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

January 6, 2021

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

Reference: **Notice of Intent (NOI) - Remediation General Permit (RGP)**
1600 Osgood Street
North Andover, Massachusetts

Dear Sir/Madam:

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

Site Information

This NOI has been prepared for the management groundwater that will be generated during dewatering activities associated with site demolition of exiting below grade foundations located at 1600 Osgood Street North Andover, Massachusetts (the Site). This work will commence in the Spring 2021 and is anticipated to be completed within twelve months. A Locus Plan is provided as **Figure 1** and various Site Plans satisfying the requirements of RGP Appendix IV Part I.B and I.D are provided as **Figures 2A, 2B and 2C**.

Work Summary

The work includes the demolition of multiple buildings at the Site. Two buildings, Buildings 40 and 50, include deep below grade foundation elements. To remove these foundations, dewatering will be required to lower the groundwater table as work is being performed. Deep wells will be strategically placed around the excavation areas and electric submersible pumps will be placed in wells to depress the water table. The water generated during dewatering (Source water) will be pumped to a treatment system prior to discharge to the existing onsite storm drainage system. The drainage system discharges to the Merrimack River. Because of the phased work approach, two separate drainage structures will be utilized for the discharge. The first structure near Building 50 discharges directly to the Merrimack River at Outfall 001 and the second structure near Building 40 discharges to Outfall 002 to an unnamed waterbody which is a

tributary of the Merrimack. Please note that the dewatering and water treatment for Building 40 and Building 50 will be done at separate times. Drawings of the storm water drainage system, which depicts the path of water from the catch basins to the two outfalls, are provided on **Figure 2B and Figure 2C**. To characterize groundwater from the dewatering areas, LRT collected representative groundwater samples from an on-site monitoring well on December 15, 2020. The well is located approximately midway between the two dewatering areas and is depicted on **Figure 2A**. A sample of the receiving water (The Merrimack River) was also collected on December 15, 2020. The samples were analyzed for various parameters in accordance with the NPDES RGP Activity Category III-G.

Discharge and Receiving Surface Water Information

A summary of the analytical results is provided under Section 4 of the NOI Form within **Appendix A**, and copies of the laboratory data reports are provided in **Appendix B**. Concentrations of total suspended solids (TSS), and Metals (Chromium, Iron, Lead) were detected in groundwater at concentrations above the respective NPDES RGP Effluent Limitations. To meet these standards, Source water will undergo treatment that includes bag filtration and carbon filtration prior to discharge. It is assumed that these metals will be treated through settling and bag filtration; however, if metals still exceed the applicable effluent limitations, ion exchange media vessels will be added to the treatment train. Water treatment system details are provided below.

Water Treatment System

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

Source water will be pumped to a treatment system with a design flow of up to 400 gallons per minute (gpm); the average effluent flow of the system is estimated to be 300 gpm, and the maximum flow will not exceed the design flow. Source water will enter one 18,000-gallon weir tank at the head of the system. From the weir tank, the water will be pumped to a multi-bag filter skid (with two multi-bag filter housings) and then pass through two carbon vessels plumbed in series. Each carbon vessel will contain reactivated liquid-phase carbon. Treated water will flow through a flow/totalizer meter prior to discharge into a storm drain that either directly or indirectly discharges to the Merrimack River.

If required, two ion exchange vessels (one with cation resin and one with anion resin) will be added to the treatment system and installed after the carbon vessels.

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).

In addition, the Site and the proposed discharge point are not located within Habitats of Rare Wetland Wildlife, Habitats of Rare Species, Estimated Habitats of Rare Wildlife, or listed as a National Historic Place. Documentation is included in **Appendix D**.

Coverage under NPDES RGP

It is LRT's opinion that the proposed discharge is eligible for coverage under the NPDES RGP. On behalf of JDC Demolition Company Inc., we are requesting coverage under the NPDES RGP for the discharge of treated wastewater to the Merrimack River in support of construction dewatering activities that are to take place at 1600 Osgood Street.

The enclosed NOI form and supporting documents provide the required information about the Site, discharge, treatment system, receiving water, and consultation with state and federal agencies. For this project, JDC Demo is considered the Operator and has operational control over the construction plans and specifications, including the ability to make modifications to those plans and specifications.

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

Sincerely,
Lockwood Remediation Technologies, LLC

Jacob Jennings

Jacob Jennings
Staff Scientist

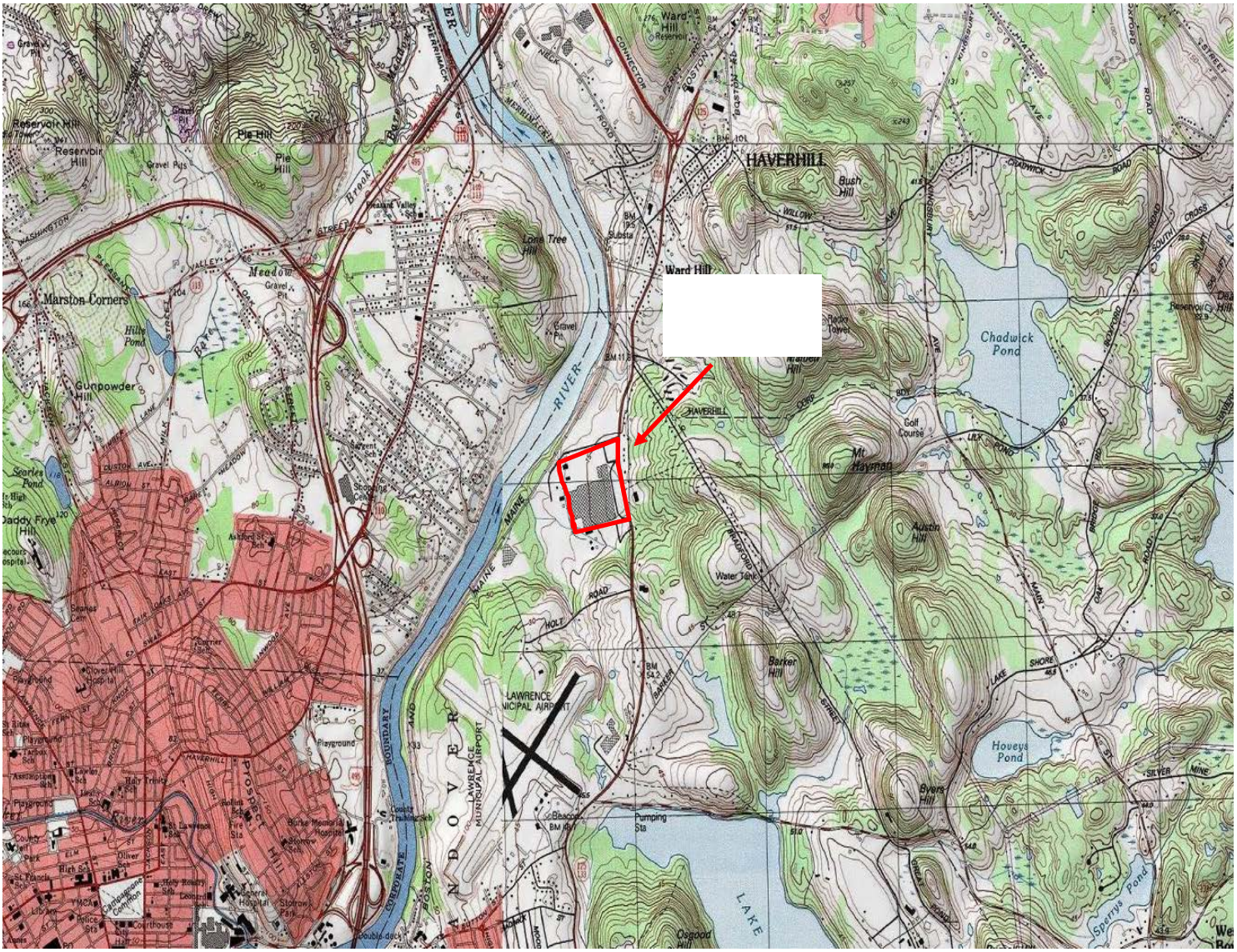
John Henry

John Henry, PE
Senior Project Manager

Encl : Figure 1 - Locus Plan
Figure 2A – General Site Plan
Figure 2B – Site Plan Building 40
Figure 2C – Site Plan Building 50
Figure 3 - Water Treatment System Schematic
Appendix A - NOI Form
Appendix B - Laboratory Data
Appendix C - Water Treatment System Cutsheets
Appendix D - Supporting Information

cc:
Cathy Vakalopoulos – Mass DEP
Chad Vincent – JDC Demolition

Figures



Notes:

1. Figure is not to scale

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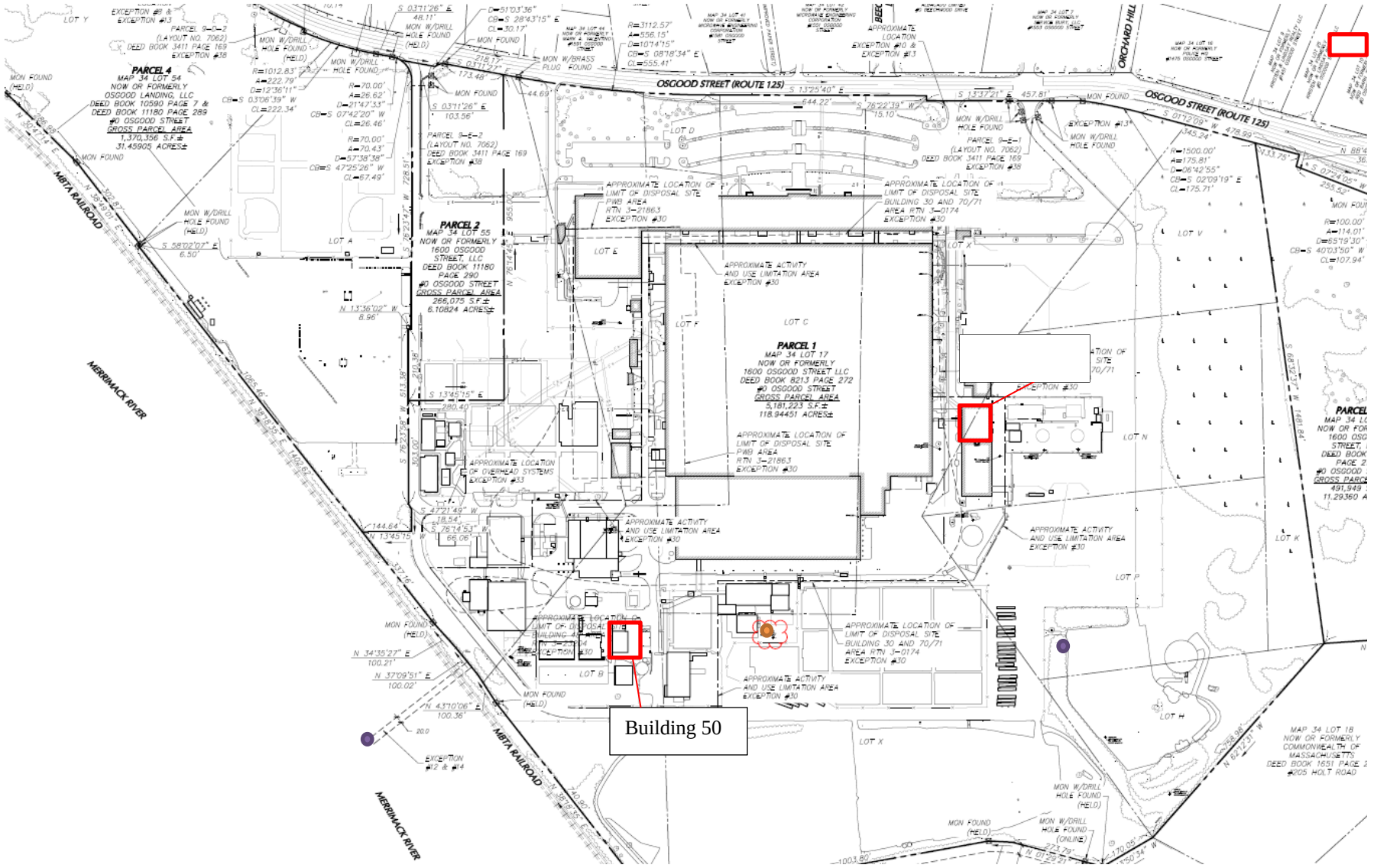
Figure 1 – Locus Plan
1600 Osgood Street
North Andover, MA



Key

Outfalls

Sample Location

Buildings

89 Crawford Street
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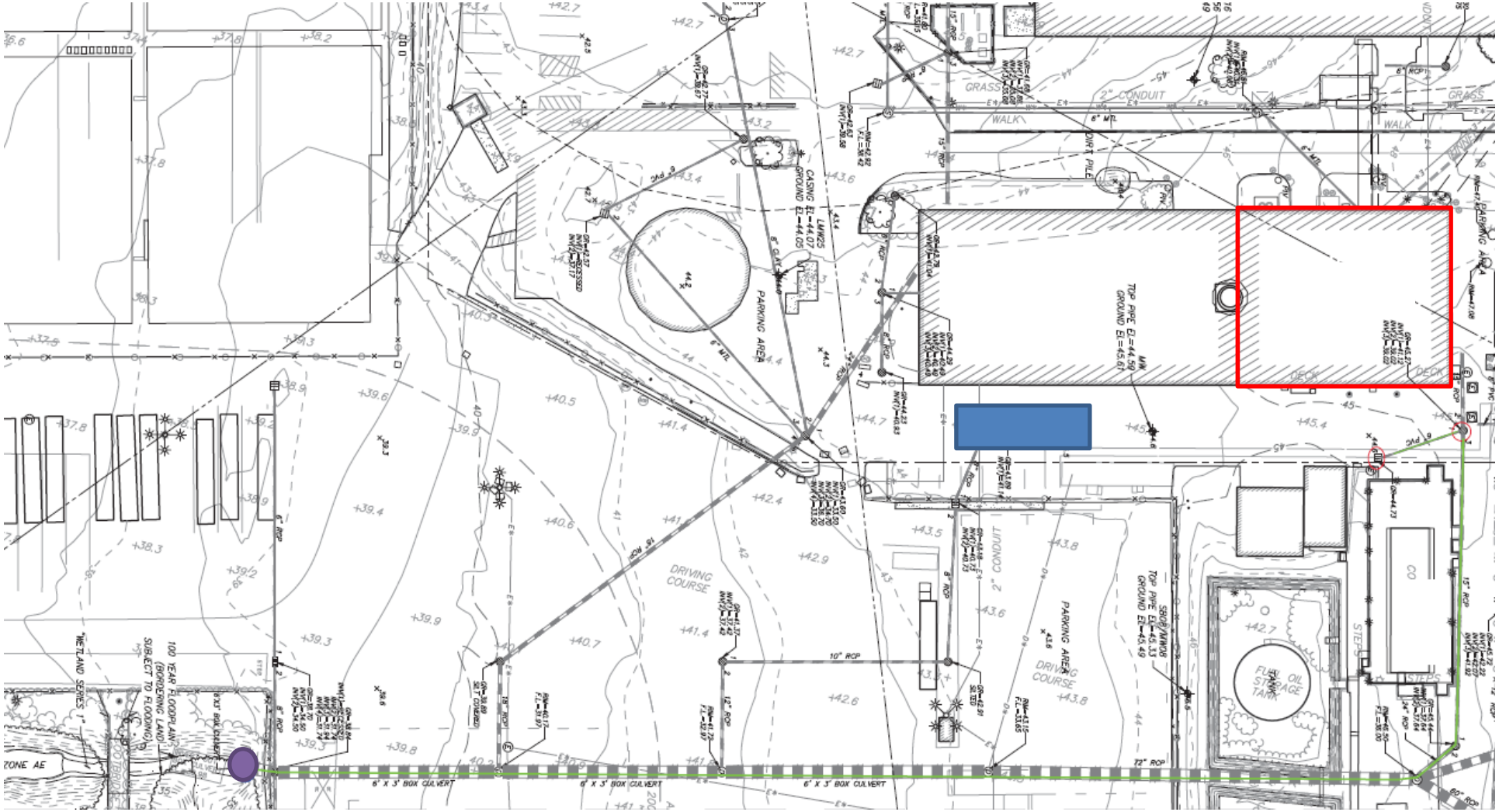
Figure 2A – General Site Plan
1600 Osgood Street
North Andover, Massachusetts



Source:

Notes

1. Figure is not to scale.

Key

Outfall 002
Drain Line
Discharge Location(s)
Water Treatment system

Lockwood Remediation Technologies LLC

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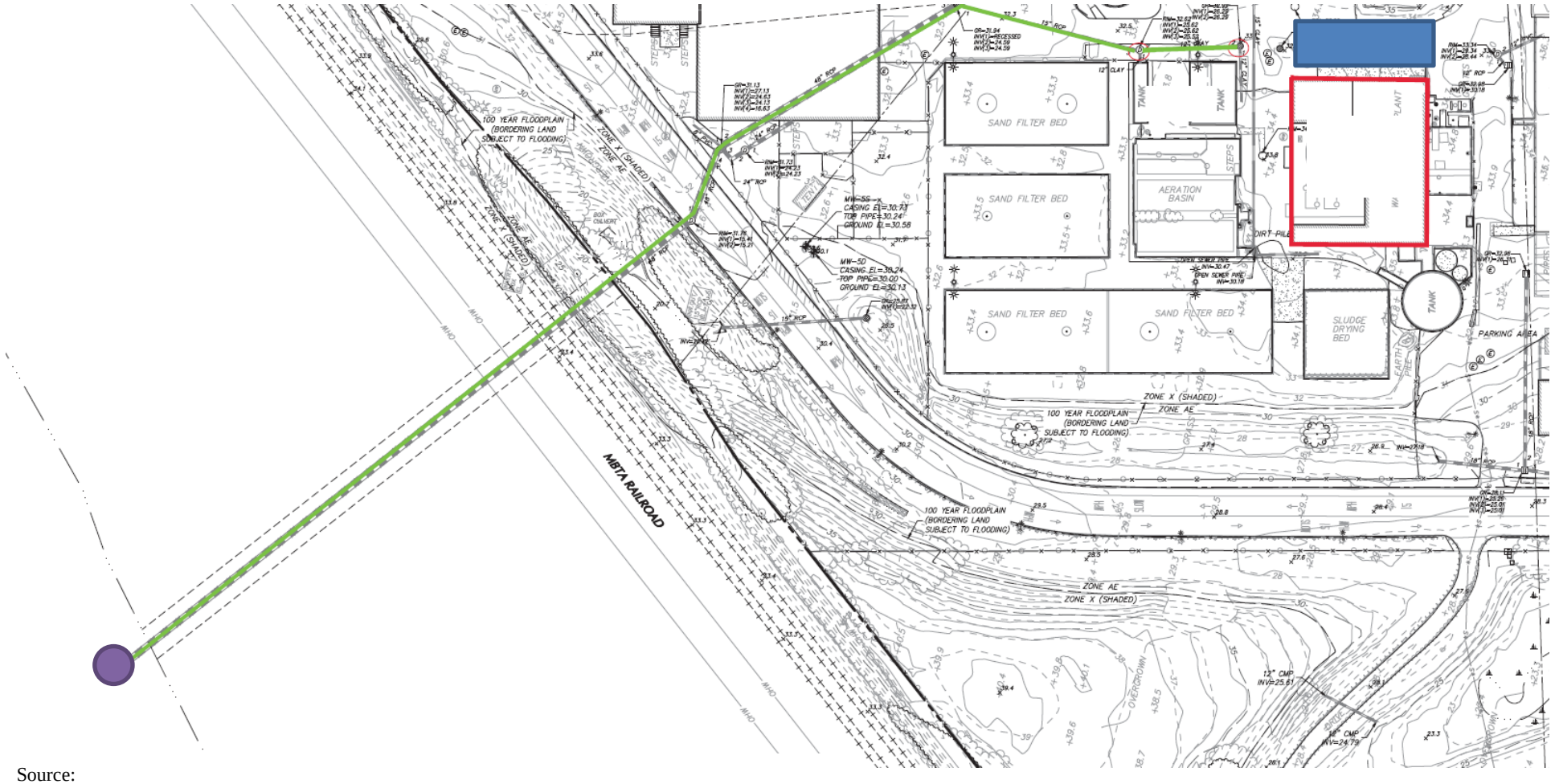
Figure 2B – Site Plan
Building 40
1600 Osgood Street
North Andover, Massachusetts



Source:

Notes

1. Figure is not to scale.

Key

Outfall 001
Drain Line
Discharge Location(s)
Water Treatment system

Lockwood Remediation Technologies LLC

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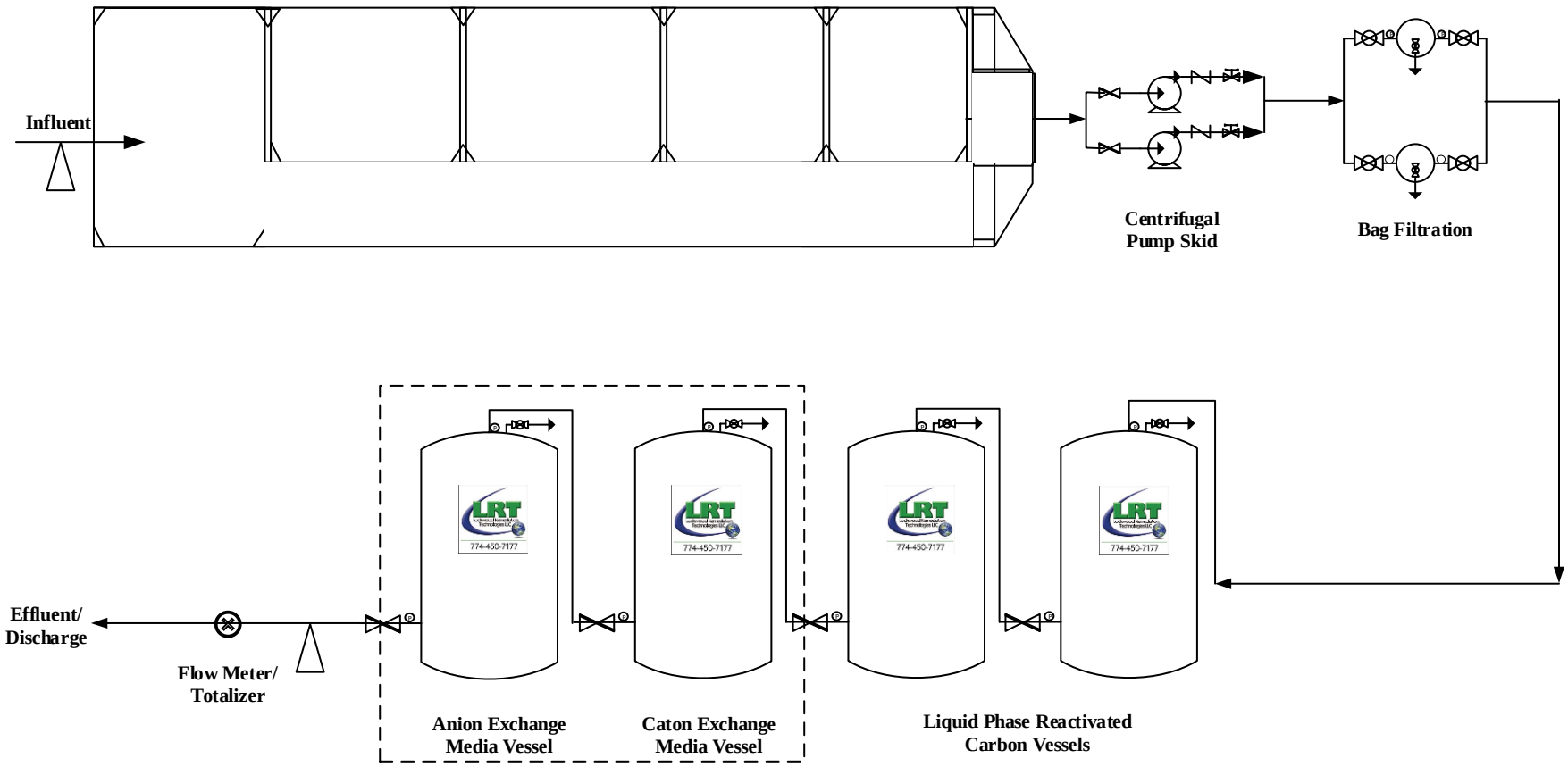
Figure 2C – Site Plan
Building 50
1600 Osgood Street
North Andover, Massachusetts



Key:

Piping/Hose	
Sample Port	
Ball Valve	
Butterfly Valve	
Pressure Gauge	
Check Valve	
Gate Valve	
Contingency	

Notes:

1.) Figure is not to scale
2.) System rated for 400 GPM

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

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

CHECKED BY: **DATE:**

Water Treatment System Schematic

1600 Osgood Street
North Andover, MA

PROJECT No. 2-2137

FIGURE No. 5

Appendix A

NOI Form

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

A. General site information:

<table>
<tr><td rowspan="2">1. Name of site:
1600 Osgood Street</td><td colspan="3">Site address: 1600 Osgood Street
Street:</td></tr>
<tr><td>City: North Andover</td><td>State: MA</td><td>Zip: 01845</td></tr>
<tr><td rowspan="4">2. Site owner
HIP Transaction Services, LLC

Owner is (check one): ☐ Federal ☐ State/Tribal ■ Private
☐ Other; if so, specify:</td><td colspan="3">Contact Person: Marc Criscuolo</td></tr>
<tr><td colspan="2">Telephone: 203-410-4454</td><td>Email: mark.criscuolo@whiting-turner.co</td></tr>
<tr><td colspan="3">Mailing address: 7000 Central Parkway Suite 970
Street:</td></tr>
<tr><td>City: Atlanta</td><td>State: GA</td><td>Zip: 30328</td></tr>
<tr><td rowspan="4">3. Site operator, if different than owner
JDC Demolition Company, Inc</td><td colspan="3">Contact Person: Chad Vincent</td></tr>
<tr><td colspan="2">Telephone: 508-208-9388</td><td>Email: cvincent@jdcdemoinc.com</td></tr>
<tr><td colspan="3">Mailing address:
Street: 60 Gerard Street</td></tr>
<tr><td>City: Boston</td><td>State: MA</td><td>Zip: 02119</td></tr>
<tr><td>4. NPDES permit number assigned by EPA:

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

B. Receiving water information:

1. Name of receiving water(s):	Waterbody identification of receiving water(s):	Classification of receiving water(s):
Merrimack River	MA84A-04	Class B

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

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

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

3. Indicate if the receiving water(s) is listed in the State's Integrated List of Waters (i.e., CWA Section 303(d)). Include which designated uses are impaired, and any pollutants indicated. Also, indicate if a final TMDL is available for any of the indicated pollutants. For more information, contact the appropriate State as noted in Part 4.6 of the RGP. Escherichia Coli, PCB in Fish Tissue, Phosphorus (Total)

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.	Outfall 001=967cfs Outfall 002=0.00408cfs
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.	Outfall 001=1079 Outfall 002= 1.02

6. Has the operator received confirmation from the appropriate State for the 7Q10and dilution factor indicated? (check one): ■ Yes ☐ No
If yes, indicate date confirmation received: 12/23/2020 and 12/30/2020

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

C. Source water information:

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

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

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

D. Discharge information

1.The discharge(s) is a(n) (check any that apply): ☐ Existing discharge ■ New discharge ☐ New source	
Outfall(s): 001 (Building 50) 002 (Building 40)	Outfall location(s): (Latitude, Longitude) 42.733529, -71.121301 42.728185, -71.118483
Discharges enter the receiving water(s) via (check any that apply): ■ Direct discharge to the receiving water ■ Indirect discharge, if so, specify: Treated water will be discharged to two catch basins on site. One is a direct discharge and the other is an indirect discharge to the Merrimack River. ■ A private storm sewer system ☐ A municipal storm sewer system If the discharge enters the receiving water via a private or municipal storm sewer system: Has notification been provided to the owner of this system? (check one): ■ Yes ☐ No Has the operator has received permission from the owner to use such system for discharges? (check one): ■ Yes ☐ No, if so, explain, with an estimated timeframe for obtaining permission: Owner is aware of project and required dewatering and discharge to existing drainage system. Has the operator attached a summary of any additional requirements the owner of this system has specified? (check one): ☐ Yes ■ No	
Provide the expected start and end dates of discharge(s) (month/year): 2/1/2021 - 12/30/2021 Indicate if the discharge is expected to occur over a duration of: ■ less than 12 months ☐ 12 months or more ☐ is an emergency discharge	
Has the operator attached a site plan in accordance with the instructions in D, above? (check one): ■ Yes ☐ No	

<table>
<tr><td>2. Activity Category: (check all that apply)</td><td colspan="2">3. Contamination Type Category: (check all that apply)</td></tr>
<tr><td rowspan="5">☐ I – Petroleum-Related Site Remediation
☐ II – Non-Petroleum-Related Site Remediation
■ III – Contaminated Site Dewatering
☐ IV – Dewatering of Pipelines and Tanks
☐ V – Aquifer Pump Testing
☐ VI – Well Development/Rehabilitation
☐ VII – Collection Structure Dewatering/Remediation
☐ VIII – Dredge-Related Dewatering</td><td colspan="2">a. If Activity Category I or II: (check all that apply)

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

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

4. Influent and Effluent Characteristics

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
A. Inorganics									
Ammonia	✔		1	350	100	<100	<100	Report mg/L	---
Chloride		✔	1	300	50000	400000	400000	Report µg/l	---
Total Residual Chlorine	✔		1	4500	20	<20	<20	0.2 mg/L	11
Total Suspended Solids		✔	1	2540	2500	14000000	14000000	30 mg/L	---
Antimony	✔		1	200.8	1.0	<1.0	<1.0	206 µg/L	
Arsenic		✔	1	200.8	0.80	23	23	104 µg/L	10
Cadmium		✔	1	200.8	0.20	1.1	1.1	10.2 µg/L	
Chromium III		✔	1	200.8	3.2	450	450	323 µg/L	
Chromium VI	✔		1	3500	4	<4	<4	323 µg/L	
Copper		✔	1	200.8	1.0	150	150	242 µg/L	54
Iron		✔	1	200.7	50	100000	100000	5,000 µg/L	1000
Lead		✔	1	200.8	0.50	78	78	160 µg/L	0.86
Mercury	✔		1	245.1	0.1	<0.1	<0.1	0.739 µg/L	
Nickel		✔	1	200.8	5.0	270	270	1,450 µg/L	
Selenium		✔	1	200.8	5.0	1.7	1.7	235.8 µg/L	
Silver	✔		1	200.8	0.2	<0.2	<0.2	35.1 µg/L	
Zinc		✔	1	200.8	10	250	250	420 µg/L	
Cyanide		✔	1	4500	1	<1	<1	178 mg/L	
B. Non-Halogenated VOCs									
Total BTEX		✔	1	624.1		1.44	1.44	100 µg/L	---
Benzene	✔		1	624.1	0.180	<0.180	<0.180	5.0 µg/L	---
1,4 Dioxane	✔		1	624.1	22.5	<22.5	<22.5	200 µg/L	---
Acetone	✔		1	624.1	3.79	<3.79	<3.79	7.97 mg/L	---
Phenol	✔		1	625.1	10.2	<10.2	<10.2	1,080 µg/L	

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
C. Halogenated VOCs									
Carbon Tetrachloride	✔		1	624.1	0.110	<0.110	<0.110	4.4 µg/L	
1,2 Dichlorobenzene	✔		1	624.1	0.160	<0.160	<0.160	600 µg/L	---
1,3 Dichlorobenzene	✔		1	624.1	0.120	<0.120	<0.120	320 µg/L	---
1,4 Dichlorobenzene	✔		1	624.1	0.130	<0.130	<0.130	5.0 µg/L	---
Total dichlorobenzene								763 µg/L in NH	---
1,1 Dichloroethane	✔		1	624.1	0.160	<0.160	<0.160	70 µg/L	---
1,2 Dichloroethane	✔		1	624.1	0.410	<0.410	<0.410	5.0 µg/L	---
1,1 Dichloroethylene	✔		1	624.1	0.320	<0.320	<0.320	3.2 µg/L	---
Ethylene Dibromide	✔		1	504.1	0.012	<0.012	<0.012	0.05 µg/L	---
Methylene Chloride	✔		1	624.1	0.340	<0.340	<0.340	4.6 µg/L	---
1,1,1 Trichloroethane	✔		1	624.1	0.200	<0.200	<0.200	200 µg/L	---
1,1,2 Trichloroethane	✔		1	624.1	0.160	<0.160	<0.160	5.0 µg/L	---
Trichloroethylene	✔		1	624.1	0.240	<0.240	<0.240	5.0 µg/L	---
Tetrachloroethylene		✔	1	624.1	0.180	2.35	2.35	5.0 µg/L	
cis-1,2 Dichloroethylene	✔		1	624.1	0.310	<0.310	<0.310	70 µg/L	---
Vinyl Chloride	✔		1	624.1	0.450	<0.450	<0.450	2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates	✔		1	625.1		<190	<190	190 µg/L	
Diethylhexyl phthalate	✔		1	625.1	10.2	<10.2	<10.2	101 µg/L	
Total Group I PAHs	✔		1	625.1		<1.0	<1.0	1.0 µg/L	---
Benzo(a)anthracene	✔		1	625.1	0.016	<0.016	<0.016	As Total PAHs	
Benzo(a)pyrene	✔		1	625.1	0.012	<0.012	<0.012		
Benzo(b)fluoranthene	✔		1	625.1	0.015	<0.015	<0.015		
Benzo(k)fluoranthene	✔		1	625.1	0.012	<0.012	<0.012		
Chrysene	✔		1	625.1	0.015	<0.015	<0.015		
Dibenzo(a,h)anthracene	✔		1	625.1	0.017	<0.017	<0.017		
Indeno(1,2,3-cd)pyrene	✔		1	625.1	0.018	<0.018	<0.018		

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
Total Group II PAHs	✔		1	625.1				100 µg/L	---
Naphthalene	✔		1	625.1	5.10	<5.10	<5.10	20 µg/L	---
E. Halogenated SVOCs									
Total PCBs	✔		1	608.3	0.092	<0.092	<0.092	0.000064 µg/L	---
Pentachlorophenol	✔		1	625.1	0.34	<0.34	<0.34	1.0 µg/L	---
F. Fuels Parameters									
Total Petroleum Hydrocarbons	✔		1	1664	7.0	<7.0	<7.0	5.0 mg/L	---
Ethanol	✔		1	624.1	10.5	<10.5	<10.5	Report mg/L	---
Methyl-tert-Butyl Ether	✔		1	624.1	0.250	<0.250	<0.250	70 µg/L	
tert-Butyl Alcohol	✔		1	624.1	4.17	<4.17	<4.17	120 µg/L in MA 40 µg/L in NH	---
tert-Amyl Methyl Ether	✔		1	624.1	0.140	<0.140	<0.140	90 µg/L in MA 140 µg/L in NH	---
Other (i.e., pH, temperature, hardness, salinity, LC_{50}, additional pollutants present); if so, specify:									
Hardness		✔	1	200.7	1.4	780	780		
Receiving Water									
Arenic		✔	1	200.8	0.80	0.92	0.92		
Chromium		✔	1	200.8	1.0	2.5	2.5		
Copper		✔	1	200.8	1.0	3.0	3.0		
Iron		✔	1	200.7	50	1300	1300		
Lead		✔	1	200.8	0.50	3.1	3.1		
Zinc		✔	1	200.8	10	18	18		
Hardness		✔	1	200.7	1.4	35	35		
Ammonia (ug/L)		✔	1	350.1	0.10	730	730		

E. Treatment system information

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

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

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

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

Source water will be pumped from the excavation to a 18,000 gallon weir tank for primary settling. Water will then be pumped to a multi-bag filter skid (with two multi-bag filter housings), followed by two carbon vessels plumbed in series. Each carbon vessel will contain reactivated carbon. Discharge from the carbon vessels will pass through a flow meter/totalizer prior to discharge to an on site catch basin that has a final outfall in the Merrimack River. Two resin vessels, one containing cation and one containing anion will be added after the carbon vessels if metals are found to be above applicable RGP effluent limitations.

