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Leominster, Massachusetts 01453
Tel: 774.450.7177
Fax: 888.835.0617
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December 30, 2021

U.S. Environmental Protection Agency
Office of Ecosystem Protection
EPA/OEP RGP Applications Coordinator
5 Post Office Square, Suite 100 (OEP06-4)
Boston, Massachusetts 02109-3912

Reference: **Notice of Intent (NOI) - Remediation General Permit (RGP)**
5 Middlesex Avenue
Somerville, Massachusetts

Dear Sir/Madam:

On behalf of the J. Derenzo Company (JDC), Lockwood Remediation Technologies, LLC (LRT) has prepared this Notice of Intent (NOI) requesting a determination of coverage under the United States Environmental Protection Agency's (EPA's) Remediation General Permit (RGP), pursuant EPA's National Pollutant Discharge Elimination System (NPDES) program. This NOI was prepared in accordance with the general requirements of the NPDES RGP and related guidance documentation provided by EPA. The completed NOI Form is provided in **Appendix A**.

Site Information

This NOI has been prepared for the management groundwater that will be generated during dewatering activities associated with construction activities proposed at 5 Middlesex Avenue, Somerville, MA (the Site). The work is anticipated to be completed within twelve months. A Site Locus is provided as **Figure 1** and a Site Plan satisfying the requirements of RGP Appendix IV Part I.B and I.D is provided as **Figure 2A**.

Regulatory Status

A Release Notification Form was submitted to the Massachusetts Department of Environmental Protection (MassDEP) on December 17, 2021; the RTN number is pending. A Release Abatement Measure (RAM) Plan will be submitted upon receipt of the RTN from the MassDEP.

Work Summary

The work at the Site includes the construction of a new 37,600 square foot (footprint) building and one 52,000 square foot (footprint) parking garage as well as the installation of a stormwater sand filter structure and associated site utilities. To complete portions of the building foundation and other deeper excavations in the dry, dewatering will be required to lower the groundwater table as work is being

performed. To do this, filtered sumps will be placed in low spots within the excavations. Water generated during dewatering (Source Water) will be pumped to a water treatment system prior to direct discharge to the storm sewer with final outfall to the Mystic River. The discharge location is depicted on **Figure 2B**.

LRT received data from the analysis of a representative groundwater sample from onsite monitoring wells SH-201W and SH-206W as well as data from a sample of the receiving water (Mystic River). The samples were analyzed for various parameters in accordance with the NPDES RGP Activity Category III-G.

Discharge and Receiving Surface Water Information

A summary of the analytical results is provided in the NOI Form included within **Appendix A**, and copies of the laboratory data reports are provided in **Appendix B**. Concentrations of Halogenated Volatile Organic Compounds (HVOCs) and metals including copper were detected in groundwater at concentrations above the respective NPDES RGP Effluent Limitations. To meet these standards, source water will undergo treatment that includes bag filtration prior to discharge, with activated pH adjustment, liquid phase carbon, and ion exchange resin as necessary. Details of the water treatment system are provided below.

Water Treatment System

A water treatment system schematic is provided as **Figure 3**. Cutsheets of the system components, product information and Safety Data Sheets (SDS) are included in **Appendix C**.

Source water will be pumped to a treatment system with a design flow rate of up to 100 gallons per minute (gpm); the average effluent flow of the system is estimated to be 50 gpm, and the maximum flow will not exceed 100 gpm. Source water will enter one weir tank at the head of the system from the weir tank water will be pumped to a triple-bag filter skid (consisting of three-bag filter housings) and subsequently discharged to the approved discharge point. If required, contingency treatment items will include a pH adjustment system (sulfuric acid) mixed inside both weir tanks, carbon treatment and ion exchange media.

Discharge from the water treatment system will pass through a flow/totalizer meter prior to direct discharge into the storm sewer, as depicted on **Figure 2A**. Effluent sampling will correspond with this discharge location.

Chemical and Additive Information

The following chemicals and additives have been proposed for the treatment system as necessary to meet effluent limitations: pH adjustment and chemical aided settling system through coagulants/flocculants. Product names, chemical formulas, manufacturer information and Chemical Abstract Services (CAS) registry numbers have been provided on Safety Data Sheets (SDSs) included in **Appendix C**.

pH Adjustment

The pH adjustment system 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 333 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.

Chemical Aided Settling

The chemical aided settling system will be added in two parts, the coagulating (LRT-E-50) will be injected into the influent stream prior to entering the frac tanks while the flocculant (LRT-823) will be added directly into the frac tanks. 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 orders 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.

Consultation with Federal Services

LRT reviewed online electronic data viewers and databases from the Massachusetts Geographical Information System (MassGIS), the Massachusetts Division of Fisheries and Wildlife (MassWildlife; Natural Heritage and Endangered Species Program), and the U.S. National Parks Service Natural Historic Places (NPS). Based on this review, the Site, and the point where the proposed discharge reaches the receiving surface water body are not located within an Area of Critical Environmental Concern (ACEC). The Site and the proposed discharge point are not located within Habitats of Rare Wetland Wildlife, Habitats of Rare Species, Estimated Habitats of Rare Wildlife, or listed as a National Historic Place. Documentation is included in **Appendix D**.

Coverage under NPDES RGP

It is our opinion that the proposed discharge is eligible for coverage under the NPDES RGP. On behalf of JDC, LRT is requesting coverage under the NPDES RGP for the discharge of treated wastewater to the Mystic River in support of construction dewatering activities that are to take place at 5 Middlesex Avenue, Somerville, MA.

The enclosed NOI form provides required information on the general site conditions, discharge, treatment system, receiving water, and consultation with federal services. For this project, JDC is considered the operator and has operational control over the construction plans and specifications, including the ability to make modifications to those plans and specifications.

Please feel free to contact us at 774-450-7177 if you have any questions or if you require additional information.

Sincerely,
Lockwood Remediation Technologies, LLC

Carlo Lombardo *Kim Gravelle*

Carlo Lombardo
Staff Scientist

Kim Gravelle P.G.
Senior Project Manager

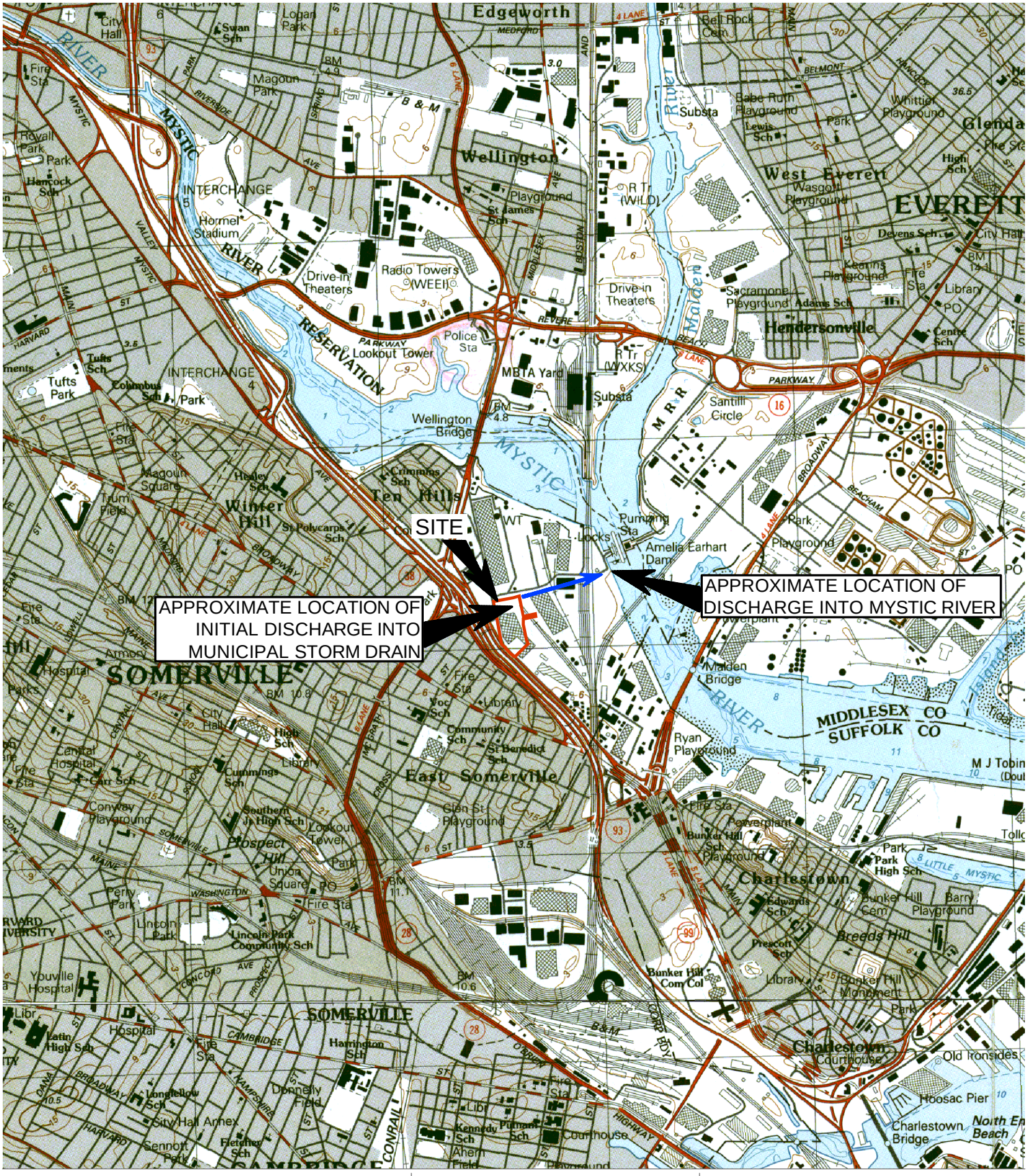
Encl: Figure 1 - Locus Plan
Figure 2A - Site Plan
Figure 2B – Discharge Location
Figure 3 - Water Treatment System Schematic
Appendix A - NOI Form
Appendix B – Laboratory Reports
Appendix C – Water Treatment System Cutsheets and SDSs
Appendix D – Supplementary Information
Appendix E – Town of Somerville Department of Public Works Correspondence

cc: Cathy Vakalopoulos – Massachusetts Department of Environmental Protection
Peter Burch – J. Derenzo Company
Kevin Stetson – Sanborn Head & Associates

Figures

File:P:\4600s\4675.00\Graphics Files\CAD\RGP-DEC21\RGP - Locus.dwg Plot Date: 12-16-21

©2021 SANBORN, HEAD & ASSOCIATES, INC.



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

Drawn By: D. Dombrowsky
Designed By: C. Disenhof
Reviewed By: K. Stetson
Project No: 4675.00
Date: December 2021

SCALE: 1:25,000

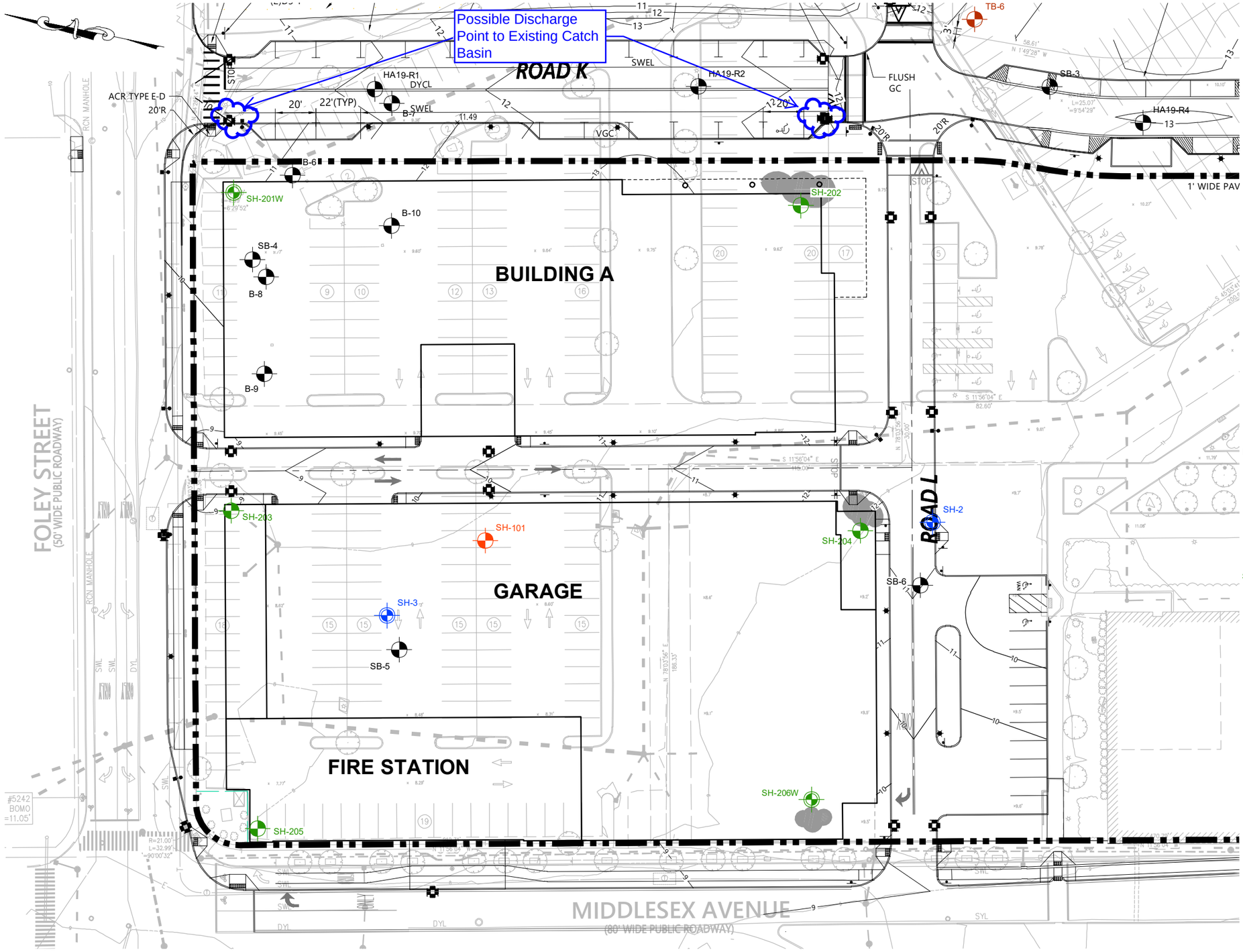
SANBORN HEAD

Figure 1

Locus Plan

Notice of Intent for
Remediation General Permit

5 Middlesex Avenue
Somerville, Massachusetts



NOTES:

1. THE BASE MAP WAS WAS DRAWN FROM A PLAN ENTITLED, "EXISTING CONDITIONS PLAN OF LAND", PREPARED BY VANNASSE HANGEN BRUSLTIN, INC. (VHB) OF WATERTOWN, MA, DATED NOVEMBER 28, 2017 WITH AN ORIGINAL SCALE OF 1" = 40.
2. THE PROPOSED SITE FEATURES WERE DRAWN FROM A PLAN ENTITLED, "UTILITY & DRAINAGE PLAN", PREPARED BY VHB, RECEIVED ON MARCH 29, 2021 WITH AN ORIGINAL SCALE OF 1" = 40'.
3. EXPLORATIONS BY OTHERS WERE TAKEN FROM ELECTRONIC PLANS ENTITLED, "TEST BORING EXPLORATION LOCATION PLAN", PREPARED BY HALEY & ALDRICH, INC. (H&A) OF BOSTON, MA, DATED MARCH 2019, "SITE MAP WITH SAMPLING LOCATIONS", PREPARED BY CRB GEOLOGICAL & ENVIRONMENTAL SERVICES, INC. (CRB), DATED MARCH 14, 2017 AND "BORINGS BY CUSHING, JAMMALO & WHELLER, INC. (CJW)", DATED 2009, RESPECTIVELY.
4. EXPLORATIONS DESIGNATED SH-101 THROUGH SH-103, SH-1 THROUGH SH-3 AND SS-1 THROUGH SS-3 WERE ADVANCED BY SOIL X CORPORATION OF LEOMINSTER, MA AND OBSERVED BY SANBORN HEAD FROM 9/27/2019 TO 10/10/2019.
5. EXPLORATIONS DESIGNATED SH-201 THROUGH SH-206 WERE ADVANCED BY NEW ENGLAND BORING CONTRACTORS OF DERRY, NH AND OBSERVED BY SANBORN HEAD IN FEBRUARY AND MARCH 2021.
6. APPROXIMATE LOCATIONS OF EXPLORATIONS ARE BASED ON TAPED MEASUREMENTS MADE IN THE FIELD RELATIVE TO PROMINENT SITE FEATURES. THIS DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.

LEGEND:

- APPROXIMATE SITE BOUNDARY
- SH-101 — APPROXIMATE LOCATION AND DESIGNATION OF DEEP GEOTECHNICAL BORING OBSERVED BY SANBORN HEAD (OCTOBER 2019)
- SH-1 — APPROXIMATE LOCATION AND DESIGNATION OF MONITORING WELL OBSERVED BY SANBORN HEAD (SEPTEMBER 2019)
- SS-1 — APPROXIMATE LOCATION AND DESIGNATION OF SHALLOW SOIL BORINGS OBSERVED BY SANBORN HEAD (OCTOBER 2019)
- HA19-R1 — APPROXIMATE LOCATION AND DESIGNATION OF TEST BORING BY H&A (FEBRUARY 2019)
- SB-1 — APPROXIMATE LOCATION AND DESIGNATION OF SOIL BORING BY CRB (FEBRUARY 2017)
- B-1 — APPROXIMATE LOCATION AND DESIGNATION OF TEST BORING BY CJW (2009)
- SH-204 — APPROXIMATE LOCATION AND DESIGNATION OF TEST BORING OBSERVED BY SANBORN HEAD (FEBRUARY - MARCH, 2021)
- SH-206W — APPROXIMATE LOCATION AND DESIGNATION OF MONITORING WELL OBSERVED BY SANBORN HEAD (FEBRUARY-MARCH 2021)
- MULTIPLE REFUSALS ENCOUNTERED DURING DRILLING ON CONCRETE AT DEPTHS RANGING FROM 1.5FT TO 4.3FT.
- TB-6 — APPROXIMATE LOCATION AND DESIGNATION OF TEST BORING BY H&A (2018)

Figure 2A

SANBORN HEAD

GRAPHICAL SCALE
25' 13' 0' 25' 50'

NO.	DATE	DESCRIPTION	BY

DRAWN BY: O. HERNANDEZ
DESIGNED BY: C. DISENHOF
REVIEWED BY: K. STETSON
PROJECT MGR: L.NORTON
PIC: K.STETSON
DATE: APRIL 2021

GEOTECHNICAL ENGINEERING REPORT
XMBLY - 5 MIDDLESEX AVENUE
SOMERVILLE, MASSACHUSETTS

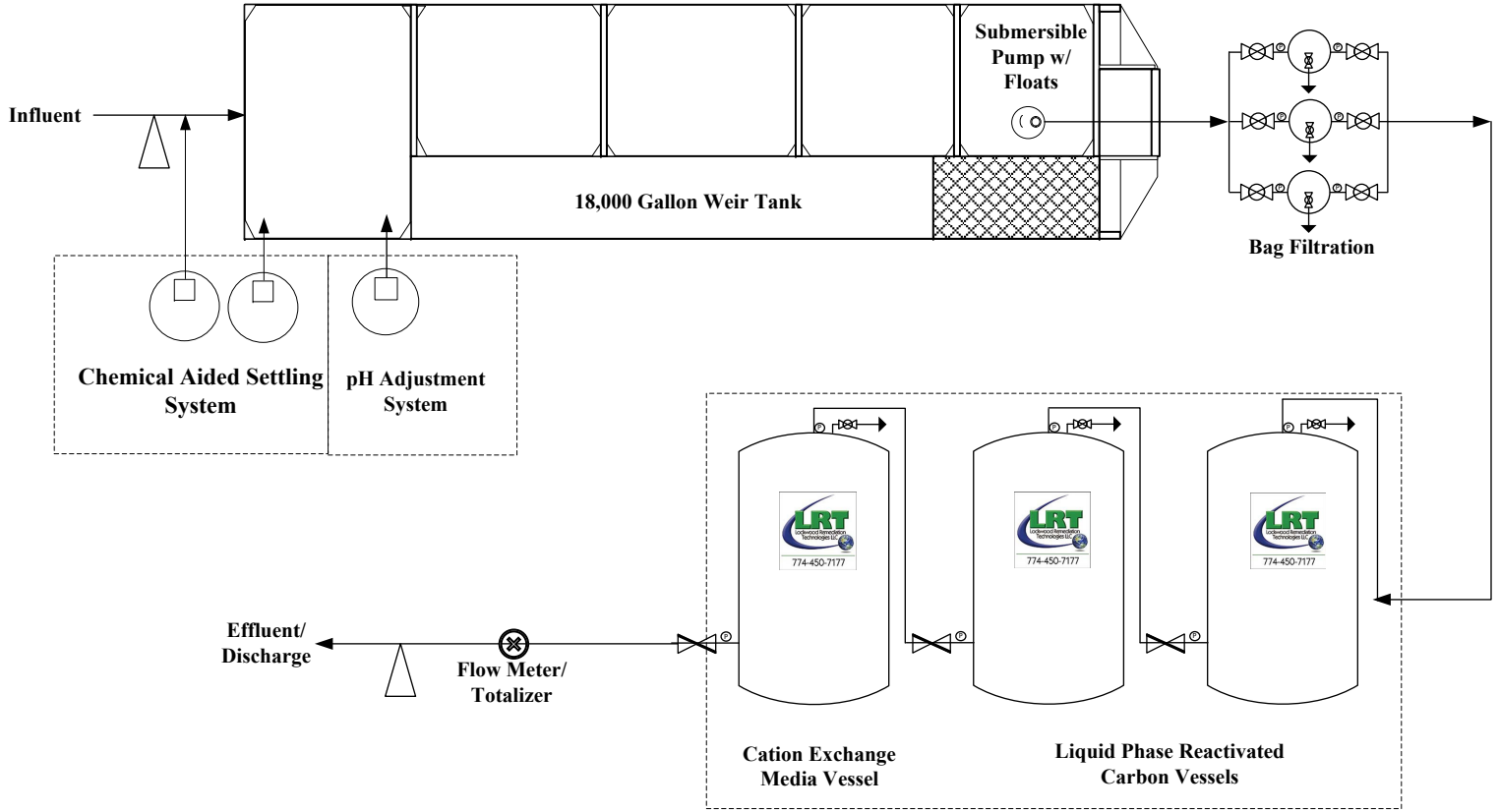
EXPLORATION LOCATION PLAN

PROJECT NUMBER: 4675.00

SHEET NUMBER: 2


Block 21 site
wood partners site
Riverfront Park
Waterfront trails & playground
River Bar
Takeout
Tony C's Sports Bar and Grill
Takeout · Delivery
Mystic River
Trader Joe's
Earls Kitchen + Bar
Takeout · Delivery
Soma Salon and Spa AVEDA
Burlington
Clothing store
Nike Factory Store
Sportswear store
Bed Bath & Beyond
Delivery
Express Factory Outlet
Outlet store
Totto Ramen
Takeout · Delivery
AMC Assembly Row 12
Great River Rd
Right at Home
TJ Maxx & HomeGoods
Department store
Southern Kin Cookhouse
Free Delivery on 1st Order
Noonan Pl
Saks OFF 5TH
Columbia Factory Store
Clothing store
Assembly Row
Shopping mall
Middlesex Ave
Mc Grath Hwy
Cambridge Health Alliance - Assembly...
The Row Hotel at Assembly Row...
Bank of America ATM
Style Cafe
Takeout · Delivery
Foley St
The Smoke Shop BBQ - Assembly Row
Takeout · Delivery
Assembly
Zo Greek
Takeout · Delivery
Mike's Pastry - Assembly Row
Takeout · Delivery
Assembly Sports Club
Lincoln Technical Institute
CHA Occupational Health Program
Northern Expy
Grand Union Blvd
Garfield Ave
Revolution Dr
The Home Depot
Delivery
Partners Garage
Moosal Pl
Layers
Google

Figure 2B



Key:

Piping/Hose	⟶
Sample Port	▷
Ball Valve	⊗
Butterfly Valve	⋈
Pressure Gauge	Ⓟ
Contingency	----------

Notes:

1.) Figure is not to scale
2.) System rated for 100 GPM
3.) Winterization and temporary power equipment not depicted

Lockwood Remediation Technologies, LLC 89 Crawford Street Leominster, MA 01453 Office: 774-450-7177		**Water Treatment System Schematic**	5 Middlesex Ave. Somerville, MA	PROJECT No. 2-2322	FIGURE No. 3
DESIGNED BY: LRT	DRAWN BY: JHJ				
CHECKED BY:	DATE: 12/22/21				

Appendix A

NOI 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:
XMBLY</td><td colspan="3">Site address: 5 Middlesex Ave
Street:</td></tr>
<tr><td>City: Somerville</td><td>State: MA</td><td>Zip: 02145</td></tr>
<tr><td rowspan="4">2. Site owner
BRE-BMR Middlesex LLC

Owner is (check one): ☐ Federal ☐ State/Tribal ■ Private
☐ Other; if so, specify:</td><td colspan="3">Contact Person: Sal Zinno</td></tr>
<tr><td colspan="2">Telephone: (617)551-5926</td><td>Email:</td></tr>
<tr><td colspan="3">Mailing address: 101 Main Street, 16th Floor
Street:</td></tr>
<tr><td>City: Cambridge</td><td>State: MA</td><td>Zip: 02142</td></tr>
<tr><td rowspan="4">3. Site operator, if different than owner
J. Derenzo Company</td><td colspan="3">Contact Person: Christian Rivera</td></tr>
<tr><td colspan="2">Telephone:</td><td>Email:</td></tr>
<tr><td colspan="3">Mailing address:
Street: 338 Howard Street</td></tr>
<tr><td>City: Brockton</td><td>State: MA</td><td>Zip: 02302</td></tr>
<tr><td>4. NPDES permit number assigned by EPA:

NPDES permit is (check all that apply: ☐ RGP ☐ DGP ☐ CGP
☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:</td><td colspan="3">5. Other regulatory program(s) that apply to the site (check all that apply):
☐ MA Chapter 21e; list RTN(s):
☐ 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	MA71-02	Class SB

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. Fish-Passage Barrier, Non-Native Aquatic Plants, Arsenic, Chlordane in Fish Tissue, Chlorophyll-a, DDT in Fish Tissue,

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.	
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.	0

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:

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

C. Source water information:

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

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

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

D. Discharge information

1.The discharge(s) is a(n) (check any that apply): ☐ Existing discharge ■ New discharge ☐ New source	
Outfall(s): 001	Outfall location(s): (Latitude, Longitude) 42.394051751073206, -71.07604576471742
Discharges enter the receiving water(s) via (check any that apply): ☐ Direct discharge to the receiving water ■ Indirect discharge, if so, specify: Treated water will be discharged into a stromwater catch basin with a final outfall in the Mystic River ☐ 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: notification and permission will be provided congruently with the submittal of this NOI 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): 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="5">☐ 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	350.1	100	1560	641	Report mg/L	---
Chloride		✔	2	300.0	25	181000	25400	Report µg/l	---
Total Residual Chlorine	✔		2			<0.02	<0.02	0.2 mg/L	7.5
Total Suspended Solids		✔	2	2540	1000	83000	220000	30 mg/L	---
Antimony	✔		2	200.8	1.0	<1.0	<1.0	206 µg/L	
Arsenic		✔	2	200.8	0.80	3.5	2.0	104 µg/L	
Cadmium		✔	2	200.8	0.20	0.18	0.04	10.2 µg/L	
Chromium III		✔	2	200.8	1.0	11.6	3.2	323 µg/L	
Chromium VI		✔	2		4	11.6	3.3	323 µg/L	
Copper		✔	2	200.8	1.0	19.9	4.2	242 µg/L	3.7
Iron		✔	2	200.7	50	12300	2160	5,000 µg/L	
Lead		✔	2	200.8	0.50	44.3	3.3	160 µg/L	
Mercury	✔		2	245.1	0.1	<0.1	<0.1	0.739 µg/L	
Nickel		✔	2	200.8	5	11.7	1.9	1,450 µg/L	
Selenium		✔	2	200.8	5	0.86	<0.5	235.8 µg/L	
Silver		✔	2	200.8	0.20	0.12	<0.20	35.1 µg/L	
Zinc		✔	2	200.8	10	59.4	6.6	420 µg/L	
Cyanide		✔	2			1.3	<0.5	178 mg/L	1.0
B. Non-Halogenated VOCs									
Total BTEX								100 µg/L	---
Benzene	✔		2		0.001	<0.001	<0.001	5.0 µg/L	---
1,4 Dioxane	✔		2		0.00005	<0.00005	<0.00005	200 µg/L	---
Acetone	✔		2		0.0001	<0.0001	<0.0001	7.97 mg/L	---
Phenol	✔		2		0.0003	0.0003	<0.0003	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	0.110	<0.110	<0.110	4.4 µg/L	
1,2 Dichlorobenzene		✔	2	624.1	0.160	<0.160	<0.160	600 µg/L	---
1,3 Dichlorobenzene		✔	2	624.1	0.120	<0.120	<0.120	320 µg/L	---
1,4 Dichlorobenzene		✔	2	624.1	0.130	<0.130	<0.130	5.0 µg/L	---
Total dichlorobenzene			2					763 µg/L in NH	---
1,1 Dichloroethane		✔	2	624.1	0.160	<0.160	<0.160	70 µg/L	---
1,2 Dichloroethane		✔	2	624.1	0.410	<0.410	<0.410	5.0 µg/L	---
1,1 Dichloroethylene		✔	2	624.1	0.320	<0.320	<0.320	3.2 µg/L	---
Ethylene Dibromide			2					0.05 µg/L	---
Methylene Chloride		✔	2	624.1	0.340	<0.340	<0.340	4.6 µg/L	---
1,1,1 Trichloroethane		✔	2	624.1	0.200	<0.200	<0.200	200 µg/L	---
1,1,2 Trichloroethane		✔	2	624.1	0.160	<0.160	<0.160	5.0 µg/L	---
Trichloroethylene		✔	2	624.1	0.240	<0.240	<0.240	5.0 µg/L	---
Tetrachloroethylene	✔		2	624.1	0.180	2.6	0.290	5.0 µg/L	
cis-1,2 Dichloroethylene		✔	2	624.1	0.100	0.12	<0.100	70 µg/L	---
Vinyl Chloride		✔	2	624.1	0.450	<0.450	<0.450	2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates								190 µg/L	
Diethylhexyl phthalate		✔	2		0.220	<0.220	<0.220	101 µg/L	
Total Group I PAHs						0.486	0.089	1.0 µg/L	---
Benzo(a)anthracene	✔		2	625.1	0.010	0.088	0.014	As Total PAHs	0.0038
Benzo(a)pyrene	✔		2	625.1	0.010	0.081	0.014		0.0038
Benzo(b)fluoranthene	✔		2	625.1	0.010	0.101	0.027		0.0038
Benzo(k)fluoranthene	✔		2	625.1	0.010	0.048	<0.010		0.0038
Chrysene	✔		2	625.1	0.010	0.088	0.018		0.0038
Dibenzo(a,h)anthracene	✔		2	625.1	0.010	0.014	<0.010		0.0038
Indeno(1,2,3-cd)pyrene	✔		2	625.1	0.018	0.066	0.016		0.0038

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
Total Group II PAHs	✔							100 µg/L	---
Naphthalene	✔		2		0.010	<0.010	<0.010	20 µg/L	---
E. Halogenated SVOCs									
Total PCBs	✔			608.3				0.000064 µg/L	---
Pentachlorophenol	✔		2		0.010	<0.010	<0.010	1.0 µg/L	---
F. Fuels Parameters									
Total Petroleum Hydrocarbons	✔		2					5.0 mg/L	---
Ethanol	✔		2		0.2	<0.2	<0.2	Report mg/L	---
Methyl-tert-Butyl Ether	✔		2	624.1	0.001	<0.001	<0.001	70 µg/L	
tert-Butyl Alcohol	✔		2	624.1	0.001	<0.001	<0.001	120 µg/L in MA 40 µg/L in NH	---
tert-Amyl Methyl Ether	✔		2	624.1	0.001	<0.001	<0.001	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		✔				6.8	6.7		
Receiving Water:									
Salinity		✔				19			
pH		✔				7.4			
Ammonia		✔				20.3			
Arsnic		✔				0.48			
Iron		✔				79.8			
Copper		✔				2.56			
Zinc		✔				2.5			

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.

Source water from construction dewatering will be pumped into an 18,000 gallon weir tank. Water will then be pumped through a triple bag filter skid (with three, one bag filter housings), and then through a flow/totalizer meter prior to discharge into a catch basin with a final outfall in the Mystic River. (Activated Carbon, Ion Exchange Resin, and pH adjustment will be implemented as needed).

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: Bag filters Is use of a flow meter feasible? (check one): ■ Yes ☐ No, if so, provide justification:	100
Provide the proposed maximum effluent flow in gpm.	100
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:

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

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.

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.

