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

May 27, 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)**
Temporary Construction Dewatering for Site Redevelopment
85-87 and 119 Boston Street
Everett, Massachusetts 02149

Dear Sir/Madam:

On behalf of CI-GS Elan Everett Phase I, LLC, Lockwood Remediation Technologies, LLC (LRT) is submitting this Notice of Intent (NOI) to the U.S. Environmental Protection Agency (U.S. EPA) for coverage under the National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) MAG910000 for a portion of 85-87 and 119 Main Street in Everett, Massachusetts (the Site). This letter and supporting documentation were prepared in accordance with the U.S. EPA guidance for construction dewatering under the RGP program. Greystar is the general contractor for the project and will have responsibility of the subcontractors performing the dewatering activities at the Site. Subcontractors working for Greystar on the project will be required to meet the requirements of this NOI and the RGP. The completed NOI Form is provided in **Appendix A**.

Site Information

The Site consists of two contiguous parcels comprising approximately 5.91 acres located at 85-87 and 119 Boston Street in Everett, Massachusetts. The Site is bounded by Boston Street to the northwest, Vale Street to the northeast, and East Elm Street to the southwest. The border between the cities of Everett and Chelsea comprises the southeastern bounds of the Site. The Site currently consists of vacant land where the former Site building and temporary structures were recently demolished and/or removed in preparation for redevelopment. This NOI has been prepared for the management groundwater that will be generated during dewatering activities associated with excavation activities. A Site Locus depicting the location of the Site and the discharge location into the Island End River via a storm drain outfall is provided as **Figure 1.** A Site Plan satisfying the requirements of RGP Appendix IV Part I.B and I.D is provided as **Figure 2.**

Work Summary

Redevelopment activities at the Site include excavation of urban fill and natural soils to support the construction of a 6-story mixed-use building consisting of residential, amenity, and retail space along with an above-grade, pre-cast concrete parking garage. Below-grade features of the proposed development

include a swimming pool, a stormwater system, and subsurface utilities. The Site and proposed redevelopment plans are depicted on **Figure 2**.

The earthwork to prepare the Site for redevelopment will require excavation of soil to approximately 1 to 8 feet below ground surface (bgs) depending on the location. Groundwater is anticipated to be encountered at approximately 5.5 feet bgs. To complete the proposed excavation activities in the dry, dewatering will be required to lower the groundwater table as the work is being performed. To do this, filtered sumps will be placed in low spots within the excavation. Groundwater that flows into the excavations during construction activities that requires dewatering and cannot be discharged back into the ground will be treated prior to discharge to an existing storm drain in the vicinity of the Site (along Boston Street or Vale Street) such that the discharged effluent meets the effluent limitations established by NPDES Part 2.1 and Appendix V of the RGP Application. **Figure 3** includes a schematic of the proposed water treatment system. The completed NOI for the Remediation General Permit form is included as **Appendix A**. Drawings depicting the locations of the potential storm water discharge catch basins are provided in **Appendix B**.

Discharge and Receiving Surface Water Information

On March 22, 2021, Sanborn Head & Associates, the project's environmental consultant, collected samples to characterize the receiving and Source waters in support of this NOI. The Source water sample was collected from existing groundwater monitoring well SH-GP-103W, which is representative of site groundwater conditions. The receiving water sample was collected from the Island End River adjacent to the proposed outfall discharge location. The groundwater samples were collected from dedicated, disposable bailers and were submitted to Alpha Analytical Laboratory (Alpha) of Westborough, MA for analysis for the 2017 NPDES suite of parameters.

The receiving surface water discharge point for the treatment system will be the Island End River. Information regarding the receiving water was collected from the Massachusetts Year 2016 Integrated List of Waters which is included in **Appendix C**. Dilution calculation information, including correspondence with the Massachusetts Department of Environmental Protection (MassDEP), is included in **Appendix D**. Analytical results for the Source water and receiving water samples are summarized in **Table 1**, and analytical laboratory data reports are included in **Appendix E**. Email correspondence documenting communication with the City of Everett Department of Public Works (DPW) and the City of Everett Storm Sewer Map are included in **Appendix F**. Please note that a Permit to Dewater will be submitted to the City of Everett DPW upon issuance of a NPDES RGP to facilitate discharge to the municipal storm sewer system.

Based on the analytical results, concentrations of iron, lead, total suspended solids (TSS) and polycyclic aromatic hydrocarbons (PAHs) 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 and carbon treatment prior to discharge. It is assumed that metal concentrations will be handled by settling and bag filtration. Chemical aided settling, aeration, zeolite filtration and anion ion exchange have been included as contingency treatment options if additional analytes are encountered that would require further treatment beyond the base water treatment system. Details of the water treatment system are provided below.

Consultation with Federal Services

Based on a review of information obtained from the Information for Planning and Conservation (IPaC), available through the U.S. Fish and Wildlife Service (FWS) website, the excavation activities will not impact Areas of Critical Environmental Concern (ACEC) or Habitats of Rare Wetland Wildlife. A letter from the FWS is included in **Appendix G**. An email requesting information regarding federally listed species in the project discharge area of the Charles River was sent to the National Oceanic and Atmospheric Administration (NOAA), and their response, included in **Appendix G**, states that no listed species are known to occur in the Island End River in the area of discharge.

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

Based on this information, 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.

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 I**.

Source water will be pumped to the primary water treatment system with a design flow of up to 150 gallons per minute (gpm); the average effluent flow of the system is estimated to be 75 gpm, and the maximum flow will not exceed 150 gpm. Source water will enter a weir tank at the head of the system. Water from the weir tank will be pumped to a bag filter skid followed by two carbon vessels plumbed in series. As detailed above, treated water will be discharged to an existing storm drain in the vicinity of the Site (along Boston Street or Vale Street), which ultimately discharges to an outfall (Outfall OFF 11-01) to the Island End River, as depicted on **Figure 1**. Effluent sampling will correspond with this discharge location.

If required, contingency treatment will include pH adjustment, chemical aided settling, aeration via blower, zeolite media and/or anion ion exchange media treatment. Discharge from the media vessels will pass through a flow/totalizer meter prior to discharge into the Island End River.

Chemical and Additive Information

Based on groundwater samples collected from the site and in efforts to meet the expected effluent limitations, the following chemicals and additives have been proposed as a contingency item for the treatment system: pH adjustment (sulfuric acid or sodium hydroxide), 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 I**.

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 chemical aided settling system will be added in two parts, the coagulant (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 order of magnitude less than the dosing concentration). This is because nearly all the chemical becomes incorporated in the sludge and removed from the waste stream as solids from the frac and weir tanks.

The addition of pH conditioners and chemical aided settling system chemicals will 1) Not add any pollutant 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 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.

Coverage under NPDES RGP

It is our opinion that the proposed discharge is eligible for coverage under the NPDES RGP. On behalf of CI-GS Elan Everett Phase I, LLC we are requesting coverage under the NPDES RGP for the discharge of treated groundwater to the Island End River in support of construction dewatering activities that are to take place at the Site. **Please note that a Release Notification Form (RNF) is currently being prepared for the Site and will be filed with the MassDEP on or around June 7, 2021.**

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, LRT is considered the Operator and has operational control over the water treatment system and discharge activities, including the ability to make modifications to the water treatment system in accordance with the NPDES RGP.

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

Brian Caccavale *Kim Gravelle*

Brian Caccavale
Project Manager

Kim Gravelle, P.G.
Senior Project Manager

Encl. Table 1 – Summary of Water Quality Data
Figure 1 – Locus Plan
Figure 2 – Exploration Location Plan
Figure 3 – Water Treatment System Schematic
Appendix A – Notice of Intent Form
Appendix B – Proposed Stormwater Discharge Locations
Appendix C – Selected Massachusetts Category 5 Waters
Appendix D – Island End River Dilution Calculations
Appendix E – Analytical Data Reports
Appendix F – City of Everett Correspondence and Storm Sewer Map
Appendix G – Federal Correspondence
Appendix H – National Register of Historic Places – Middlesex County, MA
Appendix I – Water Treatment System Cutsheets

cc: Everett Public Health Department
Catherine Vakalopoulos – MassDEP (via email)
Mr. Kevin Stetson, P.E. – Sanborn, Head & Associates, Inc. (via email)
Mr. Michael MacInnes – D&M Civil, Inc. (via email)
Mr. Paul Scenna – D&M Civil, Inc. (via email)
Mr. Peter Roche – Greystar (via email)

Table

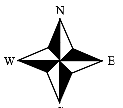
Table 1
Summary of Groundwater Quality Data
85-87 and 119 Boston Street
Everett, MA

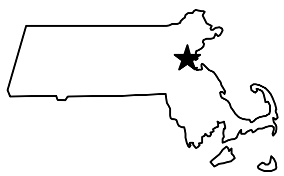
LOCATION SAMPLING DATE	MCP RCGW-2	NPDES TBEL	NPDES WQBEL	Units	SH-GP-103W 3/22/2021	SW 3/22/2021
Anions by Ion Chromatography						
Chloride	NS	Monitor Only	Monitor Only	ug/L	**1140000**	**7070000**
General Chemistry						
Chromium, Trivalent	500	323	NS	ug/L	**17**	<10
Solids, Total Suspended	NS	30	NS	ug/L	**130000**	**42000**
Cyanide, Total	30	178,000	NS	ug/L	**14**	**15**
Chlorine, Total Residual	NS	200	NS	ug/L	<20	<20
Nitrogen, Ammonia	NS	Monitor Only	Monitor Only	ug/L	**10800**	**393**
Chromium, Hexavalent	300	323	NS	ug/L	<10	<10
Salinity	NS	NS	NS		2.4	12
Hardness as CaCO3	NS	NS	NS	ug/L	489	2080
pH	NS	NS	NS	ug/L	**7.55**	**7.86**
Microextractables by GC						
1,2-Dibromoethane	2	0.05	NS	ug/L	<0.01	<0.01
Polychlorinated Biphenyls by GC						
Total PCBs		0.000064	0.5	ug/L	<0.25	<0.25
Semivolatile Organics by GC/MS						
Bis(2-ethylhexyl)phthalate	50000	101	NS	ug/L	<2.2	<2.2
Butyl benzyl phthalate	10000	NS	NS	ug/L	<5	<5
Di-n-butylphthalate	5000	NS	NS	ug/L	<5	<5
Di-n-octylphthalate	100000	NS	NS	ug/L	<5	<5
Diethyl phthalate	9000	NS	2.2	ug/L	<5	<5
Dimethyl phthalate	50000	NS	NS	ug/L	<5	<5
Total Phthalates	NS	190	NS	ug/L	<5	<5
Semivolatile Organics by GC/MS-SIM						
Acenaphthene	10000	See "Total Group 2 PAHs"	NS	ug/L	**0.629**	**0.18**
Fluoranthene	200	See "Total Group 2 PAHs"	NS	ug/L	**6.08**	**0.393**
Naphthalene	700	20	NS	ug/L	**0.275**	**0.612**
Benzo(a)anthracene	1000	See "Total Group 1 PAHs"	0.0038	ug/L	**3.08**	<0.1
Benzo(a)pyrene	500	See "Total Group 1 PAHs"	0.0038	ug/L	**2.68**	<0.1
Benzo(b)fluoranthene	400	See "Total Group 1 PAHs"	0.0038	ug/L	**3.67**	**0.153**
Benzo(k)fluoranthene	100	See "Total Group 1 PAHs"	0.0038	ug/L	**1.28**	<0.1
Chrysene	70	See "Total Group 1 PAHs"	0.0038	ug/L	**2.74**	**0.116**
Acenaphthylene	40	See "Total Group 2 PAHs"	NS	ug/L	**0.4**	<0.1
Anthracene	30	See "Total Group 2 PAHs"	NS	ug/L	**1.59**	<0.1
Benzo(ghi)perylene	20	See "Total Group 2 PAHs"	NS	ug/L	**1.9**	<0.1
Fluorene	40	See "Total Group 2 PAHs"	NS	ug/L	**0.747**	**0.194**
Phenanthrene	10000	See "Total Group 2 PAHs"	NS	ug/L	**4.68**	**0.253**
Dibenzo(a,h)anthracene	40	See "Total Group 1 PAHs"	0.0038	ug/L	**0.486**	<0.1
Indeno(1,2,3-cd)pyrene	100	See "Total Group 1 PAHs"	0.0038	ug/L	**2.19**	<0.1
Pyrene	20	See "Total Group 2 PAHs"	NS	ug/L	**5.77**	**0.234**
Pentachlorophenol	200	1.0	NS	ug/L	<1	<1
Total Group 1 PAHs	NS	1.0	NS	ug/L	**16.126**	**0.269**
Total Group 2 PAHs	NS	100	NS	ug/L	**15.716**	**0.861**
Total SVOCs	NS	NS	NS	ug/L	**38.197**	**2.135**
Total Metals						
Antimony, Total	8000	206	NS	ug/L	<20	<4
Arsenic, Total	900	104	10	ug/L	**10.16**	**1.2**
Cadmium, Total	4	10.2	0.1899	ug/L	<1	<0.2
Chromium, Total	300	323	NS	ug/L	**17.15**	<1
Copper, Total	100000	242	6.2	ug/L	**27.13**	**4.11**
Iron, Total	NS	5,000	1000	ug/L	**11400**	**1020**
Lead, Total	10	160	1.73	ug/L	**171**	**6.05**
Mercury, Total	20	0.739	NS	ug/L	**0.25**	<0.2
Nickel, Total	200	1450	NS	ug/L	<10	<2
Selenium, Total	100	235.8	NS	ug/L	<25	<5
Silver, Total	7	35.1	NS	ug/L	<2	<0.4
Zinc, Total	800	420	NS	ug/L	**155.5**	**18.62**
Total Metals						
Lead, Dissolved	10	NS	NS	ug/L	<0.00001	-
Iron, Dissolved	10	NS	NS	ug/L	**0.0005739**	-
Volatile Organics by GC/MS						
Methylene chloride	2000	4.6	NS	ug/L	<2	<1
1,1-Dichloroethane	2000	70	NS	ug/L	<3	<1.5
Carbon tetrachloride	2	4.4	1.6	ug/L	*<2*	<1
1,1,2-Trichloroethane	900	5.0	NS	ug/L	<3	<1.5
Tetrachloroethene	50	5.0	3.3	ug/L	<2	<1
1,2-Dichloroethane	5	5.0	NS	ug/L	<3	<1.5
1,1,1-Trichloroethane	4000	200	NS	ug/L	<4	<2
Benzene	1000	5.0	NS	ug/L	<2	<1
Toluene	40000	See "Total BTEX"	NS	ug/L	<2	<1
Ethylbenzene	5000	See "Total BTEX"	NS	ug/L	<2	<1
Vinyl chloride	2	2.0	NS	ug/L	*<2*	<1
1,1-Dichloroethene	80	3.2	NS	ug/L	<2	<1
cis-1,2-Dichloroethene	20	70	NS	ug/L	<2	<1
Trichloroethene	5	5.0	NS	ug/L	<2	<1
1,2-Dichlorobenzene	2000	600	NS	ug/L	<10	<5
1,3-Dichlorobenzene	6000	320	NS	ug/L	<10	<5
1,4-Dichlorobenzene	60	5.0	NS	ug/L	<10	<5
p/m-Xylene	3000	NS	NS	ug/L	<4	<2
o-xylene	3000	NS	NS	ug/L	<2	<1
Xylenes, Total	3000	See "Total BTEX"	NS	ug/L	<2	<1
Acetone	50000	7970	NS	ug/L	<20	<10
Methyl tert butyl ether	50000	70	20	ug/L	<20	<10
Tert-Butyl Alcohol	NS	120	NS	ug/L	<200	<100
Tertiary-Amyl Methyl Ether	NS	90	NS	ug/L	<40	<20
Total BTEX	NS	100	NS	ug/L	<2	<1
Volatile Organics by GC/MS-SIM						
1,4-Dioxane	6000	200	NS	ug/L	<10	<5

Notes:
1. Samples were collected by Sanborn, Head & Associates, Inc. (Sanborn Head) on the indicated dates and were analyzed by Alpha Analytical Laboratories of Westborough, Massachusetts (Alpha).
2. Bolded values indicate detections above the laboratory reporting limits.
3. Abbreviations:
NPDES = National Pollutant Discharge Elimination System
TBEL = Technology based effluent limitation
WQBEL = Water quality based effluent limitation
MCP = Massachusetts Contingency Plan
RCGW-2 = MCP Reportable Concentration for groundwater category GW-2.
ug/L = micrograms per liter
mg/L = milligrams per liter
"<" indicates the analyte was not detected above the laboratory reporting limit shown
BDL = below detection limit
NS = No Standard

Figures

File:P:\4700s\4719.01\Graphics Files\CAD\RAM-MAR21\ELP.dwg Plot Date: 3-24-21





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: Everett, Massachusetts, REV: 1985

Drawn By: C.Dias/S.Leone
Designed By: A.Coen/A.Campbell
Reviewed By: S.Sadkowski
Project No: 4719.01
Date: April 2021

SCALE: 1:25,000

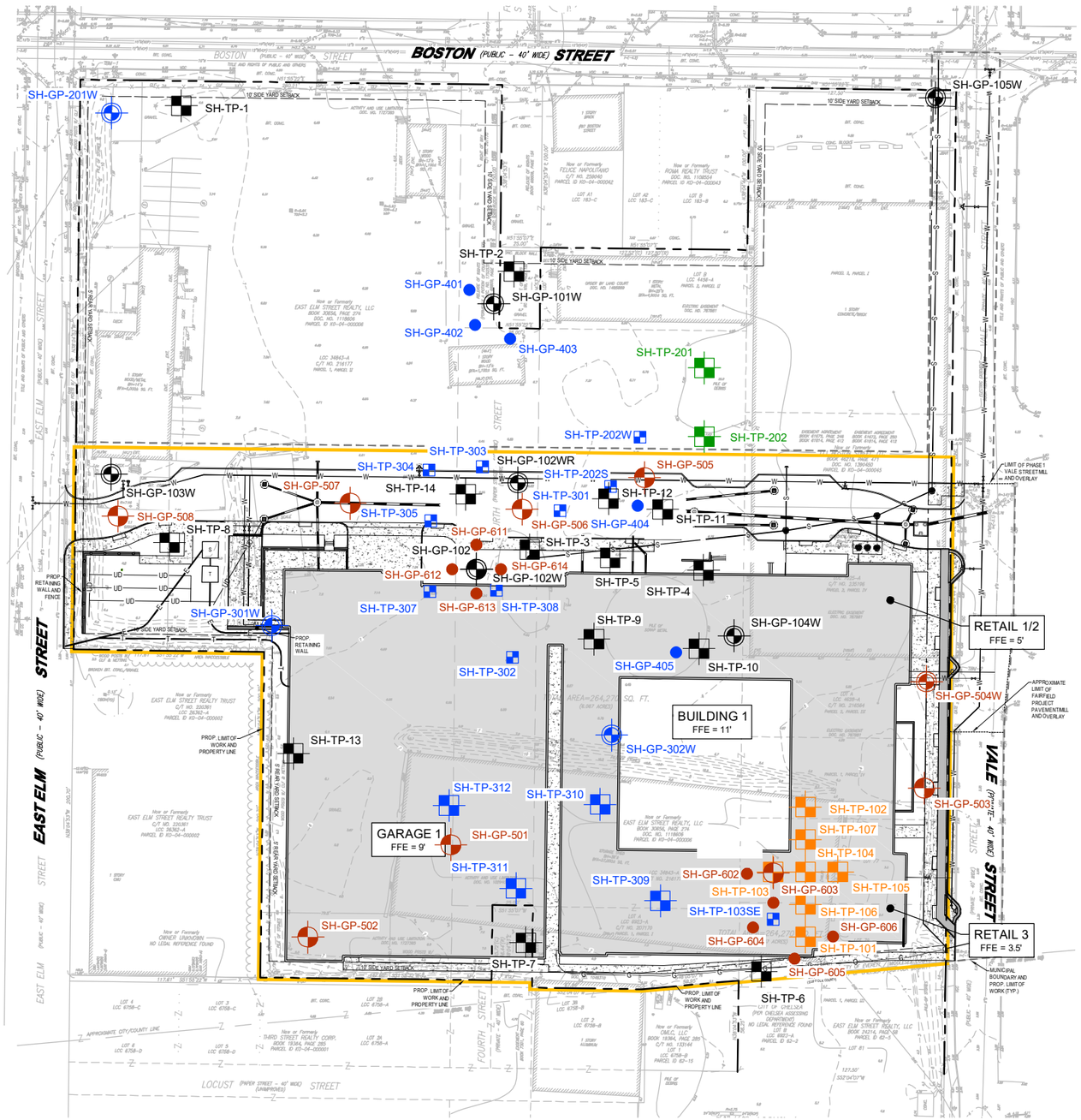
SANBORN | HEAD

Figure 1

Locus Plan

NPDES Remediation General Permit

85-87 and 119 Boston Street Everett, Massachusetts



NOTES:

1. THE BASE MAP WAS DRAWN FROM A PLAN ENTITLED, "EXISTING CONDITIONS", PREPARED BY BOHLER ENGINEERING (BOHLER) OF BOSTON, MA, DATED JUNE 25, 2020 WITH AN ORIGINAL SCALE OF 1" = 20'.
2. THE PROPOSED SITE FEATURES WERE DRAWN FROM A PLAN ENTITLED, "M201010-CVL.DWG," PREPARED BY BOHLER, RECEIVED ELECTRONICALLY ON NOVEMBER 24, 2020 WITH AN ORIGINAL SCALE OF 1" = 20'.
3. EXPLORATIONS DESIGNATED SH-GP-102 THROUGH SH-GP-104W WERE ADVANCED BY SOIL X CORP. (SOIL X) OF LEOMINSTER, MA AND OBSERVED BY SANBORN HEAD ON DECEMBER 30, 2019.
4. TEST PITS DESIGNATED SH-TP-3 THROUGH SH-TP-14 WERE EXCAVATED BY MACHINE TIME, LLC. (MACHINE TIME) OF HUDSON, NH AND OBSERVED BY SANBORN HEAD ON JANUARY 2 AND 3, 2020.
5. TEST PITS DESIGNATED SH-TP-101 THROUGH SH-TP-107 WERE EXCAVATED BY MACHINE TIME AND OBSERVED BY SANBORN HEAD ON JANUARY 18, 2020.
6. TEST PIT DESIGNATED SH-TP-202 WAS EXCAVATED BY MACHINE TIME AND OBSERVED BY SANBORN HEAD ON FEBRUARY 4, 2020.
7. TEST PITS DESIGNATED SH-TP-103SE, SH-TP-202S, SH-TP-202W, SH-TP-301 THROUGH SH-TP-305 AND SH-TP-307 THROUGH SH-TP-312 WERE EXCAVATED BY F.E. FRENCH CONSTRUCTION, INC. (F.E. FRENCH) OF BELMONT, MA AND OBSERVED BY SANBRON HEAD BETWEEN DECEMBER 11 AND 13, 2020.
8. EXPLORATIONS DESIGNATED SH-GP-301W, SH-GP-302W, SH-GP-404 AND SH-GP-405 WERE ADVANCED BY G&M SUBSURFACE, INC. (G&M) OF DIGHTON, MA AND OBSERVED BY SANBORN HEAD ON DECEMBER 30, 2020.
9. EXPLORATIONS DESIGNATED SH-GP-401 THROUGH SH-GP-403, SH-GP-501 THROUGH SH-GP-508, SH-GP-602 THROUGH 606, AND SH-GP-611 THROUGH SH-GP-614WERE ADVANCED BY SANBORN HEAD ON APRIL 5 AND 6, 2021.
10. 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
- APPROXIMATE LOCATION OF PROPOSED BUILDING
- APPROXIMATE LIMIT OF PHASE I
- SH-GP-401 — APPROXIMATE LOCATION AND DESIGNATION OF OF DELINEATION TEST BORINGS OBSERVED BY SANBORN HEAD (DECEMBER 2020/JANUARY 2021)
- SH-TP-101E — APPROXIMATE LOCATION AND DESIGNATION OF DELINEATION TEST PIT (DECEMBER 2020)
- SH-GP-501 — APPROXIMATE LOCATION AND DESIGNATION OF TEST BORING OBSERVED BY SANBORN HEAD (APRIL 2021)
- SH-GP-504W — APPROXIMATE LOCATION AND DESIGNATION OF MONITORING WELL OBSERVED BY SANBORN HEAD (APRIL 2021)
- SH-GP-603 — APPROXIMATE LOCATION AND DESIGNATION OF DELINEATION BORING OBSERVED BY SANBORN HEAD (APRIL 2021)
- SH-GP-201W — APPROXIMATE LOCATION AND DESIGNATION OF TEST PIT OBSERVED BY SANBORN HEAD (DECEMBER 2020)
- SH-GP-301W — APPROXIMATE LOCATION AND DESIGNATION OF TEST BORING COMPLETED AS A MONITORING WELL OBSERVED BY SANBORN HEAD (DECEMBER 2020)
- SH-TP-202 — APPROXIMATE LOCATION AND DESIGNATION OF TEST PIT OBSERVED BY SANBORN HEAD (FEBRUARY 2020)
- SH-TP-101 — APPROXIMATE LOCATION AND DESIGNATION OF TEST PIT OBSERVED BY SANBORN HEAD (JANUARY 2020)
- SH-TP-3 — APPROXIMATE LOCATION AND DESIGNATION OF TEST PIT OBSERVED BY SANBORN HEAD (JANUARY 2020)
- SH-102 — APPROXIMATE LOCATION AND DESIGNATION OF TEST BORING OBSERVED BY SANBORN HEAD (DECEMBER 2019)
- SH-GP-103W — APPROXIMATE LOCATION AND DESIGNATION OF TEST BORING COMPLETED AS A MONITORING WELL OBSERVED BY SANBORN HEAD (DECEMBER 2019)

SANBORN HEAD

GRAPHICAL SCALE
40' 20' 0' 40' 80'

NO.	DATE	DESCRIPTION	BY

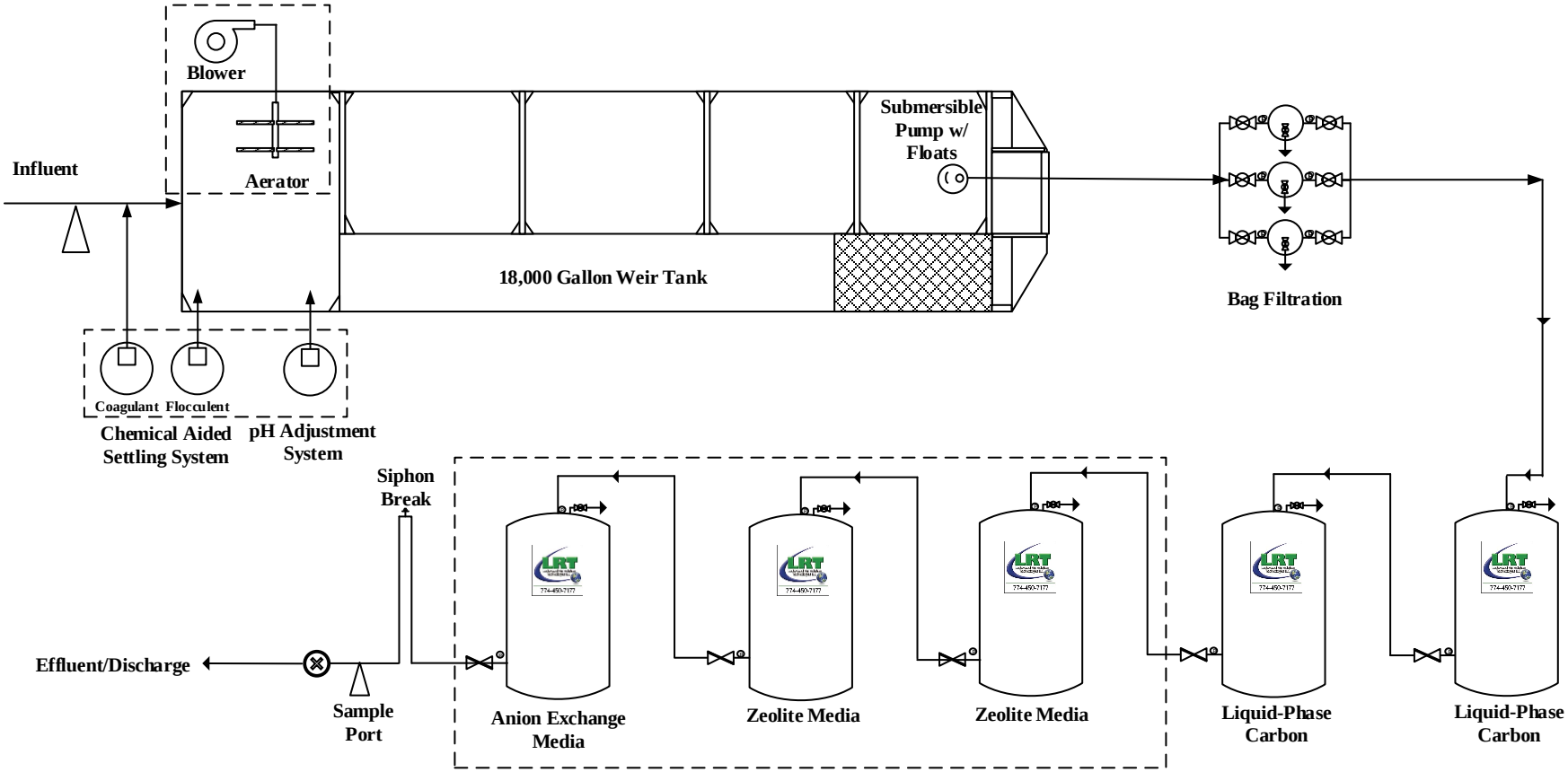
DRAWN BY: C.DIAS/S.LEONE
DESIGNED BY: A.COEN/A.CAMPBELL
REVIEWED BY: S.SADKOWSKI
PROJECT MGR: A.COEN
PIC: S.SADKOWSKI
DATE: APRIL 2021

NPDES REMEDIATION GENERAL PERMIT
85-87 and 119 BOSTON STREET
EVERETT, MASSACHUSETTS

EXPLORATION LOCATION PLAN

PROJECT NUMBER: 4719.01

SHEET NUMBER: 2



Key:
Piping/Hose
Sample Port
Ball Valve
Butterfly Valve
Pressure Gauge
Contingency

Notes:

1.) Figure is not to scale
2.) System rated for 150 GPM

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

DESIGNED BY: LRT DRAWN BY: JHJ

CHECKED BY: DATE:

Water Treatment System Schematic

85-87 and 119 Boston Street
Everett, MA

PROJECT No.

FIGURE No. 3

Appendix A

NOI Form

Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs

Department of Environmental Protection
One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Kathleen A. Theoharides
Secretary

Martin Suuberg
Commissioner

WM15 - NPDES Notice of Intent Application

Permittee Information

Name: PAUL LOCKWOOD
Phone: (774) 450-7177, (508) 450-8802
Address: LOCKWOOD REMEDIATION TECHNOLOGIES, LLC, 89 CRAWFORD STREET
LEOMINSTER, MA 01453

Application Submitter Information

Name: KIM GRAVELLE
Phone: (774) 450-7177, (774) 479-1048
Address: LOCKWOOD REMEDIATION TECHNOLOGIES, LLC, 89 CRAWFORD STREET
LEOMINSTER, MA 01453

Facility Information

85-87 and 119 Boston Street
85 BOSTON STREET BOSTON, MA 02149
DEP REGION:
FACILITY ID:
HW ID:

General Information

Please identify the type of permit being requested	Remediation General Permit (RGP)

Documents

Documents	Required Documents: 1. EPA NOI

Special Fee Provision

Exemption

Exclusion (special agreement or policy)

Substitution (ASP/IRP)

Double Fee for Enforcement

Hardship payment extension request

Attachments

Name	Description	Type	Latest Updated
NPDES RGP 85-87 and 119 Boston Street.pdf	NPDES RGP NOI	EPA NOI	05/27/2021

Application Contributors

Name	Organization Name	Contact Person	Telephone #	Contact Type	Email
KIM, GRAVELLE	n/a	n/a	(774) 450-7177	Application Prepared By	kgravelle@lrt-llc.net

Fee Info

Amount:	$ 500.00	Description:	WM15 Application Fees
Status:	Paid	Payment Date:	27-May-2021

Certification Information

Individual
KIM GRAVELLE
LOCKWOOD REMEDIATION TECHNOLOGIES, LLC, 89
CRAWFORD STREET
LEOMINSTER, MA 01453
United States

Telephone #: (774) 450-7177, (774) 479-1048
E-mail: kgravelle@lrt-llc.net

I certify that I am familiar with the work proposed and that to the best of my knowledge and belief the information contained in this application is true, complete, and accurate.

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

A. General site information:

<table>
<tr><td rowspan="3">1. Name of site:
85-87 and 119 Boston Street</td><td colspan="3">Site address: 85-87 and 119 Boston Street
Street:</td></tr>
<tr><td>City: Everett</td><td>State: MA</td><td>Zip: 02149</td></tr>
<tr><td colspan="3"></td></tr>
<tr><td rowspan="4">2. Site owner
CI-GS Elan Everett Phase I, LLC

Owner is (check one): ☐ Federal ☐ State/Tribal ■ Private
☐ Other; if so, specify:</td><td colspan="3">Contact Person: Chris Legocki</td></tr>
<tr><td colspan="2">Telephone: 617-947-2267</td><td>Email: chris.legocki@greystar.com</td></tr>
<tr><td colspan="3">Mailing address: 1 Federal Street, Suite 1804
Street:</td></tr>
<tr><td>City: Boston</td><td>State: MA</td><td>Zip: 02110</td></tr>
<tr><td rowspan="4">3. Site operator, if different than owner
Lockwood Remediation Technologies, LLC</td><td colspan="3">Contact Person: Paul Lockwood</td></tr>
<tr><td colspan="2">Telephone: 508-450-8802</td><td>Email: plockwood@lrt-llc.net</td></tr>
<tr><td colspan="3">Mailing address:
Street: 89 Crawford Street</td></tr>
<tr><td>City: Leominster</td><td>State: MA</td><td>Zip: 01453</td></tr>
<tr><td>4. NPDES permit number assigned by EPA:
NA

NPDES permit is (check all that apply: ☐ RGP ☐ DGP ☐ CGP
☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:</td><td colspan="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):
Island End/Mystic River	MA71-03	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: There is protected open space and one school within a 0.5-mile radius of the site.