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

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

☐ Chemical feed tank ☐ Air stripping unit ■ Bag filter ☐ Other; if so, specify:

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

☐ Chlorination ☐ De-chlorination

3. Provide the **design flow capacity** in gallons per minute (gpm) of the most limiting component. Indicate the most limiting component: Carbon vessels / Ion Exchange Vessels Is use of a flow meter feasible? (check one): ■ Yes ☐ No, if so, provide justification:	400
Provide the proposed maximum effluent flow in gpm.	400
Provide the average effluent flow in gpm.	300
If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:	

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

F. Chemical and additive information

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

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

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

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

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

G. Endangered Species Act eligibility determination

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

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

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

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

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

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

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

H. National Historic Preservation Act eligibility determination

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

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

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

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

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

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

I. Supplemental information

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

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

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

J. Certification requirement

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

BMPP certification statement:	A BMPP will be developed and maintained to meet the requirements of this permit. The BMPP will be implemented on-site prior to the initiation of discharge
Notification provided to the appropriate State, including a copy of this NOI, if required.	Check one: Yes ■ No ☐
Notification provided to the municipality in which the discharge is located, including a copy of this NOI, if requested.	Check one: Yes ☐ No ■
Notification provided to the owner of a private or municipal storm sewer system, if such system is used for site discharges, including a copy of this NOI, if requested.	Check one: Yes ■ No ☐ NA ☐
Permission obtained from the owner of a private or municipal storm sewer system, if such system is used for site discharges. If yes, attach additional conditions. If no, attach explanation and timeframe for obtaining permission.	Check one: Yes ☐ No ☐ NA ■
Notification provided to the owner/operator of the area associated with activities covered by an additional discharge permit(s). Additional discharge permit is (check one): ☐ RGP ☐ DGP ☐ CGP ☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:	Check one: Yes ☐ No ☐ NA ■
Signature: JDC	Date: 1/6/21
Print Name and Title: Chad Vincent VP JDC Demolition Company, Inc.	

Site RTNs

Waste Site & Reportable Releases Results

VIEW MAP

Search Criteria *City/Town:* NORTH ANDOVER *Address:* 1600 OSGOOD ST

1 / 1 200 1 - 8 of 8 items

SELECT ...	RTN	CITY/TOWN	RELEASE ADDRES...	SITE NAME LOCATION AID	REPORTING CATEGO...	NOTIFICATION DA...
☐	3-0025333	NORTH ANDOVER	1600 OSGOOD ST	FORMER LUCENT TECHNOLOGIES MVW BLDG 34	120 DY	10/18/2005
☐	3-0024211	NORTH ANDOVER	1600 OSGOOD ST	MERRIMACK VALLEY WORKS MW 71D	120 DY	09/01/2004
☐	3-0021863	NORTH ANDOVER	1600 OSGOOD ST	FMR LUCENT TECHNOLOGIES MVW PWB AREA	120 DY	06/18/2002
☐	3-0019831	NORTH ANDOVER	1600 OSGOOD ST	WEST OF BLDG 44 WEST LOT	TWO HR	08/11/2000
☐	3-0012462	NORTH ANDOVER	1600 OSGOOD ST	EAST OF BLDG 34 STORM DRAIN	TWO HR	05/10/1995
☐	3-0011048	NORTH ANDOVER	1600 OSGOOD ST	BLDG 50	TWO HR	05/23/1994
☐	3-0010815	NORTH ANDOVER	1600 OSGOOD ST	AT&T	TWO HR	04/07/1994
☐	3-0000174	NORTH ANDOVER	1600 OSGOOD ST	FMR LUCENT TECHNOLOGIES MVW	NONE	11/07/1986

1 / 1 200 1 - 8 of 8 items

MA Limits WQBEL

Outfall 001

Enter number values in green boxes below

Enter values in the units specified

↓

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

Enter a dilution factor, if other than zero

↓

1079

Enter values in the units specified

↓

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

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

↓

7.7	pH in **Standard Units**
15	Temperature in **^oC**
0.73	Ammonia in **mg/L**
35	Hardness in **mg/L** $CaCO_3$
0	Salinity in **ppt**
0	Antimony in **µg/L**
0.92	Arsenic in **µg/L**
0	Cadmium in **µg/L**
2.5	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
3	Copper in **µg/L**
1300	Iron in **µg/L**
3.1	Lead in **µg/L**
0	Mercury in **µg/L**
0	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
18	Zinc in **µg/L**

Enter **influent** concentrations in the units specified

↓

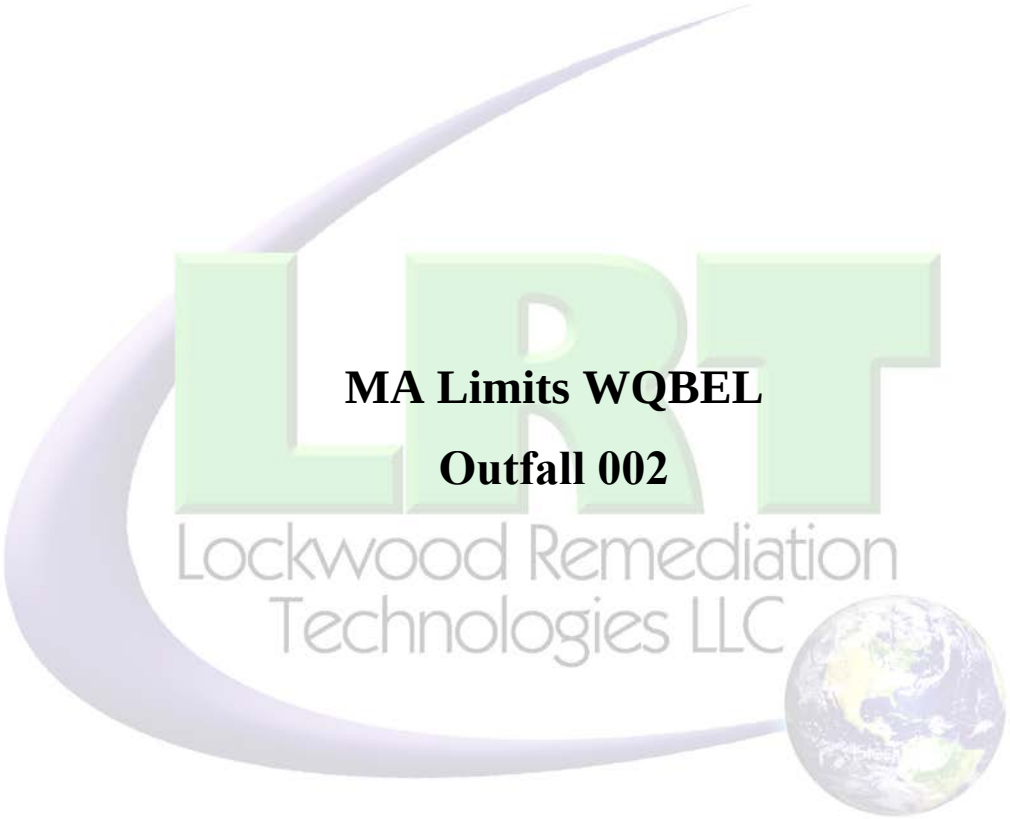
0	TRC in **µg/L**
0	Ammonia in **mg/L**
0	Antimony in **µg/L**
23	Arsenic in **µg/L**
1.1	Cadmium in **µg/L**
450	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
150	Copper in **µg/L**
100000	Iron in **µg/L**
78	Lead in **µg/L**
0	Mercury in **µg/L**
270	Nickel in **µg/L**
1.7	Selenium in **µg/L**
0	Silver in **µg/L**
250	Zinc in **µg/L**
0	Cyanide in **µg/L**
0	Phenol in **µg/L**
0	Carbon Tetrachloride in **µg/L**
2.35	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**

Dilution Factor	1078.6			
	TBEL applies if bolded		WQBEL applies if bolded	
A. Inorganics				
Ammonia	**Report**	mg/L	---	
Chloride	**Report**	µg/L	---	
Total Residual Chlorine	**0.2**	mg/L	11864	µg/L
Total Suspended Solids	**30**	mg/L	---	
Antimony	**206**	µg/L	690295	µg/L
Arsenic	**104**	µg/L	9794	µg/L
Cadmium	**10.2**	µg/L	0.1261	µg/L
Chromium III	**323**	µg/L	37282.3	µg/L
Chromium VI	**323**	µg/L	12333.1	µg/L
Copper	**242**	µg/L	939.2	µg/L
Iron	5000	µg/L	**1000**	µg/L
Lead	160	µg/L	**0.86**	µg/L
Mercury	**0.739**	µg/L	977.07	µg/L
Nickel	**1450**	µg/L	23533.1	µg/L
Selenium	**235.8**	µg/L	5392.9	µg/L
Silver	**35.1**	µg/L	693.8	µg/L
Zinc	**420**	µg/L	34585.7	µg/L
Cyanide	**178**	mg/L	5608.6	µg/L
B. Non-Halogenated VOCs				
Total BTEX	**100**	µg/L	---	
Benzene	**5.0**	µg/L	---	
1,4 Dioxane	**200**	µg/L	---	
Acetone	**7970**	µg/L	---	
Phenol	**1,080**	µg/L	323576	µg/L
C. Halogenated VOCs				
Carbon Tetrachloride	**4.4**	µg/L	1725.7	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	3559.3	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	2372.9	µg/L
Total Group I Polycyclic Aromatic Hydrocarbons	**1.0**	µg/L	---	
Benzo(a)anthracene	**1.0**	µg/L	4.0986	µg/L
Benzo(a)pyrene	**1.0**	µg/L	4.0986	µg/L
Benzo(b)fluoranthene	**1.0**	µg/L	4.0986	µg/L
Benzo(k)fluoranthene	**1.0**	µg/L	4.0986	µg/L
Chrysene	**1.0**	µg/L	4.0986	µg/L
Dibenzo(a,h)anthracene	**1.0**	µg/L	4.0986	µg/L
Indeno(1,2,3-cd)pyrene	**1.0**	µg/L	4.0986	µg/L
Total Group II Polycyclic Aromatic Hydrocarbons	**100**	µg/L	---	
Naphthalene	**20**	µg/L	---	
E. Halogenated SVOCs				
Total Polychlorinated Biphenyls	**0.000064**	µg/L	---	
Pentachlorophenol	**1.0**	µg/L	---	
F. Fuels Parameters				
Total Petroleum Hydrocarbons	**5.0**	mg/L	---	
Ethanol	**Report**	mg/L	---	
Methyl-tert-Butyl Ether	**70**	µg/L	21572	µg/L
tert-Butyl Alcohol	**120**	µg/L	---	
tert-Amyl Methyl Ether	**90**	µg/L	---	

MA Limits WQBEL

Outfall 002



Enter number values in green boxes below

Enter values in the units specified

↓

0.0026	Q_R = Enter upstream flow in **MGD**
0.58	Q_P = Enter discharge flow in **MGD**
0	Downstream 7Q10

Enter a dilution factor, if other than zero

↓

1.02

Enter values in the units specified

↓

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

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

↓

7.7	pH in **Standard Units**
15	Temperature in **^oC**
0.73	Ammonia in **mg/L**
35	Hardness in **mg/L** $CaCO_3$
0	Salinity in **ppt**
0	Antimony in **µg/L**
0.92	Arsenic in **µg/L**
0	Cadmium in **µg/L**
2.5	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
3	Copper in **µg/L**
1300	Iron in **µg/L**
3.1	Lead in **µg/L**
0	Mercury in **µg/L**
0	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
18	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**
23	Arsenic in **µg/L**
1.1	Cadmium in **µg/L**
450	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
150	Copper in **µg/L**
100000	Iron in **µg/L**
78	Lead in **µg/L**
0	Mercury in **µg/L**
270	Nickel in **µg/L**
1.7	Selenium in **µg/L**
0	Silver in **µg/L**
250	Zinc in **µg/L**
0	Cyanide in **µg/L**
0	Phenol in **µg/L**
0	Carbon Tetrachloride in **µg/L**
2.35	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**

Dilution Factor	1.0			
	TBEL applies if bolded		WQBEL applies if bolded	
A. Inorganics				
Ammonia	**Report**	mg/L	---	
Chloride	**Report**	µg/L	---	
Total Residual Chlorine	0.2	mg/L	**11**	µg/L
Total Suspended Solids	**30**	mg/L	---	
Antimony	**206**	µg/L	643	µg/L
Arsenic	104	µg/L	**10**	µg/L
Cadmium	**10.2**	µg/L	1.2372	µg/L
Chromium III	**323**	µg/L	463.9	µg/L
Chromium VI	**323**	µg/L	11.5	µg/L
Copper	242	µg/L	**54.0**	µg/L
Iron	5000	µg/L	**1000**	µg/L
Lead	160	µg/L	**43.42**	µg/L
Mercury	**0.739**	µg/L	0.91	µg/L
Nickel	**1450**	µg/L	296.8	µg/L
Selenium	**235.8**	µg/L	5.0	µg/L
Silver	**35.1**	µg/L	129.2	µg/L
Zinc	**420**	µg/L	683.5	µg/L
Cyanide	**178**	mg/L	5.2	µg/L
B. Non-Halogenated VOCs				
Total BTEX	**100**	µg/L	---	
Benzene	**5.0**	µg/L	---	
1,4 Dioxane	**200**	µg/L	---	
Acetone	**7970**	µg/L	---	
Phenol	**1,080**	µg/L	301	µg/L
C. Halogenated VOCs				
Carbon Tetrachloride	**4.4**	µg/L	1.6	µg/L
1,2 Dichlorobenzene	**600**	µg/L	---	
1,3 Dichlorobenzene	**320**	µg/L	---	
1,4 Dichlorobenzene	**5.0**	µg/L	---	
Total dichlorobenzene	**---**	µg/L	---	
1,1 Dichloroethane	**70**	µg/L	---	
1,2 Dichloroethane	**5.0**	µg/L	---	
1,1 Dichloroethylene	**3.2**	µg/L	---	
Ethylene Dibromide	**0.05**	µg/L	---	
Methylene Chloride	**4.6**	µg/L	---	
1,1,1 Trichloroethane	**200**	µg/L	---	
1,1,2 Trichloroethane	**5.0**	µg/L	---	
Trichloroethylene	**5.0**	µg/L	---	
Tetrachloroethylene	**5.0**	µg/L	3.3	µg/L
cis-1,2 Dichloroethylene	**70**	µg/L	---	

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

Dilution Calculation Determination

From: Ruan, Xiaodan (DEP)
To: Jake Jennings
Cc: Vakalopoulos, Catherine (DEP)
Subject: RE: New Dilution Calcs
Date: Wednesday, December 30, 2020 5:56:15 PM

Hi Jake,

It was nice speaking to you earlier today.

The 7Q10 for the unnamed tributary where the Outfall 002 discharges to would be 0.00408 cfs, and the dilution factor would be 1.02.

Also, as you know, if this is not a *current* MCP site, then in addition to submitting the NOI to EPA, you need to apply with MassDEP and submit a $500 fee (unless fee exempt, e.g., municipality) using the ePLACE. The instructions are located on this page: https://www.mass.gov/how-to/wm-15-npdes-general-permit-notice-of-intent. Technical assistant information is available on the front page of the ePLACE application webpage.

Please let me know if you have any questions.

Happy New Year!
Xiaodan

From: Jake Jennings <JJennings@lrt-llc.net>
Sent: Tuesday, December 29, 2020 2:31 PM
To: Ruan, Xiaodan (DEP) <xiaodan.ruan@mass.gov>
Subject: RE: New Dilution Calcs

Hi Xiaodon,

I Hope you had a nice holiday! Sorry for the delayed response I'm available all day tomorrow to discuss this. Let me know what time you are free to talk or give me a call at 508-930-9812 anytime.

Thank you,

Jake

Lockwood Remediation Technologies, LLC
89 Crawford Street
Leominster, MA 01453
O: 774.450.7177
F: 888.835.0617

M: 508.930.9812
jjennings@lrt-llc.net

From: Ruan, Xiaodan (DEP) <xiaodan.ruan@state.ma.us>
Sent: Wednesday, December 23, 2020 9:34 PM
To: Jake Jennings <JJennings@lrt-llc.net>; Vakalopoulos, Catherine (DEP) <catherine.vakalopoulos@state.ma.us>
Cc: John Henry <jhenry@lrt-llc.net>
Subject: RE: New Dilution Calcs

Hi Jake,

There is a USGS gage station USGS 01100000 upstream of the proposed outfall location (see the snapshot of the StreamStats below). The 7Q10 and drainage area at the USGS 01100000 are 930 cfs and 4635 mi2 (https://streamstatsags.cr.usgs.gov/gagepages/html/01100000.htm).

According to your description in the below email and the previous email (attached here), there are two proposed outfalls. The outfall 001 directly discharges to the Merrimack River, and outfall 002 discharges to an unnamed stream that drains to the Merrimack River.

To determine the 7Q10 of the Merrimack River at Outfall 001, the approach I am using here is to multiply the 7Q10 at the USGS 01100000 by a ratio of the outfall drainage area and the gage drainage area. The drainage area of the outfall is 4830 mi2.

7Q10 @ Outfall 001 = 7Q10 @USGS gage * (Area @ outfall 001 / Area @ USGS gage) = 930 cfs * (4830/4635) = 967 cfs = 625 MGD

Design flow = 400 gpm =0.58 MGD

Dilution Factor at outfall 001 = (0.58 +625)/0.58 **= 1079**

For outfall 002, based on the information provided in your previous email (attached), the discharge first goes to the unnamed tributary, which has a 7Q10 of 0.00408 cfs according to the StreamStats. In this case, I think the receiving water should be the unnamed tributary. But I would like to speak to you to understand the situation better. Also, I want to confirm this with Cathy, and she will be out of the office until Monday.

Please let me know if we can have a phone call anytime Monday - Wednesday.

I hope you have a lovely holiday!
Regards,
Xiaodan

From: Jake Jennings <JJennings@lrt-llc.net>
Sent: Wednesday, December 23, 2020 12:28 PM
To: Ruan, Xiaodan (DEP) <xiaodan.ruan@mass.gov>; Vakalopoulos, Catherine (DEP) <catherine.vakalopoulos@mass.gov>
Cc: John Henry <jhenry@lrt-llc.net>
Subject: New Dilution Calcs

Hi Cathy and Xiaodan,

I am trying to determine the dilution calcs for the below project and I am having trouble with Stream Stats. The basin for the Merrimack River is out of range for the program. I have attached what the program gave me but I think it is wrong. Any help you can provide is greatly appreciated.

Please see attached dilution calcs and streamstats report for 1600 Osgood Street for you review and approval.

The project:

1600 Osgood Street
North Andover, MA
We plan to discharge to 2 separate outfalls in the Merrimack river (MA84A-04) Class B. The outfalls will be used at different times but will each receive a maximum flow of 400 gpm.

