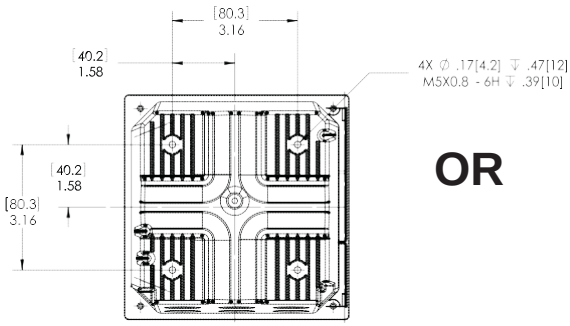
Specifications*

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.*

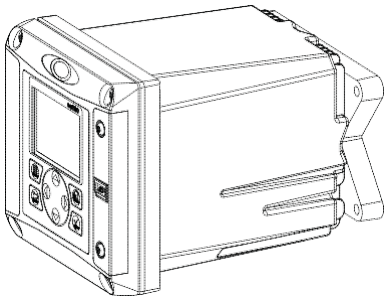
Dimensions

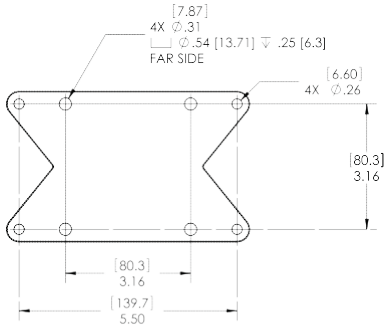
Surface Mounting Dimensions



Mounting Dimensions
(Rear View)

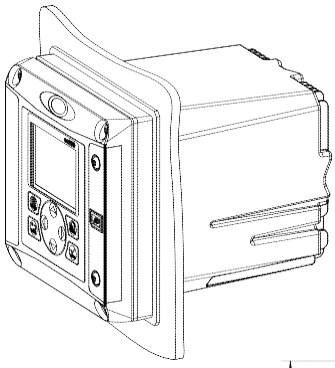
OR

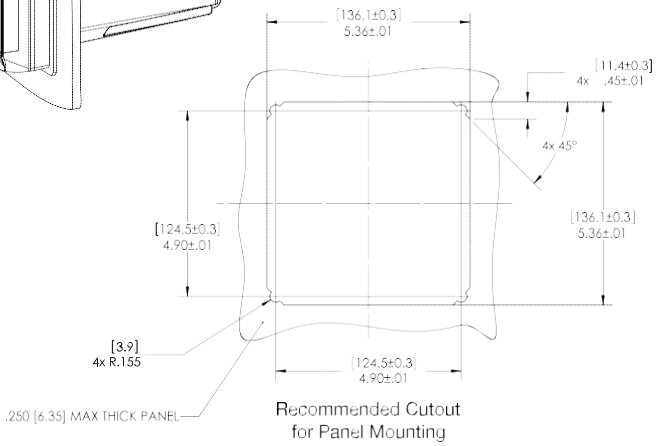




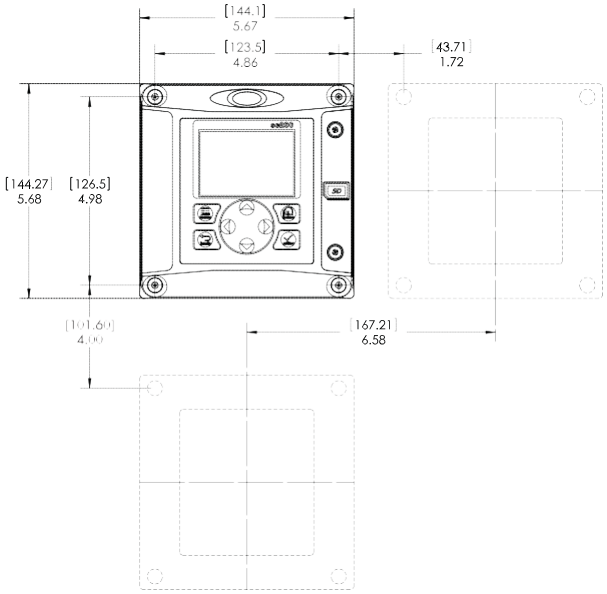
Bracket (supplied) for Surface Mounting
(Not compatible with Weather and Sun Shield p/n 9220600 when surface mounting.)