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. Yes, listed in 303(d). Impairments include ammonia (un-ionized), fecal coliform, foam/flocs/scum/oil slicks, contaminants in shellfish, dissolved oxygen,

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.	0.029 MGD
5. Indicate the requested dilution factor for the calculation of water quality-based effluent limitations (WQBELs) determined in accordance with the instructions in Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire.	1.13

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: 5/27/2021

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: total lead, total iron, total copper, cyanide	
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): Island End River, near the intersection of Beacham Street and Market Street in Chelsea, MA (OFF 11-01)	Outfall location(s): (Latitude, Longitude) Lat: 42°23'39.95"N Long: 71°02'58.96"W
Discharges enter the receiving water(s) via (check any that apply): ☐ Direct discharge to the receiving water ■ Indirect discharge, if so, specify: Effluent will enter an existing storm water drainage system that discharges into the Island End 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: Upon approval of the RGP, the City of Everett will require a submittal of a Permit to Dewater application to the Everett Engineering De 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): 8/1/2021 to 12/31/2022 Indicate if the discharge is expected to occur over a duration of: ☐ less than 12 months ■ 12 months or more ☐ is an emergency discharge	
Has the operator attached a site plan in accordance with the instructions in D, above? (check one): ■ Yes ☐ No	

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

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

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

4. Influent and Effluent Characteristics

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
A. Inorganics									
Ammonia		✔	1	TM	0.375	10,800	10,800	Report mg/L	---
Chloride		✔	1	4500CLE-	25	114,000	114,000	Report µg/l	---
Total Residual Chlorine	✔		1	4500CLE-	20	ND	ND	0.2 mg/L	
Total Suspended Solids		✔	1	2540D-11	10	130,000	130,000	30 mg/L	---
Antimony	✔		1	200.8	0.02	ND	ND	206 µg/L	
Arsenic		✔	1	200.8	0.005	10.16	10.16	104 µg/L	10 ug/L
Cadmium	✔		1	200.8	0.001	ND	ND	10.2 µg/L	0.1899 ug/L
Chromium III		✔	1	200.8	0.005	17.15	17.15	323 µg/L	
Chromium VI		✔	1	7196A	0.005	17.15	17.15	323 µg/L	
Copper		✔	1	200.8	0.005	27.13	27.13	242 µg/L	6.2 ug/L
Iron		✔	1	200.8	0.05	11400	11400	5,000 µg/L	1000 ug/L
Lead		✔	1	200.8	0.005	171	171	160 µg/L	1.73 ug/L
Mercury		✔	1	SW7470/E	0.0002	0.25	0.25	0.739 µg/L	
Nickel	✔		1	200.8	0.01	ND	ND	1,450 µg/L	
Selenium	✔		1	200.8	0.025	ND	ND	235.8 µg/L	
Silver	✔		1	200.8	0.002	ND	ND	35.1 µg/L	
Zinc		✔	1	200.8	0.05	155.5	155.5	420 µg/L	
Cyanide		✔	1	OIA-1677-	0.005	14	14	178 mg/L	
B. Non-Halogenated VOCs									
Total BTEX	✔		1	Multiple	NA	ND	ND	100 µg/L	---
Benzene	✔		1	624.1	2	ND	ND	5.0 µg/L	---
1,4 Dioxane	✔		1	EPA522	10	ND	ND	200 µg/L	---
Acetone	✔		1	624.1	20	ND	ND	7.97 mg/L	---
Phenol	✔		1	624.1	1	ND	ND	1,080 µg/L	

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
C. Halogenated VOCs									
Carbon Tetrachloride	✔		1	624.1	2	ND	ND	4.4 µg/L	
1,2 Dichlorobenzene	✔		1	624.1	10	ND	ND	600 µg/L	---
1,3 Dichlorobenzene	✔		1	624.1	10	ND	ND	320 µg/L	---
1,4 Dichlorobenzene	✔		1	624.1	10	ND	ND	5.0 µg/L	---
Total dichlorobenzene	✔		1	624.1	10	ND	ND	763 µg/L in NH	---
1,1 Dichloroethane	✔		1	624.1	3	ND	ND	70 µg/L	---
1,2 Dichloroethane	✔		1	624.1	3	ND	ND	5.0 µg/L	---
1,1 Dichloroethylene	✔		1	624.1	2	ND	ND	3.2 µg/L	---
Ethylene Dibromide	✔		1	624.1	0.01	ND	ND	0.05 µg/L	---
Methylene Chloride	✔		1	624.1	2	ND	ND	4.6 µg/L	---
1,1,1 Trichloroethane	✔		1	624.1	4	ND	ND	200 µg/L	---
1,1,2 Trichloroethane	✔		1	624.1	3	ND	ND	5.0 µg/L	---
Trichloroethylene	✔		1	624.1	2	ND	ND	5.0 µg/L	---
Tetrachloroethylene	✔		1	624.1	2	ND	ND	5.0 µg/L	
cis-1,2 Dichloroethylene	✔		1	624.1	2	ND	ND	70 µg/L	---
Vinyl Chloride	✔		1	624.1	2	ND	ND	2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates	✔		1	625.1	NA	ND	ND	190 µg/L	
Diethylhexyl phthalate	✔		1	625.1	5	ND	ND	101 µg/L	
Total Group I PAHs		✔	1	625.1	NA	16.126	16.126	1.0 µg/L	---
Benzo(a)anthracene		✔	1	625.1	0.1	3.08	3.08	As Total PAHs	
Benzo(a)pyrene		✔	1	625.1	0.1	2.68	2.68		
Benzo(b)fluoranthene		✔	1	625.1	0.1	3.67	3.67		
Benzo(k)fluoranthene		✔	1	625.1	0.1	1.28	1.28		
Chrysene		✔	1	625.1	0.1	2.74	2.74		
Dibenzo(a,h)anthracene		✔	1	625.1	0.1	0.486	0.486		
Indeno(1,2,3-cd)pyrene		✔	1	625.1	0.1	2.19	2.19		

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		✔	1	625.1	NA	15.716	15.716	100 µg/L	---
Naphthalene		✔	1	625.1	0.1	0.275	0.275	20 µg/L	---
E. Halogenated SVOCs									
Total PCBs	✔		1	608.3	0.25	ND	Nd	0.000064 µg/L	---
Pentachlorophenol	✔		1	625.1	1	ND	ND	1.0 µg/L	---
F. Fuels Parameters									
Total Petroleum Hydrocarbons	✔			NA	NA	NA	NA	5.0 mg/L	---
Ethanol	✔			NA	NA	NA	NA	Report mg/L	---
Methyl-tert-Butyl Ether	✔		1	624.1	20	ND	ND	70 µg/L	
tert-Butyl Alcohol	✔		1	624.1	200	ND	ND	120 µg/L in MA 40 µg/L in NH	---
tert-Amyl Methyl Ether	✔		1	624.1	40	ND	ND	90 µg/L in MA 140 µg/L in NH	---
Other (i.e., pH, temperature, hardness, salinity, LC_{50}, additional pollutants present); if so, specify:									
Hardness		✔	1	200.8	0.00066	489	489		
Salinity		✔	1	200.8	0.002	2.4	2.4		
pH		✔	1			7.55	7.55		

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:

Base water treatment system includes bag filtration and carbon treatment. Contingency treatment items include chemical aided settling, aeration, zeolite filtration and ion exchange resin.

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

Source water will be pumped to a treatment system with a design flow of up to 150 gallons per minute (gpm); the average effluent flow of the system is estimated to be 75 gpm, and the maximum flow will not exceed 150 gpm. Source water will enter a weir tank at the head of the system. Water from the weir tank will be pumped to a bag filter skid followed by two carbon vessels plumbed in series. Discharge from the carbon vessels will pass through a flow/totalizer meter prior to discharge.

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: Base water treatment system includes bag filtration and carbon treatment. Contingency treatment items include chemical aided settling, aeration, zeolite filtration and ion exchange resin.

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 filtration Is use of a flow meter feasible? (check one): ■ Yes ☐ No, if so, provide justification:	150
Provide the proposed maximum effluent flow in gpm.	150
Provide the average effluent flow in gpm.	75
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:
Contingency treatment items include a chemical aided settling system.

2. Provide the following information for each chemical/additive, using attachments, if necessary:
   1. LRT E-50 coagulant/LRT 823 flocculant. See attachments for further information.
   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.

Please see attached appendices and supplemental information.

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

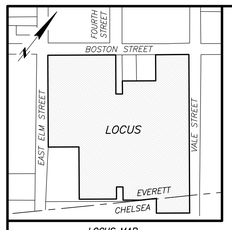
J. Certification requirement

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. This 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: 5/27/2021
Print Name and Title: Paul Lockwood - President	

Appendix B

Proposed Stormwater Discharge Locations



LOCUS MAP
NOT TO SCALE

MASSACHUSETTS STATE PLANE COORDINATE SYSTEM

LIST OF POSSIBLE ENCROACHMENTS

BOSTON STREET
CONCRETE SIDEWALK 0.9' INTO LOCUS.

NOW OR FORMERLY OF FELICE NAPOLITANO
CONC. BLOCK WALL 3.6' INTO LOCUS.

NOW OR FORMERLY OF ROMA REALTY TRUST
CHAIN LINK FENCE 0.7' INTO LOCUS.

BOSTON STREET
OVERHEAD WIRES CROSS THE NORTHERLY CORNER OF LOCUS.

VALE STREET
CONCRETE PAD 0.4' INTO LOCUS.
METAL STEPS & LANDING 0.7' INTO STREET.
CHAIN LINK FENCE 3.2' INTO STREET.

LOCUST STREET
THE ENTIRE WIDTH OF LOCUST STREET, FROM VALE STREET, 190'± SOUTHWESTERLY, IS OCCUPIED BY LOCUS WITH A DEBRIS PILE, GRAVEL PILE, CONCRETE STRUCTURE AND TRUCK TURN-AROUND AREA.

NOW OR FORMERLY FAIRFIELD CHELSEA PHASE II LLC
A PORTION OF PROPERTY IS OCCUPIED BY LOCUS WITH A DEBRIS PILE, GRAVEL PILE AND TRUCK TURN-AROUND AREA.

NOW OR FORMERLY OMLC, LLC
PROPERTY IS BEING OCCUPIED BY LOCUS WITH A DEBRIS PILE AND TRUCK TURN-AROUND AREA.

NOW OR FORMERLY CITY OF CHELSEA
PROPERTY IS BEING OCCUPIED BY LOCUS WITH JERSEY BARRIERS AND A TRUCK TURN-AROUND AREA.

NOW OR FORMERLY THIRD STREET REALTY CORP.
CHAIN LINK FENCE 1.5' INTO LOCUS.

EAST ELM STREET
CHAIN LINK FENCE 0.5' INTO STREET.

PARKING SUMMARY

20 REGULAR SPACES
0 HANDICAP SPACES
20 TOTAL SPACES

LEGEND

- SEWER MANHOLE
- DRAIN MANHOLE
- HYDRANT
- WATER SHUT OFF/WATER GATE
- GAS SHUT OFF/GAS GATE
- CATCH BASIN
- D-FRAME CATCH BASIN
- GUY WIRE
- STAND PIPE/SIAMESE CONNECTION
- GUY POLE
- UTILITY POLE
- LIGHT POLE
- POST
- SIGN
- OBSERVATION WELL
- [X.X'] ..... BUILDING DIMENSION
- (X) ..... NUMBER OF PARKING SPACES
- GP ..... GATE POST
- BFA ..... BUILDING FOOTPRINT AREA
- BH ..... BUILDING HEIGHT
- BIT ..... BITUMINOUS
- BK ..... BACK
- BW ..... BOTTOM OF WALL
- (C) ..... CALCULATED
- CBDH ..... CONCRETE BOUND W/DRILL HOLE
- CC ..... CONCRETE CURB
- CLF ..... CHAIN LINK FENCE
- CMU ..... CONCRETE MASONRY UNIT
- CONC ..... CONCRETE
- C/T ..... CERTIFICATE OF TITLE
- DH ..... DRILL HOLE
- ENT ..... ENTRANCE
- FNDN ..... FOUNDATION
- ELEV. ..... ELEVATION
- FD ..... FOUND
- GD ..... GARAGE DOOR
- Im ..... INVERT ELEVATION
- INACC. ..... INACCESSIBLE
- JBAR ..... JERSEY BARRIER
- LCC ..... LAND COURT CASE
- MTL ..... METAL
- NVP ..... NO VISIBLE PIPES
- OV ..... OVER
- POB ..... POINT OF BEGINNING
- (R) ..... RECORD
- SQ. FT. ..... SQUARE FEET
- TOD ..... TOP OF DEBRIS
- TOW ..... TOP OF WATER
- TT ..... TOP OF TRAP
- TW ..... TOP OF WALL
- TYP. ..... TYPICAL
- VGC ..... VERTICAL GRANITE CURB
- Z ..... INDICATES COMMON OWNERSHIP
- —D— DRAIN
- —G— GAS
- —OHW— OVERHEAD WIRES
- —S— SEWER
- —W— WATER
- —12"D(CI)— PIPE SIZE AND MATERIAL
- —CI— CAST IRON
- —PVC— POLYVINYL CHLORIDE
- —RCP— REINFORCED CONCRETE PIPE
- —VCP— VITRIFIED CLAY PIPE
- —X— —X— METAL FENCE

NOTES:

1) BENCH MARK INFORMATION:

ELEVATIONS ESTABLISHED BY GPS.

BENCH MARKS SET:

TBM-1: X-MARK SET ON THE BACK CENTER BOLT OF A HYDRANT AT THE EASTERLY CORNER OF BOSTON STREET AND ELM STREET, AS SHOWN HEREON. ELEVATION=8.84

TBM-2: SPIKE SET ON UTILITY POLE ON VALE STREET, AS SHOWN HEREON. ELEVATION=5.36

2) ELEVATIONS REFER TO NAVD 1988.

3) BY GRAPHIC PLOTTING ONLY, THE PARCEL SHOWN HEREON LIES WITHIN A ZONE "X" (UNSHADED), AN AREA OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOOD, AS SHOWN ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY (F.E.M.A) FLOOD INSURANCE RATE MAP (F.I.R.M.) FOR MIDDLESEX COUNTY, MASSACHUSETTS, MAP NUMBER 25017C0443E, CITY OF EVERETT, COMMUNITY NUMBER 250192, PANEL NUMBER 0443E, HAVING AN EFFECTIVE DATE OF JUNE 4, 2010, AND WITHIN A ZONE AE (BASE FLOOD ELEVATION 10) AS SHOWN ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY (F.E.M.A) FLOOD INSURANCE RATE MAP (F.I.R.M.) FOR SUFFOLK COUNTY, MASSACHUSETTS, MAP NUMBER 25025C0018J, CITY OF CHELSEA, COMMUNITY NUMBER 250287, PANEL NUMBER 0018J, HAVING AN EFFECTIVE DATE OF MARCH 16, 2016.

4) ZONING INFORMATION AS SHOWN HEREON WAS NOT PROVIDED BY THE TITLE INSURER AS REQUIRED BY ITEM 6 (A OR B) OF TABLE "A" IN THE 2016 ALTA SURVEY REQUIREMENTS.

5) THE PROPERTY SHOWN HEREON IS THE SAME PROPERTY DESCRIBED IN THE TITLE COMMITMENT.

6) THERE WAS NO OBSERVED EVIDENCE OF CURRENT EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS.

7) TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO PROPOSED CHANGES IN STREET RIGHT OF WAY LINES.

8) UNDER SECTION 5.E.iv OF THE STANDARDS, LOCATION OF SURFACE EVIDENCE OF UTILITIES IS INCLUDED IN EVERY ALTA/NSPS LAND TITLE SURVEY, INDEPENDENT OF ITEM 11 IN TABLE A.

9) THIS DOCUMENT IS AN INSTRUMENT OF SERVICE OF FELDMAN LAND SURVEYORS ISSUED TO OUR CLIENT FOR PURPOSES RELATED DIRECTLY AND SOLELY TO FELDMAN LAND SURVEYORS' SCOPE OF SERVICES UNDER CONTRACT TO OUR CLIENT FOR THIS PROJECT. ANY USE OR REUSE OF THIS DOCUMENT FOR ANY REASON BY ANY PARTY FOR PURPOSES UNRELATED DIRECTLY AND SOLELY TO SAID CONTRACT SHALL BE AT THE USER'S SOLE AND EXCLUSIVE RISK AND LIABILITY, INCLUDING LIABILITY FOR VIOLATION OF COPYRIGHT LAWS, UNLESS WRITTEN CONSENT IS PROVIDED BY FELDMAN LAND SURVEYORS.

10) THERE ARE VARIOUS TRANSIENT PILES OF DEBRIS, SCRAP & MATERIALS AS WELL AS TRAILERS, CONTAINERS, DUMPSTERS & EQUIPMENT STORED ON SITE.

11) SOME EDGES OF BITUMINOUS CONCRETE/GRAVEL ON SITE WERE INDETERMINATE DUE TO SITE CONDITIONS.

12) BUILDING HEIGHTS SHOWN HEREON WERE CALCULATED FROM THE AVERAGE GRADE ADJOINING THE BUILDING AND THE TOP OF ROOF.

ALTA/NSPS LAND TITLE SURVEY
85 BOSTON STREET
EVERETT & CHELSEA, MASS.

FELDMAN LAND SURVEYORS
152 HAMPDEN STREET
BOSTON, MASS. 02119
PHONE: (617)357-9740
www.feldmansurveyors.com

JANUARY 22, 2020

FELDMAN LAND SURVEYORS

20 0 10 20 40 80

SCALE: 1"=20'

RESEARCH MJB	FIELD CHIEF BK	PROJ MGR MJB	APPROVED	SHEET NO. 1 OF 2
CALC MJB	CADD EMR	FIELD CHECKED	CRD FILE 17189	JOB NO. 17189

FILENAME: S:\PROJECTS\17100s\17189\DWG\17189-EC-ALTA.dwg

TO: CHICAGO TITLE INSURANCE COMPANY; GREYSTAR GP II, LLC, A DELAWARE LIMITED LIABILITY COMPANY;

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2, 3, 4, 5, 7(A), 7(B)(1), 7(C), 8, 9, 11, 13, 14, 16, 17, 19, AND 20 OF TABLE A THEREOF. THE FIELDWORK WAS COMPLETED ON JANUARY 22, 2020.

FELDMAN LAND SURVEYORS

TIMOTHY R. AGURKIS, PLS (MA# 52782) DATE
TRA@FELDMANSURVEYORS.COM

BOUNDARY DESCRIPTION PER COMMITMENT NO. 1921-0336 ISSUED BY CHICAGO TITLE INSURANCE COMPANY HAVING AN EFFECTIVE DATE OF DECEMBER 10, 2019.

PARCEL 1

85-87 BOSTON STREET, EVERETT, MASSACHUSETTS

PARCEL I: (REGISTERED LAND)

THAT CERTAIN PARCEL OF LAND SITUATED IN EVERETT IN THE COUNTY OF MIDDLESEX AND COMMONWEALTH OF MASSACHUSETTS, DESCRIBED AS FOLLOWS:

SOUTHWESTERLY BY FOURTH STREET, FIFTY FEET;

NORTHWESTERLY BY LAND NOW OR FORMERLY OF WILLARD WELSH, ONE HUNDRED TWENTY-SEVEN AND 50/100 FEET;

NORTHEASTERLY BY LAND NOW OR FORMERLY OF BESSIE DARISH, FORTY-THREE AND 75/100 FEET; AND

SOUTHEASTERLY BY LAND NOW OR FORMERLY OF ROBERT I. JONES, SHOWN AS LOT B ON PLAN HEREINAFTER MENTIONED, AND OF IDA S. REINHERZ BY TWO LINES MEASURING TOGETHER, ONE HUNDRED TWENTY-SEVEN AND 81/100 FEET.

SAID PARCEL IS SHOWN AS LOT A ON SAID PLAN, (PLAN NO. 6923A).

ALL OF SAID BOUNDARIES ARE DETERMINED BY THE COURT TO BE LOCATED AS SHOWN ON A PLAN, AS APPROVED BY THE COURT, FILED IN THE LAND REGISTRATION OFFICE, A COPY OF A PORTION OF WHICH IS FILED IN THE REGISTRY OF DEEDS FOR THE SOUTH REGISTRY DISTRICT OF MIDDLESEX COUNTY IN REGISTRATION BOOK 57, PAGE 453, WITH CERTIFICATE 9248.

PARCEL II: (REGISTERED LAND)
ALSO ANOTHER PARCEL OF LAND SITUATED IN SAID EVERETT, DESCRIBED AS FOLLOWS:
SOUTHWESTERLY BY THE NORTHEASTERLY LINE OF EAST ELM STREET, THREE HUNDRED FIFTY-ONE AND 22/100 FEET;

NORTHWESTERLY BY BOSTON STREET, TWO HUNDRED SIXTY AND 21/100 FEET;

NORTHEASTERLY BY LAND NOW OR FORMERLY OF WILLARD WELSH, BEING A LINE IN FOURTH STREET, ONE HUNDRED FIFTY FEET;

NORTHWESTERLY BY LAND NOW OR FORMERLY OF WILLARD WELSH AND THE END PART OF FOURTH STREET, ONE HUNDRED FIFTY-TWO AND 50/100 FEET;

NORTHEASTERLY BY LANDS OF SUNDRY ADJOINING OWNERS, THREE HUNDRED FIFTY-FIVE AND 80/100 FEET;

SOUTHEASTERLY BY LAND NOW OR FORMERLY OF ROBERT J. JONES AND THE END OF PART OF FOURTH STREET, ONE HUNDRED FIFTY- TWO AND 50/100 FEET;

NORTHEASTERLY BY A LINE IN FOURTH STREET, FORTY-SIX AND 44/100 FEET;

SOUTHEASTERLY BY LAND NOW OR FORMERLY OF IDA S. REINHERZ AND THE END PART OF FOURTH STREET, ONE HUNDRED FORTY-TWO AND 60/100 FEET;

SOUTHWESTERLY TWO HUNDRED AND 70/100 FEET; AND

SOUTHEASTERLY ONE HUNDRED SEVENTEEN AND 61/100 FEET, BY LAND NOW OR FORMERLY OF LOWELL L. SAWYER ET UX.

ALL OF SAID BOUNDARIES ARE DETERMINED BY THE COURT TO BE LOCATED AS SHOWN ON A PLAN, AS MODIFIED AND APPROVED BY THE COURT, FILED IN THE LAND REGISTRATION OFFICE, A COPY OF A PORTION OF WHICH IS FILED IN THE REGISTRY OF DEEDS FOR THE SOUTH REGISTRY DISTRICT OF MIDDLESEX COUNTY IN REGISTRATION BOOK 799, PAGE 171, WITH CERTIFICATE 133921, (PLAN NO. 3484A).

THERE IS APPURTENANT TO SAID UNNUMBERED LOT A RIGHT OF WAY IN AND OVER THE AREA MEASURING 25 FEET BY 50 FEET SHOWN ON SAID PLAN WITHIN FOURTH STREET, IN COMMON WITH ALL THOSE LAWFULLY ENTITLED THERETO.

PARCEL III (III): (RECORDED LAND)

LAND SITUATED PARTLY IN CHELSEA, SUFFOLK COUNTY, MASSACHUSETTS AND PARTLY IN SAID EVERETT, BEING LOTS 77, 79 AND 81 VALE STREET AS SHOWN ON A PLAN OF LAND OF THE ATLANTIC WHARF COMPANY, NOVEMBER 1856, RECORDED WITH SUFFOLK DEEDS AND MIDDLESEX SOUTH DISTRICT DEEDS, BOOK OF PLANS 66, PLAN 16 BEING BOUNDED AND DESCRIBED AS FOLLOWS:

NORTHEASTERLY BY VALE STREET, ONE HUNDRED FIFTY (150) FEET;

SOUTHEASTERLY BY LOCUST STREET, ONE HUNDRED TWENTY-SEVEN AND 5/10 (127.5) FEET;

SOUTHWESTERLY BY LOTS 80, 82, AND 84 FOURTH STREET, ONE HUNDRED FIFTY (150) FEET; AND

NORTHWESTERLY BY LOT 83 VALE STREET, ONE HUNDRED TWENTY-SEVEN AND 5/10 (127.5) FEET.

PARCEL IV: (RECORDED LAND)

LAND SITUATED IN SAID EVERETT BEING LOT 83 ON VALE STREET SO-CALLED AS SHOWN ON A PLAN OF LAND OF THE ATLANTIC WHARF CO., NOVEMBER 1856, RECORDED IN MIDDLESEX SOUTH REGISTRY OF DEEDS, PLAN BOOK 66, PLAN 16, REFERENCE TO WHICH PLAN IS HEREBY MADE FOR MORE PARTICULAR DESCRIPTION OF SAID PREMISES.

PARCEL 2 - 111 BOSTON STREET, EVERETT, MA

FOUR PARCELS OF LAND WITH THE BUILDINGS THEREON SITUATED IN SAID EVERETT, MIDDLESEX COUNTY, COMMONWEALTH OF MASSACHUSETTS, BOUNDED AND DESCRIBED AS FOLLOWS:

PARCEL I (UNREGISTERED LAND)

A CERTAIN PARCEL OF LAND WITH THE BUILDINGS THEREON SITUATED IN SAID EVERETT, BEING SHOWN AS LOTS 93, 95, 97 AND 99 ON VALE STREET AND BOSTON STREET (FORMERLY PLEASANT STREET), AS SHOWN ON A PLAN ENTITLED "PLAN OF THE LANDS OF THE WINNISIMMET CO. AND OTHERS IN CHELSEA & MALDEN, J.H. SHEARER, ENGINEER, 1846" AND RECORDED IN PLAN BOOK 8, PLAN 44 (E OF 5). SAID ABOVE FOUR LOTS ARE TOGETHER BOUNDED AND DESCRIBED AS FOLLOWS:

NORTHEASTERLY BY VALE STREET, TWO HUNDRED FEET;

SOUTHEASTERLY BY THE REGISTERED LAND HEREINAFTER DESCRIBED AS PARCEL IV, ONE HUNDRED TWENTY-SEVEN AND 50/100 FEET;

SOUTHWESTERLY BY LAND NOW OR FORMERLY OF DIEDRICK AND MORSE, TWO HUNDRED FEET; AND

NORTHWESTERLY BY BOSTON STREET (FORMERLY PLEASANT STREET), ONE HUNDRED TWENTY-SEVEN AND 50/100 FEET.

SAID LOTS TOGETHER CONTAIN 25,500 SQUARE FEET, BE ANY OF SAID CONTENTS OR MEASUREMENTS MORE OR LESS, ALL ACCORDING TO SAID PLAN.

PARCELS II, III AND IV (REGISTERED LAND)

PARCEL II:

A CERTAIN PARCEL OF LAND IN EVERETT IN THE COUNTY OF MIDDLESEX AND SAID COMMONWEALTH, BOUNDED AND DESCRIBED AS FOLLOWS:

SOUTHWESTERLY BY FOURTH STREET, FIFTY FEET;

NORTHWESTERLY BY LAND NOW OR FORMERLY OF WILLARD WELSH, ONE HUNDRED TWENTY-SEVEN AND 50/100 FEET;

NORTHEASTERLY BY LAND NOW OR FORMERLY OF EBEN HUTCHINSON, FIFTY FEET; AND

SOUTHEASTERLY BY LAND NOW OR FORMERLY OF JOHN CROWLEY, ONE HUNDRED TWENTY-SEVEN AND 50/100 FEET.

SAID PARCEL IS SHOWN AS LOT B ON PLAN HEREINAFTER MENTIONED (PLAN NO. 4456A).

ALL OF SAID BOUNDARIES ARE DETERMINED BY THE COURT TO BE LOCATED AS SHOWN ON A PLAN, AS APPROVED BY THE COURT, FILED IN THE LAND REGISTRATION OFFICE, A COPY OF A PORTION OF WHICH IS FILED IN THE REGISTRY OF DEEDS FOR THE SOUTH REGISTRY DISTRICT OF MIDDLESEX COUNTY IN REGISTRATION BOOK 28, PAGE 417, WITH CERTIFICATE 4660.

PARCEL III

ALSO ANOTHER CERTAIN PARCEL OF LAND SITUATED IN SAID EVERETT, BOUNDED AND DESCRIBED AS FOLLOWS:

NORTHEASTERLY BY VALE STREET, FIFTY FEET;

SOUTHEASTERLY BY LAND NOW OR FORMERLY OF JEREMIAH O'CONNELL, ONE HUNDRED TWENTY-SEVEN AND 50/100 FEET;

SOUTHWESTERLY FIFTY FEET; AND

NORTHWESTERLY ONE HUNDRED TWENTY-SEVEN AND 50/100 FEET, BY LAND NOW OR FORMERLY OF WILLARD WELSH

SAID PARCEL IS SHOWN AS LOT A ON PLAN HEREINAFTER MENTIONED (PLAN NO. 4628A).

ALL OF SAID BOUNDARIES ARE DETERMINED BY THE COURT TO BE LOCATED AS SHOWN ON A PLAN, AS APPROVED BY THE COURT, FILED IN THE LAND REGISTRATION OFFICE, A COPY OF A PORTION OF WHICH IS FILED IN THE REGISTRY OF DEEDS FOR THE SOUTH REGISTRY DISTRICT OF MIDDLESEX COUNTY IN REGISTRATION BOOK 34, PAGE 349, WITH CERTIFICATE 5410.

PARCEL IV:

ALSO ANOTHER CERTAIN PARCEL OF LAND SITUATED IN SAID EVERETT, BOUNDED AND DESCRIBED AS FOLLOWS:

NORTHEASTERLY BY VALE STREET, ONE HUNDRED AND FIFTY FEET;

SOUTHEASTERLY BY LAND NOW OR FORMERLY OF MABEL C. WELSH; ONE HUNDRED TWENTY-SEVEN AND 50/100 FEET;

SOUTHWESTERLY BY LANDS NOW OR FORMERLY OF WILLARD WELSH AND OF JOHN CROWLEY, ONE HUNDRED AND FIFTY FEET; AND

NORTHWESTERLY BY LAND NOW OR FORMERLY OF WALTER B. GRANT, ONE HUNDRED TWENTY-SEVEN AND 50/100 FEET.

ALL OF SAID BOUNDARIES ARE DETERMINED BY THE COURT TO BE LOCATED AS SHOWN ON A PLAN, AS APPROVED BY THE COURT, FILED IN THE LAND REGISTRATION OFFICE, A COPY OF A PORTION OF WHICH IS FILED IN THE REGISTRY OF DEEDS FOR THE SOUTH REGISTRY DISTRICT OF MIDDLESEX COUNTY IN REGISTRATION BOOK 57, PAGE 529, WITH CERTIFICATE 9392 (PLAN NO. 7025A).

[ ] TYPOGRAPHICAL ERROR CORRECTED

PERIMETER BOUNDARY DESCRIPTION (PER SURVEY)

A CERTAIN PARCEL OF LAND SITUATED PARTLY IN THE CITY OF EVERETT, COUNTY OF MIDDLESEX, AND PARTLY IN THE CITY OF CHELSEA, COUNTY OF SUFFOLK, AND THE COMMONWEALTH OF MASSACHUSETTS MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE NORTHEASTERLY SIDELINE OF EAST ELM STREET AND THE SOUTHEASTERLY SIDELINE OF BOSTON STREET, THENCE RUNNING N 51°55'22" E, ALONG SAID BOSTON STREET, A DISTANCE OF 260.21 FEET TO A POINT;

THENCE TURNING AND RUNNING S 38°04'53" E, PARTLY BY LAND NOW OR FORMERLY OF FELICE NAPOLITANO, A DISTANCE OF 150.00 FEET TO A POINT;

THENCE TURNING AND RUNNING N 51°55'22" E, A DISTANCE OF 25.00 FEET TO A POINT;

THENCE TURNING AND RUNNING N 38°04'53" W, A DISTANCE OF 50.00 FEET TO A POINT;

THENCE TURNING AND RUNNING N 51°55'07" E, BY LAND NOW OR FORMERLY OF FELICE NAPOLITANO AND LAND NOW OR FORMERLY OF ROMA REALTY TRUST, DISTANCE OF 127.52 FEET TO A POINT;

THENCE TURNING AND RUNNING N 38°04'44" W, BY SAID LAND NOW OR FORMERLY OF ROMA REALTY TRUST, A DISTANCE OF 100.00 FEET TO A POINT ON SAID BOSTON STREET;

THENCE TURNING AND RUNNING N 51°55'22" E, ALONG SAID BOSTON STREET, A DISTANCE OF 127.50 FEET TO A POINT AT THE INTERSECTION WITH THE SOUTHWESTERLY SIDELINE OF VALE STREET;

THENCE TURNING AND RUNNING S 38°04'44" E, ALONG SAID VALE STREET, A DISTANCE OF 606.84 FEET TO A POINT;

THENCE TURNING AND RUNNING S 52°04'07" W, ALONG LOCUST STREET, AN UNIMPROVED PAPER STREET, A DISTANCE OF 127.50 FEET TO A POINT;

THENCE TURNING AND RUNNING N 38°04'53" W, BY LAND NOW OR FORMERLY OF OMLC, LLC AND LAND NOW OR FORMERLY OF THE CITY OF CHELSEA, A DISTANCE OF 56.25 FEET TO A POINT;

THENCE TURNING AND RUNNING S 46°05'07" W, BY SAID LAND OF NOW OR FORMERLY OF THE CITY OF CHELSEA, A DISTANCE OF 59.95 FEET TO A POINT;

THENCE TURNING AND RUNNING S 52°04'07" W, BY LAND NOW OR FORMERLY OF THIRD STREET REALTY CORP., A DISTANCE OF 67.86 FEET TO A POINT;

THENCE TURNING AND RUNNING N 38°04'53" W, A DISTANCE OF 50.00 FEET TO A POINT;

THENCE TURNING AND RUNNING S 51°55'07" W, A DISTANCE OF 25.00 FEET TO A POINT;

THENCE TURNING AND RUNNING S 38°04'53" E, A DISTANCE OF 45.72 FEET TO A POINT;

THENCE TURNING AND RUNNING S 51°55'22" W, BY LAND NOW OR FORMERLY OF OWNER UNKNOWN, A DISTANCE OF 142.60 FEET TO A POINT;

THENCE TURNING AND RUNNING N 38°04'53" W, A DISTANCE OF 200.70 FEET TO A POINT;

THENCE TURNING AND RUNNING S 51°55'22" W, A DISTANCE OF 117.61 FEET TO A POINT ON SAID EAST ELM STREET;

THE PREVIOUS TWO COURSES BY LAND NOW OR FORMERLY OF EAST ELM STREET REALTY TRUST;

THENCE TURNING AND RUNNING N 38°04'53" W, ALONG SAID EAST ELM STREET, A DISTANCE OF 351.22 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS AN AREA OF 264,270 SQUARE FEET, OR 6.067 ACRES.

EXCEPTIONS FROM COVERAGE (SURVEY RELATED ONLY) SCHEDULE B, PART II, LISTED IN TITLE COMMITMENT NO. 1921-0336, ISSUED BY CHICAGO TITLE INSURANCE COMPANY, HAVING AN EFFECTIVE DATE OF DECEMBER 10, 2019.

(7) TITLE TO AND RIGHTS OF THE PUBLIC AND OTHERS ENTITLED THERETO IN AND TO THOSE PORTIONS OF THE PREMISES LYING WITHIN THE BOUNDS OF FOURTH STREET, EAST ELM STREET, VALE STREET, BOSTON STREET AND LOCUST STREET. (AS SHOWN HEREON)

(8) RIGHT OF WAY BY THE CENTRAL BUILDING WRECKING COMPANY SET FORTH IN CERTIFICATE OF TITLE NO. 207170 FILED WITH THE MIDDLESEX SOUTH REGISTRY DISTRICT OF THE LAND COURT. (AFFECTS PARCEL II OF PARCEL 1). (AS SHOWN HEREON)

(9) RIGHTS AND EASEMENTS TO THE CITY OF CHELSEA DATED JANUARY 18, 1955 RECORDED IN SUFFOLK IN BOOK 7031, PAGE 60. (AFFECTS PARCEL III OF PARCEL 1) (FOURTH STREET AND LOCUST STREET IN THE CITY OF CHELSEA). (NOT LOCUS - AS SHOWN HEREON)

(10) TAKING BY THE CITY OF EVERETT FOR LAYING OUT VALE STREET RECORDED IN MIDDLESEX IN BOOK 7109, PAGE 397. (AFFECTS PARCELS III AND IV OF PARCEL 1 AND PARCELS I, III, AND IV OF PARCEL 2). (AS SHOWN HEREON. PORTION OF VALE STREET DESCRIBED IN BOOK 7109, PAGE 397 DOES NOT ABUT LOCUS.)

(11) EASEMENT TO MASSACHUSETTS ELECTRIC COMPANY DATED DECEMBER 24, 1973 RECORDED IN MIDDLESEX IN BOOK 12594, PAGE 682. (CURRENT LINE OF UTILITY POLES AND OVERHEAD WIRES WITHIN LIMITS OF VALE STREET AS SHOWN HEREON.)

(12) EASEMENT TO MASSACHUSETTS ELECTRIC COMPANY DATED FEBRUARY 6, 1974 FILED AS DOCUMENT NO. 519795. (CURRENT LINE OF UTILITY POLES AND OVERHEAD WIRES WITHIN LIMITS OF VALE STREET AS SHOWN HEREON.)

(13) EASEMENT TO MASSACHUSETTS ELECTRIC COMPANY DATED JULY 21, 1988 FILED AS DOCUMENT NO. 787981. (BLANKET EASEMENT AS SHOWN HEREON)

(14) TERMS AND PROVISIONS OF NOTICE OF ACTIVITY AND USE LIMITATION (DEP RELEASE TRACKING NO. 3-10118) DATED APRIL 22, 1997 FILED AS DOCUMENT NO. 1029406; AS AFFECTED BY FIRST AMENDMENT TO NOTICE OF ACTIVITY OF USE LIMITATION DATED SEPTEMBER 14, 1999 FILED AS DOCUMENT NO. 1118605. (AFFECTS PARCELS I AND II OF PARCEL 1) (96 EAST ELM STREET IN THE CITY OF EVERETT). (AS SHOWN HEREON. AUL COVERS ENTIRETY OF PARCEL 1, PARCEL I AND PARCEL 1, PARCEL II.)