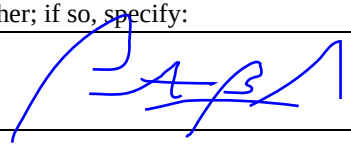
BMPP certification statement:	A BMPP will be developed and maintained to meet the requirements of this permit. The BMPP will be implemented on-site prior to the initiation of discharge.
Notification provided to the appropriate State, including a copy of this NOI, if required.	Check one: Yes ■ No ☐
Notification 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: 12.23.21
Print Name and Title: Peter Burch , Project Executive	

Table 1
Summary of NPDES Groundwater Quality Data
5 Middlesex Avenue,
Somerville, MA

LOCATION	MCP RCGW-2	Units	SH-201W	SH-206W
SAMPLING DATE			10/14/2021	10/14/2021
LAB SAMPLE ID			L2156400-01 L2159905-01	L2156400-02 L2159905-02
SAMPLE TYPE			WATER	WATER
Anions by Ion Chromatography				
Chloride	NS	mg/l	**254**	**1810**
Dissolved Metals				
Antimony, Dissolved	8	mg/l	-	-
Arsenic, Dissolved	0.9	mg/l	-	-
Cadmium, Dissolved	0.004	mg/l	-	-
Chromium, Dissolved	0.3	mg/l	-	-
Copper, Dissolved	100	mg/l	-	-
Iron, Dissolved	NS	mg/l	**0.059**	**0.1246**
Lead, Dissolved	0.01	mg/l	<0.001	<0.001
Mercury, Dissolved	0.02	mg/l	-	-
Nickel, Dissolved	0.2	mg/l	-	-
Selenium, Dissolved	0.1	mg/l	-	-
Silver, Dissolved	0.007	mg/l	-	-
Zinc, Dissolved	0.9	mg/l	<0.01	<0.01
General Chemistry				
Chromium, Trivalent	0.6	mg/l	**0.032**	**0.116**
Solids, Total Suspended	NS	mg/l	**2200**	**8300**
Cyanide, Total	0.03	mg/l	**0.013**	<0.005
Chlorine, Total Residual	NS	mg/l	<0.02	<0.02
pH (H)	NS	SU	**6.7**	**6.8**
Nitrogen, Ammonia	NS	mg/l	**6.41**	**15.6**
Nitrogen, Nitrate/Nitrite	NS	mg/l	-	-
Total Nitrogen	NS	mg/l	-	-
Nitrogen, Total Kjeldahl	NS	mg/l	-	-
Sulfate	NS	mg/l	**490**	<10
TPH, SGT-HEM	5	mg/l	<4	<4
Phenolics, Total	NS	mg/l	**0.03**	<0.03
Chromium, Hexavalent	0.3	mg/l	<0.01	<0.01
Microextractables by GC				
1,2-Dibromo-3-chloropropane	1	mg/l	-	-
1,2,3-Trichloropropane	10	mg/l	-	-
1,2-Dibromoethane	0.002	mg/l	<0.00001	<0.00001
Polychlorinated Biphenyls by GC				
Aroclor 1016	0.005	mg/l	<0.00025	<0.00025
Aroclor 1221	0.005	mg/l	<0.00025	<0.00025
Aroclor 1232	0.005	mg/l	<0.00025	<0.00025
Aroclor 1242	0.005	mg/l	<0.00025	<0.00025
Aroclor 1248	0.005	mg/l	<0.00025	<0.00025
Aroclor 1254	0.005	mg/l	<0.00025	<0.00025
Aroclor 1260	0.005	mg/l	<0.0002	<0.0002
Semivolatile Organics by GC/MS				
Bis(2-ethylhexyl)phthalate	50	mg/l	<0.0022	<0.0022
Butyl benzyl phthalate	10	mg/l	<0.005	<0.005
Di-n-butylphthalate	5	mg/l	<0.005	<0.005
Di-n-octylphthalate	100	mg/l	<0.005	<0.005
Diethyl phthalate	9	mg/l	<0.005	<0.005
Dimethyl phthalate	50	mg/l	<0.005	<0.005
Semivolatile Organics by GC/MS-SIM				
Acenaphthene	10	mg/l	<0.0001	**0.00104**
Fluoranthene	0.2	mg/l	**0.000572**	**0.00287**
Naphthalene	0.7	mg/l	<0.0001	<0.0001
Benzo(a)anthracene	1	mg/l	**0.000136**	**0.000884**
Benzo(a)pyrene	0.5	mg/l	**0.000138**	**0.000813**
Benzo(b)fluoranthene	0.4	mg/l	**0.000269**	**0.00101**
Benzo(k)fluoranthene	0.1	mg/l	<0.0001	**0.000477**
Chrysene	0.07	mg/l	**0.000176**	**0.000879**
Acenaphthylene	0.04	mg/l	<0.0001	**0.000186**
Anthracene	0.03	mg/l	<0.0001	**0.000669**
Benzo(ghi)perylene	0.02	mg/l	**0.00015**	**0.000619**
Fluorene	0.04	mg/l	<0.0001	**0.000837**
Phenanthrene	10	mg/l	**0.000162**	**0.00206**
Dibenzo(a,h)anthracene	0.04	mg/l	<0.0001	**0.000136**
Indeno(1,2,3-cd)pyrene	0.1	mg/l	**0.000163**	**0.000663**
Pyrene	0.02	mg/l	**0.00039**	**0.00254**
Pentachlorophenol	0.2	mg/l	<0.001	<0.001

Table 1
Summary of NPDES Groundwater Quality Data
5 Middlesex Avenue,
Somerville, MA

LOCATION	MCP RCGW-2	Units	SH-201W	SH-206W
SAMPLING DATE			10/14/2021	10/14/2021
LAB SAMPLE ID			L2156400-01 L2159905-01	L2156400-02 L2159905-02
SAMPLE TYPE			WATER	WATER
Total Hardness by SM 2340B				
Hardness	NS	mg/l	**382**	**795**
Total Metals				
Antimony, Total	8	mg/l	<0.004	<0.004
Arsenic, Total	0.9	mg/l	**0.02014**	**0.03498**
Cadmium, Total	0.004	mg/l	**0.00035**	**0.00181**
Chromium, Total	0.3	mg/l	**0.03271**	**0.1157**
Copper, Total	100	mg/l	**0.042**	**0.1995**
Iron, Total	NS	mg/l	**21.6**	**123**
Lead, Total	0.01	mg/l	**0.03322**	**0.4426**
Mercury, Total	0.02	mg/l	<0.0002	<0.0002
Nickel, Total	0.2	mg/l	**0.01915**	**0.1168**
Selenium, Total	0.1	mg/l	<0.005	**0.00856**
Silver, Total	0.007	mg/l	<0.0004	**0.00121**
Zinc, Total	0.9	mg/l	**0.06652**	**0.5939**
Volatile Organics by GC/MS				
Methylene chloride	2	mg/l	<0.001	<0.001
1,1-Dichloroethane	2	mg/l	<0.0015	<0.0015
Carbon tetrachloride	0.002	mg/l	<0.001	<0.001
1,1,2-Trichloroethane	0.9	mg/l	<0.0015	<0.0015
Tetrachloroethene	0.05	mg/l	**0.026**	**0.0029**
1,2-Dichloroethane	0.005	mg/l	<0.0015	<0.0015
1,1,1-Trichloroethane	4	mg/l	<0.002	<0.002
Benzene	1	mg/l	<0.001	<0.001
Toluene	40	mg/l	<0.001	<0.001
Ethylbenzene	5	mg/l	<0.001	<0.001
Vinyl chloride	0.002	mg/l	<0.001	<0.001
1,1-Dichloroethene	0.08	mg/l	<0.001	<0.001
cis-1,2-Dichloroethene	0.02	mg/l	**0.0012**	<0.001
Trichloroethene	0.005	mg/l	**0.0033**	**0.0022**
1,2-Dichlorobenzene	2	mg/l	<0.005	<0.005
1,3-Dichlorobenzene	6	mg/l	<0.005	<0.005
1,4-Dichlorobenzene	0.06	mg/l	<0.005	<0.005
p/m-Xylene	3	mg/l	<0.002	<0.002
o-xylene	3	mg/l	<0.001	<0.001
Xylenes, Total	3	mg/l	<0.001	<0.001
Acetone	50	mg/l	<0.01	<0.01
Methyl tert butyl ether	5	mg/l	<0.01	<0.01
Tert-Butyl Alcohol	NS	mg/l	<0.1	<0.1
Tertiary-Amyl Methyl Ether	NS	mg/l	<0.02	<0.02
Volatile Organics by GC/MS-SIM				
1,4-Dioxane	6	mg/l	<0.005	<0.005
Volatile Organics				
Ethanol	NS	mg/l	<20	<20

Notes:

1. Samples were collected by Sanborn, Head & Associates on the dates indicated and analyzed by Alpha Analytical, Inc. in Westborough, Massachusetts.

2. Analytical data are compared to the MCP Reportable Concentrations for GW-2 soil (RCGW-2). Bolded values indicate detections greater than laboratory reporting limits. Shaded and bolded values indicate exceedances of RCGW-2. Italicized values indicate non-detected analytes where the reporting limit exceeds RCGW-2.

3. Abbreviations:
MCP = Massachusetts Contingency Plan
"-" = data not available and/or analyte not tested
"<" = the analyte was not detected above the laboratory reporting limit shown

Table 2
Summary of NPDES Surface Water Quality Data
5 Middlesex Avenue,
Somerville, MA

LOCATION	MCP RCGW-2	Units	MYSTIC RIVER, SOMERVILLE, MA	MYSTIC RIVER, SOMERVILLE, MA
SAMPLING DATE			**10/14/2021**	**11/8/2021**
LAB SAMPLE ID			**L2156400-03**	**L2161291-03**
SAMPLE TYPE			**WATER**	**WATER**
General Chemistry				
Chromium, Trivalent	NS	mg/l	-	<0.01
Salinity	NS	SU	19	-
pH (H)	NS	SU	7.4	-
Nitrogen, Ammonia	NS	mg/l	0.203	-
Chromium, Hexavalent	NS	mg/l	-	<0.01
Total Metals				
Antimony, Total	8	mg/l	<0.004	-
Arsenic, Total	0.9	mg/l	0.00488	-
Cadmium, Total	0.004	mg/l	<0.0002	-
Chromium, Total	0.3	mg/l	0.00103	<0.001
Copper, Total	100	mg/l	0.02555	-
Iron, Total	NS	mg/l	0.798	-
Lead, Total	0.01	mg/l	0.00496	-
Mercury, Total	0.02	mg/l	<0.0002	-
Nickel, Total	0.2	mg/l	<0.002	-
Selenium, Total	0.1	mg/l	<0.005	-
Silver, Total	0.007	mg/l	<0.0004	-
Zinc, Total	0.9	mg/l	0.02506	-

Notes:

1. Samples were collected by Sanborn, Head & Associates on the dates indicated and analyzed by Alpha Analytical, Inc. in Westborough, Massachusetts.

2. Analytical data are compared to the MCP Reportable Concentrations for GW-2 soil (RCGW-2). Bolded values indicate detections greater than laboratory reporting limits. There are no exceedances of RCGW-2.

3. Abbreviations:
MCP = Massachusetts Contingency Plan
"-" = data not available and/or analyte not tested
"<" = the analyte was not detected above the laboratory reporting limit shown
"NS" = no standard

Enter number values in green boxes below

Enter values in the units specified

↓

0	Q_R = Enter upstream flow in **MGD**
0.144	Q_P = Enter discharge flow in **MGD**
0	Downstream 7Q10

Enter a dilution factor, if other than zero

↓

Enter values in the units specified

↓

	C_d = Enter influent hardness in **mg/L** $CaCO_3$
	C_s = Enter receiving water hardness in **mg/L** $CaCO_3$

Enter **receiving water** concentrations in the units specified

↓

6.8	pH in **Standard Units**
15	Temperature in **°C**
0.203	Ammonia in **mg/L**
0	Hardness in **mg/L** $CaCO_3$
19	Salinity in **ppt**
0	Antimony in **µg/L**
0.488	Arsenic in **µg/L**
0	Cadmium in **µg/L**
0	Chromium III in **µg/L**
0.103	Chromium VI in **µg/L**
2.555	Copper in **µg/L**
79.8	Iron in **µg/L**
0.496	Lead in **µg/L**
0	Mercury in **µg/L**
0	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
2.5	Zinc in **µg/L**

Enter **influent** concentrations in the units specified

↓

0	TRC in **µg/L**
6.41	Ammonia in **mg/L**
0	Antimony in **µg/L**
2.01	Arsenic in **µg/L**
0.04	Cadmium in **µg/L**
3.2	Chromium III in **µg/L**
3.2	Chromium VI in **µg/L**
4.2	Copper in **µg/L**
2160	Iron in **µg/L**
3.32	Lead in **µg/L**
0	Mercury in **µg/L**
1.92	Nickel in **µg/L**
0.86	Selenium in **µg/L**
0.12	Silver in **µg/L**
6.65	Zinc in **µg/L**
1.3	Cyanide in **µg/L**
3	Phenol in **µg/L**
0	Carbon Tetrachloride in **µg/L**
0.29	Tetrachloroethylene in **µg/L**
0	Total Phthalates in **µg/L**
0	Diethylhexylphthalate in **µg/L**
0.0136	Benzo(a)anthracene in **µg/L**
0.0138	Benzo(a)pyrene in **µg/L**
0.0269	Benzo(b)fluoranthene in **µg/L**
0.0477	Benzo(k)fluoranthene in **µg/L**
0.0176	Chrysene in **µg/L**
0.0136	Dibenzo(a,h)anthracene in **µg/L**
0.0163	Indeno(1,2,3-cd)pyrene in **µg/L**
0	Methyl-tert butyl ether in **µg/L**

Dilution Factor	0.0			
	TBEL applies if bolded		WQBEL applies if bolded	
A. Inorganics				
Ammonia	**Report**	mg/L	---	
Chloride	**Report**	µg/L	---	
Total Residual Chlorine	0.2	mg/L	**7.5**	µg/L
Total Suspended Solids	**30**	mg/L	---	
Antimony	**206**	µg/L	640	µg/L
Arsenic	**104**	µg/L	36	µg/L
Cadmium	**10.2**	µg/L	8.9	µg/L
Chromium III	**323**	µg/L	100.0	µg/L
Chromium VI	**323**	µg/L	50	µg/L
Copper	242	µg/L	**3.7**	µg/L
Iron	**5000**	µg/L	---	µg/L
Lead	**160**	µg/L	8.5	µg/L
Mercury	**0.739**	µg/L	1.11	µg/L
Nickel	**1450**	µg/L	8.3	µg/L
Selenium	**235.8**	µg/L	71	µg/L
Silver	**35.1**	µg/L	2.2	µg/L
Zinc	**420**	µg/L	86	µg/L
Cyanide	178	mg/L	**1.0**	µg/L
B. Non-Halogenated VOCs				
Total BTEX	**100**	µg/L	---	
Benzene	**5.0**	µg/L	---	
1,4 Dioxane	**200**	µg/L	---	
Acetone	**7.97**	mg/L	---	
Phenol	**1,080**	µg/L	300	µg/L
C. Halogenated VOCs				
Carbon Tetrachloride	**4.4**		1.6	µg/L
1,2 Dichlorobenzene	**600**	µg/L	---	
1,3 Dichlorobenzene	**320**	µg/L	---	
1,4 Dichlorobenzene	**5.0**	µg/L	---	
Total dichlorobenzene	**---**	µg/L	---	
1,1 Dichloroethane	**70**	µg/L	---	
1,2 Dichloroethane	**5.0**	µg/L	---	
1,1 Dichloroethylene	**3.2**	µg/L	---	
Ethylene Dibromide	**0.05**	µg/L	---	
Methylene Chloride	**4.6**	µg/L	---	
1,1,1 Trichloroethane	**200**	µg/L	---	
1,1,2 Trichloroethane	**5.0**	µg/L	---	
Trichloroethylene	**5.0**	µg/L	---	
Tetrachloroethylene	**5.0**	µg/L	3.3	µg/L
cis-1,2 Dichloroethylene	**70**	µg/L	---	

Vinyl Chloride	**2.0**	µg/L	---	
D. Non-Halogenated SVOCs				
Total Phthalates	**190**	µg/L	---	µg/L
Diethylhexyl phthalate	**101**	µg/L	2.2	µg/L
Total Group I Polycyclic Aromatic Hydrocarbons	**1.0**	µg/L	---	
Benzo(a)anthracene	1.0	µg/L	**0.0038**	µg/L
Benzo(a)pyrene	1.0	µg/L	**0.0038**	µg/L
Benzo(b)fluoranthene	1.0	µg/L	**0.0038**	µg/L
Benzo(k)fluoranthene	1.0	µg/L	**0.0038**	µg/L
Chrysene	1.0	µg/L	**0.0038**	µg/L
Dibenzo(a,h)anthracene	1.0	µg/L	**0.0038**	µg/L
Indeno(1,2,3-cd)pyrene	1.0	µg/L	**0.0038**	µg/L
Total Group II Polycyclic Aromatic Hydrocarbons	**100**	µg/L	---	
Naphthalene	**20**	µg/L	---	
E. Halogenated SVOCs				
Total Polychlorinated Biphenyls	**0.000064**	µg/L	---	
Pentachlorophenol	**1.0**	µg/L	---	
F. Fuels Parameters				
Total Petroleum Hydrocarbons	**5.0**	mg/L	---	
Ethanol	**Report**	mg/L	---	
Methyl-tert-Butyl Ether	**70**	µg/L	20	µg/L
tert-Butyl Alcohol	**120**	µg/L	---	
tert-Amyl Methyl Ether	**90**	µg/L	---	

Appendix B

Laboratory Data

ANALYTICAL REPORT

Lab Number:	L2156400
Client:	Sanborn, Head & Associates, Inc. 1 Technology Park Drive Westford, MA 01886
ATTN:	Corinne Disenhof
Phone:	(978) 577-1037
Project Name:	XMBLY
Project Number:	4675.00
Report Date:	10/28/21

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

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: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2156400-01	SH-201W	WATER	SOMERVILLE, MA	10/14/21 12:17	10/14/21
L2156400-02	SH-206W	WATER	SOMERVILLE, MA	10/14/21 13:24	10/14/21
L2156400-03	MYSTIC RIVER, SOMERVILLE, MA	WATER	SOMERVILLE, MA	10/14/21 14:40	10/14/21

Project Name:	XMBLY	**Lab Number:**	L2156400
Project Number:	4675.00	**Report Date:**	10/28/21

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:	XMBLY	**Lab Number:**	L2156400
Project Number:	4675.00	**Report Date:**	10/28/21

Case Narrative (continued)

Report Submission

October 28, 2021: This final report includes the results of all requested analyses.

October 22, 2021: This is a preliminary report.

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

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

Volatile Organics by Method 624

The WG1560332-3 LCS recoveries, associated with L2156400-01 and -02, are above the acceptance criteria for ethylbenzene (145%), 1,2-dichlorobenzene (140%), 1,3-dichlorobenzene (140%), and 1,4-dichlorobenzene (145%); however, the associated samples are non-detect to the RL for these target analytes. The results of the original analysis are reported.

Volatile Organics by SIM

L2156400-01: The surrogate recovery for 4-bromofluorobenzene (30%) is outside the acceptance criteria; however, this surrogate is not associated with the target compound reported. Therefore, re-analysis was not required.

L2156400-02: The surrogate recovery for 4-bromofluorobenzene (31%) is outside the acceptance criteria; however, this surrogate is not associated with the target compound reported. Therefore, re-analysis was not required.

WG1560335-4: The surrogate recovery for 4-bromofluorobenzene (30%) is outside the acceptance criteria; however, this surrogate is not associated with the target compound reported. Therefore, re-analysis was not required.

WG1560335-3: The surrogate recovery for 4-bromofluorobenzene (29%) is outside the acceptance criteria; however, this surrogate is not associated with the target compound reported. Therefore, re-analysis was not required.

WG1560335-3: One or more of the internal standard recoveries is outside the acceptance criteria; however,

Project Name:	XMBLY	**Lab Number:**	L2156400
Project Number:	4675.00	**Report Date:**	10/28/21

Case Narrative (continued)

the internal standard is within criteria for the target compounds; therefore, the results are reported.

Microextractables

The WG1559921-2 LCS recovery for 1,2-dibromoethane (74%), associated with L2156400-01 and -02, is outside Alpha's acceptance criteria, but within the acceptance criteria specified in the method.

Total Metals

The WG1560089-5 MS recovery for antimony (69%), performed on L2156400-02, recovered outside the 70-130% acceptance criteria. The result for this analyte is considered suspect due to either the heterogeneous nature of the sample or matrix interference.

The WG1560091-3 MS recovery for iron (440%), performed on L2156400-01, does not apply because the sample concentration is greater than four times the spike amount added.

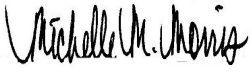
The WG1560089-4 Laboratory Duplicate RPDs for chromium (37%), nickel (36%) and zinc (31%), performed on L2156400-01, are outside the acceptance criteria. The elevated RPDs have been attributed to the non-homogeneous nature of the native sample.

The WG1560091-4 Laboratory Duplicate RPD for iron (39%), performed on L2156400-01, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

Chlorine, Total Residual

The WG1558917-4 MS recovery, performed on L2156400-02, is outside the acceptance criteria for chlorine, total residual (0%); however, the associated LCS recovery is within criteria. No further action was taken.

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:  Michelle M. Morris

Title: Technical Director/Representative Date: 10/28/21

ORGANICS

VOLATILES

Project Name: XMBLY
Project Number: 4675.00
Lab Number: L2156400
Report Date: 10/28/21

SAMPLE RESULTS

Lab ID: L2156400-01
Client ID: SH-201W
Sample Location: SOMERVILLE, MA

Date Collected: 10/14/21 12:17
Date Received: 10/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 10/18/21 12:49
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	1.0	--	1
1,1-Dichloroethane	ND		ug/l	1.5	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.5	--	1
Tetrachloroethene	26		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	1.2		ug/l	1.0	--	1
Trichloroethene	3.3		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: XMBLY **Lab Number:** L2156400

Project Number: 4675.00 **Report Date:** 10/28/21

SAMPLE RESULTS

Lab ID: L2156400-01 Date Collected: 10/14/21 12:17

Client ID: SH-201W Date Received: 10/14/21

Sample Location: SOMERVILLE, MA 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	86		60-140
Fluorobenzene	99		60-140
4-Bromofluorobenzene	111		60-140

Project Name: XMBLY
Lab Number: L2156400
Project Number: 4675.00
Report Date: 10/28/21

SAMPLE RESULTS

Lab ID: L2156400-01
Client ID: SH-201W
Sample Location: SOMERVILLE, MA

Date Collected: 10/14/21 12:17
Date Received: 10/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1-SIM
Analytical Date: 10/18/21 12:49
Analyst: MKS

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	103		60-140
4-Bromofluorobenzene	**30**	Q	60-140

Project Name: XMBLY
Project Number: 4675.00
Lab Number: L2156400
Report Date: 10/28/21

SAMPLE RESULTS

Lab ID: L2156400-01
Client ID: SH-201W
Sample Location: SOMERVILLE, MA

Date Collected: 10/14/21 12:17
Date Received: 10/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 10/18/21 20:29
Analyst: GT

Extraction Method: EPA 504.1
Extraction Date: 10/18/21 11:35

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

Project Name: XMBLY
Project Number: 4675.00
Lab Number: L2156400
Report Date: 10/28/21

SAMPLE RESULTS

Lab ID: L2156400-02
Client ID: SH-206W
Sample Location: SOMERVILLE, MA
Date Collected: 10/14/21 13:24
Date Received: 10/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 10/18/21 13:23
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	1.0	--	1
1,1-Dichloroethane	ND		ug/l	1.5	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.5	--	1
Tetrachloroethene	2.9		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	2.2		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: XMBLY **Lab Number:** L2156400

Project Number: 4675.00 **Report Date:** 10/28/21

SAMPLE RESULTS

Lab ID: L2156400-02 Date Collected: 10/14/21 13:24

Client ID: SH-206W Date Received: 10/14/21

Sample Location: SOMERVILLE, MA 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	84		60-140
Fluorobenzene	96		60-140
4-Bromofluorobenzene	111		60-140

Project Name: XMBLY
Lab Number: L2156400
Project Number: 4675.00
Report Date: 10/28/21

SAMPLE RESULTS

Lab ID: L2156400-02
Client ID: SH-206W
Sample Location: SOMERVILLE, MA

Date Collected: 10/14/21 13:24
Date Received: 10/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1-SIM
Analytical Date: 10/18/21 13:23
Analyst: MKS

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	99		60-140
4-Bromofluorobenzene	**31**	Q	60-140

Project Name: XMBLY
Project Number: 4675.00
Lab Number: L2156400
Report Date: 10/28/21

SAMPLE RESULTS

Lab ID: L2156400-02
Client ID: SH-206W
Sample Location: SOMERVILLE, MA

Date Collected: 10/14/21 13:24
Date Received: 10/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 10/18/21 20:36
Analyst: GT

Extraction Method: EPA 504.1
Extraction Date: 10/18/21 11:35

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

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 10/18/21 19:52
Analyst: GT

Extraction Method: EPA 504.1
Extraction Date: 10/18/21 11:35

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 01-02 Batch: WG1559921-1						
1,2-Dibromoethane	ND		ug/l	0.010	--	A

Project Name: XMBLY **Lab Number:** L2156400

Project Number: 4675.00 **Report Date:** 10/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 10/18/21 10:27
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1560332-4					
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: XMBLY
Project Number: 4675.00
Lab Number: L2156400
Report Date: 10/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 10/18/21 10:27
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1560332-4					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	85		60-140
Fluorobenzene	99		60-140
4-Bromofluorobenzene	113		60-140

Project Name: XMBLY
Project Number: 4675.00
Lab Number: L2156400
Report Date: 10/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1-SIM
Analytical Date: 10/18/21 10:27
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-02 Batch: WG1560335-4					
1,4-Dioxane	ND		ug/l	5.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	104		60-140
4-Bromofluorobenzene	**30**	Q	60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: XMBLY

Project Number: 4675.00

Lab Number: L2156400

Report Date: 10/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab	Associated sample(s): 01-02		Batch: WG1559921-2						
1,2-Dibromoethane	**74**	Q	-		80-120	-			A

Lab Control Sample Analysis

Batch Quality Control

Project Name: XMBLY

Project Number: 4675.00

Lab Number: L2156400

Report Date: 10/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1560332-3								
Methylene chloride	90		-		60-140	-		28
1,1-Dichloroethane	85		-		50-150	-		49
Carbon tetrachloride	80		-		70-130	-		41
1,1,2-Trichloroethane	100		-		70-130	-		45
Tetrachloroethene	95		-		70-130	-		39
1,2-Dichloroethane	80		-		70-130	-		49
1,1,1-Trichloroethane	85		-		70-130	-		36
Benzene	115		-		65-135	-		61
Toluene	115		-		70-130	-		41
Ethylbenzene	**145**	Q	-		60-140	-		63
Vinyl chloride	75		-		5-195	-		66
1,1-Dichloroethene	100		-		50-150	-		32
cis-1,2-Dichloroethene	105		-		60-140	-		30
Trichloroethene	110		-		65-135	-		48
1,2-Dichlorobenzene	**140**	Q	-		65-135	-		57
1,3-Dichlorobenzene	**140**	Q	-		70-130	-		43
1,4-Dichlorobenzene	**145**	Q	-		65-135	-		57
p/m-Xylene	140		-		60-140	-		30
o-xylene	130		-		60-140	-		30
Acetone	90		-		40-160	-		30
Methyl tert butyl ether	90		-		60-140	-		30
Tert-Butyl Alcohol	100		-		60-140	-		30
Tertiary-Amyl Methyl Ether	90		-		60-140	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1560332-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Pentafluorobenzene	90				60-140
Fluorobenzene	104				60-140
4-Bromofluorobenzene	113				60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-02 Batch: WG1560335-3								
1,4-Dioxane	128		-		60-140	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Fluorobenzene	107				60-140
4-Bromofluorobenzene	**29**	Q			60-140

Matrix Spike Analysis

Batch Quality Control

Project Name: XMBLY

Project Number: 4675.00

Lab Number: L2156400

Report Date: 10/28/21

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): 01-02 QC Batch ID: WG1559921-3 QC Sample: L2155982-03 Client ID: MS Sample													
1,2-Dibromoethane	ND	0.249	0.195	**78**	Q	-	-		80-120	-		20	A
1,2-Dibromo-3-chloropropane	ND	0.249	0.316	**127**	Q	-	-		80-120	-		20	A
1,2,3-Trichloropropane	ND	0.249	0.278	112		-	-		80-120	-		20	A

SEMIVOLATILES

Project Name: XMBLY
Project Number: 4675.00
Lab Number: L2156400
Report Date: 10/28/21

SAMPLE RESULTS

Lab ID: L2156400-01
Client ID: SH-201W
Sample Location: SOMERVILLE, MA

Date Collected: 10/14/21 12:17
Date Received: 10/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 10/19/21 14:51
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 10/18/21 01:09

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	80		42-122
2-Fluorobiphenyl	82		46-121
4-Terphenyl-d14	86		47-138

Project Name: XMBLY
Project Number: 4675.00
Lab Number: L2156400
Report Date: 10/28/21

SAMPLE RESULTS

Lab ID: L2156400-01
Client ID: SH-201W
Sample Location: SOMERVILLE, MA

Date Collected: 10/14/21 12:17
Date Received: 10/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1-SIM
Analytical Date: 10/19/21 04:39
Analyst: RP

Extraction Method: EPA 625.1
Extraction Date: 10/18/21 01:14

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.100	--	1
Fluoranthene	0.572		ug/l	0.100	--	1
Naphthalene	ND		ug/l	0.100	--	1
Benzo(a)anthracene	0.136		ug/l	0.100	--	1
Benzo(a)pyrene	0.138		ug/l	0.100	--	1
Benzo(b)fluoranthene	0.269		ug/l	0.100	--	1
Benzo(k)fluoranthene	ND		ug/l	0.100	--	1
Chrysene	0.176		ug/l	0.100	--	1
Acenaphthylene	ND		ug/l	0.100	--	1
Anthracene	ND		ug/l	0.100	--	1
Benzo(ghi)perylene	0.150		ug/l	0.100	--	1
Fluorene	ND		ug/l	0.100	--	1
Phenanthrene	0.162		ug/l	0.100	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.100	--	1
Indeno(1,2,3-cd)pyrene	0.163		ug/l	0.100	--	1
Pyrene	0.390		ug/l	0.100	--	1
Pentachlorophenol	ND		ug/l	1.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	55		25-87
Phenol-d6	46		16-65
Nitrobenzene-d5	90		42-122
2-Fluorobiphenyl	75		46-121
2,4,6-Tribromophenol	109		45-128
4-Terphenyl-d14	67		47-138

Project Name: XMBLY
Project Number: 4675.00
Lab Number: L2156400
Report Date: 10/28/21

SAMPLE RESULTS

Lab ID: L2156400-02
Client ID: SH-206W
Sample Location: SOMERVILLE, MA

Date Collected: 10/14/21 13:24
Date Received: 10/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 10/19/21 15:17
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 10/18/21 01:09

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	81		42-122
2-Fluorobiphenyl	81		46-121
4-Terphenyl-d14	85		47-138

Project Name: XMBLY
Project Number: 4675.00
Lab Number: L2156400
Report Date: 10/28/21

SAMPLE RESULTS

Lab ID: L2156400-02
Client ID: SH-206W
Sample Location: SOMERVILLE, MA

Date Collected: 10/14/21 13:24
Date Received: 10/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1-SIM
Analytical Date: 10/20/21 17:13
Analyst: RP

Extraction Method: EPA 625.1
Extraction Date: 10/18/21 01:14

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	1.04		ug/l	0.100	--	1
Fluoranthene	2.87		ug/l	0.100	--	1
Naphthalene	ND		ug/l	0.100	--	1
Benzo(a)anthracene	0.884		ug/l	0.100	--	1
Benzo(a)pyrene	0.813		ug/l	0.100	--	1
Benzo(b)fluoranthene	1.01		ug/l	0.100	--	1
Benzo(k)fluoranthene	0.477		ug/l	0.100	--	1
Chrysene	0.879		ug/l	0.100	--	1
Acenaphthylene	0.186		ug/l	0.100	--	1
Anthracene	0.669		ug/l	0.100	--	1
Benzo(ghi)perylene	0.619		ug/l	0.100	--	1
Fluorene	0.837		ug/l	0.100	--	1
Phenanthrene	2.06		ug/l	0.100	--	1
Dibenzo(a,h)anthracene	0.136		ug/l	0.100	--	1
Indeno(1,2,3-cd)pyrene	0.663		ug/l	0.100	--	1
Pyrene	2.54		ug/l	0.100	--	1
Pentachlorophenol	ND		ug/l	1.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	65		25-87
Phenol-d6	51		16-65
Nitrobenzene-d5	99		42-122
2-Fluorobiphenyl	85		46-121
2,4,6-Tribromophenol	123		45-128
4-Terphenyl-d14	82		47-138

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
Analytical Date: 10/18/21 14:57
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 10/18/21 01:09

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1559760-1					
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	95		42-122
2-Fluorobiphenyl	96		46-121
4-Terphenyl-d14	100		47-138

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1-SIM
Analytical Date: 10/19/21 00:17
Analyst: DV

Extraction Method: EPA 625.1
Extraction Date: 10/18/21 01:14

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-02 Batch: WG1559762-1					
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	58		25-87
Phenol-d6	46		16-65
Nitrobenzene-d5	89		42-122
2-Fluorobiphenyl	78		46-121
2,4,6-Tribromophenol	108		45-128
4-Terphenyl-d14	83		47-138

Lab Control Sample Analysis

Batch Quality Control

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1559760-3								
Bis(2-ethylhexyl)phthalate	97		-		29-137	-		82
Butyl benzyl phthalate	104		-		1-140	-		60
Di-n-butylphthalate	101		-		8-120	-		47
Di-n-octylphthalate	100		-		19-132	-		69
Diethyl phthalate	96		-		1-120	-		100
Dimethyl phthalate	98		-		1-120	-		183

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	91				42-122
2-Fluorobiphenyl	96				46-121
4-Terphenyl-d14	105				47-138

Lab Control Sample Analysis
Batch Quality Control

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-02 Batch: WG1559762-2								
Acenaphthene	79		-		60-132	-		30
Fluoranthene	87		-		43-121	-		30
Naphthalene	77		-		36-120	-		30
Benzo(a)anthracene	81		-		42-133	-		30
Benzo(a)pyrene	85		-		32-148	-		30
Benzo(b)fluoranthene	90		-		42-140	-		30
Benzo(k)fluoranthene	79		-		25-146	-		30
Chrysene	80		-		44-140	-		30
Acenaphthylene	84		-		54-126	-		30
Anthracene	83		-		43-120	-		30
Benzo(ghi)perylene	84		-		1-195	-		30
Fluorene	84		-		70-120	-		30
Phenanthrene	78		-		65-120	-		30
Dibenzo(a,h)anthracene	88		-		1-200	-		30
Indeno(1,2,3-cd)pyrene	93		-		1-151	-		30
Pyrene	87		-		70-120	-		30
Pentachlorophenol	56		-		38-152	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: XMBLY

Project Number: 4675.00

Lab Number: L2156400

Report Date: 10/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-02 Batch: WG1559762-2								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	55				25-87
Phenol-d6	44				16-65
Nitrobenzene-d5	80				42-122
2-Fluorobiphenyl	70				46-121
2,4,6-Tribromophenol	100				45-128
4-Terphenyl-d14	73				47-138

PCBS

Project Name: XMBLY
Project Number: 4675.00
Lab Number: L2156400
Report Date: 10/28/21

SAMPLE RESULTS

Lab ID: L2156400-01
Client ID: SH-201W
Sample Location: SOMERVILLE, MA

Date Collected: 10/14/21 12:17
Date Received: 10/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 10/21/21 09:00
Analyst: JM

Extraction Method: EPA 608.3
Extraction Date: 10/20/21 20:35
Cleanup Method: EPA 3665A
Cleanup Date: 10/21/21
Cleanup Method: EPA 3660B
Cleanup Date: 10/21/21

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	65		37-123	B
Decachlorobiphenyl	**37**	Q	38-114	B
2,4,5,6-Tetrachloro-m-xylene	66		37-123	A
Decachlorobiphenyl	45		38-114	A

