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August 11, 2018

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)
Massachusetts Bay Transport Authority (MBTA)
Bus-Facility Shoreline Stabilization & Yard Improvements Project
80 Alford Street
Boston, Massachusetts

Dear Sir/Madam:

On behalf of Middlesex Corporation (Middlesex), Lockwood Remediation Technologies, LLC (LRT) has prepared this Notice of Intent (NOI) seeking a determination of coverage under the United States Environmental Protection Agency's (USEPA's) National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) in Massachusetts, MAG910000.

On August 2, 2018, the USEPA issued 14-day provisional coverage to Middlesex for an emergency discharge to Waters of the United States (WOTUS) under the terms of the RGP (#MAG910803) contingent upon 1) a completed NOI being submitted in accordance with RGP Part 3.3 within fourteen (14) days (August 15, 2018), and 2) that monitoring proceed for the duration of provisional coverage in accordance with the requirements specified in RGP Part 4.4 for short-term discharges.

For the purposes of the general permit, the Massachusetts Bay Transit Authority (MBTA) is considered the "Owner" of the discharge, and Middlesex is considered the "Operator". The completed NOI form is provided in **Appendix A**.

Background Site Information

The shoreline seawall of the MBTA Bus Facility located at 80 Alford Street in Charleston (Boston), Massachusetts (the Site) is currently failing. To restore the seawall, eroding soils must be stabilized and existing topographical/drainage features must be reconfigured. Since approximately the 1940s the Site has operated as a bus maintenance facility, but prior to that it was a coal gasification plant. Historic use of the property led its listing as a disposal site with the Massachusetts Department of Environmental Protection (MassDEP).

In July 2018, during seawall restoration activities, an oil sheen was discovered on surface water (the observed oil sheen was presumed to be associated with the historic release of coal tar disturbed during jet-grouting operations). This led to MassDEP's recent assignment of Release Tracking Number (RTN) 3-34991 to the Site. As such, current rehabilitation activities are taking place under an Immediate Response Action (IRA) Plan and with Licensed Site Professional (LSP) oversight in accordance with the provisions of the Massachusetts Contingency Plan, 310 CMR 40. Specifically, these activities are proceeding under the IRA Plan that was submitted to the MassDEP in July 2018 and the Supplemental IRA Information dated August 10, 2018. Strategic Environmental Services, Inc. (SES) of Sutton, MA is the LSP of Record for the Site.

Please refer to **Figure 1** for a Locus Map and an overview of the immediate area surrounding the Site. The Site work area is depicted in **Figure 2**.

Work Summary

Eroding seawall soils are being stabilized via jet grouting. Jet grouting takes place from a barge situated at the mouth of the Mystic River within the Boston Inner Harbor, just off the shoreline. The barge is surrounded by absorbent/ocean booms, a cofferdam (further described below), more absorbent booms and siltation netting. In addition to jet grouting, an embankment consisting of bio-engineered planting soil with plantings and riprap revetment is to be constructed at the Site. During construction, new drainage utilities, including deep sump catch basins, new headwalls and outfall pipes, sluice gates, and rain gardens are also going to be installed along the landside of the Site. The following structures will also be incorporated into the seawall rehabilitation effort: fencing, cameras, lighting foundations, poles and luminaries, and paving for a bike path.

To minimize the potential for the discharge of Site contaminants to WOTUS above RGP effluent limitations, jet grouting operations are taking place within a sealed cofferdam. The cofferdam is constructed of steel sheet piles and has several windows cut out near the mean low water elevation to allow water to flow into and out of the cofferdam; these windows are needed to equalize the water pressure on the cofferdam walls. The windows nearest the jet grouting operations are kept closed so that water can only to flow into and out of the cofferdam away from the jet grouting operations (at low tide, water within the cofferdam is isolated from the harbor).

Under normal conditions, jet grouting operations generate grouted soil spoils that can impact the Total Suspended Solids (TSS) content and pH of the water inside the sealed cofferdam. Since jet grouting techniques at the Site incorporate the use of MWRA hydrant water to produce slurry, Total Residual Chlorine (TRC) is anticipated to be present in the source water. As such, pH will be adjusted as needed and as described below, and TRC and TSS are "believed present" for the purposes of this NOI.

NOI Sampling Considerations

Influent

In support of this NOI, grab samples were collected from within the cofferdam near the jet grouting operations at low tide. Samples were submitted to Contest Analytical (ConTest) of East Longmeadow,

Massachusetts for analysis of Known Contaminants listed in NPDES RGP Activity Category VIII.G and using EPA-designated Sufficiently Sensitive Test Methods when possible. The laboratory report is included in **Appendix C**. Analytical Methods and MLs can be found in the NOI, which is included in **Appendix A**.

The analytical results for the sampling identified concentrations of cyanide and total petroleum hydrocarbons (TPH) below applicable WQBEL or TBEL based Effluent Limitations. Chloride, a monitor-only parameter, was also detected. **Appendix A** contains the NOI detailing the highest concentration of the detected parameters and the corresponding maximum daily concentrations.

Receiving Water

Receiving water, which is the Boston Inner Harbor, was grab-sampled during low tide at a location “upstream” of the cofferdam window. Samples were submitted to Contest and analyzed for pH, temperature, ammonia, and salinity per the requirements of the RGP.

Additional Considerations

Given that the discharge is to last for less than 12 months, the need for Whole Effluent Toxicity (WET) Testing is not anticipated, unless specifically requested by USEPA. Since the Site has an RTN, a BWR WM15 Form is not required for the NOI.

Water Treatment System

Appendix A includes treatment system information and **Figure 3** and **Appendix B** provides treatment system schematics as required by Appendix IV Part I.E. Since a pH adjustment system is being utilized to maintain an effluent pH between 6.5-8.5 S.U., additional information is provided below.

The intake to the water treatment system will be placed within the cofferdam in the immediate vicinity of the jet grouting operations and within the IRA area that is contained by the absorbent/ocean booms. Source water (generated from the cofferdam) will be pumped to a water treatment system capable of treating up to 500 gallons per minute (gpm). This “influent” water will be pumped through one (1) multi bag filter skid with two (2) multi bag filters in parallel such that one bag filter vessel can be operated while the other remains in standby. From the bag filters, water is passed through two (2) inline vessels, each containing 10,000 pounds of reactivated liquid phase carbon. Following the carbon vessels water will flow through one (1) flow meter/totalizer prior to entering one (1) 21,000-gallon effluent frac tank containing a pH adjustment system. The pH adjustment system will maintain the pH to meet either neutral or existing background conditions. Treated effluent water will be discharged within the cofferdam outside of the IRA area between the active jet grouting operations and the nearest open window in the cofferdam (within the Boston Inner Harbor). After treated water is discharged, and when the tide is at the appropriate elevation, treated water can then pass into the harbor through the cofferdam window. More adsorbent booms surround the cofferdam window, and the entire cofferdam is surrounded by siltation netting. The siltation netting is the last line of treatment, therefore effluent samples will be collected outside of the siltation netting.

Figure 2 provides an aerial view of the treatment process and the proposed water treatment system schematic is included as **Figure 3**. Cutsheets for the water treatment system are attached as **Appendix B**.

The pH adjustment portion of the water treatment system uses sulfuric acid dosing to reduce pH via a metered system. Product information, including chemical formula, Safety Data Sheets (SDS), CAS registry number, manufacturer, and associated hazards, toxicological and ecological information, and manufacturer information, including dosing and metering, are provided in **Appendix B**. Sulfuric acid will be stored in 55-gallon drums with secondary containment systems in place. The addition of sulfuric acid 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.

If needed, as indicated by effluent sampling results, additional treatment processes will be included to meet the effluent limitations specified in EPA's written discharge authorization. Appropriate administrative actions following Corrective Actions, including submission of a Notice of Change and Best Management Practices Plan (BMPP) modifications, will be conducted as required. Annual BMPP certifications will be completed and kept onsite in accordance with RGP requirements.

Consultation with Federal Services

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

Coverage under NPDES RGP

On behalf of Middlesex, we are requesting a determination of coverage under the NPDES RGP for the discharge of treated wastewater to the Boston Inner Harbor in support of seawall restoration activities.

A 2017 RGP NOI Form has been prepared in support of this submittal and is provided in **Appendix A**. **Figure 2** details the receiving water and discharge information, as required by Appendix IV Part I.B and I.D. The certification requirements specified in Appendix IV Part I.J have been completed in the NOI Form itself, and the form has been signed by the Operator. In addition, Chemical Additive Information, along with the written rationale required by Appendix IV Part I.F of this general permit are included herein and in **Appendix B**.

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

Kim Gravelle

Kim Gravelle, PG
Project Manager

Paul Lockwood

Paul Lockwood
President

Encl: Figure 1 Locus Plan
Figure 2 Sample and Discharge Location
Figure 3 Water Treatment System Schematic
Appendix A – NOI Form
Appendix B – Water Treatment System Information
Appendix C – Laboratory Data
Appendix D – Supporting Documentation

Figures



Source: Base Map from MassGIS - OLIVER: Boston South - Massachusetts

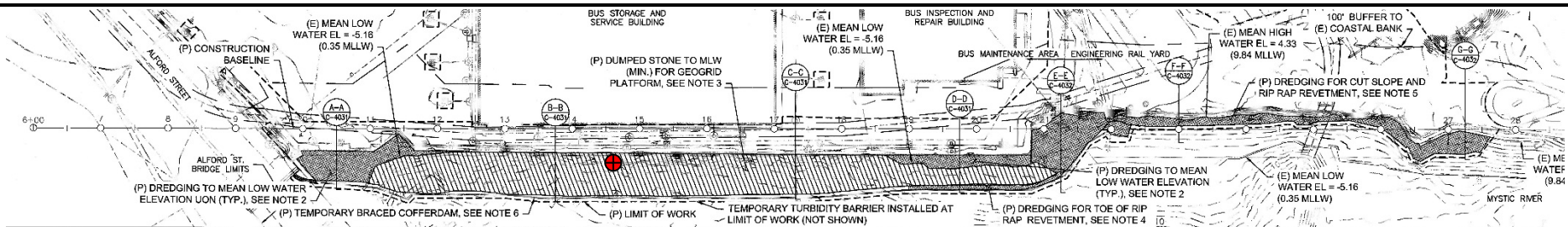
Notes

1. Figure is not to scale.

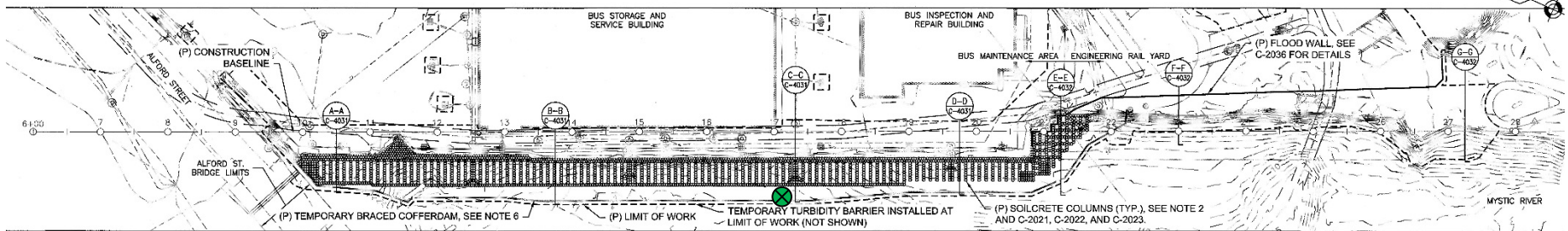


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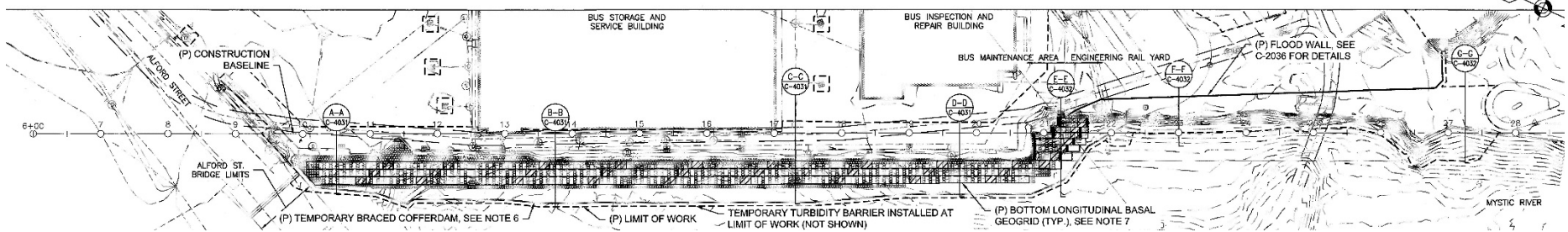
Figure 1 – Locus Plan
MBTA Bus Facility
80 Alford Street
Boston, Massachusetts



PROPOSED SHORELINE PREPARATION PLAN
SEE C-4021 TO C-4029 FOR PROPOSED SHORELINE PREPARATION SECTIONS



PROPOSED SHORELINE SOIL IMPROVEMENT PLAN
SEE C-2021 TO C-4023 AND C-8021 FOR DETAILS



Source: Proposed Shoreline Sequencing Plan, by Simpson Gumphertz and Heger, dated May 2017

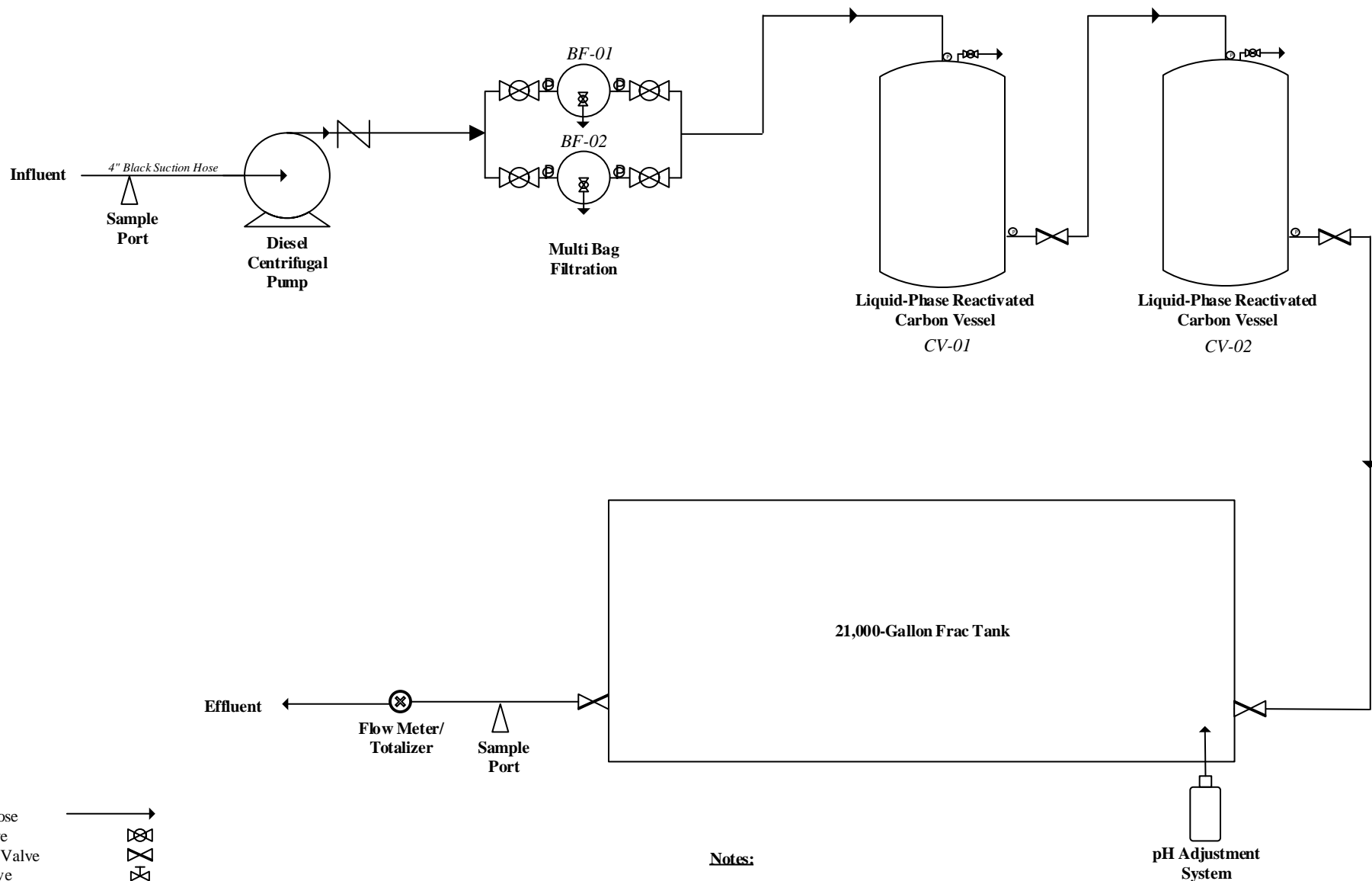
KEY

Sample Location ●
Discharge Location ⊗



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Figure 2 – Sample and Discharge Locations
MBTA Bus Facility
80 Alford Street
Boston, Massachusetts



Key:

- Piping/Hose
- Ball Valve
- Butterfly Valve
- Gate Valve
- Bleed Valve Assembly
- Pressure Gauge
- Sample Port

Notes:

- 1.) Figure is not to scale
- 2.) System rated for 500 GPM
- 3.) Sampling ports located on all treatment system components



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

DESIGNED BY: LRT

DRAWN BY: B. Watkins

CHECKED BY: KG

DATE:

Water Treatment System Schematic

MBTA Bus Facility
80 Alford Street
Boston, MA

PROJECT No.
2-1652

FIGURE No.
3

Appendix A
NOI Form

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

A. General site information:

1. Name of site: Massachusetts Bay Transportation Authority (MBTA) Bus Maintenance Facility	Site address: 80 Street: Alford Street		
2. Site owner MBTA Owner is (check one): <input type="checkbox"/> Federal <input checked="" type="checkbox"/> State/Tribal <input type="checkbox"/> Private <input type="checkbox"/> Other; if so, specify:	City: Charlestown	State: MA	Zip: 02129
3. Site operator, if different than owner Middlesex Corporation	Contact Person: Holly Palmgren Telephone: (617) 222-1580 Email: hpalmgren@mbta.com		
4. NPDES permit number assigned by EPA: MAG910803 NPDES permit is (check all that apply): <input checked="" type="checkbox"/> RGP <input type="checkbox"/> DGP <input type="checkbox"/> CGP <input type="checkbox"/> MSGP <input type="checkbox"/> Individual NPDES permit <input type="checkbox"/> Other; if so, specify:	Mailing address: 100 Street: Summer Street, Suite 1200 City: Boston State: MA Zip: 02110 5. Other regulatory program(s) that apply to the site (check all that apply): <div style="display: flex; justify-content: space-between;"> <div> <input checked="" type="checkbox"/> MA Chapter 21e; list RTN(s): 3-34991 <input type="checkbox"/> NH Groundwater Management Permit or Groundwater Release Detection Permit: </div> <div> <input type="checkbox"/> CERCLA <input type="checkbox"/> UIC Program <input type="checkbox"/> POTW Pretreatment <input type="checkbox"/> CWA Section 404 </div> </div>		

B. Receiving water information:

1. Name of receiving water(s): Boston Inner Harbor	Waterbody identification of receiving water(s): MA70-02	Classification of receiving water(s): SB(CSO)
Receiving water is (check any that apply): <input type="checkbox"/> Outstanding Resource Water <input type="checkbox"/> Ocean Sanctuary <input type="checkbox"/> territorial sea <input type="checkbox"/> Wild and Scenic River		
2. Has the operator attached a location map in accordance with the instructions in B, above? (check one): <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Are sensitive receptors present near the site? (check one): <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, specify:		
3. Indicate if the receiving water(s) is listed in the State's Integrated List of Waters (i.e., CWA Section 303(d)). Include which designated uses are impaired, and any pollutants indicated. Also, indicate if a final TMDL is available for any of the indicated pollutants. For more information, contact the appropriate State as noted in Part 4.6 of the RGP. Enterococcus, Fecal Coliform, Other, Dissolved Oxygen, PCBs in fish, Ammonia, Foam/Flocs/Scum/Oil Slicks, Petroleum Hydrocarbons, Sediment Oxygen Demand, Taste and Odor		
4. Indicate the seven day-ten-year low flow (7Q10) of the receiving water determined in accordance with the instructions in Appendix V for sites located in Massachusetts and Appendix VI for sites located in New Hampshire.		NA (saltwater)
5. Indicate the requested dilution factor for the calculation of water quality-based effluent limitations (WQBELs) determined in accordance with the instructions in Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire.		1
6. Has the operator received confirmation from the appropriate State for the 7Q10 and dilution factor indicated? (check one): <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, indicate date confirmation received: DISCHARGE TO SALTWATER; NO DILUTION REQUESTED		
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): <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