(15) GRANT OF EASEMENT TO ALLEVIATE POSSIBLE ENCROACHMENT DATED JANUARY 23, 1997 FILED AS DOCUMENT NO. 1048310 (AFFECTS PARCEL II OF PARCEL 1. (AS SHOWN HEREON)

(16) ORDER BY THE LAND COURT DATED OCTOBER 24, 2008 FILED AS DOCUMENT NO. 1485869. (AS SHOWN HEREON)

(17) EASEMENT AGREEMENT DATED NOVEMBER 13, 2012 RECORDED IN BOOK 61672, PAGE 246; AS AFFECTED BY CONFIRMATORY EASEMENT AGREEMENT DATED MAY 9, 2013 RECORDED IN BOOK 61814, PAGE 412. (GRANTOR'S PROPERTY AS SHOWN HEREON)

(18) EASEMENT AGREEMENT DATED NOVEMBER 13, 2012 RECORDED IN BOOK 61672, PAGE 250; AS AFFECTED BY CONFIRMATORY EASEMENT AGREEMENT DATED MAY 9, 2013 RECORDED IN BOOK 61814, PAGE 412. (GRANTOR'S PROPERTY AS SHOWN HEREON)

(19) SLOPE AND SUPPORT EASEMENT AGREEMENT DATED SEPTEMBER 15, 2015 RECORDED IN BOOK 66073, PAGE 410. (NOT PLOTTABLE - NEW BUILDING AND RETAINING WALL HAVE NOT BEEN BUILT) (AFFECTS LOCUS)

(20) NOTICE OF ACTIVITY AND USE LIMITATION FILED AS DOCUMENT NO. 1727385 AND RECORDED IN BOOK 67099, PAGE 429. (AS SHOWN HEREON)

(21) DECISION BY THE EVERETT BOARD OF APPEALS FILED AS DOCUMENT NO. 1750870 AND RECORDED IN BOOK 68710, PAGE 239. (NOT PLOTTABLE)

(22) DECISION BY THE EVERETT BOARD OF APPEALS FILED AS DOCUMENT NO. 1750871 AND RECORDED IN BOOK 68170, PAGE 240. (NOT PLOTTABLE)

(23) RELEASE DEED BY FELICE NAPOLITANO, TRUSTEE OF NAPOLITANO FAMILY TRUST TO EAST ELM STREET REALTY, LLC DATED DECEMBER 6, 2016 FILED AS DOCUMENT NO. 1752535 (RELEASES RIGHTS IN FOURTH STREET) (TITLE TO THE GRANTOR NOT EXAMINED). (AS SHOWN HEREON)

(24) RELEASE DEED BY 111 BOSTON STREET LLC TO EAST ELM STREET REALTY, LLC DATED NOVEMBER 17, 2016 FILED AS DOCUMENT NO. 1752537 AND RECORDED IN BOOK 68809, PAGE 148 (RELEASES RIGHTS IN FOURTH STREET). (AS SHOWN HEREON)

(25) RELEASE DEED BY EAST ELM STREET REALTY, LLC TO 111 BOSTON STREET LLC DATED NOVEMBER 17, 2016 FILED AS DOCUMENT NO. 1752540 AND RECORDED IN BOOK 68809, PAGE 152 (RELEASES RIGHTS IN FOURTH STREET). (AS SHOWN HEREON)

(26) RELEASE DEED BY EAST ELM STREET REALTY, LLC TO FELICE NAPOLITANO, TRUSTEE OF NAPOLITANO FAMILY TRUST DATED NOVEMBER 17, 2016 FILED AS DOCUMENT NO. 1752541 AND RECORDED IN BOOK 68809, PAGE 154 (RELEASES RIGHTS IN FOURTH STREET). (AS SHOWN HEREON)

(27) DECISION BY THE EVERETT BOARD OF APPEALS FILED AS DOCUMENT NO. 1762018 AND RECORDED IN BOOK 69399, PAGE 36. (NOT PLOTTABLE)

(28) DECISION BY THE EVERETT PLANNING BOARD FILED AS DOCUMENT NO. 1762912 AND RECORDED IN BOOK 69451, PAGE 1. (NOT PLOTTABLE)

(29) DECISION BY THE EVERETT BOARD OF APPEALS FILED AS DOCUMENT NO. 777410 AND RECORDED IN BOOK 70375, PAGE 410. (NOT PLOTTABLE)

(30) DECISION BY THE EVERETT BOARD OF APPEALS FILED AS DOCUMENT NO. 1781568 AND RECORDED IN BOOK 70603, PAGE 544. (NOT PLOTTABLE)

(31) DECISION BY THE EVERETT PLANNING BOARD FILED AS DOCUMENT NO. 1782505 AND RECORDED IN BOOK 70663, PAGE 125. (NOT PLOTTABLE)

(32) DECISION BY THE EVERETT PLANNING BOARD FILED AS DOCUMENT NO. 1782600 AND RECORDED IN BOOK 70670, PAGE 200. (NOT PLOTTABLE)

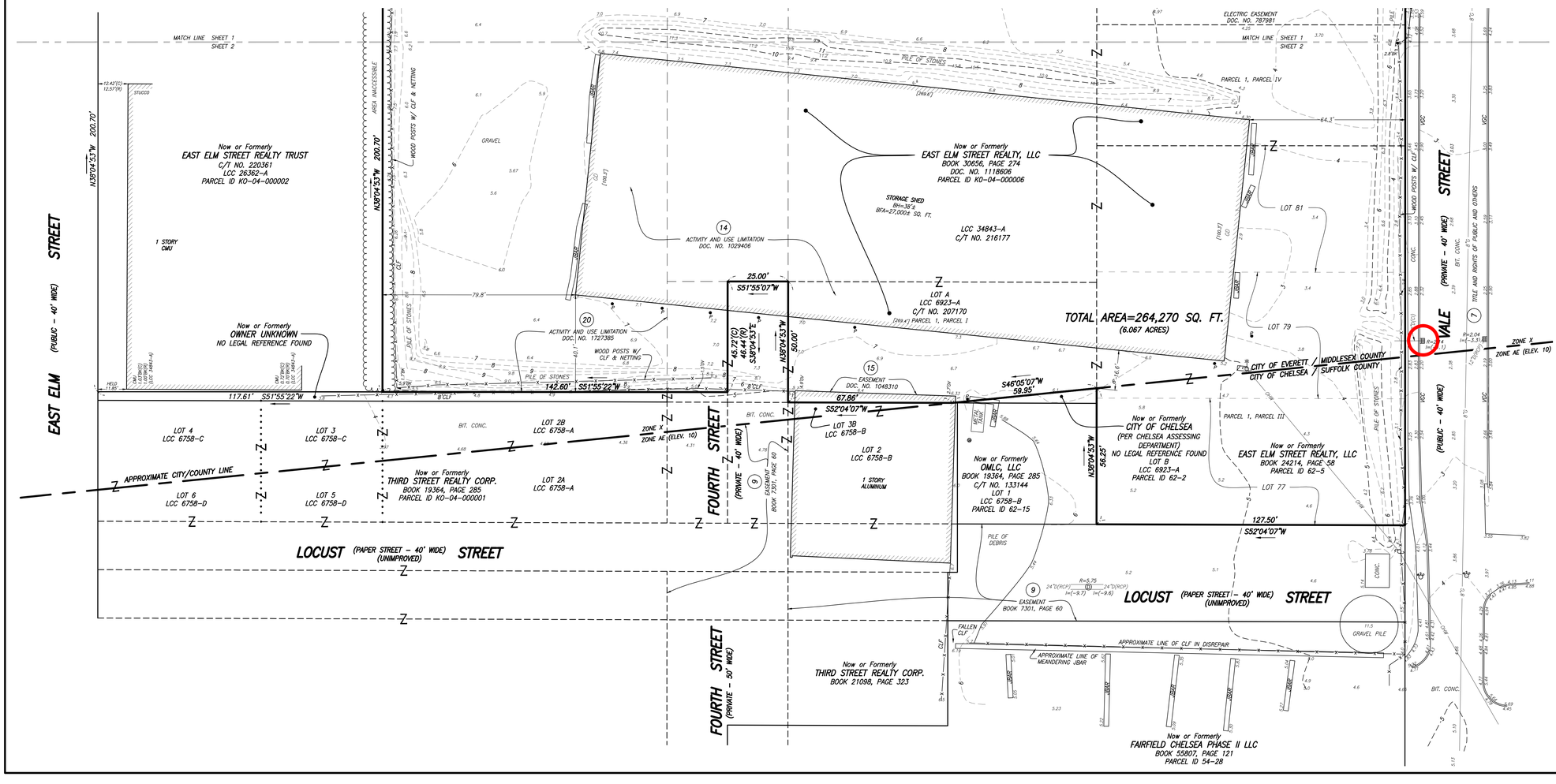
(33) DECISION BY THE EVERETT PLANNING BOARD FILED AS DOCUMENT NO. 1783841 AND RECORDED IN BOOK 70756, PAGE 232. (NOT PLOTTABLE)

(34) DECISION BY THE EVERETT ZONING BOARD OF APPEALS FILED AS DOCUMENT NO. 1786330 AND RECORDED IN BOOK 70927, PAGE 348. (NOT PLOTTABLE)

(35) DECISION BY THE EVERETT ZONING BOARD OF APPEALS FILED AS DOCUMENT NO. 1786606 AND RECORDED IN BOOK 70952, PAGE 34. (NOT PLOTTABLE)

(36) DECISION BY THE EVERETT PLANNING BOARD FILED AS DOCUMENT NO. 1812497 AND RECORDED IN BOOK 72556, PAGE 360. (NOT PLOTTABLE)

(37) DECISION BY THE EVERETT PLANNING BOARD FILED AS DOCUMENT NO. 1812498 (NOT RECORDED). (NOT PLOTTABLE)



ALTA/NSPS LAND TITLE SURVEY
85 BOSTON STREET
EVERETT & CHELSEA, MASS.

FELDMAN LAND SURVEYORS
152 HAMPDEN STREET
BOSTON, MASS. 02119
JANUARY 22, 2020
PHONE: (617)357-9740
www.feldmansurveyors.com

FELDMAN LAND SURVEYORS

20 0 10 20 40 80

SCALE: 1"=20'

RESEARCH MJB	FIELD CHIEF BK	PROJ MGR MJB	APPROVED	SHEET NO. 2 OF 2
CALC MJB	CADD EMR	FIELD CHECKED	CRD FILE 17189	JOB NO. 17189

FILENAME: S:\PROJECTS\17100s\17189\DWG\17189-EC-ALTA.dwg

Appendix C

Selected Massachusetts Category 5 Waters

MassDEP - Bureau of Waste Site Cleanup

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

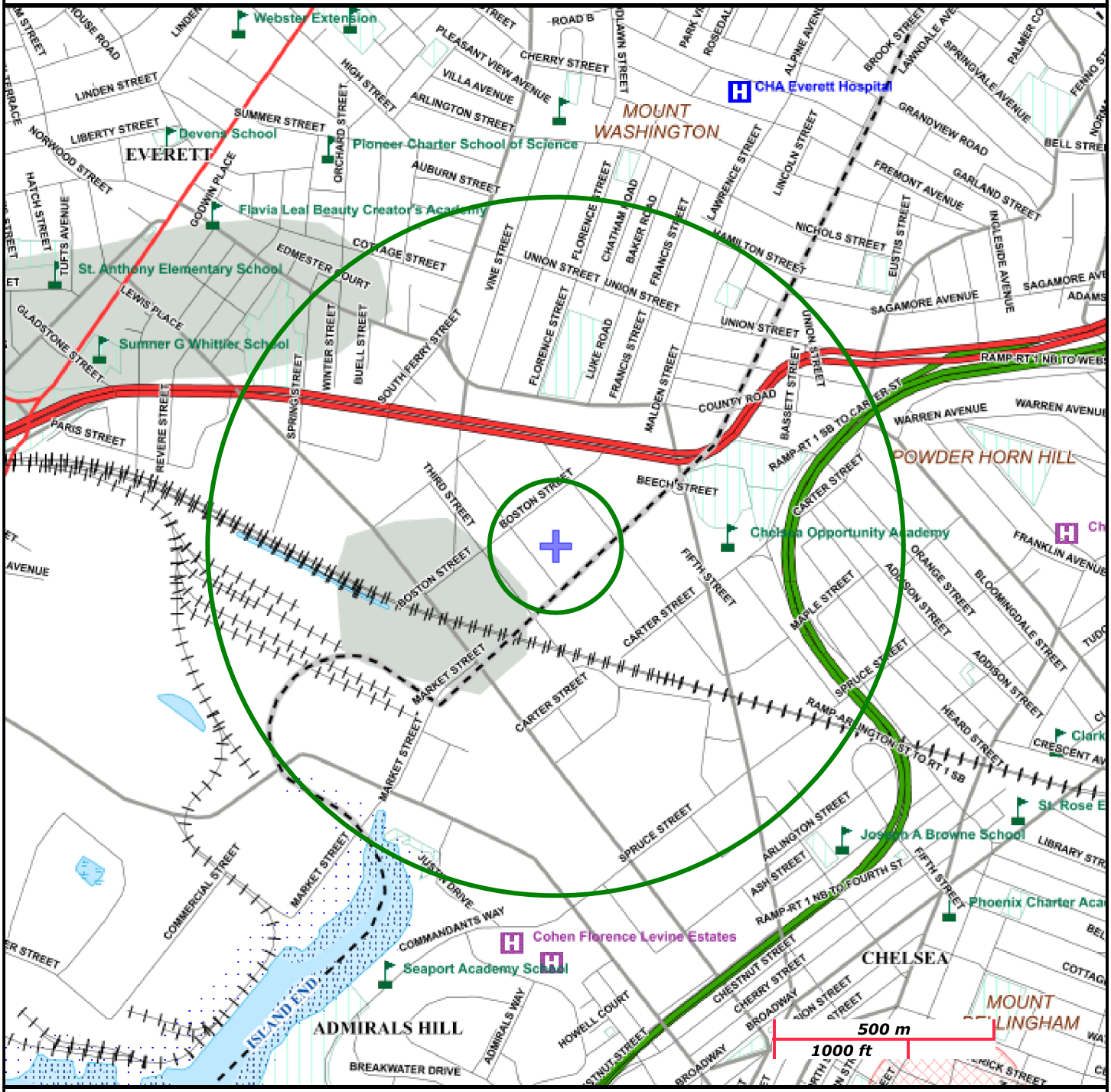
Site Information:

85 BOSTON EVERETT, MA

NAD83 UTM Meters:
4696205mN , 331702mE (Zone: 19)
March 31, 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



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

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

Appendix D

Island End River Dilution Calculations

From: Keohane, Kathleen (DEP)
To: Brian Caccavale
Cc: Vakalopoulos, Catherine (DEP); Ruan, Xiaodan (DEP)
Subject: RE: 7Q10 Value Confirmation
Date: Thursday, May 27, 2021 3:03:09 PM

The revised 7Q10 of 0.045 cfs (0.029 MGD) and the dilution factor calculation of 1.13 using a design flow of 150 gpm (0.216 MGD) for the proposed discharge to the Island End River from 85-87 and 119 Boston St in Everett at outfall OFF 11-01 on the Island End River is correct.

Here is water quality information to assist you with filling out the NOI (some of which you already have):

Waterbody and ID: Island End River (Mystic River Basin) MA71-03
Classification: SB
Outstanding Resource Water?: No

State's most recent Integrated List is located here: https://www.epa.gov/sites/production/files/2020-01/documents/2016-ma-303d-list-report.pdf, search for "MA71-03" to see the causes of impairments.
TMDLs: There are approved TMDL (pathogens and nutrients) for this segment.

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

Please let me know if you have any questions.

From: Brian Caccavale <bcaccavale@lrt-llc.net>
Sent: Thursday, May 27, 2021 1:51 PM
To: Keohane, Kathleen (DEP) <Kathleen.Keohane@mass.gov>
Cc: acampbell@sanbornhead.com
Subject: RE: 7Q10 Value Confirmation

Hi Kathleen,

Outfall OFF 11-01 is located closest to the northern inlet. I have updated the dilution calcs based on

the attached stream stats output for the inlet at the northern inlet location.

The 7 Day 10 Year Low Flow value from the Stream Stats report is 0.045 cfs and the calculated dilution factor at 150 gpm is 1.13.

Can you please confirm these values are correct?

Thank you again for your help.

-Brian

From: Keohane, Kathleen (DEP) <kathleen.keohane@state.ma.us>
Sent: Thursday, May 27, 2021 12:42 PM
To: Brian Caccavale <bcaccavale@lrt-llc.net>; acampbell@sanbornhead.com
Subject: RE: 7Q10 Value Confirmation

I am getting different drainage basins for this, based on outfall location and whether the drainage basin was edited based on the storm drain catchment area.

If that is the case, please confirm, and that the outfall OFF 11-01 location is at the eastern inlet.

I have run this twice, once ("streamstats for Everett") which gives a smaller basin at the eastern inlet. The second run is for the coordinates you gave and on the topo for the inlet at the northern location.

From: Brian Caccavale <bcaccavale@lrt-llc.net>
Sent: Thursday, May 27, 2021 11:04 AM
To: Keohane, Kathleen (DEP) <Kathleen.Keohane@mass.gov>
Subject: RE: 7Q10 Value Confirmation

Hi Kathleen,

LRT did not perform the calculations ourselves for this particular NOI. We are working with Sanborn Head to submit the NOI and they performed the calculations (see email chain below), but I am not aware that they altered basin based storm drainage areas.

Please let me know if you need any additional information. If it would be helpful to talk through the information, please feel free to call me on my cell phone at 978-751-1265.

Thank you for your quick response on this. We greatly appreciate it.

-Brian

From: Keohane, Kathleen (DEP) <kathleen.keohane@state.ma.us>
Sent: Thursday, May 27, 2021 10:55 AM
To: Brian Caccavale <bcaccavale@lrt-llc.net>
Subject: RE: 7Q10 Value Confirmation

I assume you altered basin based storm drain drainage areas. Is that correct?

From: Brian Caccavale <bcaccavale@lrt-llc.net>
Sent: Thursday, May 27, 2021 9:57 AM
To: Ruan, Xiaodan (DEP) <xiaodan.ruan@mass.gov>; Keohane, Kathleen (DEP) <Kathleen.Keohane@mass.gov>
Cc: Vakalopoulos, Catherine (DEP) <catherine.vakalopoulos@mass.gov>; Kim Gravelle <kgravelle@lrt-llc.net>; Jake Jennings <JJennings@lrt-llc.net>; Kevin Stetson <kstetson@sanbornhead.com>
Subject: FW: 7Q10 Value Confirmation

Hi Xiaodan/Kathleen,,

I hope you are both well.

Please see email chain below and the attached supporting information for a pending NPDES RGP NOI for the 85-87 and 119 Boston Street property in Everett, MA. We would like to confirm the following 7Q10 value for the project prior to submittal of the NOI to EPA.

Site Address: 85-87 and 119 Boston Street, MA
Type of Discharge: Via drain outlet in the Island End River with the approximate latitude and longitude indicated below.
Stormwater Outfall ID: OFF 11-01

Approximate Lat/Long:
Lat: 42°23'39.95"N Long: 71°02'58.96"W

Design Discharge Flow from site: 150 gpm = 0.216 MGD
Upstream StreamStats Generated, 7Q10: 5.43 cfs = 3.5 MGD

Dilution Factor: DF = 17.2

Can you please confirm these values are appropriate? We are hoping to submit the NOI later today. Your expedited review/response is greatly appreciated.

Thank you for your help.

-Brian

From: Anna Campbell <acampbell@sanbornhead.com>
Sent: Wednesday, May 26, 2021 5:38 PM
To: Kevin Stetson <kstetson@sanbornhead.com>
Subject: Fwd: 7Q10 Value Confirmation

Here is my last correspondence with DEP. Sorry that it fell off my radar and I didn't follow up further.

From: Anna Campbell
Sent: Friday, April 16, 2021 1:03:44 PM
To: Catherine.Vakalopoulos@state.ma.us <Catherine.Vakalopoulos@state.ma.us>
Subject: RE: 7Q10 Value Confirmation

Good Afternoon, Catherine,

I hope you are well. Just checking if there is anything else I can provide to aid in this request.

Thank you,
Anna

From: Anna Campbell
Sent: Friday, April 9, 2021 12:51 PM
To: Catherine.Vakalopoulos@state.ma.us
Subject: 7Q10 Value Confirmation

Good afternoon,

I would like to confirm the following 7Q10 value for a RGP project located in Everett, MA.

Using StreamStats, I selected the site, which drains to the outlet within the Island End River.

Site Address: 85-87 and 119 Boston Street, MA
Type of Discharge: Via drain outlet in the Island End River with the approximate latitude and longitude indicated below.

Stormwater Outfall ID: OFF 11-01

Approximate Lat/Long:
Lat: 42°23'39.95"N Long: 71°02'58.96"W

Design Discharge Flow from site: 150 gpm = 0.216 MGD
Upstream StreamStats Generated, 7Q10: 5.43 cfs = 3.5 MGD

Dilution Factor: DF = 17.2

I have attached a draft calculation sheet which was used to arrive at the above dilution factor.

Please let me know if you require any further information.

Thank you,
Anna

Anna Campbell
Project Geologist

Not professionally licensed

SANBORN | HEAD & ASSOCIATES, INC.
D 978.577.1011 | M 781.588.1231 | 98 N. Washingon Street, Suite 101, Boston, MA 02114

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

DILUTION CALCULATIONS
85-87 and 119 Boston Street
Everett, MA

Calculate Dilution Factor (DF) for project based on 7 Day 10 Year (7Q10) Low Flow values

Calculate DF based on EPA formula $(Q_S + Q_D)/Q_D$, where Q_S is 7Q10 in million gallons per day (MGD) and Q_D is discharge flow in MGD

ASSUMPTIONS FOR 150 GPM SYSTEM

7Q10 is 0.045 cubic feet per second (cfs) - from StreamStats 4.0
A conversion of 7.48 is used to convert cubic feet to gallons
A design flow rate of 150 gallons per minute (gpm) is assumed

CALCULATIONS

7q10 Low Flow Value (Q_S)

$$Q_S = \frac{0.045\ ft^3}{sec} \times \frac{7.48\ gallons}{ft^3} \times \frac{86{,}400\ sec}{day} \times \frac{1\ MG}{1{,}000{,}000\ gallons} = 0.029\ MGD$$

Discharge Flow Rate (Q_D)

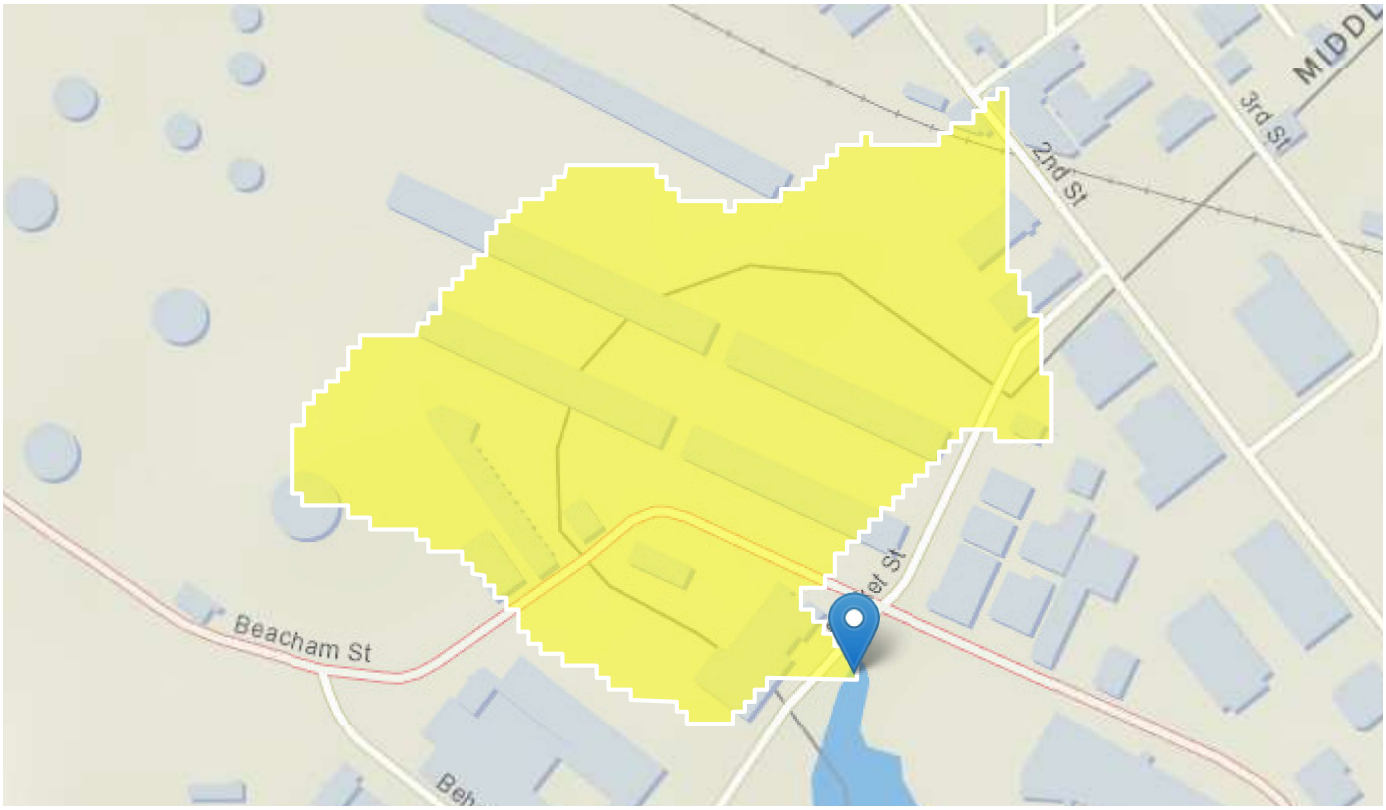
$$Q_D = \frac{150\ gallons}{min} \times \frac{1{,}440\ min}{day} \times \frac{1MG}{1{,}000{,}000\ gallons} = 0.216\ MGD$$

Dilution Factor (DF)

$$DF = \frac{Q_S + Q_D}{Q_D} = \frac{0.029\ MGD + 0.216\ MGD}{0.216\ MGD} = 1.13$$

StreamStats Report

Region ID: MA
Workspace ID: MA20210527153917821000
Clicked Point (Latitude, Longitude): 42.39427, -71.04994
Time: 2021-05-27 11:39:37 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.082	square miles
BSLDEM250	Mean basin slope computed from 1:250K DEM	0.269	percent
DRFTPERSTR	Area of stratified drift per unit of stream length	12.9	square mile per mile
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless

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

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.082	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	0.269	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	12.9	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

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

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

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

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0648	ft^3/s
7 Day 10 Year Low Flow	0.045	ft^3/s

Low-Flow Statistics Citations

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

Application Version: 4.5.3
StreamStats Services Version: 1.2.22
NSS Services Version: 2.1.2

Enter number values in green boxes below

Enter values in the units specified

↓

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

Enter a dilution factor, if other than zero

↓

1.13

Enter values in the units specified

↓

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

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

↓

7.86	pH in **Standard Units**
20	Temperature in **°C**
393	Ammonia in **mg/L**
0	Hardness in **mg/L** $CaCO_3$
12	Salinity in **ppt**
0	Antimony in **µg/L**
1.2	Arsenic in **µg/L**
0	Cadmium in **µg/L**
0	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
4.11	Copper in **µg/L**
1020	Iron in **µg/L**
6.05	Lead in **µg/L**
0	Mercury in **µg/L**
0	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
18.62	Zinc in **µg/L**

Enter **influent** concentrations in the units specified

↓

0	TRC in **µg/L**
0	Ammonia in **mg/L**
0	Antimony in **µg/L**
10.6	Arsenic in **µg/L**
2080	Cadmium in **µg/L**
17.15	Chromium III in **µg/L**
17.15	Chromium VI in **µg/L**
27.13	Copper in **µg/L**
11400	Iron in **µg/L**
171	Lead in **µg/L**
0.25	Mercury in **µg/L**
0	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
155.5	Zinc in **µg/L**
14	Cyanide in **µg/L**
0	Phenol in **µg/L**
0	Carbon Tetrachloride in **µg/L**
0	Tetrachloroethylene in **µg/L**
0	Total Phthalates in **µg/L**
0	Diethylhexylphthalate in **µg/L**
3.08	Benzo(a)anthracene in **µg/L**
2.68	Benzo(a)pyrene in **µg/L**
3.67	Benzo(b)fluoranthene in **µg/L**
1.28	Benzo(k)fluoranthene in **µg/L**
2.74	Chrysene in **µg/L**
0.486	Dibenzo(a,h)anthracene in **µg/L**
2.19	Indeno(1,2,3-cd)pyrene in **µg/L**
0	Methyl-tert butyl ether in **µg/L**

Dilution Factor	1.1					
A. Inorganics	TBEL applies if bolded		WQBEL applies if bolded		Compliance Level applies if shown	
Ammonia	**Report**	mg/L	---			
Chloride	**Report**	µg/L	---			
Total Residual Chlorine	0.2	mg/L	**8.5**	µg/L	50	µg/L
Total Suspended Solids	**30**	mg/L	---			
Antimony	**206**	µg/L	726	µg/L		
Arsenic	**104**	µg/L	41	µg/L		
Cadmium	10.2	µg/L	**9.9**	µg/L		
Chromium III	**323**	µg/L	113.4	µg/L		
Chromium VI	**323**	µg/L	57	µg/L		
Copper	242	µg/L	**3.7**	µg/L		
Iron	**5000**	µg/L	---	µg/L		
Lead	160	µg/L	**8.8**	µg/L		
Mercury	**0.739**	µg/L	1.25	µg/L		
Nickel	**1450**	µg/L	9.4	µg/L		
Selenium	**235.8**	µg/L	81	µg/L		
Silver	**35.1**	µg/L	2.5	µg/L		
Zinc	420	µg/L	**95**	µg/L		
Cyanide	178	mg/L	**1.1**	µg/L	5	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	340	µg/L		
C. Halogenated VOCs						
Carbon Tetrachloride	**4.4**		1.8	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	3.7	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	2.5	µg/L		
Total Group I Polycyclic Aromatic Hydrocarbons	**1.0**	µg/L	---			
Benzo(a)anthracene	1.0	µg/L	**0.0043**	µg/L	0.1	µg/L
Benzo(a)pyrene	1.0	µg/L	**0.0043**	µg/L	0.1	µg/L
Benzo(b)fluoranthene	1.0	µg/L	**0.0043**	µg/L	0.1	µg/L
Benzo(k)fluoranthene	1.0	µg/L	**0.0043**	µg/L	0.1	µg/L
Chrysene	1.0	µg/L	**0.0043**	µg/L	0.1	µg/L
Dibenzo(a,h)anthracene	1.0	µg/L	**0.0043**	µg/L	0.1	µg/L
Indeno(1,2,3-cd)pyrene	1.0	µg/L	**0.0043**	µg/L	0.1	µg/L
Total Group II Polycyclic Aromatic Hydrocarbons	**100**	µg/L	---			
Naphthalene	**20**	µg/L	---			
E. Halogenated SVOCs						
Total Polychlorinated Biphenyls	**0.000064**	µg/L	---		0.5	µg/L
Pentachlorophenol	**1.0**	µg/L	---			
F. Fuels Parameters						
Total Petroleum Hydrocarbons	**5.0**	mg/L	---			
Ethanol	**Report**	mg/L	---			
Methyl-tert-Butyl Ether	**70**	µg/L	23	µg/L		
tert-Butyl Alcohol	**120**	µg/L	---			
tert-Amyl Methyl Ether	**90**	µg/L	---			

Appendix E

Laboratory Analytical Data Reports

ANALYTICAL REPORT

Lab Number:	L2114193
Client:	Sanborn, Head & Associates, Inc. 98 N. Washington Street Suite 101 Boston, MA 02114
ATTN:	Adam Coen
Phone:	(857) 327-9736
Project Name:	85 BOSTON
Project Number:	4719.01
Report Date:	03/29/21

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

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

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2114193
Report Date: 03/29/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2114193-01	20210322 SH-GP-103W	WATER	EVERETT, MA	03/22/21 09:00	03/22/21
L2114193-02	20210322 SH-GP-301W	WATER	EVERETT, MA	03/22/21 12:00	03/22/21
L2114193-03	20210322 SW	WATER	EVERETT, MA	03/22/21 10:00	03/22/21

Project Name:	85 BOSTON	**Lab Number:**	L2114193
Project Number:	4719.01	**Report Date:**	03/29/21

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:	85 BOSTON	**Lab Number:**	L2114193
Project Number:	4719.01	**Report Date:**	03/29/21

Case Narrative (continued)

Report Submission

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

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

Sample Receipt

The analyses performed were specified by the client.

Volatile Organics by SIM

L2114193-01D: The sample has elevated detection limits due to the dilution required by the sample matrix. Sample is cloudy and orange.

L2114193-01D and -03: Due to the matrix of the sample (foam generation during purging/analysis), the laboratory used Anti-Foam solution in the sample and associated QC.

Total Metals

L2114193-01: The sample has elevated detection limits for all elements by Method 200.8 due to the dilution required by the high concentrations of target and non-target elements.

The WG1478167-3 MS recovery for iron (60%), performed on L2114193-01, does not apply because the sample concentration is greater than four times the spike amount added.