Project Name: XMBLY
Project Number: 4675.00
Lab Number: L2156400
Report Date: 10/28/21

SAMPLE RESULTS

Lab ID: L2156400-02
Client ID: SH-206W
Sample Location: SOMERVILLE, MA

Date Collected: 10/14/21 13:24
Date Received: 10/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 10/21/21 23:59
Analyst: JM

Extraction Method: EPA 608.3
Extraction Date: 10/21/21 12:19
Cleanup Method: EPA 3665A
Cleanup Date: 10/21/21
Cleanup Method: EPA 3660B
Cleanup Date: 10/21/21

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	65		37-123	B
Decachlorobiphenyl	42		38-114	B
2,4,5,6-Tetrachloro-m-xylene	67		37-123	A
Decachlorobiphenyl	50		38-114	A

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 127,608.3
Analytical Date: 10/21/21 08:05
Analyst: JM

Extraction Method: EPA 608.3
Extraction Date: 10/20/21 20:35
Cleanup Method: EPA 3665A
Cleanup Date: 10/21/21
Cleanup Method: EPA 3660B
Cleanup Date: 10/21/21

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01 Batch: WG1561184-1						
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	66		37-123	B
Decachlorobiphenyl	52		38-114	B
2,4,5,6-Tetrachloro-m-xylene	73		37-123	A
Decachlorobiphenyl	66		38-114	A

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 127,608.3
Analytical Date: 10/22/21 00:09
Analyst: JM

Extraction Method: EPA 608.3
Extraction Date: 10/21/21 12:19
Cleanup Method: EPA 3665A
Cleanup Date: 10/21/21
Cleanup Method: EPA 3660B
Cleanup Date: 10/21/21

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 02 Batch: WG1561524-1						
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	73		37-123	B
Decachlorobiphenyl	66		38-114	B
2,4,5,6-Tetrachloro-m-xylene	73		37-123	A
Decachlorobiphenyl	78		38-114	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: XMBLY

Project Number: 4675.00

Lab Number: L2156400

Report Date: 10/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 Batch: WG1561184-2									
Aroclor 1016	62		-		50-140	-		36	A
Aroclor 1260	62		-		8-140	-		38	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	49				37-123	B
Decachlorobiphenyl	45				38-114	B
2,4,5,6-Tetrachloro-m-xylene	52				37-123	A
Decachlorobiphenyl	57				38-114	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: XMBLY

Project Number: 4675.00

Lab Number: L2156400

Report Date: 10/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 02 Batch: WG1561524-2									
Aroclor 1016	78		-		50-140	-		36	A
Aroclor 1260	81		-		8-140	-		38	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	68				37-123	B
Decachlorobiphenyl	63				38-114	B
2,4,5,6-Tetrachloro-m-xylene	70				37-123	A
Decachlorobiphenyl	74				38-114	A

METALS

Project Name: XMBLY **Lab Number:** L2156400

Project Number: 4675.00 **Report Date:** 10/28/21

SAMPLE RESULTS

Lab ID: L2156400-01 Date Collected: 10/14/21 12:17

Client ID: SH-201W Date Received: 10/14/21

Sample Location: SOMERVILLE, MA 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	10/21/21 16:49	10/22/21 11:49	EPA 3005A	3,200.8	PS
Arsenic, Total	0.02014		mg/l	0.00100	--	1	10/21/21 16:49	10/22/21 11:49	EPA 3005A	3,200.8	PS
Cadmium, Total	0.00035		mg/l	0.00020	--	1	10/21/21 16:49	10/22/21 11:49	EPA 3005A	3,200.8	PS
Chromium, Total	0.03271		mg/l	0.00100	--	1	10/21/21 16:49	10/22/21 11:49	EPA 3005A	3,200.8	PS
Copper, Total	0.04200		mg/l	0.00100	--	1	10/21/21 16:49	10/22/21 11:49	EPA 3005A	3,200.8	PS
Iron, Total	21.6		mg/l	0.050	--	1	10/21/21 16:49	10/25/21 16:14	EPA 3005A	19,200.7	DL
Lead, Total	0.03322		mg/l	0.00100	--	1	10/21/21 16:49	10/22/21 11:49	EPA 3005A	3,200.8	PS
Mercury, Total	ND		mg/l	0.00020	--	1	10/21/21 14:04	10/21/21 18:40	EPA 245.1	3,245.1	AC
Nickel, Total	0.01915		mg/l	0.00200	--	1	10/21/21 16:49	10/22/21 11:49	EPA 3005A	3,200.8	PS
Selenium, Total	ND		mg/l	0.00500	--	1	10/21/21 16:49	10/22/21 11:49	EPA 3005A	3,200.8	PS
Silver, Total	ND		mg/l	0.00040	--	1	10/21/21 16:49	10/22/21 11:49	EPA 3005A	3,200.8	PS
Zinc, Total	0.06652		mg/l	0.01000	--	1	10/21/21 16:49	10/22/21 11:49	EPA 3005A	3,200.8	PS
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	382		mg/l	0.660	NA	1	10/21/21 16:49	10/25/21 17:57	EPA 3005A	19,200.7	DL
General Chemistry - Mansfield Lab											
Chromium, Trivalent	0.032		mg/l	0.010	--	1		10/22/21 11:49	NA	107,-	

Project Name: XMBLY
Project Number: 4675.00
Lab Number: L2156400
Report Date: 10/28/21

SAMPLE RESULTS

Lab ID: L2156400-02
Client ID: SH-206W
Sample Location: SOMERVILLE, MA
Sample Depth:
Matrix: Water

Date Collected: 10/14/21 13:24
Date Received: 10/14/21
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	0.00400	--	1	10/21/21 16:49	10/22/21 14:21	EPA 3005A	3,200.8	PS
Arsenic, Total	0.03498		mg/l	0.00100	--	1	10/21/21 16:49	10/22/21 14:21	EPA 3005A	3,200.8	PS
Cadmium, Total	0.00181		mg/l	0.00020	--	1	10/21/21 16:49	10/22/21 14:21	EPA 3005A	3,200.8	PS
Chromium, Total	0.1157		mg/l	0.00100	--	1	10/21/21 16:49	10/22/21 14:21	EPA 3005A	3,200.8	PS
Copper, Total	0.1995		mg/l	0.00100	--	1	10/21/21 16:49	10/22/21 14:21	EPA 3005A	3,200.8	PS
Iron, Total	123		mg/l	0.050	--	1	10/21/21 16:49	10/25/21 17:52	EPA 3005A	19,200.7	DL
Lead, Total	0.4426		mg/l	0.00100	--	1	10/21/21 16:49	10/22/21 14:21	EPA 3005A	3,200.8	PS
Mercury, Total	ND		mg/l	0.00020	--	1	10/21/21 14:04	10/21/21 18:43	EPA 245.1	3,245.1	AC
Nickel, Total	0.1168		mg/l	0.00200	--	1	10/21/21 16:49	10/22/21 14:21	EPA 3005A	3,200.8	PS
Selenium, Total	0.00856		mg/l	0.00500	--	1	10/21/21 16:49	10/22/21 14:21	EPA 3005A	3,200.8	PS
Silver, Total	0.00121		mg/l	0.00040	--	1	10/21/21 16:49	10/22/21 14:21	EPA 3005A	3,200.8	PS
Zinc, Total	0.5939		mg/l	0.01000	--	1	10/21/21 16:49	10/22/21 14:21	EPA 3005A	3,200.8	PS
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	795		mg/l	0.660	NA	1	10/21/21 16:49	10/25/21 17:52	EPA 3005A	19,200.7	DL
General Chemistry - Mansfield Lab											
Chromium, Trivalent	0.116		mg/l	0.010	--	1		10/22/21 14:21	NA	107,-	

Project Name: XMBLY **Lab Number:** L2156400

Project Number: 4675.00 **Report Date:** 10/28/21

SAMPLE RESULTS

Lab ID: L2156400-03 Date Collected: 10/14/21 14:40

Client ID: MYSTIC RIVER, SOMERVILLE, MA Date Received: 10/14/21

Sample Location: SOMERVILLE, MA 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	10/21/21 16:49	10/22/21 13:27	EPA 3005A	3,200.8	PS
Arsenic, Total	0.00488		mg/l	0.00100	--	1	10/21/21 16:49	10/22/21 13:27	EPA 3005A	3,200.8	PS
Cadmium, Total	ND		mg/l	0.00020	--	1	10/21/21 16:49	10/22/21 13:27	EPA 3005A	3,200.8	PS
Chromium, Total	0.00103		mg/l	0.00100	--	1	10/21/21 16:49	10/22/21 13:27	EPA 3005A	3,200.8	PS
Copper, Total	0.02555		mg/l	0.00100	--	1	10/21/21 16:49	10/22/21 13:27	EPA 3005A	3,200.8	PS
Iron, Total	0.798		mg/l	0.050	--	1	10/21/21 16:49	10/25/21 16:05	EPA 3005A	19,200.7	DL
Lead, Total	0.00496		mg/l	0.00100	--	1	10/21/21 16:49	10/22/21 13:27	EPA 3005A	3,200.8	PS
Mercury, Total	ND		mg/l	0.00020	--	1	10/21/21 14:04	10/21/21 18:26	EPA 245.1	3,245.1	AC
Nickel, Total	ND		mg/l	0.00200	--	1	10/21/21 16:49	10/22/21 13:27	EPA 3005A	3,200.8	PS
Selenium, Total	ND		mg/l	0.00500	--	1	10/21/21 16:49	10/22/21 13:27	EPA 3005A	3,200.8	PS
Silver, Total	ND		mg/l	0.00040	--	1	10/21/21 16:49	10/22/21 13:27	EPA 3005A	3,200.8	PS
Zinc, Total	0.02506		mg/l	0.01000	--	1	10/21/21 16:49	10/22/21 13:27	EPA 3005A	3,200.8	PS

Project Name: XMBLY **Lab Number:** L2156400

Project Number: 4675.00 **Report Date:** 10/28/21

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: WG1560089-1										
Antimony, Total	ND		mg/l	0.00400	--	1	10/21/21 16:49	10/22/21 10:20	3,200.8	PS
Arsenic, Total	ND		mg/l	0.00100	--	1	10/21/21 16:49	10/22/21 10:20	3,200.8	PS
Cadmium, Total	ND		mg/l	0.00020	--	1	10/21/21 16:49	10/22/21 10:20	3,200.8	PS
Chromium, Total	ND		mg/l	0.00100	--	1	10/21/21 16:49	10/22/21 10:20	3,200.8	PS
Copper, Total	ND		mg/l	0.00100	--	1	10/21/21 16:49	10/22/21 10:20	3,200.8	PS
Lead, Total	ND		mg/l	0.00100	--	1	10/21/21 16:49	10/22/21 10:20	3,200.8	PS
Nickel, Total	ND		mg/l	0.00200	--	1	10/21/21 16:49	10/22/21 10:20	3,200.8	PS
Selenium, Total	ND		mg/l	0.00500	--	1	10/21/21 16:49	10/22/21 10:20	3,200.8	PS
Silver, Total	ND		mg/l	0.00040	--	1	10/21/21 16:49	10/22/21 10:20	3,200.8	PS
Zinc, Total	ND		mg/l	0.01000	--	1	10/21/21 16:49	10/22/21 10:20	3,200.8	PS

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: WG1560091-1										
Iron, Total	ND		mg/l	0.050	--	1	10/21/21 16:49	10/25/21 15:52	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: WG1560091-1										
Hardness	ND		mg/l	0.660	NA	1	10/21/21 16:49	10/25/21 17:35	19,200.7	DL

Prep Information

Digestion Method: EPA 3005A

Project Name: XMBLY
Project Number: 4675.00
Lab Number: L2156400
Report Date: 10/28/21

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: WG1560093-1										
Mercury, Total	ND		mg/l	0.00020	--	1	10/21/21 14:04	10/21/21 18:13	3,245.1	AC

Prep Information

Digestion Method: EPA 245.1

Lab Control Sample Analysis

Batch Quality Control

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03 Batch: WG1560089-2								
Antimony, Total	93		-		85-115	-		
Arsenic, Total	96		-		85-115	-		
Cadmium, Total	91		-		85-115	-		
Chromium, Total	95		-		85-115	-		
Copper, Total	95		-		85-115	-		
Lead, Total	88		-		85-115	-		
Nickel, Total	94		-		85-115	-		
Selenium, Total	95		-		85-115	-		
Silver, Total	92		-		85-115	-		
Zinc, Total	92		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01-03 Batch: WG1560091-2								
Iron, Total	93		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-03 Batch: WG1560091-2								
Hardness	102		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01-03 Batch: WG1560093-2								
Mercury, Total	99		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

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: WG1560089-3 QC Sample: L2156400-01 Client ID: SH-201W												
Antimony, Total	ND	0.5	0.4156	83		-	-		70-130	-		20
Arsenic, Total	0.02014	0.12	0.1327	94		-	-		70-130	-		20
Cadmium, Total	0.00035	0.053	0.04916	92		-	-		70-130	-		20
Chromium, Total	0.03271	0.2	0.2289	98		-	-		70-130	-		20
Copper, Total	0.04200	0.25	0.2823	96		-	-		70-130	-		20
Lead, Total	0.03322	0.53	0.5227	92		-	-		70-130	-		20
Nickel, Total	0.01915	0.5	0.4766	91		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1110	92		-	-		70-130	-		20
Silver, Total	ND	0.05	0.04796	96		-	-		70-130	-		20
Zinc, Total	0.06652	0.5	0.5374	94		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1560089-5 QC Sample: L2156400-02 Client ID: SH-206W												
Antimony, Total	ND	0.5	0.3444	**69**	Q	-	-		70-130	-		20
Arsenic, Total	0.03498	0.12	0.1543	99		-	-		70-130	-		20
Cadmium, Total	0.00181	0.053	0.05349	98		-	-		70-130	-		20
Chromium, Total	0.1157	0.2	0.3200	102		-	-		70-130	-		20
Copper, Total	0.1995	0.25	0.4334	94		-	-		70-130	-		20
Lead, Total	0.4426	0.53	0.8939	85		-	-		70-130	-		20
Nickel, Total	0.1168	0.5	0.5807	93		-	-		70-130	-		20
Selenium, Total	0.00856	0.12	0.1113	86		-	-		70-130	-		20
Silver, Total	0.00121	0.05	0.04986	97		-	-		70-130	-		20
Zinc, Total	0.5939	0.5	1.094	100		-	-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

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: WG1560091-3 QC Sample: L2156400-01 Client ID: SH-201W										
Iron, Total	21.6	1	26.0	**440**	Q	-	-	75-125	-	20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1560091-3 QC Sample: L2156400-01 Client ID: SH-201W										
Hardness	382	66.2	433	77		-	-	75-125	-	20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1560093-3 QC Sample: L2156400-03 Client ID: MYSTIC RIVER, SOMERVILLE, MA										
Mercury, Total	ND	0.005	0.00483	97		-	-	70-130	-	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1560089-4 QC Sample: L2156400-01 Client ID: SH-201W						
Antimony, Total	ND	ND	mg/l	NC		20
Arsenic, Total	0.02014	0.02420	mg/l	18		20
Cadmium, Total	0.00035	0.00035	mg/l	1		20
Chromium, Total	0.03271	0.04739	mg/l	**37**	Q	20
Copper, Total	0.04200	0.05148	mg/l	20		20
Lead, Total	0.03322	0.03921	mg/l	17		20
Nickel, Total	0.01915	0.02746	mg/l	**36**	Q	20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	0.06652	0.09126	mg/l	**31**	Q	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

Parameter	Native Sample	Duplicate Sample	Units	RPD		RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1560089-6 QC Sample: L2156400-02 Client ID: SH-206W						
Antimony, Total	ND	ND	mg/l	NC		20
Arsenic, Total	0.03498	0.03554	mg/l	2		20
Cadmium, Total	0.00181	0.00179	mg/l	1		20
Chromium, Total	0.1157	0.1294	mg/l	11		20
Copper, Total	0.1995	0.2011	mg/l	1		20
Lead, Total	0.4426	0.4401	mg/l	1		20
Nickel, Total	0.1168	0.1254	mg/l	7		20
Selenium, Total	0.00856	0.00820	mg/l	4		20
Silver, Total	0.00121	0.00140	mg/l	15		20
Zinc, Total	0.5939	0.6169	mg/l	4		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1560091-4 QC Sample: L2156400-01 Client ID: SH-201W						
Hardness	382	397	mg/l	4		20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1560091-4 QC Sample: L2156400-01 Client ID: SH-201W						
Iron, Total	21.6	31.9	mg/l	**39**	Q	20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1560093-4 QC Sample: L2156400-03 Client ID: MYSTIC RIVER, SOMERVILLE, MA						
Mercury, Total	ND	ND	mg/l	NC		20

INORGANICS
&
MISCELLANEOUS

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

SAMPLE RESULTS

Lab ID: L2156400-01
Client ID: SH-201W
Sample Location: SOMERVILLE, MA

Date Collected: 10/14/21 12:17
Date Received: 10/14/21
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										
Solids, Total Suspended	2200		mg/l	100	NA	20	-	10/21/21 08:50	121,2540D	DW
Cyanide, Total	0.013		mg/l	0.005	--	1	10/25/21 12:00	10/25/21 16:58	121,4500CN-CE	JO
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	10/15/21 00:53	121,4500CL-D	AS
pH (H)	6.7		SU	-	NA	1	-	10/14/21 22:13	121,4500H+-B	AS
Nitrogen, Ammonia	6.41		mg/l	0.750	--	10	10/21/21 16:45	10/22/21 22:44	121,4500NH3-BH	AT
Sulfate	490		mg/l	120	--	12.5	10/25/21 16:00	10/25/21 16:00	121,4500SO4-E	JB
TPH, SGT-HEM	ND		mg/l	4.00	--	1	10/27/21 20:00	10/27/21 20:45	140,1664B	TL
Phenolics, Total	0.030		mg/l	0.030	--	1	10/27/21 07:28	10/27/21 11:36	4,420.1	KP
Chromium, Hexavalent	ND		mg/l	0.010	--	1	10/14/21 22:18	10/14/21 23:13	1,7196A	VA
Anions by Ion Chromatography - Westborough Lab										
Chloride	254.		mg/l	25.0	--	50	-	10/26/21 19:41	44,300.0	SH

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

SAMPLE RESULTS

Lab ID: L2156400-02
Client ID: SH-206W
Sample Location: SOMERVILLE, MA

Date Collected: 10/14/21 13:24
Date Received: 10/14/21
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										
Solids, Total Suspended	8300		mg/l	170	NA	33.3	-	10/21/21 08:50	121,2540D	DW
Cyanide, Total	ND		mg/l	0.005	--	1	10/25/21 12:00	10/25/21 16:59	121,4500CN-CE	JO
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	10/15/21 00:53	121,4500CL-D	AS
pH (H)	6.8		SU	-	NA	1	-	10/14/21 22:13	121,4500H+-B	AS
Nitrogen, Ammonia	15.6		mg/l	0.750	--	10	10/21/21 16:45	10/22/21 22:45	121,4500NH3-BH	AT
Sulfate	ND		mg/l	10	--	1	10/25/21 16:00	10/25/21 16:00	121,4500SO4-E	JB
TPH, SGT-HEM	ND		mg/l	4.00	--	1	10/27/21 20:00	10/27/21 20:45	140,1664B	TL
Phenolics, Total	ND		mg/l	0.030	--	1	10/27/21 07:28	10/27/21 10:54	4,420.1	KP
Chromium, Hexavalent	ND		mg/l	0.010	--	1	10/14/21 22:18	10/14/21 23:13	1,7196A	VA
Anions by Ion Chromatography - Westborough Lab										
Chloride	1810		mg/l	25.0	--	50	-	10/26/21 19:53	44,300.0	SH

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

SAMPLE RESULTS

Lab ID: L2156400-03
Client ID: MYSTIC RIVER, SOMERVILLE, MA
Sample Location: SOMERVILLE, MA

Date Collected: 10/14/21 14:40
Date Received: 10/14/21
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	19		SU	2.0	--	1	-	10/19/21 22:08	121,2520B	AS
pH (H)	7.4		SU	-	NA	1	-	10/14/21 22:13	121,4500H+-B	AS
Nitrogen, Ammonia	0.203		mg/l	0.075	--	1	10/21/21 16:45	10/22/21 22:45	121,4500NH3-BH	AT

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

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): 01-02 Batch: WG1558895-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	10/14/21 22:18	10/14/21 23:07	1,7196A	VA
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1558917-1										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	10/15/21 00:53	121,4500CL-D	AS
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1561331-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	10/21/21 08:50	121,2540D	DW
General Chemistry - Westborough Lab for sample(s): 01-03 Batch: WG1561514-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	10/21/21 16:45	10/22/21 22:41	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1562584-1										
Cyanide, Total	ND		mg/l	0.005	--	1	10/25/21 12:00	10/25/21 16:50	121,4500CN-CE	JO
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1562695-1										
Sulfate	ND		mg/l	10	--	1	10/25/21 16:00	10/25/21 16:00	121,4500SO4-E	JB
Anions by Ion Chromatography - Westborough Lab for sample(s): 01-02 Batch: WG1563555-1										
Chloride	ND		mg/l	0.500	--	1	-	10/26/21 18:40	44,300.0	SH
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1563633-1										
Phenolics, Total	ND		mg/l	0.030	--	1	10/27/21 07:28	10/27/21 10:51	4,420.1	KP
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1563934-1										
TPH, SGT-HEM	ND		mg/l	4.00	--	1	10/27/21 20:00	10/27/21 20:45	140,1664B	TL

Lab Control Sample Analysis

Batch Quality Control

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1558895-2								
Chromium, Hexavalent	106		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG1558898-1								
pH	100		-		99-101	-		5
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1558917-2								
Chlorine, Total Residual	96		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 03 Batch: WG1560715-1								
SALINITY	100		-			-		
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1561331-3								
Solids, Total Suspended	96		-		80-120	-		
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG1561514-2								
Nitrogen, Ammonia	95		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1562584-2								
Cyanide, Total	102		-		90-110	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1562695-2					
Sulfate	100	-	90-110	-	
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-02 Batch: WG1563555-2					
Chloride	98	-	90-110	-	
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1563633-2					
Phenolics, Total	105	-	70-130	-	
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1563934-2					
TPH	87	-	64-132	-	34

Matrix Spike Analysis
Batch Quality Control

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

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): 01-02 QC Batch ID: WG1558895-4 QC Sample: L2156400-02 Client ID: SH-206W												
Chromium, Hexavalent	ND	0.1	0.106	106		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1558917-4 QC Sample: L2156400-02 Client ID: SH-206W												
Chlorine, Total Residual	ND	0.25	ND	**0**	Q	-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1561514-4 QC Sample: L2156144-05 Client ID: MS Sample												
Nitrogen, Ammonia	1.92	4	5.62	92		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1562584-4 QC Sample: L2156470-01 Client ID: MS Sample												
Cyanide, Total	0.013	0.2	0.011	**0**	Q	-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1562695-4 QC Sample: L2155663-15 Client ID: MS Sample												
Sulfate	20	40	66	115		-	-		55-147	-		14
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1563555-3 QC Sample: L2158009-02 Client ID: MS Sample												
Chloride	168	40	209	102		-	-		90-110	-		18
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1563633-4 QC Sample: L2158360-01 Client ID: MS Sample												
Phenolics, Total	0.11	0.4	0.42	78		-	-		70-130	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1563934-4 QC Sample: L2158146-02 Client ID: MS Sample												
TPH	ND	20.4	20.6	101		-	-		64-132	-		34

Lab Duplicate Analysis
Batch Quality Control

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1558895-3 QC Sample: L2156400-01 Client ID: SH-201W						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1558898-2 QC Sample: L2156400-01 Client ID: SH-201W						
pH (H)	6.7	6.7	SU	0		5
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1558917-3 QC Sample: L2156400-01 Client ID: SH-201W						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 03 QC Batch ID: WG1560715-2 QC Sample: L2156400-03 Client ID: MYSTIC RIVER, SOMERVILLE, MA						
SALINITY	19	19	SU	0		
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1561331-2 QC Sample: L2156312-01 Client ID: DUP Sample						
Solids, Total Suspended	23	33	mg/l	**36**	Q	29
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1561514-3 QC Sample: L2156144-05 Client ID: DUP Sample						
Nitrogen, Ammonia	1.92	2.02	mg/l	5		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1562584-3 QC Sample: L2156470-02 Client ID: DUP Sample						
Cyanide, Total	0.017	0.011	mg/l	**42**	Q	30
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1562695-3 QC Sample: L2155663-15 Client ID: DUP Sample						
Sulfate	20	19	mg/l	5		14

Lab Duplicate Analysis

Batch Quality Control

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1563555-4 QC Sample: L2158009-02 Client ID: DUP Sample					
Chloride	168	168	mg/l	0	18
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1563633-3 QC Sample: L2158360-01 Client ID: DUP Sample					
Phenolics, Total	0.11	0.11	mg/l	0	20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1563934-3 QC Sample: L2158146-01 Client ID: DUP Sample					
TPH	ND	ND	mg/l	NC	34

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

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(*)
L2156400-01A	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		624.1-SIM-RGP(7)
L2156400-01A1	Amber 1000ml Na2S2O3	B	7	7	4.2	Y	Absent		625.1-SIM-RGP(7)
L2156400-01B	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		624.1-SIM-RGP(7)
L2156400-01B1	Amber 1000ml Na2S2O3	B	7	7	4.2	Y	Absent		625.1-SIM-RGP(7)
L2156400-01C	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		624.1-SIM-RGP(7)
L2156400-01C1	Amber 1000ml HCl preserved	B	NA		4.2	Y	Absent		TPH-1664(28)
L2156400-01D	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		624.1-RGP(7)
L2156400-01D1	Amber 1000ml HCl preserved	B	NA		4.2	Y	Absent		TPH-1664(28)
L2156400-01E	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		624.1-RGP(7)
L2156400-01F	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		624.1-RGP(7)
L2156400-01G	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		504(14)
L2156400-01H	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		504(14)
L2156400-01I	Vial unpreserved	B	NA		4.2	Y	Absent		SUB-ETHANOL(14)
L2156400-01J	Vial unpreserved	B	NA		4.2	Y	Absent		SUB-ETHANOL(14)
L2156400-01K	Vial unpreserved	B	NA		4.2	Y	Absent		SUB-ETHANOL(14)
L2156400-01L	Plastic 250ml HNO3 preserved	B	<2	<2	4.2	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),HARDU(180),FE-UI(180),HG-U(28),AG-2008T(180),AS-2008T(180),SE-2008T(180),PB-2008T(180),SB-2008T(180),CR-2008T(180)
L2156400-01M	Plastic 250ml NaOH preserved	B	>12	>12	4.2	Y	Absent		TCN-4500(14)
L2156400-01N	Amber 250ml H2SO4 preserved	B	<2	<2	4.2	Y	Absent		TPHENOL-420(28)
L2156400-01O	Amber 250ml H2SO4 preserved	B	<2	<2	4.2	Y	Absent		TPHENOL-420(28)

*Values in parentheses indicate holding time in days

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2156400
Report Date: 10/28/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2156400-01P	Amber 250ml H2SO4 preserved	B	<2	<2	4.2	Y	Absent		TPHENOL-420(28)
L2156400-01Q	Amber 250ml H2SO4 preserved	B	<2	<2	4.2	Y	Absent		TPHENOL-420(28)
L2156400-01R	Plastic 250ml unpreserved split	B	7	7	4.2	Y	Absent		-
L2156400-01S	Plastic 500ml H2SO4 preserved	B	<2	<2	4.2	Y	Absent		NH3-4500(28)
L2156400-01T	Plastic 950ml unpreserved	B	7	7	4.2	Y	Absent		SO4-4500(28),CL-300(28),HEXCR-7196(1),TRC-4500(1),PH-4500(.01)
L2156400-01U	Plastic 950ml unpreserved	B	7	7	4.2	Y	Absent		SO4-4500(28),CL-300(28),HEXCR-7196(1),TRC-4500(1),PH-4500(.01)
L2156400-01V	Plastic 950ml unpreserved	B	7	7	4.2	Y	Absent		TSS-2540(7)
L2156400-01W	Amber 1000ml Na2S2O3	B	7	7	4.2	Y	Absent		PCB-608.3(365)
L2156400-01X	Amber 1000ml Na2S2O3	B	7	7	4.2	Y	Absent		PCB-608.3(365)
L2156400-01X1	Plastic 120ml HNO3 preserved Filtrates	B	NA		4.2	Y	Absent		HOLD-METAL-DISSOLVED(180)
L2156400-01Y	Amber 1000ml Na2S2O3	B	7	7	4.2	Y	Absent		625.1-RGP(7)
L2156400-01Z	Amber 1000ml Na2S2O3	B	7	7	4.2	Y	Absent		625.1-RGP(7)
L2156400-02A	Vial Na2S2O3 preserved	C	NA		5.5	Y	Absent		624.1-SIM-RGP(7)
L2156400-02A1	Amber 1000ml Na2S2O3	C	7	7	5.5	Y	Absent		625.1-SIM-RGP(7)
L2156400-02B	Vial Na2S2O3 preserved	C	NA		5.5	Y	Absent		624.1-SIM-RGP(7)
L2156400-02B1	Amber 1000ml Na2S2O3	C	7	7	5.5	Y	Absent		625.1-SIM-RGP(7)
L2156400-02C	Vial Na2S2O3 preserved	C	NA		5.5	Y	Absent		624.1-SIM-RGP(7)
L2156400-02C1	Amber 1000ml HCl preserved	C	NA		5.5	Y	Absent		TPH-1664(28)
L2156400-02D	Vial Na2S2O3 preserved	C	NA		5.5	Y	Absent		624.1-RGP(7)
L2156400-02D1	Amber 1000ml HCl preserved	C	NA		5.5	Y	Absent		TPH-1664(28)
L2156400-02E	Vial Na2S2O3 preserved	C	NA		5.5	Y	Absent		624.1-RGP(7)
L2156400-02F	Vial Na2S2O3 preserved	C	NA		5.5	Y	Absent		624.1-RGP(7)
L2156400-02G	Vial Na2S2O3 preserved	C	NA		5.5	Y	Absent		504(14)
L2156400-02H	Vial Na2S2O3 preserved	C	NA		5.5	Y	Absent		504(14)
L2156400-02I	Vial unpreserved	C	NA		5.5	Y	Absent		SUB-ETHANOL(14)
L2156400-02J	Vial unpreserved	C	NA		5.5	Y	Absent		SUB-ETHANOL(14)
L2156400-02K	Vial unpreserved	C	NA		5.5	Y	Absent		SUB-ETHANOL(14)

*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(*)
L2156400-02L	Plastic 250ml HNO3 preserved	C	<2	<2	5.5	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),HARDU(180),FE-UI(180),CU-2008T(180),SE-2008T(180),HG-U(28),AS-2008T(180),AG-2008T(180),PB-2008T(180),CR-2008T(180),SB-2008T(180)
L2156400-02M	Plastic 250ml NaOH preserved	C	>12	>12	5.5	Y	Absent		TCN-4500(14)
L2156400-02N	Amber 250ml H2SO4 preserved	C	<2	<2	5.5	Y	Absent		TPHENOL-420(28)
L2156400-02O	Amber 250ml H2SO4 preserved	C	<2	<2	5.5	Y	Absent		TPHENOL-420(28)
L2156400-02P	Amber 250ml H2SO4 preserved	C	<2	<2	5.5	Y	Absent		TPHENOL-420(28)
L2156400-02Q	Amber 250ml H2SO4 preserved	C	<2	<2	5.5	Y	Absent		TPHENOL-420(28)
L2156400-02R	Plastic 250ml unpreserved split	C	7	7	5.5	Y	Absent		-
L2156400-02S	Plastic 500ml H2SO4 preserved	C	<2	<2	5.5	Y	Absent		NH3-4500(28)
L2156400-02T	Plastic 950ml unpreserved	C	7	7	5.5	Y	Absent		SO4-4500(28),CL-300(28),HEXCR-7196(1),TRC-4500(1),PH-4500(.01)
L2156400-02U	Plastic 950ml unpreserved	C	7	7	5.5	Y	Absent		SO4-4500(28),CL-300(28),HEXCR-7196(1),TRC-4500(1),PH-4500(.01)
L2156400-02V	Plastic 950ml unpreserved	C	7	7	5.5	Y	Absent		TSS-2540(7)
L2156400-02W	Amber 1000ml Na2S2O3	C	7	7	5.5	Y	Absent		PCB-608.3(365)
L2156400-02X	Amber 1000ml Na2S2O3	C	7	7	5.5	Y	Absent		PCB-608.3(365)
L2156400-02X1	Plastic 120ml HNO3 preserved Filtrates	C	NA		5.5	Y	Absent		HOLD-METAL-DISSOLVED(180)
L2156400-02Y	Amber 1000ml Na2S2O3	C	7	7	5.5	Y	Absent		625.1-RGP(7)
L2156400-02Z	Amber 1000ml Na2S2O3	C	7	7	5.5	Y	Absent		625.1-RGP(7)
L2156400-03A	Amber 120ml unpreserved	A	7	7	3.5	Y	Absent		SALINITY(28)
L2156400-03B	Plastic 250ml unpreserved	A	7	7	3.5	Y	Absent		PH-4500(.01)
L2156400-03C	Plastic 250ml HNO3 preserved	A	<2	<2	3.5	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),AS-2008T(180),SE-2008T(180),HG-U(28),AG-2008T(180),PB-2008T(180),CR-2008T(180),SB-2008T(180)
L2156400-03D	Plastic 500ml H2SO4 preserved	A	<2	<2	3.5	Y	Absent		NH3-4500(28)

*Values in parentheses indicate holding time in days

Project Name:	XMBLY	**Lab Number:**	L2156400
Project Number:	4675.00	**Report Date:**	10/28/21

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:	XMBLY	**Lab Number:**	L2156400
Project Number:	4675.00	**Report Date:**	10/28/21

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:	XMBLY	**Lab Number:**	L2156400
Project Number:	4675.00	**Report Date:**	10/28/21

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:	XMBLY	**Lab Number:**	L2156400
Project Number:	4675.00	**Report Date:**	10/28/21

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: 10/14/21

ALPHA Job #: L2156400

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 01886

Phone: 978-577-1037

Email: cdisenhof@sanbornhead.com

Project Information

Project Name: XMPLY

Project Location: Somerville MA

Project #: 4675.00

Project Manager: C. Disenhof

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 _____

Additional Project Information:
*NPDES RGP minimum levels must be met

ANALYSIS

VOC: ☐ 8260 ☐ 624 ☐ 524.2
SVOC: ☐ ABN ☐ PAH
METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15
METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13
EPH: ☐ Ranges & Targets ☐ Ranges Only
VPH: ☐ Ranges & Targets ☐ Ranges Only
☐ PCB ☐ PEST
TPH: ☐ Quant Only ☐ Fingerprint
NPDES RGP Package
pH, Surfate, Hardness
Ethanol
Ammonia, pH, Salinity
Total metals *
NPDES RGP Dissolved Metals *

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

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	Sample Comments
56400-01	SH-201W	10/14/21	12:17 pm	GW	LGG	H = hold
-02	SH-206W	↓	1:24 pm	GW	LGG	H = hold
-03	Mystic River, Somerville, MA	↓	2:40 pm	SW	LGG	

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
Lauren Guiry	10/14/21 17:33		10/17 1735

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

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

ALPHA ANALYTICAL
World Class Chemistry

Subcontract Chain of Custody

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

Alpha Job Number
L2156400

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: L2156400

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
	SH-201W	10-14-21 12:17	WATER	Ethanol by EPA 1671 Revision A	
	SH-206W	10-14-21 13:24	WATER	Ethanol by EPA 1671 Revision A	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		10/18/21		
Form No: AL_subcoc				

Teklab, Inc.
Environmental Laboratory

http://www.teklabinc.com/

October 22, 2021

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

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

RE: L2156400 **WorkOrder:** 21101071

Dear Scott Enright:

TEKLAB, INC received 2 samples on 10/19/2021 10:36:00 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

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

Report Contents

http://www.teklabinc.com/

Client: Alpha Analytical
Client Project: L2156400

Work Order: 21101071
Report Date: 22-Oct-21

This reporting package includes the following:

Teklab, Inc. Environmental Laboratory

Definitions

http://www.teklabinc.com/

Client: Alpha Analytical **Work Order:** 21101071

Client Project: L2156400 **Report Date:** 22-Oct-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)

Teklab, Inc. Environmental Laboratory

Definitions

http://www.teklabinc.com/

Client: Alpha Analytical

Work Order: 21101071

Client Project: L2156400

Report Date: 22-Oct-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	

Teklab, Inc.
Environmental Laboratory

Case Narrative

http://www.teklabinc.com/

Client: Alpha Analytical
Client Project: L2156400

Work Order: 21101071
Report Date: 22-Oct-21

Cooler Receipt Temp: 0.6 °C

Locations

Collinsville

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

Springfield

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

Kansas City

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

Collinsville Air

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

Chicago

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

Teklab, Inc. Environmental Laboratory

Accreditations

http://www.teklabinc.com/

Client: Alpha Analytical

Client Project: L2156400

Work Order: 21101071

Report Date: 22-Oct-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		5/31/2021	Collinsville
Kentucky	UST	0073		1/31/2022	Collinsville
Missouri	MDNR	00930		5/31/2021	Collinsville
Missouri	MDNR	930		1/31/2022	Collinsville

Teklab, Inc. Environmental Laboratory

Laboratory Results

http://www.teklabinc.com/

Client: Alpha Analytical
Work Order: 21101071
Client Project: L2156400
Report Date: 22-Oct-21
Lab ID: 21101071-001
Client Sample ID: SH-201W
Matrix: AQUEOUS
Collection Date: 10/14/2021 12:17

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	10/20/2021 10:36	R301539

Teklab, Inc. Environmental Laboratory

Laboratory Results

http://www.teklabinc.com/

Client: Alpha Analytical
Work Order: 21101071
Client Project: L2156400
Report Date: 22-Oct-21
Lab ID: 21101071-002
Client Sample ID: SH-206W
Matrix: AQUEOUS
Collection Date: 10/14/2021 13:24

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	10/20/2021 11:13	R301539

Teklab, Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Alpha Analytical

Client Project: L2156400

Work Order: 21101071

Report Date: 22-Oct-21

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

Batch R301539 **SampType:** MBLK Units **mg/L**

SampID: MBLK-102021

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethanol	*	20		**ND**						10/20/2021

Batch R301539 **SampType:** LCS Units **mg/L**

SampID: LCS-102021

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethanol	*	20		**270**	250.0	0	109.3	70	132	10/20/2021

Batch R301539 **SampType:** MS Units **mg/L**

SampID: 21100919-002AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethanol	*	20		**270**	250.0	0	106.6	70	132	10/20/2021

Batch R301539 **SampType:** MSD Units **mg/L** RPD Limit: **30**

SampID: 21100919-002AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ethanol	*	20		**260**	250.0	0	104.1	266.5	2.40	10/20/2021

Teklab, Inc.
Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Alpha Analytical
Client Project: L2156400

Work Order: 21101071
Report Date: 22-Oct-21

Carrier: UPS

Received By: MEK

Completed by: Mary E. Kemp
On: 19-Oct-21
Mary E. Kemp

Reviewed by: Elizabeth A. Hurley
On: 19-Oct-21
Elizabeth A. Hurley

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

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C 0.6
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.