The 7 Day 10 Year flow value from the stream stats report is 365 cfs and the calculated dilution factor is 444.17.

Have a great holiday!

Thank you,

Jake Jennings

Lockwood Remediation Technologies, LLC
89 Crawford Street
Leominster, MA 01453
O: 774.450.7177
F: 888.835.0617
M: 978.751.5431
jjennings@lrt-llc.net

Appendix B

Laboratory Data

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

December 31, 2020

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

Project Location: 1600 Osgood St.
Client Job Number:
Project Number: 2-2137
Laboratory Work Order Number: 20L0887

Enclosed are results of analyses for samples received by the laboratory on December 16, 2020. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerry K. McGee
Project Manager

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

Lockwood Remediation Technologies, LLC
89 Crawford Street
Leominster, MA 01453
ATTN: John Henry

REPORT DATE: 12/31/2020

PURCHASE ORDER NUMBER: 2-2137

PROJECT NUMBER: 2-2137

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 20L0887

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

PROJECT LOCATION: 1600 Osgood St.

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
Influent	20L0887-01	Ground Water		608.3	
				624.1	
				625.1	
				EPA 1664B	
				EPA 200.7	
				EPA 200.8	
				EPA 245.1	
				EPA 300.0	
				EPA 350.1	
				EPA 504.1	
				SM21-22 2540D	
				SM21-22 3500 Cr B	
				SM21-22 4500 CL G	
				SM21-22 4500 CN E	MA M-MA-086/CT PH-0574/NY11148
				Tri Chrome Calc.	
Receiving Water	20L0887-02	Ground Water		EPA 200.7	
				EPA 200.8	
				EPA 245.1	
				EPA 350.1	
				SM21-22 3500 Cr B	
				Tri Chrome Calc.	

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CASE NARRATIVE SUMMARY

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

REVISED REPORT - 12/31/2020 - Ethanol addded per clients request.

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

624.1

Qualifications:

V-05

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:

Ethanol
20L0887-01[Influent], B273078-BLK1, B273078-BS1, S055560-CCV1

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:

Benzidine
20L0887-01[Influent], B273158-BLK1, B273158-BS1, B273158-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
B273158-BSD1

N-Nitrosodimethylamine
B273158-BSD1

R-05

Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.

Analyte & Samples(s) Qualified:

Benzidine
20L0887-01[Influent], B273158-BLK1, B273158-BS1, B273158-BSD1

S-07

One associated surrogate standard recovery is outside of control limits but the other(s) is/are within limits. All recoveries are > 10%.

Analyte & Samples(s) Qualified:

2,4,6-Tribromophenol
20L0887-01[Influent]

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
20L0887-01[Influent], B273158-BLK1, B273158-BS1, B273158-BSD1, S055667-CCV1, S055675-CCV1

V-05

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:

Benzidine
20L0887-01[Influent], B273158-BLK1, B273158-BS1, B273158-BSD1, S055667-CCV1, S055675-CCV1

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

The results of analyses reported only relate to samples submitted to Con-Test, a Pace 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
Technical Representative

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

Project Location: 1600 Osgood St. Sample Description: Work Order: 20L0887

Date Received: 12/16/2020

Field Sample #: Influent Sampled: 12/16/2020 07:00

Sample ID: 20L0887-01

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	<3.79	50.0	3.79	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
tert-Amyl Methyl Ether (TAME)	<0.140	0.500	0.140	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
Benzene	<0.180	1.00	0.180	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
Bromodichloromethane	<0.160	2.00	0.160	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
Bromoform	<0.460	2.00	0.460	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
Bromomethane	<1.38	5.00	1.38	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
tert-Butyl Alcohol (TBA)	<4.17	20.0	4.17	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
Carbon Tetrachloride	<0.110	2.00	0.110	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
Chlorobenzene	<0.150	2.00	0.150	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
Chlorodibromomethane	<0.210	2.00	0.210	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
Chloroethane	<0.360	2.00	0.360	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
Chloroform	<0.170	2.00	0.170	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
Chloromethane	<0.450	2.00	0.450	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
1,2-Dichlorobenzene	<0.160	2.00	0.160	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
1,3-Dichlorobenzene	<0.120	2.00	0.120	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
1,4-Dichlorobenzene	<0.130	2.00	0.130	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
1,2-Dichloroethane	<0.410	2.00	0.410	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
1,1-Dichloroethane	<0.160	2.00	0.160	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
1,1-Dichloroethylene	<0.320	2.00	0.320	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
trans-1,2-Dichloroethylene	<0.310	2.00	0.310	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
1,2-Dichloropropane	<0.200	2.00	0.200	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
cis-1,3-Dichloropropene	<0.130	2.00	0.130	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
1,4-Dioxane	<22.5	50.0	22.5	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
trans-1,3-Dichloropropene	<0.230	2.00	0.230	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
Ethanol	<10.5	50.0	10.5	µg/L	1	V-05	624.1	12/18/20	12/19/20 3:43	LBD
Ethylbenzene	0.130	2.00	0.130	µg/L	1	J	624.1	12/18/20	12/19/20 3:43	LBD
Methyl tert-Butyl Ether (MTBE)	<0.250	2.00	0.250	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
Methylene Chloride	<0.340	5.00	0.340	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
1,1,2,2-Tetrachloroethane	<0.220	2.00	0.220	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
Tetrachloroethylene	2.35	2.00	0.180	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
Toluene	0.660	1.00	0.140	µg/L	1	J	624.1	12/18/20	12/19/20 3:43	LBD
1,1,1-Trichloroethane	<0.200	2.00	0.200	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
1,1,2-Trichloroethane	<0.160	2.00	0.160	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
Trichloroethylene	<0.240	2.00	0.240	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
Trichlorofluoromethane (Freon 11)	<0.330	2.00	0.330	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
Vinyl Chloride	<0.450	2.00	0.450	µg/L	1		624.1	12/18/20	12/19/20 3:43	LBD
m+p Xylene	0.480	2.00	0.300	µg/L	1	J	624.1	12/18/20	12/19/20 3:43	LBD
o-Xylene	0.170	1.00	0.170	µg/L	1	J	624.1	12/18/20	12/19/20 3:43	LBD

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	83.3	70-130		12/19/20 3:43
Toluene-d8	95.4	70-130		12/19/20 3:43
4-Bromofluorobenzene	102	70-130		12/19/20 3:43

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

Project Location: 1600 Osgood St. Sample Description: Work Order: 20L0887

Date Received: 12/16/2020

Field Sample #: Influent Sampled: 12/16/2020 07:00

Sample ID: 20L0887-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Benzo(a)anthracene (SIM)	<0.016	0.051	0.016	µg/L	1		625.1	12/19/20	12/22/20 20:31	CLA
Benzo(a)pyrene (SIM)	<0.012	0.10	0.012	µg/L	1		625.1	12/19/20	12/22/20 20:31	CLA
Benzo(b)fluoranthene (SIM)	<0.015	0.051	0.015	µg/L	1		625.1	12/19/20	12/22/20 20:31	CLA
Benzo(k)fluoranthene (SIM)	<0.012	0.20	0.012	µg/L	1		625.1	12/19/20	12/22/20 20:31	CLA
Bis(2-ethylhexyl)phthalate (SIM)	<0.44	1.0	0.44	µg/L	1		625.1	12/19/20	12/22/20 20:31	CLA
Chrysene (SIM)	<0.015	0.20	0.015	µg/L	1		625.1	12/19/20	12/22/20 20:31	CLA
Dibenz(a,h)anthracene (SIM)	<0.017	0.10	0.017	µg/L	1		625.1	12/19/20	12/22/20 20:31	CLA
Indeno(1,2,3-cd)pyrene (SIM)	<0.018	0.10	0.018	µg/L	1		625.1	12/19/20	12/22/20 20:31	CLA
Pentachlorophenol (SIM)	<0.34	1.0	0.34	µg/L	1		625.1	12/19/20	12/22/20 20:31	CLA

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
2-Fluorophenol (SIM)	38.7	15-110		12/22/20 20:31
Phenol-d6 (SIM)	30.7	15-110		12/22/20 20:31
Nitrobenzene-d5	73.2	30-130		12/22/20 20:31
2-Fluorobiphenyl	72.6	30-130		12/22/20 20:31
2,4,6-Tribromophenol (SIM)	101	15-110		12/22/20 20:31
p-Terphenyl-d14	90.5	30-130		12/22/20 20:31

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

Project Location: 1600 Osgood St. Sample Description: Work Order: 20L0887

Date Received: 12/16/2020

Field Sample #: Influent Sampled: 12/16/2020 07:00

Sample ID: 20L0887-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	<5.10	5.10	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
Acenaphthylene	<5.10	5.10	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
Anthracene	<5.10	5.10	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
Benzidine	<20.4	20.4	µg/L	1	V-04, V-05, L-04, R-05	625.1	12/19/20	12/21/20 19:53	BGL
Benzo(g,h,i)perylene	<5.10	5.10	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
4-Bromophenylphenylether	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
Butylbenzylphthalate	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
4-Chloro-3-methylphenol	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
Bis(2-chloroethyl)ether	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
Bis(2-chloroisopropyl)ether	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
2-Chloronaphthalene	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
2-Chlorophenol	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
4-Chlorophenylphenylether	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
Di-n-butylphthalate	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
1,3-Dichlorobenzene	<5.10	5.10	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
1,4-Dichlorobenzene	<5.10	5.10	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
1,2-Dichlorobenzene	<5.10	5.10	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
3,3-Dichlorobenzidine	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
2,4-Dichlorophenol	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
Diethylphthalate	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
2,4-Dimethylphenol	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
Dimethylphthalate	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
4,6-Dinitro-2-methylphenol	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
2,4-Dinitrophenol	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
2,4-Dinitrotoluene	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
2,6-Dinitrotoluene	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
Di-n-octylphthalate	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
1,2-Diphenylhydrazine/Azobenzene	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
Bis(2-Ethylhexyl)phthalate	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
Fluoranthene	<5.10	5.10	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
Fluorene	<5.10	5.10	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
Hexachlorobenzene	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
Hexachlorobutadiene	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
Hexachlorocyclopentadiene	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
Hexachloroethane	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
Isophorone	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
Naphthalene	<5.10	5.10	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
Nitrobenzene	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
2-Nitrophenol	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
4-Nitrophenol	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
N-Nitrosodimethylamine	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
N-Nitrosodi-n-propylamine	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
2-Methylnaphthalene	<5.10	5.10	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL

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

Project Location: 1600 Osgood St. Sample Description: Work Order: 20L0887

Date Received: 12/16/2020

Field Sample #: Influent Sampled: 12/16/2020 07:00

Sample ID: 20L0887-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Phenanthrene	<5.10	5.10	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
2-Methylphenol	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
Phenol	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
3/4-Methylphenol	<20.4	20.4	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
Pyrene	<5.10	5.10	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
1,2,4-Trichlorobenzene	<5.10	5.10	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL
2,4,6-Trichlorophenol	<10.2	10.2	µg/L	1		625.1	12/19/20	12/21/20 19:53	BGL

Surrogates	% Recovery		Recovery Limits	Flag/Qual		
2-Fluorophenol	47.3		15-110		12/21/20	19:53
Phenol-d6	37.7		15-110		12/21/20	19:53
Nitrobenzene-d5	68.6		30-130		12/21/20	19:53
2-Fluorobiphenyl	78.5		30-130		12/21/20	19:53
2,4,6-Tribromophenol	**111**	*	15-110	S-07	12/21/20	19:53
p-Terphenyl-d14	88.0		30-130		12/21/20	19:53

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

Project Location: 1600 Osgood St. Sample Description: Work Order: 20L0887

Date Received: 12/16/2020

Field Sample #: Influent Sampled: 12/16/2020 07:00

Sample ID: 20L0887-01

Sample Matrix: Ground Water

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	<0.0920	0.100	0.0920	µg/L	1		608.3	12/18/20	12/21/20 12:52	TG
Aroclor-1221 [1]	<0.0805	0.100	0.0805	µg/L	1		608.3	12/18/20	12/21/20 12:52	TG
Aroclor-1232 [1]	<0.0995	0.100	0.0995	µg/L	1		608.3	12/18/20	12/21/20 12:52	TG
Aroclor-1242 [1]	<0.0865	0.100	0.0865	µg/L	1		608.3	12/18/20	12/21/20 12:52	TG
Aroclor-1248 [1]	<0.0950	0.100	0.0950	µg/L	1		608.3	12/18/20	12/21/20 12:52	TG
Aroclor-1254 [1]	<0.0525	0.100	0.0525	µg/L	1		608.3	12/18/20	12/21/20 12:52	TG
Aroclor-1260 [1]	<0.0980	0.100	0.0980	µg/L	1		608.3	12/18/20	12/21/20 12:52	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	57.5	30-150		12/21/20 12:52
Decachlorobiphenyl [2]	57.7	30-150		12/21/20 12:52
Tetrachloro-m-xylene [1]	80.3	30-150		12/21/20 12:52
Tetrachloro-m-xylene [2]	83.5	30-150		12/21/20 12:52

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Date Received: 12/16/2020

Field Sample #: Influent Sampled: 12/16/2020 07:00

Sample ID: 20L0887-01

Sample Matrix: Ground Water

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	1.0		µg/L	1		EPA 200.8	12/19/20	12/22/20 14:40	MJH
Arsenic	23	0.80		µg/L	1		EPA 200.8	12/19/20	12/22/20 14:40	MJH
Cadmium	1.1	0.20		µg/L	1		EPA 200.8	12/19/20	12/22/20 14:40	MJH
Chromium	450	1.0		µg/L	1		EPA 200.8	12/19/20	12/22/20 14:40	MJH
Chromium, Trivalent	0.45			mg/L	1		Tri Chrome Calc.	12/19/20	12/22/20 14:40	MJH
Copper	150	1.0		µg/L	1		EPA 200.8	12/19/20	12/22/20 14:40	MJH
Iron	100	0.10		mg/L	2		EPA 200.7	12/19/20	12/21/20 22:34	AJL
Lead	78	0.50		µg/L	1		EPA 200.8	12/19/20	12/22/20 14:40	MJH
Mercury	ND	0.00010		mg/L	1		EPA 245.1	12/21/20	12/21/20 13:24	CJV
Nickel	270	5.0		µg/L	1		EPA 200.8	12/19/20	12/22/20 14:40	MJH
Selenium	1.7	5.0	1.6	µg/L	1	J	EPA 200.8	12/19/20	12/22/20 14:40	MJH
Silver	ND	0.20		µg/L	1		EPA 200.8	12/19/20	12/22/20 14:40	MJH
Zinc	250	10		µg/L	1		EPA 200.8	12/19/20	12/22/20 14:40	MJH
Hardness	780	1.4		mg/L	1		EPA 200.7	12/19/20	12/21/20 13:25	AJL

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Project Location: 1600 Osgood St. Sample Description: Work Order: 20L0887

Date Received: 12/16/2020

Field Sample #: Influent Sampled: 12/16/2020 07:00

Sample ID: 20L0887-01

Sample Matrix: Ground 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	0.10		mg/L	1		EPA 350.1	12/22/20	12/23/20 8:01	MMH
Chloride	400	10		mg/L	10		EPA 300.0	12/18/20	12/18/20 18:02	EC
Chlorine, Residual	ND	0.020		mg/L	1		SM21-22 4500 CL G	12/16/20	12/16/20 22:45	DJM
Hexavalent Chromium	ND	0.0040		mg/L	1		SM21-22 3500 Cr B	12/16/20	12/16/20 21:00	CB2
Total Suspended Solids	14000	50		mg/L	1		SM21-22 2540D	12/18/20	12/18/20 13:00	LL
Silica Gel Treated HEM (SGT-HEM)	ND	7.0		mg/L	1		EPA 1664B	12/23/20	12/23/20 9:10	LL

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Project Location: 1600 Osgood St. Sample Description: Work Order: 20L0887

Date Received: 12/16/2020

Field Sample #: Influent Sampled: 12/16/2020 07:00

Sample ID: 20L0887-01

Sample Matrix: Ground Water

Drinking Water Organics EPA 504.1

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,2-Dibromoethane (EDB) (1)	ND	0.019	0.012	µg/L	1		EPA 504.1	12/18/20	12/18/20 22:21	JMB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,3-Dibromopropane (1)	102	70-130		12/18/20 22:21

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Project Location: 1600 Osgood St. Sample Description: Work Order: 20L0887

Date Received: 12/16/2020

Field Sample #: Influent Sampled: 12/16/2020 07:00

Sample ID: 20L0887-01

Sample Matrix: Ground 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	ND	0.005	0.001	mg/L	1		SM21-22 4500 CN E		12/29/20 0:00	AAL

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Project Location: 1600 Osgood St. Sample Description: Work Order: 20L0887

Date Received: 12/16/2020

Field Sample #: Receiving Water Sampled: 12/16/2020 07:00

Sample ID: 20L0887-02

Sample Matrix: Ground Water

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	1.0		µg/L	1		EPA 200.8	12/19/20	12/22/20 14:43	MJH
Arsenic	0.92	0.80		µg/L	1		EPA 200.8	12/19/20	12/22/20 14:43	MJH
Cadmium	ND	0.20		µg/L	1		EPA 200.8	12/19/20	12/22/20 14:43	MJH
Chromium	2.5	1.0		µg/L	1		EPA 200.8	12/19/20	12/22/20 14:43	MJH
Chromium, Trivalent	0.0025			mg/L	1		Tri Chrome Calc.	12/19/20	12/22/20 14:43	MJH
Copper	3.0	1.0		µg/L	1		EPA 200.8	12/19/20	12/22/20 14:43	MJH
Iron	1.3	0.050		mg/L	1		EPA 200.7	12/19/20	12/21/20 13:31	AJL
Lead	3.1	0.50		µg/L	1		EPA 200.8	12/19/20	12/22/20 14:43	MJH
Mercury	ND	0.00010		mg/L	1		EPA 245.1	12/21/20	12/21/20 13:26	CJV
Nickel	ND	5.0		µg/L	1		EPA 200.8	12/19/20	12/22/20 14:43	MJH
Selenium	ND	5.0	1.6	µg/L	1		EPA 200.8	12/19/20	12/22/20 14:43	MJH
Silver	ND	0.20		µg/L	1		EPA 200.8	12/19/20	12/22/20 14:43	MJH
Zinc	18	10		µg/L	1		EPA 200.8	12/19/20	12/22/20 14:43	MJH
Hardness	35	1.4		mg/L	1		EPA 200.7	12/19/20	12/21/20 13:31	AJL