TPH, SGT-HEM

The WG1478822-4 MS recovery, performed on L2114193-03, is outside the acceptance criteria for tph (55%); 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: Lisa Westerlind

Title: Technical Director/Representative Date: 03/29/21

ORGANICS

VOLATILES

Project Name: 85 BOSTON
Project Number: 4719.01
Lab Number: L2114193
Report Date: 03/29/21

SAMPLE RESULTS

Lab ID: L2114193-01
Client ID: 20210322 SH-GP-103W
Sample Location: EVERETT, MA

Date Collected: 03/22/21 09:00
Date Received: 03/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 03/25/21 15:03
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 03/25/21 13:04

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: 85 BOSTON
Project Number: 4719.01
Lab Number: L2114193
Report Date: 03/29/21

SAMPLE RESULTS

Lab ID: L2114193-01 D
Client ID: 20210322 SH-GP-103W
Sample Location: EVERETT, MA
Date Collected: 03/22/21 09:00
Date Received: 03/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 03/23/21 18:46
Analyst: GT

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

Project Name: 85 BOSTON
Lab Number: L2114193
Project Number: 4719.01
Report Date: 03/29/21

SAMPLE RESULTS

Lab ID: L2114193-01 D
Client ID: 20210322 SH-GP-103W
Sample Location: EVERETT, MA

Date Collected: 03/22/21 09:00
Date Received: 03/22/21
Field Prep: Not Specified

Sample Depth:

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	100		60-140
Fluorobenzene	95		60-140
4-Bromofluorobenzene	105		60-140

Project Name: 85 BOSTON
Lab Number: L2114193
Project Number: 4719.01
Report Date: 03/29/21

SAMPLE RESULTS

Lab ID: L2114193-01 D
Client ID: 20210322 SH-GP-103W
Sample Location: EVERETT, MA

Date Collected: 03/22/21 09:00
Date Received: 03/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1-SIM
Analytical Date: 03/23/21 18:46
Analyst: GT

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	96		60-140
4-Bromofluorobenzene	98		60-140

Project Name: 85 BOSTON
Project Number: 4719.01
Lab Number: L2114193
Report Date: 03/29/21

SAMPLE RESULTS

Lab ID: L2114193-03
Client ID: 20210322 SW
Sample Location: EVERETT, MA
Date Collected: 03/22/21 10:00
Date Received: 03/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 03/23/21 19:20
Analyst: KJD

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

Project Name: 85 BOSTON
Lab Number: L2114193
Project Number: 4719.01
Report Date: 03/29/21

SAMPLE RESULTS

Lab ID: L2114193-03
Client ID: 20210322 SW
Sample Location: EVERETT, MA
Date Collected: 03/22/21 10:00
Date Received: 03/22/21
Field Prep: Not Specified

Sample Depth:

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	102		60-140
Fluorobenzene	97		60-140
4-Bromofluorobenzene	106		60-140

Project Name: 85 BOSTON
Project Number: 4719.01
Lab Number: L2114193
Report Date: 03/29/21

SAMPLE RESULTS

Lab ID: L2114193-03
Client ID: 20210322 SW
Sample Location: EVERETT, MA
Date Collected: 03/22/21 10:00
Date Received: 03/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1-SIM
Analytical Date: 03/23/21 19:20
Analyst: GT

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	96		60-140
4-Bromofluorobenzene	103		60-140

Project Name: 85 BOSTON
Project Number: 4719.01
Lab Number: L2114193
Report Date: 03/29/21

SAMPLE RESULTS

Lab ID: L2114193-03
Client ID: 20210322 SW
Sample Location: EVERETT, MA

Date Collected: 03/22/21 10:00
Date Received: 03/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 03/25/21 15:08
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 03/25/21 13:04

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: 85 BOSTON
Project Number: 4719.01
Lab Number: L2114193
Report Date: 03/29/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1-SIM
Analytical Date: 03/23/21 09:36
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01,03 Batch: WG1478346-4					
1,4-Dioxane	ND		ug/l	5.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	98		60-140
4-Bromofluorobenzene	103		60-140

Project Name: 85 BOSTON
Project Number: 4719.01
Lab Number: L2114193
Report Date: 03/29/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 03/23/21 09:36
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01,03 Batch: WG1478348-4					
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: 85 BOSTON
Project Number: 4719.01
Lab Number: L2114193
Report Date: 03/29/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 03/23/21 09:36
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01,03 Batch: WG1478348-4					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	107		60-140
Fluorobenzene	98		60-140
4-Bromofluorobenzene	109		60-140

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2114193
Report Date: 03/29/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 03/25/21 14:23
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 03/25/21 13:04

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 01,03 Batch: WG1478635-1						
1,2-Dibromoethane	ND		ug/l	0.010	--	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2114193
Report Date: 03/29/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01,03 Batch: WG1478346-3								
1,4-Dioxane	84		-		60-140	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Fluorobenzene	92				60-140
4-Bromofluorobenzene	104				60-140

Lab Control Sample Analysis
Batch Quality Control

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2114193
Report Date: 03/29/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,03 Batch: WG1478348-3								
Methylene chloride	105		-		60-140	-		28
1,1-Dichloroethane	105		-		50-150	-		49
Carbon tetrachloride	130		-		70-130	-		41
1,1,2-Trichloroethane	105		-		70-130	-		45
Tetrachloroethene	130		-		70-130	-		39
1,2-Dichloroethane	105		-		70-130	-		49
1,1,1-Trichloroethane	125		-		70-130	-		36
Benzene	110		-		65-135	-		61
Toluene	120		-		70-130	-		41
Ethylbenzene	125		-		60-140	-		63
Vinyl chloride	90		-		5-195	-		66
1,1-Dichloroethene	110		-		50-150	-		32
cis-1,2-Dichloroethene	115		-		60-140	-		30
Trichloroethene	105		-		65-135	-		48
1,2-Dichlorobenzene	135		-		65-135	-		57
1,3-Dichlorobenzene	130		-		70-130	-		43
1,4-Dichlorobenzene	135		-		65-135	-		57
p/m-Xylene	122		-		60-140	-		30
o-xylene	120		-		60-140	-		30
Acetone	76		-		40-160	-		30
Methyl tert butyl ether	100		-		60-140	-		30
Tert-Butyl Alcohol	95		-		60-140	-		30
Tertiary-Amyl Methyl Ether	100		-		60-140	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2114193
Report Date: 03/29/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,03 Batch: WG1478348-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Pentafluorobenzene	110				60-140
Fluorobenzene	93				60-140
4-Bromofluorobenzene	112				60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: 85 BOSTON

Project Number: 4719.01

Lab Number: L2114193

Report Date: 03/29/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab	Associated sample(s): 01,03		Batch: WG1478635-2						
1,2-Dibromoethane	105		-		80-120	-			A

Matrix Spike Analysis

Batch Quality Control

Project Name: 85 BOSTON

Project Number: 4719.01

Lab Number: L2114193

Report Date: 03/29/21

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): 01,03 QC Batch ID: WG1478635-3 QC Sample: L2113579-02 Client ID: MS Sample													
1,2-Dibromoethane	ND	0.248	0.266	107		-	-		80-120	-		20	A
1,2-Dibromo-3-chloropropane	ND	0.248	0.250	101		-	-		80-120	-		20	A
1,2,3-Trichloropropane	ND	0.248	0.208	84		-	-		80-120	-		20	A

SEMIVOLATILES

Project Name: 85 BOSTON
Project Number: 4719.01
Lab Number: L2114193
Report Date: 03/29/21

SAMPLE RESULTS

Lab ID: L2114193-01
Client ID: 20210322 SH-GP-103W
Sample Location: EVERETT, MA

Date Collected: 03/22/21 09:00
Date Received: 03/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 03/26/21 02:39
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 03/23/21 08:05

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	66		42-122
2-Fluorobiphenyl	69		46-121
4-Terphenyl-d14	82		47-138

Project Name: 85 BOSTON
Project Number: 4719.01
Lab Number: L2114193
Report Date: 03/29/21

SAMPLE RESULTS

Lab ID: L2114193-01
Client ID: 20210322 SH-GP-103W
Sample Location: EVERETT, MA

Date Collected: 03/22/21 09:00
Date Received: 03/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1-SIM
Analytical Date: 03/26/21 01:41
Analyst: DV

Extraction Method: EPA 625.1
Extraction Date: 03/23/21 08:07

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	0.629		ug/l	0.100	--	1
Fluoranthene	6.08		ug/l	0.100	--	1
Naphthalene	0.275		ug/l	0.100	--	1
Benzo(a)anthracene	3.08		ug/l	0.100	--	1
Benzo(a)pyrene	2.68		ug/l	0.100	--	1
Benzo(b)fluoranthene	3.67		ug/l	0.100	--	1
Benzo(k)fluoranthene	1.28		ug/l	0.100	--	1
Chrysene	2.74		ug/l	0.100	--	1
Acenaphthylene	0.400		ug/l	0.100	--	1
Anthracene	1.59		ug/l	0.100	--	1
Benzo(ghi)perylene	1.90		ug/l	0.100	--	1
Fluorene	0.747		ug/l	0.100	--	1
Phenanthrene	4.68		ug/l	0.100	--	1
Dibenzo(a,h)anthracene	0.486		ug/l	0.100	--	1
Indeno(1,2,3-cd)pyrene	2.19		ug/l	0.100	--	1
Pyrene	5.77		ug/l	0.100	--	1
Pentachlorophenol	ND		ug/l	1.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	36		25-87
Phenol-d6	31		16-65
Nitrobenzene-d5	67		42-122
2-Fluorobiphenyl	75		46-121
2,4,6-Tribromophenol	90		45-128
4-Terphenyl-d14	77		47-138

Project Name: 85 BOSTON
Project Number: 4719.01
Lab Number: L2114193
Report Date: 03/29/21

SAMPLE RESULTS

Lab ID: L2114193-03
Client ID: 20210322 SW
Sample Location: EVERETT, MA

Date Collected: 03/22/21 10:00
Date Received: 03/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 03/26/21 04:33
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 03/23/21 08:05

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	65		42-122
2-Fluorobiphenyl	69		46-121
4-Terphenyl-d14	86		47-138

Project Name: 85 BOSTON
Project Number: 4719.01
Lab Number: L2114193
Report Date: 03/29/21

SAMPLE RESULTS

Lab ID: L2114193-03
Client ID: 20210322 SW
Sample Location: EVERETT, MA

Date Collected: 03/22/21 10:00
Date Received: 03/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1-SIM
Analytical Date: 03/26/21 01:09
Analyst: DV

Extraction Method: EPA 625.1
Extraction Date: 03/23/21 08:07

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	0.180		ug/l	0.100	--	1
Fluoranthene	0.393		ug/l	0.100	--	1
Naphthalene	0.612		ug/l	0.100	--	1
Benzo(a)anthracene	ND		ug/l	0.100	--	1
Benzo(a)pyrene	ND		ug/l	0.100	--	1
Benzo(b)fluoranthene	0.153		ug/l	0.100	--	1
Benzo(k)fluoranthene	ND		ug/l	0.100	--	1
Chrysene	0.116		ug/l	0.100	--	1
Acenaphthylene	ND		ug/l	0.100	--	1
Anthracene	ND		ug/l	0.100	--	1
Benzo(ghi)perylene	ND		ug/l	0.100	--	1
Fluorene	0.194		ug/l	0.100	--	1
Phenanthrene	0.253		ug/l	0.100	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.100	--	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.100	--	1
Pyrene	0.234		ug/l	0.100	--	1
Pentachlorophenol	ND		ug/l	1.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	36		25-87
Phenol-d6	31		16-65
Nitrobenzene-d5	64		42-122
2-Fluorobiphenyl	79		46-121
2,4,6-Tribromophenol	99		45-128
4-Terphenyl-d14	85		47-138

Project Name: 85 BOSTON
Project Number: 4719.01
Lab Number: L2114193
Report Date: 03/29/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
Analytical Date: 03/24/21 14:48
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 03/22/21 15:42

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01,03 Batch: WG1477266-1					
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	66		42-122
2-Fluorobiphenyl	73		46-121
4-Terphenyl-d14	82		47-138

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2114193
Report Date: 03/29/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1-SIM
Analytical Date: 03/23/21 10:20
Analyst: RP

Extraction Method: EPA 625.1
Extraction Date: 03/22/21 15:43

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01,03 Batch: WG1477267-1					
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	43		25-87
Phenol-d6	30		16-65
Nitrobenzene-d5	76		42-122
2-Fluorobiphenyl	72		46-121
2,4,6-Tribromophenol	103		45-128
4-Terphenyl-d14	78		47-138

Lab Control Sample Analysis
Batch Quality Control

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2114193
Report Date: 03/29/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,03 Batch: WG1477266-2								
Bis(2-ethylhexyl)phthalate	90		-		29-137	-		82
Butyl benzyl phthalate	87		-		1-140	-		60
Di-n-butylphthalate	82		-		8-120	-		47
Di-n-octylphthalate	91		-		19-132	-		69
Diethyl phthalate	78		-		1-120	-		100
Dimethyl phthalate	80		-		1-120	-		183

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	72				42-122
2-Fluorobiphenyl	76				46-121
4-Terphenyl-d14	83				47-138

Lab Control Sample Analysis
Batch Quality Control

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2114193
Report Date: 03/29/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01,03 Batch: WG1477267-2								
Acenaphthene	79		-		60-132	-		30
Fluoranthene	78		-		43-121	-		30
Naphthalene	76		-		36-120	-		30
Benzo(a)anthracene	79		-		42-133	-		30
Benzo(a)pyrene	73		-		32-148	-		30
Benzo(b)fluoranthene	83		-		42-140	-		30
Benzo(k)fluoranthene	76		-		25-146	-		30
Chrysene	74		-		44-140	-		30
Acenaphthylene	83		-		54-126	-		30
Anthracene	79		-		43-120	-		30
Benzo(ghi)perylene	79		-		1-195	-		30
Fluorene	76		-		70-120	-		30
Phenanthrene	75		-		65-120	-		30
Dibenzo(a,h)anthracene	83		-		1-200	-		30
Indeno(1,2,3-cd)pyrene	84		-		1-151	-		30
Pyrene	78		-		70-120	-		30
Pentachlorophenol	82		-		38-152	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2114193
Report Date: 03/29/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01,03 Batch: WG1477267-2								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	47				25-87
Phenol-d6	32				16-65
Nitrobenzene-d5	80				42-122
2-Fluorobiphenyl	73				46-121
2,4,6-Tribromophenol	97				45-128
4-Terphenyl-d14	78				47-138

PCBS

Project Name: 85 BOSTON
Project Number: 4719.01
Lab Number: L2114193
Report Date: 03/29/21

SAMPLE RESULTS

Lab ID: L2114193-01
Client ID: 20210322 SH-GP-103W
Sample Location: EVERETT, MA

Date Collected: 03/22/21 09:00
Date Received: 03/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 03/26/21 12:20
Analyst: CW

Extraction Method: EPA 608.3
Extraction Date: 03/26/21 04:23
Cleanup Method: EPA 3665A
Cleanup Date: 03/26/21
Cleanup Method: EPA 3660B
Cleanup Date: 03/26/21

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	81		37-123	B
Decachlorobiphenyl	47		38-114	B
2,4,5,6-Tetrachloro-m-xylene	66		37-123	A
Decachlorobiphenyl	**34**	Q	38-114	A

Project Name: 85 BOSTON
Project Number: 4719.01
Lab Number: L2114193
Report Date: 03/29/21

SAMPLE RESULTS

Lab ID: L2114193-03
Client ID: 20210322 SW
Sample Location: EVERETT, MA

Date Collected: 03/22/21 10:00
Date Received: 03/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 03/26/21 12:27
Analyst: CW

Extraction Method: EPA 608.3
Extraction Date: 03/26/21 04:43
Cleanup Method: EPA 3665A
Cleanup Date: 03/26/21
Cleanup Method: EPA 3660B
Cleanup Date: 03/26/21

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	79		37-123	B
Decachlorobiphenyl	65		38-114	B
2,4,5,6-Tetrachloro-m-xylene	66		37-123	A
Decachlorobiphenyl	49		38-114	A

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2114193
Report Date: 03/29/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 127,608.3
Analytical Date: 03/26/21 10:55
Analyst: CW

Extraction Method: EPA 608.3
Extraction Date: 03/26/21 04:23
Cleanup Method: EPA 3665A
Cleanup Date: 03/26/21
Cleanup Method: EPA 3660B
Cleanup Date: 03/26/21

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01,03 Batch: WG1478999-1						
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	78		37-123	B
Decachlorobiphenyl	81		38-114	B
2,4,5,6-Tetrachloro-m-xylene	75		37-123	A
Decachlorobiphenyl	65		38-114	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2114193
Report Date: 03/29/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01,03 Batch: WG1478999-2									
Aroclor 1016	73		-		50-140	-		36	A
Aroclor 1260	60		-		8-140	-		38	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	82				37-123	B
Decachlorobiphenyl	70				38-114	B
2,4,5,6-Tetrachloro-m-xylene	75				37-123	A
Decachlorobiphenyl	53				38-114	A

METALS

Project Name: 85 BOSTON
Lab Number: L2114193
Project Number: 4719.01
Report Date: 03/29/21

SAMPLE RESULTS

Lab ID: L2114193-01
Client ID: 20210322 SH-GP-103W
Sample Location: EVERETT, MA
Date Collected: 03/22/21 09:00
Date Received: 03/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.02000	--	5	03/25/21 09:56	03/25/21 17:25	EPA 3005A	3,200.8	AM
Arsenic, Total	0.01016		mg/l	0.00500	--	5	03/25/21 09:56	03/25/21 17:25	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00100	--	5	03/25/21 09:56	03/25/21 17:25	EPA 3005A	3,200.8	AM
Chromium, Total	0.01715		mg/l	0.00500	--	5	03/25/21 09:56	03/25/21 17:25	EPA 3005A	3,200.8	AM
Copper, Total	0.02713		mg/l	0.00500	--	5	03/25/21 09:56	03/25/21 17:25	EPA 3005A	3,200.8	AM
Iron, Total	11.4		mg/l	0.050	--	1	03/25/21 09:56	03/25/21 23:05	EPA 3005A	19,200.7	BV
Lead, Total	0.1710		mg/l	0.00500	--	5	03/25/21 09:56	03/25/21 17:25	EPA 3005A	3,200.8	AM
Mercury, Total	0.00025		mg/l	0.00020	--	1	03/25/21 11:28	03/26/21 14:43	EPA 245.1	3,245.1	EW
Nickel, Total	ND		mg/l	0.01000	--	5	03/25/21 09:56	03/25/21 17:25	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.02500	--	5	03/25/21 09:56	03/25/21 17:25	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00200	--	5	03/25/21 09:56	03/25/21 17:25	EPA 3005A	3,200.8	AM
Zinc, Total	0.1555		mg/l	0.05000	--	5	03/25/21 09:56	03/25/21 17:25	EPA 3005A	3,200.8	AM
General Chemistry - Mansfield Lab											
Chromium, Trivalent	0.017		mg/l	0.010	--	1		03/25/21 17:25	NA	107,-	

Project Name: 85 BOSTON
Project Number: 4719.01
Lab Number: L2114193
Report Date: 03/29/21

SAMPLE RESULTS

Lab ID: L2114193-03
Client ID: 20210322 SW
Sample Location: EVERETT, MA
Sample Depth:
Matrix: Water

Date Collected: 03/22/21 10:00
Date Received: 03/22/21
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	03/25/21 09:56	03/25/21 18:49	EPA 3005A	3,200.8	AM
Arsenic, Total	0.00120		mg/l	0.00100	--	1	03/25/21 09:56	03/25/21 18:49	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	03/25/21 09:56	03/25/21 18:49	EPA 3005A	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	03/25/21 09:56	03/25/21 18:49	EPA 3005A	3,200.8	AM
Copper, Total	0.00411		mg/l	0.00100	--	1	03/25/21 09:56	03/25/21 18:49	EPA 3005A	3,200.8	AM
Iron, Total	1.02		mg/l	0.050	--	1	03/25/21 09:56	03/25/21 23:52	EPA 3005A	19,200.7	BV
Lead, Total	0.00605		mg/l	0.00100	--	1	03/25/21 09:56	03/25/21 18:49	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	03/25/21 11:28	03/26/21 14:58	EPA 245.1	3,245.1	EW
Nickel, Total	ND		mg/l	0.00200	--	1	03/25/21 09:56	03/25/21 18:49	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	03/25/21 09:56	03/25/21 18:49	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	03/25/21 09:56	03/25/21 18:49	EPA 3005A	3,200.8	AM
Zinc, Total	0.01862		mg/l	0.01000	--	1	03/25/21 09:56	03/25/21 18:49	EPA 3005A	3,200.8	AM
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		03/25/21 18:49	NA	107,-	

Project Name: 85 BOSTON
Project Number: 4719.01
Lab Number: L2114193
Report Date: 03/29/21

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: WG1478167-1										
Iron, Total	ND		mg/l	0.050	--	1	03/25/21 09:56	03/25/21 22:56	19,200.7	BV

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: WG1478169-1										
Antimony, Total	ND		mg/l	0.00400	--	1	03/25/21 09:56	03/25/21 17:04	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	03/25/21 09:56	03/25/21 17:04	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	03/25/21 09:56	03/25/21 17:04	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	03/25/21 09:56	03/25/21 17:04	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	03/25/21 09:56	03/25/21 17:04	3,200.8	AM
Lead, Total	ND		mg/l	0.00100	--	1	03/25/21 09:56	03/25/21 17:04	3,200.8	AM
Nickel, Total	ND		mg/l	0.00200	--	1	03/25/21 09:56	03/25/21 17:04	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	03/25/21 09:56	03/25/21 17:04	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	03/25/21 09:56	03/25/21 17:04	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	03/25/21 09:56	03/25/21 17:04	3,200.8	AM

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: WG1478170-1										
Mercury, Total	ND		mg/l	0.00020	--	1	03/25/21 11:28	03/26/21 13:35	3,245.1	EW

Prep Information

Digestion Method: EPA 245.1

Lab Control Sample Analysis

Batch Quality Control

Project Name: 85 BOSTON

Project Number: 4719.01

Lab Number: L2114193

Report Date: 03/29/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01,03 Batch: WG1478167-2								
Iron, Total	101		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01,03 Batch: WG1478169-2								
Antimony, Total	87		-		85-115	-		
Arsenic, Total	108		-		85-115	-		
Cadmium, Total	110		-		85-115	-		
Chromium, Total	100		-		85-115	-		
Copper, Total	101		-		85-115	-		
Lead, Total	102		-		85-115	-		
Nickel, Total	96		-		85-115	-		
Selenium, Total	114		-		85-115	-		
Silver, Total	99		-		85-115	-		
Zinc, Total	109		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01,03 Batch: WG1478170-2								
Mercury, Total	99		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2114193
Report Date: 03/29/21

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: WG1478167-3 QC Sample: L2114193-01 Client ID: 20210322 SH-GP-103W												
Iron, Total	11.4	1	12.0	**60**	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01,03 QC Batch ID: WG1478167-7 QC Sample: L2114193-03 Client ID: 20210322 SW												
Iron, Total	1.02	1	1.99	97		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01,03 QC Batch ID: WG1478169-3 QC Sample: L2114193-01 Client ID: 20210322 SH-GP-103W												
Antimony, Total	ND	0.5	0.4805	96		-	-		70-130	-		20
Arsenic, Total	0.01016	0.12	0.1305	100		-	-		70-130	-		20
Cadmium, Total	ND	0.051	0.05169	101		-	-		70-130	-		20
Chromium, Total	0.01715	0.2	0.2037	93		-	-		70-130	-		20
Copper, Total	0.02713	0.25	0.2564	92		-	-		70-130	-		20
Lead, Total	0.1710	0.51	0.6793	100		-	-		70-130	-		20
Nickel, Total	ND	0.5	0.4501	90		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1295	108		-	-		70-130	-		20
Silver, Total	ND	0.05	0.04681	94		-	-		70-130	-		20
Zinc, Total	0.1555	0.5	0.6483	98		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01,03 QC Batch ID: WG1478170-3 QC Sample: L2114281-01 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00491	98		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01,03 QC Batch ID: WG1478170-5 QC Sample: L2114281-02 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00497	99		-	-		70-130	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2114193
Report Date: 03/29/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01,03 QC Batch ID: WG1478167-4 QC Sample: L2114193-01 Client ID: 20210322 SH-GP-103W						
Iron, Total	11.4	11.0	mg/l	4		20
Total Metals - Mansfield Lab Associated sample(s): 01,03 QC Batch ID: WG1478167-8 QC Sample: L2114193-03 Client ID: 20210322 SW						
Iron, Total	1.02	1.01	mg/l	1		20
Total Metals - Mansfield Lab Associated sample(s): 01,03 QC Batch ID: WG1478169-4 QC Sample: L2114193-01 Client ID: 20210322 SH-GP-103W						
Antimony, Total	ND	ND	mg/l	NC		20
Arsenic, Total	0.01016	0.00911	mg/l	11		20
Cadmium, Total	ND	ND	mg/l	NC		20
Chromium, Total	0.01715	0.01655	mg/l	4		20
Copper, Total	0.02713	0.02723	mg/l	0		20
Lead, Total	0.1710	0.1662	mg/l	3		20
Nickel, Total	ND	ND	mg/l	NC		20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	0.1555	0.1514	mg/l	3		20
Total Metals - Mansfield Lab Associated sample(s): 01,03 QC Batch ID: WG1478170-4 QC Sample: L2114281-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01,03 QC Batch ID: WG1478170-6 QC Sample: L2114281-02 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20

INORGANICS
&
MISCELLANEOUS

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2114193
Report Date: 03/29/21

SAMPLE RESULTS

Lab ID: L2114193-01
Client ID: 20210322 SH-GP-103W
Sample Location: EVERETT, MA

Date Collected: 03/22/21 09:00
Date Received: 03/22/21
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	130		mg/l	10	NA	2	-	03/25/21 16:45	121,2540D	AC
Cyanide, Total	0.014		mg/l	0.005	--	1	03/24/21 16:15	03/25/21 10:17	121,4500CN-CE	CR
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	03/23/21 01:20	121,4500CL-D	AW
Nitrogen, Ammonia	10.8		mg/l	0.375	--	5	03/25/21 16:00	03/25/21 22:04	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	4.00	--	1	03/25/21 18:30	03/25/21 20:00	74,1664A	TL
Phenolics, Total	ND		mg/l	0.030	--	1	03/23/21 07:20	03/24/21 11:48	4,420.1	KP
Chromium, Hexavalent	ND		mg/l	0.010	--	1	03/23/21 04:45	03/23/21 05:11	1,7196A	JA
Anions by Ion Chromatography - Westborough Lab										
Chloride	1140		mg/l	25.0	--	50	-	03/23/21 19:02	44,300.0	SH

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2114193
Report Date: 03/29/21

SAMPLE RESULTS

Lab ID: L2114193-03
Client ID: 20210322 SW
Sample Location: EVERETT, MA

Date Collected: 03/22/21 10:00
Date Received: 03/22/21
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	42.		mg/l	5.0	NA	1	-	03/25/21 16:45	121,2540D	AC
Cyanide, Total	0.015		mg/l	0.005	--	1	03/24/21 16:15	03/25/21 10:18	121,4500CN-CE	CR
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	03/23/21 01:20	121,4500CL-D	AW
Nitrogen, Ammonia	0.393		mg/l	0.075	--	1	03/25/21 16:00	03/25/21 22:05	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	4.00	--	1	03/25/21 18:30	03/25/21 20:00	74,1664A	TL
Phenolics, Total	ND		mg/l	0.030	--	1	03/23/21 07:20	03/24/21 10:16	4,420.1	KP
Chromium, Hexavalent	ND		mg/l	0.010	--	1	03/23/21 04:45	03/23/21 05:11	1,7196A	JA
Anions by Ion Chromatography - Westborough Lab										
Chloride	7070		mg/l	125	--	250	-	03/23/21 19:14	44,300.0	SH

Project Name: 85 BOSTON
Project Number: 4719.01
Lab Number: L2114193
Report Date: 03/29/21

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): 01,03 Batch: WG1477402-1										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	03/23/21 01:20	121,4500CL-D	AW
General Chemistry - Westborough Lab for sample(s): 01,03 Batch: WG1477436-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	03/23/21 04:45	03/23/21 05:10	1,7196A	JA
General Chemistry - Westborough Lab for sample(s): 01,03 Batch: WG1477481-1										
Phenolics, Total	ND		mg/l	0.030	--	1	03/23/21 07:20	03/24/21 10:13	4,420.1	KP
Anions by Ion Chromatography - Westborough Lab for sample(s): 01,03 Batch: WG1477926-1										
Chloride	ND		mg/l	0.500	--	1	-	03/23/21 16:13	44,300.0	SH
General Chemistry - Westborough Lab for sample(s): 01,03 Batch: WG1478295-1										
Cyanide, Total	ND		mg/l	0.005	--	1	03/24/21 16:15	03/25/21 09:47	121,4500CN-CE	CR
General Chemistry - Westborough Lab for sample(s): 01,03 Batch: WG1478792-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	03/25/21 16:00	03/25/21 22:00	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01,03 Batch: WG1478822-1										
TPH, SGT-HEM	ND		mg/l	4.00	--	1	03/25/21 18:30	03/25/21 20:00	74,1664A	TL
General Chemistry - Westborough Lab for sample(s): 01,03 Batch: WG1478854-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	03/25/21 16:45	121,2540D	AC

Lab Control Sample Analysis

Batch Quality Control

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2114193
Report Date: 03/29/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01,03 Batch: WG1477402-2								
Chlorine, Total Residual	104		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01,03 Batch: WG1477436-2								
Chromium, Hexavalent	101		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01,03 Batch: WG1477481-2								
Phenolics, Total	120		-		70-130	-		
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01,03 Batch: WG1477926-2								
Chloride	103		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01,03 Batch: WG1478295-2								
Cyanide, Total	103		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01,03 Batch: WG1478792-2								
Nitrogen, Ammonia	87		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01,03 Batch: WG1478822-2								
TPH	78		-		64-132	-		34

Lab Control Sample Analysis

Batch Quality Control

Project Name: 85 BOSTON

Project Number: 4719.01

Lab Number: L2114193

Report Date: 03/29/21

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01,03 Batch: WG1478854-2					
Solids, Total Suspended	101	-	80-120	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2114193
Report Date: 03/29/21

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): 01,03 QC Batch ID: WG1477402-4 QC Sample: L2114193-03 Client ID: 20210322 SW												
Chlorine, Total Residual	ND	0.25	0.24	98		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01,03 QC Batch ID: WG1477436-4 QC Sample: L2114193-03 Client ID: 20210322 SW												
Chromium, Hexavalent	ND	0.1	0.098	98		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01,03 QC Batch ID: WG1477481-4 QC Sample: L2114193-03 Client ID: 20210322 SW												
Phenolics, Total	ND	0.4	0.39	98		-	-		70-130	-		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01,03 QC Batch ID: WG1477926-3 QC Sample: L2114296-05 Client ID: MS Sample												
Chloride	ND	4	3.89	94		-	-		90-110	-		18
General Chemistry - Westborough Lab Associated sample(s): 01,03 QC Batch ID: WG1478295-4 QC Sample: L2112672-05 Client ID: MS Sample												
Cyanide, Total	ND	0.2	0.179	90		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01,03 QC Batch ID: WG1478792-4 QC Sample: L2114281-02 Client ID: MS Sample												
Nitrogen, Ammonia	ND	4	3.05	**76**	Q	-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01,03 QC Batch ID: WG1478822-4 QC Sample: L2114193-03 Client ID: 20210322 SW												
TPH	ND	20	11.0	**55**	Q	-	-		64-132	-		34

Lab Duplicate Analysis
Batch Quality Control

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2114193
Report Date: 03/29/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01,03 QC Batch ID: WG1477402-3 QC Sample: L2114193-01 Client ID: 20210322 SH-GP-103W						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01,03 QC Batch ID: WG1477436-3 QC Sample: L2114193-03 Client ID: 20210322 SW						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01,03 QC Batch ID: WG1477481-3 QC Sample: L2114193-03 Client ID: 20210322 SW						
Phenolics, Total	ND	ND	mg/l	NC		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01,03 QC Batch ID: WG1477926-4 QC Sample: L2114296-05 Client ID: DUP Sample						
Chloride	ND	ND	mg/l	NC		18
General Chemistry - Westborough Lab Associated sample(s): 01,03 QC Batch ID: WG1478295-3 QC Sample: L2112672-04 Client ID: DUP Sample						
Cyanide, Total	ND	ND	mg/l	NC		30
General Chemistry - Westborough Lab Associated sample(s): 01,03 QC Batch ID: WG1478792-3 QC Sample: L2114281-02 Client ID: DUP Sample						
Nitrogen, Ammonia	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01,03 QC Batch ID: WG1478822-3 QC Sample: L2114193-01 Client ID: 20210322 SH-GP-103W						
TPH, SGT-HEM	ND	ND	mg/l	NC		34
General Chemistry - Westborough Lab Associated sample(s): 01,03 QC Batch ID: WG1478854-3 QC Sample: L2114193-01 Client ID: 20210322 SH-GP-103W						
Solids, Total Suspended	130	120	mg/l	8		29

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2114193
Report Date: 03/29/21

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(*)
L2114193-01A	Vial unpreserved	B	NA		5.2	Y	Absent		SUB-ETHANOL(14)
L2114193-01B	Vial unpreserved	B	NA		5.2	Y	Absent		SUB-ETHANOL(14)
L2114193-01C	Vial unpreserved	B	NA		5.2	Y	Absent		SUB-ETHANOL(14)
L2114193-01D	Vial Na2S2O3 preserved	B	NA		5.2	Y	Absent		504(14)
L2114193-01E	Vial Na2S2O3 preserved	B	NA		5.2	Y	Absent		504(14)
L2114193-01F	Vial Na2S2O3 preserved	B	NA		5.2	Y	Absent		504(14)
L2114193-01G	Vial Na2S2O3 preserved	B	NA		5.2	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2114193-01H	Vial Na2S2O3 preserved	B	NA		5.2	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2114193-01I	Vial Na2S2O3 preserved	B	NA		5.2	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2114193-01J	Vial Na2S2O3 preserved	B	NA		5.2	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2114193-01K	Vial Na2S2O3 preserved	B	NA		5.2	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2114193-01L	Plastic 250ml NaOH preserved	B	>12	>12	5.2	Y	Absent		TCN-4500(14)
L2114193-01M	Plastic 250ml HNO3 preserved	B	<2	<2	5.2	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),AS-2008T(180),AG-2008T(180),HG-U(28),SE-2008T(180),PB-2008T(180),CR-2008T(180),SB-2008T(180)
L2114193-01N	Plastic 500ml H2SO4 preserved	B	<2	<2	5.2	Y	Absent		NH3-4500(28)
L2114193-01O	Plastic 950ml unpreserved	B	7	7	5.2	Y	Absent		CL-300(28),HEXCR-7196(1),TRC-4500(1)
L2114193-01P	Plastic 950ml unpreserved	B	7	7	5.2	Y	Absent		TSS-2540(7)
L2114193-01Q	Plastic 950ml unpreserved	B	7	7	5.2	Y	Absent		TSS-2540(7)
L2114193-01Q1	Plastic 120ml unpreserved split	B	7	7	5.2	Y	Absent		-
L2114193-01R	Amber 950ml H2SO4 preserved	B	<2	<2	5.2	Y	Absent		TPHENOL-420(28)

*Values in parentheses indicate holding time in days

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2114193
Report Date: 03/29/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2114193-01S	Amber 1000ml HCl preserved	B	NA		5.2	Y	Absent		TPH-1664(28)
L2114193-01T	Amber 1000ml HCl preserved	B	NA		5.2	Y	Absent		TPH-1664(28)
L2114193-01U	Amber 1000ml Na2S2O3	B	7	7	5.2	Y	Absent		PCB-608.3(365)
L2114193-01V	Amber 1000ml Na2S2O3	B	7	7	5.2	Y	Absent		PCB-608.3(365)
L2114193-01W	Amber 1000ml Na2S2O3	B	7	7	5.2	Y	Absent		PCB-608.3(365)
L2114193-01X	Amber 1000ml Na2S2O3	B	7	7	5.2	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L2114193-01X1	Plastic 120ml HNO3 preserved Filtrates	B	NA		5.2	Y	Absent		HOLD-METAL-DISSOLVED(180)
L2114193-01Y	Amber 1000ml Na2S2O3	B	7	7	5.2	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L2114193-01Z	Amber 1000ml Na2S2O3	B	7	7	5.2	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L2114193-02A	Vial unpreserved	A	NA		3.9	Y	Absent		HOLD-SUB()
L2114193-02B	Vial unpreserved	A	NA		3.9	Y	Absent		HOLD-SUB()
L2114193-02C	Vial unpreserved	A	NA		3.9	Y	Absent		HOLD-SUB()
L2114193-02D	Vial Na2S2O3 preserved	A	NA		3.9	Y	Absent		HOLD-624(7)
L2114193-02E	Vial Na2S2O3 preserved	A	NA		3.9	Y	Absent		HOLD-624(7)
L2114193-02F	Vial Na2S2O3 preserved	A	NA		3.9	Y	Absent		HOLD-624(7)
L2114193-02G	Vial Na2S2O3 preserved	A	NA		3.9	Y	Absent		HOLD-624(7)
L2114193-02H	Vial Na2S2O3 preserved	A	NA		3.9	Y	Absent		HOLD-624(7)
L2114193-02I	Vial Na2S2O3 preserved	A	NA		3.9	Y	Absent		HOLD-504/8011(14)
L2114193-02J	Vial Na2S2O3 preserved	A	NA		3.9	Y	Absent		HOLD-504/8011(14)
L2114193-02K	Vial Na2S2O3 preserved	A	NA		3.9	Y	Absent		HOLD-504/8011(14)
L2114193-02L	Plastic 250ml NaOH preserved	A	>12	>12	3.9	Y	Absent		HOLD-WETCHEM()
L2114193-02M	Plastic 250ml HNO3 preserved	A	<2	<2	3.9	Y	Absent		HOLD-METAL-TOTAL(180)
L2114193-02N	Amber 950ml H2SO4 preserved	A	N/A	N/A	3.9	Y	Absent		HOLD-WETCHEM()
L2114193-02O	Plastic 950ml unpreserved	A	N/A	N/A	3.9	Y	Absent		HOLD-METAL-DISSOLVED(180)
L2114193-02P	Plastic 500ml H2SO4 preserved	A	N/A	N/A	3.9	Y	Absent		HOLD-WETCHEM()
L2114193-02Q	Plastic 950ml unpreserved	A	N/A	N/A	3.9	Y	Absent		HOLD-WETCHEM()
L2114193-02R	Plastic 950ml unpreserved	A	N/A	N/A	3.9	Y	Absent		HOLD-WETCHEM()
L2114193-02S	Amber 1000ml HCl preserved	A	N/A	N/A	3.9	Y	Absent		HOLD-WETCHEM()

*Values in parentheses indicate holding time in days

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2114193
Report Date: 03/29/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2114193-02T	Amber 1000ml HCl preserved	A	N/A	N/A	3.9	Y	Absent		HOLD-WETCHEM()
L2114193-02U	Amber 1000ml Na2S2O3	A	N/A	N/A	3.9	Y	Absent		HOLD-625(7),HOLD-608(7)
L2114193-02V	Amber 1000ml Na2S2O3	A	N/A	N/A	3.9	Y	Absent		HOLD-625(7),HOLD-608(7)
L2114193-02W	Amber 1000ml Na2S2O3	A	N/A	N/A	3.9	Y	Absent		HOLD-625(7),HOLD-608(7)
L2114193-02X	Amber 1000ml Na2S2O3	A	N/A	N/A	3.9	Y	Absent		HOLD-625(7),HOLD-608(7)
L2114193-02Y	Amber 1000ml Na2S2O3	A	N/A	N/A	3.9	Y	Absent		HOLD-625(7),HOLD-608(7)
L2114193-02Z	Amber 1000ml Na2S2O3	A	N/A	N/A	3.9	Y	Absent		HOLD-625(7),HOLD-608(7)
L2114193-03A	Vial unpreserved	C	NA		4.8	Y	Absent		SUB-ETHANOL(14)
L2114193-03B	Vial unpreserved	C	NA		4.8	Y	Absent		SUB-ETHANOL(14)
L2114193-03C	Vial unpreserved	C	NA		4.8	Y	Absent		SUB-ETHANOL(14)
L2114193-03D	Vial Na2S2O3 preserved	C	NA		4.8	Y	Absent		504(14)
L2114193-03E	Vial Na2S2O3 preserved	C	NA		4.8	Y	Absent		504(14)
L2114193-03F	Vial Na2S2O3 preserved	C	NA		4.8	Y	Absent		504(14)
L2114193-03G	Vial Na2S2O3 preserved	C	NA		4.8	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2114193-03H	Vial Na2S2O3 preserved	C	NA		4.8	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2114193-03I	Vial Na2S2O3 preserved	C	NA		4.8	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2114193-03J	Vial Na2S2O3 preserved	C	NA		4.8	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2114193-03K	Vial Na2S2O3 preserved	C	NA		4.8	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2114193-03L	Plastic 250ml NaOH preserved	C	>12	>12	4.8	Y	Absent		TCN-4500(14)
L2114193-03M	Plastic 250ml HNO3 preserved	C	<2	<2	4.8	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),AS-2008T(180),SE-2008T(180),AG-2008T(180),HG-U(28),PB-2008T(180),SB-2008T(180),CR-2008T(180)
L2114193-03N	Plastic 500ml H2SO4 preserved	C	<2	<2	4.8	Y	Absent		NH3-4500(28)
L2114193-03O	Plastic 950ml unpreserved	C	7	7	4.8	Y	Absent		CL-300(28),HEXCR-7196(1),TRC-4500(1)
L2114193-03P	Plastic 950ml unpreserved	C	7	7	4.8	Y	Absent		TSS-2540(7)
L2114193-03Q	Amber 950ml H2SO4 preserved	C	<2	<2	4.8	Y	Absent		TPHENOL-420(28)
L2114193-03R	Amber 1000ml HCl preserved	C	NA		4.8	Y	Absent		TPH-1664(28)
L2114193-03S	Amber 1000ml HCl preserved	C	NA		4.8	Y	Absent		TPH-1664(28)

*Values in parentheses indicate holding time in days

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2114193
Report Date: 03/29/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2114193-03T	Amber 1000ml Na2S2O3	C	7	7	4.8	Y	Absent		PCB-608.3(365)
L2114193-03U	Amber 1000ml Na2S2O3	C	7	7	4.8	Y	Absent		PCB-608.3(365)
L2114193-03V	Amber 1000ml Na2S2O3	C	7	7	4.8	Y	Absent		PCB-608.3(365)
L2114193-03W	Amber 1000ml Na2S2O3	C	7	7	4.8	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L2114193-03X	Amber 1000ml Na2S2O3	C	7	7	4.8	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L2114193-03Y	Amber 1000ml Na2S2O3	C	7	7	4.8	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)

Container Comments

L2114193-02N	Container Received Empty
L2114193-02O	Container Received Empty
L2114193-02P	Container Received Empty
L2114193-02Q	Container Received Empty
L2114193-02S	Container Received Empty
L2114193-02T	Container Received Empty
L2114193-02U	Container Received Empty
L2114193-02V	Container Received Empty
L2114193-02W	Container Received Empty
L2114193-02X	Container Received Empty
L2114193-02Y	Container Received Empty
L2114193-02Z	Container Received Empty

*Values in parentheses indicate holding time in days

Project Name:	85 BOSTON	**Lab Number:**	L2114193
Project Number:	4719.01	**Report Date:**	03/29/21

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:	85 BOSTON	**Lab Number:**	L2114193
Project Number:	4719.01	**Report Date:**	03/29/21

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 at or above the RL for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. (Note: 'PFAS, Total (6)' is applicable to MassDEP DW compliance analysis only.). 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:	85 BOSTON	**Lab Number:**	L2114193
Project Number:	4719.01	**Report Date:**	03/29/21

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.