Subcontract Chain of Custody

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

Alpha Job Number
L2156400

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

Refererice following Alpha Job Number on final report/deliverables: L2156400

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
21101071-001 ↓ 002	SH-201W SH-206W	10-14-21 12:17 10-14-21 13:24	WATER WATER	Ethanol by EPA 1671 Revision A Ethanol by EPA 1671 Revision A	

0.6°C LTG 3
DHS PR 10-19-21

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		10/18/21	Mary Kemp (WPS)	10/19/21 1030
Form No: AL_subcoc				

ANALYTICAL REPORT

Lab Number:	L2159905
Client:	Sanborn, Head & Associates, Inc. 1 Technology Park Drive Westford, MA 01886
ATTN:	Corinne Disenhof
Phone:	(978) 577-1037
Project Name:	XMBLY
Project Number:	4675.00
Report Date:	11/12/21

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

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

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

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2159905
Report Date: 11/12/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2159905-01	SH-201W	WATER	SOMERVILLE, MA	10/14/21 12:17	10/14/21
L2159905-02	SH-206W	WATER	SOMERVILLE, MA	10/14/21 13:24	10/14/21

Project Name:	XMBLY	**Lab Number:**	L2159905
Project Number:	4675.00	**Report Date:**	11/12/21

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.

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

Authorized Signature:  Caitlin Walukevich

Title: Technical Director/Representative Date: 11/12/21

METALS

Project Name: XMBLY
Project Number: 4675.00
Lab Number: L2159905
Report Date: 11/12/21

SAMPLE RESULTS

Lab ID: L2159905-01
Client ID: SH-201W
Sample Location: SOMERVILLE, MA
Sample Depth:
Matrix: Water

Date Collected: 10/14/21 12:17
Date Received: 10/14/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Iron, Dissolved	0.0590		mg/l	0.0500	--	1	11/11/21 12:33	11/11/21 22:50	EPA 3005A	3,200.8	PS
Lead, Dissolved	ND		mg/l	0.0010	--	1	11/11/21 12:33	11/11/21 22:50	EPA 3005A	3,200.8	PS
Zinc, Dissolved	ND		mg/l	0.0100	--	1	11/11/21 12:33	11/11/21 22:50	EPA 3005A	3,200.8	PS

Project Name: XMBLY
Project Number: 4675.00
Lab Number: L2159905
Report Date: 11/12/21

SAMPLE RESULTS

Lab ID: L2159905-02
Client ID: SH-206W
Sample Location: SOMERVILLE, MA
Sample Depth:
Matrix: Water

Date Collected: 10/14/21 13:24
Date Received: 10/14/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Iron, Dissolved	0.1246		mg/l	0.0500	--	1	11/11/21 12:33	11/11/21 22:55	EPA 3005A	3,200.8	PS
Lead, Dissolved	ND		mg/l	0.0010	--	1	11/11/21 12:33	11/11/21 22:55	EPA 3005A	3,200.8	PS
Zinc, Dissolved	ND		mg/l	0.0100	--	1	11/11/21 12:33	11/11/21 22:55	EPA 3005A	3,200.8	PS

Project Name: XMBLY
Project Number: 4675.00
Lab Number: L2159905
Report Date: 11/12/21

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): 01-02 Batch: WG1569600-1										
Iron, Dissolved	ND		mg/l	0.0500	--	1	11/11/21 12:33	11/11/21 22:21	3,200.8	PS
Lead, Dissolved	ND		mg/l	0.0010	--	1	11/11/21 12:33	11/11/21 22:21	3,200.8	PS
Zinc, Dissolved	ND		mg/l	0.0100	--	1	11/11/21 12:33	11/11/21 22:21	3,200.8	PS

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: XMBLY

Project Number: 4675.00

Lab Number: L2159905

Report Date: 11/12/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1569600-2								
Iron, Dissolved	108		-		85-115	-		
Lead, Dissolved	102		-		85-115	-		
Zinc, Dissolved	102		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2159905
Report Date: 11/12/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1569600-3 QC Sample: L2159776-01 Client ID: MS Sample												
Iron, Dissolved	ND	1	1.044	104		-	-		70-130	-		20
Lead, Dissolved	ND	0.53	0.5246	99		-	-		70-130	-		20
Zinc, Dissolved	0.0386	0.5	0.5383	100		-	-		70-130	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: XMBLY

Project Number: 4675.00

Lab Number: L2159905

Report Date: 11/12/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1569600-4 QC Sample: L2159776-01 Client ID: DUP Sample						
Lead, Dissolved	ND	ND	mg/l	NC		20
Zinc, Dissolved	0.0386	0.0386	mg/l	0		20

Project Name: XMBLY
Project Number: 4675.00

Lab Number: L2159905
Report Date: 11/12/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
B	Absent
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2159905-01A	Plastic 120ml HNO3 preserved Filtrates	B	<2	<2	4.2	Y	Absent		FE-2008S(180),PB-2008S(180),ZN-2008S(180)
L2159905-01X	Plastic 120ml HNO3 preserved Filtrates	B	NA		4.2	Y	Absent		-
L2159905-02A	Plastic 120ml HNO3 preserved Filtrates	C	<2	<2	5.5	Y	Absent		FE-2008S(180),ZN-2008S(180),PB-2008S(180)
L2159905-02X	Plastic 120ml HNO3 preserved Filtrates	C	NA		5.5	Y	Absent		-

*Values in parentheses indicate holding time in days

Project Name:	XMBLY	**Lab Number:**	L2159905
Project Number:	4675.00	**Report Date:**	11/12/21

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:	XMBLY	**Lab Number:**	L2159905
Project Number:	4675.00	**Report Date:**	11/12/21

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:	XMBLY	**Lab Number:**	L2159905
Project Number:	4675.00	**Report Date:**	11/12/21

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.)

Report Format: Data Usability Report

Project Name:	XMBLY	**Lab Number:**	L2159905
Project Number:	4675.00	**Report Date:**	11/12/21

REFERENCES

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

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.

L2159905 AIC 11/1/21

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 10/14/21

ALPHA Job #: L2156400

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 01886
Phone: 978-577-1037
Email: cdisenhof@sanbornhead.com

Project Information

Project Name: ASBURY
Project Location: Somerville MA
Project #: 4675.00
Project Manager: C. Disenhof
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 _____

Additional Project Information:
*NPDES RGP minimum levels must be met

ANALYSIS

VOC: ☐ 8260 ☐ 624 ☐ 524.2
SVOC: ☐ ABN ☐ PAH
METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15
METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13
EPH: ☐ Ranges & Targets ☐ Ranges Only
VPH: ☐ Ranges & Targets ☐ Ranges Only
☐ PCB ☐ PEST
TPH: ☐ Quant Only ☐ Fingerprint
NPDES RGP Package
pH, Sulfide, Hardness
Ammonia, pH, Sulfide
Total Metals
NPDES RGP Dissolved Metals

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

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	Sample Comments
59905-01	SH-201W	10/14/21	12:17 pm	GW	LGG	H = hold
-02	SH-206W	↓	1:24 pm	GW	LGG	H = hold
-03	Mystic River, Somerville, MA	↓	2:40 pm	SW	LGG	

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
Lauren Guirg	10/14/21 17:33		10/14/21 1735

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

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

ANALYTICAL REPORT

Lab Number:	L2161291
Client:	Sanborn, Head & Associates, Inc. 1 Technology Park Drive Westford, MA 01886
ATTN:	Corinne Disenhof
Phone:	(978) 577-1037
Project Name:	5 MIDDLESEX AVE
Project Number:	4675.00
Report Date:	11/22/21

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

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: 5 MIDDLESEX AVE
Project Number: 4675.00

Lab Number: L2161291
Report Date: 11/22/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2161291-01	SH-401 (0.3-5')	SOIL	SOMERVILLE, MA	11/08/21 08:15	11/08/21
L2161291-02	SH-401 (5-10')	SOIL	SOMERVILLE, MA	11/08/21 09:00	11/08/21
L2161291-03	MYSTIC RIVER SOMERVILLE MA	WATER	SOMERVILLE, MA	11/08/21 10:30	11/08/21
L2161291-04	TRIP BLANK	SOIL	SOMERVILLE, MA	11/08/21 00:00	11/08/21

Project Name: 5 MIDDLESEX AVE **Lab Number:** L2161291

Project Number: 4675.00 **Report Date:** 11/22/21

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	NO
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	N/A
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	N/A
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES

A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	YES
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	NO

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.

Project Name:	5 MIDDLESEX AVE	**Lab Number:**	L2161291
Project Number:	4675.00	**Report Date:**	11/22/21

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: 5 MIDDLESEX AVE
Project Number: 4675.00
Lab Number: L2161291
Report Date: 11/22/21

Case Narrative (continued)

MCP Related Narratives

Sample Receipt

In reference to question H:

A Matrix Spike was not submitted for the analysis of Total Metals in soil.

Volatile Organics

L2161291-01 and -02: Initial calibration utilized a quadratic fit for: cis-1,3-dichloropropene

In reference to question H:

L2161291-01 and -02: Initial Calibration did not meet:

Lowest Calibration Standard Minimum Response Factor: bromochloromethane (0.0905), trichloroethene (0.1890), bromodichloromethane (0.2076), 1,1,2-trichloroethane (0.1378)

Average Response Factor: bromochloromethane, trichloroethene, bromodichloromethane, 1,1,2-trichloroethane

L2161291-01 and -02: The associated continuing calibration standard is outside the acceptance criteria for several compounds; however, it is within overall method allowances. Associated results are considered to be biased high if the %D is negative and biased low if the %D is positive. A copy of the continuing calibration standard is included as an addendum to this report.

Total Metals

In reference to question B:

L2161291-03: At the client's request, the analytical method specified in the CAM protocol was not followed.

In reference to question I:

L2161291-03 was analyzed for a subset of MCP analytes per client request.

Hexavalent Chromium

In reference to question B:

At the client's request, the analytical method specified in the CAM protocol was not followed.

Project Name:	5 MIDDLESEX AVE	**Lab Number:**	L2161291
Project Number:	4675.00	**Report Date:**	11/22/21

Case Narrative (continued)

Non-MCP Related Narratives

Specific Conductance @ 25 C

The WG1569826-2 Laboratory Duplicate RPD for specific conductance (40%), performed on L2161291-01, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

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: Michelle M. Morris

Title: Technical Director/Representative Date: 11/22/21

QC OUTLIER SUMMARY REPORT

Project Name: 5 MIDDLESEX AVE
Project Number: 4675.00

Lab Number: L2161291
Report Date: 11/22/21

Method	Client ID (Native ID)	Lab ID	Parameter	QC Type	Recovery/RPD (%)	QC Limits (%)	Associated Samples	Data Quality Assessment
MCP Volatile Organics by EPA 5035 Low - Westborough Lab								
8260D	Batch QC	WG1574057-3	Methyl ethyl ketone	LCS	68	70-130	01-02	potential low bias
8260D	Batch QC	WG1574057-3	2-Hexanone	LCS	66	70-130	01-02	potential low bias
8260D	Batch QC	WG1574057-3	Tetrahydrofuran	LCS	66	70-130	01-02	potential low bias
8260D	Batch QC	WG1574057-3	Diethyl ether	LCS	68	70-130	01-02	potential low bias
8260D	Batch QC	WG1574057-4	Methyl ethyl ketone	LCSD	66	70-130	01-02	potential low bias
8260D	Batch QC	WG1574057-4	2-Hexanone	LCSD	66	70-130	01-02	potential low bias
8260D	Batch QC	WG1574057-4	Tetrahydrofuran	LCSD	65	70-130	01-02	potential low bias
8260D	Batch QC	WG1574057-4	Diethyl ether	LCSD	66	70-130	01-02	potential low bias
MCP Semivolatile Organics - Westborough Lab								
8270E	SH-401 (0.3-5')	L2161291-01	2,4,6-Tribromophenol	Surrogate	22	30-130	-	potential low bias
8270E	Batch QC	WG1573580-2	2,4-Dinitrophenol	LCS	28	30-130	01-02	potential low bias
MCP Polychlorinated Biphenyls - Westborough Lab								
8082A	Laboratory Method Bl	WG1573619-1	2,4,5,6-Tetrachloro-m-xylene (A)	Surrogate	264	30-150	-	potential high bias
8082A	Laboratory Method Bl	WG1573619-1	2,4,5,6-Tetrachloro-m-xylene (B)	Surrogate	278	30-150	-	potential high bias
8082A	Laboratory Method Bl	WG1573619-1	Decachlorobiphenyl (A)	Surrogate	273	30-150	-	potential high bias
8082A	Laboratory Method Bl	WG1573619-1	Decachlorobiphenyl (B)	Surrogate	282	30-150	-	potential high bias
8082A	Batch QC	WG1573619-2	2,4,5,6-Tetrachloro-m-xylene (A)	Surrogate	267	30-150	-	potential high bias
8082A	Batch QC	WG1573619-2	2,4,5,6-Tetrachloro-m-xylene (B)	Surrogate	278	30-150	-	potential high bias
8082A	Batch QC	WG1573619-2	Decachlorobiphenyl (A)	Surrogate	282	30-150	-	potential high bias
8082A	Batch QC	WG1573619-2	Decachlorobiphenyl (B)	Surrogate	291	30-150	-	potential high bias
8082A	Batch QC	WG1573619-3	2,4,5,6-Tetrachloro-m-xylene (A)	Surrogate	270	30-150	-	potential high bias
8082A	Batch QC	WG1573619-3	2,4,5,6-Tetrachloro-m-xylene (B)	Surrogate	287	30-150	-	potential high bias
8082A	Batch QC	WG1573619-3	Decachlorobiphenyl (A)	Surrogate	283	30-150	-	potential high bias
8082A	Batch QC	WG1573619-3	Decachlorobiphenyl (B)	Surrogate	297	30-150	-	potential high bias
General Chemistry - Westborough Lab								
9050A	Batch QC (L2161291-01)	WG1569826-2	Specific Conductance @ 25 C	Duplicate	40	20	01-02	non-directional bias

METALS

Project Name: 5 MIDDLESEX AVE
Lab Number: L2161291
Project Number: 4675.00
Report Date: 11/22/21

SAMPLE RESULTS

Lab ID: L2161291-03
Client ID: MYSTIC RIVER SOMERVILLE MA
Sample Location: SOMERVILLE, MA
Date Collected: 11/08/21 10:30
Date Received: 11/08/21
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											
Chromium, Total	ND		mg/l	0.00100	--	1	11/19/21 11:34	11/19/21 17:03	EPA 3005A	3,200.8	WP
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		11/19/21 17:03	NA	107,-	

Project Name: 5 MIDDLESEX AVE
Project Number: 4675.00
Lab Number: L2161291
Report Date: 11/22/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1572057-1										
Antimony, Total	ND		mg/kg	2.00	--	1	11/17/21 05:45	11/17/21 21:22	97,6010D	GD
Arsenic, Total	ND		mg/kg	0.400	--	1	11/17/21 05:45	11/17/21 21:22	97,6010D	GD
Barium, Total	ND		mg/kg	0.400	--	1	11/17/21 05:45	11/17/21 21:22	97,6010D	GD
Beryllium, Total	ND		mg/kg	0.200	--	1	11/17/21 05:45	11/17/21 21:22	97,6010D	GD
Cadmium, Total	ND		mg/kg	0.400	--	1	11/17/21 05:45	11/17/21 21:22	97,6010D	GD
Chromium, Total	ND		mg/kg	0.400	--	1	11/17/21 05:45	11/17/21 21:22	97,6010D	GD
Lead, Total	ND		mg/kg	2.00	--	1	11/17/21 05:45	11/17/21 21:22	97,6010D	GD
Nickel, Total	ND		mg/kg	1.00	--	1	11/17/21 05:45	11/17/21 21:22	97,6010D	GD
Selenium, Total	ND		mg/kg	2.00	--	1	11/17/21 05:45	11/17/21 21:22	97,6010D	GD
Silver, Total	ND		mg/kg	0.400	--	1	11/17/21 05:45	11/17/21 21:22	97,6010D	GD
Thallium, Total	ND		mg/kg	2.00	--	1	11/17/21 05:45	11/17/21 21:22	97,6010D	GD
Vanadium, Total	ND		mg/kg	0.400	--	1	11/17/21 05:45	11/17/21 21:22	97,6010D	GD
Zinc, Total	ND		mg/kg	2.00	--	1	11/17/21 05:45	11/17/21 21:22	97,6010D	GD

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1572059-1										
Mercury, Total	ND		mg/kg	0.083	--	1	11/17/21 07:50	11/18/21 07:09	97,7471B	AC

Prep Information

Digestion Method: EPA 7471B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 03 Batch: WG1572172-1										
Chromium, Total	ND		mg/l	0.00100	--	1	11/19/21 11:34	11/19/21 16:18	3,200.8	WP

Project Name: 5 MIDDLESEX AVE
Project Number: 4675.00
Lab Number: L2161291
Report Date: 11/22/21

Method Blank Analysis
Batch Quality Control

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: 5 MIDDLESEX AVE

Project Number: 4675.00

Lab Number: L2161291

Report Date: 11/22/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1572057-2 WG1572057-3 SRM Lot Number: D109-540								
Antimony, Total	145		154		19-250	6		30
Arsenic, Total	97		92		70-130	5		30
Barium, Total	90		86		75-125	5		30
Beryllium, Total	92		96		75-125	4		30
Cadmium, Total	88		91		75-125	3		30
Chromium, Total	90		92		70-130	2		30
Lead, Total	88		84		72-128	5		30
Nickel, Total	89		93		70-130	4		30
Selenium, Total	96		96		68-132	0		30
Silver, Total	97		90		68-131	7		30
Thallium, Total	88		89		68-131	1		30
Vanadium, Total	91		85		59-141	7		30
Zinc, Total	90		85		70-130	6		30
MCP Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1572059-2 WG1572059-3 SRM Lot Number: D109-540								
Mercury, Total	86		95		60-140	10		30
Total Metals - Mansfield Lab Associated sample(s): 03 Batch: WG1572172-2								
Chromium, Total	108		-		85-115	-		

INORGANICS
&
MISCELLANEOUS

Project Name: 5 MIDDLESEX AVE
Project Number: 4675.00
Lab Number: L2161291
Report Date: 11/22/21

SAMPLE RESULTS

Lab ID: L2161291-03
Client ID: MYSTIC RIVER SOMERVILLE MA
Sample Location: SOMERVILLE, MA
Sample Depth:
Matrix: Water
Date Collected: 11/08/21 10:30
Date Received: 11/08/21
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	11/09/21 01:00	11/09/21 01:15	1,7196A	KA

Project Name: 5 MIDDLESEX AVE
Project Number: 4675.00
Lab Number: L2161291
Report Date: 11/22/21

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): 03 Batch: WG1568743-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	11/09/21 01:00	11/09/21 01:12	1,7196A	KA
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1574389-1										
Sulfide, Reactive	ND		mg/kg	10	--	1	11/22/21 09:50	11/22/21 11:07	125,7.3	MJ
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1574399-1										
Cyanide, Reactive	ND		mg/kg	10	--	1	11/22/21 09:50	11/22/21 11:44	125,7.3	MJ

Lab Control Sample Analysis

Batch Quality Control

Project Name: 5 MIDDLESEX AVE

Project Number: 4675.00

Lab Number: L2161291

Report Date: 11/22/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 03 Batch: WG1568743-2								
Chromium, Hexavalent	104		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1569775-1								
pH	100		-		99-101	-		
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1569826-1								
Specific Conductance	99		-		99-101	-		
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1574389-2								
Sulfide, Reactive	87		-		60-125	-		40
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1574399-2								
Cyanide, Reactive	85		-		30-125	-		40

Matrix Spike Analysis
Batch Quality Control

Project Name: 5 MIDDLESEX AVE
Project Number: 4675.00

Lab Number: L2161291
Report Date: 11/22/21

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): 03 QC Batch ID: WG1568743-4 QC Sample: L2161291-03 Client ID: MYSTIC RIVER SOMERVILLE MA												
Chromium, Hexavalent	ND	0.1	0.107	107		-	-		85-115	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: 5 MIDDLESEX AVE
Project Number: 4675.00

Lab Number: L2161291
Report Date: 11/22/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 03 QC Batch ID: WG1568743-3 QC Sample: L2161291-03 Client ID: MYSTIC RIVER SOMERVILLE MA						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1569826-2 QC Sample: L2161291-01 Client ID: SH-401 (0.3-5')						
Specific Conductance @ 25 C	180	270	umhos/cm	**40**	Q	20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1574389-3 QC Sample: L2161291-01 Client ID: SH-401 (0.3-5')						
Sulfide, Reactive	ND	ND	mg/kg	NC		40
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1574399-3 QC Sample: L2161291-01 Client ID: SH-401 (0.3-5')						
Cyanide, Reactive	ND	ND	mg/kg	NC		40

Project Name: 5 MIDDLESEX AVE
Project Number: 4675.00

Lab Number: L2161291
Report Date: 11/22/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2161291-01A	Vial MeOH preserved	A	NA		2.0	Y	Absent		MCP-8260HLW-21(14)
L2161291-01B	Vial water preserved	A	NA		2.0	Y	Absent	08-NOV-21 20:55	MCP-8260HLW-21(14)
L2161291-01C	Vial water preserved	A	NA		2.0	Y	Absent	08-NOV-21 20:55	MCP-8260HLW-21(14)
L2161291-01D	Plastic 2oz unpreserved for TS	A	NA		2.0	Y	Absent		TS(7)
L2161291-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.0	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-CD-6010T-10(180),MCP-7471T-10(28),MCP-TL-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SB-6010T-10(180),MCP-BE-6010T-10(180),MCP-SE-6010T-10(180),MCP-V-6010T-10(180),MCP-BA-6010T-10(180),MCP-NI-6010T-10(180),MCP-PB-6010T-10(180)
L2161291-01F	Glass 500ml/16oz unpreserved	A	NA		2.0	Y	Absent		IGNIT-1030(14),REACTS(14),MCP-8082-10(365),PH-9045(1),MCP-8270-21(14),REACTCN(14),TPH-DRO-D(14),COND-9050(28)
L2161291-02A	Vial MeOH preserved	A	NA		2.0	Y	Absent		MCP-8260HLW-21(14)
L2161291-02B	Vial water preserved	A	NA		2.0	Y	Absent	08-NOV-21 20:55	MCP-8260HLW-21(14)
L2161291-02C	Vial water preserved	A	NA		2.0	Y	Absent	08-NOV-21 20:55	MCP-8260HLW-21(14)
L2161291-02D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.0	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-CD-6010T-10(180),MCP-TL-6010T-10(180),MCP-7471T-10(28),MCP-AG-6010T-10(180),MCP-SB-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BE-6010T-10(180),MCP-BA-6010T-10(180),MCP-V-6010T-10(180),MCP-PB-6010T-10(180),MCP-NI-6010T-10(180)
L2161291-02E	Glass 500ml/16oz unpreserved	A	NA		2.0	Y	Absent		IGNIT-1030(14),REACTS(14),MCP-8082-10(365),TS(7),PH-9045(1),MCP-8270-21(14),TPH-DRO-D(14),REACTCN(14),COND-9050(28)
L2161291-03A	Plastic 250ml unpreserved	A	7	7	2.0	Y	Absent		HEXCR-7196(1)
L2161291-03B	Plastic 250ml HNO3 preserved	A	<2	<2	2.0	Y	Absent		CR-2008T(180)

*Values in parentheses indicate holding time in days

Project Name: 5 MIDDLESEX AVE
Project Number: 4675.00

Lab Number: L2161291
Report Date: 11/22/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2161291-04A	Vial MeOH preserved	A	NA		2.0	Y	Absent		HOLD-8260HLW(14)
L2161291-04B	Vial water preserved	A	NA		2.0	Y	Absent	08-NOV-21 20:57	HOLD-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name:	5 MIDDLESEX AVE	**Lab Number:**	L2161291
Project Number:	4675.00	**Report Date:**	11/22/21

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:	5 MIDDLESEX AVE	**Lab Number:**	L2161291
Project Number:	4675.00	**Report Date:**	11/22/21

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:	5 MIDDLESEX AVE	**Lab Number:**	L2161291
Project Number:	4675.00	**Report Date:**	11/22/21

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:	5 MIDDLESEX AVE	**Lab Number:**	L2161291
Project Number:	4675.00	**Report Date:**	11/22/21

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.

97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.

107 Alpha Analytical - In-house calculation method.

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

125 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates IIIA, April 1998.

141 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA and IIB, November 2021.

LIMITATION OF LIABILITIES

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

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

Certification Information

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

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

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

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

Westborough Facility:

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

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

Mansfield Facility:

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

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

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

CHAIN OF CUSTODY

PAGE _____ OF _____

Date Rec'd in Lab: 11/8/21

ALPHA Job #: L2161291

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 + Associates
Address: 1 Technology Park Dr
Westford MA 01886
Phone: 978-577-1037
Email: cdisenhof@sanbornhead.com

Project Information

Project Name: 5 Middlesex Ave
Project Location: Somerville MA
Project #: 4675.00
Project Manager: C. Disenhof
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 _____

Additional Project Information:
Run TCLP if triggered

* Water sample metals - report only total Chromium + Hex + Tri Chrom.

ANALYSIS

VOC: ☐ 8260 ☐ 624 ☐ 524.2
SVOC: ☐ ABN ☐ PAH
METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15
METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13
EPH: ☐ Ranges & Targets ☐ Ranges Only
VPH: ☐ Ranges & Targets ☐ Ranges Only
☐ PCB ☐ PEST
TPH: ☐ Quant Only ☐ Fingerprint
Soil Mgmt Package 4 w MCP 14 Metals
Hex Chromium
Tri Chromium
Total ~~Metals~~ UPDES Metals *

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

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	TOTAL # BOTTLES
61291-01	SH-401 (0.3-5')	11/5/21	8:15	Soil	AW	6
-02	SH-401 (5-10')	↓	9:00	Soil	AW	6
-03	Mystic River Somerville MA	↓	10:30	Water	CRD	2
-04	Trip Blank					

Container Type														JP	P	P	P	
Preservative														AE	A	A	C	

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

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

Relinquished By:	Date/Time	Received By:	Date/Time
[signature] / SHA	11/8/21 12:36	[signature] Plun RAL	11/8/21 1336
[signature]	11/8/21 1810	[signature]	11/8/1810

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

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

Method Blank Summary
Form 4
Volatiles

Client	: Sanborn, Head & Associates, Inc.	**Lab Number**	: L2161291
Project Name	: 5 MIDDLESEX AVE	**Project Number**	: 4675.00
Lab Sample ID	: WG1574057-5	**Lab File ID**	: V17211119N04
Instrument ID	: VOA117		
Matrix	: SOIL	**Analysis Date**	: 11/19/21 19:21

Client Sample No.	Lab Sample ID	Analysis Date
WG1574057-3LCS	WG1574057-3	11/19/21 18:03
WG1574057-4LCSD	WG1574057-4	11/19/21 18:29
SH-401 (0.3-5')	L2161291-01	11/19/21 21:05
SH-401 (5-10')	L2161291-02	11/19/21 21:31

Calibration Verification Summary
Form 7
Volatiles

Client	: Sanborn, Head & Associates, Inc.	**Lab Number**	: L2161291		
Project Name	: 5 MIDDLESEX AVE	**Project Number**	: 4675.00		
Instrument ID	: VOA117	**Calibration Date**	: 11/19/21 18:03		
Lab File ID	: V17211119N01	**Init. Calib. Date(s)**	: 10/05/21	10/06/21	
Sample No	: WG1574057-2	**Init. Calib. Times**	: 20:38	00:06	
Channel	:				

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Fluorobenzene	1	1	-	0	20	79	0
Dichlorodifluoromethane	0.209	0.176	-	15.8	20	64	0
Chloromethane	0.359	0.284	-	20.9*	20	63	0
Vinyl chloride	0.254	0.203	-	20.1*	20	62	0
Bromomethane	0.123	0.092	-	25.2*	20	65	0
Chloroethane	0.118	0.098	-	16.9	20	64	0
Trichlorofluoromethane	0.247	0.252	-	-2	20	76	0
Ethyl ether	0.081	0.055	-	32.1*	20	51	0
1,1-Dichloroethene	0.172	0.159	-	7.6	20	70	0
Carbon disulfide	0.56	0.487	-	13	20	70	0
Freon-113	0.168	0.175	-	-4.2	20	78	0
Methylene chloride	0.206	0.175	-	15	20	69	0
Acetone	40	31.206	-	22*	20	52	0
trans-1,2-Dichloroethene	0.196	0.18	-	8.2	20	71	0
Methyl acetate	0.12	0.083	-	30.8*	20	51	0
Methyl tert-butyl ether	0.431	0.395	-	8.4	20	66	0
tert-Butyl alcohol	0.017	0.014	-	17.6	20	58	0
Diisopropyl ether	0.753	0.671	-	10.9	20	65	0
1,1-Dichloroethane	0.417	0.384	-	7.9	20	71	-.01
Halothane	0.141	0.137	-	2.8	20	74	0
Acrylonitrile	0.063	0.049	-	22.2*	20	53	0
Ethyl tert-butyl ether	0.629	0.647	-	-2.9	20	73	0
Vinyl acetate	0.433	0.348	-	19.6	20	57	0
cis-1,2-Dichloroethene	0.213	0.192*	-	9.9	20	69	0
2,2-Dichloropropane	0.272	0.275	-	-1.1	20	78	0
Bromochloromethane	0.09	0.081*	-	10	20	68	0
Cyclohexane	0.425	0.418	-	1.6	20	72	0
Chloroform	0.344	0.335	-	2.6	20	73	0
Ethyl acetate	0.164	0.123	-	25*	20	54	0
Carbon tetrachloride	0.262	0.275	-	-5	20	78	0
Tetrahydrofuran	40	26.327	-	34.2*	20	48	0
Dibromofluoromethane	0.254	0.26	-	-2.4	20	81	0
1,1,1-Trichloroethane	0.288	0.297	-	-3.1	20	78	-.01
2-Butanone	0.081	0.055	-	32.1*	20	50	0
1,1-Dichloropropene	0.241	0.24	-	0.4	20	73	0
Benzene	0.741	0.684	-	7.7	20	70	-.01
tert-Amyl methyl ether	0.416	0.419	-	-0.7	20	73	0
1,2-Dichloroethane-d4	0.258	0.268	-	-3.9	20	81	0
1,2-Dichloroethane	0.253	0.235	-	7.1	20	71	0
Methyl cyclohexane	0.3	0.32	-	-6.7	20	77	-.01
Trichloroethene	0.196	0.186*	-	5.1	20	72	0
Dibromomethane	0.099	0.088	-	11.1	20	67	0
1,2-Dichloropropane	0.23	0.209	-	9.1	20	69	0

* Value outside of QC limits.