C. Source water information:

1. Source water(s) is (check any that apply):			
<input checked="" type="checkbox"/> 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): <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> 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): <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> The receiving water	<input checked="" type="checkbox"/> Potable water; if so, indicate municipality or origin:
		<input type="checkbox"/> A surface water other than the receiving water; if so, indicate waterbody:	MWRA <input type="checkbox"/> Other; if so, specify:

2. Source water contaminants: Cyandine, Group II PAHs, TPH, TSS, TRC, Enterococcus, Fecal Coliform, Other, Dissolved Oxygen, PCBs in fish, Ammonia, F	
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): <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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): <input type="checkbox"/> Yes <input type="checkbox"/> No
3. Has the source water been previously chlorinated or otherwise contains residual chlorine? (check one): <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

D. Discharge information

1. The discharge(s) is a(n) (check any that apply): <input type="checkbox"/> Existing discharge <input checked="" type="checkbox"/> New discharge <input type="checkbox"/> New source	
Outfall(s): Boston Inner Harbor	Outfall location(s): (Latitude, Longitude) 42.389629, -71.073464
<p>Discharges enter the receiving water(s) via (check any that apply): <input checked="" type="checkbox"/> Direct discharge to the receiving water <input type="checkbox"/> Indirect discharge, if so, specify:</p> <p>Cofferdam within Boston Inner Harbor</p> <p><input type="checkbox"/> A private storm sewer system <input type="checkbox"/> A municipal storm sewer system</p> <p>If the discharge enters the receiving water via a private or municipal storm sewer system:</p> <p>Has notification been provided to the owner of this system? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Has the operator has received permission from the owner to use such system for discharges? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No, if so, explain, with an estimated timeframe for obtaining permission:</p> <p>Has the operator attached a summary of any additional requirements the owner of this system has specified? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	
Provide the expected start and end dates of discharge(s) (month/year): August 2018 - December 2018	
Indicate if the discharge is expected to occur over a duration of: <input checked="" type="checkbox"/> less than 12 months <input type="checkbox"/> 12 months or more <input type="checkbox"/> is an emergency discharge	
Has the operator attached a site plan in accordance with the instructions in D, above? (check one): <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

2. Activity Category: (check all that apply)	3. Contamination Type Category: (check all that apply)	
<input type="checkbox"/> I – Petroleum-Related Site Remediation <input type="checkbox"/> II – Non-Petroleum-Related Site Remediation <input type="checkbox"/> III – Contaminated Site Dewatering <input type="checkbox"/> IV – Dewatering of Pipelines and Tanks <input type="checkbox"/> V – Aquifer Pump Testing <input type="checkbox"/> VI – Well Development/Rehabilitation <input type="checkbox"/> VII – Collection Structure Dewatering/Remediation <input checked="" type="checkbox"/> VIII – Dredge-Related Dewatering	a. If Activity Category I or II: (check all that apply) <input type="checkbox"/> A. Inorganics <input type="checkbox"/> B. Non-Halogenated Volatile Organic Compounds <input type="checkbox"/> C. Halogenated Volatile Organic Compounds <input type="checkbox"/> D. Non-Halogenated Semi-Volatile Organic Compounds <input type="checkbox"/> E. Halogenated Semi-Volatile Organic Compounds <input type="checkbox"/> F. Fuels Parameters	
	b. If Activity Category III, IV, V, VI, VII or VIII: (check either G or H)	
	<input checked="" type="checkbox"/> G. Sites with Known Contamination	<input type="checkbox"/> H. Sites with Unknown Contamination
	c. If Category III-G, IV-G, V-G, VI-G, VII-G or VIII-G: (check all that apply) <input checked="" type="checkbox"/> A. Inorganics <input type="checkbox"/> B. Non-Halogenated Volatile Organic Compounds <input type="checkbox"/> C. Halogenated Volatile Organic Compounds <input checked="" type="checkbox"/> D. Non-Halogenated Semi-Volatile Organic Compounds <input type="checkbox"/> E. Halogenated Semi-Volatile Organic Compounds <input checked="" type="checkbox"/> F. Fuels Parameters	d. If Category III-H, IV-H, V-H, VI-H, VII-H or VIII-H Contamination Type Categories A through F apply

4. Influent and Effluent Characteristics

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit ($\mu\text{g/l}$)	Influent		Effluent Limitations	
						Daily maximum ($\mu\text{g/l}$)	Daily average ($\mu\text{g/l}$)	TBEL	WQBEL
A. Inorganics									
Ammonia	✓		1	4500	24	<75		Report mg/L	---
Chloride		✓	1	300.0	600000	18500000		Report $\mu\text{g/l}$	---
Total Residual Chlorine		✓						0.2 mg/L	7.5 $\mu\text{g/L}$
Total Suspended Solids		✓						30 mg/L	---
Antimony	✓							206 $\mu\text{g/L}$	
Arsenic	✓							104 $\mu\text{g/L}$	
Cadmium	✓							10.2 $\mu\text{g/L}$	
Chromium III	✓							323 $\mu\text{g/L}$	
Chromium VI	✓							323 $\mu\text{g/L}$	
Copper	✓							242 $\mu\text{g/L}$	
Iron	✓							5,000 $\mu\text{g/L}$	
Lead	✓							160 $\mu\text{g/L}$	
Mercury	✓							0.739 $\mu\text{g/L}$	
Nickel	✓							1,450 $\mu\text{g/L}$	
Selenium	✓							235.8 $\mu\text{g/L}$	
Silver	✓							35.1 $\mu\text{g/L}$	
Zinc	✓							420 $\mu\text{g/L}$	
Cyanide		✓	1	4500 CN	1	3		178 mg/L	1 $\mu\text{g/L}$
B. Non-Halogenated VOCs									
Total BTEX	✓							100 $\mu\text{g/L}$	---
Benzene	✓							5.0 $\mu\text{g/L}$	---
1,4 Dioxane	✓							200 $\mu\text{g/L}$	---
Acetone	✓							7.97 mg/L	---
Phenol	✓							1,080 $\mu\text{g/L}$	

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	✓							4.4 µg/L	
1,2 Dichlorobenzene	✓							600 µg/L	---
1,3 Dichlorobenzene	✓							320 µg/L	---
1,4 Dichlorobenzene	✓							5.0 µg/L	---
Total dichlorobenzene	✓							763 µg/L in NH	---
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	
cis-1,2 Dichloroethylene	✓							70 µg/L	---
Vinyl Chloride	✓							2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates	✓							190 µg/L	
Diethylhexyl phthalate	✓							101 µg/L	
Total Group I PAHs	✓							1.0 µg/L	---
Benzo(a)anthracene	✓							As Total PAHs	
Benzo(a)pyrene	✓								
Benzo(b)fluoranthene	✓								
Benzo(k)fluoranthene	✓								
Chrysene	✓								
Dibenzo(a,h)anthracene	✓								
Indeno(1,2,3-cd)pyrene									

[illegible]

E. Treatment system information

<p>1. Indicate the type(s) of treatment that will be applied to effluent prior to discharge: (check all that apply)</p> <p> <input checked="" type="checkbox"/> Adsorption/Absorption <input type="checkbox"/> Advanced Oxidation Processes <input type="checkbox"/> Air Stripping <input checked="" type="checkbox"/> Granulated Activated Carbon (“GAC”)/Liquid Phase Carbon Adsorption <input type="checkbox"/> Ion Exchange <input type="checkbox"/> Precipitation/Coagulation/Flocculation <input checked="" type="checkbox"/> Separation/Filtration <input checked="" type="checkbox"/> Other; if so, specify: pH Adjustment System is included with the water treatment system. </p>	
<p>2. Provide a written description of all treatment system(s) or processes that will be applied to the effluent prior to discharge.</p> <p>Collected water is routed through a multi-bag filter skid to remove suspended solids and undissolved chemical constituents. From the bag filters, water is discharged to two (2) vessels each containing 10,000 pounds of reactivated liquid phase carbon. Following the carbon vessels water will flow through one (1) 21,000-gallon effluent frac tank containing a pH adjustment system. Water will then flow through one (1) flow meter/totalizer prior to discharge.</p> <p>Identify each major treatment component (check any that apply):</p> <p> <input checked="" type="checkbox"/> Fractionation tanks <input type="checkbox"/> Equalization tank <input type="checkbox"/> Oil/water separator <input type="checkbox"/> Mechanical filter <input type="checkbox"/> Media filter <input type="checkbox"/> Chemical feed tank <input type="checkbox"/> Air stripping unit <input checked="" type="checkbox"/> Bag filter <input checked="" type="checkbox"/> Other; if so, specify: pH Adjustment system included. </p> <p>Indicate if either of the following will occur (check any that apply):</p> <p> <input type="checkbox"/> Chlorination <input type="checkbox"/> De-chlorination </p>	
<p>3. Provide the design flow capacity in gallons per minute (gpm) of the most limiting component.</p> <p>Indicate the most limiting component: flowmeter</p> <p>Is use of a flow meter feasible? (check one): <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No, if so, provide justification:</p>	<p>500 gpm</p>
<p>Provide the proposed maximum effluent flow in gpm.</p>	<p>500 gpm</p>
<p>Provide the average effluent flow in gpm.</p>	<p>300 gpm</p>
<p>If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:</p>	<p>NA</p>
<p>4. Has the operator attached a schematic of flow in accordance with the instructions in E, above? (check one): <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	

F. Chemical and additive information

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

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

2. Provide the following information for each chemical/additive, using attachments, if necessary:

See attached cover letter

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

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

G. Endangered Species Act eligibility determination

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

- ☒ **FWS Criterion A:** No endangered or threatened species or critical habitat are in proximity to the discharges or related activities or come in contact with the “action area”.
- ☐ **FWS Criterion B:** Formal or informal consultation with the FWS under section 7 of the ESA resulted in either a no jeopardy opinion (formal consultation) or a written concurrence by FWS on a finding that the discharges and related activities are “not likely to adversely affect” listed species or critical habitat (informal consultation). Has the operator completed consultation with FWS? (check one): ☐ Yes ☐ No; if no, is consultation underway? (check one): ☐ Yes ☐ No
- ☐ **FWS Criterion C:** Using the best scientific and commercial data available, the effect of the discharges and related activities on listed species and critical habitat have been evaluated. Based on those evaluations, a determination is made by EPA, or by the operator and affirmed by EPA, that the discharges and related activities will have “no effect” on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the FWS. This determination was made by: (check one) ☐ the operator ☐ EPA ☐ Other; if so, specify:

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

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

Please also note the following: 1) Not discharging to any of the restricted Four Rivers. 2) The discharge is to a marine environment. 3) Agree with the USEPA concurrent with NMFS that the discharge is not likely to result in the take of any species. 4) Have not had any direct consultation with the NMFS.

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

H. National Historic Preservation Act eligibility determination

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

- ☐ **Criterion A:** No historic properties are present. The discharges and discharge-related activities (e.g., BMPs) do not have the potential to cause effects on historic properties.
- ☐ **Criterion B:** Historic properties are present. Discharges and discharge related activities do not have the potential to cause effects on historic properties.
- ☐ **Criterion C:** Historic properties are present. The discharges and discharge-related activities have the potential to have an effect or will have an adverse effect on historic properties.

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

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

I. Supplemental information

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

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

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

J. Certification requirement

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

A BMPP Meeting the general requirements of this permit will be implemented at the site.
BMPP certification statement:

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:

8/13/18

Print Name and Title:

Evan T. McCormick, Sr. Project Mgr. Middlesex Corp

Enter number values in green boxes below

Enter values in the units specified

↓	
0	Q _R = Enter upstream flow in MGD
0.432	Q _P = Enter discharge flow in MGD
0	Downstream 7Q10

Enter a dilution factor, if other than zero

↓
0

Enter values in the units specified

↓	
50	C _d = Enter influent hardness in mg/L CaCO₃
20	C _s = Enter receiving water hardness in mg/L CaCO₃

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

↓	
7.4	pH in Standard Units
23.2	Temperature in °C
0	Ammonia in mg/L
0	Hardness in mg/L CaCO₃
28.7	Salinity in ppt
0	Antimony in µg/L
0	Arsenic in µg/L
0	Cadmium in µg/L
0	Chromium III in µg/L
0	Chromium VI in µg/L
0	Copper in µg/L
0	Iron in µg/L
0	Lead in µg/L
0	Mercury in µg/L
0	Nickel in µg/L
0	Selenium in µg/L
0	Silver in µg/L
0	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
0	Arsenic in µg/L
0	Cadmium in µg/L
0	Chromium III in µg/L
0	Chromium VI in µg/L
0	Copper in µg/L
0	Iron in µg/L
0	Lead in µg/L
0	Mercury in µg/L
0	Nickel in µg/L
0	Selenium in µg/L
0	Silver in µg/L
0	Zinc in µg/L
3	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
0	Benzo(a)anthracene in µg/L
0	Benzo(a)pyrene in µg/L
0	Benzo(b)fluoranthene in µg/L
0	Benzo(k)fluoranthene in µg/L
0	Chrysene in µg/L
0	Dibenzo(a,h)anthracene in µg/L
0	Indeno(1,2,3-cd)pyrene in µg/L
0	Methyl-tert butyl ether in µg/L

Notes:Freshwater: Q_R equal to the 7Q10; enter alternate Q_R if approved by the State; enter 0 if no dilution factor approvedSaltwater (estuarine and marine): enter Q_R if approved by the State; enter 0 if no entry

Discharge flow is equal to the design flow or 1 MGD, whichever is less

Only if approved by State as the entry for Q_R; leave 0 if no entry

Saltwater (estuarine and marine): only if approved by the State

Leave 0 if no entry

Freshwater only

pH, temperature, and ammonia required for all discharges

Hardness required for freshwater

Salinity required for saltwater (estuarine and marine)

Metals required for all discharges if present and if dilution factor is > 1

Enter 0 if non-detect or testing not required

if >1 sample, enter maximum

if >10 samples, may enter 95th percentile

Enter 0 if non-detect or testing not required

Dilution Factor	0.0					
	TBEL applies if bolded		WQBEL applies if bolded		Compliance Level applies if shown	
A. Inorganics						
Ammonia	Report	mg/L	---			
Chloride	Report	µg/L	---			
Total Residual Chlorine	0.2	mg/L	7.5	µg/L	50	µg/L
Total Suspended Solids	30	mg/L	---			
Antimony	206	µg/L	640	µg/L		
Arsenic	104	µg/L	36	µg/L		
Cadmium	10.2	µg/L	8.9	µg/L		
Chromium III	323	µg/L	100.0	µg/L		
Chromium VI	323	µg/L	50	µg/L		
Copper	242	µg/L	3.7	µg/L		
Iron	5000	µg/L	---	µg/L		
Lead	160	µg/L	8.5	µg/L		
Mercury	0.739	µg/L	1.11	µg/L		
Nickel	1450	µg/L	8.3	µg/L		
Selenium	235.8	µg/L	71	µg/L		
Silver	35.1	µg/L	2.2	µg/L		
Zinc	420	µg/L	86	µg/L		
Cyanide	178	mg/L	1.0	µg/L	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	300	µg/L		
C. Halogenated VOCs						
Carbon Tetrachloride	4.4		1.6	µg/L		
1,2 Dichlorobenzene	600	µg/L	---			
1,3 Dichlorobenzene	320	µg/L	---			
1,4 Dichlorobenzene	5.0	µg/L	---			
Total dichlorobenzene	---	µg/L	---			
1,1 Dichloroethane	70	µg/L	---			
1,2 Dichloroethane	5.0	µg/L	---			
1,1 Dichloroethylene	3.2	µg/L	---			
Ethylene Dibromide	0.05	µg/L	---			
Methylene Chloride	4.6	µg/L	---			
1,1,1 Trichloroethane	200	µg/L	---			
1,1,2 Trichloroethane	5.0	µg/L	---			
Trichloroethylene	5.0	µg/L	---			
Tetrachloroethylene	5.0	µg/L	3.3	µg/L		
cis-1,2 Dichloroethylene	70	µg/L	---			
Vinyl Chloride	2.0	µg/L	---			

D. Non-Halogenated SVOCs

Total Phthalates	190	µg/L	---	µg/L		
Diethylhexyl phthalate	101	µg/L	2.2	µg/L		
Total Group I Polycyclic Aromatic Hydrocarbons	1.0	µg/L	---			
Benzo(a)anthracene	1.0	µg/L	0.0038	µg/L	---	µg/L
Benzo(a)pyrene	1.0	µg/L	0.0038	µg/L	---	µg/L
Benzo(b)fluoranthene	1.0	µg/L	0.0038	µg/L	---	µg/L
Benzo(k)fluoranthene	1.0	µg/L	0.0038	µg/L	---	µg/L
Chrysene	1.0	µg/L	0.0038	µg/L	---	µg/L
Dibenzo(a,h)anthracene	1.0	µg/L	0.0038	µg/L	---	µg/L
Indeno(1,2,3-cd)pyrene	1.0	µg/L	0.0038	µg/L	---	µg/L
Total Group II Polycyclic Aromatic Hydrocarbons	100	µg/L	---			
Naphthalene	20	µg/L	---			

E. Halogenated SVOCs

Total Polychlorinated Biphenyls	0.000064	µg/L	---		0.5	µg/L
Pentachlorophenol	1.0	µg/L	---			

F. Fuels Parameters

Total Petroleum Hydrocarbons	5.0	mg/L	---			
Ethanol	Report	mg/L	---			
Methyl-tert-Butyl Ether	70	µg/L	20	µg/L		
tert-Butyl Alcohol	120	µg/L	---			
tert-Amyl Methyl Ether	90	µg/L	---			

Appendix B

Water Treatment System Information



PRODUCT DATA SHEET

9/4/2012

BP64HN-CD1540T

6x4 High Pressure Non-Solids Handling Unit (Open, Trailer)

GENERAL INFORMATION

The compressor/venturi priming system uses a compressor to blow compressed air through a jet into a tapered tube to create a vacuum on the suction.

PERFORMANCE DATA

» Flow (min/max):	- 250 gpm / 1050 gpm
» Minimum Shutoff Head:	- 215 feet (93 psi) @ 1600 rpm (1)
» Maximum Shutoff Head:	- 368 feet (159 psi) @ 2100 rpm (1)
» Minimum Speed:	- 1600 rpm
» Maximum Speed:	- 2100 rpm
» Maximum Suction Lift:	- 25 feet (2)
» Maximum Casing Press:	- 175 psi
» Maximum Temperature:	- 190°F (7)
» Maximum Solids Size:	- 0.5" spherical diameter

PUMP SPECIFICATIONS

» Impeller:	- 15.22"
» Bearing Lubrication:	- Grease
» Vacuum System:	- 34 cfm Compressor/Venturi
» Mechanical Seal Lubrication:	- SAE No. 30 Oil (3)

PHYSICAL SPECIFICATIONS

» Suction Size:	- 6" flange
» Discharge Size:	- 4" flange
» Approximate Weight:	- 5057 lbs dry / 5980 lbs wet
» Overall Height:	- 92" (to top of lifting eye)
» Overall Width:	- 74" (outer most edges)
» Overall Length:	- 144" (nose to tail)

MATERIAL SPECIFICATIONS

» Pump Casing:	- Cast Iron
» Shaft Sleeve:	- Heat Treated 416 SS
» Wear Rings:	- Cast Iron
» Mechanical Seal Faces:	- Tungsten/Silicon-Carbide
» Pump Shaft:	- 1144 SAE Stressproof
» O-rings:	- Viton
» Impeller:	- Cast Iron
» Check Valve Body:	- Ductile Iron
» Check Valve Flapper:	- Buna-N

ENGINE SPECIFICATIONS

» Engine Make/Model:	- Deere 4045H
» Total Displacement:	- 4.5 Liter
» Aspiration:	- Turbocharged
» Max. Continuous BHP:	- 154 @ 2400 rpm (4)
» Crankcase Oil:	- SAE 10W40 (5)
» Coolant:	- 50/50 Water/Antifreeze
» Safety Shutdowns:	- High Water Temp & Low Oil Pressure
» Fuel Consumption:	- 5.5 gal/hr @ 1800 rpm (6)
» Run Time:	- 24 hours at 1800 rpm at 80% Engine Load
» Fuel Capacity/Type:	- 130 gal of No. 2 diesel
» Number of Cylinders:	- Four

Notes:

(1) Based on 1.0 specific gravity

(2) Depends on flow rate, pump speed, and elevation. See performance curve.