Report Format: Data Usability Report

Project Name:	85 BOSTON	**Lab Number:**	L2114193
Project Number:	4719.01	**Report Date:**	03/29/21

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.

74 Method 1664,Revision A: 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-98-002, February 1999.

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.

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 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; 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.

Serial_No:03292116:56

ALPHA ANALYTICAL — World Class Chemistry

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

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 3/22/21

ALPHA Job #: L2114193

Project Information

Project Name: 85 Boston
Project Location: Everett MA
Project #: 4719.01
Project Manager: A. Coen
ALPHA Quote #:

Report Information - Data Deliverables

☒ ADEx ☒ EMAIL

Billing Information

☒ Same as Client info PO #:

Client Information

Client: Sanborn Head & Associates
Address: 1 Technology Park Dr. Westford MA 01886
Phone: (978) 392-0900
Email: ACampbell@Sanbornhead.com

Regulatory Requirements & Project Information Requirements

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

Turn-Around Time

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

Date Due:

Additional Project Information:

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 Parameter; Dissolved metals

SAMPLE INFO — Filtration: ☐ Field ☐ Lab to do; Preservation: ☐ Lab to do

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	NPDES RGP Parameter	Dissolved metals	Sample Comments	TOTAL # BOTTLES
14193-01	20210322 SH-GP-103W	3/22/21	0900	GW	ACC	X	H	H = hold	
-02	20210322 SH-GP-301W	↓	1206	GW	ACC	X	H		
-03	20210322 SW	↓	1000	GW	ACC	X			

Container Type:
Preservative:

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

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

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	3/22/21	[signature] AAL	3/22/21 1510
[signature]	3/22/21 1750	[signature]	3/22/21 1750

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
L2114193

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: L2114193

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
	20210322 SH-GP-103W	03-22-21 09:00	WATER	Ethanol by EPA 1671 Revision A	
	20210322 SW	03-22-21 10:00	WATER	Ethanol by EPA 1671 Revision A	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		3/23/21		
Form No: AL_subcoc				

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

March 29, 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: L2114193 **WorkOrder:** 21031571

Dear Scott Enright:

TEKLAB, INC received 2 samples on 3/24/2021 10:35:00 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

Teklab, Inc.
Environmental Laboratory

Report Contents

http://www.teklabinc.com/

Client: Alpha Analytical
Client Project: L2114193

Work Order: 21031571
Report Date: 29-Mar-21

This reporting package includes the following:

Teklab, Inc.
Environmental Laboratory

Definitions

http://www.teklabinc.com/

Client: Alpha Analytical
Work Order: 21031571
Client Project: L2114193
Report Date: 29-Mar-21

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

Definitions

Client: Alpha Analytical

Work Order: 21031571

Client Project: L2114193

Report Date: 29-Mar-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: L2114193

Work Order: 21031571

Report Date: 29-Mar-21

Cooler Receipt Temp: 7.2 °C

Locations

Collinsville

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

Springfield

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

Kansas City

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

Collinsville Air

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

Chicago

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

Teklab, Inc. Environmental Laboratory

Accreditations

http://www.teklabinc.com/

Client: Alpha Analytical

Client Project: L2114193

Work Order: 21031571

Report Date: 29-Mar-21

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2022	Collinsville
Kansas	KDHE	E-10374	NELAP	4/30/2021	Collinsville
Louisiana	LDEQ	05002	NELAP	6/30/2021	Collinsville
Louisiana	LDEQ	05003	NELAP	6/30/2021	Collinsville
Oklahoma	ODEQ	9978	NELAP	8/31/2021	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: 21031571
Client Project: L2114193
Report Date: 29-Mar-21
Lab ID: 21031571-001
Client Sample ID: 20210322 SH-GP-103W
Matrix: AQUEOUS
Collection Date: 03/22/2021 9:00

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	03/25/2021 11:41	R288949

Teklab, Inc. Environmental Laboratory

Laboratory Results

http://www.teklabinc.com/

Client: Alpha Analytical
Work Order: 21031571
Client Project: L2114193
Report Date: 29-Mar-21
Lab ID: 21031571-002
Client Sample ID: 20210322 SW
Matrix: AQUEOUS
Collection Date: 03/22/2021 10:00

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	03/25/2021 12:18	R288949

Teklab, Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Alpha Analytical **Work Order:** 21031571

Client Project: L2114193 **Report Date:** 29-Mar-21

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

Batch R288949 **SampType:** MBLK Units **mg/L**

SampID: MBLK-032521

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethanol	*	20		**ND**						03/25/2021

Batch R288949 **SampType:** LCS Units **mg/L**

SampID: LCS-032521

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethanol	*	20		**270**	250.0	0	109.8	70	132	03/25/2021

Batch R288949 **SampType:** MS Units **mg/L**

SampID: 21031571-002AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethanol	*	20		**210**	250.0	0	85.5	70	132	03/25/2021

Batch R288949 **SampType:** MSD Units **mg/L** RPD Limit **30**

SampID: 21031571-002AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ethanol	*	20		**250**	250.0	0	101.2	213.7	16.81	03/25/2021

Teklab, Inc.
Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Alpha Analytical
Client Project: L2114193

Work Order: 21031571
Report Date: 29-Mar-21

Carrier: UPS

Received By: PRY

Completed by:
On:
24-Mar-21
Amanda R. Ham

Reviewed by:
On:
24-Mar-21
Emily Pohlman

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

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C 7.2
Type of thermal preservation?	None ☐	Ice ☑	Blue Ice ☐	Dry Ice ☐
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Reported field parameters measured:	Field ☐	Lab ☐	NA ☑	
Container/Temp Blank temperature in compliance?	Yes ☐	No ☑		
When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.				
Water – at least one vial per sample has zero headspace?	Yes ☑	No ☐	No VOA vials ☐	
Water - TOX containers have zero headspace?	Yes ☐	No ☐	No TOX containers ☑	
Water - pH acceptable upon receipt?	Yes ☑	No ☐	NA ☐	
NPDES/CWA TCN interferences checked/treated in the field?	Yes ☐	No ☐	NA ☑	

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

The samples were out of temperature compliance upon receipt. - aham - 3/24/2021 12:17:32 PM

ALPHA ANALYTICAL — World Class Chemistry

Subcontract Chain of Custody

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

temp: 7.2°C LTGT
ice
OK headspace
COC 3/24/21
2103157

Alpha Job Number
L2114193

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

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2114193

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
2103157 001	20210322 SH-GP-103W	03-22-21 09:00	WATER	Ethanol by EPA 1671 Revision A	
002	20210322 SW	03-22-21 10:00	WATER	Ethanol by EPA 1671 Revision A	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		3/23/21	(UPS)	3/24/21 1035
Form No: AL_subcoc				

ANALYTICAL REPORT

Lab Number:	L2116227
Client:	Sanborn, Head & Associates, Inc. 98 N. Washington Street Suite 101 Boston, MA 02114
ATTN:	Anna Campbell
Phone:	(857) 327-9736
Project Name:	85 BOSTON
Project Number:	4719.01
Report Date:	04/07/21

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: 85 BOSTON
Project Number: 4719.01

Lab Number: L2116227
Report Date: 04/07/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2116227-01	20210322 SH-GP-103W	WATER	EVERETT, MA	03/22/21 09:00	03/22/21

Project Name:	85 BOSTON	**Lab Number:**	L2116227
Project Number:	4719.01	**Report Date:**	04/07/21

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:	85 BOSTON	**Lab Number:**	L2116227
Project Number:	4719.01	**Report Date:**	04/07/21

Case Narrative (continued)

Dissolved Metals

L2116227-01: The sample has elevated detection limits for all elements due to the dilution required by matrix interferences encountered during analysis.

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: Cristin Walker

Title: Technical Director/Representative Date: 04/07/21

METALS

Project Name: 85 BOSTON
Lab Number: L2116227
Project Number: 4719.01
Report Date: 04/07/21

SAMPLE RESULTS

Lab ID: L2116227-01
Client ID: 20210322 SH-GP-103W
Sample Location: EVERETT, MA
Date Collected: 03/22/21 09:00
Date Received: 03/22/21
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
Dissolved Metals - Mansfield Lab											
Iron, Dissolved	0.5739		mg/l	0.5000	--	10	04/02/21 09:18	04/05/21 14:06	EPA 3005A	3,200.8	CD
Lead, Dissolved	ND		mg/l	0.0100	--	10	04/02/21 09:18	04/05/21 14:06	EPA 3005A	3,200.8	CD

Project Name: 85 BOSTON
Project Number: 4719.01
Lab Number: L2116227
Report Date: 04/07/21

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 Batch: WG1481558-1										
Iron, Dissolved	ND		mg/l	0.0500	--	1	04/02/21 09:18	04/05/21 12:23	3,200.8	CD
Lead, Dissolved	ND		mg/l	0.0010	--	1	04/02/21 09:18	04/05/21 12:23	3,200.8	CD

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: 85 BOSTON

Project Number: 4719.01

Lab Number: L2116227

Report Date: 04/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1481558-2								
Iron, Dissolved	91		-		85-115	-		
Lead, Dissolved	106		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2116227
Report Date: 04/07/21

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 QC Batch ID: WG1481558-3 QC Sample: L2116227-01 Client ID: 20210322 SH-GP-103W												
Iron, Dissolved	0.5739	2	2.458	94		-	-		70-130	-		20
Lead, Dissolved	ND	1.02	1.123	110		-	-		70-130	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: 85 BOSTON

Project Number: 4719.01

Lab Number: L2116227

Report Date: 04/07/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1481558-4 QC Sample: L2116227-01 Client ID: 20210322 SH-GP-103W						
Iron, Dissolved	0.5739	0.5533	mg/l	4		20
Lead, Dissolved	ND	ND	mg/l	NC		20

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2116227
Report Date: 04/07/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2116227-01A	Plastic 120ml HNO3 preserved Filtrates	B	<2	<2	5.2	Y	Absent		FE-2008S(180),PB-2008S(180)

*Values in parentheses indicate holding time in days

Project Name:	85 BOSTON	**Lab Number:**	L2116227
Project Number:	4719.01	**Report Date:**	04/07/21

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:	85 BOSTON	**Lab Number:**	L2116227
Project Number:	4719.01	**Report Date:**	04/07/21

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 at or above the RL for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. (Note: 'PFAS, Total (6)' is applicable to MassDEP DW compliance analysis only.). 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:	85 BOSTON	**Lab Number:**	L2116227
Project Number:	4719.01	**Report Date:**	04/07/21

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.

Report Format: Data Usability Report

Project Name:	85 BOSTON	**Lab Number:**	L2116227
Project Number:	4719.01	**Report Date:**	04/07/21

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.

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 3/22/21

ALPHA Job #: L2114193

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) 392-0900
Email: ACampbell@Sanbornhead.com

Project Information

Project Name: 85 Boston
Project Location: Everett MA
Project #: 4719.01
Project Manager: A. Coen
ALPHA Quote #:

Turn-Around Time

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

Additional Project Information:

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 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 _____

16227

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	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 Parameter	Dissolved metals				SAMPLE INFO: Filtration ☐ Field ☐ Lab to do; Preservation ☐ Lab to do	TOTAL # BOTTLES
-01 (4193-01)	20210522 SH-GP-103W	3/22/21	0900	GW	ACC									X	X				Sample Comments: H = hold	
-02	20210522 SH-GP-301W	↓	1206	GW	ACC									X	17					
-03	20210322 SW	↓	1000	GW	ACC									X						

Container Type
Preservative

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

Preservative
A= None
B= HCl
C= HNO_3
O= 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
	3/22/21	Flow AAL	
	3/22/21 1750		3/22/21 1510
			3/22/21 1750

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:	L2117281
Client:	Sanborn, Head & Associates, Inc. 98 N. Washington Street Suite 101 Boston, MA 02114
ATTN:	Anna Campbell
Phone:	(857) 327-9736
Project Name:	85 BOSTON
Project Number:	4719.01
Report Date:	04/13/21

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

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

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2117281
Report Date: 04/13/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2117281-01	20210322 SH-GP-103W	WATER	EVERETT, MA	03/22/21 09:00	03/22/21
L2117281-02	20210322 SH-GP-301W	WATER	EVERETT, MA	03/22/21 12:00	03/22/21
L2117281-03	20210322 SW	WATER	EVERETT, MA	03/22/21 10:00	03/22/21

Project Name:	85 BOSTON	**Lab Number:**	L2117281
Project Number:	4719.01	**Report Date:**	04/13/21

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:	85 BOSTON	**Lab Number:**	L2117281
Project Number:	4719.01	**Report Date:**	04/13/21

Case Narrative (continued)

Total Metals

The WG1483837-3 MS recovery for hardness (72%), performed on L2117281-01, does not apply because the sample concentration is greater than four times the spike amount added.

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: Cristin Walker

Title: Technical Director/Representative Date: 04/13/21

METALS

Project Name: 85 BOSTON
Lab Number: L2117281
Project Number: 4719.01
Report Date: 04/13/21

SAMPLE RESULTS

Lab ID: L2117281-01
Client ID: 20210322 SH-GP-103W
Sample Location: EVERETT, MA
Date Collected: 03/22/21 09:00
Date Received: 03/22/21
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 Hardness by SM 2340B - Mansfield Lab											
Hardness	489		mg/l	0.660	NA	1	03/25/21 09:56	03/25/21 23:05	EPA 3005A	19,200.7	BV

Project Name: 85 BOSTON
Project Number: 4719.01
Lab Number: L2117281
Report Date: 04/13/21

SAMPLE RESULTS

Lab ID: L2117281-03
Client ID: 20210322 SW
Sample Location: EVERETT, MA
Date Collected: 03/22/21 10:00
Date Received: 03/22/21
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 Hardness by SM 2340B - Mansfield Lab											
Hardness	2080		mg/l	0.660	NA	1	03/25/21 09:56	03/25/21 23:52	EPA 3005A	19,200.7	BV

Project Name: 85 BOSTON
Project Number: 4719.01
Lab Number: L2117281
Report Date: 04/13/21

Method Blank Analysis
Batch Quality Control

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: WG1483837-1										
Hardness	ND		mg/l	0.660	NA	1	03/25/21 09:56	03/25/21 22:56	19,200.7	BV

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: 85 BOSTON

Project Number: 4719.01

Lab Number: L2117281

Report Date: 04/13/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Hardness by SM 2340B - Mansfield Lab	Associated sample(s): 01,03		Batch: WG1483837-2					
Hardness	104		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2117281
Report Date: 04/13/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01,03 QC Batch ID: WG1483837-3 QC Sample: L2117281-01 Client ID: 20210322 SH-GP-103W												
Hardness	489	66.2	537	**72**	Q	-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01,03 QC Batch ID: WG1483837-7 QC Sample: L2117281-03 Client ID: 20210322 SW												
Hardness	2080	66.2	2140	91		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: 85 BOSTON

Project Number: 4719.01

Lab Number: L2117281

Report Date: 04/13/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01,03 QC Batch ID: WG1483837-4 QC Sample: L2117281-01 Client ID: 20210322 SH-GP-103W						
Hardness	489	478	mg/l	2		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01,03 QC Batch ID: WG1483837-8 QC Sample: L2117281-03 Client ID: 20210322 SW						
Hardness	2080	2090	mg/l	0		20

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Serial Dilution Analysis
Batch Quality Control

Lab Number: L2117281
Report Date: 04/13/21

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Hardness by SM 2340B - Mansfield Lab SW	Associated sample(s): 01,03	QC Batch ID: WG1483837-10	QC Sample: L2117281-03	Client ID: 20210322		
Hardness	2080	2340	mg/l	13		20
Total Hardness by SM 2340B - Mansfield Lab SH-GP-103W	Associated sample(s): 01,03	QC Batch ID: WG1483837-6	QC Sample: L2117281-01	Client ID: 20210322		
Hardness	489	500	mg/l	2		20

INORGANICS
&
MISCELLANEOUS

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2117281
Report Date: 04/13/21

SAMPLE RESULTS

Lab ID: L2117281-01
Client ID: 20210322 SH-GP-103W
Sample Location: EVERETT, MA

Date Collected: 03/22/21 09:00
Date Received: 03/22/21
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	2.4		SU	2.0	--	1	-	04/07/21 17:06	121,2520B	AS

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2117281
Report Date: 04/13/21

SAMPLE RESULTS

Lab ID: L2117281-03
Client ID: 20210322 SW
Sample Location: EVERETT, MA

Date Collected: 03/22/21 10:00
Date Received: 03/22/21
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	12		SU	2.0	--	1	-	04/12/21 21:04	121,2520B	AS

Lab Control Sample Analysis

Batch Quality Control

Project Name: 85 BOSTON

Project Number: 4719.01

Lab Number: L2117281

Report Date: 04/13/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1483579-1								
SALINITY	100		-			-		
General Chemistry - Westborough Lab Associated sample(s): 03 Batch: WG1485389-1								
SALINITY	99		-			-		

Lab Duplicate Analysis

Batch Quality Control

Project Name: 85 BOSTON

Project Number: 4719.01

Lab Number: L2117281

Report Date: 04/13/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1483579-2 QC Sample: L2117281-01 Client ID: 20210322 SH-GP-103W						
SALINITY	2.4	2.4	SU	0		
General Chemistry - Westborough Lab Associated sample(s): 03 QC Batch ID: WG1485389-2 QC Sample: L2117281-03 Client ID: 20210322 SW						
SALINITY	12	12	SU	0		

Project Name: 85 BOSTON
Project Number: 4719.01

Lab Number: L2117281
Report Date: 04/13/21

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(*)
L2117281-01M	Plastic 250ml HNO3 preserved	B	<2	<2	5.2	Y	Absent		HARDU(180)
L2117281-01O	Plastic 950ml unpreserved	B	7	7	5.2	Y	Absent		SALINITY(28)
L2117281-02A	Plastic 250ml HNO3 preserved	B	<2	<2	5.2	Y	Absent		HOLD-METAL-TOTAL(180)
L2117281-02B	Plastic 950ml unpreserved	B	7	7	5.2	Y	Absent		HOLD-WETCHEM()
L2117281-03P	Plastic 950ml unpreserved	C	7	7	4.8	Y	Absent		SALINITY(28)

*Values in parentheses indicate holding time in days

Project Name:	85 BOSTON	**Lab Number:**	L2117281
Project Number:	4719.01	**Report Date:**	04/13/21

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:	85 BOSTON	**Lab Number:**	L2117281
Project Number:	4719.01	**Report Date:**	04/13/21

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 at or above the RL for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. (Note: 'PFAS, Total (6)' is applicable to MassDEP DW compliance analysis only.). 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:	85 BOSTON	**Lab Number:**	L2117281
Project Number:	4719.01	**Report Date:**	04/13/21

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.

Report Format: Data Usability Report

Project Name:	85 BOSTON	**Lab Number:**	L2117281
Project Number:	4719.01	**Report Date:**	04/13/21

REFERENCES

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.

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

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.

Serial_No:04132112:23

L2117281

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 3/22/21

ALPHA Job #: ~~L2114193~~ 4/8/21 (um)

ALPHA
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.
Westfield MA 01886
Phone: (978) 392-0900
Email: ACampbell@Sanbornhead.com

Additional Project Information:

Project Information

Project Name: 85 Boston
Project Location: Everett MA
Project #: 4715.01
Project Manager: A. Coen
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 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 ____
☐ Yes ☑ No CT RCP Analytical Methods

ANALYSIS

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

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

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	NPDES	RGP	Dissolved metals	Hardness	Salinity	Sample Comments	TOTAL # BOTTLES
L4193-01	20210522 SH-GP-103W	5/22/21	0900	GW	ACC	X	14	X	X		14 = hold	
-02	20210522 SH-GP-301W	↓	1206	GW	ACC	X	17					
17281 -03	20210522 SW	↓	1000	GW	ACC	X		X	X			

Container Type
Preservative

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

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

Relinquished By:	Date/Time	Received By:	Date/Time
	3/22/21	Wayne Cunningham/AAL	3/22/21 1510
	3/22/21 1750		3/22/21 1750

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

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

Appendix F

City of Everett Correspondence and Storm Sewer Map

Brian Caccavale

From: Anna Campbell <acampbell@sanbornhead.com>
Sent: Wednesday, May 26, 2021 5:47 PM
To: Kevin Stetson
Subject: Fwd: NPDES Permit - 85 Boston
Attachments: 17189-ALTA_(SUBMIT_2020-07-13).pdf

From: Brad Johnson <bjohnson@bohlereng.com>
Sent: Thursday, March 11, 2021 3:06:51 PM
To: Stan Sadkowski <ssadkowski@sanbornhead.com>; Stephen Martorano <smartorano@bohlereng.com>
Cc: Anna Campbell <acampbell@sanbornhead.com>; Adam Coen <acoen@sanbornhead.com>; Timothy Hayes <thayes@bohlereng.com>
Subject: RE: NPDES Permit - 85 Boston

Hi Stan,

I've attached the existing conditions plan with nearby existing catch basins circled. I will note that outlet pipes for the two on-site catch basins were not shown on the survey and have not been verified to discharge off-site. There are no existing catch basins on East Elm Street.

Through our discussions with DPW, we understand the downstream receiving water body to be the Mystic River via Island End River. Per the 2016 Integrated Waters List, MassDEP includes Island End River as part of the Mystic River under segment I.D. MA71-03.

Hope that helps.

Thanks,

Brad Johnson, P.E.
Project Engineer
o 617-849-8040
BOHLER

From: Stan Sadkowski <ssadkowski@sanbornhead.com>
Sent: Thursday, March 11, 2021 12:21 PM
To: Brad Johnson <bjohnson@bohlereng.com>; Stephen Martorano <smartorano@bohlereng.com>
Cc: Anna Campbell <acampbell@sanbornhead.com>; Adam Coen <acoen@sanbornhead.com>
Subject: FW: NPDES Permit - 85 Boston
Importance: High

Hey Team.

City of Everett, Massachusetts

Storm Sewer Map

Appendix A

MA71-05
Malden River (5):
(Debris/Floatables/Trash*)
Chlordane in Fish Tissue
DDT in Fish Tissue
Dissolved Oxygen saturation
Escherichia Coli
Fecal Coliform
Foam/Flocs/Scum/Oil Slicks
Dissolved Oxygen
PCB in Fish Tissue
High pH
Phosphorus
Secchi disk transparency
Sediment Bioassays - Chronic Toxicity Freshwater
Taste & Odor
Total Suspended Solids

MA93-51
Town Line Brook (5):
(Alteration in stream-side or littoral vegetative covers*)
(Debris/Floatables/Trash*)
(Physical substrate habitat alterations*)
Fecal Coliform
Taste & Odor

MA71-06
Chelsea River (5):
(Debris/Floatables/Trash*)
Ammonia (Un-ionized)
Fecal Coliform
Other (Contaminants in Shellfish)
Dissolved Oxygen
PCB in Fish Tissue
Petroleum Hydrocarbons
Sediment Screening Value (Exceedence)
Taste and Odor
Turbidity

MA71-03
Mystic River (5):
Ammonia (Un-ionized)
Fecal Coliform
Foam/Flocs/Scum/Oil Slicks
Other (Contaminants in Shellfish)
Dissolved Oxygen
PCB in Fish Tissue
Petroleum Hydrocarbons
Sediment Screening Value (Exceedence)
Taste and Odor

MA71-02
Mystic River (5):
(Fish - Passage Barrier*)
(Non - Native Aquatic Plants*)
Arsenic
Chlordane in Fish Tissue
Chlorophyll-a
DDT in Fish Tissue
Dissolved oxygen saturation
Escherichia coli
PCB in Fish Tissue
Phosphorus (Total)
Secchi disk transparency
Sediment
Bioassays--Chronic Toxicity Freshwater

Map Legend

Hydrography
- Hydrologic Connection
- Open Water
- Wetland
- Major Watershed Boundary

***MassDEP 2014 Integrated List of Waters**
- Rivers: Category 4A
- Lakes, Estuaries: Category 4A
- Rivers: Category 4C
- Lakes, Estuaries: Category 4C
- Rivers: Category 5
- Lakes, Estuaries: Category 5

Regulated Areas
- MassDEP Wellhead Protection Areas (Zone II, Zone I, IWPA)
- MA MS4 Urban Area

Roadway Owner
- State
- City
- Other

Stormwater Infrastructure

Outfalls/Interconnections
- City Owned within the MS4 Permit area (within 200' from water body or 100' from wetlands)
- Owned Privately/ Upland Area discharge

Drainage
- Drain Manhole
- Catch Basin
- Drain Pipe
- Drainage Tributaries

Category 1: Attaining all designated uses.
Category 2: Attaining some of the designated uses and insufficient or no data and information is available to determine if the remaining uses are attained.
Category 3: Insufficient or no data and information to determine if any designated uses are attained.
Category 4A: Impaired for one or more designated uses but does not require the development of a TMDL: TMDL has been completed.
Category 4B: Impaired for one or more designated uses but does not require the development of a TMDL: Other pollution control requirements are reasonably expected to result in the attainment of designated uses.
Category 4C: Impaired for one or more designated uses but does not require the development of a TMDL: Impairment is not caused by a pollutant.
Category 5: Impaired for one or more designated uses, requires the development of a TMDL: Impairment is caused by a pollutant.

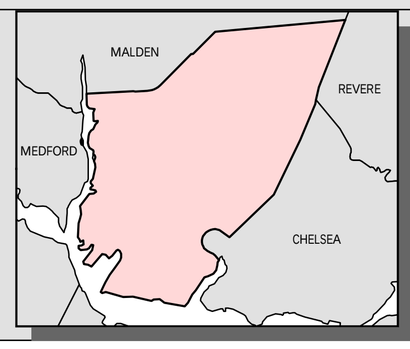
Data Source: City of Everett and MassGIS

Creation Date: June 2019

This Map is Intended for Planning Purposes Only

BETA

0 0.25 0.5 Miles



Appendix G

Federal Correspondence

ESA Section 7 Mapper – Island End River

1. Atlantic sturgeon
Adult
Migrating & Foraging
N/A

Acipenser oxyriynchus oxyriynchus
DPS: All DPSs
ESA Status: Threatened/Endangered

Time(s) of year:
01/01 to 12/31
N/A to N/A

Federal Register: 77 FR 5880 and 77 FR 5914
Recovery Plan: N/A

Notes: We expect adult Atlantic sturgeon to opportunistically forage year round as they migrate along the coast to and from their natal spawning grounds (Hilton et al. 2016, p. 8). They may aggregate in ocean and estuarine areas during certain times of year, and exhibit seasonal coastal movements in the spring and fall. We expect that they typically remain within the 50-meter depth contour (Erickson et al. 2011, p. 356, 360), but may be found out to the Exclusive Economic Zone (EEZ)(Stein et al. 2004, p. 174).

Sources: Hilton et al. 2016; Erickson et al. 2011; Stein et al. 2004

River Kilometers (if applicable):
to , (Hilton et al. 2016, p. 8)
to , (GARFO)

Feature ID: ANS_C50_ADU_MAF
Last Updated: 7/12/2017, 8:00 PM

2. Atlantic sturgeon
Subadult
Migrating & Foraging
N/A

Acipenser oxyriynchus oxyriynchus
DPS: All DPSs
ESA Status: Threatened/Endangered

Time(s) of year:
01/01 to 12/31
N/A to N/A

Federal Register: 77 FR 5880 and 77 FR 5914
Recovery Plan: N/A

Notes: We expect subadult Atlantic sturgeon to opportunistically forage year round as they migrate along the coast to and from their natal rivers (Hilton et al. 2016, p. 8). They may aggregate in ocean and estuarine areas during certain times of year, and exhibit seasonal coastal movements in the spring and fall. We expect that they typically remain within the 50-meter depth contour (Erickson et al. 2011, p. 356, 360), but may be found out to the Exclusive Economic Zone (EEZ)(Stein et al. 2004, p. 174).

Sources: Hilton et al. 2016; Erickson et al. 2011; Stein et al. 2004

River Kilometers (if applicable):
to , (Hilton et al. 2016, p. 8)
to , (GARFO)

Feature ID: ANS_C50_SUB_MAF
Last Updated: 7/12/2017, 8:00 PM

3. Shortnose sturgeon
Adult
Migrating & Foraging
N/A

Acipenser brevirostrum
DPS: N/A
ESA Status: Endangered

Time(s) of year:
04/01 to 11/30
N/A to N/A

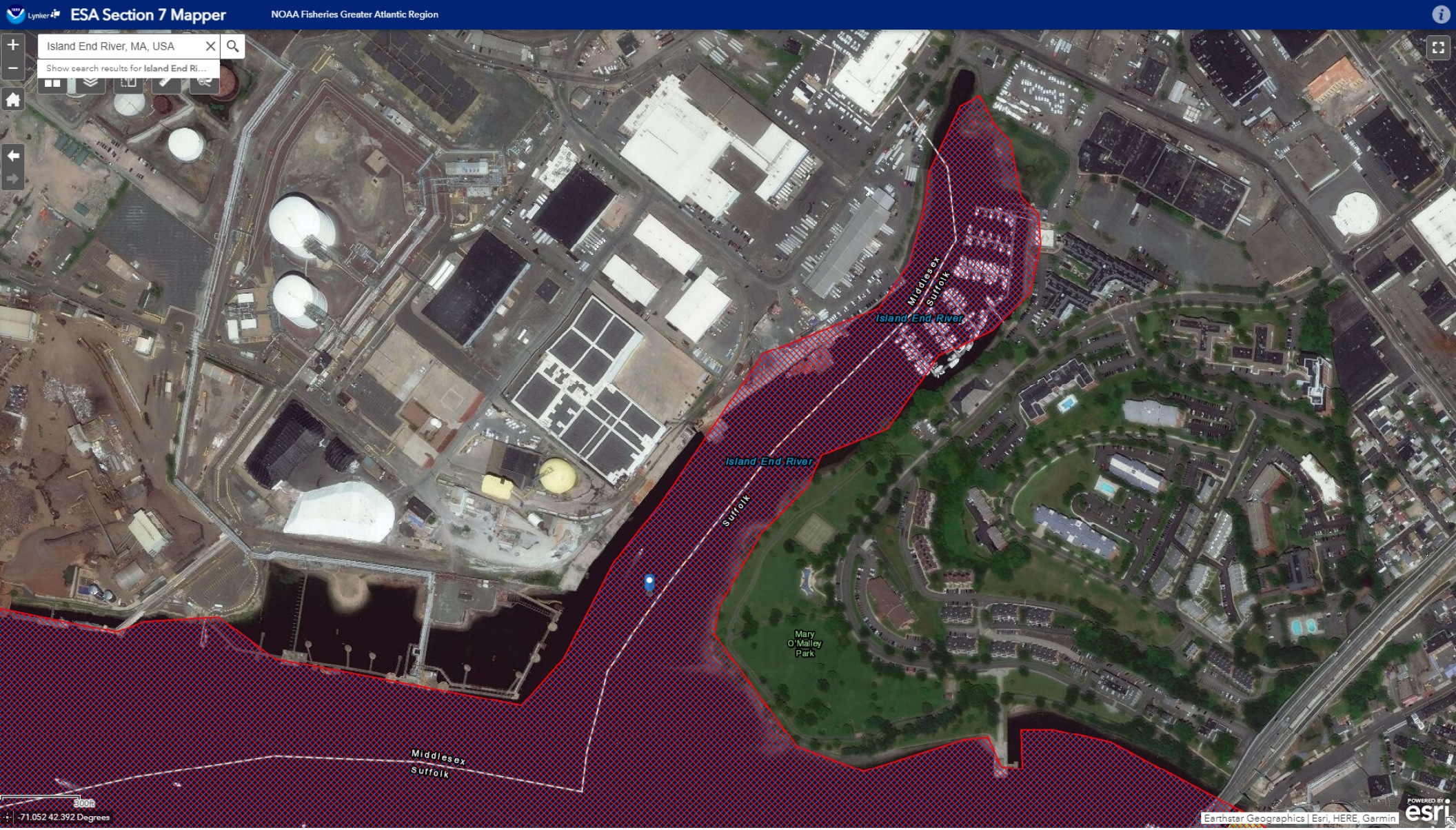
Federal Register: 32 FR 4001
Recovery Plan: NMFS 1998

Notes: More recent research has demonstrated that shortnose sturgeon leave their natal estuaries, undergo coastal migrations, and use other river systems to a greater extent than previously thought. Within the Gulf of Maine, a portion of adults make seasonal migrations along the coast, traveling between the Penobscot, Kennebec and Merrimack rivers and making short stops in smaller coastal rivers along this route (Zydlewski et al. 2011, pp. 42-44). Outside the Gulf of Maine, marine migrations have only rarely been documented. Some shortnose sturgeon captured and/or tagged in the Connecticut River have been recaptured, detected, or were previously tagged in the Housatonic River (T. Savoy, CT DEP, pers. comm. 2015), the Hudson River (Savoy 2004), and the Merrimack River (M. Kieffer, USGS, pers. comm. 2015). The available tagging and tracking information is too limited to determine if Hudson River and Connecticut River shortnose sturgeon are making regular movements outside of their natal rivers and whether movement as far as the Merrimack River is a normal behavior. At this time, we do not expect shortnose sturgeon to make coastal migrations south of the Hudson River (i.e., Mid-Atlantic, DelMarVA). We expect shortnose sturgeon to overwinter in the rivers, so the time of year for coastal migrations would be roughly from April 1-November 30. These coastal migrations may occur within the 50-meter depth contour.