Calibration Verification Summary
Form 7
Volatiles

Client	: Sanborn, Head & Associates, Inc.	**Lab Number**	: L2161291		
Project Name	: 5 MIDDLESEX AVE	**Project Number**	: 4675.00		
Instrument ID	: VOA117	**Calibration Date**	: 11/19/21 18:03		
Lab File ID	: V17211119N01	**Init. Calib. Date(s)**	: 10/05/21	10/06/21	
Sample No	: WG1574057-2	**Init. Calib. Times**	: 20:38	00:06	
Channel	:				

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Bromodichloromethane	0.239	0.232*	-	2.9	20	71	0
1,4-Dioxane	2000	1545.93	-	22.7*	20	60	0
cis-1,3-Dichloropropene	40	35.84	-	10.4	20	71	0
Chlorobenzene-d5	1	1	-	0	20	80	0
Toluene-d8	1.31	1.343	-	-2.5	20	82	0
Toluene	0.636	0.584	-	8.2	20	71	0
4-Methyl-2-pentanone	40	28.857	-	27.9*	20	58	0
Tetrachloroethene	0.264	0.255	-	3.4	20	73	0
trans-1,3-Dichloropropene	40	34.874	-	12.8	20	69	0
Ethyl methacrylate	40	31.474	-	21.3*	20	63	0
1,1,2-Trichloroethane	0.159	0.14*	-	11.9	20	65	0
Chlorodibromomethane	40	34.636	-	13.4	20	69	0
1,3-Dichloropropane	0.325	0.29	-	10.8	20	65	0
1,2-Dibromoethane	40	33.287	-	16.8	20	65	0
2-Hexanone	40	26.46	-	33.8*	20	53	0
Chlorobenzene	0.7	0.642	-	8.3	20	71	0
Ethylbenzene	1.176	1.124	-	4.4	20	72	0
1,1,1,2-Tetrachloroethane	0.241	0.242	-	-0.4	20	73	0
p/m Xylene	0.439	0.424	-	3.4	20	70	0
o Xylene	0.413	0.403	-	2.4	20	71	0
Styrene	0.664	0.664	-	0	20	70	0
1,4-Dichlorobenzene-d4	1	1	-	0	20	78	0
Bromoform	40	33.962	-	15.1	20	65	0
Isopropylbenzene	2.244	2.271	-	-1.2	20	73	0
4-Bromofluorobenzene	0.895	0.931	-	-4	20	80	0
Bromobenzene	0.551	0.51	-	7.4	20	69	0
n-Propylbenzene	2.659	2.618	-	1.5	20	72	0
1,4-Dichlorobutane	0.898	0.743	-	17.3	20	59	0
1,1,2,2-Tetrachloroethane	0.433	0.368	-	15	20	59	0
4-Ethyltoluene	2.177	2.23	-	-2.4	20	75	0
2-Chlorotoluene	1.571	1.498	-	4.6	20	70	0
1,3,5-Trimethylbenzene	1.871	1.874	-	-0.2	20	73	0
1,2,3-Trichloropropane	0.335	0.285	-	14.9	20	60	0
trans-1,4-Dichloro-2-buten	0.146	0.132	-	9.6	20	64	0
4-Chlorotoluene	1.638	1.57	-	4.2	20	72	0
tert-Butylbenzene	1.652	1.663	-	-0.7	20	73	0
1,2,4-Trimethylbenzene	1.85	1.851	-	-0.1	20	72	0
sec-Butylbenzene	2.495	2.464	-	1.2	20	72	0
p-Isopropyltoluene	2.097	2.133	-	-1.7	20	73	0
1,3-Dichlorobenzene	1.092	1.014	-	7.1	20	70	0
1,4-Dichlorobenzene	1.118	0.991	-	11.4	20	69	0
p-Diethylbenzene	1.243	1.279	-	-2.9	20	74	0
n-Butylbenzene	1.89	1.85	-	2.1	20	71	0

* Value outside of QC limits.

Calibration Verification Summary
Form 7
Volatiles

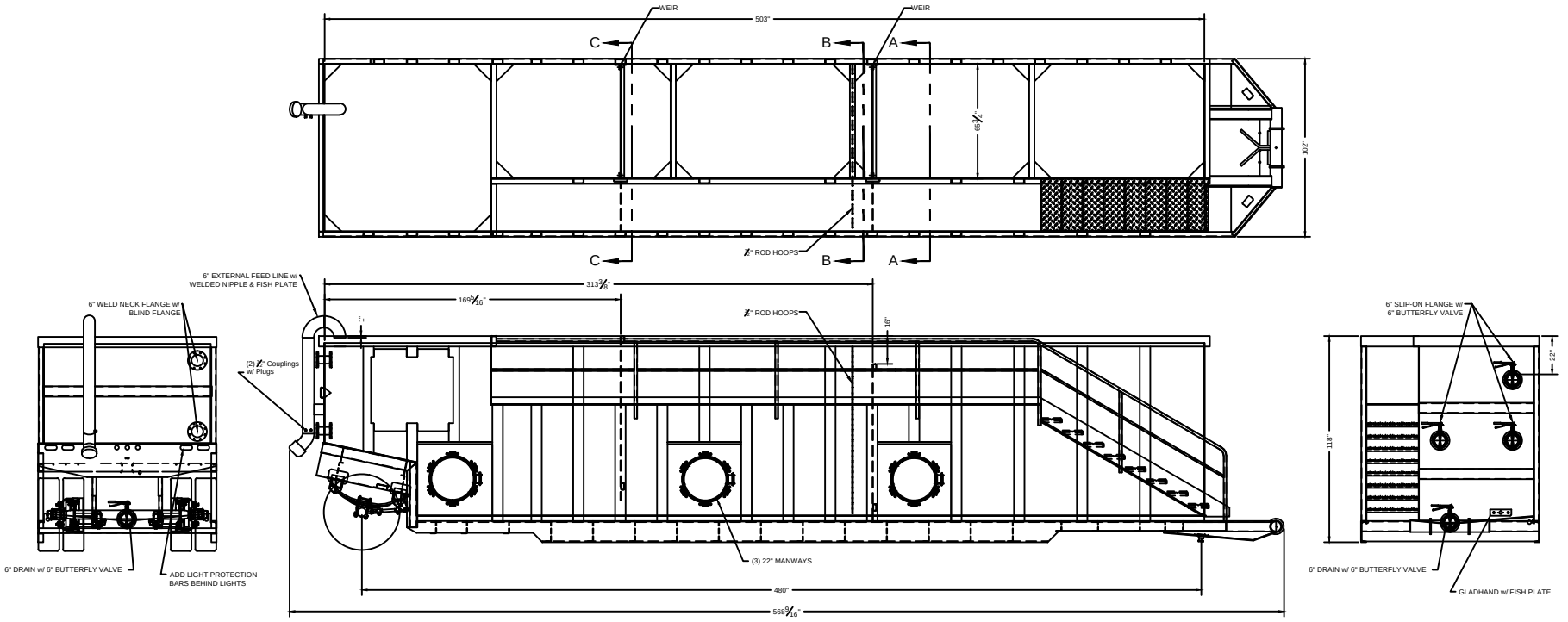
Client	: Sanborn, Head & Associates, Inc.	**Lab Number**	: L2161291	
Project Name	: 5 MIDDLESEX AVE	**Project Number**	: 4675.00	
Instrument ID	: VOA117	**Calibration Date**	: 11/19/21 18:03	
Lab File ID	: V17211119N01	**Init. Calib. Date(s)**	: 10/05/21	10/06/21
Sample No	: WG1574057-2	**Init. Calib. Times**	: 20:38	00:06
Channel	:			

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
1,2-Dichlorobenzene	1.011	0.924	-	8.6	20	69	0
1,2,4,5-Tetramethylbenzene	1.986	2.018	-	-1.6	20	73	0
1,2-Dibromo-3-chloropropan	40	28.741	-	28.1*	20	57	0
1,3,5-Trichlorobenzene	0.802	0.777	-	3.1	20	73	0
Hexachlorobutadiene	0.401	0.404	-	-0.7	20	75	0
1,2,4-Trichlorobenzene	0.73	0.672	-	7.9	20	67	0
Naphthalene	1.516	1.355	-	10.6	20	61	0
1,2,3-Trichlorobenzene	0.667	0.611	-	8.4	20	66	0

*** Value outside of QC limits.**

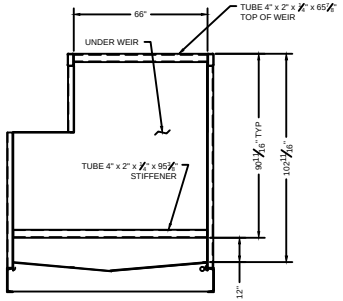
Appendix C

Cutsheets and SDSs

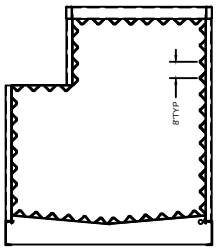


STANDARD SPECIFICATION

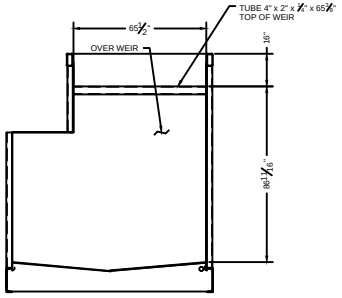
CAPACITY: .... 18,480 GALLONS (440 BBL)
SIDE SHEETS: .... 1/4" A36 PLATE
FRONT SHEET: .... 1/4" A36 PLATE
REAR SHEET: .... 1/4" A36 PLATE
FLOOR: .... 1/4" A36 PLATE
MAIN FLOOR RAILS: .... 12" x 20.7# STRUCTURAL CHANNEL
FLOOR CROSSMEMBERS: .... 1/4" A36 PLATE
SIDE STAKES: .... ONE PIECE 3/16" A36 PLATE
SUSPENSION: .... 3 LEAF SPRING, 22,500 LBS. CACPACITY
AXLE: .... 77.5" TRACK, 22,500 LBS. CAPACITY
TIRES: .... 11R22.5 RADIAL
WHEELS: .... 8.25 x 22.5 STEEL
MANWAYS: .... 3 - 22" DIA. CURB SIDE
VALVES: .... 3 - 6" BUTTERFLY VALVE (FRONT)
1 - 6" DRAIN BUTTERFLY VALVE (FRONT)
1 - 6" DRAIN BUTTERFLY VALVE (REAR)
2 - 6" BLIND FLANGE CONNECTION (REAR)
INLET PIPING: .... 1 - 6" PIPE SYSTEM (REAR)
BLAST: .... (INTERIOR) SSPC-SP-10 (NEAR WHITE)
(EXTERIOR) SSPC-SP-6 (COMMERCIAL BLAST)
PAINT: .... (INTERIOR) EPOXYPHENOLIC 100% SOLID 20.0 MILS D.F.T.
(EXTERIOR) FINISH COAT POLURETHANE 4.0 TO 5.0 D.F.T.



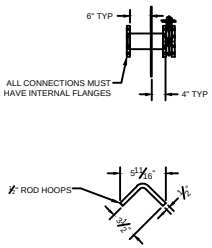
SECTION VIEW "C-C"



SECTION VIEW "B-B"



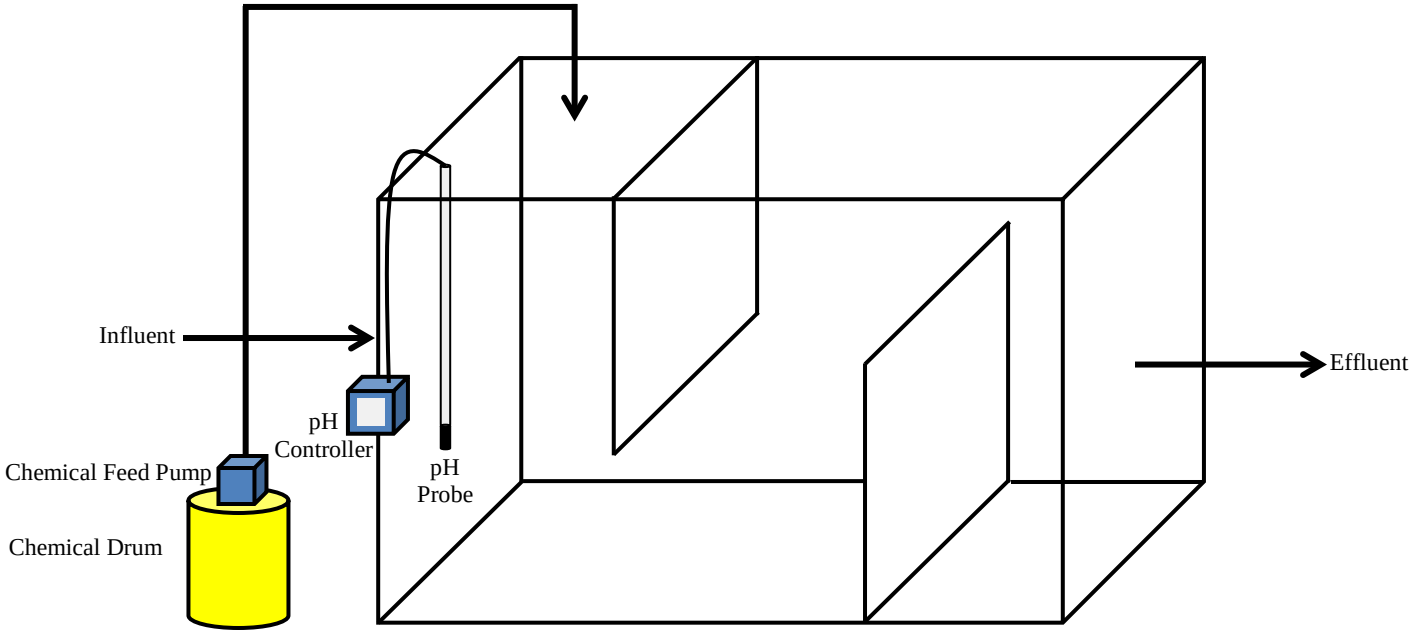
SECTION VIEW "A-A"



18,000 Gal. Weir Tank

Lockwood Remediation Technologies, LLC

89 Crawford Street
Leominster, Massachusetts 01453
O: 774-450-7177
F: 888-835-0617



Notes:

1.) Figure is not to scale.
2.) System layout can vary with site conditions.

89 Crawford Street
Leominster, Massachusetts 01453
Tel: 774.450.7177
Fax: 888.835.0617
www.lrt-llc.net

Configuration of pH Adjustment System

Lockwood Remediation Technologies, LLC

One Controller for the Broadest Range of Sensors.

Choose from 30 digital and analog sensor families for up to 17 di:erent parameters.

Maximum Versatility

The sc200 controller allows the use of digital and analog sensors, either alone or in combination, to provide compatibility with Hach's broad range of sensors, eliminating the need for dedicated, parameter-specific controllers.

Ease of Use and Confidence in Results

Large, high-resolution, transreflective display provides optimal viewing resolution in any lighting condition. Guided calibration procedures in 19 languages minimize complexity and reduce operator error. Password-protected SD card reader o:ers a simple solution for data download and transfer. Visual warning system provides critical alerts.

Wide Variety of Communication Options

Utilize two to five analog outputs to transmit primary and secondary values for each sensor, or integrate Hach sensors and analyzers into MODBUS RS232/RS485, Profibus® DP, and HART networks.

Password protected SD card reader offers a simple solution for data download and transfer, and sc200 and digital sensor configuration file duplication and backup.

Controller Comparison

Features	Previous Models sc100™ Controller	Previous Models GLI53 Controller	sc200™ Controller	Benefits
Display	64 x 128 pixels 33 x 66 mm (1.3 x 2.6 in.)	64 x 128 pixels 33 x 66 mm (1.3 x 2.6 in.)	160 x 240 pixels 48 x 68 mm (1.89 x 2.67 in.) Transreflective	• Improved user interface—50% bigger • Easier to read in daylight and sunlight
Data Management	irDA Port/PDA Service Cable	N/A	SD Card Service Cable	• Simplifies data transfer • Standardized accessories/max compatibility
Sensor Inputs	2 Max Direct Digital Analog via External Gateway	2 Max Analog Depending on Parameter	2 Max Digital and/or Analog with Sensor Card	• Simplifies analog sensor connections • Works with analog and digital sensors
Analog Inputs	N/A	N/A	1 Analog Input Signal Analog 4-20mA Card	• Enables non-sc analyzer monitoring • Accepts mA signals from other analyzers for local display • Consolidates analog mA signals to a digital output
4-20 mA Outputs	2 Standard	2 Standard	2 Standard Optional 3 Additional	• Total of five (5) 4-20 mA outputs allows multiple mA outputs per sensor input
Digital Communication	MODBUS RS232/RS485 Profibus DP V1.0	HART	MODBUS RS232/RS485 Profibus DP V1.0 HART 7.2	• Unprecedented combination of sensor breadth and digital communication options

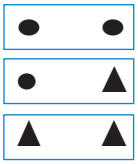
Choose from Hach's Broad Range of Digital and Analog Sensors

Parameter	Sensor	Digital or Analog
Ammonia	AMTAX™ sc, NH4D sc, AISE sc, AN-ISE sc	●
Chlorine	CLF10 sc, CLT10 sc, 9184 sc	●
Chlorine Dioxide	9185 sc	●
Conductivity	GLI 3400 Contacting, GLI 3700 Inductive	▲
Dissolved Oxygen	LDO® Model 2, 5740 sc	●
Dissolved Oxygen	5500	▲
Flow	U53, F53 Sensors	▲
Nitrate	NITRATAX™ sc, NO3D sc, NISE sc, AN-ISE sc	●
Oil in Water	FP360 sc	●
Organics	UVAS sc	●
Ozone	9187 sc	●
pH/ORP	pHD	●
pH/ORP	pHD, pH Combination, LCP	▲
Phosphate	PHOSPHAX™ sc	●
Sludge Level	SONATAX™ sc	●
Suspended Solids	SOLITAX™ sc, TSS sc	●
Turbidity	1720E, FT660 sc, SS7 sc, ULTRATURB sc, SOLITAX sc, TSS sc	●
Ultra Pure Conductivity	8310, 8311, 8312, 8315, 8316, 8317 Contacting	▲
Ultra Pure pH/ORP	8362	▲

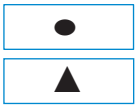
● = Digital ▲ = Analog

Connect up to two of any of the sensors listed above, in any combination, to meet your application needs. The diagrams below demonstrate the potential configurations. Operation of analog sensors requires the controller to be equipped with the appropriate sensor module. Contact Hach Technical Support for help with selecting the appropriate module.

2 Channel Configurations



1 Channel Configurations



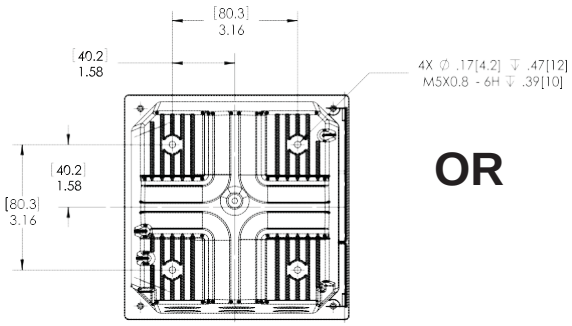
Specifications*

Dimensions (H x W x D)	5.7 in x 5.7 in x 7.1 in (144 mm x 144 mm x 181 mm)
Display	Graphic dot matrix LCD with LED backlighting, transreflective
Display Size	1.9 x 2.7 in. (48 mm x 68 mm)
Display Resolution	240 x 160 pixels
Weight	3.75 lbs. (1.70 kg)
Power Requirements (Voltage)	100 - 240 V AC, 24 V DC
Power Requirements (Hz)	50/60 Hz
Operating Temperature Range	-20 to 60 °C , 0 to 95% RH non-condensing
Analog Outputs	Two (Five with optional expansion module) to isolated current outputs, max 550 Ω , Accuracy: ± 0.1% of FS (20mA) at 25 °C, ± 0.5% of FS over -20 °C to 60 °C range Operational Mode: measurement or calculated value
Analog Output Functional Mode	Linear, Logarithmic, Bi-linear, PID
Security Levels	2 password-protected levels
Mounting Configurations	Wall, pole, and panel mounting
Enclosure Rating	NEMA 4X/IP66
Conduit Openings	1/2 in NPT Conduit
Relay: Operational Mode	Primary or secondary measurement, calculated value (dual channel only) or timer
Relay Functions	Scheduler (Timer), Alarm, Feeder Control, Event Control, Pulse Width Modulation, Frequency Control, and Warning
Relays	Four electromechanical SPDT (Form C) contacts, 1200 W, 5 A
Communication	MODBUS RS232/RS485, PROFIBUS DPV1, or HART 7.2 optional
Memory Backup	Flash memory
Electrical Certifications	EMC CE compliant for conducted and radiated emissions: - CISPR 11 (Class A limits) - EMC Immunity EN 61326-1 (Industrial limits) Safety cETLus safety mark for: - General Locations per ANSI/UL 61010-1 & CAN/CSA C22.2. No. 61010-1 - Hazardous Location Class I, Division 2, Groups A,B,C & D (Zone 2, Group IIC) per FM 3600 / FM 3611 & CSA C22.2 No. 213 M1987 with approved options and appropriately rated Class I, Division 2 or Zone 2 sensors cULus safety mark - General Locations per UL 61010-1 & CAN/CSA C22.2. No. 61010-1

**Subject to change without notice.*

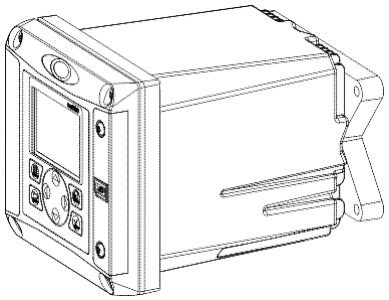
Dimensions

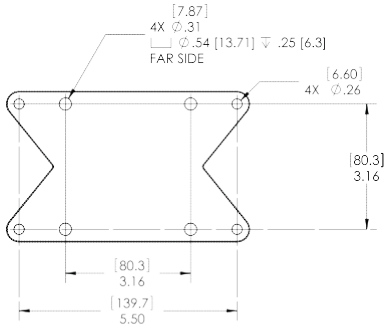
Surface Mounting Dimensions



Mounting Dimensions
(Rear View)

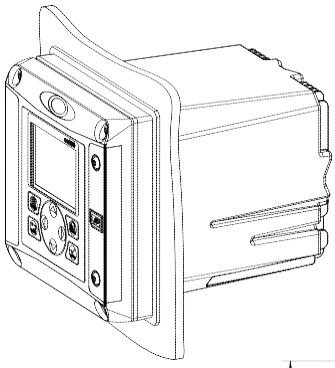
OR

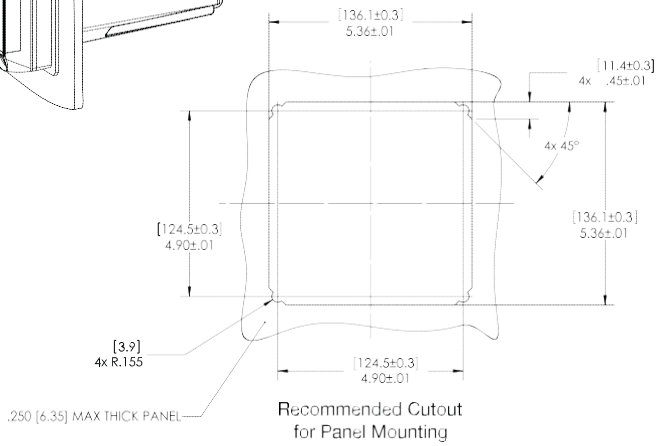




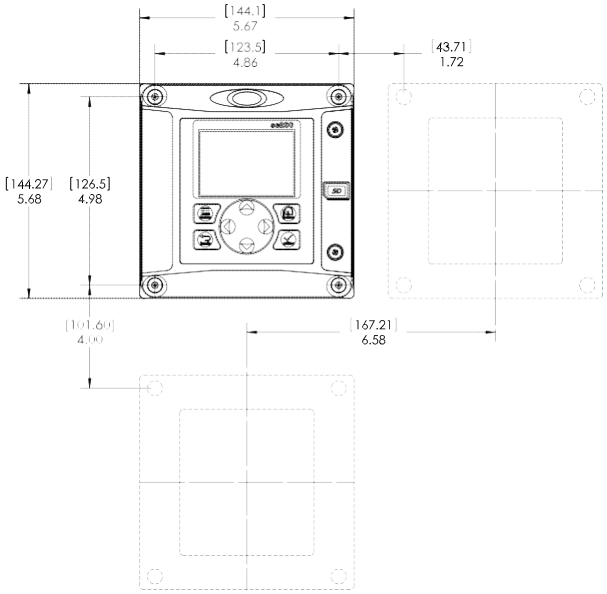
Bracket (supplied) for Surface Mounting
(Not compatible with Weather and Sun Shield p/n 9220600 when surface mounting.)

Panel Mounting Dimensions



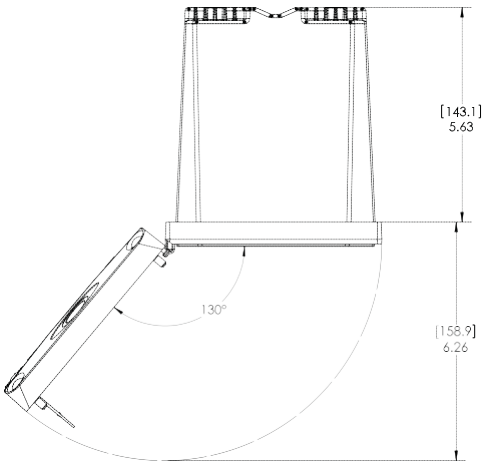


Recommended Cutout
for Panel Mounting

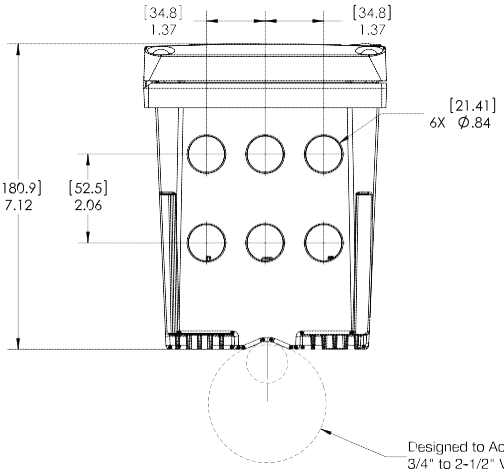


Minimum Spacing Dimensions
for Group Mounting

Top and Bottom Views

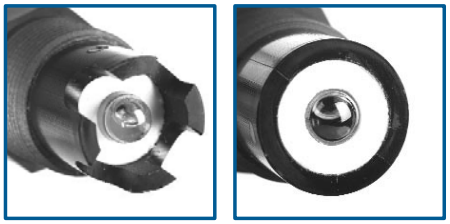


Door Opening Details



3/4-inch Combination pH and ORP Sensor Kits

Use the Digital Gateway to make any Hach analog combination pH or ORP sensor compatible with the Hach sc1000 Controller.



Digital combination pH and ORP sensors are available in convertible, insertion, and sanitary mounting styles. Choose from rugged dome electrodes or "easy-to-clean" flat glass electrodes.

Features and Benefits

Low Price—High Performance

These combination sensors are designed for specialty applications for immersion or in-line mounting. The reference cell features a double-junction design for extended service life, and a built-in solution ground. The body is molded from chemically-resistant Ryton® or PVDF, and the reference junction is coaxial porous Teflon®. All sensors are rated 0 to 105ºC up to 100 psig, and have integral 4.5 m (15 ft.) cables with tinned leads. The PC-series (for pH) and RC-series (for ORP) combination sensors are ideal for measuring mild and aggressive media.

Special Electrode Configurations

Sensors with rugged dome electrodes, "easy-to-clean" flat glass electrodes, and even HF (hydrofluoric acid) resistant glass electrodes are available for a wide variety of process solutions.

Temperature Compensation Element Option

The PC-series combination pH sensors are available with or without a Pt 1000 ohm RTD temperature element. The RC-series combination ORP sensors are supplied without a temperature element.

Versatile Mounting Styles

Sensors are available in three mounting styles—convertible, insertion, and sanitary. Please turn to page 3 for more information.

Full-Featured "Plug and Play" Hach sc Digital Controllers

There are no complicated wiring or set up procedures with any Hach sc controller. Just plug in any combination of Hach digital sensors and it's ready to use—it's "plug and play."

One or multiple sensors—The sc controller family allows you to receive data from up to eight Hach digital sensors in any combination using a single controller.

Communications—Multiple alarm/control schemes are available using the relays and PID control outputs. Available communications include analog 4-20 mA, digital MODBUS® (RS485 and RS232) or Profibus DP protocols. (Other digital protocols are available. Contact your Hach representative for details.)

Data logger—A built-in data logger collects measurement data, calibration, verification points, and alarm history.

Specifications*

Most pH applications fall in the 2.5-12.5 pH range. General purpose pH glass electrodes perform well in this range. Some industrial applications require accurate measurements and control at pH values below 2 or above 12. Consult Hach Technical Support for details on these applications.

Combination pH Sensors

Measuring Range
0 to 14 pH

Accuracy
Less than 0.1 pH under reference conditions

Temperature Range
0 to 105ºC (32 to 221ºF)

Flow Rate
0 to 2 m/s (0 to 6.6 ft./s); non-abrasive

Pressure Range
0 to 6.9 bar at 100ºC (0 to 100 psig at 212ºF)

Signal Transmission Distance
100 m (328 ft.) when used with the Hach Digital Gateway and a Hach sc Digital Controller.

1000 m (3280 ft.) when used with the Hach Digital Gateway, Termination Box, and a Hach sc Digital Controller.

Sensor Cable
Integral coaxial cable (plus two conductors for temperature compensator option); 4.5 m (15 ft.) long

Wetted Materials

Convertible style: Ryton® body (glass filled)

Insertion style: PVDF body (Kynar®)

Sanitary style: 316 stainless steel sleeved PVDF body

Common materials for all sensor styles include PTFE Teflon double junction, glass process electrode, and Viton® O-rings

Warranty
90 days

Combination ORP Sensors

Measuring Range
-2000 to +2000 millivolts

Accuracy
Limited to calibration solution accuracy (± 20 mV)

Temperature Range
0 to 105ºC (32 to 221ºF)

Flow Rate
0 to 2 m/s (0 to 6.6 ft./s); non-abrasive

Pressure Range
0 to 6.9 bar at 100ºC (0 to 100 psig at 212ºF)

Signal Transmission Distance
100 m (328 ft.) when used with the Hach Digital Gateway and a Hach sc Digital Controller.

1000 m (3280 ft.) when used with the Hach Digital Gateway, Termination Box, and a Hach sc Digital Controller.

Sensor Cable
Integral coaxial cable; 4.5 m (15 ft.) long; terminated with stripped and tinned wires

Wetted Materials

Convertible style: Ryton® body (glass filled)

Insertion style: PVDF body (Kynar®)

Common materials for all sensor styles include PTFE Teflon double junction, glass with platinum process electrode, and Viton® O-rings

Warranty
90 days

**Specifications subject to change without notice.*

Ryton® is a registered trademark of Phillips 66 Co.; Viton® is a registered trademark of E.I. DuPont de Nemours + Co.; Kynar® is a registered trademark of Pennwalt Corp.

Engineering Specifications

1. The pH sensor shall be available in convertible, insertion or sanitary styles. The ORP sensor shall be available in only convertible or insertion styles.
2. The convertible style sensor shall have a Ryton® body. The insertion style sensor shall have a PVDF body. The sanitary style sensor shall have a 316 stainless steel sleeved PVDF body. Common materials for all sensor styles shall include a PTFE Teflon® double junction, and Viton® O-rings. The pH sensor shall have a glass pH electrode. The ORP sensor shall have a platinum ORP electrode.
3. The convertible style pH sensor shall be available with or without a built-in Pt 1000 ohm RTD temperature element. Insertion and sanitary style pH sensors shall have a built-in Pt 1000 ohm RTD temperature element. Convertible and insertion style ORP sensors shall not have a built-in temperature element.
4. The sensor shall communicate via MODBUS® RS-485 to a Hach sc Digital Controller.
5. The sensor shall be Hach Company Model PC sc or PC-series for pH measurement or Model PC sc or RC-series for ORP measurement.

Dimensions

Convertible Style Sensor

The convertible style sensor has a Ryton® body that features 3/4-inch NPT threads on both ends. The sensor can be directly mounted into a standard 3/4-inch pipe tee for flow-through mounting or fastened onto the end of a pipe for immersion mounting. The convertible style sensor enables inventory consolidation, thereby reducing associated costs. Mounting tees and immersion mounting hardware are offered in a variety of materials to suit application requirements.

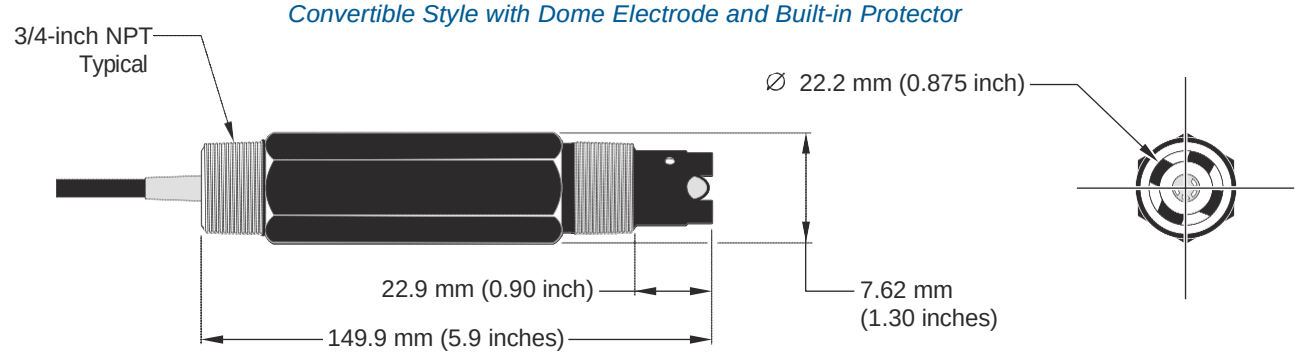
Insertion Style Sensor

Insertion style sensors feature a longer, non-threaded PVDF body with two Viton® O-rings, providing a seal when used with the optional Hach insertion mount hardware assembly. This ball valve hardware enables sensor insertion and retraction from a pipe or vessel without having to stop the process flow.