(3) Should always be visible and clear in appearance thru sight glass.

(4) WARNING – this is the rated speed for the ENGINE ONLY. The rated speed of the pump is less. See curve for max pump RPM.

(5) Must be changed every 250 hours of runtime.

(6) Run time fluctuates with speed and engine loads.

(7) Equipment material limitation. Lower max temperature may be necessary due to application conditions and pump NPSH requirements.

To the best of our knowledge the technical data contained herein are true and accurate at the date of issuance and are subject to change without prior notice. No guarantee of accuracy is given or implied because variations can and do exist.

NO WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY LRT, EITHER EXPRESSED OR IMPLIED.



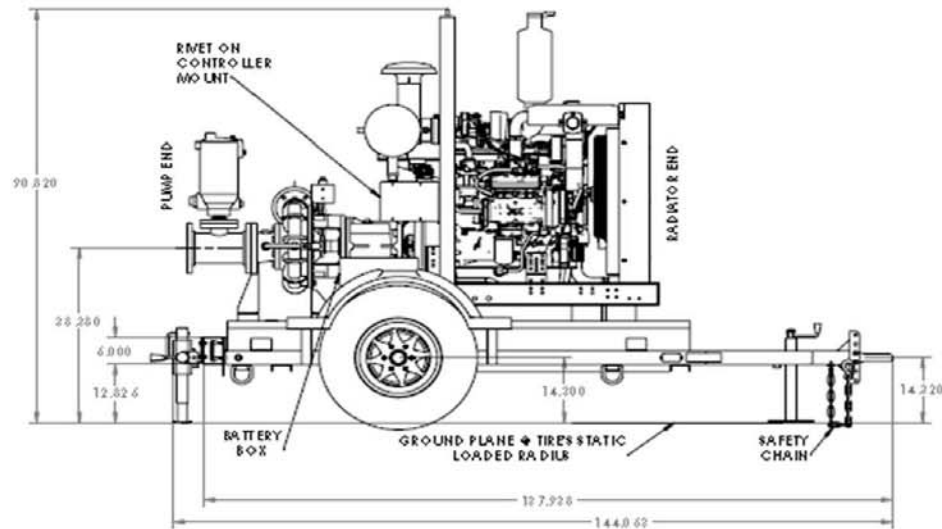
PRODUCT DATA SHEET

9/4/2012

BP64HN-CD1540T

6x4 High Pressure Non-Solids Handling Unit (Open, Trailer)

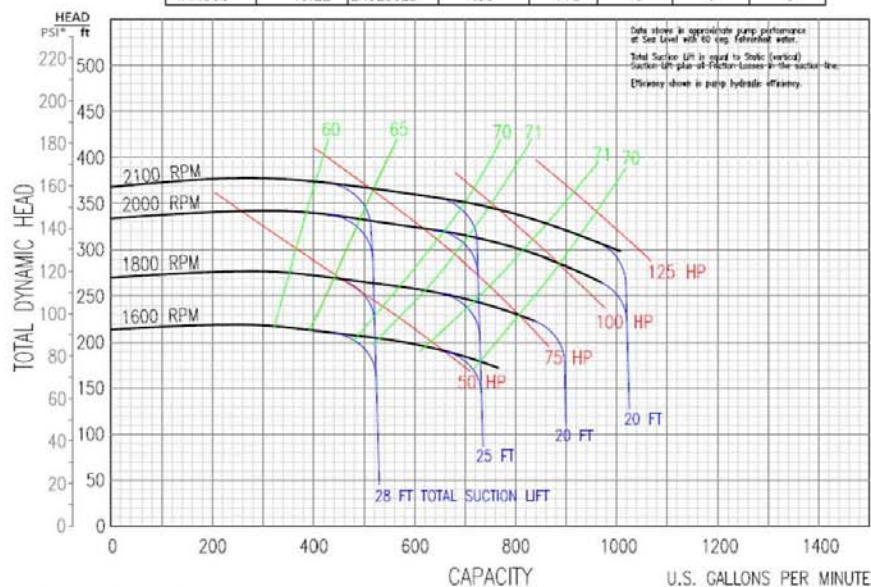
PHYSICAL SPECIFICATIONS



PERFORMANCE CURVE

BP64HN-CD1540T

Speed	Impeller Dia.	Style	Solids Dia.	N.g.	Suction	Discharge	No. vanes
VARIOUS	15.22"	ENCLOSED	.50"	775	6"	4"	6



Performances shown are for cool water, frame mounted configuration with Cyclo Seal. Other liquids or mounting configurations may require performance adjustments.

Performance curve does not include discharge check valve losses.

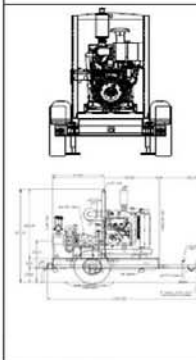
*NOTE: CURVES BASED ON 1.0 SPECIFIC GRAVITY

Pump

MODEL: BP64HN
CURVE No: BP64HN-1
SUCTION: 6 INCH
DISCHARGE: 4 INCH
MAX SOLID: 0.5 INCH
IMP. DIA: 15.22 INCH
MAX SPEED: 2100 RPM
MIN SPEED: 1600 RPM

Engine

MAKE: John Deere
MODEL: 4045H
RATING: 154 HP @ 2400 RPM





NAME		REV: A
Multi-Bag Filter Vessel		SCALE: NONE
PROJECT NO.	ORDER NO.	ITEM NO.
DATE:		UNIT: INCH



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

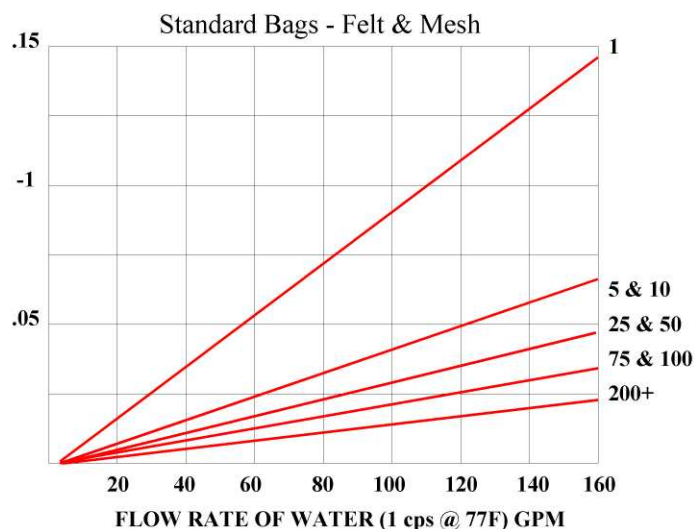
Optional Filter Media

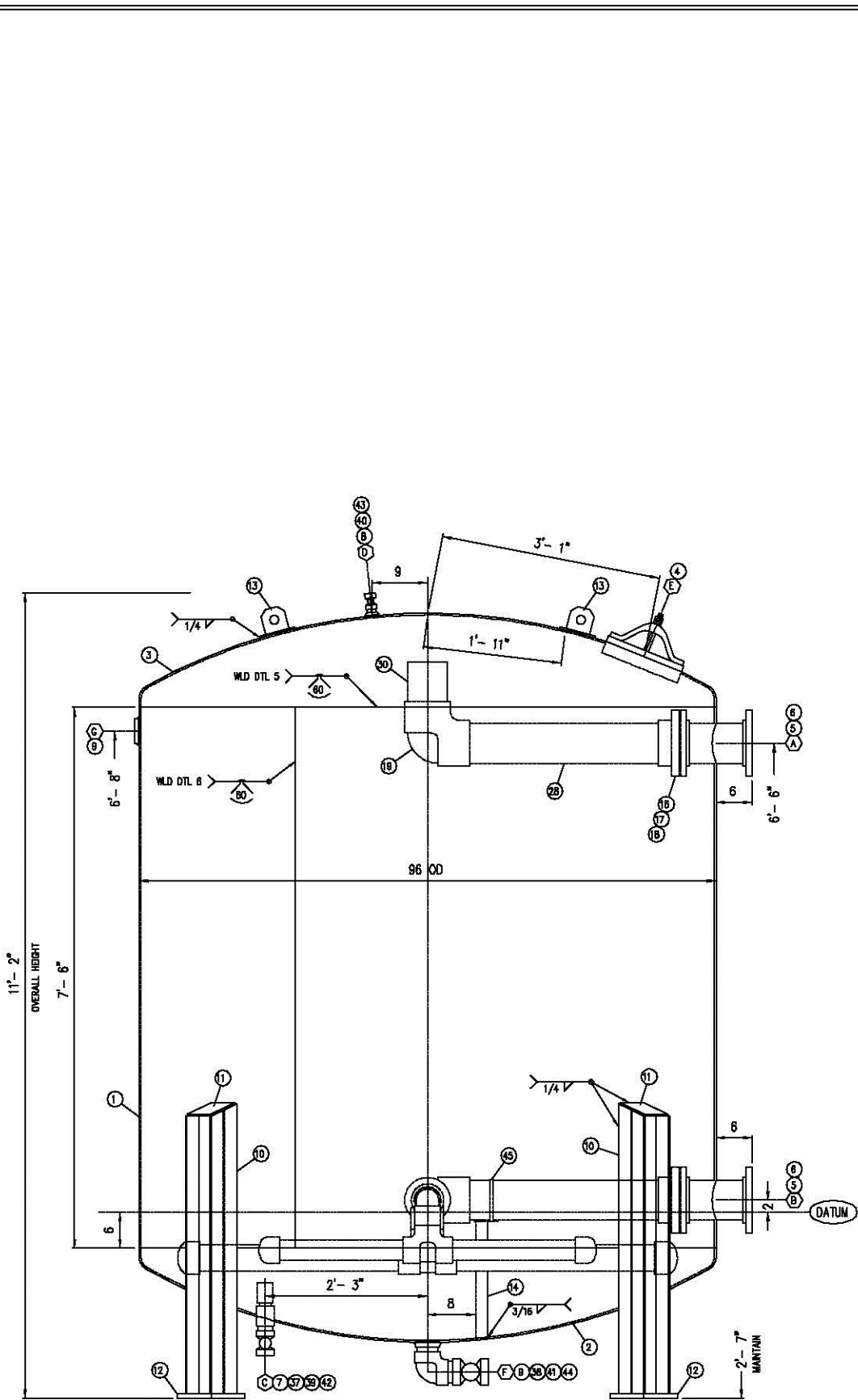
Felt: Nomex, Polyester, Polypropylene

Monofilament: Nylon, Polyester, Polypropylene

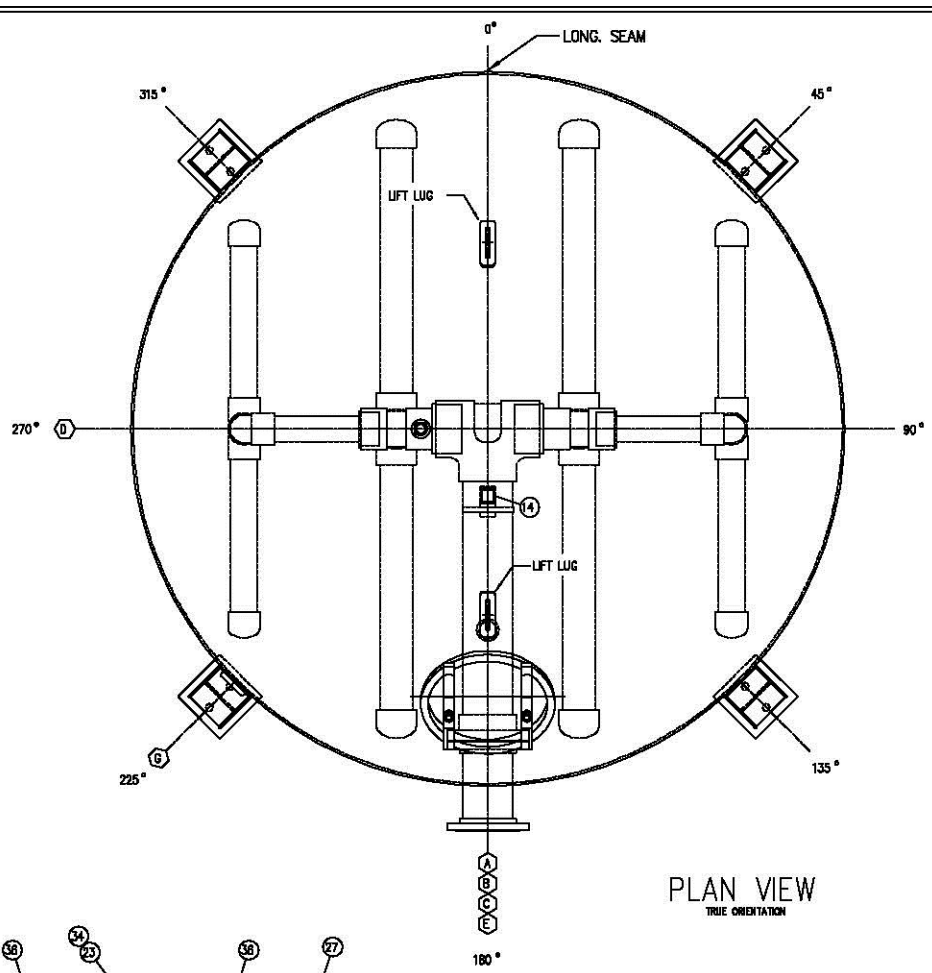
Multifilament: Nylon, Polyester

Polypropylene: Oil Removal

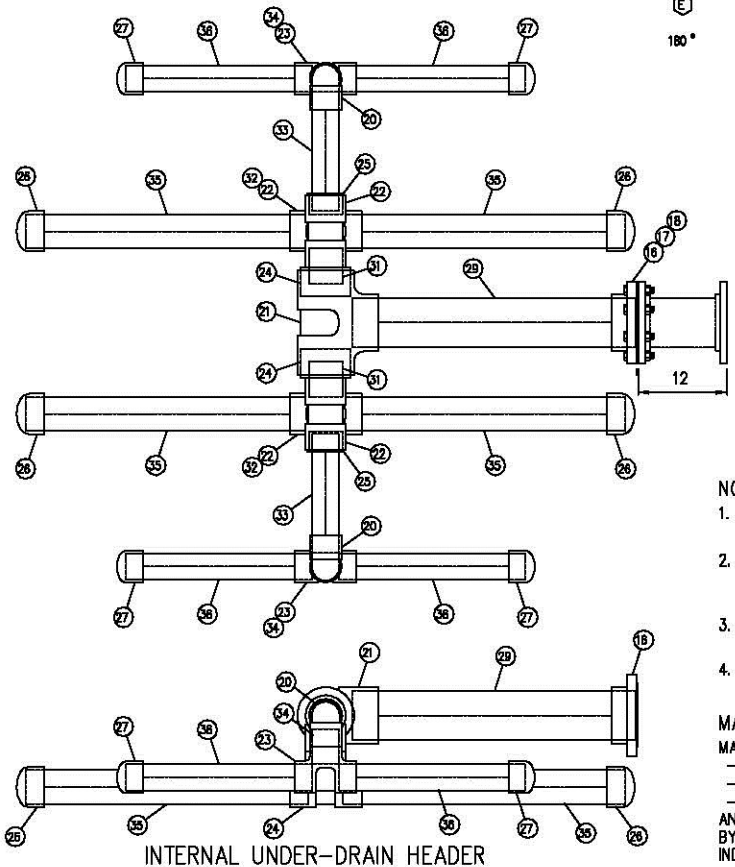




ELEVATION VIEW
NOT TRUE ORIENTATION



PLAN VIEW
TRUE ORIENTATION



NOTES:

1. ALL FLANGE BOLT HOLES TO STRADDLE VESSEL MAJOR CENTERLINES
2. A ROOT GAP OF 1/8" HAS BEEN ALLOWED AT ALL B.W. JOINTS TO PRODUCE PIPE LENGTHS SHOWN AND DIMENSIONED
3. NOZZLE REINFORCING PADS SHALL HAVE 1/4" - NPT TELL TALE HOLE
4. COUPLINGS SHALL HAVE 3/4" EXTERNAL PROJECTION UNLESS SHOWN OTHERWISE

MATERIAL SUBSTITUTION NOTE:

MATERIALS CONSTITUTE ACCEPTABLE ALTERNATES:
- USE OF SA-106-B IN PLACE OF SA-53-B
- USE OF SA-350-LF2 IN PLACE OF SA-105
- USE OF SA-420-WPL6 IN PLACE OF SA-234-WPB
ANY OTHER MATERIAL SUBSTITUTION MUST BE APPROVED BY ENGINEERING / Q.C.M. & A.I. IN WRITING ON AN INDIVIDUAL BASIS.