Sources: Zydlewski et al. 2011

River Kilometers (if applicable):
0.00 to 0.00, (Zydlewski et al. 2011)
0.00 to 0.00, (GARFO)

Feature ID: SNS_C50_ADU_MAF
Last Updated: 7/5/2017, 8:00 PM


ESA Section 7 Mapper
NOAA Fisheries Greater Atlantic Region
Island End River, MA, USA
Show search results for Island End Ri...
Middlesex
Suffolk
Island End River
Island End River
Suffolk
Mary
O'Malley
Park
Middlesex
Suffolk
300ft
-71.052 42.392 Degrees
Earthstar Geographics | Esri, HERE, Garmin
POWERED BY esri

Anna Campbell

From: Roosevelt Mesa - NOAA Affiliate <roosevelt.mesa@noaa.gov>
Sent: Tuesday, April 13, 2021 4:47 PM
To: Anna Campbell
Subject: Re: Information for RGP

Hello Ms. Campbell,
Thank you for contacting our ESA Section 7 team.

For information on the presence of ESA listed species in the action area, a good point to start is our Section 7 Mapper. Based on the location you provided, the ESA-listed species under our jurisdiction that might occur in the vicinity of the project are Atlantic sturgeon and shortnose sturgeon. That being said, we would expect their presence to be limited to rare, transient individuals.

For any future inquiries on section 7 consultations I'd like to invite you to submit them directly to our main account nmfs.gar.esa.section7@noaa.gov. That way, we make sure your inquiries are assigned to the right POC. You can find more information on Section 7 consultations at our website.

Let me know if you have any questions.
Best,
Roosevelt

On Fri, Apr 9, 2021 at 2:01 PM Patricia Sousa - NOAA Federal <patricia.sousa@noaa.gov> wrote:

> ---------- Forwarded message ---------
> From: **NMFS GARFO - NOAA Service Account** <nmfs.gar.garfo@noaa.gov>
> Date: Tue, Apr 6, 2021 at 8:01 AM
> Subject: Fwd: Information for RGP
> To: Patricia Sousa - NOAA Federal <patricia.sousa@noaa.gov>
>
> ---------- Forwarded message ---------
> From: **Anna Campbell** <acampbell@sanbornhead.com>
> Date: Mon, Apr 5, 2021 at 6:14 PM
> Subject: Information for RGP
> To: nmfs.gar.garfo@noaa.gov <nmfs.gar.garfo@noaa.gov>
>
> Good afternoon,
>
> I am writing to request information to be included as part of a Notice of Intent (NOI) for a Remediation General Permit (RGP). The NOI is for construction dewatering during excavation activities at 85 Boston Street in Everett, MA, 02149.

Effluent will be discharged to the Island End River in Everett, MA by means of the existing storm drain located adjacent to the site along Boston and Vale Street. The Outfall through which the storm drain flows is OFF 11-01.

Approximate Location of Discharge:

Lat: 42°23'40.1"N Long: 71°02'59.1"W

As part of the application to the USEPA for the RGP, we need to determine if this proposed temporary discharge has the potential to adversely affect any federally listed species in the reach of the Mystic River downstream of the discharge point. Attached is the species list requested from the USFWS, which identified no threatened/endangered/candidate species or critical habitats in the area.

Please let me know if you require any further information.

Thank you,

Anna Campbell
Project Geologist

Not professionally licensed

SANBORN | HEAD & ASSOCIATES, INC.

D 978.577.1011 | M 781.588.1231 | 98 N. Washingon Street, Suite 101, Boston, MA 02114

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

--
Patricia Sousa

Division Secretary
National Marine Fisheries Service
Greater Atlantic Regional Fisheries Office
Protected Resources Division
55 Great Republic Drive
Gloucester, MA 01930

Direct: 978-282-8482
Main Office: 978-282-9328
Fax: 978-281-9394
e-mail: patricia.sousa@noaa.gov

--

Roosevelt Mesa *(he/him/his)*
Environmental Specialist
Integrated Statistics, Inc. | In support of NOAA Fisheries
Greater Atlantic Regional Fisheries Office
Protected Resources Division
roosevelt.mesa@noaa.gov | Mobile: 919-491-3028

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
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Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To:
Consultation Code: 05E1NE00-2021-SLI-2178
Event Code: 05E1NE00-2021-E-06845
Project Name: 85 Boston Street

April 02, 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: 05E1NE00-2021-SLI-2178
Event Code: 05E1NE00-2021-E-06845
Project Name: 85 Boston Street
Project Type: DEVELOPMENT
Project Description: 85-87 and 119 Boston St Everett, MA. ~3.5 acres. RGP Permit application. Mid-April.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.40002335,-71.0443167865146,14z

Counties: Middlesex County, Massachusetts

Endangered Species Act Species

There is a total of 0 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.

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Appendix H

National Register of Historic Places – Middlesex County

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 on or near the project site in the databases. 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): Everett; Street No: 85; Street Name: Boston St; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

Search Criteria: Town(s): Everett; Street No: 87; Street Name: Boston St; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

Search Criteria: Town(s): Everett; Street No: 119; Street Name: Boston St; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year

Appendix G
Backyard Beyblade Battle Arena Blueprints
Bedlington Library

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Appendix G
Structure Blueprint for Historic Texas
Residential Documentation
Bellefonte County

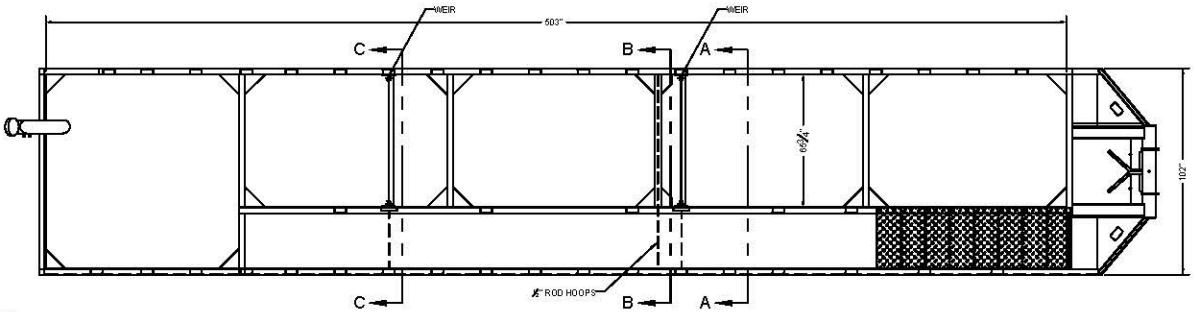
Appendix G
Backyard Beekeeper Ordinance Regulations
Bellefontaine County

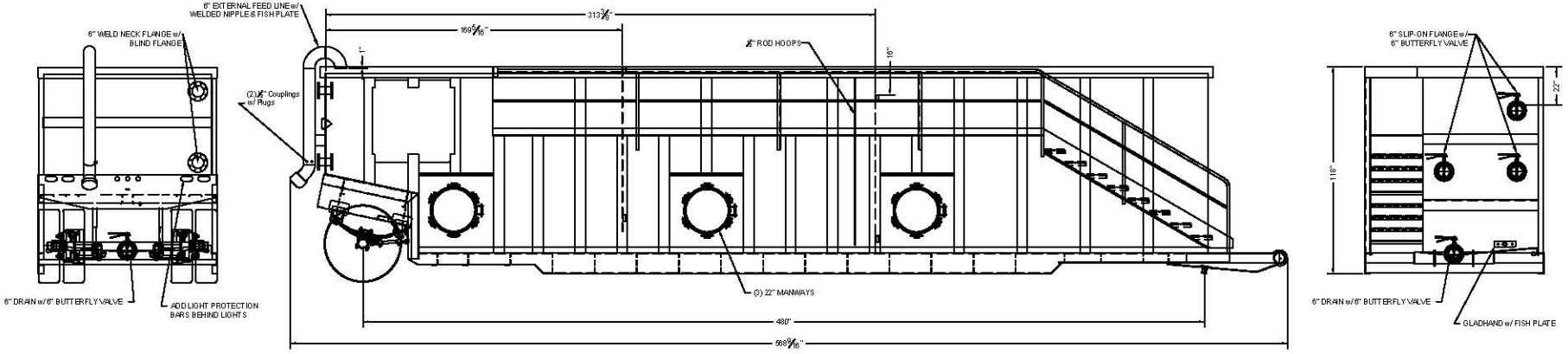
| | | |

89000624	Mann, James H., House	MASSACHUSETTS	Middlesex	Winchester	23 Hancock St.	FALSE	7/5/1989		COMMUNITY PLANNING AND DEVELOPMENT; ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000624	Multiple	https://catalog.archives.gov/id/63791680
89000634	Mason, John, House	MASSACHUSETTS	Middlesex	Winchester	10 Hillside Ave. (formerly 8-10 Hillside Ave.)	FALSE	7/5/1989		COMMUNITY PLANNING AND DEVELOPMENT; ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000634	Multiple	https://catalog.archives.gov/id/63791767
89000650	Maxwell, Louis N., House	MASSACHUSETTS	Middlesex	Winchester	16 Herrick St.	FALSE	7/5/1989		ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000650	Multiple	https://catalog.archives.gov/id/63791262
89000657	McCall, Samuel W., House	MASSACHUSETTS	Middlesex	Winchester	4 McCall Rd.	FALSE	7/5/1989		POLITICS/GOVERNMENT; ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000657	Multiple	https://catalog.archives.gov/id/63792305
89000653	Mitchell, Amy B., House	MASSACHUSETTS	Middlesex	Winchester	237 Highland Ave.	FALSE	7/5/1989		ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000653	Multiple	https://catalog.archives.gov/id/63791104
89000620	Moore House	MASSACHUSETTS	Middlesex	Winchester	85 Walnut St.	FALSE	7/5/1989		COMMUNITY PLANNING AND DEVELOPMENT; ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000620	Multiple	https://catalog.archives.gov/id/63791682
89002282	Mystic Dam	MASSACHUSETTS	Middlesex	Winchester	Between Lower and Upper Mystic Lakes	FALSE	1/18/1990		ENGINEERING	STRUCTURE	False	False	True	False	False	True	Water Supply System of Metropolitan Boston MPS		89002282	Multiple	https://catalog.archives.gov/id/63792072
89002284	Mystic Gatehouse	MASSACHUSETTS	Middlesex	Winchester	E of Edgewater Pl. on SE end of Upper Mystic Lake	FALSE	1/18/1990		COMMUNITY PLANNING AND DEVELOPMENT; ENGINEERING; POLITICS/GOVERNMENT; ARCHIT	STRUCTURE	False	False	True	False	False	True	Water Supply System of Metropolitan Boston MPS		89002284	Multiple	https://catalog.archives.gov/id/63792016
89000648	Oak Knoll	MASSACHUSETTS	Middlesex	Winchester	17 Brooks St. (formerly 39 Oak Knoll)	FALSE	7/5/1989		COMMUNITY PLANNING AND DEVELOPMENT; ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000648	Multiple	https://catalog.archives.gov/id/63791845
89000628	Parker House	MASSACHUSETTS	Middlesex	Winchester	180 Mystic Valley Pkwy.	FALSE	7/5/1989		ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000628	Multiple	https://catalog.archives.gov/id/63790984
89000610	Parker, Edmund, Jr., House	MASSACHUSETTS	Middlesex	Winchester	287 Cambridge St.	FALSE	7/5/1989		COMMUNITY PLANNING AND DEVELOPMENT; ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000610	Multiple	https://catalog.archives.gov/id/63791630
89000627	Parker, Harrison, Sr., House	MASSACHUSETTS	Middlesex	Winchester	60 Lloyd St.	FALSE	7/5/1989		INDUSTRY; ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000627	Multiple	https://catalog.archives.gov/id/63792170
89000623	Pressey--Eustis House	MASSACHUSETTS	Middlesex	Winchester	14 Stevens St.	FALSE	7/5/1989		ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000623	Multiple	https://catalog.archives.gov/id/63790848
89000656	Remick, Joseph, House	MASSACHUSETTS	Middlesex	Winchester	84 Cambridge St./4 Swan Rd.	FALSE	7/5/1989		ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA	Baby Sanborn House	89000656	Multiple	https://catalog.archives.gov/id/63790643
89000618	Richardson, Zachariah, House	MASSACHUSETTS	Middlesex	Winchester	597 Washington St.	FALSE	7/5/1989		INDUSTRY; ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000618	Multiple	https://catalog.archives.gov/id/63792154
89000652	Russell, Arthur H., House	MASSACHUSETTS	Middlesex	Winchester	10 Mt. Pleasant St.	FALSE	7/5/1989		ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000652	Multiple	https://catalog.archives.gov/id/63791102
89000617	Russell, Charles, House	MASSACHUSETTS	Middlesex	Winchester	993 Main St.	FALSE	7/5/1989		COMMUNITY PLANNING AND DEVELOPMENT; ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000617	Multiple	https://catalog.archives.gov/id/63791722
81000286	Sanborn House	MASSACHUSETTS	Middlesex	Winchester	21 High St. (formerly 15)	FALSE	12/14/1981		COMMERCE; ARCHITECTURE	BUILDING	False	False	True	False	False	True		Aigremont	81000286	Single	https://catalog.archives.gov/id/63795656
89000613	Sharon House	MASSACHUSETTS	Middlesex	Winchester	403 Main St.	FALSE	7/5/1989		INDUSTRY	BUILDING	False	False	True	False	False	False	Winchester MRA		89000613	Multiple	https://catalog.archives.gov/id/63792096
89000640	Simonds, William, House	MASSACHUSETTS	Middlesex	Winchester	418-420 Main St.	FALSE	7/5/1989		COMMUNITY PLANNING AND DEVELOPMENT; ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000640	Multiple	https://catalog.archives.gov/id/63791799
89000645	Skillings Estate House	MASSACHUSETTS	Middlesex	Winchester	37 Rangeley Rd.	FALSE	7/5/1989		COMMUNITY PLANNING AND DEVELOPMENT; ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000645	Multiple	https://catalog.archives.gov/id/63791854
89000625	St. Mary's Catholic Church	MASSACHUSETTS	Middlesex	Winchester	159 Washington St.	FALSE	7/5/1989		COMMUNITY PLANNING AND DEVELOPMENT; ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000625	Multiple	https://catalog.archives.gov/id/63791686
89000614	Stanton, Jacob, House	MASSACHUSETTS	Middlesex	Winchester	21 Washington St.	FALSE	7/5/1989		INDUSTRY; ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000614	Multiple	https://catalog.archives.gov/id/63792152
89000636	Sullivan, Edward, House	MASSACHUSETTS	Middlesex	Winchester	9 Kendall St.	FALSE	7/5/1989		INDUSTRY; ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000636	Multiple	https://catalog.archives.gov/id/63792229
89000606	Symmes, Deacon John, House	MASSACHUSETTS	Middlesex	Winchester	212 Main St. (formerly 212--214 Main St.)	FALSE	7/5/1989		COMMUNITY PLANNING AND DEVELOPMENT; ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000606	Multiple	https://catalog.archives.gov/id/63791618
89000607	Symmes, Marshall, House	MASSACHUSETTS	Middlesex	Winchester	230 Main St.	FALSE	7/5/1989		COMMUNITY PLANNING AND DEVELOPMENT; ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000607	Multiple	https://catalog.archives.gov/id/63791620
89000637	Symmes, Marshall, Tenant House	MASSACHUSETTS	Middlesex	Winchester	233 Main St.	FALSE	7/5/1989		COMMUNITY PLANNING AND DEVELOPMENT	BUILDING	False	False	True	False	False	False	Winchester MRA		89000637	Multiple	https://catalog.archives.gov/id/63791538
89000619	Thompson, Abijah, House	MASSACHUSETTS	Middlesex	Winchester	81 Walnut St.	FALSE	7/5/1989		COMMUNITY PLANNING AND DEVELOPMENT; ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000619	Multiple	https://catalog.archives.gov/id/63791688
89000647	Trowbridge--Badger House	MASSACHUSETTS	Middlesex	Winchester	12 Prospect St.	FALSE	7/5/1989		ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000647	Multiple	https://catalog.archives.gov/id/63791200
87001773	US Post Office--Winchester Main	MASSACHUSETTS	Middlesex	Winchester	48 Waterfield Rd.	FALSE	10/19/1987		POLITICS/GOVERNMENT; ARCHITECTURE	BUILDING	False	False	True	False	False	False		Winchester Main Post Office	87001773	Single	https://catalog.archives.gov/id/63795612
89000629	Vinton, Alfred, House	MASSACHUSETTS	Middlesex	Winchester	417 Main St.	FALSE	7/5/1989		COMMUNITY PLANNING AND DEVELOPMENT; ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000629	Multiple	https://catalog.archives.gov/id/63791775
89000659	Wedgemere Historic District	MASSACHUSETTS	Middlesex	Winchester	Roughly bounded by Foxcroft, Fletcher, Church, and Cambridge	FALSE	7/5/1989		COMMUNITY PLANNING AND DEVELOPMENT; ARCHITECTURE	DISTRICT	False	False	True	False	False	False	Winchester MRA		89000659	Multiple	https://catalog.archives.gov/id/63791860
89000622	White, S. B., House	MASSACHUSETTS	Middlesex	Winchester	8 Stevens St.	FALSE	7/5/1989		ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000622	Multiple	https://catalog.archives.gov/id/63790846
89000658	Wildwood Cemetery	MASSACHUSETTS	Middlesex	Winchester	34 Palmer St. (formerly Wildwood St.)	FALSE	7/5/1989		LANDSCAPE ARCHITECTURE	SITE	False	False	True	False	False	False	Winchester MRA		89000658	Multiple	https://catalog.archives.gov/id/63792275
86002943	Winchester Center Historic District	MASSACHUSETTS	Middlesex	Winchester	Roughly bounded by Mt. Vernon and Washington Sts., Waterfield Rd., Church and Main Sts	FALSE	11/21/1986		COMMUNITY PLANNING AND DEVELOPMENT; COMMERCE; ARCHITECTURE	DISTRICT	False	False	True	False	False	False		See Also:Winchester Town Hall;Winchester Savings Bank	86002943	Single	https://catalog.archives.gov/id/63795690
79000361	Winchester Savings Bank	MASSACHUSETTS	Middlesex	Winchester	26 Mt. Vernon St.	FALSE	6/19/1979		COMMERCE; ARCHITECTURE	BUILDING	False	False	True	False	False	False		state survey no.:131	79000361	Single	https://catalog.archives.gov/id/63795680
83000837	Winchester Town Hall	MASSACHUSETTS	Middlesex	Winchester	71 Mount Vernon St. (formerly Mount Auburn St. (typo)	FALSE	3/31/1983		POLITICS/GOVERNMENT; ARCHITECTURE	BUILDING	False	False	True	False	False	False			83000837	Single	https://catalog.archives.gov/id/63796023
83000838	Wright, Philemon/Asa Locke Farm	MASSACHUSETTS	Middlesex	Winchester	78 Ridge St.	FALSE	3/10/1983		EXPLORATION/SETTLEMENT; ARCHITECTURE; AGRICULTURE	BUILDING	False	False	False	False	False	True			83000838	Single	https://catalog.archives.gov/id/63795542
89000609	Wyman, George, House	MASSACHUSETTS	Middlesex	Winchester	195 Cambridge St.	FALSE	7/5/1989		COMMUNITY PLANNING AND DEVELOPMENT; ARCHITECTURE	BUILDING	False	False	True	False	False	False	Winchester MRA		89000609	Multiple	https://catalog.archives.gov/id/63791634
74000381	1790 House	MASSACHUSETTS	Middlesex	Woburn	827 Main St.	FALSE	10/9/1974		ARCHITECTURE	BUILDING	False	False	False	False	False	True		North Congregational Parish Church	74000381	Single	https://catalog.archives.gov/id/63795919
71000090	Baldwin, Loammi, Mansion	MASSACHUSETTS	Middlesex	Woburn	2 Alfred St.	FALSE	10/7/1971		MILITARY; ENGINEERING; POLITICS/GOVERNMENT; ARCHITECTURE; AGRICULTURE	BUILDING	False	False	False	True	False	False			71000090	Single	https://catalog.archives.gov/id/63795540
04001222	First Burial Ground	MASSACHUSETTS	Middlesex	Woburn	Park St. near Centre St.	FALSE	11/13/2004		ART; COMMUNITY PLANNING AND DEVELOPMENT; SOCIAL HISTORY	SITE	False	False	True	False	False	False		Park Street Burial Ground	04001222	Single	https://catalog.archives.gov/id/63796093
91001898	First Congregational Church in Woburn	MASSACHUSETTS	Middlesex	Woburn	322 Main St.	FALSE	1/6/1992		ARCHITECTURE	BUILDING	False	False	True	False	False	False		First Church	91001898	Single	https://catalog.archives.gov/id/63795846
00001340	Jack's Diner	MASSACHUSETTS	Middlesex	Woburn	901 Main St.	FALSE	11/22/2000		ARCHITECTURE; COMMERCE	BUILDING	False	False	True	False	False	True	Diners of Massachusetts MPS	Main Street Diner	00001340	Multiple	https://catalog.archives.gov/id/63791351
72000117	Middlesex Canal	MASSACHUSETTS	Middlesex	Woburn	Running SE between towns of Lowell and Woburn	FALSE	8/21/1972		COMMERCE; ENGINEERING; TRANSPORTATION	DISTRICT	False	False	False	True	False	False			72000117	Single	https://catalog.archives.gov/id/63796118
75001942	Rumford, Count, Birthplace	MASSACHUSETTS	Middlesex	Woburn	90 Elm St.	FALSE	5/15/1975	5/15/1975	SCIENCE	BUILDING	False	False	False	True	False	False		Rumford House	75001942	Single	https://catalog.archives.gov/id/63793785
86003436	US Post Office-Woburn Center Station	MASSACHUSETTS	Middlesex	Woburn	1 Abbott St. (formerly 2 Abbott St.)	FALSE	10/19/1987		POLITICS/GOVERNMENT; ARCHITECTURE	BUILDING	False	False	True	False	False	False			86003436	Single	https://catalog.archives.gov/id/63795610
76000290	Woburn Public Library	MASSACHUSETTS	Middlesex	Woburn	Pleasant St.	FALSE	11/13/1976	12/23/1987	ARCHITECTURE; SOCIAL HISTORY	BUILDING	False	False	False	True	False	True		Winn Memorial Library	76000290	Single	https://catalog.archives.gov/id/63796057

Appendix I

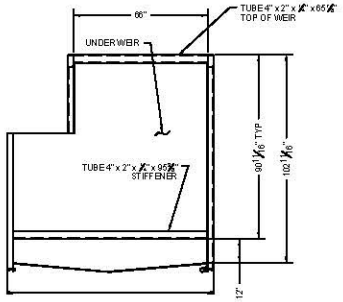
Water Treatment System Cutsheets



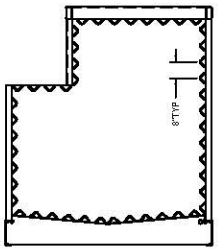


STANDARD SPECIFICATION

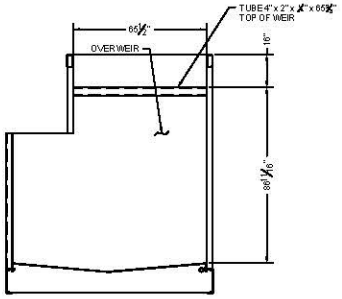
CAPACITY: .... 18,480 GALLONS (440 BBL)
SIDE SHEETS: .... 1/4" A36 PLATE
FRONT SHEET: .... 1/4" A36 PLATE
REAR SHEET: .... 1/4" A36 PLATE
FLOOR: .... 1/4" A36 PLATE
MAIN FLOOR RAILS: .... 12" x 20.7# STRUCTURAL CHANNEL
FLOOR CROSSMEMBERS: .... 1/4" A36 PLATE
SIDE STAKES: .... ONE PIECE 3/16" A36 PLATE
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)



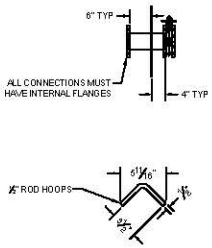
SECTION VIEW "C-C"



SECTION VIEW "B-B"



SECTION VIEW "A-A"



NOTE:
This drawing is a representation baseline for this model of tank. Variations between this drawing and the actual equipment do exist, primarily with appurtenance locations, sizes and quantities.

18,000 gal. Weir Tank

Lockwood Remediation Technologies, LLC

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

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

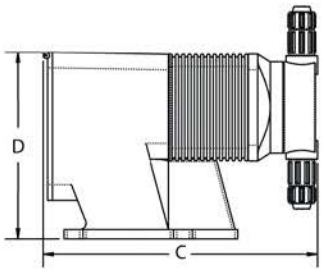
Pre-Engineered Systems

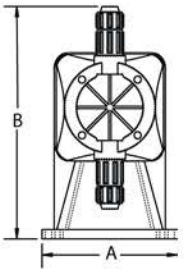
Pulsafeeder's Pre-Engineered Systems are designed to provide complete chemical feed solutions for all electronic metering applications. From stand alone simplex pH control applications to full-featured, redundant sodium hypochlorite disinfection metering, these rugged fabricated assemblies offer turn-key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

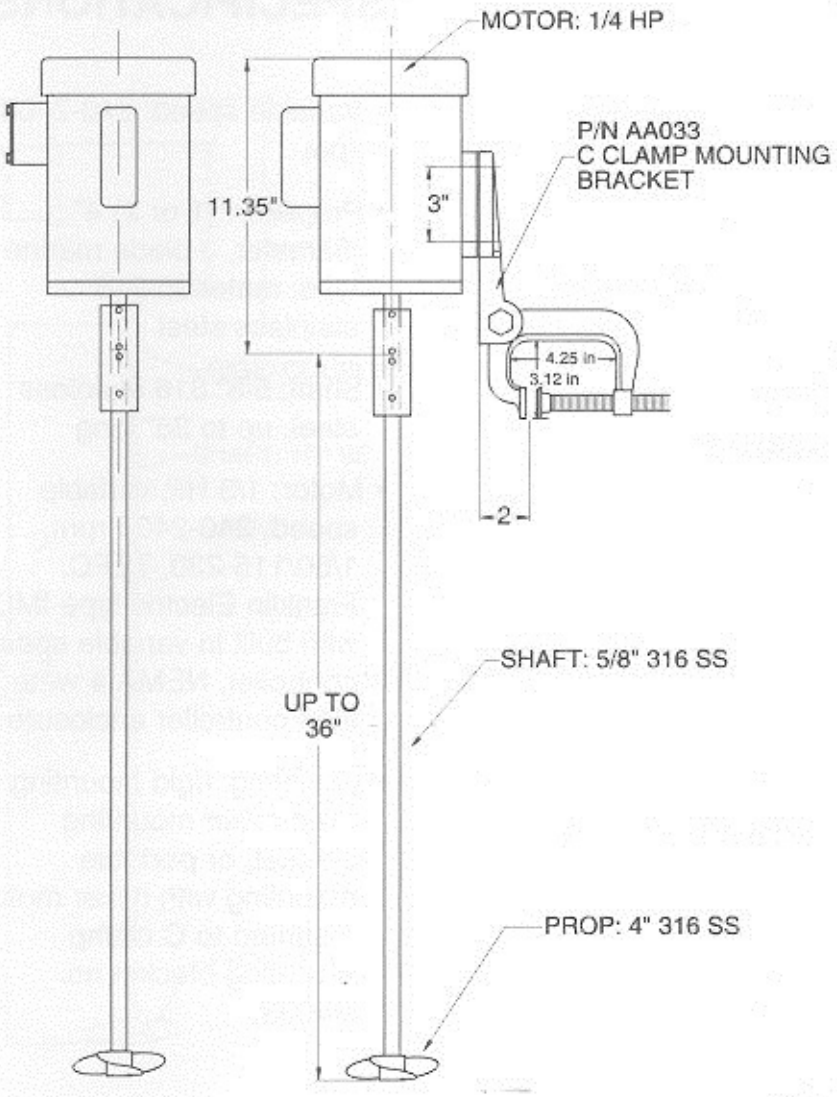
Series HV Dimensions (inches)					
Model No.	A	B	C	D	Shipping Weight
LVB3	5.4	9.3	9.5	7.5	13
LVF4	5.4	10.8	10.8	7.5	18
LVG4	5.4	9.5	10.6	7.5	18
LVG5	5.4	10.8	10.8	7.5	18
LVH7	6.1	11.5	11	8.2	25

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.

Revision date 2019-15-4

SAFETY DATA SHEET

Revision number 1

SECTION 1) CHEMICAL PRODUCT AND SUPPLIER'S IDENTIFICATION

Product ID:	Redux-823
Product Name:	Processing aid for industrial applications
Revision Date:	Apr 15, 2019
Supersedes Date:	Jan 25, 2018
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 of the substance or mixture

Not a hazardous substance or mixture according to United States Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR 1910.1200).

Hazards Not Otherwise Classified (HNOC)

None.

SECTION 3) COMPOSITION / INFORMATION ON INGREDIENTS

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 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	6.26 lb/gal
Specific Gravity	0.6 - 0.9
Appearance	granular, white solid
pH	5 - 9 @ 5 g/L
Odor Threshold	N/A
Odor Description	N/A
Water Solubility	Complete
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	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

No Data Available

Acute Toxicity

Inhalation, Testing: Not expected to be toxic by inhalation.
Ingestion, Testing: LD50, Rat > 5,00 mg/kg
Dermal, Testing: LD50, Rat > 5,000 mg/kg

Respiratory/Skin Sensitization

No Data Available

Serious Eye Damage/Irritation

No Data Available

Skin Corrosion/Irritation

No Data Available

Specific Target Organ Toxicity - Repeated Exposure

No Data Available

Specific Target Organ Toxicity - Single Exposure

No Data Available

SECTION 12) ECOLOGICAL INFORMATION

Acute Ecotoxicity

Danio Rerio: 96 hr LC50 >100 mg/l (OECD 203)

Fathead Minnow (pimephales promelas): 96hr LC50 >100 mg/l (OECD 203)

Daphnia Magna: 48hr EC50 >100 mg/l (OECD 202)

Scenedesmus Subspicatus: 72hr IC50 >100 mg/l (OECD 201)

Mobility in Soil

No data available.

Bio-accumulative Potential

Not bioaccumulating.

Persistence and Degradability

Not readily biodegradable.

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

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.

Additional Information

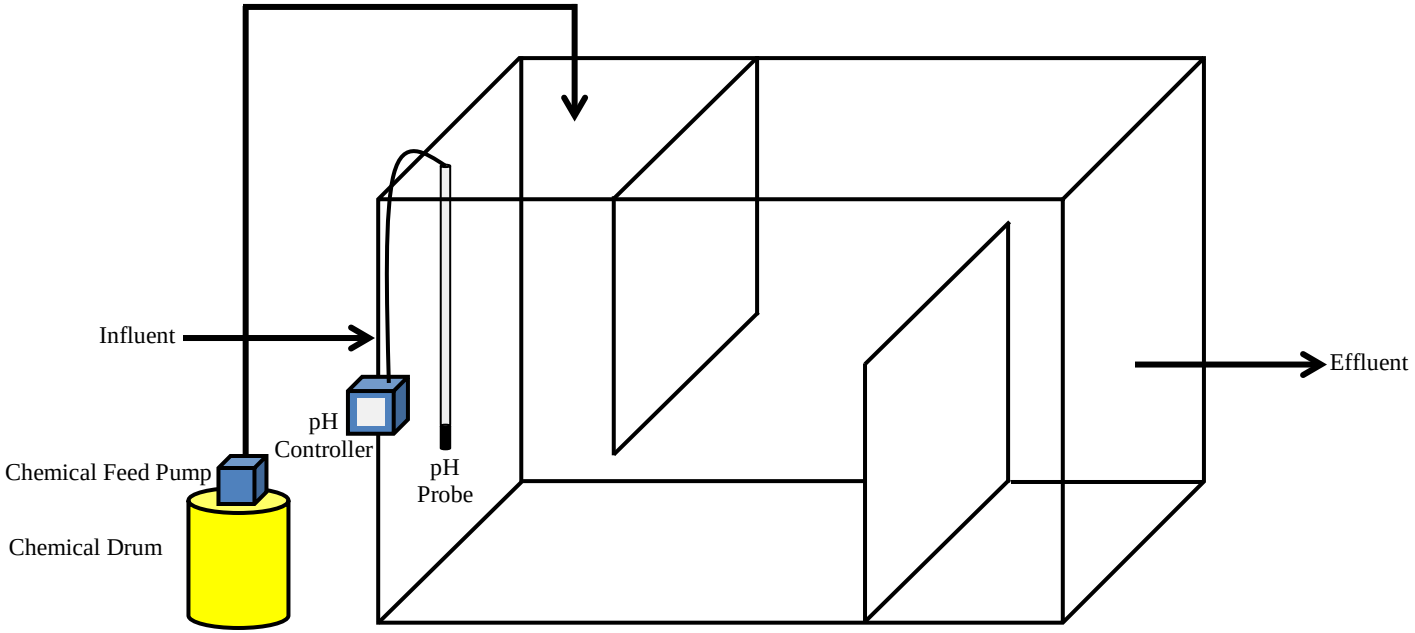
Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Version 1.0:

Revision Date: Jan 25, 2018
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.



Notes:

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

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

Configuration of pH Adjustment System

Lockwood Remediation Technologies, LLC

One Controller for the Broadest Range of Sensors.

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

Maximum Versatility

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

Ease of Use and Confidence in Results

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

Wide Variety of Communication Options

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

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

Controller Comparison

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

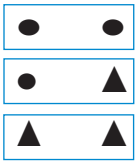
Choose from Hach's Broad Range of Digital and Analog Sensors

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

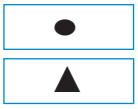
● = Digital ▲ = Analog

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

2 Channel Configurations



1 Channel Configurations



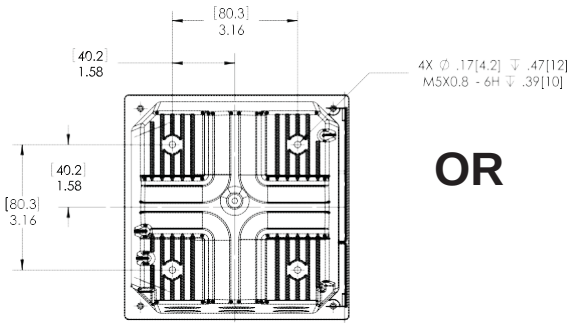
Specifications*

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

**Subject to change without notice.*

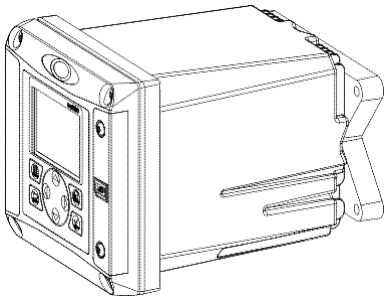
Dimensions

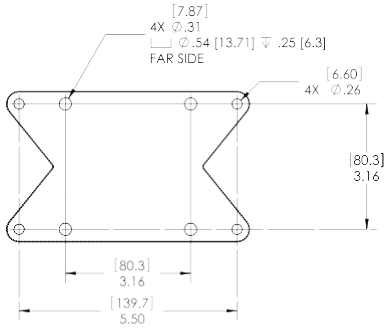
Surface Mounting Dimensions



Mounting Dimensions
(Rear View)

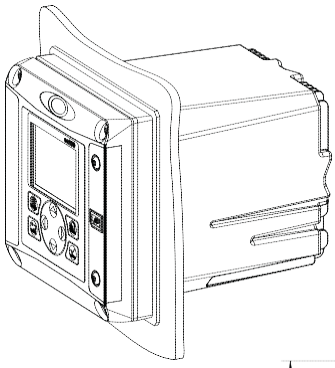
OR

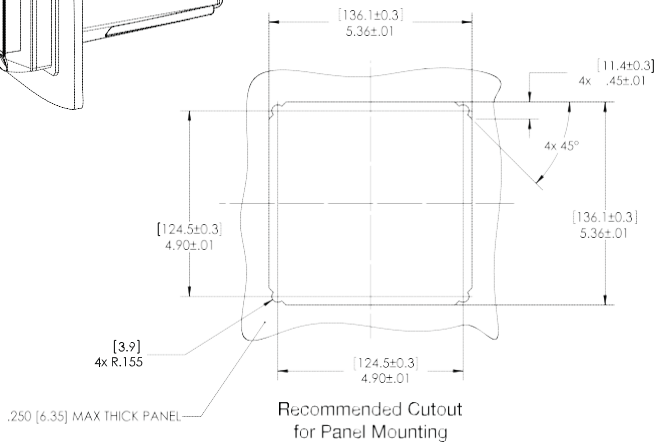




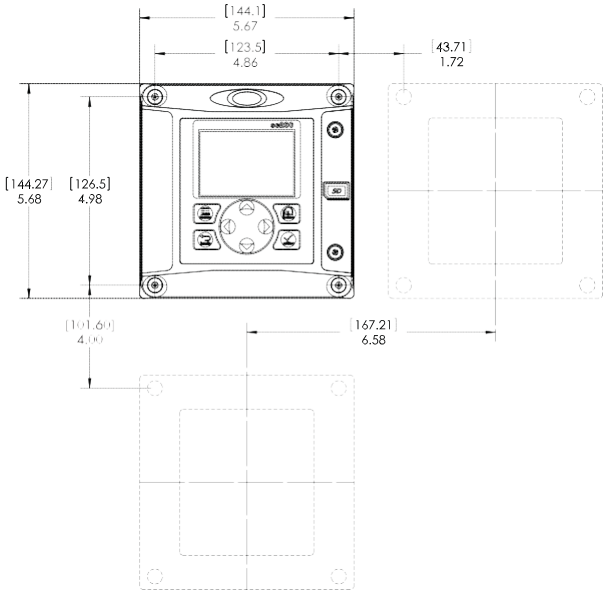
Bracket (supplied) for Surface Mounting
(Not compatible with Weather and Sun Shield p/n 9220600 when surface mounting.)