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Project Location: 1600 Osgood St. Sample Description: Work Order: 20L0887

Date Received: 12/16/2020

Field Sample #: Receiving Water Sampled: 12/16/2020 07:00

Sample ID: 20L0887-02

Sample Matrix: Ground 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	0.73	0.10		mg/L	1		EPA 350.1	12/22/20	12/23/20 8:02	MMH
Hexavalent Chromium	ND	0.0040		mg/L	1		SM21-22 3500 Cr B	12/16/20	12/16/20 21:00	CB2

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Sample Extraction Data

Prep Method: SW-846 3510C **Analytical Method: 608.3**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
20L0887-01 [Influent]	B273089	1000	5.00	12/18/20

Prep Method: SW-846 5030B **Analytical Method: 624.1**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
20L0887-01 [Influent]	B273078	5	5.00	12/18/20

Prep Method: SW-846 3510C **Analytical Method: 625.1**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
20L0887-01 [Influent]	B273158	980	1.00	12/19/20

Prep Method: SW-846 3510C **Analytical Method: 625.1**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
20L0887-01 [Influent]	B273270	980	1.00	12/19/20

EPA 1664B

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
20L0887-01 [Influent]	B273396	200		12/23/20

Prep Method: EPA 200.7 **Analytical Method: EPA 200.7**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
20L0887-01 [Influent]	B273165	50.0	50.0	12/19/20
20L0887-01 [Influent]	B273165	50.0		12/19/20
20L0887-02 [Receiving Water]	B273165	50.0	50.0	12/19/20
20L0887-02 [Receiving Water]	B273165	50.0		12/19/20

Prep Method: EPA 200.8 **Analytical Method: EPA 200.8**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
20L0887-01 [Influent]	B273164	50.0	50.0	12/19/20
20L0887-02 [Receiving Water]	B273164	50.0	50.0	12/19/20

Prep Method: EPA 245.1 **Analytical Method: EPA 245.1**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
20L0887-01 [Influent]	B273201	6.00	6.00	12/21/20
20L0887-02 [Receiving Water]	B273201	6.00	6.00	12/21/20

Prep Method: EPA 300.0 **Analytical Method: EPA 300.0**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date

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Sample Extraction Data

Prep Method: EPA 300.0 **Analytical Method: EPA 300.0**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
20L0887-01 [Influent]	B273112	10.0	10.0	12/18/20

EPA 350.1

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
20L0887-01 [Influent]	B273331	100	100	12/22/20
20L0887-02 [Receiving Water]	B273331	100	100	12/22/20

Prep Method: EPA 504 water **Analytical Method: EPA 504.1**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
20L0887-01 [Influent]	B273121	36.0	35.0	12/18/20

SM21-22 2540D

Lab Number [Field ID]	Batch	Initial [mL]	Date
20L0887-01 [Influent]	B273059	10.0	12/18/20

SM21-22 3500 Cr B

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
20L0887-01 [Influent]	B273029	50.0	50.0	12/16/20
20L0887-02 [Receiving Water]	B273029	50.0	50.0	12/16/20

SM21-22 4500 CL G

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
20L0887-01 [Influent]	B273038	100	100	12/16/20

Prep Method: EPA 200.8 **Analytical Method: Tri Chrome Calc.**

Lab Number [Field ID]	Batch	Initial [mL]	Date
20L0887-01 [Influent]	B273164	50.0	12/19/20
20L0887-02 [Receiving Water]	B273164	50.0	12/19/20

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B273078 - SW-846 5030B										
Blank (B273078-BLK1)				Prepared: 12/18/20 Analyzed: 12/19/20						
Acetone	ND	50.0	µg/L							
tert-Amyl Methyl Ether (TAME)	ND	0.500	µg/L							
Benzene	ND	1.00	µg/L							
Bromodichloromethane	ND	2.00	µg/L							
Bromoform	ND	2.00	µg/L							
Bromomethane	ND	2.00	µg/L							
tert-Butyl Alcohol (TBA)	ND	20.0	µg/L							
Carbon Tetrachloride	ND	2.00	µg/L							
Chlorobenzene	ND	2.00	µg/L							
Chlorodibromomethane	ND	2.00	µg/L							
Chloroethane	ND	2.00	µg/L							
Chloroform	ND	2.00	µg/L							
Chloromethane	ND	2.00	µg/L							
1,2-Dichlorobenzene	ND	2.00	µg/L							
1,3-Dichlorobenzene	ND	2.00	µg/L							
1,4-Dichlorobenzene	ND	2.00	µg/L							
1,2-Dichloroethane	ND	2.00	µg/L							
1,1-Dichloroethane	ND	2.00	µg/L							
1,1-Dichloroethylene	ND	2.00	µg/L							
trans-1,2-Dichloroethylene	ND	2.00	µg/L							
1,2-Dichloropropane	ND	2.00	µg/L							
cis-1,3-Dichloropropene	ND	2.00	µg/L							
1,4-Dioxane	ND	50.0	µg/L							
trans-1,3-Dichloropropene	ND	2.00	µg/L							
Ethanol	ND	50.0	µg/L							V-05
Ethylbenzene	ND	2.00	µg/L							
Methyl tert-Butyl Ether (MTBE)	ND	2.00	µg/L							
Methylene Chloride	ND	5.00	µg/L							
1,1,2,2-Tetrachloroethane	ND	2.00	µg/L							
Tetrachloroethylene	ND	2.00	µg/L							
Toluene	ND	1.00	µg/L							
1,1,1-Trichloroethane	ND	2.00	µg/L							
1,1,2-Trichloroethane	ND	2.00	µg/L							
Trichloroethylene	ND	2.00	µg/L							
Trichlorofluoromethane (Freon 11)	ND	2.00	µg/L							
Vinyl Chloride	ND	2.00	µg/L							
m+p Xylene	ND	2.00	µg/L							
o-Xylene	ND	1.00	µg/L							
Surrogate: 1,2-Dichloroethane-d4	*21.6*		µg/L	25.0		86.2	70-130			
Surrogate: Toluene-d8	*23.2*		µg/L	25.0		93.0	70-130			
Surrogate: 4-Bromofluorobenzene	*25.1*		µg/L	25.0		101	70-130			
LCS (B273078-BS1)				Prepared: 12/18/20 Analyzed: 12/19/20						
Acetone	170	50.0	µg/L	200		85.8	70-160			†
tert-Amyl Methyl Ether (TAME)	16	0.500	µg/L	20.0		79.6	70-130			
Benzene	16	1.00	µg/L	20.0		82.2	65-135			
Bromodichloromethane	19	2.00	µg/L	20.0		96.8	65-135			
Bromoform	24	2.00	µg/L	20.0		121	70-130			
Bromomethane	16	2.00	µg/L	20.0		79.0	15-185			
tert-Butyl Alcohol (TBA)	190	20.0	µg/L	200		94.0	40-160			†
Carbon Tetrachloride	18	2.00	µg/L	20.0		90.5	70-130			
Chlorobenzene	21	2.00	µg/L	20.0		103	65-135			

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B273078 - SW-846 5030B											
LCS (B273078-BS1)				Prepared: 12/18/20 Analyzed: 12/19/20							
Chlorodibromomethane	21	2.00	µg/L	20.0		107	70-135				
Chloroethane	17	2.00	µg/L	20.0		83.4	40-160				
Chloroform	17	2.00	µg/L	20.0		87.2	70-135				
Chloromethane	6.0	2.00	µg/L	20.0		30.0	20-205				
1,2-Dichlorobenzene	18	2.00	µg/L	20.0		90.5	65-135				
1,3-Dichlorobenzene	18	2.00	µg/L	20.0		92.4	70-130				
1,4-Dichlorobenzene	18	2.00	µg/L	20.0		89.6	65-135				
1,2-Dichloroethane	20	2.00	µg/L	20.0		100	70-130				
1,1-Dichloroethane	18	2.00	µg/L	20.0		89.3	70-130				
1,1-Dichloroethylene	19	2.00	µg/L	20.0		93.2	50-150				
trans-1,2-Dichloroethylene	17	2.00	µg/L	20.0		85.2	70-130				
1,2-Dichloropropane	20	2.00	µg/L	20.0		99.6	35-165				
cis-1,3-Dichloropropene	17	2.00	µg/L	20.0		85.2	25-175				
1,4-Dioxane	200	50.0	µg/L	200		101	40-130				†
trans-1,3-Dichloropropene	18	2.00	µg/L	20.0		91.6	50-150				
Ethanol	150	50.0	µg/L	200		73.8	40-160			V-05	
Ethylbenzene	20	2.00	µg/L	20.0		98.9	60-140				
Methyl tert-Butyl Ether (MTBE)	17	2.00	µg/L	20.0		85.1	70-130				
Methylene Chloride	15	5.00	µg/L	20.0		73.8	60-140				
1,1,2,2-Tetrachloroethane	20	2.00	µg/L	20.0		100	60-140				
Tetrachloroethylene	22	2.00	µg/L	20.0		112	70-130				
Toluene	18	1.00	µg/L	20.0		90.2	70-130				
1,1,1-Trichloroethane	19	2.00	µg/L	20.0		93.4	70-130				
1,1,2-Trichloroethane	21	2.00	µg/L	20.0		103	70-130				
Trichloroethylene	19	2.00	µg/L	20.0		94.7	65-135				
Trichlorofluoromethane (Freon 11)	16	2.00	µg/L	20.0		78.2	50-150				
Vinyl Chloride	13	2.00	µg/L	20.0		66.2	5-195				
m+p Xylene	40	2.00	µg/L	40.0		101	70-130				
o-Xylene	20	1.00	µg/L	20.0		100	70-130				
Surrogate: 1,2-Dichloroethane-d4	*20.6*		µg/L	25.0		82.4	70-130				
Surrogate: Toluene-d8	*24.0*		µg/L	25.0		96.1	70-130				
Surrogate: 4-Bromofluorobenzene	*25.6*		µg/L	25.0		102	70-130				

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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 B273270 - SW-846 3510C										
LCS (B273270-BS1)				Prepared: 12/19/20 Analyzed: 12/23/20						
Benzo(a)anthracene (SIM)	43.6	1.0	µg/L	50.0		87.2	33-143			
Benzo(a)pyrene (SIM)	41.0	2.0	µg/L	50.0		82.0	17-163			
Benzo(b)fluoranthene (SIM)	47.0	1.0	µg/L	50.0		94.0	24-159			
Benzo(k)fluoranthene (SIM)	43.4	4.0	µg/L	50.0		86.7	11-162			
Bis(2-ethylhexyl)phthalate (SIM)	50.7	20	µg/L	50.0		101	8-158			
Chrysene (SIM)	41.7	4.0	µg/L	50.0		83.5	17-168			
Dibenz(a,h)anthracene (SIM)	42.2	2.0	µg/L	50.0		84.3	10-227			
Indeno(1,2,3-cd)pyrene (SIM)	42.6	2.0	µg/L	50.0		85.3	10-171			
Pentachlorophenol (SIM)	27.7	20	µg/L	50.0		55.3	14-176			
Surrogate: 2-Fluorophenol	*85.5*		µg/L	200		42.7	15-110			
Surrogate: 2-Fluorophenol (SIM)	*86.2*		µg/L	200		43.1	15-110			
Surrogate: Phenol-d6	*65.7*		µg/L	200		32.8	15-110			
Surrogate: Phenol-d6 (SIM)	*62.5*		µg/L	200		31.3	15-110			
Surrogate: Nitrobenzene-d5	*71.6*		µg/L	100		71.6	30-130			
Surrogate: 2-Fluorobiphenyl	*83.2*		µg/L	100		83.2	30-130			
Surrogate: 2,4,6-Tribromophenol	*124*		µg/L	140		88.4	15-110			
Surrogate: 2,4,6-Tribromophenol (SIM)	*141*		µg/L	140		100	15-110			
Surrogate: p-Terphenyl-d14	*69.2*		µg/L	100		69.2	30-130			
LCS Dup (B273270-BSD1)				Prepared: 12/19/20 Analyzed: 12/23/20						
Benzo(a)anthracene (SIM)	45.2	1.0	µg/L	50.0		90.4	33-143	3.65	53	
Benzo(a)pyrene (SIM)	42.7	2.0	µg/L	50.0		85.4	17-163	3.97	72	
Benzo(b)fluoranthene (SIM)	48.7	1.0	µg/L	50.0		97.4	24-159	3.59	71	
Benzo(k)fluoranthene (SIM)	45.5	4.0	µg/L	50.0		91.0	11-162	4.82	63	
Bis(2-ethylhexyl)phthalate (SIM)	52.6	20	µg/L	50.0		105	8-158	3.68	82	
Chrysene (SIM)	43.3	4.0	µg/L	50.0		86.6	17-168	3.72	87	
Dibenz(a,h)anthracene (SIM)	43.7	2.0	µg/L	50.0		87.4	10-227	3.54	126	
Indeno(1,2,3-cd)pyrene (SIM)	44.3	2.0	µg/L	50.0		88.5	10-171	3.73	99	
Pentachlorophenol (SIM)	30.1	20	µg/L	50.0		60.1	14-176	8.32	86	
Surrogate: 2-Fluorophenol	*89.7*		µg/L	200		44.8	15-110			
Surrogate: 2-Fluorophenol (SIM)	*89.6*		µg/L	200		44.8	15-110			
Surrogate: Phenol-d6	*70.8*		µg/L	200		35.4	15-110			
Surrogate: Phenol-d6 (SIM)	*63.7*		µg/L	200		31.9	15-110			
Surrogate: Nitrobenzene-d5	*78.2*		µg/L	100		78.2	30-130			
Surrogate: 2-Fluorobiphenyl	*87.1*		µg/L	100		87.1	30-130			
Surrogate: 2,4,6-Tribromophenol	*136*		µg/L	140		97.2	15-110			
Surrogate: 2,4,6-Tribromophenol (SIM)	*144*		µg/L	140		103	15-110			
Surrogate: p-Terphenyl-d14	*74.3*		µg/L	100		74.3	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 B273158 - SW-846 3510C										
Blank (B273158-BLK1)				Prepared: 12/19/20 Analyzed: 12/21/20						
Acenaphthene	ND	5.00	µg/L							
Acenaphthylene	ND	5.00	µg/L							
Anthracene	ND	5.00	µg/L							
Benzidine	ND	20.0	µg/L							L-04, R-05, V-04, V-05
Benzo(g,h,i)perylene	ND	5.00	µg/L							
4-Bromophenylphenylether	ND	10.0	µg/L							
Butylbenzylphthalate	ND	10.0	µg/L							
4-Chloro-3-methylphenol	ND	10.0	µg/L							
Bis(2-chloroethyl)ether	ND	10.0	µg/L							
Bis(2-chloroisopropyl)ether	ND	10.0	µg/L							
2-Chloronaphthalene	ND	10.0	µg/L							
2-Chlorophenol	ND	10.0	µg/L							
4-Chlorophenylphenylether	ND	10.0	µg/L							
Di-n-butylphthalate	ND	10.0	µg/L							
1,3-Dichlorobenzene	ND	5.00	µg/L							
1,4-Dichlorobenzene	ND	5.00	µg/L							
1,2-Dichlorobenzene	ND	5.00	µg/L							
3,3-Dichlorobenzidine	ND	10.0	µg/L							
2,4-Dichlorophenol	ND	10.0	µg/L							
Diethylphthalate	ND	10.0	µg/L							
2,4-Dimethylphenol	ND	10.0	µg/L							
Dimethylphthalate	ND	10.0	µg/L							
4,6-Dinitro-2-methylphenol	ND	10.0	µg/L							
2,4-Dinitrophenol	ND	10.0	µg/L							
2,4-Dinitrotoluene	ND	10.0	µg/L							
2,6-Dinitrotoluene	ND	10.0	µg/L							
Di-n-octylphthalate	ND	10.0	µg/L							
1,2-Diphenylhydrazine/Azobenzene	ND	10.0	µg/L							
Bis(2-Ethylhexyl)phthalate	ND	10.0	µg/L							
Fluoranthene	ND	5.00	µg/L							
Fluorene	ND	5.00	µg/L							
Hexachlorobenzene	ND	10.0	µg/L							
Hexachlorobutadiene	ND	10.0	µg/L							
Hexachlorocyclopentadiene	ND	10.0	µg/L							
Hexachloroethane	ND	10.0	µg/L							
Isophorone	ND	10.0	µg/L							
Naphthalene	ND	5.00	µg/L							
Nitrobenzene	ND	10.0	µg/L							
2-Nitrophenol	ND	10.0	µg/L							
4-Nitrophenol	ND	10.0	µg/L							
N-Nitrosodimethylamine	ND	10.0	µg/L							
N-Nitrosodi-n-propylamine	ND	10.0	µg/L							
2-Methylnaphthalene	ND	5.00	µg/L							
Phenanthrene	ND	5.00	µg/L							
2-Methylphenol	ND	10.0	µg/L							
Phenol	ND	10.0	µg/L							
3/4-Methylphenol	ND	20.0	µg/L							
Pyrene	ND	5.00	µg/L							
1,2,4-Trichlorobenzene	ND	5.00	µg/L							
2,4,6-Trichlorophenol	ND	10.0	µg/L							
Surrogate: 2-Fluorophenol	*102*		µg/L	200		50.9	15-110			