BILL OF MATERIAL

ITEM	QTY	PART REF	DESCRIPTION	MATERIAL SPEC	WEIGHT
1	1	SHELL	5/16" PLATE x 25'-0 5/8" LG x 7'-6" WIDE CAN (ROLL TO 96" OD)	HRQ	2344
2	1	BTM HEAD	72" OD x 5/16" Nom t. NON-ASME F&D HEAD c/w 2" SF	HRQ	731
3	1	TOP HEAD	72" OD x 5/16" Nom t. NON-ASME F&D HEAD c/w 2" SF	HRQ	731
4	1	MANWAY	12" x 18" x 3/4" t. x 3" DEEP NECK ELUP HATCH CG	HRQ	38
5	4	NOZ A&B	6" - 150# RFSD FLANGE	SA-105	76
6	2	NOZ A&B	6" - STD WALL SMLS PIPE x 11 1/4" LG (P&E)	SA-53-B	34
7	1	NOZZLE C	2" - 3000# F.S. SCRD FULL COUPLING	SA-105	2
8	1	NOZZLE D	1" - NPT SERIES 250 F.S. WELD FLANGE (FLAT TYPE WITH PILOT)	SA-181	1
9	2	NOZ F&G	3" - NPT SERIES 250 F.S. WELD FLANGE (FLAT TYPE WITH PILOT)	SA-181	4
10	4	VESL L&R	6" WF @ 15 #/FT x 4'-0 1/4" LG (SEE DETAIL)	SA-36	240
11	4	VESL L&R	1/4" x 6" FLATBAR x 5 1/2" LG (LEG TOP CAP)	SA-36	8
12	4	BASE PLT	3/4" x 6" FLATBAR x 8" LG	SA-36	52
13	2	LIFT LUG	1/2" x 4" FLATBAR x 4" LG	SA-36	4
14	1	HDR SUPT	2" x 2" x 3/16" SQ HSS x 1'-7 1/2" LG (SEE DETAIL)	SA-36	9
15	1	HDR SUPT	3/16" x 2" FLATBAR x 4" LG	SA-36	1
16	2	INTERIALS	6" - 150# SCH 80 PVC1 LOOSE RING VAN STONE SOCKET FLANGE	COLONIAL	
17	2	INTERIALS	6" - 150# GASKET	TREATED FIBER	
18	16	INTERIALS	3/4" DIA x 3 1/2" LG HEX HEAD MACH BOLT c/w HEX NUTS	ZINC PLATED	6
19	1	INTERIALS	6" - SCH 80 PVC1 ALL SOCKET 90 Deg ELBOW	COLONIAL	
20	2	INTERIALS	3" - SCH 80 PVC1 ALL SOCKET 90 Deg ELBOW	COLONIAL	
21	1	INTERIALS	6" - SCH 80 PVC1 ALL SOCKET TEE	COLONIAL	
22	4	INTERIALS	4" - SCH 80 PVC1 ALL SOCKET TEE	COLONIAL	
23	2	INTERIALS	3" - SCH 80 PVC1 ALL SOCKET TEE	COLONIAL	
24	2	INTERIALS	6" x 4" - SCH 80 PVC1 ALL SOCKET REDUCER BUSHING	COLONIAL	
25	2	INTERIALS	4" x 3" - SCH 80 PVC1 ALL SOCKET REDUCER BUSHING	COLONIAL	
26	4	INTERIALS	4" - SCH 80 PVC1 SOCKET CAP	COLONIAL	
27	4	INTERIALS	3" - SCH 80 PVC1 SOCKET CAP	COLONIAL	
28	1	INTERIALS	6" - SCH 80 PVC PIPE x 3'-2 3/16" LG	PVC PLASTIC	
29	1	INTERIALS	6" - SCH 80 PVC PIPE x 3'-2 3/16" LG	PVC PLASTIC	
30	1	INTERIALS	6" - SCH 80 PVC PIPE x 10" LG	PVC PLASTIC	
31	2	INTERIALS	4" - SCH 80 PVC PIPE x 4 13/16" LG	PVC PLASTIC	
32	2	INTERIALS	4" - SCH 80 PVC PIPE x 5" LG	PVC PLASTIC	
33	2	INTERIALS	3" - SCH 80 PVC PIPE x 1'-4" LG	PVC PLASTIC	
34	1	INTERIALS	3" - SCH 80 PVC PIPE x 4 11/16" LG	PVC PLASTIC	
35	4	INTERIALS	4" - SCH 40 PVC (D10) WELL SCREEN SLOTTED PIPE x 3'-2" LG	PVC PLASTIC	
36	4	INTERIALS	3" - SCH 40 PVC (D10) WELL SCREEN SLOTTED PIPE x 2'-1" LG	PVC PLASTIC	
37	1	INTERIALS	ORTHOS LIQ SYS MODEL R2 FILTER NOZZLE c/w 0.3 mm SLOTS & 2" NPT CONN	PLASTIC	
38	1	SLURY VLV	3" - FEMALE NPT FULL PORT BALL VALVE (RUB #582)	FORGED BRASS	
39	1	DRAIN VLV	2" - FEMALE NPT FULL PORT BALL VALVE (RUB #582)	FORGED BRASS	
40	1	VENT VLV	1" - FEMALE NPT FULL PORT BALL VALVE (RUB #582)	FORGED BRASS	
41	2	SLURY VLV	3" - STD WALL CLOSE NIPPLE	SA-53-B	
42	1	DRAIN VLV	2" - STD WALL CLOSE NIPPLE	SA-53-B	
43	1	VENT VLV	1" - WH WALL CLOSE NIPPLE	SA-53-B	
44	1	SLURY VLV	3" - STD MERCHANT F.S. SCRD 90 Deg ELBOW	SA-187	
45	1	INTERIALS	6" - BAND TYPE PIPE STRAP	STAINLESS	

SCHEDULE OF OPENINGS

MARK	SIZE	QTY	RATING	TYPE	DESCRIPTION	INT PROJ	WELD DETAIL	A	B	C
A	6"	1	150#	RFSD	INLET	AS SHOWN	7 & 12	1/4	1/4	
B	6"	1	150#	RFSD	OUTLET	AS SHOWN	7 & 12	1/4	1/4	
C	2"	1	3000#	CPLG	LIQUID DRAIN	1 7/16"	16	1/4	3/16	
D	1"	1	FNPT	WLD FLG	VENT	SEE WLD DTL	17			
E	18"	1	N/A	FF FLGSK	MANWAY c/w BLIND	1 11/16"	12	1/4	1/4	
F	3"	1	FNPT	WLD FLG	GAC DISCHARGE	SEE WLD DTL	17			
G	3"	1	FNPT	WLD FLG	GAC INLET	SEE WLD DTL	17			
H										
J										
K										
L										
M										

DESIGN DATA

Registration	NOT APPLICABLE	Year Built	2000
Construction	NOT APPLICABLE	Serial No.	00-
Design Pressure	75 PSIG	Capacity (Vol.)	451.3 cu. ft.
Design Temperature	140 Deg F (LIMITED BY INTERNALS)	Shipping Wt. (Empty)	4380 POUNDS
External Pressure	NOT APPLICABLE	Wt. full of water	POUNDS
Min. Des. Weld Temp	-20 Deg F AT 75 PSIG	Gaskets	TREATED FIBER
MAWP (New & Cold)	75 PSIG (LIMITED BY HEAD)	Studs & Nuts	MILD STEEL (ZINC PLATED)
MAWP (Hot & Cor'd)	75 PSIG (LIMITED BY HEAD)	Internal Surface Prep	SANDELAST TO SSPC-SP6
Hydro Test Pressure	5 PSIG SOAP TEST /Medium: AIR	External Surface Prep	EXTERNAL POWER CLEAN
Corrosion Allowance	NONE	Internal Coating	SERIES 120 POTAPOX PLUS 10-16 mils DFT
Radiography	NONE	External Coating	MAB PLYMATIC (LT GRAY) 5-7 mils DFT



89 Crawford Street
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Tel: 774.450.7177
Fax: 888.835.0617
www.lrt-llc.net

GENERAL ASSEMBLY LAYOUT - ELEVATION AND ORIENTATION

MODEL AF-10,000 FILTER 96" OD x 7' - 6" SEAM - SEAM

REV	DESCRIPTION OF REVISIONS	BY	DATE
1	DB (TF)	TB (TF)	EP (TF)
2	DATE	SCALE	1" = 1'-0"
3	DATE	SCALE	1" = 1'-0"
4	DATE	SCALE	1" = 1'-0"
5	DATE	SCALE	1" = 1'-0"
6	DATE	SCALE	1" = 1'-0"
7	DATE	SCALE	1" = 1'-0"
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11	DATE	SCALE	1" = 1'-0"
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15	DATE	SCALE	1" = 1'-0"
16	DATE	SCALE	1" = 1'-0"
17	DATE	SCALE	1" = 1'-0"
18	DATE	SCALE	1" = 1'-0"
19	DATE	SCALE	1" = 1'-0"
20	DATE	SCALE	1" = 1'-0"
21	DATE	SCALE	1" = 1'-0"
22	DATE	SCALE	1" = 1'-0"



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FILTRATION MEDIA :

8x30 RE-ACTIVATED CARBON

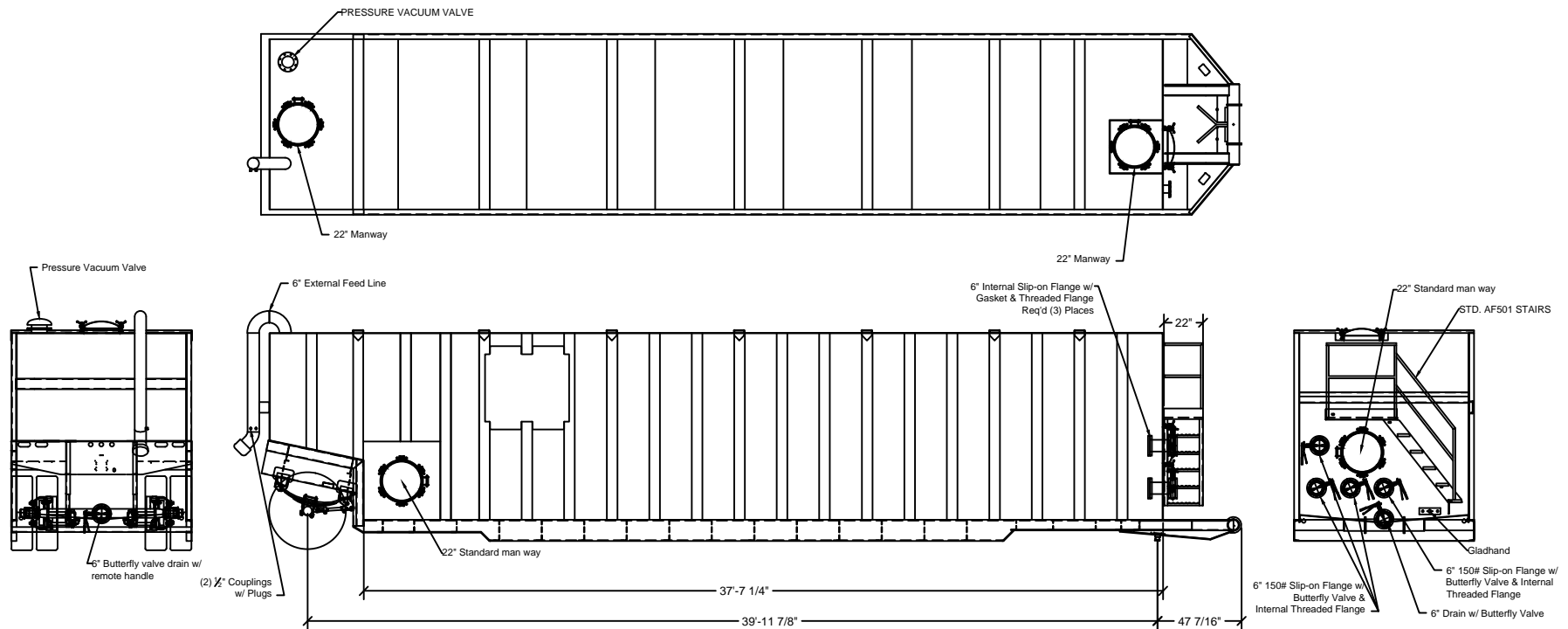
4x10 RE-ACTIVATED CARBON

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



STANDARD SPECIFICATION

CAPACITY: 21,000 GALLONS (500 BBL)

SIDE SHEETS: 1/4" A36 PLATE

TOP SHEET: 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. CAPACITY

AXLE: 77.5" TRACK, 22,500 LBS. CAPACITY

TIRES: 11R22.5

WHEELS: 8.25 x 22.5 STEEL

MANWAYS: 3 - 22" DIA. FRONT & TOP

1 - 22" DIA. CURB SIDE

VALVES: 1 - BLAYLOCK PRESSURE VALVE

5 - 6" BUTTERFLY (FRONT)

1 - 6" BUTTERFLY VALVE (REAR DRAIN)

INLET PIPING: 1 - 6" PIPE SYSTEM (REAR)

BLAST: (INTERIOR) SSPC-SP-10 (NEAR WHITE)

(EXTERIOR) SSPC-SP-6 (COMMERCIAL BLAST)

PAINT: (INTERIOR) EPOXYPHENOLIC 100% SOLID 20.0 MILS D.F.T.

(EXTERIOR) PRIMER COAT EPOXY 3.0 TO 4.0 MILS D.F.T.

(EXTERIOR) FINISH COAT POLURETHANE 3.0 TO 4.0 D.F.T.

21,000 Gal. Frac Tank



Lockwood Remediation Technologies, LLC

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

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

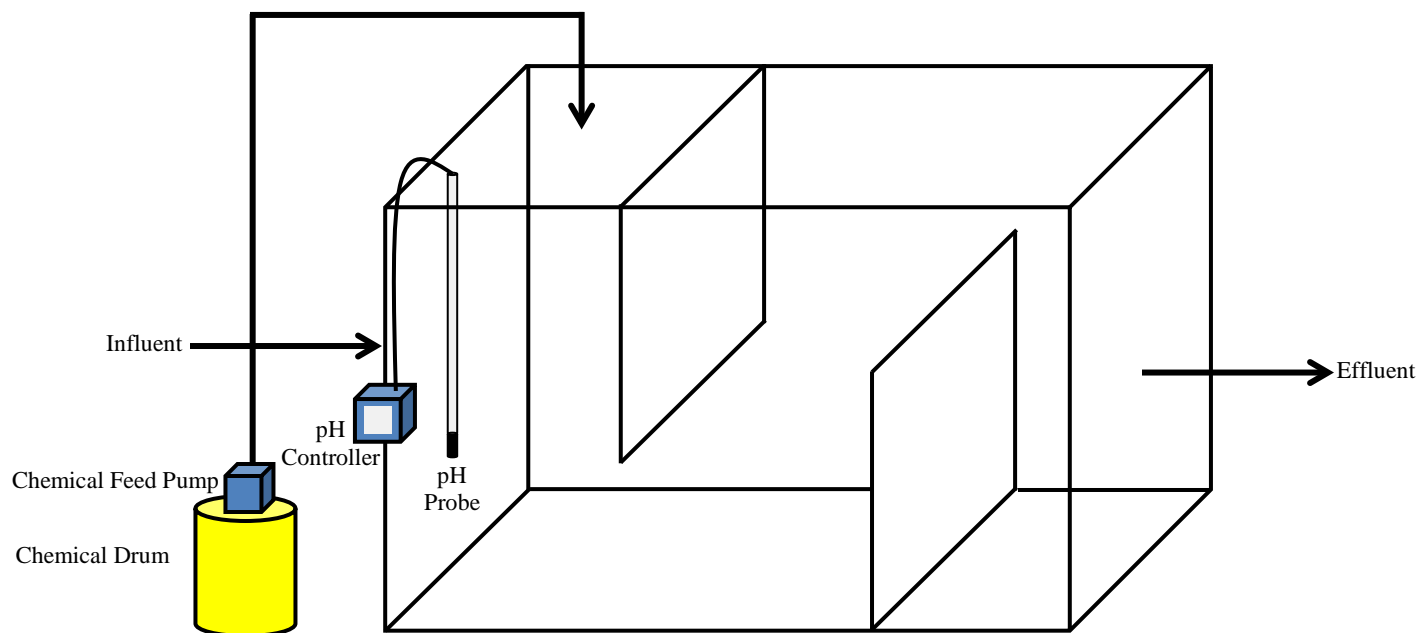


PMT06

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



Notes:

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



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Configuration of pH Adjustment System



One Controller for the Broadest Range of Sensors.

Choose from 30 digital and analog sensor families for up to 17 different 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 offers 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		sc200™ Controller	Benefits
	sc100™ Controller	GLI53 Controller		
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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Simplifies analog sensor connections Works with analog and digital sensors
Analog Inputs	N/A	N/A	1 Analog Input Signal Analog 4-20mA Card	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Unprecedented combination of sensor breadth and digital communication options

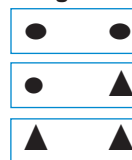
Choose from Hach's Broad Range of Digital and Analog Sensors

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	▲

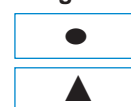
● = Digital ▲ = Analog

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
Analog Output Functional Mode	Operational Mode: measurement or calculated value 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

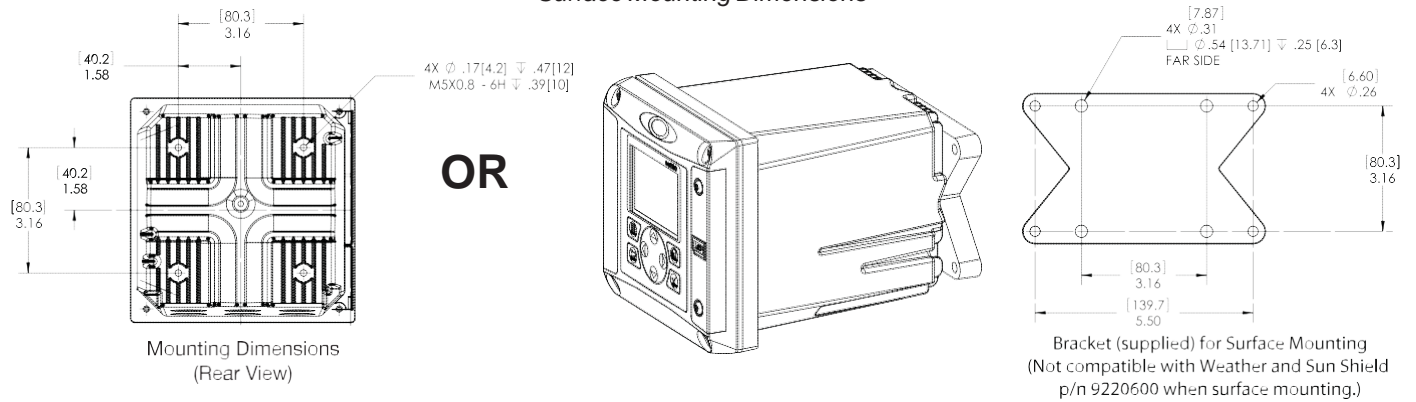
cULus safety mark

- General Locations per UL 61010-1 & CAN/CSA C22.2. No. 61010-1

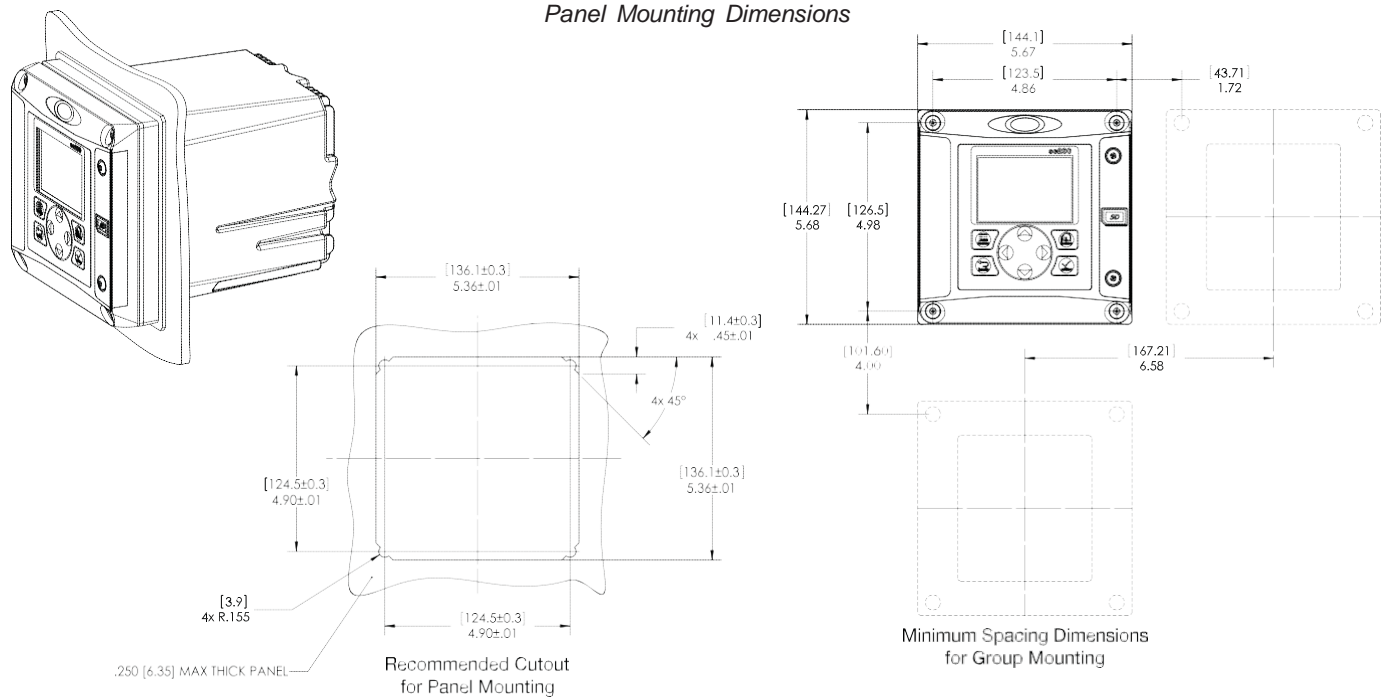
**Subject to change without notice.*

Dimensions

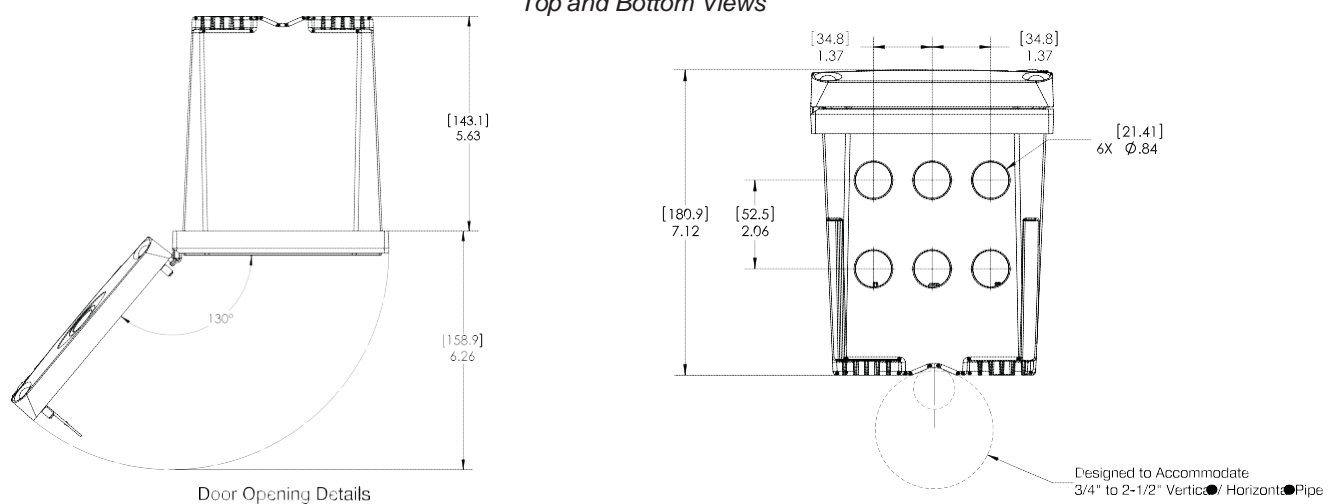
Surface Mounting Dimensions



Panel Mounting Dimensions



Top and Bottom Views





3/4-inch Combination pH and ORP Sensor Kits

pH/ORP



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.