Panel Mounting Dimensions



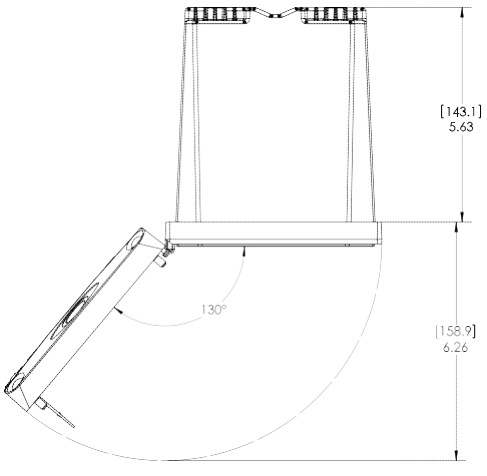


Recommended Cutout
for Panel Mounting

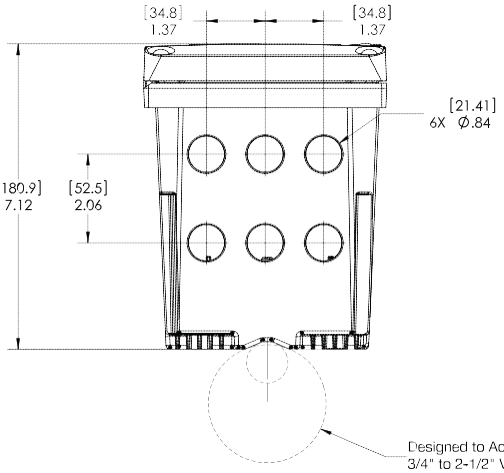


Minimum Spacing Dimensions
for Group Mounting

Top and Bottom Views

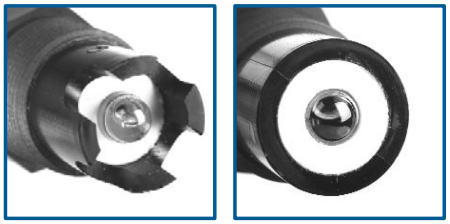


Door Opening Details



3/4-inch Combination pH and ORP Sensor Kits

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



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

Features and Benefits

Low Price—High Performance

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

Special Electrode Configurations

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

Temperature Compensation Element Option

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

Versatile Mounting Styles

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

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

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

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

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

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

Specifications*

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

Combination pH Sensors

Measuring Range
0 to 14 pH

Accuracy
Less than 0.1 pH under reference conditions

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

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

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

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

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

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

Wetted Materials

Convertible style: Ryton® body (glass filled)

Insertion style: PVDF body (Kynar®)

Sanitary style: 316 stainless steel sleeved PVDF body

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

Warranty
90 days

Combination ORP Sensors

Measuring Range
-2000 to +2000 millivolts

Accuracy
Limited to calibration solution accuracy (± 20 mV)

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

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

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

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

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

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

Wetted Materials

Convertible style: Ryton® body (glass filled)

Insertion style: PVDF body (Kynar®)

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

Warranty
90 days

**Specifications subject to change without notice.*

Engineering Specifications

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

Dimensions

Convertible Style Sensor

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

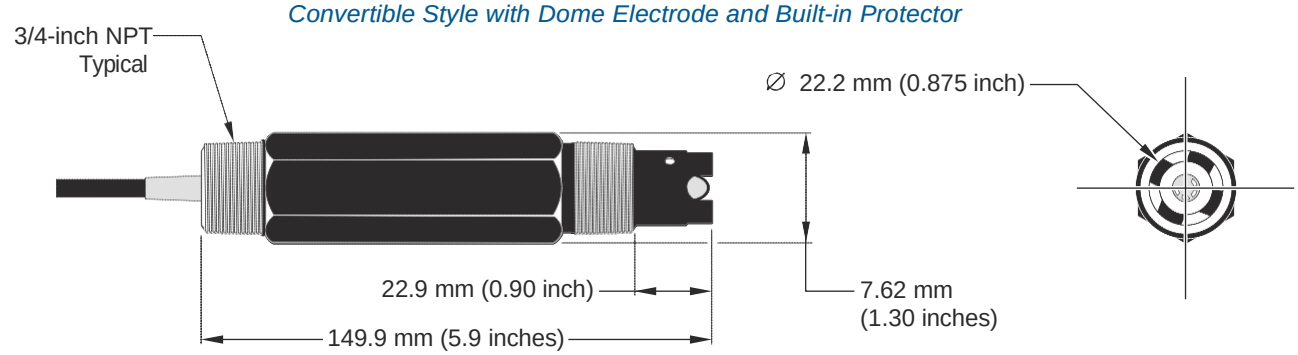
Insertion Style Sensor

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

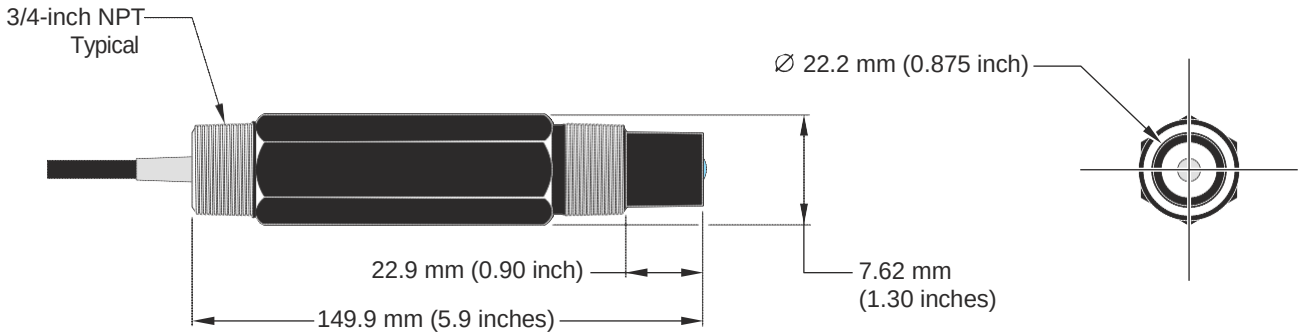
Sanitary Style Sensor

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

Convertible Style with Dome Electrode and Built-in Protector



Convertible Style with Flat Electrode



Lockwood Remediation Technologies, LLC

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

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

Features

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

Controls

Manual Stroke Rate

Manual Stroke Length

External Pacing - Optional

External Pace With Stop - Optional (125 SPM only)

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

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

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

Operating Benefits

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

Aftermarket

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

Series A Plus
Electronic Metering Pumps

Lockwood Remediation Technologies, LLC

Series A Plus

Specifications and Model Selection

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

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

Engineering Data

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

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

Engineering Data

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

Custom Engineered Designs - Pre-Engineered Systems

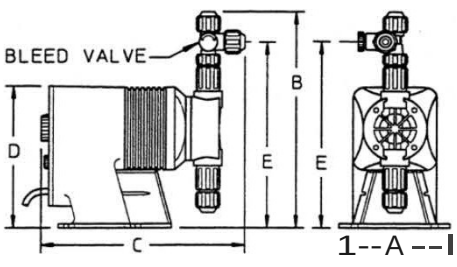
Pre-Engineered Systems

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

Dimensions

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

NOTE: Inches X 2.54 cm



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

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

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

A95OVER Specifications

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

Metric Equivalent Specifications

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

A95OVER Technical Information

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

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

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

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

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SECTION 1. IDENTIFICATION

Product identifier used on the label

: **Sodium Hydroxide Solution 10% to 50%**

Product Code(s) : Not available.

Recommended use of the chemical and restrictions on use

: Chemical intermediate.;Reagent
Use pattern: Professional Use Only
Recommended restrictions: No restrictions on use 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

Supplier's Telephone # : 508-675-0096

Name, address, and telephone number of the manufacturer:

Refer to supplier

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, colorless liquid.

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
Skin Corrosion/Irritation - Category 1
Eye Damage/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.
Causes severe skin burns and eye damage.
May cause respiratory irritation.

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Precautionary statement(s)

Keep only in original container.
Do not breathe mist.
Wash thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/clothing and eye/face 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 in a well-ventilated place. Keep container tightly closed.
Store locked up.

Dispose of contents/container in accordance with local regulation.

Other hazards

Other hazards which do not result in classification:
Contact with most metals will generate flammable hydrogen gas. Contact with water gives off heat. Burning produces obnoxious and toxic fumes. Chronic skin contact with low concentrations may cause dermatitis.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance;solution

Chemical name	Common name and synonyms	CAS #	Concentration
sodium hydroxide	Caustic soda Sodium hydrate soda lye	1310-73-2	**10.0 - 50.0**
Water	H2O	7732-18-5	**Balance**

SECTION 4. FIRST-AID MEASURES

Description of first aid measures

Ingestion : Never give anything by mouth to an unconscious person. 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.

Inhalation : Immediately remove person to fresh air. If breathing is difficult, give oxygen by qualified medical personnel only. If breathing has stopped, give artificial respiration. Seek immediate medical attention/advice.

Skin contact : Wear appropriate protective equipment. Remove/Take off immediately all contaminated clothing. Immediately flush skin with gently flowing, running water for at least 20 minutes. Do not rub area of contact. Obtain medical attention immediately. Wash contaminated clothing before reuse. Contaminated leather may require disposal.

Eye contact : Wear appropriate protective equipment. Protect unharmed eye. If in contact with eyes, immediately flush eyes with running water for at least 20 minutes. If contact lens is present, DO NOT delay flushing or attempt to remove the lens until flushing is done. Obtain medical attention immediately.

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Most important symptoms and effects, both acute and delayed

: Causes severe skin irritation. Symptoms may include redness, blistering, pain and swelling. Causes serious eye damage. Symptoms may include severe pain, blurred vision, redness and corrosive damage. May cause respiratory irritation. 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. Ingestion may cause severe burns to the mucous membranes of the digestive tract. Symptoms may include abdominal pain, vomiting, burns, perforations and bleeding.

Indication of any immediate medical attention and special treatment needed

: Immediate medical attention is required. Causes chemical burns. Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media

: Use media suitable to the surrounding fire such as water fog or fine spray, alcohol foams, carbon dioxide and dry chemical. May react with water. Use water spray with caution.

Unsuitable extinguishing media

: Use water spray with caution. 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. Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure.

Flammability classification (OSHA 29 CFR 1910.106)

: Not flammable.

Hazardous combustion products

: Sodium oxides.

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. Move containers from fire area if safe to do so. Use water to cool fire-exposed containers. Prevent runoff from fire control or dilution from entering sewers, drains, drinking water supply or any natural waterway. Dike for water control.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

: Restrict access to area until completion of clean-up. Ensure clean-up is conducted by trained personnel only. All persons dealing with clean-up should wear the appropriate protective equipment including self-contained breathing apparatus. Refer to Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION, for additional information on acceptable personal protective equipment.

Environmental precautions : Ensure spilled product does not enter drains, sewers, waterways, or confined spaces. If necessary, dike well ahead of the spill to prevent runoff into drains, sewers, or any natural waterway or drinking supply.

Methods and material for containment and cleaning up

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: Remove all sources of ignition. Ventilate area of release. Stop the spill at source if it is safe to do so. Dike for water control. Dilute acid with water and neutralize with Sodium Carbonate (soda ash) or 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). Notify the appropriate authorities as required.

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): sodium hydroxide (1000 lbs / 454 kg).

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling

: Wear protective gloves/clothing and eye/face protection. Use only in well-ventilated areas. Refer to Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION, for additional information on acceptable personal protective equipment. Do not breathe fumes or mists. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Keep away from heat and flame. Keep away from incompatibles. May react with water, generating heat. When diluting, always add the product to water. Never add water to the product. When mixing with water, stir small amounts in slowly. Use cold water to prevent excessive heat generation. The addition of caustic soda to liquid will cause a rise in temperature. Keep containers tightly closed when not in use. Empty containers retain residue (liquid and/or vapour) and can be dangerous.

Conditions for safe storage : Store in a well-ventilated place. Keep container tightly closed. Store locked up. Keep away from incompatibles.Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. Do not freeze. Store in corrosion-resistant containers. Avoid contact with aluminum.

Incompatible materials : Acids; Water; Metals (e.g. tin, aluminum, zinc and alloys containing these metals); Halogenated compounds; Nitrogen compounds.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits:

Chemical Name	ACGIH TLV		OSHA PEL	
	TWA	STEL	PEL	STEL
sodium hydroxide	2 mg/m³ (Ceiling)	N/Av	2 mg/m³	N/Av
Water	N/Av	N/Av	N/Av	N/Av

Exposure controls

Ventilation and engineering measures

: Use only in well-ventilated areas. Use general or local exhaust ventilation to maintain air concentrations below recommended exposure limits.

Respiratory protection : Respiratory protection is required if the concentrations exceed the TLV. NIOSH-approved respirators are recommended. A self contained breathing apparatus should be used in emergency situations or instances where exposure levels are not known. Seek advice from respiratory protection specialists. 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.

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Skin protection	:	Impervious gloves must be worn when using this product. Advice should be sought from glove suppliers. Wear as appropriate: Neoprene; Polyvinylchloride; Viton; Butyl rubber; Nitrile rubber; Polyethylene. Unsuitable material: polyvinyl alcohol. Wear chemically protective gloves (impervious), boots, aprons, and gauntlets to prevent prolonged or repeated skin contact.
Eye / face protection	:	Chemical splash goggles must be worn when handling this material. A full face shield may also be necessary.
Other protective equipment	:	An eyewash station and safety shower should be made available in the immediate working area. Other equipment may be required depending on workplace standards.
General hygiene considerations	:	Do not breathe fumes or mists. Do not ingest. 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 soiled clothing and wash it thoroughly before reuse.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Colourless liquid.
Odour	:	No odour.
Odour threshold	:	Not applicable.
pH	:	14
Melting/Freezing point	:	Not available.
Initial boiling point and boiling range	:	111°C (231.8°F)
Flash point	:	Not applicable.
Flashpoint (Method)	:	Not applicable.
Evaporation rate (BuAe = 1)	:	N/Av
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	:	negligible
Vapour density	:	Not available.
Relative density / Specific gravity	:	1.27-1.48
Solubility in water	:	Very soluble
Other solubility(ies)	:	Not available.
Partition coefficient: n-octanol/water or Coefficient of water/oil distribution	:	N/Ap (dissociates)
Auto-ignition temperature	:	N/Ap
Decomposition temperature	:	Not available.
Viscosity	:	N/Av
Volatiles (% by weight)	:	Not available.
Volatile organic Compounds (VOC's)	:	N/Av
Absolute pressure of container	:	N/Ap
Flame projection length	:	N/Ap

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Other physical/chemical comments
: None known or reported by the manufacturer.

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Not normally reactive. May be corrosive to metals. Contact with most metals will generate flammable hydrogen gas. Contact with water will generate considerable heat.

Chemical stability : Material is stable under normal conditions.

Possibility of hazardous reactions
: Hazardous polymerization does not occur.

Conditions to avoid : Avoid heat and open flame. Keep away from incompatibles. Keep container tightly closed when not in use. Avoid contact with water.

Incompatible materials : Acids; Water; Metals (e.g. tin, aluminum, zinc and alloys containing these metals); Halogenated compounds; Nitrogen compounds.

Hazardous decomposition products
: None known, refer to hazardous combustion products in Section 5.

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
: 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.

Sign and symptoms ingestion
: 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 U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015). Classification: Skin Irritation - Category 1 Causes severe skin burns and eye damage.

Sign and symptoms eyes : 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). Classification: Eye Damage/Irritation - Category 1 Causes serious eye damage.

Potential Chronic Health Effects
: Chronic skin contact with low concentrations may cause dermatitis.

Mutagenicity : Not expected to be mutagenic in humans.

Carcinogenicity : No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.

Reproductive effects & Teratogenicity
: Not expected to have other reproductive effects.

Sensitization to material : Not expected to be a skin or respiratory sensitizer.

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Specific target organ effects : Target Organs: Eyes, skin, respiratory system and digestive system.

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).
Classification: Specific Target Organ Toxicity, Single Exposure -Category 3 (respiratory) 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 : There is no data available for this product.

Chemical name	LC_{50}(4hr) inh, rat	LD_{50} (Oral, rat)	LD_{50} (Rabbit, dermal)
sodium hydroxide	N/Av	N/Av	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 : The ecological characteristics of this product have not been fully investigated.
The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters.
Toxicity is primarily associated with pH.

Ecotoxicity data:

Ingredients	CAS No	Toxicity to Fish		
		LC50 / 96h	NOEC / 21 day	M Factor
sodium hydroxide	1310-73-2	125 mg/L (Mosquito fish)	N/Av	None.
Water	7732-18-5	No information available.	No information available.	Not applicable.

Ingredients	CAS No	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
sodium hydroxide	1310-73-2	40 mg/L Water flea	N/Av	None.
Water	7732-18-5	No information available.	No information available.	Not applicable.

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Ingredients	CAS No	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
sodium hydroxide	1310-73-2	N/Av	N/Av	None.
Water	7732-18-5	No information available.	No information available.	Not applicable.

Persistence and degradability
: The methods for determining biodegradability are not applicable to inorganic substances.

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

Components	Partition coefficent n-octanol/ater (log Kow)	Bioconcentration factor (BCF)
sodium hydroxide (CAS 1310-73-2)	N/Ap	N/Ap
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 data is available on the product itself.

SECTION 13. DISPOSAL CONSIDERATIONS

Handling for Disposal : Handle waste according to recommendations in Section 7.

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
TDG	UN1824	SODIUM HYDROXIDE SOLUTION	8	II	
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. Under the TDGR, refer to Section 1.17 for additional exemption information, if shipping under this exemption.				
49CFR/DOT	UN1824	Sodium hydroxide solution	8	II	
49CFR/DOT 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. Refer to 49 CFR Section 173.154.				
ICAO/IATA	UN1824	Sodium hydroxide solution	8	II	

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ICAO/IATA Additional information	Refer to ICAO/IATA Packing Instruction				
IMDG	UN1824	SODIUM HYDROXIDE SOLUTION	8	II	
IMDG Additional information	May be shipped as Limited Quantity, consult the IMDG regulations for details.				

Special precautions for user : None reported by the manufacturer.
Environmental hazards : See ECOLOGICAL INFORMATION, Section 12.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
: Not available.

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
sodium hydroxide	1310-73-2	Yes	1000 lb/ 454 kg	None.	No	N/Ap
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: Immediate (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
sodium hydroxide	1310-73-2	No	N/Ap	Yes	Yes	Yes	Yes	Yes	Yes
Water	7732-18-5	No	N/Ap	No	No	No	No	No	No

Canadian Information:

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

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

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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
sodium hydroxide	1310-73-2	215-185-5	Present	Present	(2)-1972; (1)-410	KE-31487	Present	HSR001547
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
CSA: Canadian Standards Association
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
IATA: International Air Transport Association
ICAO: International Civil Aviation Organisation
IMDG: International Maritime Dangerous Goods
Inh: Inhalation
LC: Lethal Concentration
LD: Lethal Dose
MA: Massachusetts
MN: Minnesota
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

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: Organisation for Economic Co-operation and Development, 2015

Preparation Date (mm/dd/yyyy) : 10/09/2015

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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:* 1

NFPA Rating

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

: *Health:* 3 *Flammability:* 0 *Instability:* 1 *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 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

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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:

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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

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: 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.

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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	

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

Special precautions for user : None known.

Environmental hazards : See ECOLOGICAL INFORMATION, Section 12.

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

: Not applicable.

SECTION 15 - REGULATORY INFORMATION

US Federal Information:

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

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

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

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

US State Right to Know Laws:

The following chemicals are specifically listed by individual States:

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

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Canadian Information:

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

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

International Information:

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

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

SECTION 16. OTHER INFORMATION

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

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

Preparation Date (mm/dd/yyyy)

: 10/13/2015

Other special considerations for handling

: Provide adequate information, instruction and training for operators.

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

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

NFPA Rating

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

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

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

DISCLAIMER

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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

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

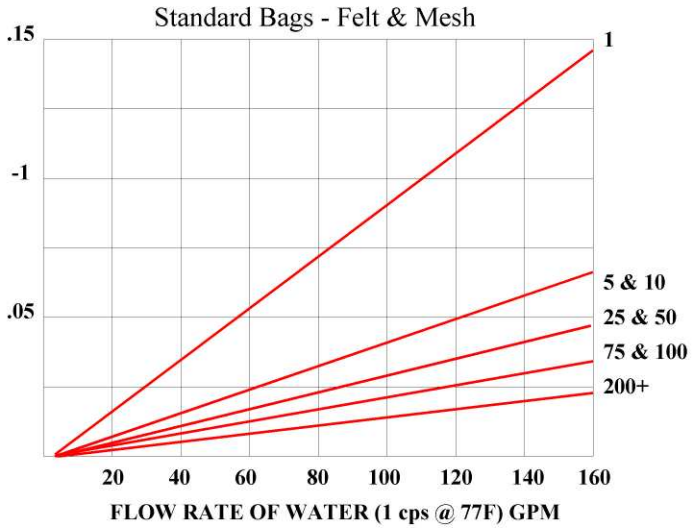
Optional Filter Media

Felt: Nomex, Polyester, Polypropylene

Monofilament: Nylon, Polyester, Polypropylene

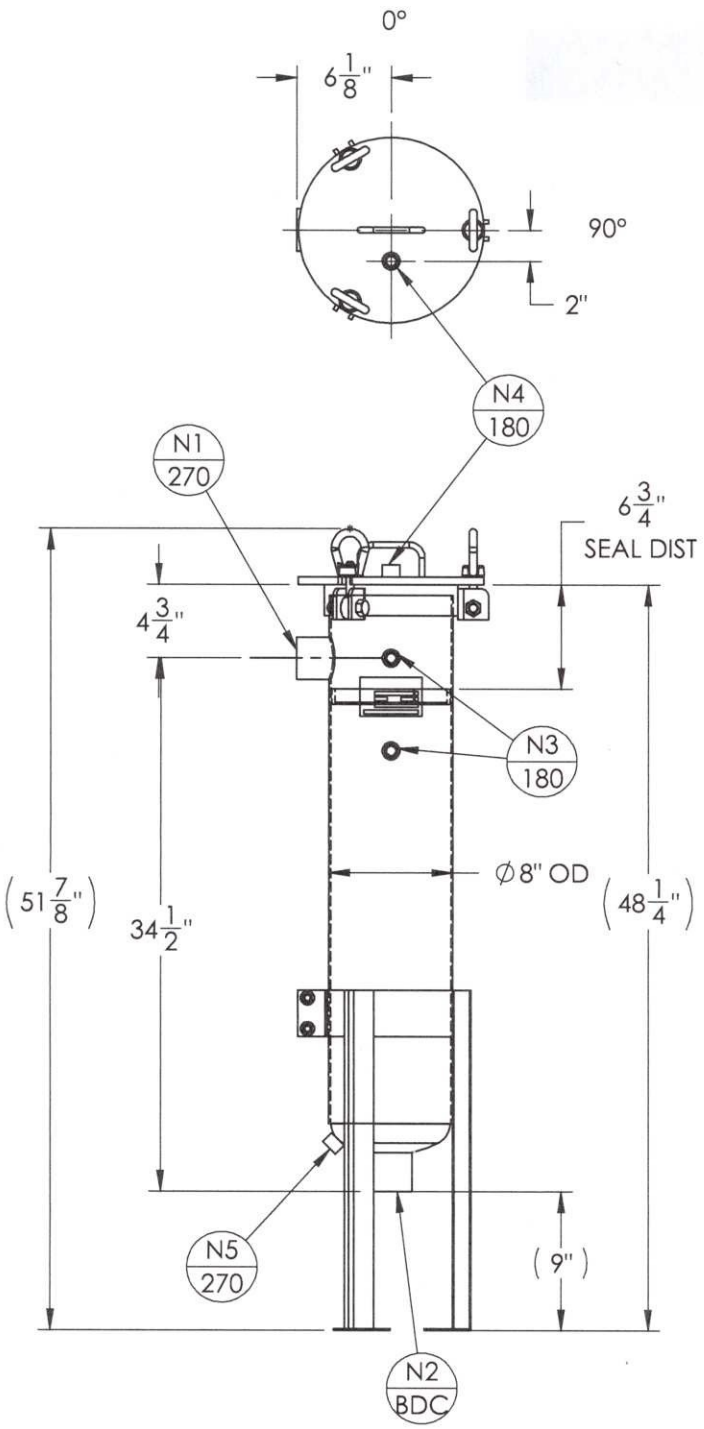
Multifilament: Nylon, Polyester

Polypropylene: Oil Removal

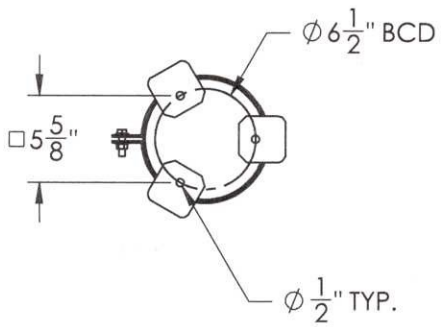


NOZZLE SCHEDULE			
MARK	QTY	SIZE / RATING	DESCRIPTION
N1	1	2" 150# NPT	INLET
N2	1	2" 150# NPT	OUTLET
N3	2	1/2" 3000# NPT	PRESS GA
N4	1	1/2" 3000# NPT	VENT
N5	1	1/2" 3000# NPT	CLEAN DRAIN
N6	-	-	DIRTY DRAIN

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

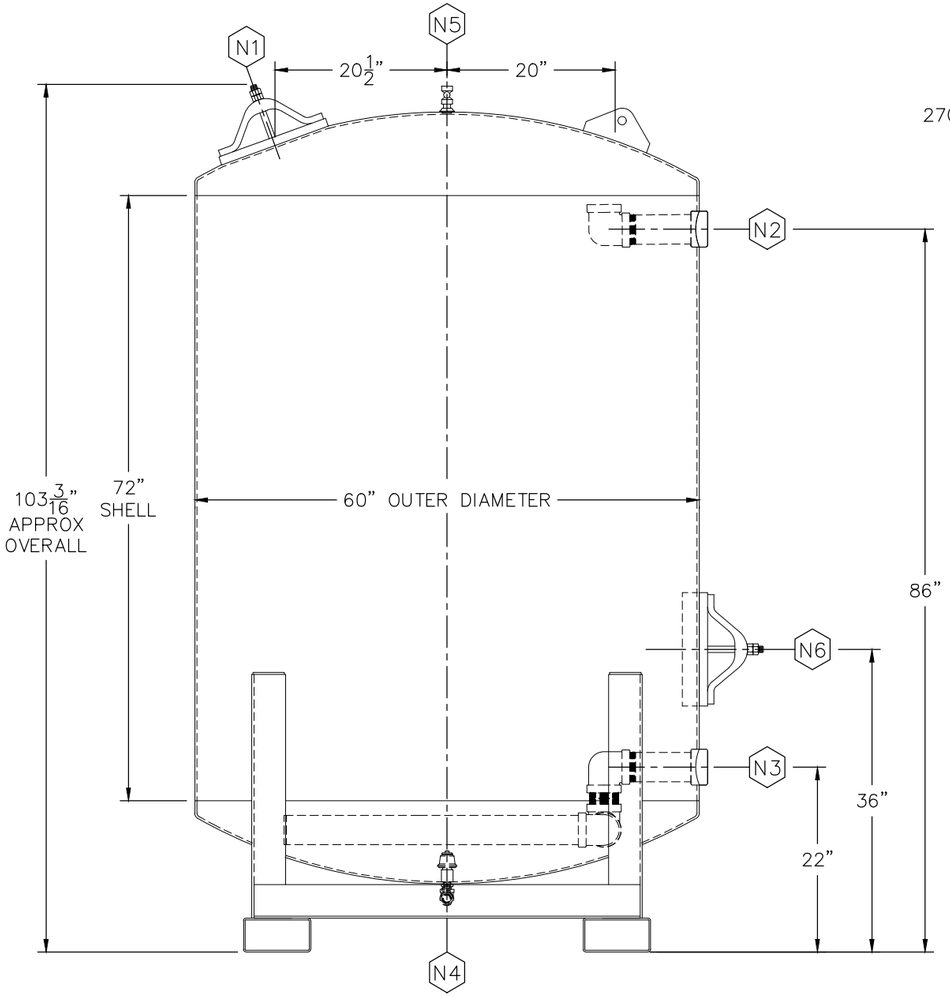
LRT Lockwood Remediation Technologies LLC
89 Crawford Street
Leominster, MA 01453
Tel: 774.450.7177
Fax: 888.835.0617

LRT Provided Bag Filter Housing

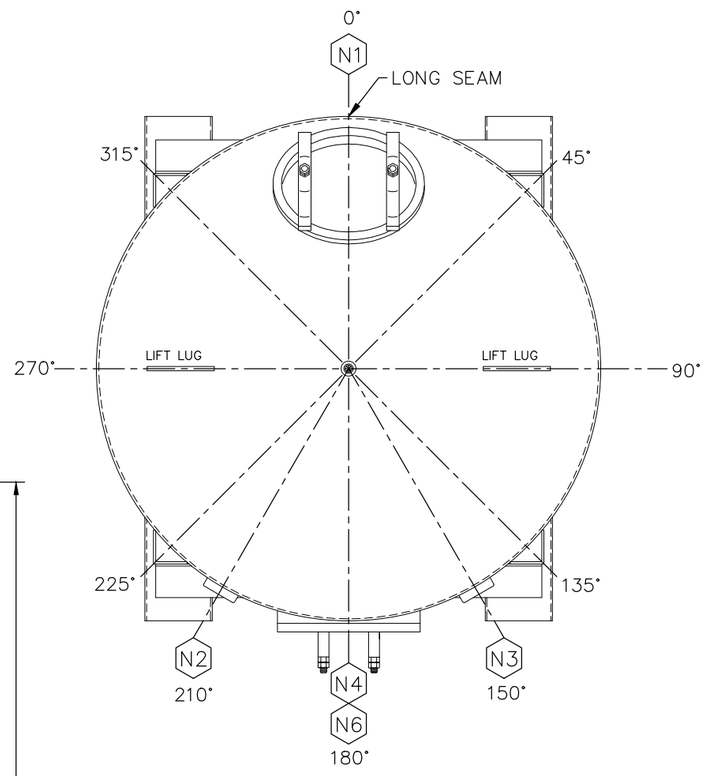
EQUIPMENT:	BAG FILTER HOUSING (EB SERIES)
MODEL NO:	S4EB112-2P-SW
CUSTOMER:	-

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			

SCHEDULE OF OPENINGS		
ID	*DESCRIPTION*	*SERVICE*
N1	14" x 18" ELLIPTICAL MANWAY	UPPER BED ACCESS
N2	3" 3000# FNPT FULL COUPLING	PROCESS INFLUENT
N3	3" 3000# FNPT FULL COUPLING	PROCESS EFFLUENT
N4	1/2" 3000# FNPT FULL COUPLING	DRAIN w/ BALL VALVE
N5	1/4" 150# FNPT TANK FLANGE	VENT w/ VALVE
N6	14" x 18" ELLIPTICAL MANWAY	LOWER BED ACCESS



ELEVATION VIEW
NOT TRUE ORIENTATION



PLAN VIEW
TRUE ORIENTATION

VESSEL DESIGN DATA			
VESSEL REGISTRATION	N/A	YEAR BUILT	NOT YET BUILT
VESSEL CONSTRUCTION	NON-CODE	VESSEL SERIAL NUMBER	TBD
INTERNAL DESIGN PRESSURE	75 PSIG	CAPACITY (VOLUME)	1064.00 gal
INTERNAL DESIGN TEMP.	140 DEG. F	WEIGHT (EMPTY)	1922 lbs
EXTERNAL DESIGN PRESSURE	ATMOSPHERIC	WEIGHT (FULL)	12924 lbs
OPERATING PRESSURE	N/A	SHELL 1 MATERIAL	SA-36 ROLLED PLATE NOM. TH. = 0.25"
OPERATING TEMP.	N/A	SHELL 2 MATERIAL	N/A
MIN. DESIGN METAL TEMP.	-20 DEG. F @ 75 PSIG	TOP HEAD MATERIAL	SA-36 HOT FORMED NOM. TH. = 0.25"
MAWP (NEW & COLD)	TBD	BOTTOM HEAD MATERIAL	SA-36 HOT FORMED NOM. TH. = 0.25"
MAWP (HOT & CORRODED)	TBD	NOZZLES NECKS/FLANGES	SA-106-B, SA-105, SA-312-304
HYDROSTATIC TEST PRESSURE	N/A	GASKETS	BUNA-N
HYDROSTATIC TEST MEDIUM	N/A	INTERNALS	STAINLESS STEEL
CORROSION ALLOWANCE	NONE	SURFACE PREP INTERNAL	SSPC-SP10
RADIOGRAPHY	NONE	SURFACE PREP EXTERNAL	SSPC-SP6
POST WELD HEAT TREAT.	N/A	INTERNAL COATING	CARBOLINE CARBOGUARD 635 5-10 MILS DFT
MATERIAL IMPACT TESTS	N/A	EXTERNAL PRIMER	CARBOLINE CARBOGUARD 635 5-10 MILS DFT
MATERIAL HARDNESS	N/A	EXTERNAL PAINT/COATING	CARBOLINE CARBOTHANE 8845(GREEN)3-5 MILS DFT

REV NO	REVISION NOTE	DATE	SIGNATURE
1			
2			
3			
4			
5			

LRT
Lockwood Remediation Technologies LLC

CUSTOMER	JOB #	DATE	SCALE NTS
DESIGNED BY	HPAF-3000		
APPROVED BY	QUANTITY	UNITS	DRAWING #

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

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

Back to HS-200 page

HS-200

Media to Remove Oil, Heavy Metals and Similar Organics from Water Safety Data Sheet

Revision date : 2017

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 - Product Identifier

Product Name: HS-200

1.2 - Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Filtration

1.3 - Details of the supplier of the safety data sheet

Hydrosil International Ltd.
125 Prairie Lake Rd
East Dundee, IL 60118

T 847-844-0680 - F 847-844-0799
www.hydrosilintl.com

1.4 - Emergency telephone number

Emergency number : 1-847-844-0680

Section 2: Hazards Identification

2.1 - Classification of the substance or mixture

GHS-US classification
Eye Dam. 1 H318
STOT SE 3 H335

2.2 - Label Elements

GHS-US labeling
Hazard pictograms (GHS-US) :

Signal word (GHS-US) : Danger
Hazard statements (GHS-US) :

H318 - Causes serious eye damage
H335 - May cause respiratory irritation

Precautionary statements (GHS-US) :

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER/doctor/…
P312 - Call a POISON CENTER/doctor/…/if you feel unwell
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container to ...

2.3 - Other Hazards

No additional information available

2.4 - Unknown acute toxicity (GHS US)

No data available

SECTION 3: Composition/information on ingredients

3.1 - Substances

Not applicable

3.2 - Mixture

Name	Product Identifier	%	GHS-US Classification
Zeolite	(CAS No.) 1318-02-1	85.2 - 86.2	STOT SE 3, H335
Water	(CAS No.) 7732-18-5	8.4 - 11.4	Not classified
N,N,N-Trimethyl-1-hexadecanaminium chloride	(CAS No.) 112-02-7	3.4 - 5.4	Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Acute 1, H400

SECTION 4: First aid measures

4.1 - Description of first aid measures

First-aid measures after inhalation : Remove person to fresh air. If not breathing, administer CPR or artificial respiration. Get immediate medical attention.
First-aid measures after skin contact : If skin reddening or irritation develops, seek medical attention.
First-aid measures after eye contact : Immediately flush eyes with plenty of water for at least 15 minutes. If irritation persists get medical attention.
First-aid measures after ingestion : If the material is swallowed, get immediate medical attention or advice. DO NOT induce vomiting unless directed to do so by medical personnel.

4.2 - Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : May cause respiratory irritation.
Symptoms/injuries after skin contact : Causes skin irritation.
Symptoms/injuries after eye contact : Causes serious eye irritation.
Symptoms/injuries after ingestion : May be harmful if swallowed.