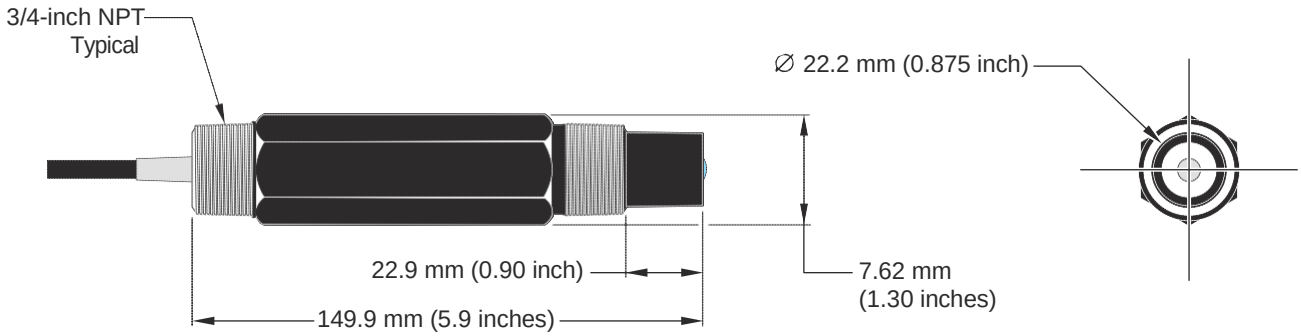
Sanitary Style Sensor

The sanitary style sensor, offered for pH measurement, has a 316 stainless steel-sleeved PVDF body with a 2-inch flange. The sensor mates to a standard 2-inch Tri-Clover fitting. The optional Hach sanitary mounting hardware includes a standard 2-inch sanitary tee, sanitary clamp, and Viton® sanitary gasket.

Convertible Style with Dome Electrode and Built-in Protector



Convertible Style with Flat Electrode



Lockwood Remediation Technologies, LLC

The Pulsatron Series A Plus offers manual function controls over stroke length and stroke rate as standard with the option to select external pace for automatic control.

Ten distinct models are available, having pressure capabilities to 250 PSIG (17 BAR) @ 12 GPO (1.9 lph), and flow capacities to 58 GPO (9.1 lph) @ 100 PSIG (7.0 BAR), with a standard turndown ratio of 100:1, and optional ratio of 1000:1. Metering performance is reproducible to within ± 3% of maximum capacity.

Features

- Manual Control by on-line adjustable stroke rate and stroke length.
- Highly Reliable timing circuit.
- Circuit Protection against voltage and current upsets.
- Solenoid Protection by thermal overload with auto-reset.
- Water Resistant, for outdoor and indoor applications.
- Internally Dampened To Reduce Noise.
- Guided Ball Check Valve Systems, to reduce back flow and enhance outstanding priming characteristics.
- Few Moving Parts and Wall Mountable.
- Safe & Easy Priming with durable leak-free bleed valve assembly (standard).
- Optional Control: External pace with auto/manual selection.

Controls

Manual Stroke Rate

Manual Stroke Length

External Pacing - Optional

External Pace With Stop - Optional (125 SPM only)

Controls Options		
Feature	Standard Configuration	Optional Configuration [1]
External Pacing	--	Auto / Manual Selection
External Pace w/ Stop (125 SPM only)	--	Auto / Manual Selection [2]
Manual Stroke Rate	10:1 Ratio	100:1 Raio
Manual Stroke Length	10:1 Ratio	10:1 Ratio
Total Turndown Ratio	100:1 Ratio	1000:1 Ratio

Note 1: On S2, S3 & S4 sizes only.

Note 2: Not available on 1000:1 turndown pumps.

Operating Benefits

- Reliable metering performance.
- Rated "hot" for continuous duty.
- High viscosity capability.
- Leak-free, sealless, liquid end.

Aftermarket

- KOPkits
- Gauges
- Dampeners
- Pressure Relief Valves
- Tanks
- Pre-Engineered Systems
- Process Controllers (PULSAblue, MicroVision)

Series A Plus
Electronic Metering Pumps

Lockwood Remediation Technologies, LLC

Series A Plus

Specifications and Model Selection

MODEL			LBC2	LB02	LBC3	LB03	LB04	LB64	LBC4	LBS2	LBS3	LBS4
Capacity nominal (max.)		GPH	0.25	0.25	0.42	0.50	1.00	1.25	2.00	0.50	1.38	2.42
		GPO	6	6	10	12	24	30	48	12	33	58
		LPH	0.9	0.9	1.6	1.9	3.8	4.7	7.6	1.9	5.2	9.14
Pressure[3] (max.)	GFPP, PVDF, 316SS or PVC <;N code) wITFE Seats)	PSIG (Bar)	250 (17)	150 (10)	250 (17)	150 (10)	100 (7)	100 (7)	50 (3.3)	250 (17)	150 (10)	100 (7)
	PVC (V code) Viton or CSPE Seats IDegas Liquid End		150 (10)							150 (10)		
Connections:		Tubina	1.14" ID X 3.18" OD						3.18" D X 1.12" OD	1.14" D X 3.18" OD		
		Pioina	1.14" FNPT									
Strokes/Minute		SPM	125							250		

Note 3: Pumps with rated pressure above 150 PSI will be de-rated to 150 PSI Max. when selecting certain valve options, see Price Book for details.

Engineering Data

Pump Head Materials Available:	GFPPL
	PVC
	PVDF
	316 SS
Diaphragm:	PTFE-faced CSPE-backed
Check Valves Materials Available:	
Seats/0-Rings:	PTFE
	CSPE
	Viton
Balls:	Ceramic
	PTFE
	316 SS
	Alloy C
Fittings Materials Available:	GFPPL
	PVC
	PVDF
Bleed Valve:	Same as fitting and check valve selected, except 316SS
Injection Valve & Foot Valve Assy:	Same as fitting and check valve selected
Tubing:	Clear PVC
	White PE

Important: Material Code - GFPPL=Glass-filled Polypropylene, PVC=Polyvinyl Chloride, PE=Polyethylene, PVDF=Polyvinylidene Fluoride, CSPE=Generic formulation of Hypalon, a registered trademark of E.I. DuPont Company. Viton is a registered trademark of E.I. DuPont Company. PVC wetted end recommended for sodium hypochlorite.

Engineering Data

Reproducibility:	+/- 3% at maximum capacty
Viscosity Max CPS:	1000 CPS
Stroke Frequency Max SPM:	125 / 250 by Model
Stroke Frequency Turn-Down Ratio:	10:1 / 100:1 by Model
Stroke Length Turn-Down Ratio:	10:1
Power Input:	115 VAC/50-60 HZ/1 ph
	230 VAC/50-60 HZ/1 ph
Average Current Draw:	
@ 115 VAC; Amps:	0.6 Amps
@ 230 VAC; Amps:	0.3 Amps
Peak hput Power:	130 Watts
Average Input Power @ Max SPM:	50 Watts

Custom Engineered Designs - Pre-Engineered Systems

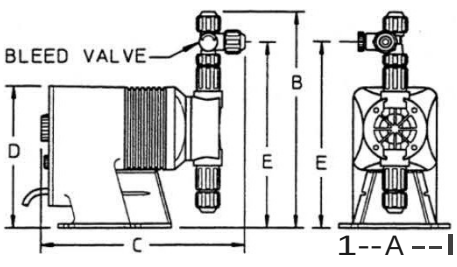
Pre-Engineered Systems

Pulsafeeder's Pre-Engineered Systems are designed to provide complete chemical feed solutions for all electronic metering applications. From stand alone simplex pH control applications to full-featured, redundant sodium hypochlorite disinfection metering, these rugged fabricated assemblies offer turn-key simplicity and industrial-grade durability. The UV-stabilized, high-grade HOPE frame offers maximum chemical compatibility and structural rigidity. Each system is factory assembled and hydrostatically tested prior to shipment.

Dimensions

Series A PLUS Dimensions (inches)						
Model No.	A	B	C	D	E	Shipping Weight
LB02 IS2	5.0	9.6	9.5	6.5	8.2	10
LBC2	5.0	9.9	9.5	6.5	8.5	10
LBC3	5.0	9.9	9.5	6.5	8.5	10
LB03 IS3	5.0	9.9	9.5	6.5	8.5	10
LB0B4	5.0	9.9	9.5	6.5	8.5	10
LB64	5.0	9.9	9.5	6.5	8.5	10
LBC4	5.0	9.9	9.5	6.5	8.5	10

NOTE: Inches X 2.54 cm



95-Gallon OverPack - 32" dia x 41.5", 1 each/package

Stock a SpillTech® OverPack with sorbents for emergency spill response, or use it as a salvage drum to ship damaged containers or hazardous waste.

- DOT-Approved for Salvage: All SpillTech® OverPacks are DOT-approved and X-rated for use as salvage drums. Helps companies conform to federal regulations when shipping damaged or leaking containers of hazardous materials, or absorbents contaminated with hazardous substances.
- Perfect for Spill Kits: Stores sorbent products (not included) for easy access as needed for spill control. Saves time when quick response is necessary.
- Sturdy Construction: 100% polyethylene OverPack resists chemicals, rust and corrosion for years of use. Integrated handles make them easy to lift, move or carry with standard material handling equipment. Twist-on, double-wall lid with closed-cell gasket provides sealed, secure closure to prevent leaks and protect contents from moisture, dirt and damage. Durable to withstand rough handling.
- Customized for You: We can customize a Spill Kit to your exact specifications, including the container, its contents and accessories, with no upcharge! Contact your local Distributor for details.

A95OVER Specifications

Dimensions:	ext. dia. 32" x 41.5" H
Shipping Dimensions:	31.75" W x 41.5" L x 31.75" H
Sold as:	1 per package
Color:	Yellow
Composition:	Polyethylene
# per Pallet:	3
Incinerable:	No
Ship Class:	250

Metric Equivalent Specifications

Dimensions:	ext. dia. 81.3cm x 105.4cm H
Shipping Dimensions:	80.6cm W x 105.4cm L x 80.6cm H

A95OVER Technical Information

Warnings & Restrictions:
There are no known warnings and restrictions for this product.

Regulations and Compliance:
49 CFR 173.3(c)(1) - If a container of hazardous waste is damaged or leaking, it can be placed in a compatible salvage drum that meets UN criteria for shipping

49 CFR 173.12(b)(2)(iv) - When labpacking, "Inner packagings…must be surrounded by a chemically compatible absorbent material in sufficient quantity to absorb the total liquid contents."

49 CFR 173.12(b) - A container used for labpacking must be "a UN 1A2 or UN 1B2 metal drum, a UN 1D plywood drum, a UN 1G fiber drum or a UN 1H2 plastic drum tested and marked at least for the Packing Group III performance level for liquids or solids."

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Telephone: (508) 675 0096

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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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Ingredients	CAS No	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
Sulfuric acid	7664-93-9	N/Av	N/Av	None.
Water	7732-18-5	No information available.	No information available.	Not applicable.

Ingredients	CAS No	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
Sulfuric acid	7664-93-9	>100mg/L(Green algae)	N/Av	None.
Water	7732-18-5	No information available.	No information available.	Not applicable.

Persistence and degradability

: Biodegradation is not applicable to inorganic materials.

Bioaccumulation potential : No data is available on the product itself.

Components	Partition coefficent n-octanol/ater (log Kow)	Bioconcentration factor (BCF)
Sulfuric acid (CAS 7664-93-9)	N/Ap	no bioaccumulation
Water (CAS 7732-18-5)	N/Ap	N/Ap

Mobility in soil : No data is available on the product itself.

Other Adverse Environmental effects

: No additional information.

SECTION 13. DISPOSAL CONSIDERATIONS

Handling for Disposal : Handle waste according to recommendations in Section 7. Empty containers retain residue (liquid and/or vapour) and can be dangerous.

Methods of Disposal : Dispose in accordance with all applicable federal, state, provincial and local regulations.

RCRA : If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method. For disposal of unused or waste material, check with local, state and federal environmental agencies.

SECTION 14. TRANSPORTATION INFORMATION

Regulatory Information	UN Number	UN proper shipping name	Transport hazard class(es)	Packing Group	Label
49CFR/DOT	UN1830	SULFURIC ACID ; or SULPHURIC ACID	8	II	
49CFR/DOT Additional information	May be shipped as a limited quantity in receptacles not exceeding 1.0 Liters, according to 49 CFR 173.154.				
TDG	UN1830	SULPHURIC ACID	8	II	

Borden & Remington Corp
63 Water St. PO Box 2573
Fall River, MA, USA, 02722
Telephone: (508) 675 0096

SAFETY DATA SHEET

TDG Additional information	May be shipped as LIMITED QUANTITY when transported in containers no larger than 1.0 Litre, in packages not exceeding 30 kg gross mass.				
ICAO/IATA	UN1830	Sulphuric acid	8	II	
ICAO/IATA Additional information	Refer to ICAO/IATA Packing Instruction				
IMDG	UN1830	SULFURIC ACID or SULPHURIC ACID	8	II	
IMDG Additional information	May be shipped as a limited quantity. Consult the IMDG regulations for more information.				

Special precautions for user : None known.

Environmental hazards : See ECOLOGICAL INFORMATION, Section 12.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

: Not applicable.

SECTION 15 - REGULATORY INFORMATION

US Federal Information:

Components listed below are present on the following U.S. Federal chemical lists:

Ingredients	CAS #	TSCA Inventory	CERCLA Reportable Quantity(RQ) (40 CFR 117.302):	SARA TITLE III: Sec. 302, Extremely Hazardous Substance, 40 CFR 355:	SARA TITLE III: Sec. 313, 40 CFR 372, Specific Toxic Chemical	
					Toxic Chemical	de minimus Concentration
Sulfuric acid	7664-93-9	Yes	1000 lb/ 454 kg	1000 lb TPQ	Yes	1%
Water	7732-18-5	Yes	N/Ap	N/Av	No	N/Ap

SARA TITLE III: Sec. 311 and 312, SDS Requirements, 40 CFR 370 Hazard Classes: Acute Health Hazard. Chronic Health Hazard

Under SARA Sections 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are 500 pounds for the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

US State Right to Know Laws:

The following chemicals are specifically listed by individual States:

Ingredients	CAS #	California Proposition 65		State "Right to Know" Lists					
		Listed	Type of Toxicity	CA	MA	MN	NJ	PA	RI
Sulfuric acid	7664-93-9	No	N/Ap	Yes	Yes	Yes	Yes	Yes	Yes
Water	7732-18-5	No	N/Ap	No	No	No	No	No	No

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Canadian Information:

Canadian Environmental Protection Act (CEPA) information: All ingredients listed appear on the Domestic Substances List (DSL).

WHMIS information: Refer to Section 2 for a WHMIS Classification for this product.

International Information:

Components listed below are present on the following International Inventory list:

Ingredients	CAS #	European EINECs	Australia AICS	Philippines PICCS	Japan ENCS	Korea KECI/KECL	China IECSC	NewZealand IOC
Sulfuric acid	7664-93-9	231-639-5	Present	Present	(1)-724; (1)-430	KE-32570	Present	HSR001572, HSR001573, HSR001588 (dilution)
Water	7732-18-5	231-791-2	Present	Listed	Listed	KE-35400	Present	Listed

SECTION 16. OTHER INFORMATION

Legend : ACGIH: American Conference of Governmental Industrial Hygienists
CA: California
CAS: Chemical Abstract Services
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR: Code of Federal Regulations
DOT: Department of Transportation
EPA: Environmental Protection Agency
HMIS: Hazardous Materials Identification System
HSDB: Hazardous Substances Data Bank
IARC: International Agency for Research on Cancer
Inh: Inhalation
IUCLID: International Uniform ChemicaL Information Database
MA: Massachusetts
MN: Minnesota
MSHA: Mine Safety and Health Administration
N/Ap: Not Applicable
N/Av: Not Available
NFPA: National Fire Protection Association
NIOSH: National Institute of Occupational Safety and Health
NJ: New Jersey
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
PA: Pennsylvania
PEL: Permissible exposure limit
RCRA: Resource Conservation and Recovery Act
RI: Rhode Island
RTECS: Registry of Toxic Effects of Chemical Substances
SARA: Superfund Amendments and Reauthorization Act
STEL: Short Term Exposure Limit
TDG: Canadian Transportation of Dangerous Goods Act & Regulations
TLV: Threshold Limit Values
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Identification System

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References : Canadian Centre for Occupational Health and Safety, CCInfoWeb Databases, 2015 (Chempendium, RTECs, HSDB, INCHEM).
European Chemicals Agency, Classification Legislation, 2015
Material Safety Data Sheet from manufacturer
OECD - The Global Portal to Information on Chemical Substances - eChemPortal, 2015

Preparation Date (mm/dd/yyyy)

: 10/13/2015

Other special considerations for handling

: Provide adequate information, instruction and training for operators.

HMIS Rating : *- Chronic hazard 0 - Minimal 1 - Slight 2 - Moderate 3 - Serious 4 - Severe

Health: 3 *Flammability:* 0 *Reactivity:* 2

NFPA Rating

0 - Minimal 1 - Slight 2 - Moderate 3 - Serious 4 - Severe

: *Health:* 3 *Flammability:* 0 *Instability:* 2 *Special Hazards:* None.

Prepared for: Borden & Remington Corp 63 Water St. Fall River, MA 02722 Telephone: 508-675-0096	
Prepared by: ICC The Compliance Center Inc. Telephone: (888) 442-9628 (U.S.): (888) 977-4834 (Canada) http://www.thecompliancecenter.com	

DISCLAIMER

This Safety Data Sheet was prepared by ICC The Compliance Center Inc using information provided by / obtained from Borden & Remington Corp and CCOHS' Web Information Service. The information in the Safety Data Sheet is offered for your consideration and guidance when exposed to this product. ICC The Compliance Center Inc and Borden & Remington Corp .expressly disclaim all expressed or implied warranties and assume no responsibilities for the accuracy or completeness of the data contained herein. The data in this SDS does not apply to use with any other product or in any other process.
This Safety Data Sheet may not be changed, or altered in any way without the expressed knowledge and permission of ICC The Compliance Center Inc and Borden & Remington Corp.

END OF DOCUMENT

The Pulsatron Series HV designed for high viscosity applications for precise and accurate metering control. The Series HV offers manual control over stroke length and stroke rate as standard with the option to choose between 4-20mA and external pace inputs for automatic control.

Five distinct models are available, having pressure capabilities to 150 PSIG (10 BAR) @ 12 GPD (1.9 lph), and flow capacities to 240 GPD (37.9 lph) @ 80 PSIG (5.6 BAR), with a turndown ratio of 100:1. Metering performance is reproducible to within ± 2% of maximum capacity.

Features

- Automatic Control, available with 4-20mADC direct or external pacing, with stop function.
- Manual Control by on-line adjustable stroke rate and stroke length.
- Auto-Off-Manual switch.
- Highly Reliable timing circuit.
- Circuit Protection against voltage and current upsets.
- Panel Mounted Fuse.
- Solenoid Protection by thermal overload with auto-reset.
- Water Resistant, for outdoor and indoor applications.
- Indicator Lights, panel mounted.
- Guided Ball Check Valve Systems, to reduce back flow and enhance outstanding priming characteristics.
- Viscosities to 20,000 CPS.

Controls

Manual Stroke Rate

- Turn-Down Ratio 10:1

Manual Stroke Length

- Turn-Down Ratio 10:1

4-20mA or 20-4mA Input

- Automatic Control

Operating Benefits

- Reliable metering performance.
- Rated "hot" for continuous duty.
- High viscosity capability.
- Leak-free, sealless, liquid end.

Aftermarket

- KOPkits
- Gauges
- Dampeners
- Pressure Relief Valves
- Tanks
- Pre-Engineered Systems
- Process Controllers (PULSAblue, MicroVision)

Series HV

Specifications and Model Selection

MODEL		LVB3	LVF4	LVG4	LVG5	LVH7
Capacity	GPH	0.50	1.00	2.00	4.00	10.00
nominal	GPD	12	24	48	96	240
(max.)	LPH	1.9	3.8	7.6	15.1	37.9
Pressure	PSIG	150	150	110	110	80
(max.)	BAR	10	10	7	7	5.6
Connections:	Tubing	(S) .50" I.D. X .75" O.D. .38" I.D. X .50" OD (LVB3 & F4 only) (S & D) .50" I.D. X .75" O.D. (LVG4,G5 & H7 only)				

Engineering Data

Pump Head Materials Available: GFPPL, PVC, PVDF, 316 SS

Diaphragm: PTFE-faced CSPE-backed

Check Valves Materials Available:

Seats/O-Rings: PTFE, CSPE, Viton

Balls: Ceramic, PTFE, 316 SS, Alloy C

Fittings Materials Available: GFPPL, PVC, PVDF

Bleed Valve: Same as fitting and check valve selected, except 316SS

Injection Valve & Foot Valve Assy: Same as fitting and check valve selected

Tubing: Clear PVC, White PE

Important: Material Code - GFPPL=Glass-filled Polypropylene, PVC=Polyvinyl Chloride, PE=Polyethylene, PVDF=Polyvinylidene Fluoride, CSPE=Generic formulation of Hypalon, a registered trademark of E.I. DuPont Company. Viton is a registered trademark of E.I. DuPont Company. PVC wetted end recommended for sodium hypochlorite.

Engineering Data

Reproducibility: +/- 2% at maximum capacity

Viscosity Max CPS: 20,000 CPS

Stroke Frequency Max SPM: 125

Stroke Frequency Turn-Down Ratio: 10:1

Stroke Length Turn-Down Ratio: 10:1

Power Input: 115 VAC/50-60 HZ/1 ph, 230 VAC/50-60 HZ/1 ph

Average Current Draw:

@ 115 VAC; Amps: 1.0 Amps

@ 230 VAC; Amps: 0.5 Amps @ 230 VAC

Peak Input Power: 300 Watts

Average Input Power @ Max SPM: 130 Watts

Custom Engineered Designs – Pre-Engineered Systems

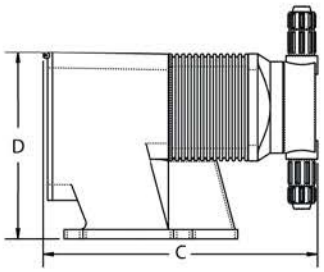
Pre-Engineered Systems

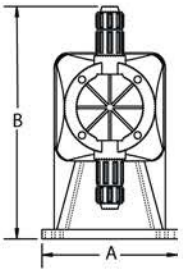
Pulsafeeder's Pre-Engineered Systems are designed to provide complete chemical feed solutions for all electronic metering applications. From stand alone simplex pH control applications to full-featured, redundant sodium hypochlorite disinfection metering, these rugged fabricated assemblies offer turn-key simplicity and industrial-grade durability. The UV-stabilized, high-grade HDPE frame offers maximum chemical compatibility and structural rigidity. Each system is factory assembled and hydrostatically tested prior to shipment.

Dimensions

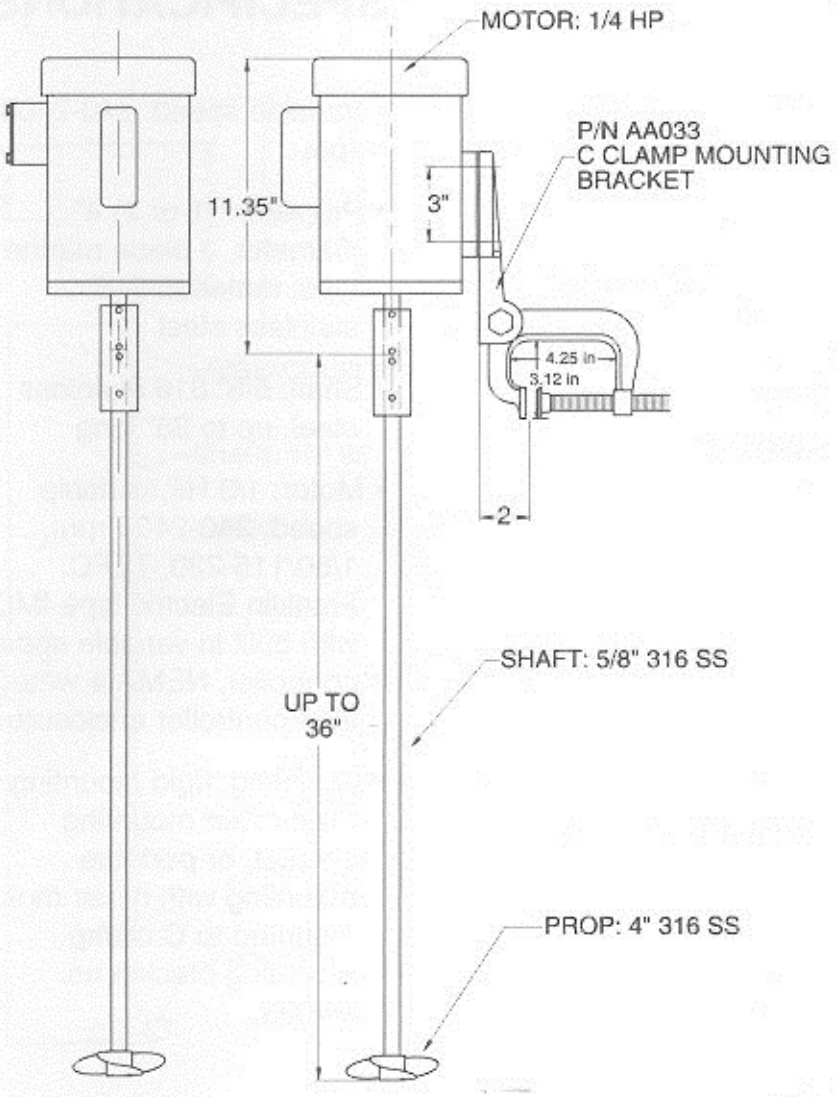
Series HV Dimensions (inches)					
Model No.	A	B	C	D	Shipping Weight
LVB3	5.4	9.3	9.5	7.5	13
LVF4	5.4	10.8	10.8	7.5	18
LVG4	5.4	9.5	10.6	7.5	18
LVG5	5.4	10.8	10.8	7.5	18
LVH7	6.1	11.5	11	8.2	25

NOTE: Inches X 2.54 = cm





MIXER MODEL NO. AA102A



AA102A

SPECIFICATIONS

- Speed: 1,725 rpm
- Propeller: (1 or 2) 4" diameter, 3 blade marine type, material: 316 stainless steel
- Shaft: 5/8" 316 stainless steel, up to 36" long
- Motor: 1/4 HP, 1,725 rpm, 1/60/115-230, capacitor start, or 3/60/230-460, TEFC
- Mounting: rigid mounting to fixed mixer mounting bracket, or portable mounting with mixer motor mounted to C clamp mounting bracket no. AA033.

Revision date 2019-15-4

SAFETY DATA SHEET

Revision number 1

SECTION 1) CHEMICAL PRODUCT AND SUPPLIER'S IDENTIFICATION

Product Name:	Redux E50
Product Use:	Water and Wastewater Treatment Coagulant/Flocculant
Revision Date:	Apr 15, 2019
Supersedes Date:	Mar 5, 2015
Manufacturer's Name:	Azure Water Services
Address:	280 Callegari Dr. West Haven CT, 06516
Emergency Phone:	Chemtrec, (1) 800-424-9300, in US and Canada only

SECTION 2) HAZARDS IDENTIFICATION

Classification

Corrosive to metals - Category 1

Eye Irritation - Category 2

Skin Irritation - Category 2

Pictograms

Signal Word

Warning

Hazardous Statements - Health

Causes serious eye irritation

Causes skin irritation

Hazardous Statements - Physical

May be corrosive to metals

Precautionary Statements - General

If medical advice is needed, have product container or label at hand.

Keep out of reach of children.

Read label before use.

Precautionary Statements - Prevention

Keep only in original packaging.

Wash thoroughly after handling.

Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary Statements - Response

Absorb spillage to prevent material damage.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

IF ON SKIN: Wash with plenty of water.

Specific treatment (see first-aid on this SDS).

If skin irritation occurs: Get medical advice/attention.

Take off contaminated clothing. And wash it before reuse.

Precautionary Statements - Storage

Store in a corrosive resistant container with a resistant inner liner.

Precautionary Statements - Disposal

No precautionary statement available.

Hazards Not Otherwise Classified (HNOC)

None.

SECTION 3) COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Chemical Name	% By Weight
PROPRIETARY	Trade Secret Ingredient	45 - 55%

Specific chemical identity and/or exact percentage (concentration) of the composition has been withheld to protect confidentiality.

SECTION 4) FIRST-AID MEASURES

Inhalation

Remove source of exposure or move person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor/. If breathing has stopped, trained personnel should begin rescue breathing or, if the heart has stopped, immediately start cardiopulmonary resuscitation (CPR) or automated external defibrillation (AED).

Eye Contact

Remove source of exposure or move person to fresh air. Rinse eyes cautiously with lukewarm, gently flowing water for several minutes, while holding the eyelids open. Remove contact lenses, if present and easy to do. Continue rinsing for a flushing duration of 30 minutes. Take care not to rinse contaminated water into the unaffected eye or onto the face. Immediately call a POISON CENTER/doctor.

Skin Contact

Take off immediately all contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Rinse skin with lukewarm, gently flowing water/shower for a duration of 30 minutes or until medical aid is available. Immediately call a POISON CENTER/doctor. Wash contaminated clothing before re-use or discard.

Ingestion

Rinse mouth with water. Do NOT induce vomiting. Give 1 to 2 cups of milk or water to drink. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, lie on your side, in the recovery position. Immediately call a POISON CENTER/doctor.

Most Important Symptoms and Effects, Both acute and Delayed

No data available.

Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available.

SECTION 5) FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Dry chemical, foam, carbon dioxide. Sand or earth may be used for small fires only.

Use extinguishing agent suitable for type of surrounding fire.

Unsuitable Extinguishing Media

Do not use direct water stream since this may cause fire to spread.

Specific Hazards in Case of Fire

In case of fire, hazardous decomposition products may include sulphur oxides.

Fire-Fighting Procedures

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Water may be ineffective but can be used to cool containers exposed to heat or flame. Caution should be exercised when using water or foam as frothing may occur, especially if sprayed into containers of hot, burning liquid. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

Special Protective Actions

Wear protective pressure self-contained breathing apparatus (SCBA) and full turnout gear.

SECTION 6) ACCIDENTAL RELEASE MEASURES

Emergency Procedure

Isolate hazard area and keep unnecessary people away. Remove all possible sources of ignition in the surrounding area. Notify authorities if any exposure to the general public or the environment occurs or is likely to occur.

Absorb spill with absorbent material or vacuum spill into polyethylene lined steel or plastic drums.

Do not touch or walk through spilled material.

If spilled material is cleaned up using a regulated solvent, the resulting waste mixture may be regulated.

Recommended Equipment

Positive pressure, full-facepiece self-contained breathing apparatus (SCBA), or positive pressure supplied air respirator with escape SCBA (NIOSH approved).

Personal Precautions

Avoid breathing vapor or mist. Avoid contact with skin, eye or clothing. Ensure adequate ventilation. Do not touch damaged containers or spilled materials unless wearing appropriate protective clothing.

Environmental Precautions

Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems and natural waterways by using sand, earth, or other appropriate barriers.

Methods and Materials for Containment and Cleaning Up

Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Contaminated absorbent material may pose the same hazard as the spilled product.

SECTION 7) HANDLING AND STORAGE

General

Wash hands after use.
Do not get in eyes, on skin or on clothing.
Do not breathe vapors or mists.
Use good personal hygiene practices.
Eating, drinking and smoking in work areas is prohibited.
Remove contaminated clothing and protective equipment before entering eating areas.
Eyewash stations and showers should be available in areas where this material is used and stored.

Ventilation Requirements

Use only with adequate ventilation to control air contaminants to their exposure limits. The use of local ventilation is recommended to control emissions near the source.

Storage Room Requirements

Keep container(s) tightly closed and properly labeled. Store in cool, dry, well-ventilated areas away from heat, direct sunlight and strong oxidizers. Store in approved containers and protect against physical damage. Keep containers securely sealed when not in use. Indoor storage should meet OSHA standards and appropriate fire codes. Containers that have been opened must be carefully resealed to prevent leakage. Empty containers retain residue and may be dangerous.

Use non-sparking ventilation systems, approved explosion-proof equipment and intrinsically safe electrical systems in areas where this product is used and stored.

SECTION 8) EXPOSURE CONTROLS, PERSONAL PROTECTION

Eye Protection

Wear eye protection with side shields or goggles. Wear indirect-vent, impact and splash resistant goggles when working with liquids. If additional protection is needed for entire face, use in combination with a face shield.

Skin Protection

Use of gloves approved to relevant standards made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Use of an apron and over-boots of chemically impervious materials such as neoprene or nitrile rubber is recommended to avoid skin sensitization. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Launder soiled clothes or properly disposed of contaminated material, which cannot be decontaminated.

Respiratory Protection

If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker, a respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed. Check with respiratory protective equipment suppliers.

Appropriate Engineering Controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

SECTION 9) PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Density	11.10 lb/gal
Specific Gravity	1.33 - 1.35
Appearance	Colorless to yellow liquid
pH	3 - 4
Odor Threshold	N/A
Odor Description	N/A
Water Solubility	complete
Viscosity	< 100cps @20C
Vapor Pressure	Similar to water
Vapor Density	N/A
Freezing Point	<19 °F
Boiling Point	>212 °F
Evaporation Rate	N/A
Flammability	Will not burn

SECTION 10) STABILITY AND REACTIVITY

Stability

Stable under normal storage and handling conditions.

Conditions To Avoid

Avoid heat, sparks, flame, high temperature and contact with incompatible materials.

Hazardous Reactions/Polymerization

Hazardous polymerization will not occur.

Incompatible Materials

Strong bases, acids, oxidizing and reducing agents.

Hazardous Decomposition Products

May produce carbon monoxide, carbon dioxide.