DW

WW

PW

IW

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 105°C 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 105°C (32 to 221°F)

Flow Rate

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

Pressure Range

0 to 6.9 bar at 100°C (0 to 100 psig at 212°F)

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 105°C (32 to 221°F)

Flow Rate

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

Pressure Range

0 to 6.9 bar at 100°C (0 to 100 psig at 212°F)

Signal Transmission Distance

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

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

Sensor Cable

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

Wetted Materials

Convertible style: Ryton® body (glass filled)

Insertion style: PVDF body (Kynar®)

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

Warranty

90 days

*Specifications subject to change without notice.

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

Engineering Specifications

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

Dimensions

Convertible Style Sensor

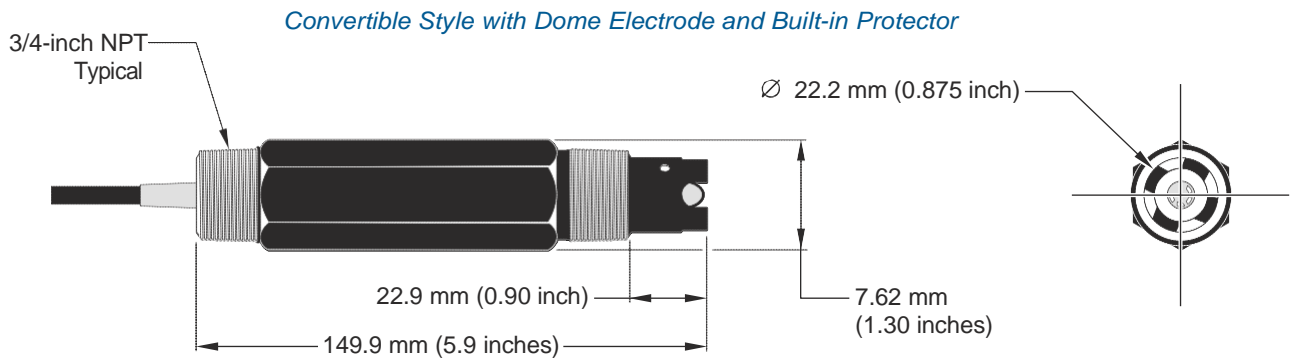
The convertible style sensor has a Ryton® body that features 3/4-inch NPT threads on both ends. The sensor can be directly mounted into a standard 3/4-inch pipe tee for flow-through mounting or fastened onto the end of a pipe for immersion mounting. The convertible style sensor enables inventory consolidation,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

Insertion Style Sensor

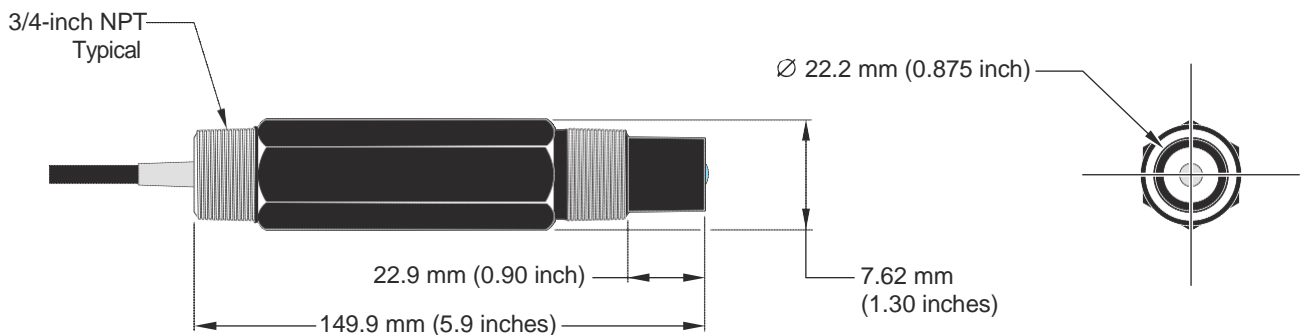
Insertion style sensors feature a longer, non-threaded PVDF body with two Viton® O-rings, providing a seal when used with the optional Hach insertion mount hardware assembly. This ball valve hardware enables sensor insertion and retraction from a pipe or vessel without having to stop the process flow.

Sanitary Style Sensor

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



Convertible Style with Flat Electrode





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 $\pm 3\%$ 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 (125SPM only)	--	Auto / Manual Selection ²
Manual Stroke Rate	10:1 Ratio	100:1 Ratio
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



Series A Plus Specifications and Model Selection

MODEL			LBC2	LB02	LBC3	LB03	LB04	LB64	LBC4	LBS2	LBS3	LBS4
Capacity nominal (max.)		GPH	025	025	0.42	0.50	1.00	125	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 w/TFE Seats)	PSIG (Bar)	250 (17)	150 (10)	250 (17)	150 (10)	100 (7)	100 (7)	50 (33)	250 (17)	150 (10)	100 (7)
	PVC (V code) Viton or CSPE Seats IDegas Liquid End		150 (10)							150 (10)		
Connections:		Tubing	1 1/4" ID X 3/8" OD						3/8" ID X 1/2" OD	1 1/4" ID X 3/8" OD		
		Porting							1 1/4" FNPT			
Strokes/Minute		SPM	125							250		

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

Engineering Data

Pump Head Materials Available: GFPP, PVC, PVDF, 316 SS, PTFE-faced CSPE-backed

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

Engineering Data

Reproducibility: +/- 3% at maximum capacity

Viscosity Max CPS: 1000 CPS

Stroke Frequency Max SPM: 125 / 250 by Model

Stroke Frequency Turn-Down Ratio: 10:1/100:1 by Model

Stroke Length Turn-Down Ratio: 10:1

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

Average Current Draw: @ 115 VAC; Amps: 0.6 Amps, @ 230 VAC; Amps: 0.3 Amps

Peak Input Power: 130 Watts

Average Input Power @ Max SPM: 50 Watts

Custom Engineered Designs- Pre-Engineered Systems

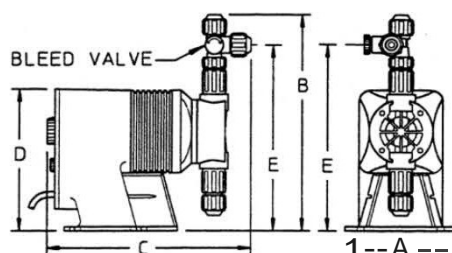


Pre-Engineered Systems Pulsafeeder's Pre-Engineered Systems are designed to provide complete chemical feed solutions for all electronic metering applications. From stand alone simplex pH control applications to full-featured, redundant sodium hypochlorite disinfection metering, these rugged fabricated 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
LB04	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 25.4 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
Dimensions:	





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."





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

SAFETY DATA SHEET

Revision Date: 11/11

1.1 IDENTIFICATION OF PRODUCT.

Designation: - Activated carbon

1.2 COMPANY.

Lockwood Remediation Technologies, LLC
89 Crawford Street
Leominster, MA 01453

Phone: 774-450-7177
Fax: 888-835-0617

2 HAZARDOUS AND OTHER INGREDIENTS.

Exposure limits may vary. It is recommended that information about locally applicable exposure limits be obtained.

%w/w Compound mg/m ³		CAS No	MAK mg/m ³ (Germany)	TLV mg/m ³ (ACGIH)	PEL
100 mg/m ³	Bituminous Carbon	7440-44-0		2 mg/m ³	15
			T Dust	T dust	

3 PHYSICAL DATA.

State:	Solid
Appearance:	Black granule, extradite, or powder
pH:	Not applicable
Boiling point or range:	Sublimes
Melting point or range:	3550 C (6422 F)
Vapor pressure:	1 @3586 C (6487 F)
Vapor density:	0.4
Density relative to water:	1.5 – 1.8 Specific gravity
Solubility in water:	Insoluble in water
Partition coefficient: (n-octanol/water):	
Other data:	odorless

4 FIRE AND EXPLOSION HAZARD DATA.

Fire, explosion and reactivity hazards:	Flammable.
Flammability and flammability limits:	Flammable.
Autoflammability:	Not applicable.
Explosive properties:	Non explosive.
Oxidizing properties:	Non oxidizing.

Fire fighting measures:

As with most organic solids, fire is possible at elevated temperatures or by contact with an ignition source.

Explosion:

Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Minimum explosible concentration 0.140 g/l.

Fire Extinguishing Media:

Water or water spray.

Unusual Fire and Explosion Hazards:

Contact with strong oxidize such as ozone, liquid oxygen, chlorine, permanganate, etc., may result in fire.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

5 STABILITY AND REACTIVITY DATA.

The product is stable under normal handling and storage conditions.

Conditions to avoid:	Incompatibilities.
Materials to avoid:	Liquid air and oxidizing materials. Strong oxidizers such as ozone, liquid oxygen, chlorine, permanganate, etc
Hazardous decomposition products: and carbon monoxide.	Involvement in a fire causes formation of carbon dioxide

Emergency Overview

WARNING! FLAMMABLE SOLID. ACTIVATED CARBON AFFECTS THE RESPIRATORY AND CARDIOVASCULAR SYSTEMS.

CAUTION!!! Wet activated carbon removes oxygen from air causing a severe hazard to workers inside carbon vessels and enclosed or confined spaces. Before entering such an area, sampling and work procedures for low oxygen levels should be taken to ensure ample oxygen availability, observing all local, state, and federal regulations.

J.T. Baker SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 1 - Slight

Flammability Rating: 3 - Severe (Flammable)

Reactivity Rating: 1 - Slight

Contact Rating: 1 - Slight

Lab Protective Equip: GOGGLES; LAB COAT; CLASS B EXTINGUISHER

Storage Color Code: Orange (General Storage)

Potential Health Effects

Inhalation:

May cause mild irritation to the respiratory tract. The acute inhalation LC50 (Rat) is >64.4 mg/l (nominal concentration) for activated carbon.

Ingestion:

No adverse effects expected. May cause mild irritation to the gastrointestinal tract. The acute oral LD50 (Rat) is >10g/kg.

Skin Contact:

Not expected to be a health hazard from skin exposure. May cause mild irritation and redness. The primary skin irritation index (Rabbit) is 0.

Eye Contact:

No adverse effects expected. May cause mild irritation, possible reddening.

Chronic Exposure:

Prolonged inhalation of excessive dust may produce pulmonary disorders. The effects of long-term, low-level exposures to this product have not been determined. Safe handling of this material on a long-term basis should emphasize the avoidance of all effects from repetitive acute exposures.

Aggravation of Pre-existing Conditions:

No information found.

6. First Aid Measures

Inhalation:

Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion:

Give several glasses of water to drink to dilute. If large amounts were swallowed, seek medical attention.

Skin Contact:

Not expected to require first aid measures. Wash exposed area with soap and water. Seek medical attention if irritation develops.

Eye Contact:

Wash thoroughly with running water for at least 15 minutes. Seek medical attention if irritation develops.

7. Accidental Release Measures

Remove all sources of ignition. Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Clean up spills in a manner that does not disperse dust into the air. Use non-sparking tools and equipment. Reduce airborne dust and prevent scattering by moistening with water. Pick up spill for recovery or disposal and place in a closed container. Warning! Spent product may have absorbed hazardous materials.

8. Handling and Storage

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

CAUTION!! Wet activated carbon removes oxygen from air causing a severe hazard to workers inside carbon vessels and enclosed or confined spaces. Before entering such an area, sampling and work procedures for low oxygen levels should be taken to ensure ample oxygen availability, observing all local, state, and federal or national regulations.

9. Exposure Controls/Personal Protection

Exposure Guidelines:

OSHA PEL*:

5mg/M3 (Respirable)

ACGIH TLV*:

10 mg/M3 (Total)

*PELs and TLVs are 8-hour TWAs unless otherwise noted.

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

For conditions of use where exposure to the dust or mist is apparent, a half-face dust/mist respirator may be worn. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear protective gloves and clean body-covering clothing.

Eye Protection:

Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

10. Toxicological Information

Investigated as a reproductive effector.

-----\Cancer Lists\-----			
Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	

Activated Carbon (7440-44-0)	No	No	None

11. Ecological Information

Environmental Fate:

No information found.

Environmental Toxicity:

No information found.

12. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

13. Transport Information**Proper Shipping Name:**

NOT REGULATED

Hazard Class:

N/A

Identification Number:

N/A

Packing Group:

N/A

This product has been tested according to the United Nations *Transport of Dangerous Goods* test protocol for spontaneously combustible materials. It has been specifically determined that this product does not meet the definition of a self heating substance or any hazard class, and therefore is not a hazardous material and not regulated.

14. Regulatory Information**SARA TITLE III:**

N/A

TSCA:

The ingredients of this product are on the TSCA Inventory List.

OSHA:

Nonhazardous according to definitions of health hazard and physical hazard provided in the Hazard Communication Standard (29 CFR 1910.1200)

CANADA**WHMIS CLASSIFICATION:**

Not Classified

DSL#:

6798

EEC

Council Directives relating to the classification, packaging, and labeling of dangerous substances and preparations.

Risk (R) and Safety (S) phrases:

May be irritating to eyes (R36).

15. Other Information

NFPA Ratings: Health: 0 Flammability: 1 Reactivity: 0

Label Hazard Warning:

WARNING! FLAMMABLE SOLID. ACTIVATED CARBON AFFECTS THE RESPIRATORY AND CARDIOVASCULAR SYSTEMS.

Label Precautions:

Keep away from heat, sparks and flame. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

Label First Aid:

If inhaled, remove to fresh air. Get medical attention for any breathing difficulty.

Sulfuric Acid, 70-100%

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and

Regulations Revision Date: 05/15/15

Version: 1.0

SECTION 1: IDENTIFICATION

Product Identifier

Product Name: Sulfuric Acid, 70-100%

Formula: H₂-O₄-S

Intended Use of the Product

Use of the Substance/Mixture: Industrial use.

Name, Address, and Telephone of the Responsible Party

Manufacturer

Emergency Telephone Number

Emergency number :

CHEMTREC 1-800-424-9300

For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident, call CHEMTREC – Day or Night

SECTION 2: HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

Classification (GHS-US)

Acute Tox. 2 (Inhalation:dust,mist) H330

Skin Corr. 1A H314

Eye Dam. 1 H318

Carc. 1A H350

Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US)



Signal Word (GHS-US) : Danger

Hazard Statements (GHS-US) : H314 - Causes severe skin burns and eye damage

H318 - Causes serious eye damage

H330 - Fatal if inhaled

H350 - May cause cancer

Precautionary Statements (GHS-US) : P201 - Obtain special instructions before use

P202 - Do not handle until all safety precautions have been read and understood

P260 - Do not breathe fume, mist, vapors, spray

P264 - Wash hands and forearms thoroughly after handling

P271 - Use only outdoors or in a well-ventilated area

P280 - Wear eye protection, face protection, protective gloves, protective clothing

P284 - Wear respiratory protection

P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting

P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower

P304+P340 - IF INHALED: Remove person to fresh air and keep at rest in a position 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

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P308+P313 - If exposed or concerned: Get medical advice/attention
P310 - Immediately call a POISON CENTER or doctor/physician
P320 - Specific treatment is urgent (see Section 4)
P363 - Wash contaminated clothing before reuse
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container according to local, regional, national, and international regulations

Other Hazards

Other Hazards Not Contributing to the Classification: Not available

Unknown Acute Toxicity (GHS-US) Not available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substances

Name	Product identifier	% (w/w)	Classification (GHS-US)
Sulfuric acid	(CAS No) 7664-93-9	70 - 100	Met. Corr. 1, H290 Skin Corr. 1A, H314 Eye Dam. 1, H318 Carc. 1A, H350

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

Description of First Aid Measures

General: IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: Using proper respiratory protection, immediately move the exposed person to fresh air. Keep at rest and in a position comfortable for breathing. Give oxygen or artificial respiration if necessary. Seek immediate medical advice. Symptoms may be delayed.

Skin Contact: Remove/Take off immediately all contaminated clothing. Rinse immediately with plenty of water (for at least 15 minutes). Seek medical attention immediately if exposure is severe. Obtain medical attention if irritation develops or persists. Wash contaminated clothing before reuse.

Eye Contact: Immediately rinse with water for a prolonged period (at least 15 minutes) while holding the eyelids wide open. Seek medical attention immediately if exposure is severe. Obtain medical attention if irritation develops or persists.

Ingestion: If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

Most Important Symptoms and Effects Both Acute and Delayed

General: Corrosive. Causes burns.

Inhalation: Causes severe respiratory irritation if inhaled. Symptoms may include burning of nose and throat, constriction of airway, difficulty breathing, shortness of breath, bronchial spasms, chest pain, and pink frothy sputum. Contact may cause immediate severe irritation progressing quickly to chemical burns. May cause pulmonary edema. Symptoms may be delayed.

Skin Contact: Contact may cause immediate severe irritation progressing quickly to chemical burns.

Eye Contact: Contact may cause immediate severe irritation progressing quickly to chemical burns. Can cause blindness.

Ingestion: May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract. Swallowing a small quantity of this material will result in serious health hazard.

Chronic Symptoms: Repeated or prolonged inhalation may damage lungs. Prolonged and repeated contact will eventually cause permanent tissue damage.

Indication of Any Immediate Medical Attention and Special Treatment Needed

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

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Unsuitable Extinguishing Media: Do not get water inside containers. Do not apply water stream directly at source of leak. Do not use a heavy water stream. A direct water stream will cause violent splattering and generation of heat.

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Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not flammable. Under conditions of fire this material may produce: Sulphur oxides.

Explosion Hazard: Product is not explosive.

Reactivity: Reacts with water.

Advice for Firefighters

Precautionary Measures Fire: Not available

Firefighting Instructions: Keep upwind. Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Firefighters must use full bunker gear including NIOSH-approved positive-pressure self-contained breathing apparatus to protect against potential hazardous combustion and decomposition products.

Hazardous Combustion Products: Sulphur oxides.

Other information: Do not allow run-off from fire fighting to enter drains or water courses.

Reference to Other Sections

Refer to section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Do not breathe vapour or mist.

For Non-Emergency Personnel

Protective Equipment: Use recommended respiratory protection. Wear suitable protective clothing, gloves and eye/face protection.

Emergency Procedures: Stop leak if safe to do so. Eliminate ignition sources. Evacuate unnecessary personnel. Ventilate area. Keep upwind.

For Emergency Personnel

Protective Equipment: Use recommended respiratory protection. Wear suitable protective clothing, gloves and eye/face protection.

Emergency Procedures: Stop leak if safe to do so. Eliminate ignition sources. Evacuate unnecessary personnel. Ventilate area.

Environmental Precautions

If spill could potentially enter any waterway, including intermittent dry creeks, contact the U.S. COAST GUARD NATIONAL RESPONSE CENTER at 800-424-8802. In case of accident or road spill notify CHEMTREC at 800-424-9300

Methods and Material for Containment and Cleaning Up

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for Cleaning Up: Ventilate area. Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal. Collect absorbed material and place into a sealed, labeled container for proper disposal. Practice good housekeeping - spillage can be slippery on smooth surface either wet or dry. Liquid spill: neutralize with powdered limestone or sodium bicarbonate.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Wash contaminated clothing before reuse.