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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 B273158 - SW-846 3510C											
Blank (B273158-BLK1)				Prepared: 12/19/20 Analyzed: 12/21/20							
Surrogate: Phenol-d6	*77.7*		µg/L	200		38.9		15-110			
Surrogate: Nitrobenzene-d5	*74.8*		µg/L	100		74.8		30-130			
Surrogate: 2-Fluorobiphenyl	*77.0*		µg/L	100		77.0		30-130			
Surrogate: 2,4,6-Tribromophenol	*144*		µg/L	140		102		15-110			
Surrogate: p-Terphenyl-d14	*88.7*		µg/L	100		88.7		30-130			
LCS (B273158-BS1)				Prepared: 12/19/20 Analyzed: 12/21/20							
Acenaphthene	40.9	5.00	µg/L	50.0		81.7		47-145			
Acenaphthylene	39.8	5.00	µg/L	50.0		79.7		33-145			
Anthracene	40.6	5.00	µg/L	50.0		81.2		27-133			
Benzidine	8.17	20.0	µg/L	100		**8.17**	*	40-140			V-04, V-05, L-04, R-05
Benzo(g,h,i)perylene	47.9	5.00	µg/L	50.0		95.7		10-219			
4-Bromophenylphenylether	37.6	10.0	µg/L	50.0		75.1		53-127			
Butylbenzylphthalate	40.0	10.0	µg/L	50.0		80.0		10-152			
4-Chloro-3-methylphenol	41.5	10.0	µg/L	50.0		83.1		22-147			
Bis(2-chloroethyl)ether	33.4	10.0	µg/L	50.0		66.7		12-158			
Bis(2-chloroisopropyl)ether	35.2	10.0	µg/L	50.0		70.3		36-166			
2-Chloronaphthalene	33.6	10.0	µg/L	50.0		67.2		60-120			
2-Chlorophenol	36.4	10.0	µg/L	50.0		72.8		23-134			
4-Chlorophenylphenylether	38.8	10.0	µg/L	50.0		77.6		25-158			
Di-n-butylphthalate	38.9	10.0	µg/L	50.0		77.8		10-120			
1,3-Dichlorobenzene	30.2	5.00	µg/L	50.0		60.4		10-172			
1,4-Dichlorobenzene	31.1	5.00	µg/L	50.0		62.2		20-124			
1,2-Dichlorobenzene	31.9	5.00	µg/L	50.0		63.8		32-129			
3,3-Dichlorobenzidine	42.7	10.0	µg/L	100		42.7		10-262			
2,4-Dichlorophenol	41.4	10.0	µg/L	50.0		82.7		39-135			
Diethylphthalate	39.0	10.0	µg/L	50.0		78.0		10-120			
2,4-Dimethylphenol	36.8	10.0	µg/L	50.0		73.7		32-120			
Dimethylphthalate	38.5	10.0	µg/L	50.0		77.0		10-120			
4,6-Dinitro-2-methylphenol	44.5	10.0	µg/L	50.0		89.0		10-181			
2,4-Dinitrophenol	51.2	10.0	µg/L	50.0		102		10-191			
2,4-Dinitrotoluene	43.3	10.0	µg/L	50.0		86.5		39-139			
2,6-Dinitrotoluene	43.2	10.0	µg/L	50.0		86.4		50-158			
Di-n-octylphthalate	38.4	10.0	µg/L	50.0		76.7		4-146			
1,2-Diphenylhydrazine/Azobenzene	35.3	10.0	µg/L	50.0		70.5		40-140			
Bis(2-Ethylhexyl)phthalate	39.5	10.0	µg/L	50.0		79.1		8-158			
Fluoranthene	40.4	5.00	µg/L	50.0		80.7		26-137			
Fluorene	41.1	5.00	µg/L	50.0		82.1		59-121			
Hexachlorobenzene	40.1	10.0	µg/L	50.0		80.2		10-152			
Hexachlorobutadiene	33.5	10.0	µg/L	50.0		67.0		24-120			
Hexachlorocyclopentadiene	36.0	10.0	µg/L	50.0		72.1		40-140			
Hexachloroethane	30.1	10.0	µg/L	50.0		60.2		40-120			
Isophorone	40.1	10.0	µg/L	50.0		80.2		21-196			
Naphthalene	36.3	5.00	µg/L	50.0		72.7		21-133			
Nitrobenzene	35.0	10.0	µg/L	50.0		70.1		35-180			
2-Nitrophenol	44.3	10.0	µg/L	50.0		88.6		29-182			
4-Nitrophenol	23.2	10.0	µg/L	50.0		46.3		10-132			
N-Nitrosodimethylamine	20.4	10.0	µg/L	50.0		40.7		40-140			
N-Nitrosodi-n-propylamine	35.6	10.0	µg/L	50.0		71.3		10-230			
2-Methylnaphthalene	42.4	5.00	µg/L	50.0		84.8		40-140			
Phenanthrene	40.2	5.00	µg/L	50.0		80.3		54-120			
2-Methylphenol	36.2	10.0	µg/L	50.0		72.5		40-140			

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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 B273158 - SW-846 3510C												
LCS (B273158-BS1)				Prepared: 12/19/20 Analyzed: 12/21/20								
Phenol	18.0	10.0	µg/L	50.0		36.1		5-120				
3/4-Methylphenol	34.9	20.0	µg/L	50.0		69.9		40-140				
Pyrene	39.5	5.00	µg/L	50.0		79.0		52-120				
1,2,4-Trichlorobenzene	34.6	5.00	µg/L	50.0		69.1		44-142				
2,4,6-Trichlorophenol	42.5	10.0	µg/L	50.0		85.1		37-144				
Surrogate: 2-Fluorophenol	*111*		µg/L	200		55.3		15-110				
Surrogate: Phenol-d6	*86.7*		µg/L	200		43.4		15-110				
Surrogate: Nitrobenzene-d5	*76.0*		µg/L	100		76.0		30-130				
Surrogate: 2-Fluorobiphenyl	*82.1*		µg/L	100		82.1		30-130				
Surrogate: 2,4,6-Tribromophenol	*153*		µg/L	140		109		15-110				
Surrogate: p-Terphenyl-d14	*87.6*		µg/L	100		87.6		30-130				
LCS Dup (B273158-BSD1)				Prepared: 12/19/20 Analyzed: 12/21/20								
Acenaphthene	35.4	5.00	µg/L	50.0		70.8		47-145	14.3		48	
Acenaphthylene	33.8	5.00	µg/L	50.0		67.7		33-145	16.3		74	
Anthracene	35.4	5.00	µg/L	50.0		70.8		27-133	13.6		66	
Benzidine	5.20	20.0	µg/L	100		**5.20**	*	40-140	**44.4**	*	30	L-04, R-05, V-04, V-05
Benzo(g,h,i)perylene	40.8	5.00	µg/L	50.0		81.6		10-219	15.9		97	
4-Bromophenylphenylether	33.1	10.0	µg/L	50.0		66.2		53-127	12.7		43	
Butylbenzylphthalate	34.5	10.0	µg/L	50.0		69.0		10-152	14.7		60	
4-Chloro-3-methylphenol	36.4	10.0	µg/L	50.0		72.9		22-147	13.1		73	
Bis(2-chloroethyl)ether	28.6	10.0	µg/L	50.0		57.1		12-158	15.5		108	
Bis(2-chloroisopropyl)ether	29.8	10.0	µg/L	50.0		59.7		36-166	16.3		76	
2-Chloronaphthalene	27.2	10.0	µg/L	50.0		**54.4**	*	60-120	21.1		24	L-07
2-Chlorophenol	31.1	10.0	µg/L	50.0		62.3		23-134	15.7		61	
4-Chlorophenylphenylether	33.3	10.0	µg/L	50.0		66.5		25-158	15.4		61	
Di-n-butylphthalate	33.7	10.0	µg/L	50.0		67.4		10-120	14.3		47	
1,3-Dichlorobenzene	24.3	5.00	µg/L	50.0		48.5		10-172	21.7		30	
1,4-Dichlorobenzene	24.7	5.00	µg/L	50.0		49.4		20-124	23.1		30	
1,2-Dichlorobenzene	26.2	5.00	µg/L	50.0		52.4		32-129	19.5		30	
3,3-Dichlorobenzidine	37.0	10.0	µg/L	100		37.0		10-262	14.4		108	
2,4-Dichlorophenol	35.2	10.0	µg/L	50.0		70.5		39-135	16.0		50	
Diethylphthalate	33.9	10.0	µg/L	50.0		67.8		10-120	14.0		100	
2,4-Dimethylphenol	30.5	10.0	µg/L	50.0		61.0		32-120	18.9		58	
Dimethylphthalate	33.6	10.0	µg/L	50.0		67.2		10-120	13.5		183	
4,6-Dinitro-2-methylphenol	39.2	10.0	µg/L	50.0		78.5		10-181	12.5		203	
2,4-Dinitrophenol	45.0	10.0	µg/L	50.0		90.1		10-191	12.9		132	
2,4-Dinitrotoluene	37.7	10.0	µg/L	50.0		75.4		39-139	13.8		42	
2,6-Dinitrotoluene	37.4	10.0	µg/L	50.0		74.7		50-158	14.5		48	
Di-n-octylphthalate	32.2	10.0	µg/L	50.0		64.4		4-146	17.5		69	
1,2-Diphenylhydrazine/Azobenzene	31.4	10.0	µg/L	50.0		62.8		40-140	11.6		30	
Bis(2-Ethylhexyl)phthalate	33.9	10.0	µg/L	50.0		67.8		8-158	15.4		82	
Fluoranthene	35.5	5.00	µg/L	50.0		71.1		26-137	12.7		66	
Fluorene	35.5	5.00	µg/L	50.0		71.1		59-121	14.4		38	
Hexachlorobenzene	35.1	10.0	µg/L	50.0		70.3		10-152	13.2		55	
Hexachlorobutadiene	27.0	10.0	µg/L	50.0		53.9		24-120	21.6		62	
Hexachlorocyclopentadiene	29.6	10.0	µg/L	50.0		59.3		40-140	19.5		30	
Hexachloroethane	24.6	10.0	µg/L	50.0		49.3		40-120	19.9		52	
Isophorone	33.9	10.0	µg/L	50.0		67.8		21-196	16.8		93	
Naphthalene	29.6	5.00	µg/L	50.0		59.3		21-133	20.3		65	
Nitrobenzene	29.4	10.0	µg/L	50.0		58.8		35-180	17.5		62	
2-Nitrophenol	36.5	10.0	µg/L	50.0		73.0		29-182	19.4		55	

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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 B273158 - SW-846 3510C											
LCS Dup (B273158-BSD1)				Prepared: 12/19/20 Analyzed: 12/21/20							
4-Nitrophenol	21.3	10.0	µg/L	50.0		42.6		10-132	8.41	131	
N-Nitrosodimethylamine	17.8	10.0	µg/L	50.0		**35.7**	*	40-140	13.1	30	L-07
N-Nitrosodi-n-propylamine	31.0	10.0	µg/L	50.0		62.0		10-230	13.9	87	
2-Methylnaphthalene	35.3	5.00	µg/L	50.0		70.7		40-140	18.2	30	
Phenanthrene	35.2	5.00	µg/L	50.0		70.4		54-120	13.2	39	
2-Methylphenol	32.3	10.0	µg/L	50.0		64.7		40-140	11.4	30	
Phenol	16.0	10.0	µg/L	50.0		32.0		5-120	12.1	64	
3/4-Methylphenol	31.0	20.0	µg/L	50.0		61.9		40-140	12.1	30	
Pyrene	34.7	5.00	µg/L	50.0		69.4		52-120	13.0	49	
1,2,4-Trichlorobenzene	28.3	5.00	µg/L	50.0		56.5		44-142	20.0	50	
2,4,6-Trichlorophenol	36.6	10.0	µg/L	50.0		73.2		37-144	15.0	58	
Surrogate: 2-Fluorophenol	*95.7*		µg/L	200		47.9		15-110			
Surrogate: Phenol-d6	*76.0*		µg/L	200		38.0		15-110			
Surrogate: Nitrobenzene-d5	*65.4*		µg/L	100		65.4		30-130			
Surrogate: 2-Fluorobiphenyl	*69.1*		µg/L	100		69.1		30-130			
Surrogate: 2,4,6-Tribromophenol	*129*		µg/L	140		92.0		15-110			
Surrogate: p-Terphenyl-d14	*75.0*		µg/L	100		75.0		30-130			

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QUALITY CONTROL

Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B273089 - SW-846 3510C										
Blank (B273089-BLK1)				Prepared: 12/18/20 Analyzed: 12/21/20						
Aroclor-1016	ND	0.100	µg/L							
Aroclor-1016 [2C]	ND	0.100	µg/L							
Aroclor-1221	ND	0.100	µg/L							
Aroclor-1221 [2C]	ND	0.100	µg/L							
Aroclor-1232	ND	0.100	µg/L							
Aroclor-1232 [2C]	ND	0.100	µg/L							
Aroclor-1242	ND	0.100	µg/L							
Aroclor-1242 [2C]	ND	0.100	µg/L							
Aroclor-1248	ND	0.100	µg/L							
Aroclor-1248 [2C]	ND	0.100	µg/L							
Aroclor-1254	ND	0.100	µg/L							
Aroclor-1254 [2C]	ND	0.100	µg/L							
Aroclor-1260	ND	0.100	µg/L							
Aroclor-1260 [2C]	ND	0.100	µg/L							
Surrogate: Decachlorobiphenyl	*0.974*		µg/L	1.00		97.4	30-150			
Surrogate: Decachlorobiphenyl [2C]	*0.945*		µg/L	1.00		94.5	30-150			
Surrogate: Tetrachloro-m-xylene	*0.916*		µg/L	1.00		91.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*0.906*		µg/L	1.00		90.6	30-150			
LCS (B273089-BS1)				Prepared: 12/18/20 Analyzed: 12/21/20						
Aroclor-1016	0.481	0.200	µg/L	0.500		96.2	50-140			
Aroclor-1016 [2C]	0.477	0.200	µg/L	0.500		95.4	50-140			
Aroclor-1260	0.458	0.200	µg/L	0.500		91.6	8-140			
Aroclor-1260 [2C]	0.450	0.200	µg/L	0.500		90.0	8-140			
Surrogate: Decachlorobiphenyl	*1.90*		µg/L	2.00		95.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.86*		µg/L	2.00		92.9	30-150			
Surrogate: Tetrachloro-m-xylene	*1.75*		µg/L	2.00		87.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.76*		µg/L	2.00		88.0	30-150			
LCS Dup (B273089-BSD1)				Prepared: 12/18/20 Analyzed: 12/21/20						
Aroclor-1016	0.458	0.200	µg/L	0.500		91.6	50-140	4.88		
Aroclor-1016 [2C]	0.448	0.200	µg/L	0.500		89.6	50-140	6.28		
Aroclor-1260	0.423	0.200	µg/L	0.500		84.7	8-140	7.84		
Aroclor-1260 [2C]	0.414	0.200	µg/L	0.500		82.9	8-140	8.27		
Surrogate: Decachlorobiphenyl	*1.69*		µg/L	2.00		84.7	30-150			
Surrogate: Decachlorobiphenyl [2C]	*1.66*		µg/L	2.00		82.9	30-150			
Surrogate: Tetrachloro-m-xylene	*1.62*		µg/L	2.00		81.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*1.66*		µg/L	2.00		82.8	30-150			

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B273164 - EPA 200.8										
Blank (B273164-BLK1)				Prepared: 12/19/20 Analyzed: 12/22/20						
Antimony	ND	1.0	µg/L							
Arsenic	ND	0.80	µg/L							
Cadmium	ND	0.20	µg/L							
Chromium	ND	1.0	µg/L							
Copper	ND	1.0	µg/L							
Lead	ND	0.50	µg/L							
Nickel	ND	5.0	µg/L							
Selenium	ND	5.0	µg/L							
Silver	ND	0.20	µg/L							
Zinc	ND	10	µg/L							
LCS (B273164-BS1)				Prepared: 12/19/20 Analyzed: 12/22/20						
Antimony	465	10	µg/L	500		93.1	85-115			
Arsenic	484	8.0	µg/L	500		96.9	85-115			
Cadmium	487	2.0	µg/L	500		97.4	85-115			
Chromium	473	10	µg/L	500		94.6	85-115			
Copper	951	10	µg/L	1000		95.1	85-115			
Lead	474	5.0	µg/L	500		94.8	85-115			
Nickel	477	50	µg/L	500		95.3	85-115			
Selenium	476	50	µg/L	500		95.2	85-115			
Silver	451	2.0	µg/L	500		90.3	85-115			
Zinc	955	100	µg/L	1000		95.5	85-115			
LCS Dup (B273164-BSD1)				Prepared: 12/19/20 Analyzed: 12/22/20						
Antimony	465	10	µg/L	500		93.0	85-115	0.0503	20	
Arsenic	479	8.0	µg/L	500		95.9	85-115	1.01	20	
Cadmium	489	2.0	µg/L	500		97.8	85-115	0.421	20	
Chromium	476	10	µg/L	500		95.1	85-115	0.527	20	
Copper	955	10	µg/L	1000		95.5	85-115	0.360	20	
Lead	472	5.0	µg/L	500		94.4	85-115	0.435	20	
Nickel	480	50	µg/L	500		96.0	85-115	0.713	20	
Selenium	476	50	µg/L	500		95.1	85-115	0.0436	20	
Silver	453	2.0	µg/L	500		90.7	85-115	0.425	20	
Zinc	954	100	µg/L	1000		95.4	85-115	0.143	20	
Batch B273165 - EPA 200.7										
Blank (B273165-BLK1)				Prepared: 12/19/20 Analyzed: 12/21/20						
Iron	ND	0.050	mg/L							
Hardness	ND	1.4	mg/L							
LCS (B273165-BS1)				Prepared: 12/19/20 Analyzed: 12/21/20						
Iron	4.12	0.050	mg/L	4.00		103	85-115			
Hardness	27	1.4	mg/L	26.4		101	85-115			

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B273165 - EPA 200.7										
LCS Dup (B273165-BSD1)				Prepared: 12/19/20 Analyzed: 12/21/20						
Iron	4.08	0.050	mg/L	4.00		102	85-115	0.946	20	
Hardness	26	1.4	mg/L	26.4		99.3	85-115	1.30	20	
Batch B273201 - EPA 245.1										
Blank (B273201-BLK1)				Prepared & Analyzed: 12/21/20						
Mercury	ND	0.00010	mg/L							
LCS (B273201-BS1)				Prepared & Analyzed: 12/21/20						
Mercury	0.00398	0.00010	mg/L	0.00400		99.5	85-115			
LCS Dup (B273201-BSD1)				Prepared & Analyzed: 12/21/20						
Mercury	0.00426	0.00010	mg/L	0.00400		107	85-115	6.92	20	