SECTION 11) TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

Inhalation LC50 : Not Available
Oral LD50 : Not Available
Dermal LD50 : Not Available

Acute Toxicity

Component	weight-%	Oral LD50	Dermal LD50	Inhalation LC50
Trade Secret Ingredient	45 - 55%	= 9187 mg/kg (Rat)	> 2000 mg/k (Rat)	--

Aspiration Hazard

No Data Available

Respiratory/Skin Sensitization

No Data Available

Serious Eye Damage/Irritation

Causes serious eye irritation

Skin Corrosion/Irritation

Causes skin irritation

Specific Target Organ Toxicity - Repeated Exposure

No Data Available

Specific Target Organ Toxicity - Single Exposure

No Data Available

SECTION 12) ECOLOGICAL INFORMATION

Ecotoxicity

Acute aquatic toxicity - Product Information

Fish
LC 50 (96 hour, static) 776.4 mg/L *Pimephales promelas* (Fathead Minnow) [1]
EC 50 (96 hour, static) 265.5 mg/L *Pimephales promelas* (Fathead Minnow) [1]

Crustacea
LC 50 (48 hour, static) 803.8 mg/L *Ceriodaphnia dubia* (Water Flea) [1]
EC 50 (48 hour, static) 33.2 mg/L *Ceriodaphnia dubia* (Water Flea) [1]

Algae/aquatic plants
No information available

Acute aquatic toxicity - Component Information

Component	weight-%	Algae/aquatic plants	Fish	Toxicity to daphnia and other aquatic invertebrates
Trade Secret Ingredient	45 - 55%	--	LC50 (96 h static) 100 - 500 mg/L (Brachydanio rerio)	--

Mobility in Soil

No data available.

Bio-accumulative Potential

No data available.

Persistence and Degradability

No data available.

Other Adverse Effect

No data available.

SECTION 13) DISPOSAL CONSIDERATIONS

Waste Disposal

Under RCRA it is the responsibility of the user of the product to determine at the time of disposal whether the product meets RCRA criteria for hazardous waste. Waste management should be in full compliance with federal, state and local laws.
Empty Containers retain product residue which may exhibit hazards of material, therefore do not pressurize, cut, glaze, weld or use for any other purposes. Return drums to reclamation centers for proper cleaning and reuse.

SECTION 14) TRANSPORT INFORMATION

U.S. DOT Information

NOT REGULATED FOR TRANSPORTATION

This product is excepted from DOT regulations under 49 CFR 173.154(d) when shipped by road or railway. The product exception is referenced in 49 CFR 172.101 Table. Packaging material must not be aluminum, steel or be degraded by this product

SECTION 15) REGULATORY INFORMATION

CAS	Chemical Name	% By Weight	Regulation List
No applicable CAS	No applicable chemical	-	-

SECTION 16) OTHER INFORMATION

Glossary

ACGIH- American Conference of Governmental Industrial Hygienists; ANSI- American National Standards Institute; Canadian TDGCanadian Transportation of Dangerous Goods; CAS- Chemical Abstract Service; Chemtrec- Chemical Transportation Emergency Center(US); CHIP- Chemical Hazard Information and Packaging; DSL- Domestic Substances List; EC- Equivalent Concentration; EH40 (UK)- HSE Guidance Note EH40 Occupational Exposure Limits; EPCRA- Emergency Planning and Community Right-To-Know Act; ESL Effects screening levels; HMIS- Hazardous Material Information Service; LC- Lethal Concentration; LD- Lethal Dose; NFPA- National Fire Protection Association; OEL- Occupational Exposure Limits; OSHA- Occupational Safety and Health Administration, US Department of Labor; PEL- Permissible Exposure Limit; SARA (Title III)- Superfund Amendments and Reauthorization Act; SARA 313- Superfund Amendments and Reauthorization Act, Section 313; SCBA- Self Contained Breathing Apparatus; STEL-Short Term Exposure Limit; TCEQ Texas Commission on Environmental Quality; TLV- Threshold Limit Value; TSCA- Toxic Substances Control Act Public Law 94-469; TWA Time Weighted Value; US DOT- US Department of Transportation; WHMIS- Workplace Hazardous Materials Information System.

Additional Information

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Version 1.0:

Revision Date: Apr 15,2019

First Edition.

DISCLAIMER

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

SAFETY DATA SHEET

Revision date 2019-27-9

Revision number 2

SECTION 1) CHEMICAL PRODUCT AND SUPPLIER'S IDENTIFICATION

Product ID:	FOC ND-9911
Product Name:	Waste/Water Treatment. For industrial use only
Revision Date:	Sep 27,2019
Supersedes Date:	April 28, 2019
Manufacturer's Name:	Azure Water Services
Address:	280 Callegari Drive West Haven, CT, US, 06516
Emergency Phone:	Chemtrec 800-424-9300, in US and Canada only

SECTION 2) HAZARDS IDENTIFICATION

Classification

Eye Irritation - Category 2

Skin Irritation - Category 3

Pictograms

Signal Word

Warning

Hazardous Statements - Health

Causes serious eye irritation

Causes mild skin irritation

Precautionary Statements - General

If medical advice is needed, have product container or label at hand.

Keep out of reach of children.

Read label before use.

Precautionary Statements - Prevention

Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary Statements - Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

If skin irritation occurs: Get medical advice/attention.

Precautionary Statements - Storage

No precautionary statement available.

Precautionary Statements - Disposal

No precautionary statement available.

Hazards Not Otherwise Classified (HNOC)

None.

SECTION 3) COMPOSITION / INFORMATION ON INGREDIENTS

Substances/Mixtures

Chemical nature: Anionic Polyacrylamide

This product is not classified as Hazardous under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

All of the product's ingredients are either listed or exempt from the TSCA Inventory.

Some specific chemical identity is being withheld as a trade secrets
None of the chemicals in this product are hazardous according to the GHS.

SECTION 4) FIRST-AID MEASURES

Inhalation

Remove source of exposure or move person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor/. If breathing has stopped, trained personnel should begin rescue breathing or, if the heart has stopped, immediately start cardiopulmonary resuscitation (CPR) or automated external defibrillation (AED).

Eye Contact

Remove source of exposure or move person to fresh air. Rinse eyes cautiously with lukewarm, gently flowing water for several minutes, while holding the eyelids open. Remove contact lenses, if present and easy to do. Continue rinsing for a flushing duration of 30 minutes. Take care not to rinse contaminated water into the unaffected eye or onto the face. Immediately call a POISON CENTER/doctor.

Skin Contact

Take off immediately all contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Rinse skin with lukewarm, gently flowing water/shower for a duration of 30 minutes or until medical aid is available. Immediately call a POISON CENTER/doctor. Wash contaminated clothing before re-use or discard.

Ingestion

Rinse mouth with water. Do NOT induce vomiting. Give 1 to 2 cups of milk or water to drink. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, lie on your side, in the recovery position. Immediately call a POISON CENTER/doctor.

Most Important Symptoms and Effects, Both acute and Delayed

No data available.

Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available.

SECTION 5) FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Dry chemical, foam, carbon dioxide. Sand or earth may be used for small fires only.

Use extinguishing agent suitable for type of surrounding fire.

Unsuitable Extinguishing Media

Do not use direct water stream since this may cause fire to spread.

Specific Hazards in Case of Fire

In case of fire, hazardous decomposition products may include sulphur oxides.

Fire-Fighting Procedures

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Water may be ineffective but can be used to cool containers exposed to heat or flame. Caution should be exercised when using water or foam as frothing may occur, especially if sprayed into containers of hot, burning liquid. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

Special Protective Actions

Wear protective pressure self-contained breathing apparatus (SCBA) and full turnout gear.

SECTION 6) ACCIDENTAL RELEASE MEASURES

Emergency Procedure

Isolate hazard area and keep unnecessary people away. Remove all possible sources of ignition in the surrounding area. Notify authorities if any exposure to the general public or the environment occurs or is likely to occur.

Absorb spill with absorbent material or vacuum spill into polyethylene lined steel or plastic drums.

Do not touch or walk through spilled material.

If spilled material is cleaned up using a regulated solvent, the resulting waste mixture may be regulated.

Recommended Equipment

Positive pressure, full-facepiece self-contained breathing apparatus (SCBA), or positive pressure supplied air respirator with escape SCBA (NIOSH approved).

Personal Precautions

Avoid breathing vapor or mist. Avoid contact with skin, eye or clothing. Ensure adequate ventilation. Do not touch damaged containers or spilled materials unless wearing appropriate protective clothing.

Environmental Precautions

Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems and natural waterways by using sand, earth, or other appropriate barriers.

Methods and Materials for Containment and Cleaning Up

Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Contaminated absorbent material may pose the same hazard as the spilled product.

SECTION 7) HANDLING AND STORAGE

General

Wash hands after use.
Do not get in eyes, on skin or on clothing.
Do not breathe vapors or mists.
Use good personal hygiene practices.
Eating, drinking and smoking in work areas is prohibited.
Remove contaminated clothing and protective equipment before entering eating areas.
Eyewash stations and showers should be available in areas where this material is used and stored.

Ventilation Requirements

Use only with adequate ventilation to control air contaminants to their exposure limits. The use of local ventilation is recommended to control emissions near the source.

Storage Room Requirements

Keep container(s) tightly closed and properly labeled. Store in cool, dry, well-ventilated areas away from heat, direct sunlight and strong oxidizers. Store in approved containers and protect against physical damage. Keep containers securely sealed when not in use. Indoor storage should meet OSHA standards and appropriate fire codes. Containers that have been opened must be carefully resealed to prevent leakage. Empty containers retain residue and may be dangerous.
Use ventilation systems where this product is used and stored.

SECTION 8) EXPOSURE CONTROLS, PERSONAL PROTECTION

Eye Protection

Wear eye protection with side shields or goggles. Wear indirect-vent, impact and splash resistant goggles when working with liquids. If additional protection is needed for entire face, use in combination with a face shield.

Skin Protection

Use of gloves approved to relevant standards made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Use of an apron and over-boots of chemically impervious materials such as neoprene or nitrile rubber is recommended to avoid skin sensitization. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Launder soiled clothes or properly disposed of contaminated material, which cannot be decontaminated.

Respiratory Protection

If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker, a respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed. Check with respiratory protective equipment suppliers.

Appropriate Engineering Controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

SECTION 9) PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Density	5.85 lb/gal
Specific Gravity	0.65 - 0.85
Appearance	Off white granular solid
pH	6.0 - 8.0
Odor Threshold	N/A
Odor Description	characteristic odor
Water Solubility	< 2%
Viscosity	N/A
Vapor Pressure	Similar to water
Vapor Density	N/A
Freezing Point	<32 °F
Boiling Point	>212 °F
Evaporation Rate	N/A
Flammability	Flash point at or above 200°F/93°C

SECTION 10) STABILITY AND REACTIVITY

Stability

Stable under normal storage and handling conditions.

Conditions To Avoid

Avoid heat, sparks, flame, high temperature and contact with incompatible materials.

Hazardous Reactions/Polymerization

Hazardous polymerization will not occur.

Incompatible Materials

Strong bases, acids, oxidizing and reducing agents.

Hazardous Decomposition Products

May produce carbon monoxide, carbon dioxide.

SECTION 11) TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

Inhalation, ingestion, skin absorption.

Acute Toxicity

Acute Oral Toxicity: Results displayed may not be the result of actual testing of this material but based on a similar tested material
LD50, Rat, 4 hr > 2,500 mg/kg (estimated)
Acute Inhalation Toxicity: LC50, Rat, 4 hr, > 20mg/l (estimated)
Acute Dermal Toxicity: LD50, Rabbit, > 10,000 mg/kg (estimated)

Carcinogenicity

Based on available data, the classification criteria are not meet.

Respiratory/Skin Sensitization

No Data Available

Serious Eye Damage/Irritation

Causes serious eye irritation

Skin Corrosion/Irritation

Causes mild skin irritation

Specific Target Organ Toxicity - Repeated Exposure

No Data Available

Specific Target Organ Toxicity - Single Exposure

No Data Available

SECTION 12) ECOLOGICAL INFORMATION

Ecotoxicity effects

Aquatic Toxicity: Ecotoxicological information provided is based on a structurally or compositionally similar product.

LC50, Bluegill sunfish (Lepomis macrochirus), 96 hr, > 100 mg/kg	OECD Test Guideline 203
LC50, Rainbow Trout (Oncorhynchus mykiss), 96 hr, > 100 mg/l	OECD Test Guideline 203
EC50, Water Flea (Daphina Magna), 48 hr, > 100 mg/l	OECD Test Guideline 202
EC50, Amphipoda (Corophium Volutator), 10 d, 1415 mg/l	OECD Test Guideline 202
EC50, Copepod (Acartia Tonsa), 48 hr, 342 mg/l	OECD Test Guideline 202
IC50, Green Algae (Selenastrum capricornutum), 72 hr, > 100mg/l	OECD Test Guideline 201
IC50, Diatom (Skeletonema Costatum), 72 hr, 2,276 mg/l	OECD Test Guideline 201

Mobility in Soil

Water Solubility: Limited by viscosity.
Surface Tension: Not applicable

Persistence and degradability

Ecotoxicological information provided is based on a structurally or compositionally similar product.

Not Readily Biodegradable.

Ready Biodegradability: d:< 10%	OECD Test Guideline 301 D/28
Biodegradability in Seawater: d: 1.7%	OECD Test Guideline 306/28

Bioaccumulative potential

Bioaccumulation is unlikely. Because of the high molecular weight of the polymer diffusion through biological membranes is very small.

Partion coefficient

N-octanol/water: Not applicable

Other adverse effects

This material is not classified as dangerous for the environment .

SECTION 13) DISPOSAL CONSIDERATIONS

Waste Disposal

Under RCRA it is the responsibility of the user of the product to determine at the time of disposal whether the product meets RCRA criteria for hazardous waste. Waste management should be in full compliance with federal, state and local laws.
Empty Containers retain product residue which may exhibit hazards of material, therefore do not pressurize, cut, glaze, weld or use for any other purposes. Return drums to reclamation centers for proper cleaning and reuse.

SECTION 14) TRANSPORT INFORMATION

U.S. DOT Information

For all transportation accidents, call CHEMTREC at 800/424-9300. All spills and leaks of this material must be handled in accordance with local, state, and federal regulations.

DOT Shipping Designation:

Non-hazardous under 29-CFR 1910.1200. Water treatment compound

SECTION 15) REGULATORY INFORMATION

CAS	Chemical Name	% By Weight	Regulation List
No applicable CAS	No applicable chemical	-	-

SECTION 16) OTHER INFORMATION

Glossary

ACGIH- American Conference of Governmental Industrial Hygienists; ANSI- American National Standards Institute; Canadian TDGCanadian Transportation of Dangerous Goods; CAS- Chemical Abstract Service; Chemtrec- Chemical Transportation Emergency Center(US); CHIP- Chemical Hazard Information and Packaging; DSL- Domestic Substances List; EC- Equivalent Concentration; EH40 (UK)- HSE Guidance Note EH40 Occupational Exposure Limits; EPCRA- Emergency Planning and Community Right-To-Know Act; ESL Effects screening levels; HMIS- Hazardous Material Information Service; LC- Lethal Concentration; LD- Lethal Dose; NFPA- National Fire Protection Association; OEL- Occupational Exposure Limits; OSHA- Occupational Safety and Health Administration, US Department of Labor; PEL- Permissible Exposure Limit; SARA (Title III)- Superfund Amendments and Reauthorization Act; SARA 313- Superfund Amendments and Reauthorization Act, Section 313; SCBA- Self Contained Breathing Apparatus; STEL-Short Term Exposure Limit; TCEQ Texas Commission on Environmental Quality; TLV- Threshold Limit Value; TSCA- Toxic Substances Control Act Public Law 94-469; TWA Time Weighted Value; US DOT- US Department of Transportation; WHMIS- Workplace Hazardous Materials Information System.

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

DISCLAIMER

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

Electric Motor Driven

Submersible Pump

Models S3B1-E6 *and* S3B1

Size 3”

CERTIFIED PERFORMANCE

The manufacturer of this pump certifies that it was manufactured in accordance with the standards of the Contractors Pump Bureau.

PUMP SPECIFICATIONS

Suction Head: Aluminum Alloy 356-T6 With Bonded Nitrile Lining; Maximum Operating Pressure 50 psi (345 kPa).*
Impeller: Ductile Iron 65-45-12.
Seal Plate: Aluminum Alloy 356-T6 With Bonded Nitrile Lining.
Intermediate: Aluminum Alloy 356-T6.
Motor Housing: Aluminum Alloy 356-T6.
Motor Shaft: Stainless Steel 416.
Bearings: Upper, Open Single Row Ball Bearing.
Lower, Two Shield, Double Row Ball Bearing.
Shaft Sleeve: Stainless Steel 304.
Discharge Flange: Aluminum Alloy 356-T6.
Gaskets: Cork with Nitrile Binder (NC710).
O-Rings: Buna-N.
Wetted Hardware: Standard Plated Steel and Stainless Steel.
Strainer: Urethane Coated Steel. 51% Open Area, 0.375” (9,5 mm) Diameter Openings.
Hoisting Bail: Urethane Coated Steel.

Standard Equipment

NEMA Type 3R Rainproof Control Box. *(See Section130, Pages 80 and 85.)*
Provides On-Off, Circuit Breaker and Motor Overload Protection.

Optional Equipment

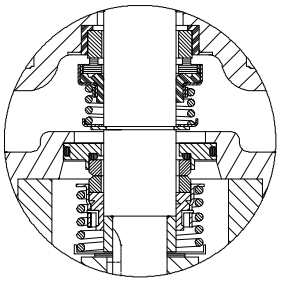
Liquid Level Control: *(See Sec. 130, Page 150.)*
a. Turtle Type Pressure Activated Level Switch.
b. .Float Activated Level Switch.
Staging Adapter Kit.

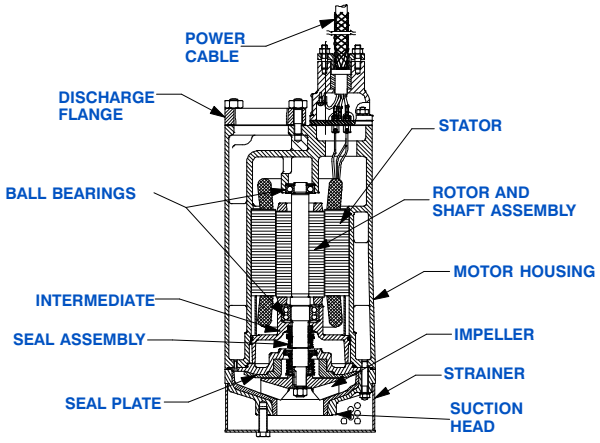
MOTOR/CABLE SPECIFICATIONS

Motor: Oil Filled Enclosure; 6.0 H.P.; 3450 R.P.M.
Single Phase: 230 Volt, 60 Hz, 34 Full Load AMPS, 7.2 kW (Max.)
Three Phase: 200/230/460/575 Volt, 60 Hz, 26.5/23/11.5/9.2 Full Load AMPS, 6.8 kW (Max.)
Power Cable: 4 Wire; Type SO/SOW/SOOW; 10 AWG; 3 Power Conductors, Plus 1 Ground. Nominal Length 50 Feet (15 m). Standard. (*Specify Alternate Length at Time of Order.*)
Recommended Generator Size: 15 kW Across the Line Start.

**Consult Factory for Applications Exceeding Maximum Pressure and/or Temperature Indicated.*

WARNING!
Do not use in explosive atmosphere or for pumping volatile flammable liquids.





SEAL SPECIFICATIONS

Tandem, Oil Lubricated.

Upper Seal: Type 21, Mechanical. Carbon Rotating Face. Ni-Resist Stationary Face. Buna-N Elastomers. Stainless Steel 18-8 Cage and Spring.

Lower Seal: Type 2, Mechanical. Tungsten Titanium Carbide Rotating and Stationary Faces. Stainless Steel 316 Stationary Seat. Fluorocarbon Elastomers (DuPont Viton® or Equivalent). Stainless Steel 303/304 Cage and Spring.

Maximum Temperature of Liquid Pumped, 122°F (50°C).*

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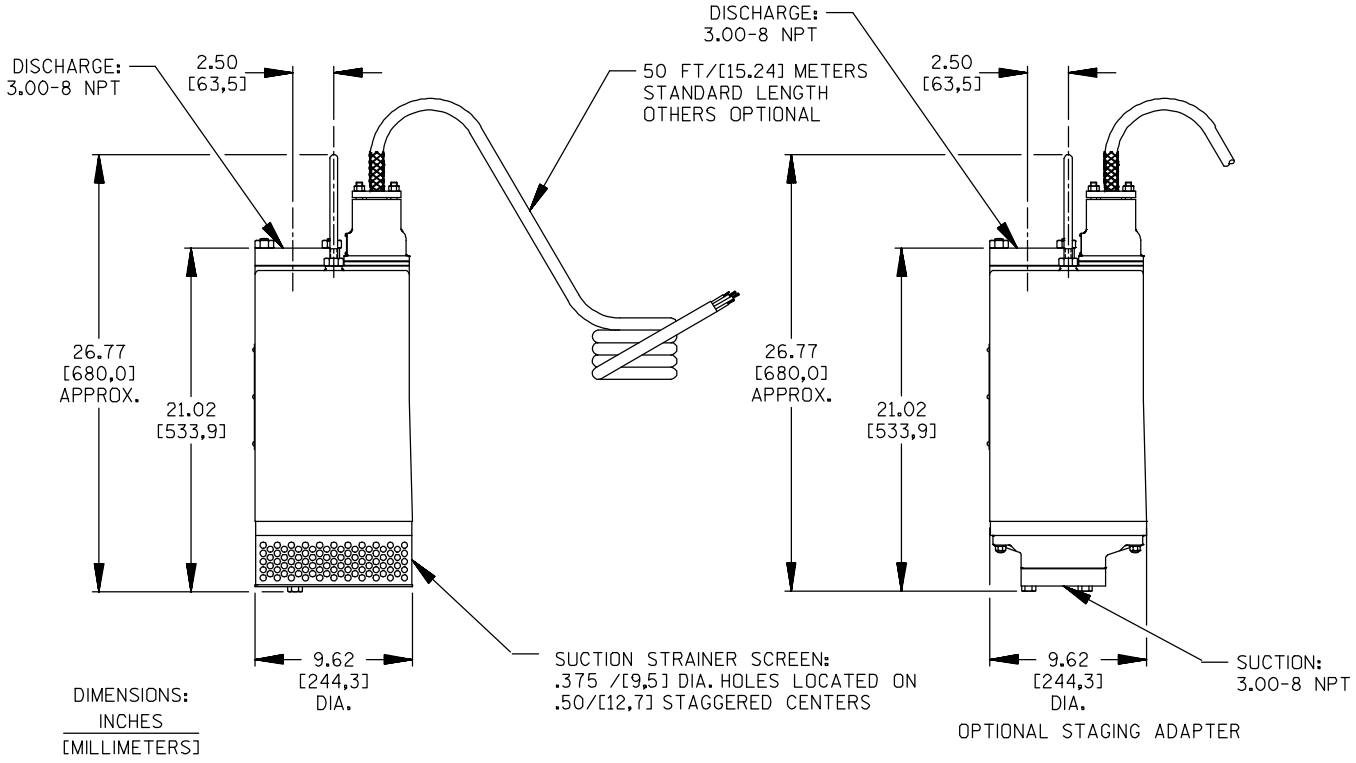
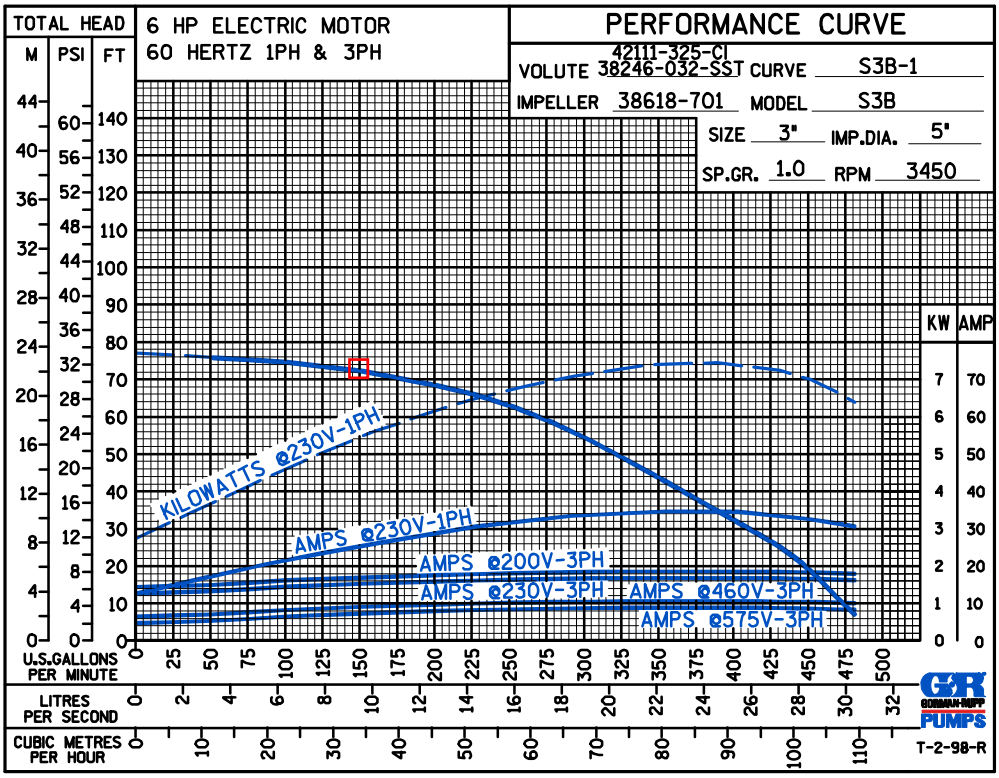
Specification Data

SECTION 130, PAGE 660

APPROXIMATE
DIMENSIONS and WEIGHTS

NET WEIGHT:	**145 LBS. (65,8 KG.)**
SHIPPING WEIGHT:	**155 LBS. (70,3 KG.)**
EXPORT CRATE SIZE:	**7.8 CU. FT. (0,22 CU. M.)**





GORMAN-RUPP PUMPS

www.grpumps.com

Specifications Subject to Change Without Notice

Printed in U.S.A.

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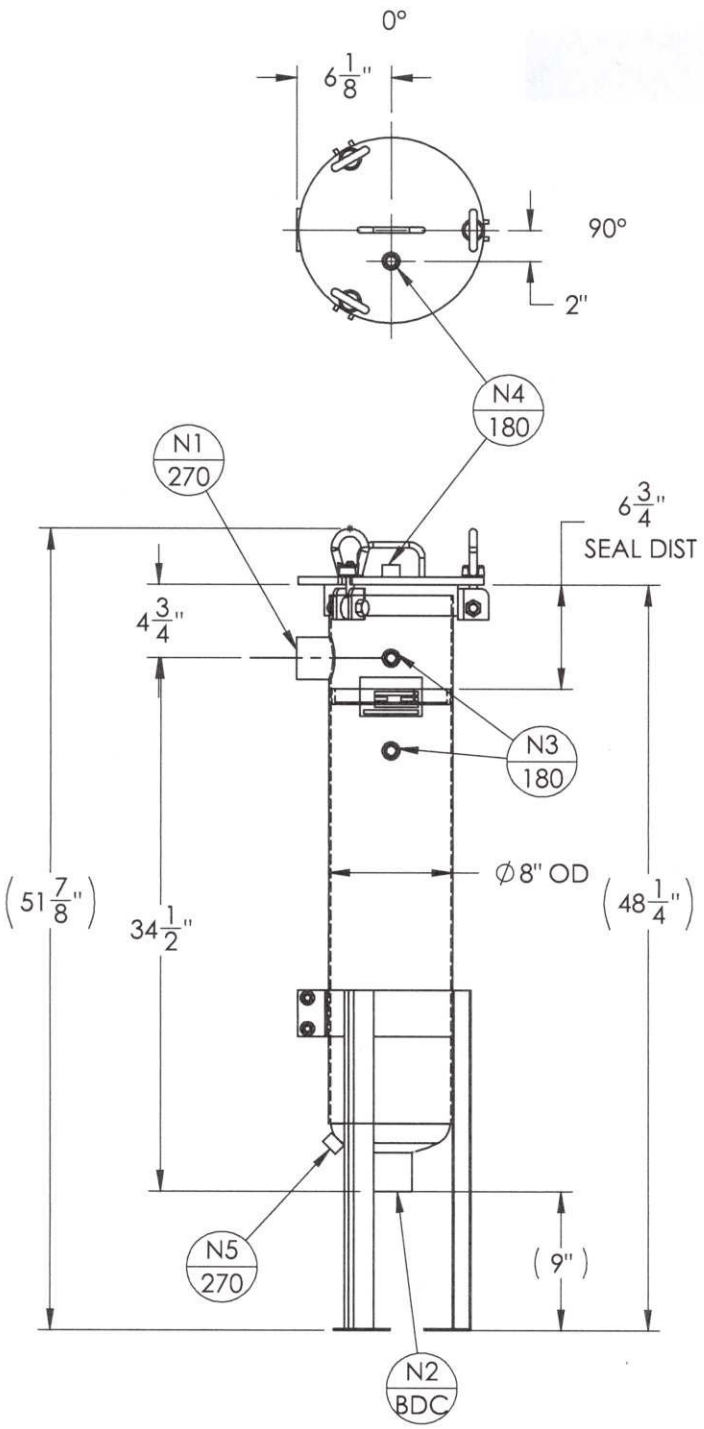
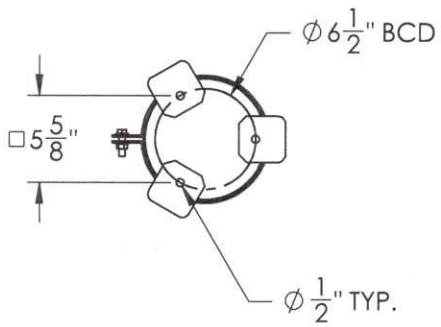
NOZZLE SCHEDULE			
MARK	QTY	SIZE / RATING	DESCRIPTION
N1	1	2" 150# NPT	INLET
N2	1	2" 150# NPT	OUTLET
N3	2	1/2" 3000# NPT	PRESS GA
N4	1	1/2" 3000# NPT	VENT
N5	1	1/2" 3000# NPT	CLEAN DRAIN
N6	-	-	DIRTY DRAIN

VESSEL DESIGN CONDITIONS			
CODE:	BEST COMMERCIAL PRACTICE		
M.A.W.P.:	150 PSI @ 250°F	M.D.M.T.:	-20° F @ 150 PSI
M.A.E.P.:	15 PSI @ 250°F		
CORROSION ALLOWANCE:	NONE	HYDROTEST PRESS:	195 PSI
STAMP:	'NC'	SERVICE:	NON LETHAL
PWHT:	N/A	RADIOGRAPHY:	N/A
MATERIAL:	SS 304/L	GASKET:	BUNA-N



DRY WEIGHT: 77.62 #'s
FLOODED WEIGHT: 140 #'s
SHIPPING WEIGHT: 100 #'s
VESSEL VOLUME: 1.0 C.F.



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NOTES:
- VESSEL WILL HOUSE (QTY=1) DOUBLE LENGTH BASKET.

THIRD ANGLE PROJECTION

TOLERANCES-UNLESS OTHERWISE NOTED
DECIMAL .X =±.1" .XX =±.02" .XXX =±.005"
FRACTIONAL ≤24" =±1/16" >24" =±1/8"
ANGULAR =± 1°
MAX. MACHINED SURFACE FINISH 125

REV.	DATE	REVISION	DRAWN	APP'D

LRT Lockwood Remediation Technologies LLC
89 Crawford Street
Leominster, MA 01453
Tel: 774.450.7177
Fax: 888.835.0617

LRT Provided Bag Filter Housing

EQUIPMENT:	BAG FILTER HOUSING (EB SERIES)
MODEL NO:	S4EB112-2P-SW
CUSTOMER:	-

PARENT: NONE	DRAWN: CR	DATE: JAN 13 2011	JOB No. V-	DWG. No. 001-0123	REV. No. 0
PAGE: 1 OF 4	CHK'D: JM	SCALE: NTS			

Polyester Liquid Filter Bag

Features

* Polyester liquid bag filter are available with a carbon steel ring, stainless steel ring or plastic flanges.
* Heavy-duty handle eases installation and removal
* Metal ring sewn into bag top for increased durability and positive sealing
* Wide array of media fibers to meet needed temperature and micron specifications

Applications

Polyester liquid filter bags can be used in the filtering of a wide array of industrial and commercial process fluids

Sizes

Our liquid filter bags are available for all common liquid bag housings. Dimensions range from 4.12" diameter X 8" length thru 9" diameter X 32" length.