Conditions for Safe Storage, Including Any Incompatibilities

Storage Conditions: Detached outside storage is preferable.

Incompatible Materials: Reducing agents. Organic materials. Alkalies. Moisture.

Storage Area: Store in dry, cool area. Store in a well-ventilated place. Keep away from combustible materials.

Specific End Use(s) Not available

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Sulfuric acid (7664-93-9)		
Mexico	OEL TWA (mg/m ³)	1 mg/m ³
USA ACGIH	ACGIH TWA (mg/m ³)	0.2 mg/m ³
USA OSHA	OSHA PEL (TWA) (mg/m ³)	1 mg/m ³
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	1 mg/m ³
USA IDLH	US IDLH (mg/m ³)	15 mg/m ³

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Alberta	OEL STEL (mg/m ³)	3 mg/m ³
Alberta	OEL TWA (mg/m ³)	1 mg/m ³
British Columbia	OEL TWA (mg/m ³)	0.2 mg/m ³ (Thoracic, contained in strong inorganic acid mists)
Manitoba	OEL TWA (mg/m ³)	0.2 mg/m ³
New Brunswick	OEL STEL (mg/m ³)	3 mg/m ³
New Brunswick	OEL TWA (mg/m ³)	1 mg/m ³
Newfoundland & Labrador	OEL TWA (mg/m ³)	0.2 mg/m ³
Nova Scotia	OEL TWA (mg/m ³)	0.2 mg/m ³
Nunavut	OEL STEL (mg/m ³)	3 mg/m ³
Nunavut	OEL TWA (mg/m ³)	1 mg/m ³
Northwest Territories	OEL STEL (mg/m ³)	3 mg/m ³
Northwest Territories	OEL TWA (mg/m ³)	1 mg/m ³
Ontario	OEL TWA (mg/m ³)	0.2 mg/m ³
Prince Edward Island	OEL TWA (mg/m ³)	0.2 mg/m ³
Québec	VECD (mg/m ³)	3 mg/m ³
Québec	VEMP (mg/m ³)	1 mg/m ³
Saskatchewan	OEL STEL (mg/m ³)	0.6 mg/m ³
Saskatchewan	OEL TWA (mg/m ³)	0.2 mg/m ³
Yukon	OEL STEL (mg/m ³)	1 mg/m ³
Yukon	OEL TWA (mg/m ³)	1 mg/m ³

Exposure Controls

Appropriate Engineering Controls: Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment: Face shield. Gas mask at concentration in the air > > TLV. Corrosionproof clothing.

Materials for Protective Clothing: Acid-resistant clothing.

Hand Protection: Impermeable protective gloves.

Eye Protection: Face shield.

Skin and Body Protection: Wear suitable protective clothing. Chemical resistant suit. Rubber apron, boots.

Respiratory Protection: Use a NIOSH-approved respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.

Environmental Exposure Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	: Liquid
Appearance	: Clear, Colorless to Amber, Oily
Odor	: Pungent.
Odor Threshold	: Not available
pH	: 0.3
Relative Evaporation Rate (butylacetate=1)	: Not available
Melting Point	: 10.56 °C (51.08 °F)
Freezing Point	: Not available
Boiling Point	: 290 °C (554 °F)
Flash Point	: Not available
Auto-ignition Temperature	: Not available
Decomposition Temperature	: Not available
Flammability (solid, gas)	: Not available
Lower Flammable Limit	: Not available
Upper Flammable Limit	: Not available
Vapor Pressure	: 0.00027 - 0.16 kPa at 25 °C (77 °F)

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Relative Vapor Density at 20 °C	: 3.4
Relative Density	: Not available
Specific Gravity	: 1.84 g/l
Solubility	: Water: Miscible
Partition coefficient: n-octanol/water	: Not available
Viscosity	: Not available
Explosion Data – Sensitivity to Mechanical Impact	: Not expected to present an explosion hazard due to mechanical impact.
Explosion Data – Sensitivity to Static Discharge	: Not expected to present an explosion hazard due to static discharge.

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Reacts with water.

Chemical Stability: Stable at standard temperature and pressure.

Possibility of Hazardous Reactions: Hazardous polymerization can occur in contact with certain incompatible materials.

Conditions to Avoid: Protect from moisture.

Incompatible Materials: Avoid contact with most metals, carbides, hydrogen sulfide, turpentine, organic acids, combustibles (wood, paper, cotton) and other organic and readily oxidized materials.

Hazardous Decomposition Products: Under conditions of fire this material may produce: Sulphur oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects - Product

Acute Toxicity: Fatal if inhaled.

LD50 and LC50 Data:

Sulfuric Acid, 70-100%	
ATE US (dust, mist)	0.05000000 mg/l/4h

Skin Corrosion/Irritation: Causes severe skin burns and eye damage.

pH: 0.3

Serious Eye Damage/Irritation: Causes serious eye damage.

pH: 0.3

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Teratogenicity: Not available

Carcinogenicity: May cause cancer.

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Causes severe respiratory irritation if inhaled. Symptoms may include burning of nose and throat, constriction of airway, difficulty breathing, shortness of breath, bronchial spasms, chest pain, and pink frothy sputum. Contact may cause immediate severe irritation progressing quickly to chemical burns. May cause pulmonary edema. Symptoms may be delayed.

Symptoms/Injuries After Skin Contact: Contact may cause immediate severe irritation progressing quickly to chemical burns.

Symptoms/Injuries After Eye Contact: Contact may cause immediate severe irritation progressing quickly to chemical burns. Can cause blindness.

Symptoms/Injuries After Ingestion: May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract. Swallowing a small quantity of this material will result in serious health hazard.

Chronic Symptoms: Repeated or prolonged inhalation may damage lungs. Prolonged and repeated contact will eventually cause permanent tissue damage.

Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Sulfuric acid (7664-93-9)	
LD50 Oral Rat	2140 mg/kg
LC50 Inhalation Rat (mg/l)	510 mg/m ³ (Exposure time: 2 h)

Sulfuric Acid, 70-100%

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Sulfuric acid (7664-93-9)	
IARC Group	1

SECTION 12: ECOLOGICAL INFORMATION

Toxicity Not classified

Sulfuric acid (7664-93-9)	
LC50 Fish 1	500 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])

Persistence and Degradability

Sulfuric Acid, 70-100%	
Persistence and Degradability	Product is biodegradable.

Bioaccumulative Potential

Sulfuric Acid, 70-100%	
Bioaccumulative Potential	Not expected to bioaccumulate.

Sulfuric acid (7664-93-9)	
BCF fish 1	(no bioaccumulation)

Mobility in Soil Not available

Other Adverse Effects Not available

SECTION 13: DISPOSAL CONSIDERATIONS

Sewage Disposal Recommendations: This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, and international regulations.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name : SULFURIC ACIDwith more than 51 percent acid
Hazard Class : 8
Identification Number : UN1830
Label Codes : 8
Packing Group : II
ERG Number : 157



14.2 In Accordance with IMDG

Proper Shipping Name : SULPHURIC ACID
Hazard Class : 8
Identification Number : UN1830
Packing Group : II
Label Codes : 8
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-B



14.3 In Accordance with IATA

Proper Shipping Name : SULPHURIC ACID
Packing Group : II
Identification Number : UN1830
Hazard Class : 8
Label Codes : 8
ERG Code (IATA) : 8L



14.4 In Accordance with TDG

Proper Shipping Name : SULPHURIC ACIDwith more than 51 per cent acid
Packing Group : II
Hazard Class : 8
Identification Number : UN1830



Sulfuric Acid, 70-100%

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Label Codes : 8

SECTION 15: REGULATORY INFORMATION



US Federal Regulations

Sulfuric Acid, 70-100%	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard Reactive hazard
Sulfuric acid (7664-93-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on SARA Section 302 (Specific toxic chemical listings)	
Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 302 Threshold Planning Quantity (TPQ)	1000
SARA Section 313 - Emission Reporting	1.0 % (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)

US State Regulations

Sulfuric Acid, 70-100%()	
Sulfuric acid (7664-93-9)	
U.S. - California - Proposition 65 - Carcinogens List	WARNING: This product contains chemicals known to the State of California to cause cancer.
Sulfuric acid (7664-93-9)	
U.S. - Massachusetts - Right To Know List	
U.S. - New Jersey - Right to Know Hazardous Substance List	
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List	
U.S. - Pennsylvania - RTK (Right to Know) List	

Canadian Regulations

Sulfuric Acid, 70-100%	
WHMIS Classification	Class D Division 1 Subdivision A - Very toxic material causing immediate and serious toxic effects Class E - Corrosive Material
 	
Sulfuric acid (7664-93-9)	
Listed on the Canadian DSL (Domestic Substances List) inventory.	
Listed on the Canadian Ingredient Disclosure List	
WHMIS Classification	Class D Division 1 Subdivision B - Toxic material causing immediate and serious toxic effects Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class E - Corrosive Material

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

Acute Tox. 2 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 2
Carc. 1A	Carcinogenicity Category 1A
Eye Dam. 1	Serious eye damage/eye irritation Category 1

Sulfuric Acid, 70-100%

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Met. Corr. 1	Corrosive to metals Category 1
Skin Corr. 1A	Skin corrosion/irritation Category 1A
H290	May be corrosive to metals
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H330	Fatal if inhaled
H350	May cause cancer

Handle product with due care and avoid unnecessary contact. This information is supplied under U.S. OSHA'S "Right to Know" (29 CFR 1910.1200) and Canada's WHMIS regulations. Although certain hazards are described herein, we cannot guarantee these are the only hazards that exist. The information contained herein is based on data available to us and is believed to be true and accurate but it is not offered as a product specification. No warranty, expressed or implied, regarding the accuracy of this data, the hazards connected with the use of the product, or the results to be obtained from the use thereof, is made and Mann Distribution assume no responsibility.

Appendix C
Laboratory Data

August 10, 2018

Michael Ruggieri
Strategic Environmental Services
362 Putnam Hill Road
Sutton, MA 01590

Project Location: 102 Arlington Ave., Charlestown, MA
Client Job Number:
Project Number: 17-0268
Laboratory Work Order Number: 18H0256

Enclosed are results of analyses for samples received by the laboratory on August 6, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Aaron L. Benoit", with a long horizontal line extending to the right.

Aaron L. Benoit
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Strategic Environmental Services
362 Putnam Hill Road
Sutton, MA 01590
ATTN: Michael Ruggieri

REPORT DATE: 8/10/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 17-0268

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18H0256

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: 102 Arlington Ave., Charlestown, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
Ammonia	18H0256-01	Water		SM19-22 4500 NH3 C	MA M-MA-086/CT PH-0574/NY11148
Chloride	18H0256-02	Water		EPA 300.0	NY11393/MA-MA1138/M A1110
pH	18H0256-03	Water		SM21-22 4500 H B	
Salinity	18H0256-04	Water		SM2520B	NY11393/MA-MA1138/M A1110
Cyanide	18H0256-05	Water		SM21-22 4500 CN E	MA M-MA-086/CT PH-0574/NY11148
8270	18H0256-06	Water		EPA 625 EPA 625.1	
TPH (1664)	18H0256-07	Water		EPA 1664B	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

EPA 625**Qualifications:****V-04**

Initial calibration did not meet method specifications. Compound was calibrated using a response factor where %RSD is outside of method specified criteria. Reported result is estimated.

Analyte & Samples(s) Qualified:**2,4,6-Tribromophenol**

18H0256-06[8270], B209701-BLK1, B209701-BS1, B209701-BSD1, S025971-CCV1

V-05

Continuing calibration did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:**Pentachlorophenol (SIM)**

18H0256-06[8270], B209701-BLK1, B209701-BS1, B209701-BSD1, S025971-CCV1

EPA 625.1**Qualifications:****L-04**

Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.

Analyte & Samples(s) Qualified:**Hexachlorocyclopentadiene**

18H0256-06[8270], B209625-BLK1, B209625-BS1, B209625-BSD1

L-07

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS results is within method specified criteria.

Analyte & Samples(s) Qualified:**2-Chloronaphthalene**

B209625-BS1

Benzidine

B209625-BSD1

N-Nitrosodimethylamine

B209625-BSD1

V-04

Initial calibration did not meet method specifications. Compound was calibrated using a response factor where %RSD is outside of method specified criteria. Reported result is estimated.

Analyte & Samples(s) Qualified:**Benzidine**

18H0256-06[8270], B209625-BLK1, B209625-BS1, B209625-BSD1

V-05

Continuing calibration did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:**Benzidine**

18H0256-06[8270], B209625-BLK1, B209625-BS1, B209625-BSD1

Hexachlorocyclopentadiene

18H0256-06[8270], B209625-BLK1, B209625-BS1, B209625-BSD1

V-06

Continuing calibration did not meet method specifications and was biased on the high side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:**Bis(2-chloroisopropyl)ether**

B209625-BS1, B209625-BSD1

V-20

Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:**Bis(2-chloroisopropyl)ether**

18H0256-06[8270], B209625-BLK1

SM21-22 4500 H B

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Qualifications:**H-05**

Holding time was exceeded. pH analysis should be performed immediately at time of sampling. Nominal 15 minute holding time was exceeded.

Analyte & Samples(s) Qualified:**pH**

18H0256-03[pH], B209772-DUP1

wc-Chloride-300.0**Qualifications:****D**

[Undefined]

Analyte & Samples(s) Qualified:**Chloride**

18H0256-02[Chloride]

GS1

Sample dilution required for high concentration of target analytes to be within the instrument calibration range.

Analyte & Samples(s) Qualified:**Chloride**

18H0256-02[Chloride]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Lisa A. Worthington
Project Manager

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 102 Arlington Ave., Charlestown,

Sample Description:

Work Order: 18H0256

Date Received: 8/6/2018

Field Sample #: Ammonia

Sampled: 8/6/2018 13:00

Sample ID: 18H0256-01

Sample Matrix: Water

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ammonia as N	ND	0.075	0.024	mg/L	1		SM19-22 4500 NH3 C		8/7/18 23:20	AAL

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 102 Arlington Ave., Charlestown,

Sample Description:

Work Order: 18H0256

Date Received: 8/6/2018

Field Sample #: Chloride

Sampled: 8/6/2018 13:05

Sample ID: 18H0256-02

Sample Matrix: Water

EPA 300.0

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Chloride	18500	600	mg/l	600	GS1, D	we-Chloride-300.0	8/7/18	8/8/18 14:16	ESA

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 102 Arlington Ave., Charlestown,

Sample Description:

Work Order: 18H0256

Date Received: 8/6/2018

Field Sample #: pH

Sampled: 8/6/2018 13:10

Sample ID: 18H0256-03

Sample Matrix: Water

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
pH @23.2°C	7.4			pH Units	1	H-05	SM21-22 4500 H B	8/7/18	8/7/18 19:15	AIA

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 102 Arlington Ave., Charlestown,

Sample Description:

Work Order: 18H0256

Date Received: 8/6/2018

Field Sample #: Salinity

Sampled: 8/6/2018 13:15

Sample ID: 18H0256-04

Sample Matrix: Water

SM 2520 (01)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Salinity	28.7	1.00	ppt (1000)	1		we-Salinity-SM2520	8/7/18	8/7/18 17:29	ESA

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 102 Arlington Ave., Charlestown,

Sample Description:

Work Order: 18H0256

Date Received: 8/6/2018

Field Sample #: Cyanide

Sampled: 8/6/2018 13:45

Sample ID: 18H0256-05

Sample Matrix: Water

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Cyanide	0.003	0.005	0.001	mg/L	1		SM21-22 4500 CN E		8/8/18 6:49	AAL

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 102 Arlington Ave., Charlestown,

Sample Description:

Work Order: 18H0256

Date Received: 8/6/2018

Field Sample #: 8270

Sampled: 8/6/2018 13:50

Sample ID: 18H0256-06

Sample Matrix: Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Benzo(a)anthracene (SIM)	ND	0.050	µg/L	1		EPA 625	8/6/18	8/7/18 12:51	IMR
Benzo(a)pyrene (SIM)	ND	0.10	µg/L	1		EPA 625	8/6/18	8/7/18 12:51	IMR
Benzo(b)fluoranthene (SIM)	ND	0.050	µg/L	1		EPA 625	8/6/18	8/7/18 12:51	IMR
Benzo(k)fluoranthene (SIM)	ND	0.20	µg/L	1		EPA 625	8/6/18	8/7/18 12:51	IMR
Bis(2-ethylhexyl)phthalate (SIM)	ND	1.0	µg/L	1		EPA 625	8/6/18	8/7/18 12:51	IMR
Chrysene (SIM)	ND	0.20	µg/L	1		EPA 625	8/6/18	8/7/18 12:51	IMR
Dibenz(a,h)anthracene (SIM)	ND	0.20	µg/L	1		EPA 625	8/6/18	8/7/18 12:51	IMR
Indeno(1,2,3-cd)pyrene (SIM)	ND	0.20	µg/L	1		EPA 625	8/6/18	8/7/18 12:51	IMR
Pentachlorophenol (SIM)	ND	1.0	µg/L	1	V-05	EPA 625	8/6/18	8/7/18 12:51	IMR
Surrogates	% Recovery	Recovery Limits			Flag/Qual				
2-Fluorophenol	40.9	15-110						8/7/18 12:51	
Phenol-d6	24.9	15-110						8/7/18 12:51	
Nitrobenzene-d5	76.9	30-130						8/7/18 12:51	
2-Fluorobiphenyl	76.7	30-130						8/7/18 12:51	
2,4,6-Tribromophenol	76.4	15-110			V-04			8/7/18 12:51	
p-Terphenyl-d14	76.3	30-130						8/7/18 12:51	

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Project Location: 102 Arlington Ave., Charlestown,

Sample Description:

Work Order: 18H0256

Date Received: 8/6/2018

Field Sample #: 8270

Sampled: 8/6/2018 13:50

Sample ID: 18H0256-06

Sample Matrix: Water

Semivolatle Organic Compounds by - GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	5.0	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
Acenaphthylene	ND	5.0	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
Anthracene	ND	5.0	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
Benzidine	ND	20	µg/L	1	V-04, V-05	EPA 625.1	8/6/18	8/7/18 17:52	BGL
Benzo(g,h,i)perylene	ND	5.0	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
4-Bromophenylphenylether	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
Butylbenzylphthalate	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
4-Chloro-3-methylphenol	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
Bis(2-chloroethyl)ether	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
Bis(2-chloroisopropyl)ether	ND	10	µg/L	1	V-20	EPA 625.1	8/6/18	8/7/18 17:52	BGL
2-Chloronaphthalene	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
2-Chlorophenol	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
4-Chlorophenylphenylether	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
Di-n-butylphthalate	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
1,3-Dichlorobenzene	ND	5.0	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
1,4-Dichlorobenzene	ND	5.0	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
1,2-Dichlorobenzene	ND	5.0	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
3,3-Dichlorobenzidine	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
2,4-Dichlorophenol	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
Diethylphthalate	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
2,4-Dimethylphenol	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
Dimethylphthalate	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
4,6-Dinitro-2-methylphenol	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
2,4-Dinitrophenol	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
2,4-Dinitrotoluene	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
2,6-Dinitrotoluene	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
Di-n-octylphthalate	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
1,2-Diphenylhydrazine (as Azobenzene)	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
Bis(2-Ethylhexyl)phthalate	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
Fluoranthene	ND	5.0	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
Fluorene	ND	5.0	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
Hexachlorobenzene	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
Hexachlorobutadiene	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
Hexachlorocyclopentadiene	ND	10	µg/L	1	L-04, V-05	EPA 625.1	8/6/18	8/7/18 17:52	BGL
Hexachloroethane	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
Isophorone	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
Naphthalene	ND	5.0	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
Nitrobenzene	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
2-Nitrophenol	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
4-Nitrophenol	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
N-Nitrosodimethylamine	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
N-Nitrosodiphenylamine	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
N-Nitrosodi-n-propylamine	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
Pentachlorophenol	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL

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Project Location: 102 Arlington Ave., Charlestown,

Sample Description:

Work Order: 18H0256

Date Received: 8/6/2018

Field Sample #: 8270

Sampled: 8/6/2018 13:50

Sample ID: 18H0256-06

Sample Matrix: Water

Semivolatile Organic Compounds by - GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylnaphthalene	ND	5.0	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
Phenanthrene	ND	5.0	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
2-Methylphenol	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
Phenol	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
3/4-Methylphenol	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
Pyrene	ND	5.0	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
1,2,4-Trichlorobenzene	ND	5.0	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
2,4,6-Trichlorophenol	ND	10	µg/L	1		EPA 625.1	8/6/18	8/7/18 17:52	BGL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
2-Fluorophenol	36.2	15-110						8/7/18 17:52	
Phenol-d6	24.9	15-110						8/7/18 17:52	
Nitrobenzene-d5	68.4	30-130						8/7/18 17:52	
2-Fluorobiphenyl	68.1	30-130						8/7/18 17:52	
2,4,6-Tribromophenol	56.4	15-110						8/7/18 17:52	
p-Terphenyl-d14	77.6	30-130						8/7/18 17:52	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 102 Arlington Ave., Charlestown,

Sample Description:

Work Order: 18H0256

Date Received: 8/6/2018

Field Sample #: TPH (1664)

Sampled: 8/6/2018 13:55

Sample ID: 18H0256-07

Sample Matrix: Water

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Silica Gel Treated HEM (SGT-HEM)	ND	2.8		mg/L	1		EPA 1664B	8/7/18	8/7/18 11:30	LL

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332**Sample Extraction Data****EPA 1664B**

Lab Number [Field ID]	Batch	Initial [mL]	Date
18H0256-07 [TPH (1664)]	B209678	500	08/07/18

Prep Method: SW-846 3510C-EPA 625

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
18H0256-06 [8270]	B209701	1000	1.00	08/06/18

Prep Method: SW-846 3510C-EPA 625.1

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
18H0256-06 [8270]	B209625	1000	1.00	08/06/18

SM21-22 4500 H B

Lab Number [Field ID]	Batch	Initial [mL]	Date
18H0256-03 [pH]	B209772	50.0	08/07/18

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B209701 - SW-846 3510C										
Blank (B209701-BLK1)										
Prepared: 08/06/18 Analyzed: 08/07/18										
Benzo(a)anthracene (SIM)	ND	0.050	µg/L							
Benzo(a)pyrene (SIM)	ND	0.10	µg/L							
Benzo(b)fluoranthene (SIM)	ND	0.050	µg/L							
Benzo(k)fluoranthene (SIM)	ND	0.20	µg/L							
Bis(2-ethylhexyl)phthalate (SIM)	ND	1.0	µg/L							
Chrysene (SIM)	ND	0.20	µg/L							
Dibenz(a,h)anthracene (SIM)	ND	0.20	µg/L							
Indeno(1,2,3-cd)pyrene (SIM)	ND	0.20	µg/L							
Pentachlorophenol (SIM)	ND	1.0	µg/L							V-05
Surrogate: 2-Fluorophenol	109		µg/L	200		54.6	15-110			
Surrogate: Phenol-d6	66.8		µg/L	200		33.4	15-110			
Surrogate: Nitrobenzene-d5	95.4		µg/L	100		95.4	30-130			
Surrogate: 2-Fluorobiphenyl	94.8		µg/L	100		94.8	30-130			
Surrogate: 2,4,6-Tribromophenol	208		µg/L	200		104	15-110			V-04
Surrogate: p-Terphenyl-d14	104		µg/L	100		104	30-130			
LCS (B209701-BS1)										
Prepared: 08/06/18 Analyzed: 08/07/18										
Benzo(a)anthracene (SIM)	40.6	1.2	µg/L	50.0		81.2	40-140			
Benzo(a)pyrene (SIM)	43.4	2.5	µg/L	50.0		86.8	40-140			
Benzo(b)fluoranthene (SIM)	45.0	1.2	µg/L	50.0		90.0	40-140			
Benzo(k)fluoranthene (SIM)	43.1	5.0	µg/L	50.0		86.2	40-140			
Bis(2-ethylhexyl)phthalate (SIM)	42.8	25	µg/L	50.0		85.6	40-140			
Chrysene (SIM)	39.0	5.0	µg/L	50.0		78.0	40-140			
Dibenz(a,h)anthracene (SIM)	43.8	5.0	µg/L	50.0		87.6	40-140			
Indeno(1,2,3-cd)pyrene (SIM)	44.2	5.0	µg/L	50.0		88.5	40-140			
Pentachlorophenol (SIM)	26.6	25	µg/L	50.0		53.3	40-140			V-05
Surrogate: 2-Fluorophenol	84.5		µg/L	200		42.2	15-110			
Surrogate: Phenol-d6	50.2		µg/L	200		25.1	15-110			
Surrogate: Nitrobenzene-d5	79.9		µg/L	100		79.9	30-130			
Surrogate: 2-Fluorobiphenyl	72.6		µg/L	100		72.6	30-130			
Surrogate: 2,4,6-Tribromophenol	112		µg/L	200		56.0	15-110			V-04
Surrogate: p-Terphenyl-d14	65.9		µg/L	100		65.9	30-130			
LCS Dup (B209701-BSD1)										
Prepared: 08/06/18 Analyzed: 08/07/18										
Benzo(a)anthracene (SIM)	40.9	1.2	µg/L	50.0		81.8	40-140	0.797	20	
Benzo(a)pyrene (SIM)	43.9	2.5	µg/L	50.0		87.8	40-140	1.26	20	
Benzo(b)fluoranthene (SIM)	46.0	1.2	µg/L	50.0		92.1	40-140	2.31	20	
Benzo(k)fluoranthene (SIM)	43.9	5.0	µg/L	50.0		87.8	40-140	1.90	20	
Bis(2-ethylhexyl)phthalate (SIM)	42.3	25	µg/L	50.0		84.6	40-140	1.23	20	
Chrysene (SIM)	39.2	5.0	µg/L	50.0		78.4	40-140	0.448	20	
Dibenz(a,h)anthracene (SIM)	43.2	5.0	µg/L	50.0		86.4	40-140	1.38	20	
Indeno(1,2,3-cd)pyrene (SIM)	43.5	5.0	µg/L	50.0		87.0	40-140	1.77	20	
Pentachlorophenol (SIM)	26.5	25	µg/L	50.0		53.0	40-140	0.470	20	V-05
Surrogate: 2-Fluorophenol	73.7		µg/L	200		36.8	15-110			
Surrogate: Phenol-d6	51.2		µg/L	200		25.6	15-110			
Surrogate: Nitrobenzene-d5	78.2		µg/L	100		78.2	30-130			
Surrogate: 2-Fluorobiphenyl	71.4		µg/L	100		71.4	30-130			
Surrogate: 2,4,6-Tribromophenol	112		µg/L	200		56.2	15-110			V-04
Surrogate: p-Terphenyl-d14	64.8		µg/L	100		64.8	30-130			

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QUALITY CONTROL
Semivolatile Organic Compounds by - GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B209625 - SW-846 3510C										
Blank (B209625-BLK1)				Prepared: 08/06/18 Analyzed: 08/07/18						
Acenaphthene	ND	5.0	µg/L							
Acenaphthylene	ND	5.0	µg/L							
Anthracene	ND	5.0	µg/L							
Benzidine	ND	20	µg/L							V-04, V-05
Benzo(g,h,i)perylene	ND	5.0	µg/L							
4-Bromophenylphenylether	ND	10	µg/L							
Butylbenzylphthalate	ND	10	µg/L							
4-Chloro-3-methylphenol	ND	10	µg/L							
Bis(2-chloroethyl)ether	ND	10	µg/L							
Bis(2-chloroisopropyl)ether	ND	10	µg/L							V-20
2-Chloronaphthalene	ND	10	µg/L							
2-Chlorophenol	ND	10	µg/L							
4-Chlorophenylphenylether	ND	10	µg/L							
Di-n-butylphthalate	ND	10	µg/L							
1,3-Dichlorobenzene	ND	5.0	µg/L							
1,4-Dichlorobenzene	ND	5.0	µg/L							
1,2-Dichlorobenzene	ND	5.0	µg/L							
3,3-Dichlorobenzidine	ND	10	µg/L							
2,4-Dichlorophenol	ND	10	µg/L							
Diethylphthalate	ND	10	µg/L							
2,4-Dimethylphenol	ND	10	µg/L							
Dimethylphthalate	ND	10	µg/L							
4,6-Dinitro-2-methylphenol	ND	10	µg/L							
2,4-Dinitrophenol	ND	10	µg/L							
2,4-Dinitrotoluene	ND	10	µg/L							
2,6-Dinitrotoluene	ND	10	µg/L							
Di-n-octylphthalate	ND	10	µg/L							
1,2-Diphenylhydrazine (as Azobenzene)	ND	10	µg/L							
Bis(2-Ethylhexyl)phthalate	ND	10	µg/L							
Fluoranthene	ND	5.0	µg/L							
Fluorene	ND	5.0	µg/L							
Hexachlorobenzene	ND	10	µg/L							
Hexachlorobutadiene	ND	10	µg/L							
Hexachlorocyclopentadiene	ND	10	µg/L							L-04, V-05
Hexachloroethane	ND	10	µg/L							
Isophorone	ND	10	µg/L							
Naphthalene	ND	5.0	µg/L							
Nitrobenzene	ND	10	µg/L							
2-Nitrophenol	ND	10	µg/L							
4-Nitrophenol	ND	10	µg/L							
N-Nitrosodimethylamine	ND	10	µg/L							
N-Nitrosodiphenylamine	ND	10	µg/L							
N-Nitrosodi-n-propylamine	ND	10	µg/L							
Pentachlorophenol	ND	10	µg/L							
2-Methylnaphthalene	ND	5.0	µg/L							
Phenanthrene	ND	5.0	µg/L							
2-Methylphenol	ND	10	µg/L							
Phenol	ND	10	µg/L							
3/4-Methylphenol	ND	10	µg/L							
Pyrene	ND	5.0	µg/L							
1,2,4-Trichlorobenzene	ND	5.0	µg/L							
2,4,6-Trichlorophenol	ND	10	µg/L							

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QUALITY CONTROL
Semivolatile Organic Compounds by - GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B209625 - SW-846 3510C
Blank (B209625-BLK1)

Prepared: 08/06/18 Analyzed: 08/07/18

Surrogate: 2-Fluorophenol	86.6		µg/L	200		43.3	15-110			
Surrogate: Phenol-d6	57.8		µg/L	200		28.9	15-110			
Surrogate: Nitrobenzene-d5	74.5		µg/L	100		74.5	30-130			
Surrogate: 2-Fluorobiphenyl	76.5		µg/L	100		76.5	30-130			
Surrogate: 2,4,6-Tribromophenol	147		µg/L	200		73.4	15-110			
Surrogate: p-Terphenyl-d14	91.6		µg/L	100		91.6	30-130			

LCS (B209625-BS1)

Prepared: 08/06/18 Analyzed: 08/07/18

Acenaphthene	29.5	5.0	µg/L	50.0		59.1	47-145			
Acenaphthylene	31.8	5.0	µg/L	50.0		63.6	33-145			
Anthracene	34.6	5.0	µg/L	50.0		69.2	27-133			
Benzidine	22.5	20	µg/L	50.0		45.0	40-140			V-04, V-05
Benzo(g,h,i)perylene	37.6	5.0	µg/L	50.0		75.3	10-219			
4-Bromophenylphenylether	34.7	10	µg/L	50.0		69.5	53-127			
Butylbenzylphthalate	31.7	10	µg/L	50.0		63.4	10-152			
4-Chloro-3-methylphenol	32.3	10	µg/L	50.0		64.6	22-147			
Bis(2-chloroethyl)ether	35.8	10	µg/L	50.0		71.6	12-158			
Bis(2-chloroisopropyl)ether	39.7	10	µg/L	50.0		79.3	36-166			V-06
2-Chloronaphthalene	29.4	10	µg/L	50.0		58.8 *	60-120			L-07
2-Chlorophenol	32.1	10	µg/L	50.0		64.2	23-134			
4-Chlorophenylphenylether	31.7	10	µg/L	50.0		63.4	25-158			
Di-n-butylphthalate	33.7	10	µg/L	50.0		67.4	10-120			
1,3-Dichlorobenzene	34.1	5.0	µg/L	50.0		68.1	10-172			
1,4-Dichlorobenzene	33.4	5.0	µg/L	50.0		66.8	20-124			
1,2-Dichlorobenzene	34.0	5.0	µg/L	50.0		68.1	32-129			
3,3-Dichlorobenzidine	35.2	10	µg/L	50.0		70.3	10-262			
2,4-Dichlorophenol	33.5	10	µg/L	50.0		67.0	39-135			
Diethylphthalate	31.1	10	µg/L	50.0		62.2	10-120			
2,4-Dimethylphenol	31.5	10	µg/L	50.0		63.0	32-120			
Dimethylphthalate	32.8	10	µg/L	50.0		65.6	10-120			
4,6-Dinitro-2-methylphenol	33.4	10	µg/L	50.0		66.8	10-181			
2,4-Dinitrophenol	29.3	10	µg/L	50.0		58.6	10-191			
2,4-Dinitrotoluene	34.8	10	µg/L	50.0		69.7	39-139			
2,6-Dinitrotoluene	36.3	10	µg/L	50.0		72.7	50-158			
Di-n-octylphthalate	30.3	10	µg/L	50.0		60.6	4-146			
1,2-Diphenylhydrazine (as Azobenzene)	33.5	10	µg/L	50.0		67.0	40-140			
Bis(2-Ethylhexyl)phthalate	32.8	10	µg/L	50.0		65.6	8-158			
Fluoranthene	34.7	5.0	µg/L	50.0		69.3	26-137			
Fluorene	32.0	5.0	µg/L	50.0		64.0	59-121			
Hexachlorobenzene	36.0	10	µg/L	50.0		72.1	10-152			
Hexachlorobutadiene	35.4	10	µg/L	50.0		70.9	24-120			
Hexachlorocyclopentadiene	13.4	10	µg/L	50.0		26.8 *	40-140			V-05, L-04
Hexachloroethane	34.1	10	µg/L	50.0		68.2	40-120			
Isophorone	35.0	10	µg/L	50.0		70.0	21-196			
Naphthalene	33.6	5.0	µg/L	50.0		67.2	21-133			
Nitrobenzene	32.4	10	µg/L	50.0		64.8	35-180			
2-Nitrophenol	36.4	10	µg/L	50.0		72.9	29-182			
4-Nitrophenol	15.0	10	µg/L	50.0		30.1	10-132			
N-Nitrosodimethylamine	21.5	10	µg/L	50.0		42.9	40-140			
N-Nitrosodiphenylamine	40.9	10	µg/L	50.0		81.8	40-140			
N-Nitrosodi-n-propylamine	35.2	10	µg/L	50.0		70.3	10-230			
Pentachlorophenol	24.2	10	µg/L	50.0		48.5	14-176			

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QUALITY CONTROL
Semivolatile Organic Compounds by - GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B209625 - SW-846 3510C										
LCS (B209625-BS1)										
Prepared: 08/06/18 Analyzed: 08/07/18										
2-Methylnaphthalene	34.9	5.0	µg/L	50.0		69.8	40-140			
Phenanthrene	34.8	5.0	µg/L	50.0		69.7	54-120			
2-Methylphenol	21.8	10	µg/L	50.0		43.6	40-140			
Phenol	13.1	10	µg/L	50.0		26.2	5-120			
3/4-Methylphenol	27.9	10	µg/L	50.0		55.7	40-140			
Pyrene	31.6	5.0	µg/L	50.0		63.2	52-120			
1,2,4-Trichlorobenzene	33.4	5.0	µg/L	50.0		66.9	44-142			
2,4,6-Trichlorophenol	31.4	10	µg/L	50.0		62.9	37-144			
Surrogate: 2-Fluorophenol	90.5		µg/L	200		45.2	15-110			
Surrogate: Phenol-d6	58.8		µg/L	200		29.4	15-110			
Surrogate: Nitrobenzene-d5	71.3		µg/L	100		71.3	30-130			
Surrogate: 2-Fluorobiphenyl	73.5		µg/L	100		73.5	30-130			
Surrogate: 2,4,6-Tribromophenol	151		µg/L	200		75.6	15-110			
Surrogate: p-Terphenyl-d14	80.6		µg/L	100		80.6	30-130			
LCS Dup (B209625-BSD1)										
Prepared: 08/06/18 Analyzed: 08/07/18										
Acenaphthene	31.6	5.0	µg/L	50.0		63.2	47-145	6.68	48	
Acenaphthylene	32.3	5.0	µg/L	50.0		64.7	33-145	1.68	74	
Anthracene	36.7	5.0	µg/L	50.0		73.4	27-133	5.83	66	
Benzidine	17.7	20	µg/L	50.0		35.4	* 40-140	23.8		L-07, V-04, V-05
Benzo(g,h,i)perylene	41.8	5.0	µg/L	50.0		83.5	10-219	10.4	97	
4-Bromophenylphenylether	36.0	10	µg/L	50.0		72.0	53-127	3.59	43	
Butylbenzylphthalate	33.8	10	µg/L	50.0		67.5	10-152	6.36	60	
4-Chloro-3-methylphenol	35.8	10	µg/L	50.0		71.5	22-147	10.2	73	
Bis(2-chloroethyl)ether	37.3	10	µg/L	50.0		74.7	12-158	4.16	108	
Bis(2-chloroisopropyl)ether	41.5	10	µg/L	50.0		83.0	36-166	4.56	76	V-06
2-Chloronaphthalene	30.0	10	µg/L	50.0		60.0	60-120	1.89	24	
2-Chlorophenol	32.1	10	µg/L	50.0		64.2	23-134	0.0623	61	
4-Chlorophenylphenylether	32.6	10	µg/L	50.0		65.1	25-158	2.65	61	
Di-n-butylphthalate	35.2	10	µg/L	50.0		70.4	10-120	4.24	47	
1,3-Dichlorobenzene	33.0	5.0	µg/L	50.0		66.1	10-172	3.04		
1,4-Dichlorobenzene	33.5	5.0	µg/L	50.0		67.0	20-124	0.239		
1,2-Dichlorobenzene	34.7	5.0	µg/L	50.0		69.4	32-129	1.95		
3,3-Dichlorobenzidine	38.4	10	µg/L	50.0		76.9	10-262	8.86	108	
2,4-Dichlorophenol	35.6	10	µg/L	50.0		71.2	39-135	6.05	50	
Diethylphthalate	31.7	10	µg/L	50.0		63.5	10-120	2.04	100	
2,4-Dimethylphenol	32.5	10	µg/L	50.0		65.0	32-120	3.03	58	
Dimethylphthalate	34.3	10	µg/L	50.0		68.6	10-120	4.41	183	
4,6-Dinitro-2-methylphenol	33.8	10	µg/L	50.0		67.5	10-181	1.04	203	
2,4-Dinitrophenol	29.9	10	µg/L	50.0		59.8	10-191	2.03	132	
2,4-Dinitrotoluene	36.5	10	µg/L	50.0		73.0	39-139	4.74	42	
2,6-Dinitrotoluene	37.6	10	µg/L	50.0		75.3	50-158	3.54	48	
Di-n-octylphthalate	32.1	10	µg/L	50.0		64.2	4-146	5.86	69	
1,2-Diphenylhydrazine (as Azobenzene)	35.6	10	µg/L	50.0		71.1	40-140	5.99		
Bis(2-Ethylhexyl)phthalate	34.2	10	µg/L	50.0		68.4	8-158	4.18	82	
Fluoranthene	35.9	5.0	µg/L	50.0		71.8	26-137	3.43	66	
Fluorene	32.2	5.0	µg/L	50.0		64.5	59-121	0.778	38	
Hexachlorobenzene	37.0	10	µg/L	50.0		73.9	10-152	2.49	55	
Hexachlorobutadiene	36.8	10	µg/L	50.0		73.7	24-120	3.93	62	
Hexachlorocyclopentadiene	13.9	10	µg/L	50.0		27.8	* 40-140	3.66		L-04, V-05
Hexachloroethane	33.4	10	µg/L	50.0		66.7	40-120	2.11	52	
Isophorone	37.7	10	µg/L	50.0		75.5	21-196	7.53	93	