4.3 - Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1 - Extinguishing media

Suitable extinguishing media : If involved with fire, flood with plenty of water.
Unsuitable extinguishing media : None.

5.2 - Special hazards arising from the substance or mixture

Fire hazard : None known.
Explosion hazard : None known.

5.3 - Advice for firefighters

Protection during firefighting : Firefighters should wear full protective gear.

SECTION 6: Accidental release measures

6.1 - Personal precautions, protective equipment and emergency procedures

General measures : Avoid contact with the skin and the eyes.
For non-emergency personnel : No additional information available
For emergency responders : No additional information available

6.2 - Environmental precautions

None.

6.3 - Methods and material for containment and cleaning up

For containment : If possible, stop flow of product.
Methods for cleaning up : Shovel or sweep up and put in a closed container for disposal.

6.4 - Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1 - Precautions for safe handling

Precautions for safe handling : Wet carbon/coal removes oxygen from air causing a severe hazard to workers inside carbon vessels or confined spaces.

7.2 - Conditions for safe storage, including any incompatibilities

Storage conditions : Protect containers from physical damage. Store in dry, cool, well-ventilated area.

7.3 - Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1 - Control parameters

No additional information available

8.2 - Exposure controls

Appropriate engineering controls : Local exhaust and general ventilation must be adequate to meet exposure standards.
Hand protection : Use impervious gloves.
Eye protection : Safety glasses.
Skin and body protection : Wear suitable working clothes.
Respiratory protection : If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

SECTION 9: Physical and chemical properties

9.1 - Information on basic physical and chemical properties

Physical state : Solid
Appearance : Irregular shaped.
Color : White
Odor : No data available
Odor threshold : No data available
pH : No data available
Relative evaporation rate (butyl acetate=1) : No data available
Melting point : No data available
Freezing point : No data available
Boiling point : No data available
Flash point : No data available
Self ignition temperature : No data available
Decomposition temperature : No data available
Flammability (solid, gas) : No data available
Vapor pressure : No data available
Relative vapor density at 20 °C : No data available
Relative density : 57-59 lb/ft3
Solubility : No data available
Log Pow : No data available
Log Kow : No data available
Viscosity, kinematics : No data available
Viscosity, dynamic : No data available
Explosive properties : No data available
Oxidizing properties : No data available
Explosive limits : No data available

9.1 - Other information

No additional information available

SECTION 10: Stability and Reactivity

10.1 - Reactivity

No additional information available

10.2 - Chemical stability

Stable under normal conditions.

10.3 - Possibility of hazardous reactions

Will not occur

10.4 - Conditions to avoid

None

10.5 - Incompatible materials

Strong oxidizing and reducing agents.

10.6 - Hazardous decomposition products

Organic chlorides, amines, hydrogen chloride may be produced.

SECTION 11: Toxicological information

11.1 - Information on toxicological effects

Acute toxicity : Not classified

Zeolite (1318-02-1)	
LD50 oral rat	5000 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
LC50 inhalation rat (mg/l)	2.4 mg/l (Exposure time: 1 h)
ATE (oral)	5000 mg/kg

Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Causes serious eye damage.
Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

Zeolite (1318-02-1)	
IARC group	3

Reproductive toxicity : Not classified
Specific target organ toxicity (single exposure) : May cause respiratory irritation.
Specific target organ toxicity (repeated exposure) : Not classified
Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1 - Toxicity

Zeolite (1318-02-1)	
LC50 fishes 1	1800 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [semi-static])
EC50 Daphnia 1	1000 - 1800 mg/l (Exposure time: 48 h - Species: Daphnia magna)
EC50 other aquatic organisms 1	18 mg/l (Exposure time: 96 h - Species: Desmodesmus subspicatus)
LC50 fish 2	3200 - 5600 mg/l (Exposure time: 96 h - Species: Oryzias latipes [semi-static])

12.2 - Persistence and degradability

No additional information available

12.3 - Bioaccumulative potential

No additional information available

12.4 - Mobility in soil

No additional information available

12.5 - Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1 - Waste treatment methods

Waste disposal recommendations : Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

In accordance with DOT / ADR / RID / ADNR / IMDG / ICAO / IATA

14.1 - UN number

Not applicable

14.2 - UN proper shipping name

Not applicable

SECTION 15: Regulatory information

15.1 - US Federal regulations

15.2 - US State regulations

No additional information available

SECTION 16: Other information

Full text of H-phrases:

Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Skin Irrit. 2	skin corrosion/irritation Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H315	Causes skin irritation
H318	Causes serious eye damage
H335	May cause respiratory irritation
H400	Very toxic to aquatic life

NFPA health hazard : 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt
medical attention is given.
NFPA fire hazard : 0 - Materials that will not burn.
NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water

SBG1

ANION EXCHANGE RESIN TYPE ONE GEL Cl OR OH FORM

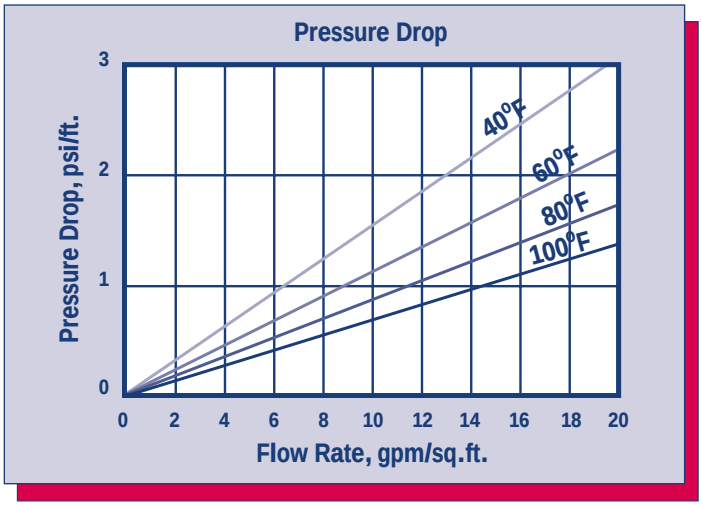
RESINTECH SBG1 is a high capacity, shock resistant, gelular, Type 1, strongly basic anion exchange resin supplied in the chloride or hydroxide form as moist, tough, uniform, spherical beads. *RESINTECH SBG1* is intended for use in all types of deionization systems and chemical processing applications. 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.

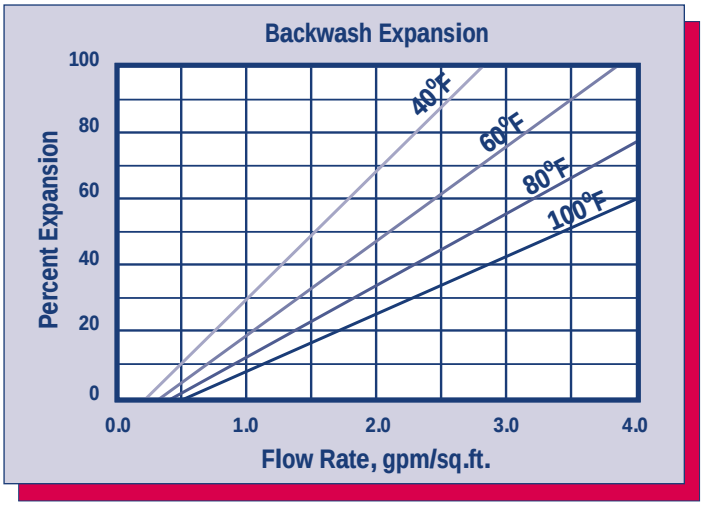
FEATURES & BENEFITS

- **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.

Enviro-Equipment Inc.
10120 Industrial Drive
Pineville NC 28134

Stock#: 1016

Dimensions: See Cut Sheet

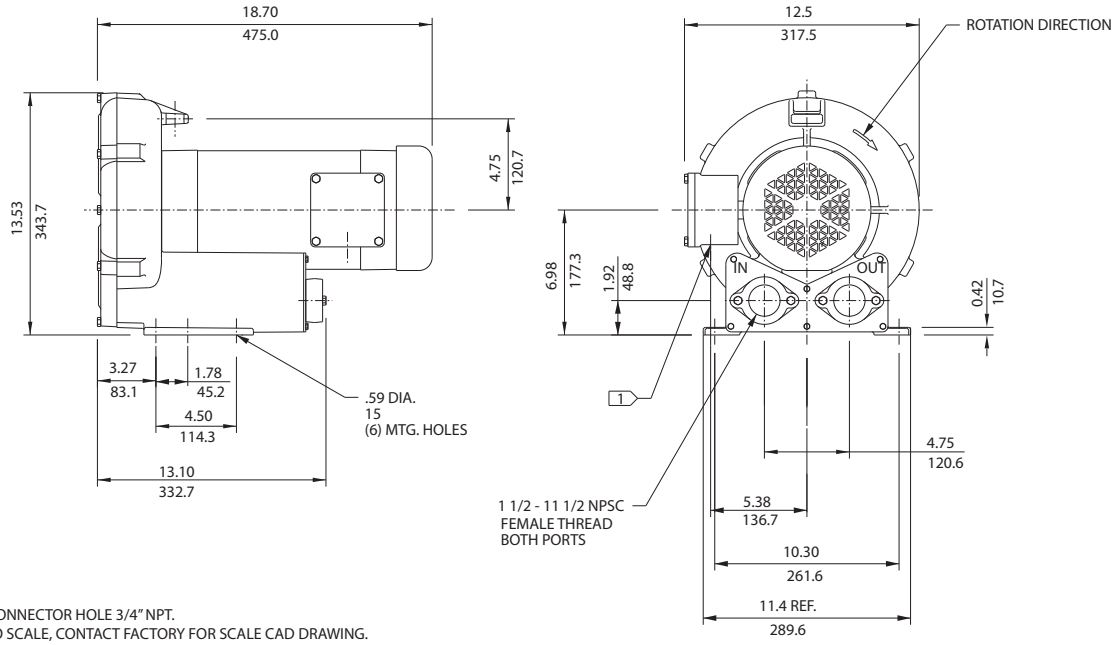
Description: Rotron Model EN454W72ML Regenerative Blower with 1.5HP 3PH 230/460V XP Motor
Max Vacuum 59” WC, Max Pressure 65” WC, Max Flow 120 SCFM

Environmental / Chemical Processing Blowers

ROTRON®

EN 454 & CP 454

1.5 HP Sealed Regenerative w/Explosion-Proof Motor



IN
MM

NOTES
1. TERMINAL BOX CONNECTOR HOLE 3/4" NPT.
2. DRAWING NOT TO SCALE, CONTACT FACTORY FOR SCALE CAD DRAWING.
3. CONTACT FACTORY FOR BLOWER MODEL LENGTHS NOT SHOWN.

		Part/ Model Number			
		EN454W58ML	EN454W72ML	CP454W72MLR	CP454FR72MLR
Specification	Units	080487	080488	080490	080494
Motor Enclosure - Shaft Mtl.	-	Explosion-proof-CS	Explosion-proof-CS	Chem XP-CS	Chem XP-SS
Horsepower	-	1.5	1.5	1.5	1.5
Phase - Frequency	-	Single-60 hz	Three-60 hz	Three-60 hz	Three-60 hz
Voltage	AC	115/208-230	230/460	230/460	230/460
Motor Nameplate Amps	Amps (A)	15/7.9-7.5	4.6/2.3	4.5/2.3	4.6/2.3
Max. Blower Amps	Amps (A)	19/10.9-9.5	5.6/2.8	5.6/2.8	5.6/2.8
Inrush Amps	Amps (A)	96-48	32/16	32/16	32/16
Service Factor	-	1.0	1.0	1.0	1.0
Starter Size	-	1/0	00/00	00/00	00/00
Thermal Protection	-	Class B - Pilot Duty	Class B - Pilot Duty	Class B - Pilot Duty	Class B - Pilot Duty
XP Motor Class - Group	-	I-D, II-F&G	I-D, II-F&G	I-D, II-F&G	I-D, II-F&G
Shipping Weight	Lbs	90	84	84	84
	Kg	40.8	38.1	38.1	38.1

Voltage - ROTRON motors are designed to handle a broad range of world voltages and power supply variations. Our dual voltage 3 phase motors are factory tested and certified to operate on both: **208-230/415-460 VAC-3 ph-60 Hz** and **190-208/380-415 VAC-3 ph-50 Hz**. Our dual voltage 1 phase motors are factory tested and certified to operate on both: **104-115/208-230 VAC-1 ph-60 Hz** and **100-110/200-220 VAC-1 ph-50 Hz**. All voltages above can handle a ±10% voltage fluctuation. Special wound motors can be ordered for voltages outside our certified range.

Operating Temperatures - Maximum operating temperature: Motor winding temperature (winding rise plus ambient) should not exceed 140°C for Class F rated motors or 120°C for Class B rated motors. Blower outlet air temperature should not exceed 140°C (air temperature rise plus inlet temperature). Performance curve maximum pressure and suction points are based on a 40°C inlet and ambient temperature. Consult factory for inlet or ambient temperatures above 40°C.

Maximum Blower Amps - Corresponds to the performance point at which the motor or blower temperature rise with a 40°C inlet and/or ambient temperature reaches the maximum operating temperature.

XP Motor Class - Group - See Explosive Atmosphere Classification Chart in Section I

AMETEK TECHNICAL & INDUSTRIAL PRODUCTS
75 North Street, Saugerties, NY 12477
USA: +1 215-256-6601 - Europe: +44 (0) 845 366 9664 - Asia: +86 21 5763 1258
Customer Service Fax: +1 215.256.1338
www.ametektip.com

AMETEK® TECHNICAL & INDUSTRIAL PRODUCTS

Environmental / Chemical Processing Blowers

EN 454 & CP 454

ROTRON®

1.5 HP Sealed Regenerative w/Explosion-Proof Motor

FEATURES

- Manufactured in the USA - ISO 9001 and NAFTA compliant
- Maximum flow: 120 SCFM
- Maximum pressure: 65 IWG
- Maximum vacuum: 59 IWG
- Standard motor: 1.5 HP, explosion-proof
- Cast aluminum blower housing, impeller , cover & manifold; cast iron flanges (threaded); teflon® lip seal
- UL & CSA approved motor with permanently sealed ball bearings for explosive gas atmospheres Class I Group D minimum
- Sealed blower assembly
- Quiet operation within OSHA standards

MOTOR OPTIONS

- International voltage & frequency (Hz)
- Chemical duty, high efficiency, inverter duty or industry-specific designs
- Various horsepowers for application-specific needs

BLOWER OPTIONS

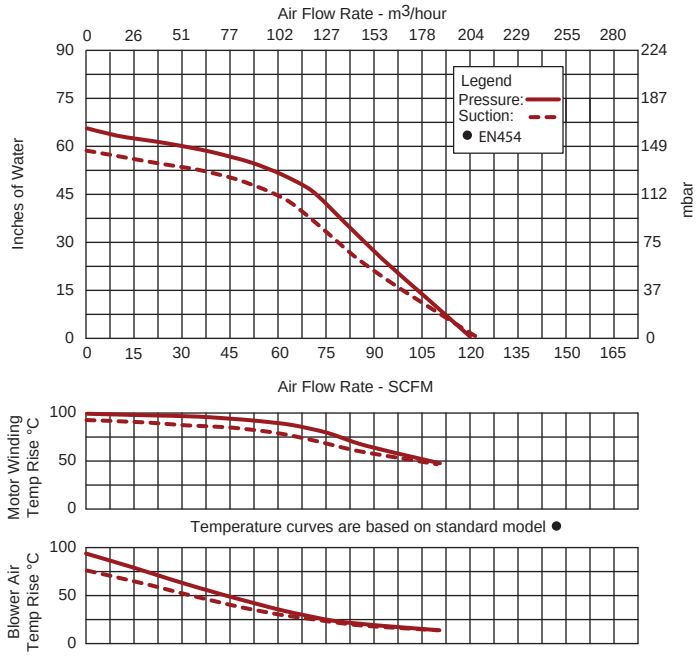
- Corrosion resistant surface treatments & sealing options
- Remote drive (motorless) models
- Slip-on or face flanges for application-specific needs

ACCESSORIES

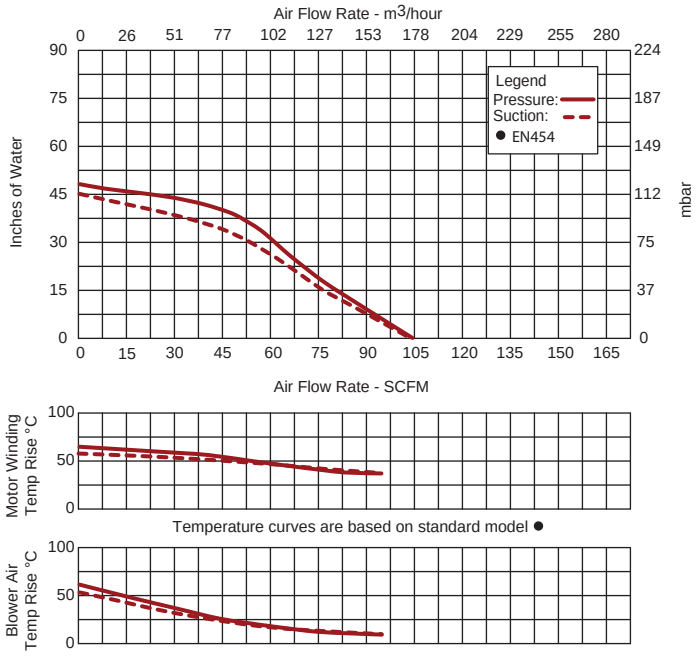
- Flowmeters reading in SCFM
- Filters & moisture separators
- Pressure gauges, vacuum gauges, & relief valves
- Switches - air flow, pressure, vacuum, or temperature
- External mufflers for additional silencing
- Air knives (used on blow-off applications)
- Variable frequency drive package

Blower Performance at Standard Conditions

60 Hz



50 Hz



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75 North Street, Saugerties, NY 12477
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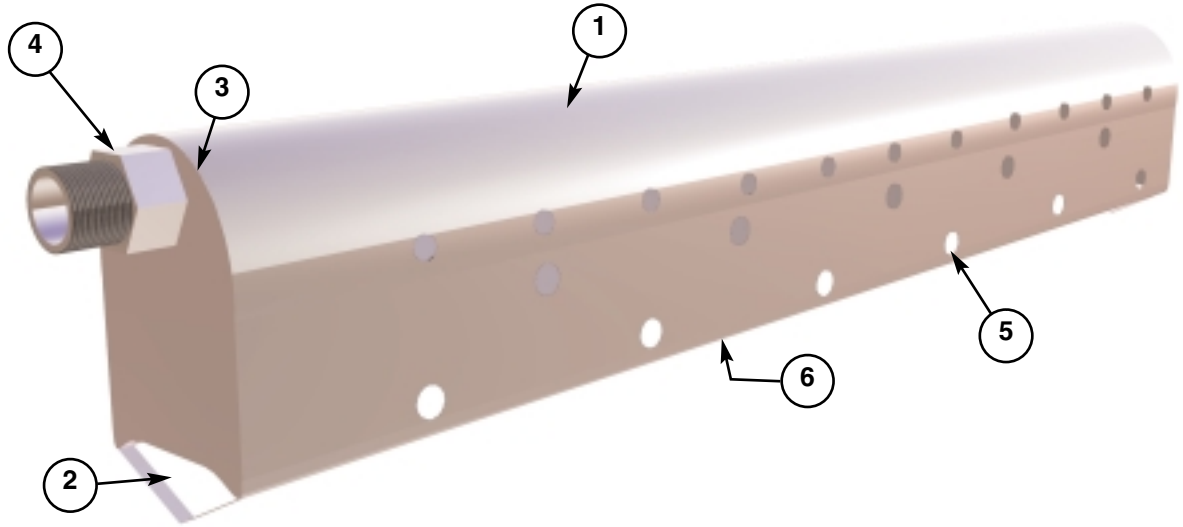
Customer Service Fax: +1 215.256.1338
www.ametektip.com

AMETEK®
TECHNICAL & INDUSTRIAL PRODUCTS

EDI MaxAir™ SS Diffuser

316 Stainless Steel



1. 316 stainless steel diffuser body
2. Purge for closed bottom option
3. Continuous weld
4. Integral hex nut
5. Diffuser orifices
6. Standard open bottom deflector

FEATURES & BENEFITS

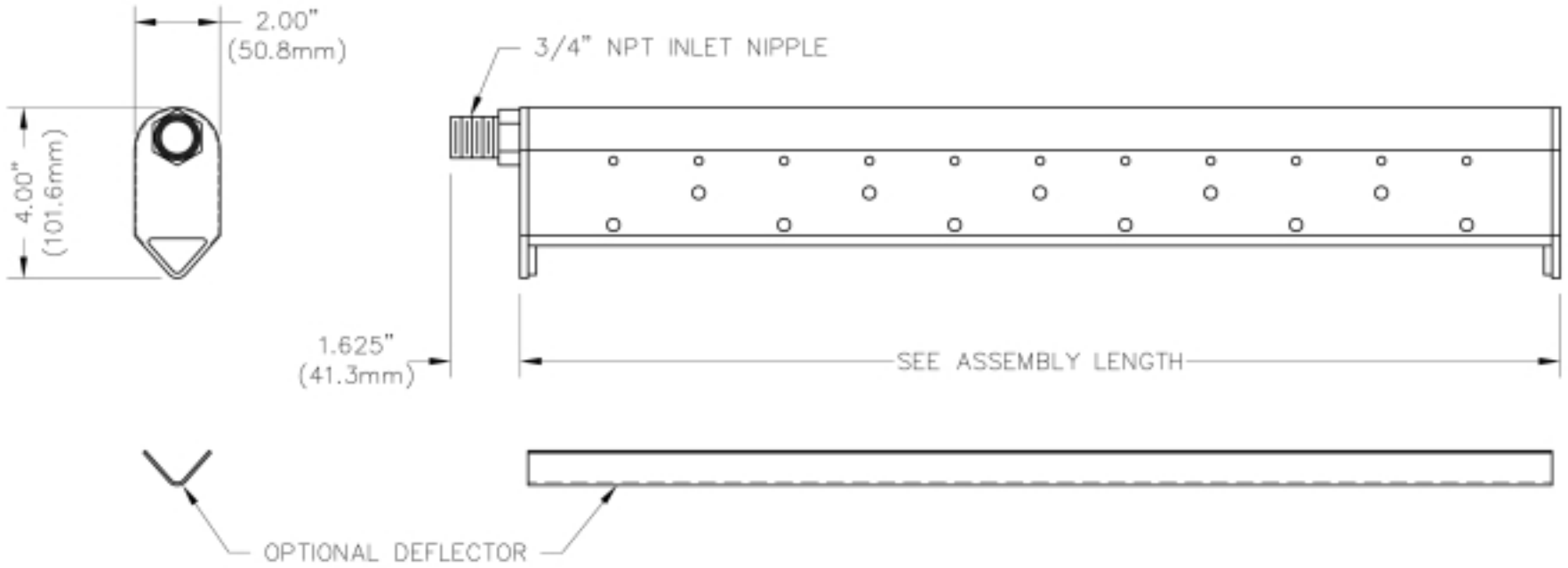
EDI's MaxAir SS stainless steel bubble diffusers offer proven design and are ideal for both mixing and aeration applications.

The MaxAir SS is available with either an open or closed bottom. The body is continuously welded to the ends for superior performance and years of service.

Compare the construction, performance and price of the EDI MaxAir SS with other wide band coarse bubble diffuser units on the market and you will agree that the MaxAir SS is the best value.

- All 316 stainless steel construction
- Proven design
- Open or closed bottom available
- Broad band coverage
- Heavy duty construction
- Superior Mixing
- Units in stock for immediate shipment

Hyxo Oy, Septek
P.O.Box 178 (Palokorvenkatu 2)
FI-04261 Kerava, Finland
Tel. +358 10 417 4300
Fax +358 10 417 4301
septek@septek.fi, www.septek.fi



Model	Unit Airflow Range scfm	Unit Airflow Range NM^3/hr	Design Airflow Range scfm	Design Airflow Range NM^3/hr	Unit DWP Range Inches H_2O	Assembly Length inches	Assembly Length mm	Dry Weight pounds	Dry Weight Kg
MaxAir 12 (Open Bottom)	0 - 30	0 - 51	0-18	0-30.6	0.5-2.9	12.4	314	1.5	0.68
MaxAir 24 (Open Bottom)	0 - 55	0 - 93.5	0-36	0-61.2	0.5-7.0	24.4	629	2.32	1.05
MaxAir 12 (w/ Deflector)	0 -30	0 - 51	0-18	0-30.6	0.5-2.9	12.4	314	1.76	0.80
MaxAir 24 (w/ Deflector)	0 - 55	0 - 93.5	0-36	0-61.2	0.5-7.0	24.4	629	2.64	1.20

MAXAIR™ S.S. COARSE BUBBLE DIFFUSER

SALES AND INSTALLATION DRAWING

SCALE: **N.T.S.**	ENG: **MJK**	DWN: **TEM**	DATE: **10–4–01**
REF.DWG:	REV.DATE:		REV:

ENVIRONMENTAL DYNAMICS INC.
COLUMBIA, MISSOURI USA

DWG.NO.
A–15627

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

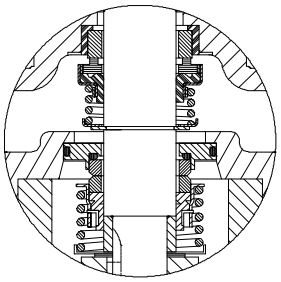
Liquid Level Control: *(See Sec. 130, Page 150.)*
a. Turtle Type Pressure Activated Level Switch.
b. .Float Activated Level Switch.
Staging Adapter Kit.

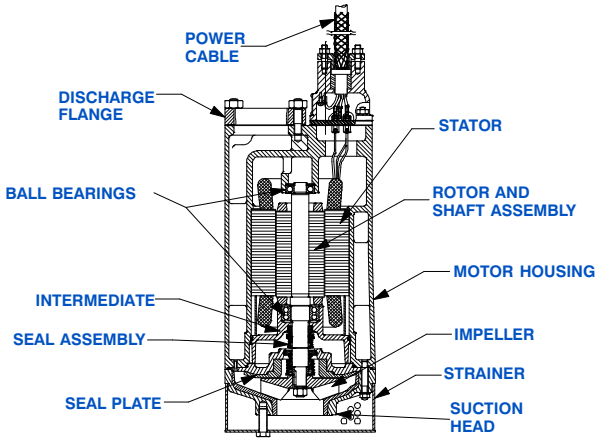
MOTOR/CABLE SPECIFICATIONS

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

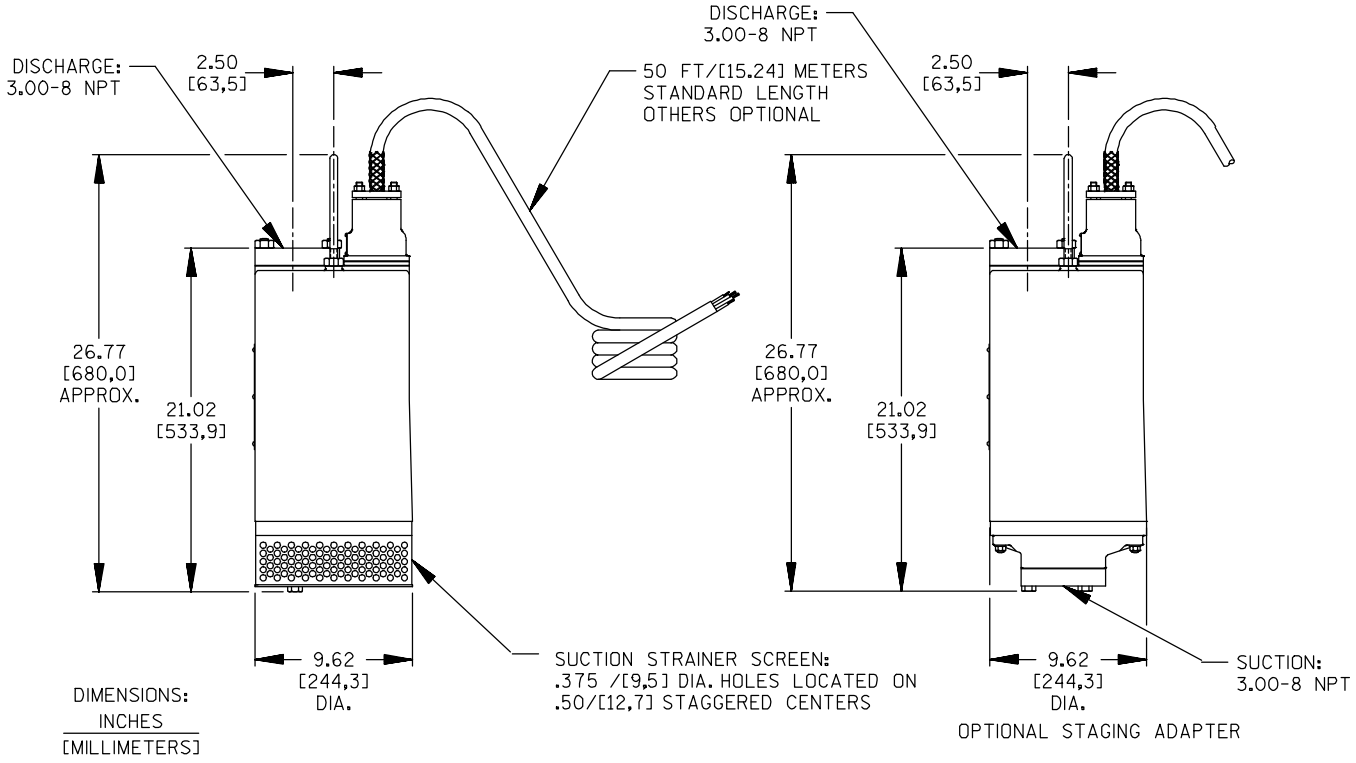
Tandem, Oil Lubricated.

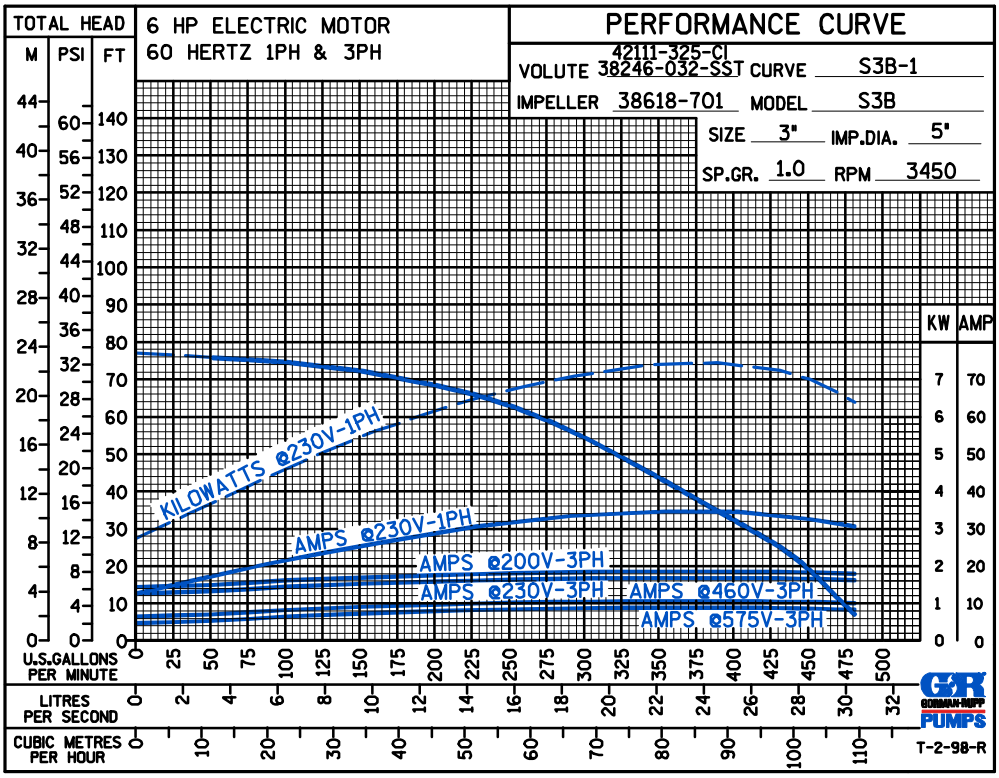
Upper Seal: Type 21, Mechanical. Carbon Rotating Face. Ni-Resist Stationary Face. Buna-N Elastomers. Stainless Steel 18-8 Cage and Spring.

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).*

Specification Data	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.)
SECTION 130, PAGE 660		





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

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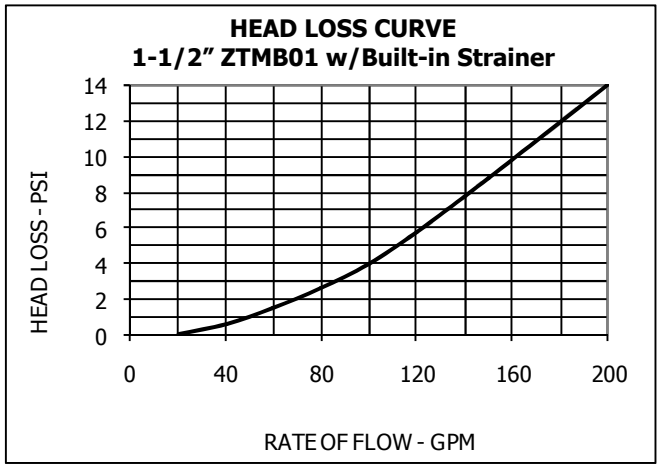
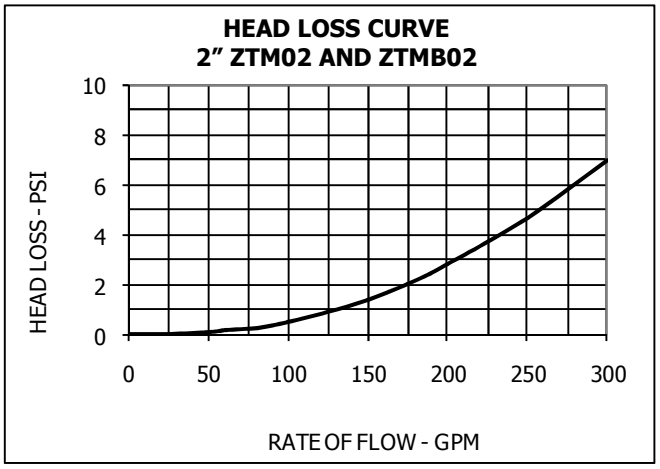
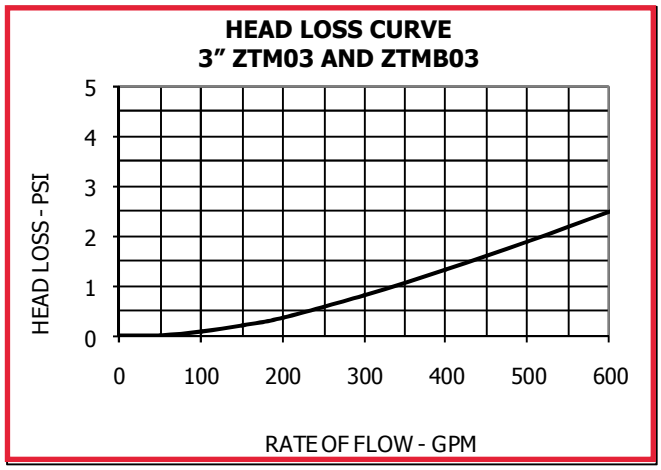
ZENNER ZTM and ZTMB Turbine Water Meters

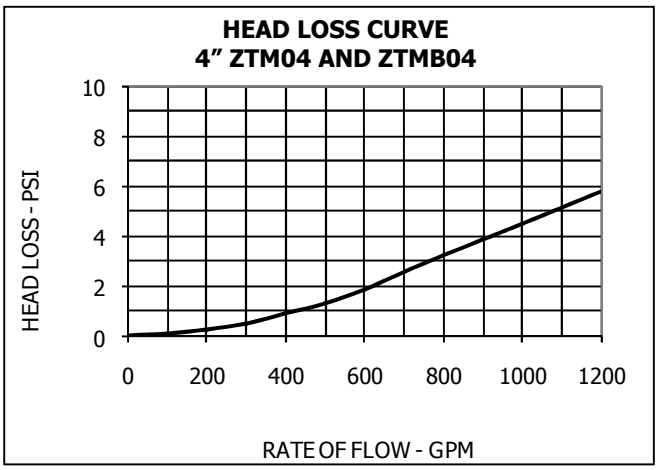
(Without Strainer)

Typical Head Loss Curves









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