Micron Ratings

Available fibers range from 1 to 1500 microns

Options

* Bag finish or covers for strict migration requirements.
* Plastic top O.E.M. replacements
* Multi-layered filtering capabilities for higher dirt holding capacities

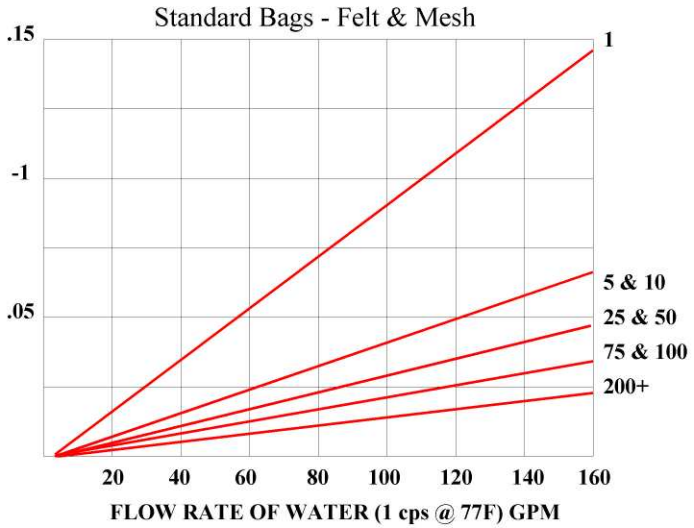
Optional Filter Media

Felt: Nomex, Polyester, Polypropylene

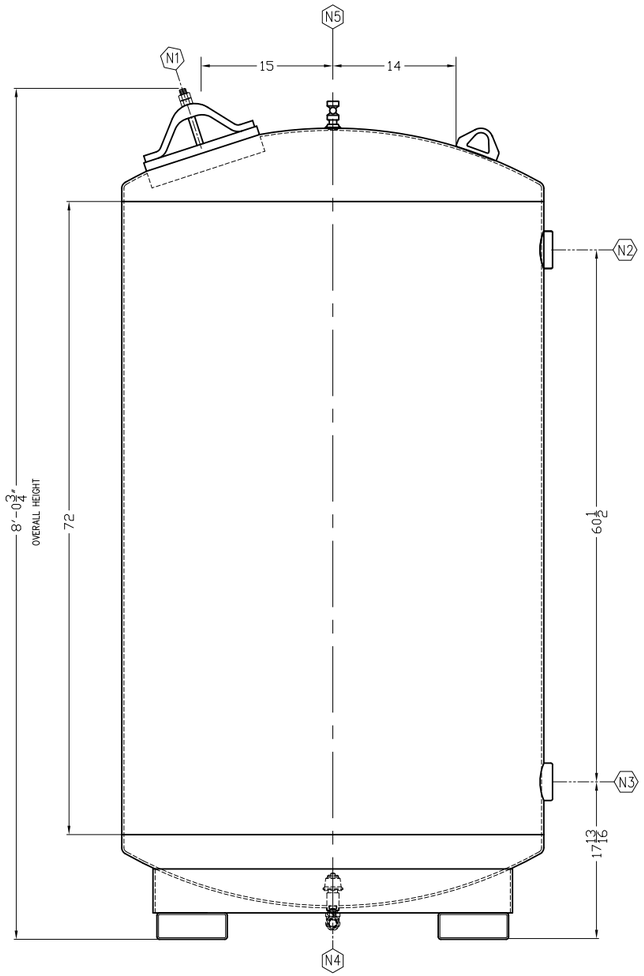
Monofilament: Nylon, Polyester, Polypropylene

Multifilament: Nylon, Polyester

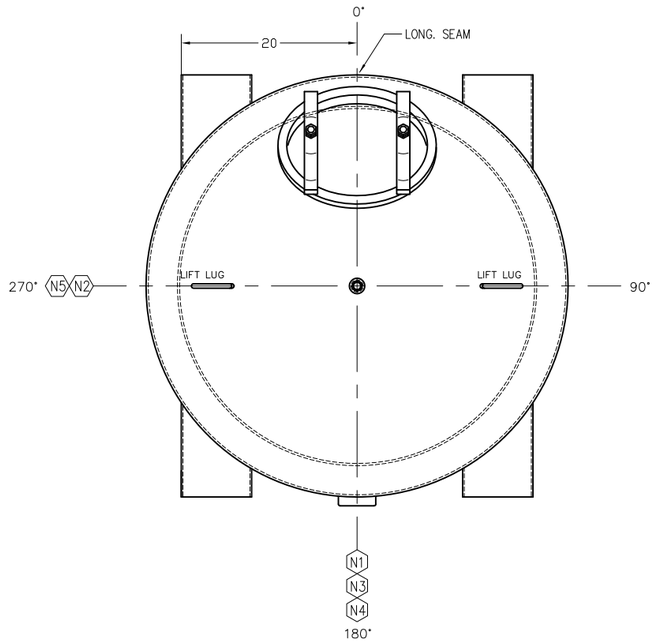
Polypropylene: Oil Removal



RevNo	Revision note	Date	Signature	Checked



ELEVATION VIEW
NOT TRUE ORIENTATION



PLAN VIEW
TRUE ORIENTATION

NOZZLE SCHEDULE

ID	*Description*	*Service*
N1	14" x 18" ELLIPTICAL MANWAY w/COVER	Upper bed access with Cover (SA-36), Bolts, Neoprene Gasket
N2	3" MNPT 3000# Coupling	Process Inlet
N3	3" MNPT 3000# Coupling	Process Outlet
N4	1/2" 150# Thrd Tank Flange	Drain w/1/2" Ball Valve
N5	1/4" 150# Thrd Tank Flange	VENT
N6		
N7		

COATINGS SCHEDULE

Surface	*Surface Preparation*	*Product Specification*
Internal - 1	SSPC-SP6	SW Macropoxy 646 10-20 mils DFT
Internal - 2	Inspect	SW Macropoxy 646 10-20 mils DFT
External - 1	SSPC-SP6	SW Macropoxy 646 5-10 mils DFT
External - 2	n/a	Carboline Carbothane 8845 3-5 mils DFT (Blue)
External - 3	n/a	n/a

NOTES

Item	*Details*
Construction	Non-Code Design Pressure: 75 PSIG @ 140 DEG F.
Mtrls Vessel	Shell: SA-36 Heads: SA-36 Pipe: SA-53 (see nozzle detail for others)
Mtrls Interls	Laterals (.012" Slot),: 304 SS Gaskets: Buna-N
n/a	n/a
n/a	n/a
Media	TBD

2,000 lb. High Pressure
Liquid Media Vessel

Lockwood Remediation Technologies, LLC
89 Crawford Street
Leominster, Massachusetts 01453
O: 774-450-7177
F: 888-835-0617

89 Crawford Street
Leominster, Massachusetts 01453
Tel: 774.450.7177
Fax: 888.835.0617
www.lrt-llc.net

FILTRATION MEDIA :
8x30 RE-ACTIVATED CARBON
4x10 RE-ACTIVATED CARBON

GENERAL DESCRIPTION

Select Re-Activated carbon from domestic sources is quality screened during our purchasing process for activity, density and fines. The use of re-activated carbon is recommended as a lower cost alternative for most sites where drinking water quality is not necessary. In many cases our re-activated carbon meets and exceeds imported virgin carbon. In addition all carbon either sold by itself or installed in our filtration units traced by lot number to the installation or sale.

8x30 (Liquid Phase) Standard Specifications:	Standard	Value
Iodine Number	ASTM D-4607	800 Minimum
Moisture Content	ASTM D-2867	5% Maximum (as packed)
Particle Size	ASTM D-2862	8x30 US Mesh
Ash		10% Maximum
Total Surface Area (N2BET)		1050 Minimum
Pore Volume (cc/g)		0.75

4*10 (Vapor Phase) Standard Specifications:	Standard	Value
Carbon Tetrachloride Activity Level	ASTM D-3467	40 Minimum
Moisture Content	ASTM D-2867	5% Maximum (as packed)
Particle Size	ASTM D-2862	4x10 US Mesh
Ash		10% Maximum
Total Surface Area (N2BET)		1050 Minimum
Pore Volume (cc/g)		0.75

RESINTECH INC
INNOVATIONS IN ION EXCHANGE

CGS

CATION EXCHANGE RESIN
SOFTENING GRADE
Na FORM

RESINTECH CGS is a sodium form standard crosslinked gel strong acid cation resin. *CGS* is optimized for residential applications that require good regeneration efficiency and high capacity. *RESINTECH CGS* is intended for use in all residential and commercial softening applications that do not have significant amounts of chlorine in the feedwater. *CGS* is supplied in the sodium form.

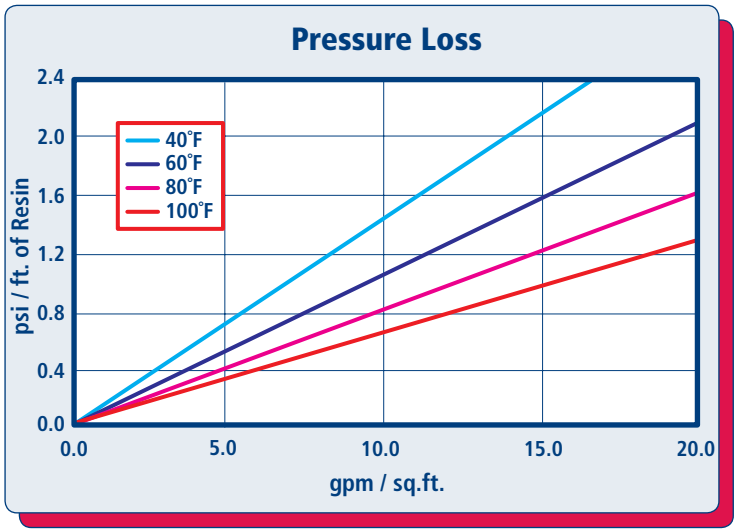
NSF/ANSI 44-61 CERTIFIED FOR MATERIAL SAFETY

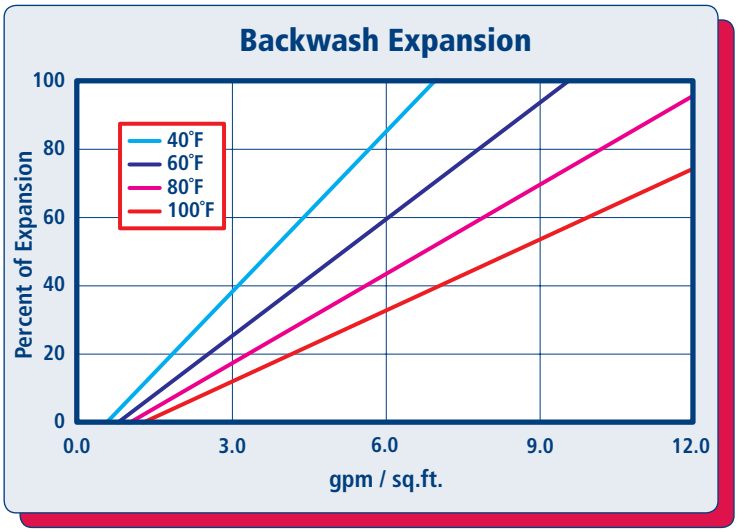
FEATURES & BENEFITS

- **RESIDENTIAL SOFTENING APPLICATIONS**
  Resin parameters are optimized for residential softeners
- **LOW COLOR THROW**
- **SUPERIOR PHYSICAL STABILITY**
  93% plus sphericity and high crush strengths together with carefully controlled particle distribution provides long life and low pressure drop
- **COMPLIES WITH US FDA REGULATIONS**
  Conforms to paragraph 21CFR173.25 of the Food Additives Regulations of the US FDA

Prior to first use for potable water, resin should be backwashed for a minimum of 20 minutes, followed by 10 bed volumes of downflow rinse.

HYDRAULIC PROPERTIES





PRESSURE LOSS

The graph above shows the expected pressure loss of *ResinTech CGS* per foot of bed depth as a function of flow rate at various temperatures.

BACKWASH

The graph above shows the expansion characteristics of *ResinTech CGS* as a function of flow rate at various temperatures.

160 Cooper Road • West Berlin, NJ 08091 USA • p: 856.768.9600 • f: 856.768.9601 • e: ixresin@resintech.com • w: resintech.com

RESINTECH® CGS

PHYSICAL PROPERTIES

Polymer Structure	Styrene/DVB
Polymer Type	Gel
Functional Group	Sulfonic Acid
Physical Form	Spherical beads
Ionic Form as shipped	Sodium
Total Capacity	
Sodium form	>1.8 meq/mL
Water Retention	
Sodium form	40 to 52 percent
Approximate Shipping Weight	
Sodium form	50 lbs./cu.ft.
Screen Size Distribution (U.S. mesh)	16 to 50
Maximum Fines Content (<50 mesh)	1 percent
Minimum Sphericity	90 percent
Uniformity Coefficient	1.6 approx.
Resin Color	Amber

Note: Physical properties can be certified on a per lot basis, available upon request

SUGGESTED OPERATING CONDITIONS

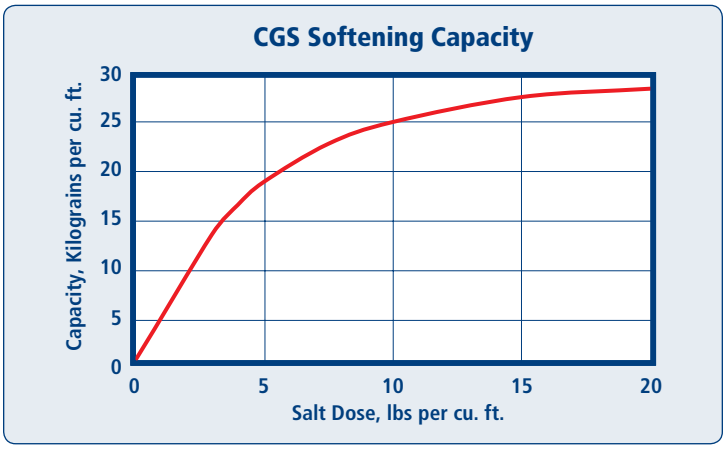
Maximum continuous temperature	
Sodium form	250˚F
Minimum bed depth	24 inches
Backwash expansion	25 to 50 percent
Maximum pressure loss	25 psi
Operating pH range	0 to 14 SU
Regenerant Concentration	
Salt cycle	10 to 15 percent NaCl
Regenerant level	4 to 15 lbs./cu.ft.
Regenerant flow rate.	0.5 to 1.5 gpm/cu.ft.
Regenerant contact time	>20 minutes
Displacement flow rate	Same as dilution water
Displacement volume	10 to 15 gallons/cu.ft.
Rinse flow rate	Same as service flow
Rinse volume	35 to 60 gallons/cu.ft.
Service flow rate	1 to 10 gpm/cu.ft.

Note: These guidelines describe average low risk operating conditions. They are not intended to be absolute minimums or maximums.
For operation outside these guidelines, contact ResinTech Technical Support

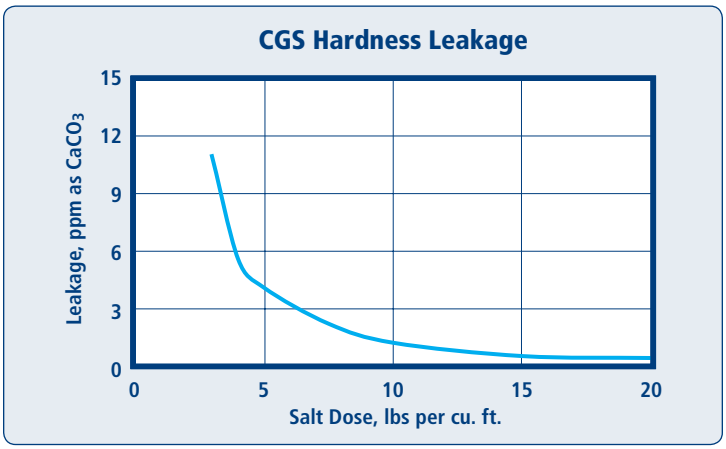
APPLICATIONS

SOFTENING

ResinTech CGS is a standard crosslinked cation resin optimized for residential and commercial applications. This type of resin is easier to regenerate than the higher crosslinked resins. CGS has marginal resistance to chlorine and other oxidants and is not ideal for high temperature and other high stress applications.



Capacity and leakage data are based on the following: 2:1 Ca:Mg ratio, 500 ppm TDS as CaCO3, 0.2% hardness in the salt and 10% brine concentration applied co-currently through the resin over 30 minutes. No engineering downgrade has been applied.



RESINTECH INC.
INNOVATIONS IN ION EXCHANGE

East Coast - West Berlin, NJ p:856.768.9600 • Midwest - Chicago, IL p:708.777.1167 • West Coast - Los Angeles, CA p:323.262.1600

CAUTION: DO NOT MIX ION EXCHANGE RESIN WITH STRONG OXIDIZING AGENTS. Nitric acid and other strong oxidizing agents can cause explosive reactions when mixed with organic materials, such as ion exchange resins.

MATERIAL SAFETY DATA SHEETS (MSDS) are available for all ResinTech Inc. products. To obtain a copy, contact your local ResinTech sales representative or our corporate headquarters. They contain important health and safety information. That information may be needed to protect your employees and customers from any known health and safety hazards associated with our products. We recommend that you secure and study the pertinent MSDS for our products and any other products being used. These suggestions and data are based on information we believe to be reliable. They are offered in good faith. However we do not make any guarantee or warranty. We caution against using these products in an unsafe manner or in violation of any patents; further we assume no liability for the consequences of any such actions.

RESINTECH is a registered trademark ® of RESINTECH INC.

SBG1

ANION EXCHANGE RESIN TYPE ONE GEL Cl OR OH FORM

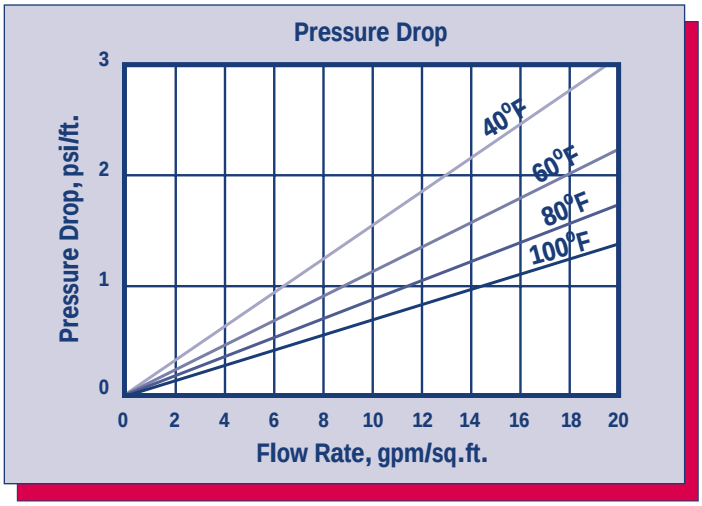
RESINTECH SBG1 is a high capacity, shock resistant, gelular, Type 1, strongly basic anion exchange resin supplied in the chloride or hydroxide form as moist, tough, uniform, spherical beads. *RESINTECH SBG1* is intended for use in all types of deionization systems and chemical processing applications. It is similar to *RESINTECH SBG1P* but has a higher volumetric capacity and exhibits lower TOC leach rates. This makes it the better performer in single use applications such as in cartridge deionization and when high levels of regeneration are used such as in polishing mixed beds. On the other hand, *RESINTECH SBG1P* is more resistant to organic fouling and gives higher operating capacities at low regeneration levels such as those used in make up demineralizers.

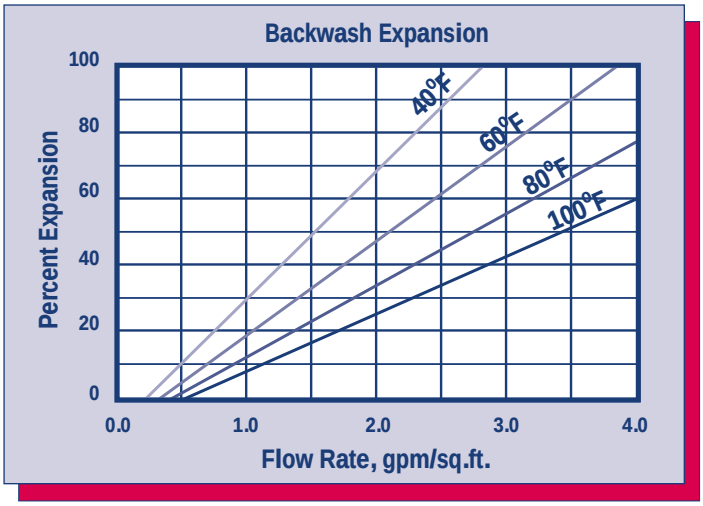
FEATURES & BENEFITS

- **COMPLIES WITH FDA REGULATIONS FOR POTABLE WATER APPLICATIONS.**
  Conforms to paragraph 21CFR173.125 of the Food Additives Regulations of the F.D.A.*
- **HIGH TOTAL CAPACITY**
  Provides longer run lengths in single use applications or where high levels of regeneration are used such as in mixed bed polishers, cartridge demineralizers.
- **UNIFORM PARTICLE SIZE**
  16 to plus 50 mesh range; gives a LOWER PRESSURE DROP while maintaining SUPERIOR KINETICS.
- **SUPERIOR PHYSICAL STABILITY**
- **LOWER TOC LEACH RATE**
  Makes it ideal for polishing mixed beds in wafer washing and other high purity water polishing applications.

*For potable water applications, the resin must be properly pre-treated, usually by multiple exhaustion and regeneration cycles, to ensure compliance with extractable levels.

HYDRAULIC PROPERTIES





PRESSURE DROP

The graph above shows the expected pressure loss per foot of bed depth as a function of flow rate, at various temperatures.

BACKWASH

After each cycle the resin bed should be backwashed at a rate that expands the bed 50 to 75 percent. This will remove any foreign matter and reclassify the bed. The graph above shows the expansion characteristics of *RESINTECH SBG1* in the sodium form.

RESINTECH® SBG1

PHYSICAL PROPERTIES

Polymer Structure	Styrene Crosslinked with DVB
Functional Group	R-N-$(CH_3)_3^+Cl^-$
Ionic Form, as shipped	Chloride or Hydroxide
Physical Form	Tough, Spherical Beads
Screen Size Distribution	16 to 50
+16 mesh (U.S. Std)	< 5 percent
-50 mesh (U.S. Std)	< 1 percent
pH Range	0 to14
Sphericity	> 93 percent
Uniformity Coefficient	Approx. 1.6
Water Retention	
Chloride Form	43 to 50 percent
Hydroxide Form	Approx. 53 to 60 percent
Solubility	Insoluble
Approximate Shipping Weight	
Cl Form	44 lbs/cu.ft.
OH Form	41 lbs/cu.ft.
Swelling Cl- to OH-	18 to 25 percent
Total Capacity	
Cl Form	1.45 meq/ml min
OH Form	1.15 meq/ml min

SUGGESTED OPERATING CONDITIONS

Maximum Continuous Temperature	
Hydroxide Form	140°F
alt Form	170°F
Minimum Bed Depth	24 inches
Backwash Rate	50 to 75 percent Bed Expansion
Regenerant Concentration*	2 to 6 percent
Regenerant Flow Rate	0.25 to 1.0 gpm/cu.ft.
Regenerant Contact Time	At least 40 Minutes
Regenerant Level	4 to 10 pounds/cu.ft.
Displacement Rinse Rate	Same as Regenerant Flow Rate
Displacement Rinse Volume	10 to 15 gals/cu.ft.
Fast Rinse Rate	Same as Service Flow Rate
Fast Rinse Volume	35 to 60 gals/cu.ft.
Service Flow Rates	
Polishing Mixed Beds	3 to 15 gpm/cu.ft.
Non-Polishing Apps.	2 to 4 gpm/cu.ft.

OPERATING CAPACITY

The operating capacity of *RESINTECH SBG1* for a variety of acids at various regeneration levels when treating an influent with a concentration 500 ppm, expressed as $CaCO_3$ is shown in the following table:

Pounds $NaOH/ft^3$	Capacity Kilograms per cubic foot			
	HCl	H_2SO_4	H_2SiO_3	H_2CO_3
4	11.3	14.0	14.7	18.6
6	12.8	16.3	17.3	19.8
8	14.3	13.3	19.5	21.6
10	15.5	20.0	22.2	22.2

APPLICATIONS

DEMINERALIZATION – *RESINTECH SBG1* is highly recommended for use in mixed bed demineralizers, wherever complete ion removal; superior physical and osmotic stability and low TOC leachables are required such as in wafer fabrication and other ultrapure applications.

RESINTECH SBG1 has high total capacity and low swelling on regeneration and provides maximum operating capacity in cartridge deionization applications. It is ideal for single use applications such as precious metal recovery, radwaste disposal and purification of toxic waste streams.

Highly crosslinked Type 1, styrenic anion exchangers have greater thermal and oxidation resistance than other types of strong base resins. They can be operated and regenerated at higher temperatures. The combination of lower porosity, high total capacity and Type 1 functionality make *RESINTECH SBG1* the resin of choice when water temperatures exceed 85°F and where the combination of carbon dioxide, borate and silica exceed 40% of the total anions.

RESINTECH SBG1P and *RESINTECH SBG1* are quite similar; the difference between them is the degree of porosity. *RESINTECH SBG1P* has greater porosity that gives it faster kinetics, and greater ability to reversibly sorb slow moving ions such as Naturally occurring Organic Matter (NOM). At lower regeneration levels and where chlorides make up a substantial portion of the anion load, or where the removal and elution of naturally occurring organics is of concern *RESINTECH SBG1P*, SBACR or SBG2 should be considered. At the higher regeneration levels used in mixed bed polishers *RESINTECH SBG1* provides higher capacity, and the lowest possible TOC leach rates.

***CAUTION:DO NOT MIX ION EXCHANGE RESIN WITH STRONG OXIDIZING AGENTS.** Nitric acid and other strong oxidizing agents can cause explosive reactions when mixed with organic materials,such as ion exchange resins.

Material Safety Data Sheets (MSDS) are available for all ResinTech Inc.products.To obtain a copy,contact your local ResinTech sales representative or our corporate headquarters. They contain important health and safety information.That information may be needed to protect your employees and customers from any known health and safety hazards associated with our products.We recommend that you secure and study the pertinent MSDS for our products and any other products being used These suggestions and data are based on information we believe to be reliable.They are offered in good faith.However we do not make any guarantee or warranty. We caution against using these products in an unsafe manner or in violation of any patents;further we assume no liability for the consequences of any such actions.

RESINTECH is a registered trademark ® of RESINTECH INC.

ZENNER PERFORMANCE
Cast Iron Turbine Meters
Sizes 2” through 12”

INTRODUCTION: ZENNER PERFORMANCE Turbine Meters are designed for applications where flows are usually moderate to high and occasionally low. They are used in measurement of potable cold water in commercial and industrial services where flows are in one direction.

OPERATION: Water flows through the turbine section which causes the rotor to turn proportionately to the quantity of water flowing through the meter. A drive magnet transmits the motion of the rotor to a driven magnet located within the hermetically sealed register. The magnet is connected to a gear train which translates the rotations into volume totalization displayed on the register dial face. The only moving parts in the meter are the rotor assembly and vertical shaft .

CONSTRUCTION: ZENNER PERFORMANCE Turbine Meters consist of three basic components: Cast Iron Epoxy Coated main case, measuring element, and sealed register. The measuring element assembly includes the rotor assembly, vertical shaft and a calibration vane which eliminates the need for calibration change gears.

MAINTENANCE: ZENNER PERFORMANCE Turbine Meters are engineered and manufactured to provide long-term service and operate virtually maintenance free. If necessary the universal measuring element (UME) can be removed from the main case for maintenance. Interchangeability of certain parts between like sized meters minimizes spare parts inventory.

CONFORMANCE: ZENNER PERFORMANCE Turbine Meters are tested and comply with AWWA C701 Class II performance standards.

STRAINERS: ZENNER PERFORMANCE recommends the use of a separate strainer upstream from the turbine meter. Strainers reduce the chance of damage to the rotor as well as the frequency in which it must be removed for inspection. The lack of a strainer may void the warranty of the turbine meter.

CONNECTIONS: Companion flanges for installation of meters on various pipe types and sizes are available in bronze or cast iron.

PMT04

PMT06

ZENNER PERFORMANCE
15280 Addison Rd #340, Addison, TX 75001, (972) 386-6611, Fax (972) 386-1814
www.zennerusa.com

MODEL		PMT02	PMT03	PMT04	PMT06	PMT08	PMT10	PMT12
SIZE		2"	3"	4"	6"	8"	10"	12"
Flow rate maximum intermittent	USGPM	400	550	1250	2500	4500	7000	8800
Maximum continuous	USGPM	200	450	1000	2000	3500	5500	6200
Optimum operating flow range	USGPM	3 - 200	5 - 550	10 - 1250	20 - 2500	30 - 4500	50 - 7000	90 - 8800
Low flow rate	USGPM	2	2-1/2	5	12	20	45	65
Start-up flow rate	USGPM	7/8	1-1/8	1-3/8	7-1/2	8	15	15
Maximum Working Pressure	P.S.I.	160	160	160	160	160	160	160
Maximum Temperature	Deg. F	140	140	140	140	140	140	140
Length	Inches	7-7/8	8-7/8	9-7/8	11-7/8	13-3/4	17-3/4	19-5/8
Height	Inches	9-1/2	10-1/4	11	12-7/8	14-1/4	19	20-1/4
Width	Inches	7	7-1/2	9	11	13-1/2	16	19
Weight	Pounds	24	32	38	84	126	225	255
Number of holes per flange		4	4	8	8	8	12	12

ZENNER PERFORMANCE
15280 Addison Rd #340, Addison, TX 75001, (972) 386-6611, Fax (972) 386-1814
www.zennerusa.com

Appendix D

Supporting Information

LRT
Lockwood Remediation
Technologies LLC

MassDEP - Bureau of Waste Site Cleanup

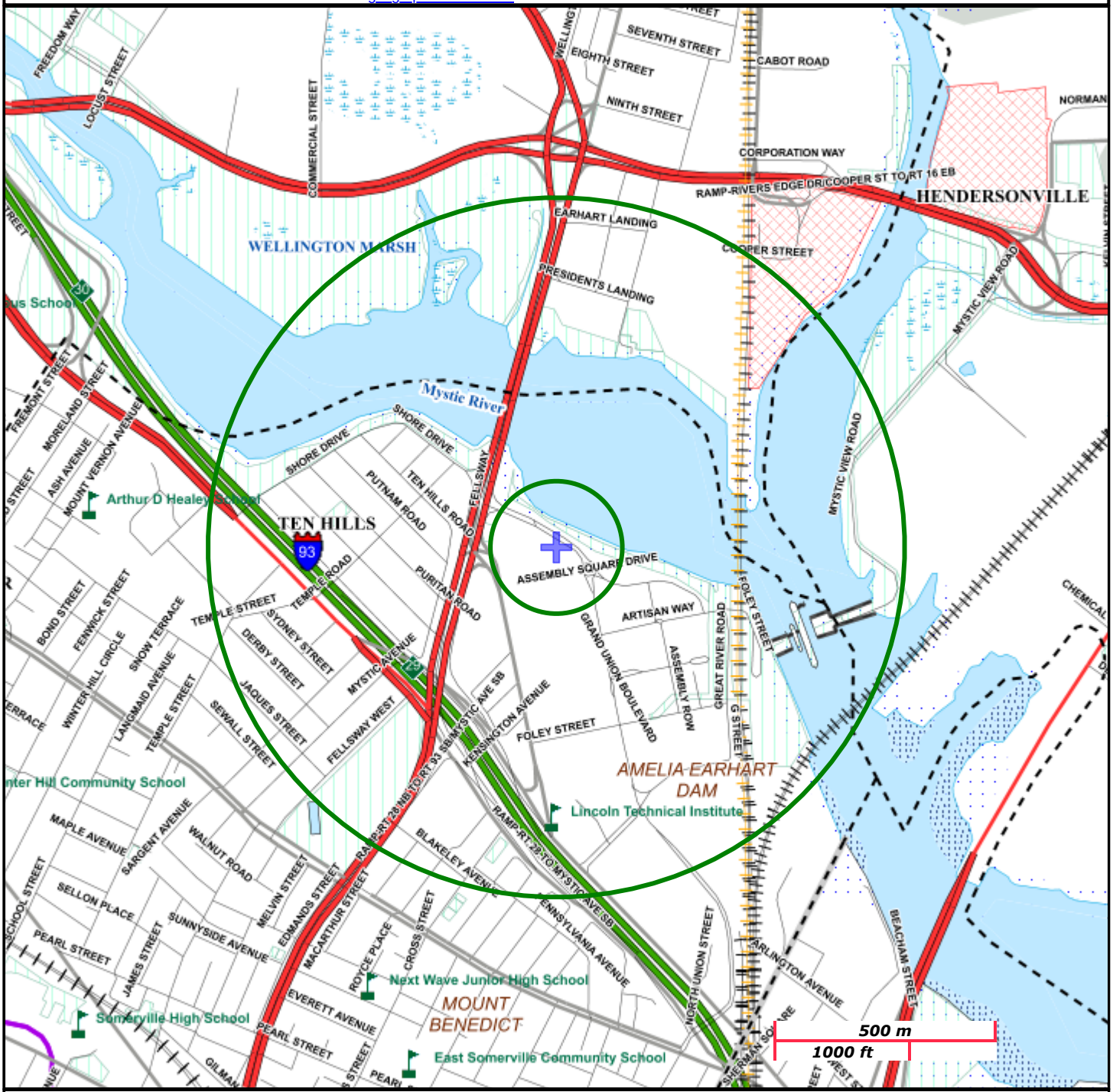
Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii

Site Information:
XMBLY
5 MIDDLESEX AVE SOMERVILLE, MA

NAD83 UTM Meters:
4695918mN , 328619mE (Zone: 19)
December 23, 2021

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

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection



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

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

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

Aquifers: Medium Yield, High Yield, EPA Sole Source

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

PWS Protection Areas: Zone II, IWPA, Zone A

Hydrography: Open Water, PWS Reservoir, Tidal Flat

Wetlands: Freshwater, Saltwater, Cranberry Bog

FEMA 100yr Floodplain; Protected Open Space; ACEC

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

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

Documentation of the National Historic Preservation Act Eligibility Determination:

As part of this permit, a determination was made as to whether there were any historic properties or places listed on the national register in the path of the discharge or in the vicinity of the construction of treatment systems or BMPs related to the discharge. A search on the Massachusetts Cultural Resource Information System Database and the National Register of Historic Places did not list any potential historic properties near the project site in the databases. A building was listed on the project Site located at 5 Middlesex Avenue, Somerville, MA. We understand that the current conceptual plan for the overall project includes demolishing the existing structure at 5 Middlesex Avenue and constructing three laboratory buildings (Buildings A, B, and C) along with a precast parking garage. Therefore, the proposed discharge will not have the potential to cause effects on historical properties.

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

Search Criteria: Town(s): Somerville; Street No: 5; Street Name: middlesex Ave; Resource Type(s): ü, Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year
SMV.671	First National Store Warehouse and office	5 Middlesex Ave	Somerville	c 1927

Documentation of the Results of the ESA Eligibility Determination:

Using information in Appendix II of the NPDES RGP, the project located at 5 Middlesex Avenue Somerville, MA is eligible for coverage under this general permit under FWS Criterion A. This project is located in Middlesex County. No designated critical habitats were listed in the project area. An Endangered Species Consultation was conducted on the U.S. Fish & Wildlife Service New England Field Office ECOS IPaC webpage for the Site:

No Endangered species were found at this location.

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:
Consultation Code: 05E1NE00-2022-SLI-0929
Event Code: 05E1NE00-2022-E-03267
Project Name: XMBLY

December 22, 2021

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-0929
Event Code: Some(05E1NE00-2022-E-03267)
Project Name: XMBLY
Project Type: DEVELOPMENT
Project Description: Constuction of 3 new buildings with a parking garage.
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.3911558,-71.08196305320755,14z

Counties: Middlesex County, Massachusetts

Endangered Species Act Species

There is a total of 1 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.

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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.

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 E

Town of Somerville DPW Correspondence

From: Carlo Lombardo
To: jlathan@somervillema.gov
Cc: Kim Gravelle
Subject: Construction Dewatering Discharge
Date: Thursday, December 30, 2021 1:16:27 PM

Good Afternoon,

I am reaching out to make a request for permission to discharge treated water to the Somerville Storm Sewer with a final outfall to the mystic river. Permission from the municipality is required as part of the permitting process if the storm sewer is to be used. The project in question is located at 5 Middlesex Ave. in Somerville.

Thank you,

Carlo Lombardo
Staff Scientist

Lockwood Remediation Technologies, LLC
89 Crawford Street
Leominster, MA 01453
O: 774-450-7177
C: 978-514-5577
clombardo@lrt-llc.net

www.lrt-llc.net **Check out our new website! What solutions can we provide for you?**