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QUALITY CONTROL
Semivolatile Organic Compounds by - GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B209625 - SW-846 3510C										
LCS Dup (B209625-BSD1)					Prepared: 08/06/18 Analyzed: 08/07/18					
Naphthalene	35.6	5.0	µg/L	50.0		71.2	21-133	5.69	65	
Nitrobenzene	34.6	10	µg/L	50.0		69.2	35-180	6.57	62	
2-Nitrophenol	38.1	10	µg/L	50.0		76.2	29-182	4.37	55	
4-Nitrophenol	15.4	10	µg/L	50.0		30.7	10-132	2.17	131	
N-Nitrosodimethylamine	17.0	10	µg/L	50.0		34.1	* 40-140	23.1		L-07
N-Nitrosodiphenylamine	42.2	10	µg/L	50.0		84.3	40-140	3.06		
N-Nitrosodi-n-propylamine	36.6	10	µg/L	50.0		73.1	10-230	3.90	87	
Pentachlorophenol	25.5	10	µg/L	50.0		51.0	14-176	4.95	86	
2-Methylnaphthalene	38.3	5.0	µg/L	50.0		76.7	40-140	9.42	30	
Phenanthrene	36.7	5.0	µg/L	50.0		73.3	54-120	5.12	39	
2-Methylphenol	23.6	10	µg/L	50.0		47.3	40-140	8.14	30	
Phenol	13.3	10	µg/L	50.0		26.7	5-120	1.97	64	
3/4-Methylphenol	29.2	10	µg/L	50.0		58.5	40-140	4.80	30	
Pyrene	32.8	5.0	µg/L	50.0		65.7	52-120	3.82	49	
1,2,4-Trichlorobenzene	35.1	5.0	µg/L	50.0		70.2	44-142	4.90	50	
2,4,6-Trichlorophenol	32.2	10	µg/L	50.0		64.5	37-144	2.51	58	
Surrogate: 2-Fluorophenol	85.4		µg/L	200		42.7	15-110			
Surrogate: Phenol-d6	59.5		µg/L	200		29.8	15-110			
Surrogate: Nitrobenzene-d5	76.2		µg/L	100		76.2	30-130			
Surrogate: 2-Fluorobiphenyl	74.6		µg/L	100		74.6	30-130			
Surrogate: 2,4,6-Tribromophenol	151		µg/L	200		75.4	15-110			
Surrogate: p-Terphenyl-d14	82.5		µg/L	100		82.5	30-130			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B209678 - EPA 1664B
Blank (B209678-BLK1)

Prepared & Analyzed: 08/07/18

Silica Gel Treated HEM (SGT-HEM) ND 1.4 mg/L

LCS (B209678-BS1)

Prepared & Analyzed: 08/07/18

Silica Gel Treated HEM (SGT-HEM) 11 mg/L 10.0 106 64-132

Batch B209772 - SM21-22 4500 H B
LCS (B209772-BS1)

Prepared & Analyzed: 08/07/18

pH 6.05 pH Units 6.00 101 90-110

Duplicate (B209772-DUP1)
Source: 18H0256-03

Prepared & Analyzed: 08/07/18

pH 7.5 pH Units 7.4 0.671 5 H-05

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
D	[Undefined]
GS1	Sample dilution required for high concentration of target analytes to be within the instrument calibration range.
H-05	Holding time was exceeded. pH analysis should be performed immediately at time of sampling. Nominal 15 minute holding time was exceeded.
L-04	Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.
L-07	Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS results is within method specified criteria.
V-04	Initial calibration did not meet method specifications. Compound was calibrated using a response factor where %RSD is outside of method specified criteria. Reported result is estimated.
V-05	Continuing calibration did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.
V-06	Continuing calibration did not meet method specifications and was biased on the high side for this compound. Reported result is estimated.
V-20	Continuing calibration did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>EPA 300.0 in Water</i>	
Chloride	NC,NY,MA,VA,ME,NH,CT,RI
<i>EPA 625 in Water</i>	
2-Fluorophenol	NC,VA
Phenol-d6	VA
Nitrobenzene-d5	VA
<i>EPA 625.1 in Water</i>	
Acenaphthene	CT,MA,NH,NY,NC,RI,ME,VA
Acenaphthylene	CT,MA,NH,NY,NC,RI,ME,VA
Anthracene	CT,MA,NH,NY,NC,RI,ME,VA
Benzdine	CT,MA,NH,NY,NC,RI,ME,VA
Benzo(g,h,i)perylene	CT,MA,NH,NY,NC,RI,ME,VA
4-Bromophenylphenylether	CT,MA,NH,NY,NC,RI,ME,VA
Butylbenzylphthalate	CT,MA,NH,NY,NC,RI,ME,VA
4-Chloro-3-methylphenol	CT,MA,NH,NY,NC,RI,VA
Bis(2-chloroethyl)ether	CT,MA,NH,NY,NC,RI,ME,VA
Bis(2-chloroisopropyl)ether	CT,MA,NH,NY,NC,RI,ME,VA
2-Chloronaphthalene	CT,MA,NH,NY,NC,RI,ME,VA
2-Chlorophenol	CT,MA,NH,NY,NC,RI,ME,VA
4-Chlorophenylphenylether	CT,MA,NH,NY,NC,RI,ME,VA
Di-n-butylphthalate	CT,MA,NH,NY,NC,RI,ME,VA
1,3-Dichlorobenzene	MA,NC
1,4-Dichlorobenzene	MA,NC
1,2-Dichlorobenzene	MA,NC
3,3-Dichlorobenzidine	CT,MA,NH,NY,NC,RI,ME,VA
2,4-Dichlorophenol	CT,MA,NH,NY,NC,RI,ME,VA
Diethylphthalate	CT,MA,NH,NY,NC,RI,ME,VA
2,4-Dimethylphenol	CT,MA,NH,NY,NC,RI,ME,VA
Dimethylphthalate	CT,MA,NH,NY,NC,RI,ME,VA
4,6-Dinitro-2-methylphenol	CT,MA,NH,NY,NC,RI,ME,VA
2,4-Dinitrophenol	CT,MA,NH,NY,NC,RI,ME,VA
2,4-Dinitrotoluene	CT,MA,NH,NY,NC,RI,ME,VA
2,6-Dinitrotoluene	CT,MA,NH,NY,NC,RI,ME,VA
Di-n-octylphthalate	CT,MA,NH,NY,NC,RI,ME,VA
1,2-Diphenylhydrazine (as Azobenzene)	NC
Bis(2-Ethylhexyl)phthalate	CT,MA,NH,NY,NC,RI,ME,VA
Fluoranthene	CT,MA,NH,NY,NC,RI,ME,VA
Fluorene	CT,MA,NH,NY,NC,RI,ME,VA
Hexachlorobenzene	CT,MA,NH,NY,NC,RI,ME,VA
Hexachlorobutadiene	CT,MA,NH,NY,NC,RI,ME,VA
Hexachlorocyclopentadiene	CT,MA,NH,NY,NC,RI,ME,VA
Hexachloroethane	CT,MA,NH,NY,NC,RI,ME,VA
Isophorone	CT,MA,NH,NY,NC,RI,ME,VA
Naphthalene	CT,MA,NH,NY,NC,RI,ME,VA
Nitrobenzene	CT,MA,NH,NY,NC,RI,ME,VA
2-Nitrophenol	CT,MA,NH,NY,NC,RI,ME,VA
4-Nitrophenol	CT,MA,NH,NY,NC,RI,ME,VA

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>EPA 625.1 in Water</i>	
N-Nitrosodimethylamine	CT,MA,NH,NY,NC,RI,ME,VA
N-Nitrosodiphenylamine	CT,MA,NH,NY,NC,RI,ME,VA
N-Nitrosodi-n-propylamine	CT,MA,NH,NY,NC,RI,ME,VA
Pentachlorophenol	CT,MA,NH,NY,NC,RI,ME,VA
2-Methylnaphthalene	NC
Phenanthrene	CT,MA,NH,NY,NC,RI,ME,VA
2-Methylphenol	NY,NC
Phenol	CT,MA,NH,NY,NC,RI,ME,VA
3/4-Methylphenol	NY,NC
Pyrene	CT,MA,NH,NY,NC,RI,ME,VA
1,2,4-Trichlorobenzene	CT,MA,NH,NY,NC,RI,ME,VA
2,4,6-Trichlorophenol	CT,MA,NH,NY,NC,RI,ME,VA
2-Fluorophenol	NC
<i>SM19-22 4500 NH3 C in Water</i>	
Ammonia as N	NY,MA,CT,RI,VA,NC,ME
<i>SM21-22 4500 CN E in Water</i>	
Cyanide	CT,MA,NH,NY,RI,NC,ME,VA
<i>SM21-22 4500 H B in Water</i>	
pH	CT,MA,RI

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2019
CT	Connecticut Department of Public Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2019
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2019
RI	Rhode Island Department of Health	LAO00112	12/30/2018
NC	North Carolina Div. of Water Quality	652	12/31/2018
NJ	New Jersey DEP	MA007 NELAP	06/30/2019
FL	Florida Department of Health	E871027 NELAP	06/30/2019
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2019
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2018
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2018
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2019
NC-DW	North Carolina Department of Health	25703	07/31/2019

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples _____



con-test®
ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client Strategic

Received By SE

Date 8/6/18

Time 1835

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____
Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C T By Gun # 557 Actual Temp - 3.3
By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? N/A Were Samples Tampered with? N/A

Was COC Relinquished? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all Client T Analysis T Sampler Name T

pertinent Information? Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? T Who was notified? Irma, Mike

Are there Short Holds? T Who was notified? Irma

Is there enough Volume? T

Is there Headspace where applicable? N/A MS/MSD? _____

Proper Media/Containers Used? T Is splitting samples required? _____

Were trip blanks received? F On COC? _____

Do all samples have the proper pH? T Acid pH < 2 Base pH > 12

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.	<u>2</u>	1 Liter Plastic	<u>1</u>	16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic	<u>5</u>	8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

- TPH (1664) container is 500 ml plastic + H₂SO₄. Needs an amber container for analysis.

Appendix D
Supporting Documentation

MassDEP - Bureau of Waste Site Cleanup

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

Site Information:

MBTA BUS FACILITY
80 ALFORD STREET BOSTON, MA
3-000034991

NAD83 UTM Meters:
4695115mN , 329316mE (Zone: 19)
August 10, 2018

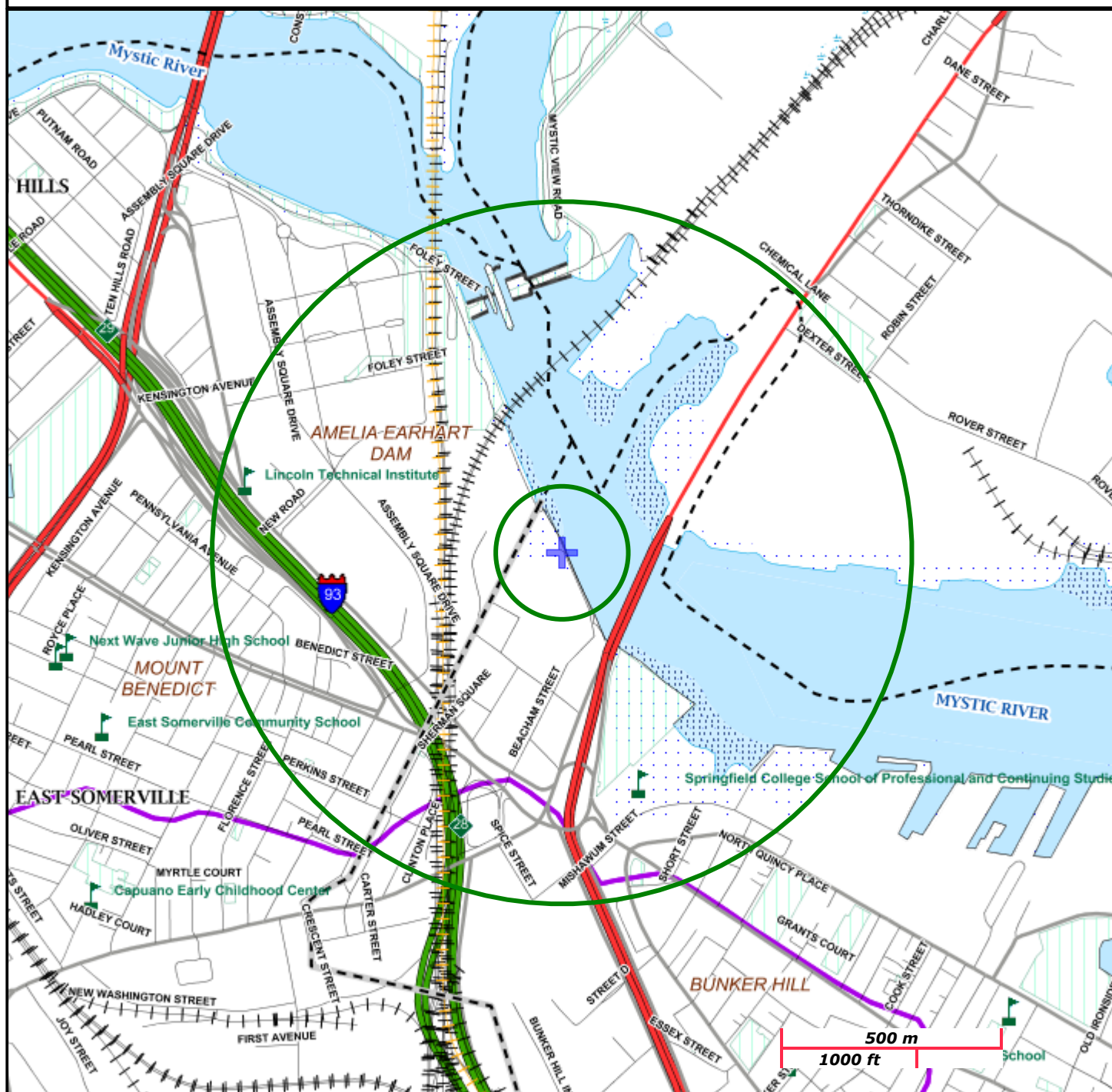
The information shown is the best available at the date of printing. However, it may be incomplete. The responsible party and LSP are ultimately responsible for ascertaining the true conditions surrounding the site. Metadata for data layers shown on this map can be found at:

<http://www.mass.gov/mgis/>.



MassDEP

Commonwealth of Massachusetts
Department of Environmental Protection



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

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

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

Aquifers: Medium Yield, High Yield, EPA Sole Source

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

PWS Protection Areas: Zone II, IWPA, Zone A

Hydrography: Open Water, PWS Reservoir, Tidal Flat

Wetlands: Freshwater, Saltwater, Cranberry Bog

FEMA 100yr Floodplain; Protected Open Space; ACEC

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

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



Documentation of the Results of the ESA Eligibility Determination:

Using information in Appendix I of the NPDES RGP, the project located at the MBTA Bus Facility located at 80 Alford Street, Boston, MA in Suffolk County, is eligible for coverage under this general permit under FWS Criterion A. There are no endangered or threatened species or designated critical habitats listed in the project area.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
<http://www.fws.gov/newengland>



In Reply Refer To:
Consultation Code: 05E1NE00-2018-SLI-2684
Event Code: 05E1NE00-2018-E-06288
Project Name: MBTA Bus Facility

August 10, 2018

Subject: List of threatened and endangered species that may occur in your proposed project location, and/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: 05E1NE00-2018-SLI-2684

Event Code: 05E1NE00-2018-E-06288

Project Name: MBTA Bus Facility

Project Type: ** OTHER **

Project Description: Water Treatment during Seawall repairs

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/42.38916626519742N71.07357565327085W>



Counties: Suffolk, MA

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 Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Critical habitats

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



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 did not list any potential properties on or near the project site in the database. 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): Boston; Street No: 80; Street Name: Alford St; Resource Type(s): Area, Building, Burial Ground, Structure, Object;

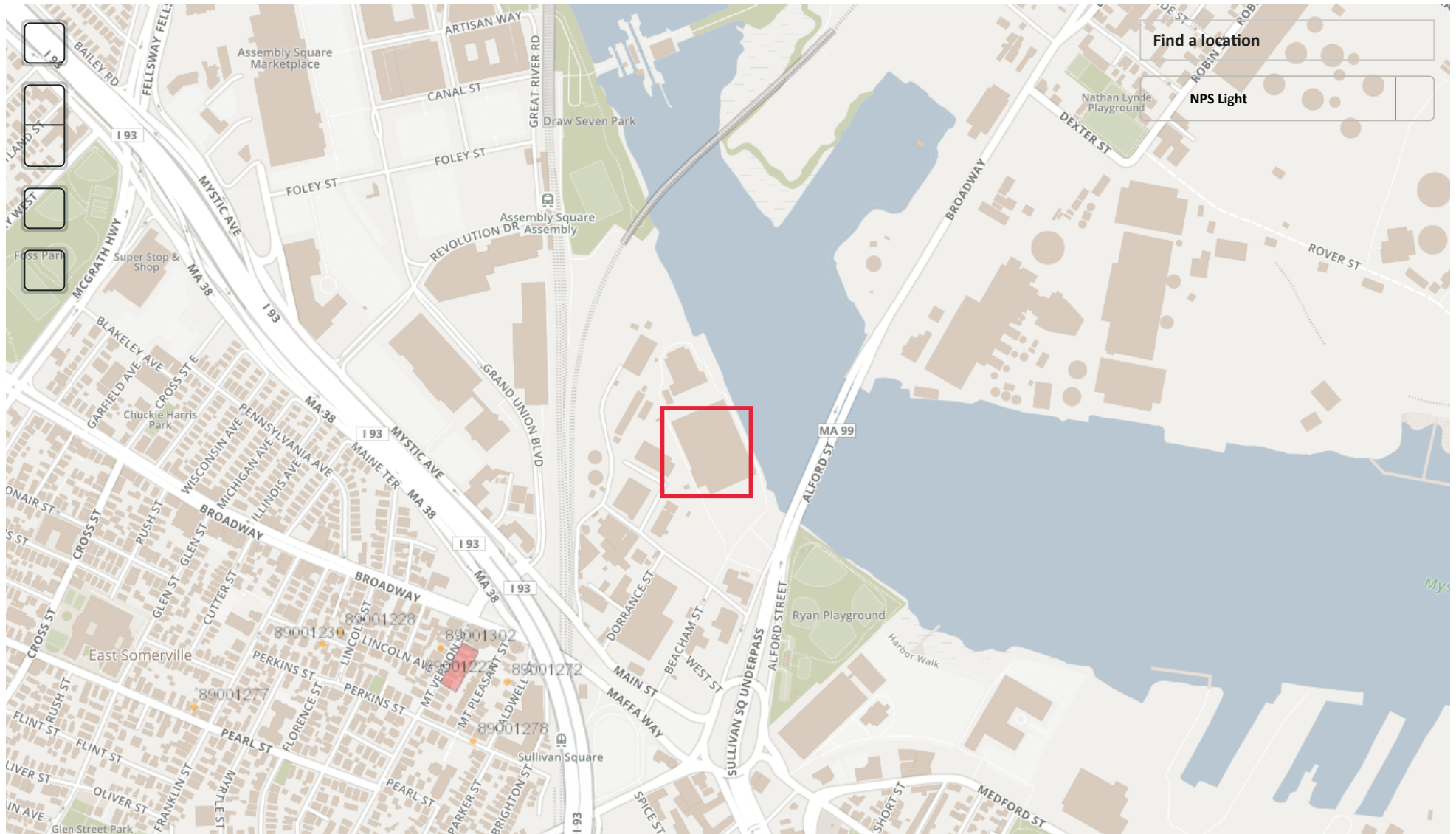
Inv. No.	Property Name	Street	Town	Year
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National Register of Historic Places

National Park Service
U.S. Department of the Interior

Public, non-restricted data depicting National Register spatial data processed by the Cultural Resources GIS facility. ...

 = **Approximate Site Location**



500 ft
Mapbox (https://www.mapbox.com/about/maps/) © OpenStreetMap (https://www.openstreetmap.org/copyright) contributors | Cultural Resources GIS, National Park Service

[Home \(https://www.nps.gov/\)](https://www.nps.gov/) | [Frequently Asked Questions \(https://www.nps.gov/faqs.htm\)](https://www.nps.gov/faqs.htm) | [Website Policies \(https://www.nps.gov/aboutus/website-policies.htm\)](https://www.nps.gov/aboutus/website-policies.htm)

| [Contact Us \(https://www.nps.gov/contacts.htm\)](https://www.nps.gov/contacts.htm)