Panel Mounting Dimensions



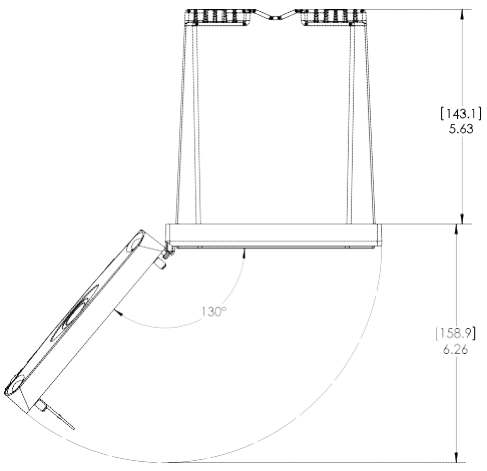


Recommended Cutout
for Panel Mounting

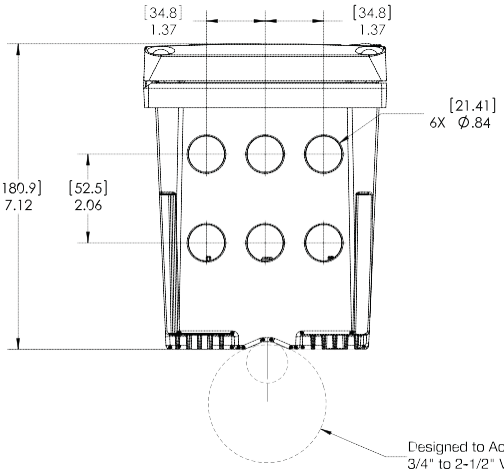


Minimum Spacing Dimensions
for Group Mounting

Top and Bottom Views



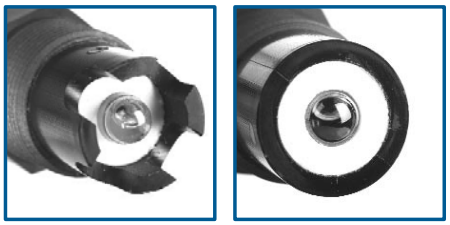
Door Opening Details



Designed to Accommodate
3/4" to 2-1/2" Vertical / Horizontal Pipe

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.

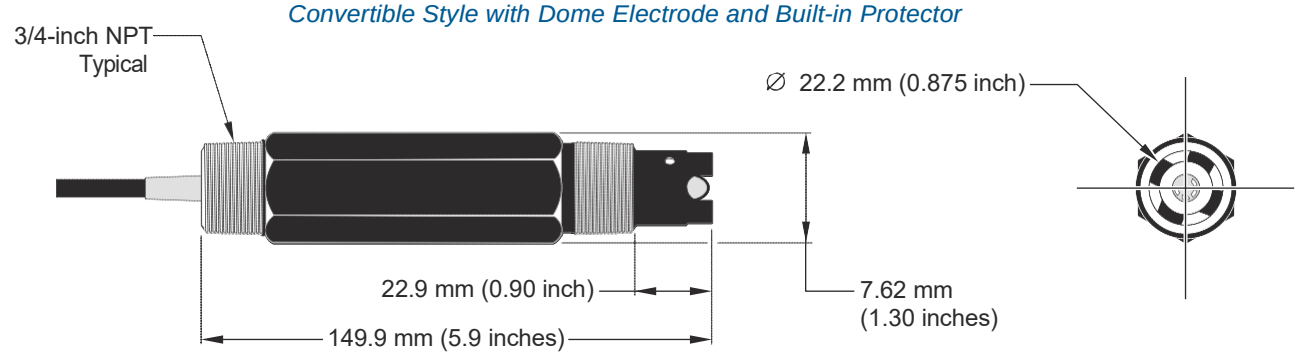
Insertion Style Sensor

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.

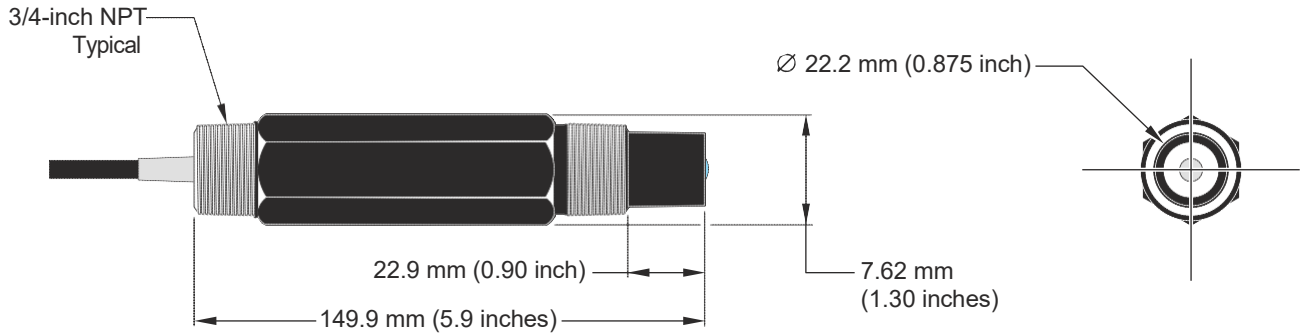
Sanitary Style Sensor

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 8' OD						3 8' D X 1 2' OD	1 4' D X 3 8' OD		
		Pioina	1 4' 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 capacity
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

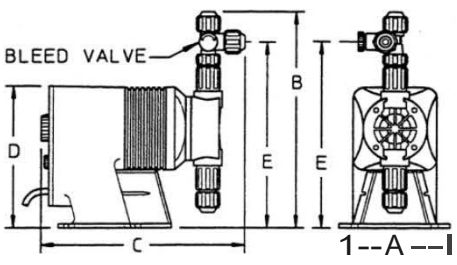
Pulsafeeder's Pre-Engineered Systems are designed to provide complete chemical feed solutions for all electronic metering applications. From stand alone simplex pH control applications to full-featured, redundant sodium hypochlorite disinfection metering, these rugged fabricated assemblies offer turn-key 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
LB0[illegible]4	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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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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SAFETY DATA SHEET

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	

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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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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	

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