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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
Batch B273029 - SM21-22 3500 Cr B										
Blank (B273029-BLK1)				Prepared & Analyzed: 12/16/20						
Hexavalent Chromium	ND	0.0040	mg/L							
LCS (B273029-BS1)				Prepared & Analyzed: 12/16/20						
Hexavalent Chromium	0.10	0.0040	mg/L	0.100		101	90-115			
LCS Dup (B273029-BSD1)				Prepared & Analyzed: 12/16/20						
Hexavalent Chromium	0.10	0.0040	mg/L	0.100		104	90-115	2.48	11	
Batch B273038 - SM21-22 4500 CL G										
Blank (B273038-BLK1)				Prepared & Analyzed: 12/16/20						
Chlorine, Residual	ND	0.020	mg/L							
LCS (B273038-BS1)				Prepared & Analyzed: 12/16/20						
Chlorine, Residual	0.66	0.020	mg/L	0.641		102	85.3-130			
LCS Dup (B273038-BSD1)				Prepared & Analyzed: 12/16/20						
Chlorine, Residual	0.67	0.020	mg/L	0.641		105	85.3-130	2.33	13.6	
Duplicate (B273038-DUP1)		**Source: 20L0887-01**		Prepared & Analyzed: 12/16/20						
Chlorine, Residual	ND	0.020	mg/L		ND			NC	29.4	
Matrix Spike (B273038-MS1)		**Source: 20L0887-01**		Prepared & Analyzed: 12/16/20						
Chlorine, Residual	0.26	0.020	mg/L	0.300	ND	85.8	10-169			
Batch B273059 - SM21-22 2540D										
Blank (B273059-BLK1)				Prepared & Analyzed: 12/18/20						
Total Suspended Solids	ND	2.5	mg/L							
LCS (B273059-BS1)				Prepared & Analyzed: 12/18/20						
Total Suspended Solids	190	10	mg/L	200		95.0	57.4-123			
Batch B273112 - EPA 300.0										
Blank (B273112-BLK1)				Prepared & Analyzed: 12/18/20						
Chloride	ND	1.0	mg/L							
LCS (B273112-BS1)				Prepared & Analyzed: 12/18/20						
Chloride	10		mg/L	10.0		101	90-110			

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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
Batch B273112 - EPA 300.0										
LCS Dup (B273112-BSD1)				Prepared & Analyzed: 12/18/20						
Chloride	10		mg/L	10.0		101	90-110	0.511	20	
Batch B273331 - EPA 350.1										
Blank (B273331-BLK1)				Prepared: 12/22/20 Analyzed: 12/23/20						
Ammonia as N	ND	0.10	mg/L							
LCS (B273331-BS1)				Prepared: 12/22/20 Analyzed: 12/23/20						
Ammonia as N	1.9	0.10	mg/L	2.00		96.6	90-110			
LCS Dup (B273331-BSD1)				Prepared: 12/22/20 Analyzed: 12/23/20						
Ammonia as N	2.0	0.10	mg/L	2.00		100	90-110	3.41	20	
Batch B273396 - EPA 1664B										
Blank (B273396-BLK1)				Prepared & Analyzed: 12/23/20						
Silica Gel Treated HEM (SGT-HEM)	ND	1.4	mg/L							
LCS (B273396-BS1)				Prepared & Analyzed: 12/23/20						
Silica Gel Treated HEM (SGT-HEM)	8.7		mg/L	10.0		87.0	64-132			
Duplicate (B273396-DUP1)		**Source: 20L0887-01**		Prepared & Analyzed: 12/23/20						
Silica Gel Treated HEM (SGT-HEM)	ND	7.0	mg/L		ND			NC	18	
Matrix Spike (B273396-MS1)		**Source: 20L0887-01**		Prepared & Analyzed: 12/23/20						
Silica Gel Treated HEM (SGT-HEM)	65	14	mg/L	100	ND	65.0	64-132			

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QUALITY CONTROL

Drinking Water Organics EPA 504.1 - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B273121 - EPA 504 water										
Blank (B273121-BLK1)				Prepared & Analyzed: 12/18/20						
1,2-Dibromoethane (EDB)	ND	0.021	µg/L							
Surrogate: 1,3-Dibromopropane	*1.10*		µg/L	1.06		104	70-130			
LCS (B273121-BS1)				Prepared & Analyzed: 12/18/20						
1,2-Dibromoethane (EDB)	0.230	0.021	µg/L	0.260		88.4	70-130			
Surrogate: 1,3-Dibromopropane	*1.06*		µg/L	1.04		102	70-130			
LCS Dup (B273121-BSD1)				Prepared & Analyzed: 12/18/20						
1,2-Dibromoethane (EDB)	0.221	0.021	µg/L	0.257		86.0	70-130	3.87		
Surrogate: 1,3-Dibromopropane	*1.11*		µg/L	1.03		108	70-130			

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

608.3

LCS

Lab Sample ID: B273089-BS1 Date(s) Analyzed: 12/21/2020 12/21/2020

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.481	
	2	0.000	0.000	0.000	0.477	0.6
Aroclor-1260	1	0.000	0.000	0.000	0.458	
	2	0.000	0.000	0.000	0.450	2.2

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

608.3

LCS Dup

Lab Sample ID: B273089-BSD1 Date(s) Analyzed: 12/21/2020 12/21/2020

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.458	
	2	0.000	0.000	0.000	0.448	2.6
Aroclor-1260	1	0.000	0.000	0.000	0.423	
	2	0.000	0.000	0.000	0.414	1.4

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

EPA 504.1

LCS

Lab Sample ID: B273121-BS1

Date(s) Analyzed: 12/18/2020 12/18/2020

Instrument ID (1):

Instrument ID (2):

GC Column (1): ID: (mm)

GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
1,2-Dibromoethane (EDB)	1	3.261	0.000	0.000	0.230	

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

EPA 504.1

LCS Dup

Lab Sample ID: B273121-BSD1 Date(s) Analyzed: 12/18/2020 12/18/2020

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
1,2-Dibromoethane (EDB)	1	3.261	0.000	0.000	0.221	

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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.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
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.
R-05	Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.
S-07	One associated surrogate standard recovery is outside of control limits but the other(s) is/are within limits. All recoveries are > 10%.
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 verification (CCV) did not meet method specifications and was biased on the low side for this compound.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
608.3 in Water	
Aroclor-1016	CT,MA,NH,NY,RI,NC,ME,VA
Aroclor-1016 [2C]	CT,MA,NH,NY,RI,NC,ME,VA
Aroclor-1221	CT,MA,NH,NY,RI,NC,ME,VA
Aroclor-1221 [2C]	CT,MA,NH,NY,RI,NC,ME,VA
Aroclor-1232	CT,MA,NH,NY,RI,NC,ME,VA
Aroclor-1232 [2C]	CT,MA,NH,NY,RI,NC,ME,VA
Aroclor-1242	CT,MA,NH,NY,RI,NC,ME,VA
Aroclor-1242 [2C]	CT,MA,NH,NY,RI,NC,ME,VA
Aroclor-1248	CT,MA,NH,NY,RI,NC,ME,VA
Aroclor-1248 [2C]	CT,MA,NH,NY,RI,NC,ME,VA
Aroclor-1254	CT,MA,NH,NY,RI,NC,ME,VA
Aroclor-1254 [2C]	CT,MA,NH,NY,RI,NC,ME,VA
Aroclor-1260	CT,MA,NH,NY,RI,NC,ME,VA
Aroclor-1260 [2C]	CT,MA,NH,NY,RI,NC,ME,VA
624.1 in Water	
Acetone	CT,NY,MA,NH
tert-Amyl Methyl Ether (TAME)	MA
Benzene	CT,NY,MA,NH,RI,NC,ME,VA
Bromodichloromethane	CT,NY,MA,NH,RI,NC,ME,VA
Bromoform	CT,NY,MA,NH,RI,NC,ME,VA
Bromomethane	CT,NY,MA,NH,RI,NC,ME,VA
tert-Butyl Alcohol (TBA)	NY,MA
Carbon Tetrachloride	CT,NY,MA,NH,RI,NC,ME,VA
Chlorobenzene	CT,NY,MA,NH,RI,NC,ME,VA
Chlorodibromomethane	CT,NY,MA,NH,RI,NC,ME,VA
Chloroethane	CT,NY,MA,NH,RI,NC,ME,VA
Chloroform	CT,NY,MA,NH,RI,NC,ME,VA
Chloromethane	CT,NY,MA,NH,RI,NC,ME,VA
1,2-Dichlorobenzene	CT,NY,MA,NH,RI,NC,ME,VA
1,3-Dichlorobenzene	CT,NY,MA,NH,RI,NC,ME,VA
1,4-Dichlorobenzene	CT,NY,MA,NH,RI,NC,ME,VA
1,2-Dichloroethane	CT,NY,MA,NH,RI,NC,ME,VA
1,1-Dichloroethane	CT,NY,MA,NH,RI,NC,ME,VA
1,1-Dichloroethylene	CT,NY,MA,NH,RI,NC,ME,VA
trans-1,2-Dichloroethylene	CT,NY,MA,NH,RI,NC,ME,VA
1,2-Dichloropropane	CT,NY,MA,NH,RI,NC,ME,VA
cis-1,3-Dichloropropene	CT,NY,MA,NH,RI,NC,ME,VA
1,4-Dioxane	MA
trans-1,3-Dichloropropene	CT,NY,MA,NH,RI,NC,ME,VA
Ethanol	NY,MA,NH
Ethylbenzene	CT,NY,MA,NH,RI,NC,ME,VA
Methyl tert-Butyl Ether (MTBE)	NY,MA,NH,NC
Methylene Chloride	CT,NY,MA,NH,RI,NC,ME,VA
Naphthalene	NY,MA,NC
1,1,2,2-Tetrachloroethane	CT,NY,MA,NH,RI,NC,ME,VA
Tetrachloroethylene	CT,NY,MA,NH,RI,NC,ME,VA

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
624.1 in Water	
Toluene	CT,NY,MA,NH,RI,NC,ME,VA
1,2,4-Trichlorobenzene	MA,NC
1,1,1-Trichloroethane	CT,NY,MA,NH,RI,NC,ME,VA
1,1,2-Trichloroethane	CT,NY,MA,NH,RI,NC,ME,VA
Trichloroethylene	CT,NY,MA,NH,RI,NC,ME,VA
Trichlorofluoromethane (Freon 11)	CT,NY,MA,NH,RI,NC,ME,VA
Vinyl Chloride	CT,NY,MA,NH,RI,NC,ME,VA
m+p Xylene	CT,NY,MA,NH,RI,NC
o-Xylene	CT,NY,MA,NH,RI,NC
625.1 in Water	
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
Benzidine	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/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

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
625.1 in Water	
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
N-Nitrosodimethylamine	CT,MA,NH,NY,NC,RI,ME,VA
N-Nitrosodi-n-propylamine	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
2-Fluorophenol	NC,VA
Phenol-d6	VA
Nitrobenzene-d5	VA
EPA 200.7 in Water	
Iron	CT,MA,NH,NY,RI,NC,ME,VA
Hardness	CT,MA,NH,NY,RI,VA
EPA 200.8 in Water	
Antimony	CT,MA,NH,NY,RI,NC,ME,VA
Arsenic	CT,MA,NH,NY,RI,NC,ME,VA
Cadmium	CT,MA,NH,NY,RI,NC,ME,VA
Chromium	CT,MA,NH,NY,RI,NC,ME,VA
Copper	CT,MA,NH,NY,RI,NC,ME,VA
Lead	CT,MA,NH,NY,RI,NC,ME,VA
Nickel	CT,MA,NH,NY,RI,NC,ME,VA
Selenium	CT,MA,NH,NY,RI,NC,ME,VA
Silver	CT,MA,NH,NY,RI,NC,ME,VA
Zinc	CT,MA,NH,NY,RI,NC,ME,VA
EPA 245.1 in Water	
Mercury	CT,MA,NH,RI,NY,NC,ME,VA
EPA 300.0 in Water	
Chloride	NC,NY,MA,VA,ME,NH,CT,RI
EPA 350.1 in Water	
Ammonia as N	NC,NY,MA,NH,RI,ME,VA
SM21-22 2540D in Water	
Total Suspended Solids	CT,MA,NH,NY,RI,NC,ME,VA
SM21-22 3500 Cr B in Water	
Hexavalent Chromium	NY,CT,NH,RI,ME,VA,NC
SM21-22 4500 CL G in Water	
Chlorine, Residual	CT,MA,RI,ME

con-test®
A Pace Analytical® Laboratory

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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SM21-22 4500 CN E in Water	
Cyanide	CT,MA,NH,NY,RI,NC,ME,VA

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2022
MA	Massachusetts DEP	M-MA100	06/30/2021
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2021
NY	New York State Department of Health	10899 NELAP	04/1/2021
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2021
RI	Rhode Island Department of Health	LAO00112	12/30/2020
NC	North Carolina Div. of Water Quality	652	12/31/2020
NJ	New Jersey DEP	MA007 NELAP	06/30/2021
FL	Florida Department of Health	E871027 NELAP	06/30/2021
VT	Vermont Department of Health Lead Laboratory	LL720741	07/30/2021
ME	State of Maine	MA00100	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2021
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2021
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2021
NC-DW	North Carolina Department of Health	25703	07/31/2021
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2021
MI	Dept. of Env, Great Lakes, and Energy	9100	09/6/2021

20L0887

con-test ANALYTICAL LABORATORY

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com

http://www.contestlabs.com

Doc # 381 Rev 1_03242017

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Company Name: Lockwood Remediation Technologies

Address: 89 Crawford Street, Leominster, MA 01453

Phone: (774) 450-7177

Project Name: 1600 Osgood Street

Project Location:

Project Number: 2-2137

Project Manager: john Henry

Con-Test Quote Name/Number:

Invoice Recipient:

Sampled By:

Requested Turnaround Time
7-Day ☐ 10-Day ☐
Due Date: 5-day

Rush-Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Data Delivery
Format: PDF ☑ EXCEL ☐
Other:
CLP Like Data Pkg Required: ☐
Email To: jjennings@lrt-llc.net
CC: jhenry@lrt-llc.net

ANALYSIS REQUESTED

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	[1]Matrix Code	Conc Code	Ammonia	Chloride	TRC	Total Metals (Sb,As,Cd, Cr III, Cu, Fe, Pb, Hg, Ni, Se, Ag, Zn)	Cyanide	Voc's	Semi-Voc's	PCB's	TPH	TSS	EDB	Hardness	Chromium VI
	[2] # of Containers							2	1	1	2	1	3	2	2	2	1	3	2	2
	[2] Preservation Code							S	I	I	N	X	H	I	I	S	I	T	N	I
	[3] Container Code							P	P	p	P	P	V	A	A	A	P	V	P	P
1	Influent	12/16	7:00		x	GW	U	X	X	X	X	X	X	X	X	X	X	X	X	X
2	Receiving Water	12/16	7:00		x	GW	U	X			X								X	X

Dissolved Metals Samples
○ Field Filtered
○ Lab to Filter

Orthophosphate Samples
○ Field Filtered
○ Lab to Filter

[1] **Matrix Codes:**
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] **Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

[3] **Container Codes:**
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

Comments: pH In: 7.7 pH RW 7.3

Please use the following codes to indicate possible sample concentration within the **Conc Code** column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Samples are for NPDES RGP Parameters.

Relinquished by: (signature)	Date/Time: 12/16/20 2:00
Received by: (signature)	Date/Time: 12/16/20 1455
Relinquished by: (signature)	Date/Time: 12/16/20 1455
Received by: (signature)	Date/Time: 12/16/20 1655
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Detection Limit Requirements
MA
CT
Other:

Special Requirements
☐ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ MA State DW Required
PWSID #

con-test ANALYTICAL LABORATORY
www.contestlabs.com
NELAC and AIHA-LAP, LLC Accredited

Project Entity
☐ Government ☐ Municipality ☐ MWRA ☐ WRTA
☐ Federal ☐ 21 J ☐ School
☐ City ☐ Brownfield ☐ MBTA

Other
☐ Chromatogram
☐ *AIHA-LAP,LLC*

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Table of Contents

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 LRT

Received By _____ Date 12/16/20 Time 1655

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 # 2 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 pertinent Information? Client T Analysis T Sampler Name F 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? F Who was notified? _____

Are there Short Holds? T Who was notified? Cassie

Is there enough Volume? T

Is there Headspace where applicable? T MS/MSD? F

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

Were trip blanks received? F On COC? F

Do all samples have the proper pH? Acid T Base T

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.	6	1 Liter Plastic	1	16 oz Amb.	
HCL-	3	500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic	1	4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-	3	SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

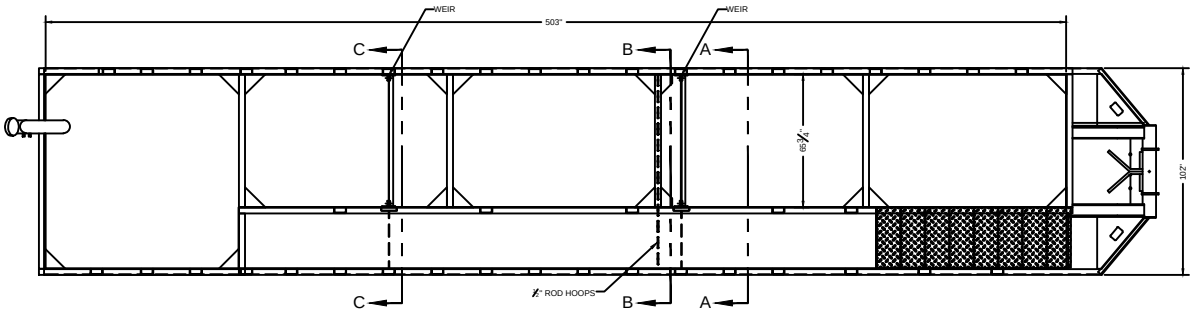
Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic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

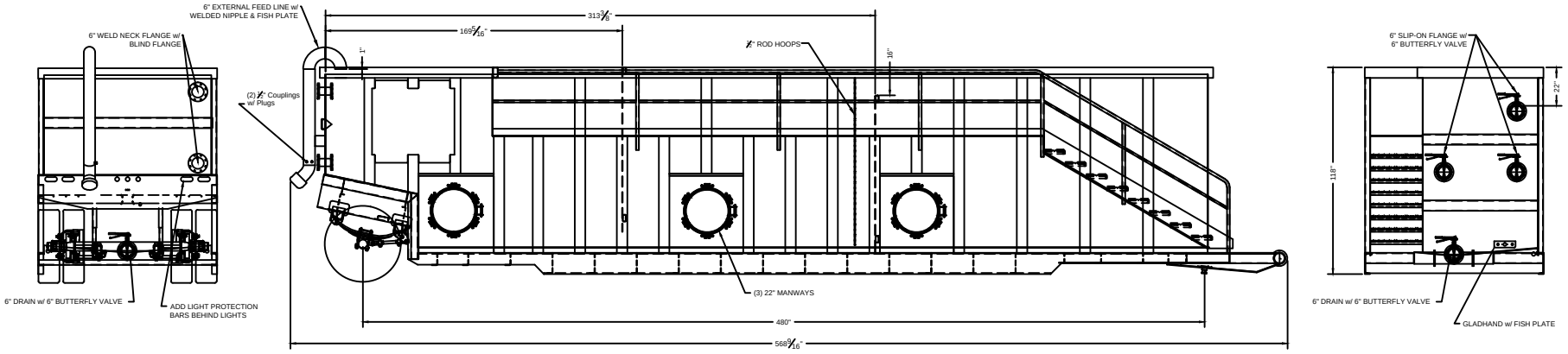
Comments:

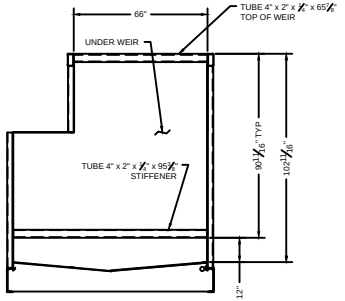
~~Can't do hexchrome on Receiving Water Sample because none of the containers are unpreserved~~. - found 12/16/20

Appendix C

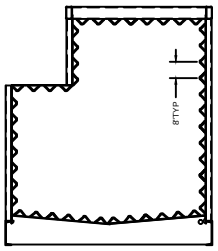
Cutsheets



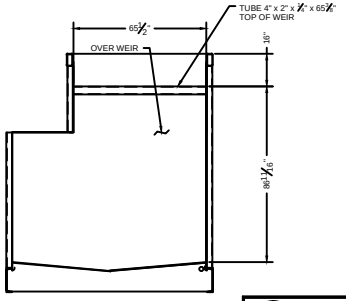




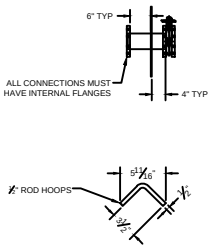
SECTION VIEW "C-C"



SECTION VIEW "B-B"



SECTION VIEW "A-A"



STANDARD SPECIFICATION

CAPACITY: .... 18,480 GALLONS (440 BBL)
SIDE SHEETS: .... 1/4" A36 PLATE
FRONT SHEET: .... 1/4" A36 PLATE
REAR SHEET: .... 1/4" A36 PLATE
FLOOR: .... 1/4" A36 PLATE
MAIN FLOOR RAILS: .... 12" x 20.7# STRUCTURAL CHANNEL
FLOOR CROSSMEMBERS: .... 1/4" A36 PLATE
SIDE STAKES: .... ONE PIECE 3/16" A36 PLATE
SUSPENSION: .... 3 LEAF SPRING, 22,500 LBS. CACPACITY
AXLE: .... 77.5" TRACK, 22,500 LBS. CAPACITY
TIRES: .... 11R22.5 RADIAL
WHEELS: .... 8.25 x 22.5 STEEL
MANWAYS: .... 3 - 22" DIA. OVAL SIDE
VALVES: .... 3 - 6" BUTTERFLY VALVE (FRONT)
6" DRAIN w/ 6" BUTTERFLY VALVE (REAR)
2 - 6" BLIND FLANGE CONNECTION (REAR)

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

INLET PIPING: .... 1 - 6" PIPE SYSTEM (REAR)
BLAST: .... (INTERIOR) SSPC-SP-10 (NEAR WHITE)

(EXTERIOR) FINISH COAT POLURETHANE 4.0 TO 5.0 D.F.T.

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

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

PINNACLE MFG
512 West Henderson Ave
Boaz, Alabama 35957
Telephone 256 840-8031

NOTES:
1. DO NOT SCALE PRINT.
2. DESTROY ALL PREVIOUS REVISIONS.
3. ALL DRAWING CHANGES ARE TO BE MADE ON CAD SYSTEM.

TOLERANCE UNLESS OTHERWISE NOTED
X ± .060
XX ± .030
XXX ± .010

DESCRIPTION: AL470-WT
Lockwood Spec

PLASMA / DXF FILE

MATERIAL: MATERIAL

FIRST USED:

ECN:

DRW: FK

DATE: 17-1004

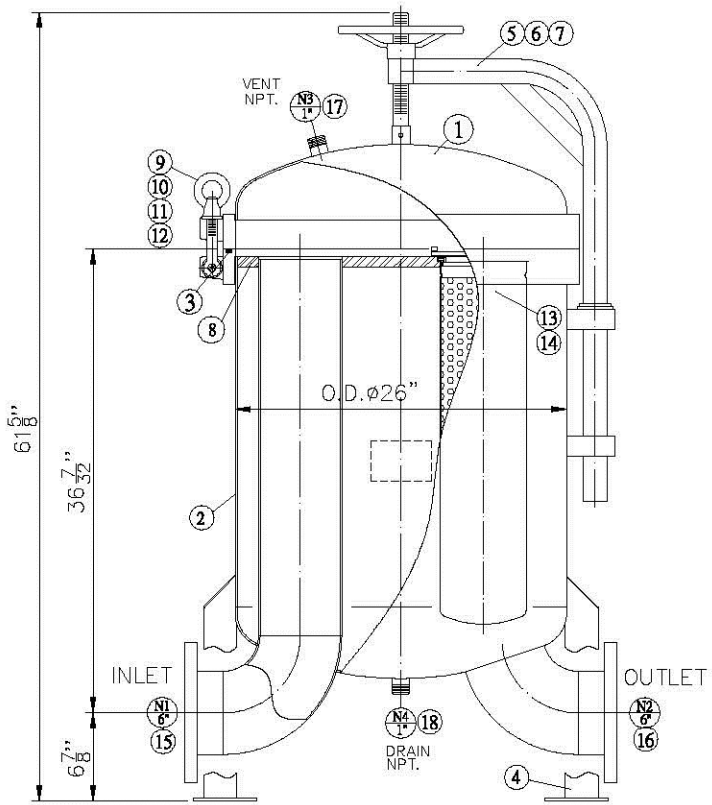
SIZE: B

DRAWING NO.:

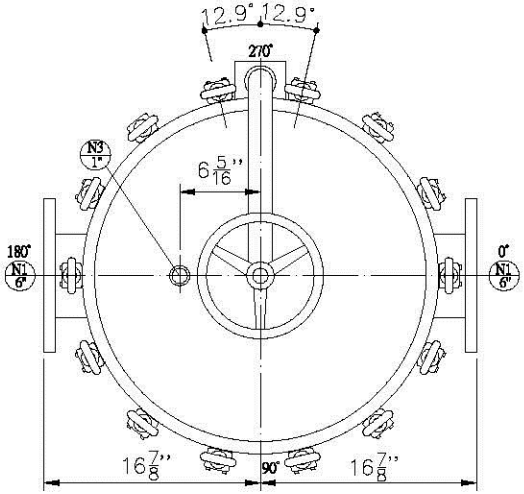
REV.

SCALE: NTS

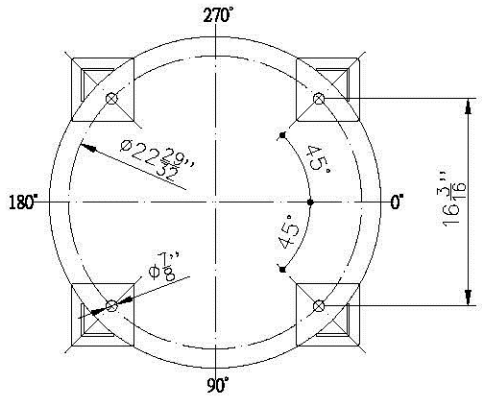
BOOK NO.:



SIDE VIEW



TOP VIEW



ANCHOR

BILL OF MATERIALS
(QUANTITY PER UNIT)

PROD ORDER_____S.O_____ MFG. SERIAL NO._____

CUSTOMER_____ DESIGN __150__ PSIG __90__ °C

DESTINATION_____ MAX. A.W.P._150__ PSIG __90__ °C

CUST. P.O._____ HYDROSTATIC TESTED _225_ PSIG

CUST.EQUIP_____ CODE _____

CODE STAMP_____ N.B._____

NO OF UNITS _____ SCH SHIP DATE _____

WEIGHT EMPTY _____ KG. FULL _____ KG

NO.	DESCRIPTION	MATERIAL	UNIT	QUAN.	PART NO.
1	FILTER COVER	304		1	
2	FILTER SHELL	304		1	
3	GASKET	EPDM		1	
4	LEG WELDMENT	304		4	
5	DAVIT HANDWHEEL	304		1	
6	DAVIT SCREW	304		1	
7	DAVIT ARM	304		1	
8	SEPARATE PLATE	304		1	
9	EYENUT	304		14	
10	WASHER	304		14	
11	EYEBOLT	304		14	
12	BOLT SUPPORT	304		14	
13	BASKET	304		6	
14	BAG-LOCK DEVICE	304		6	
15	INLET 6" ANSI 150B RF	304		1	
16	OUTLET 6" ANSI 150B RF	304		1	
17	VENT NPT 1"	304		1	
18	DRAIN NPT 1"	304		1	

Lockwood Remediation Technologies, LLC
89 Crawford Street
Leominster, MA

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

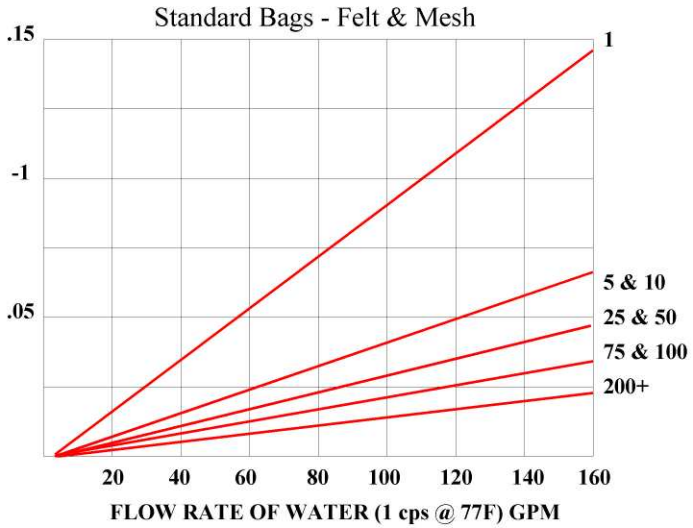
Optional Filter Media

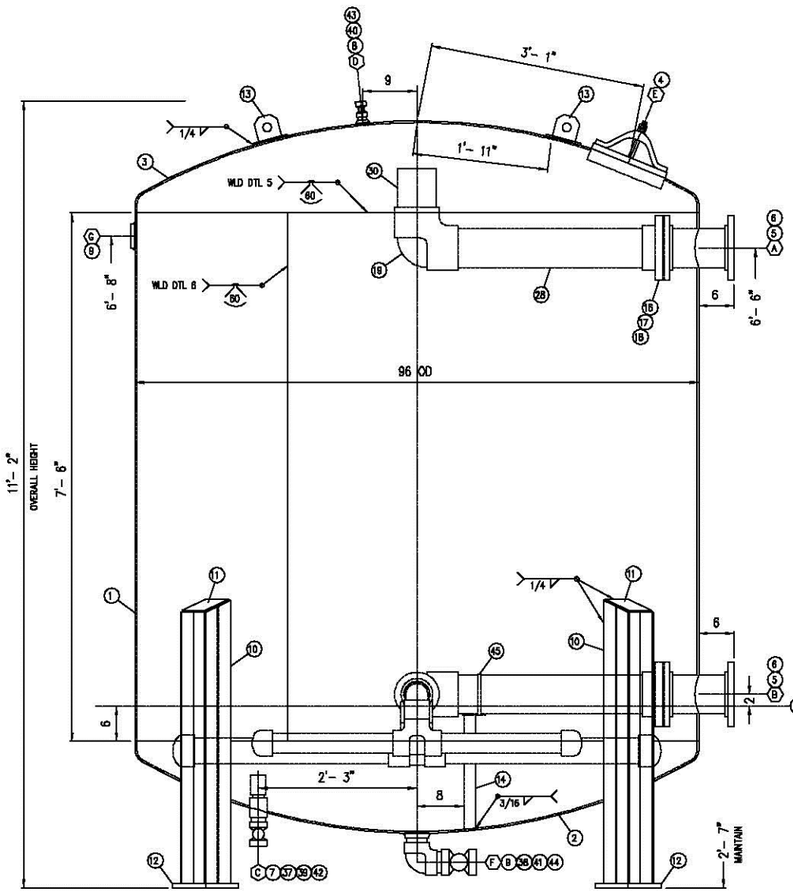
Felt: Nomex, Polyester, Polypropylene

Monofilament: Nylon, Polyester, Polypropylene

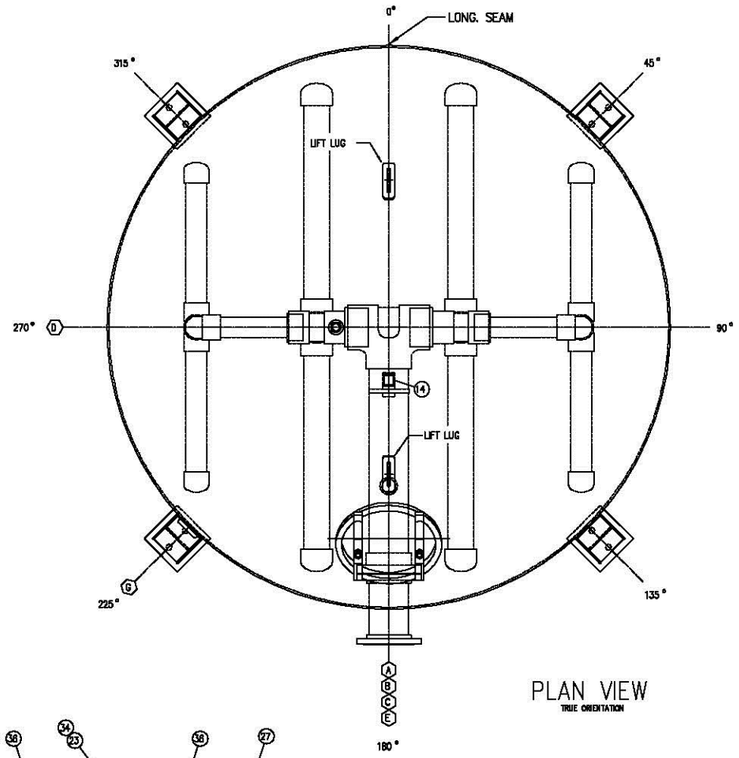
Multifilament: Nylon, Polyester

Polypropylene: Oil Removal

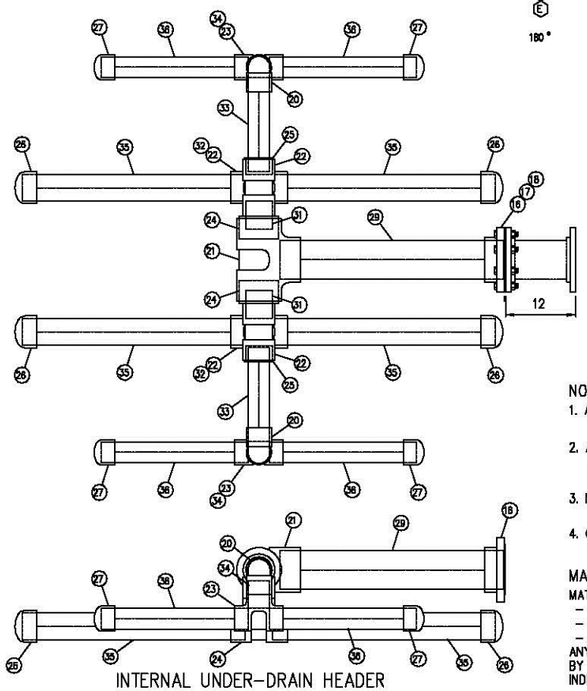




ELEVATION VIEW
NOT TRUE ORIENTATION



PLAN VIEW
TRUE ORIENTATION



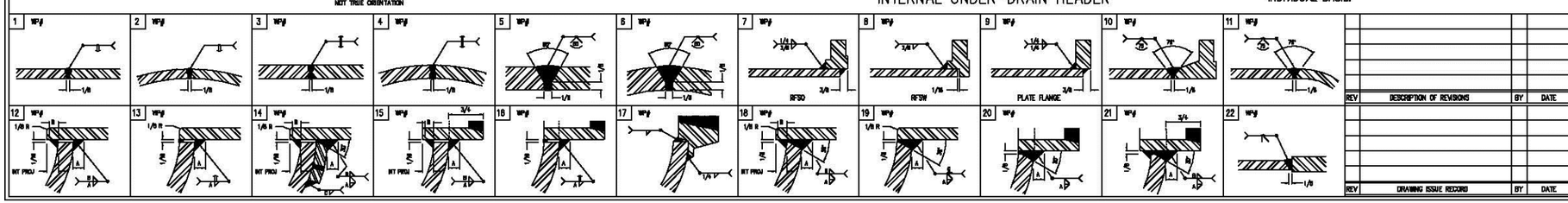
INTERNAL UNDER-DRAIN HEADER

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	REQ'D	PART REF	DESCRIPTION	MATERIAL SPEC	WEIGHT
1	1	SHELL	5/16" PLATE x 23'– 0 5/8" LG x 7'– 8" WIDE CAN (ROLL TO 96" OD)	HRCQ	2344
2	1	BTM HEAD	72" OD x 5/16" Nom t. NON–ASME F&D HEAD c/w 2" SF	HRCQ	731
3	1	TOP HEAD	72" OD x 5/16" Nom t. NON–ASME F&D HEAD c/w 2" SF	HRCQ	731
4	1	MANWAY	12" x 16" x 3/4" t. x 3" DEEP NECK ELLIP HATCH Cl# ___–___–___	HRCQ	38
5	4	NOZ A&B	6" – 150# RFSO FLANGE	SA–105	76
6	2	NOZ A&B	6" – STD WALL SMLS PIPE x 11 1/4" LG (PBE)	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 LEG	6" WF @ 15 #/FT x 4'– 0 1/4" LG (SEE DETAIL)	SA–36	240
11	4	VESL LEG	1/4" x 8" FLATBAR x 5 1/2" LG (LEG TOP CAP)	SA–36	8
12	4	BASE PLT	3/4" x 8" 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"t 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	INTERNALS	6" – 150# SCH 80 PVC1 LOOSE RING VAN STONE SOCKET FLANGE	COLONIAL	
17	2	INTERNALS	6" – 150# GASKET	TREATED FIBER	
18	16	INTERNALS	3/4" DIA x 3 1/2" LG HEX HEAD MACH BOLT c/w HEX NUTS	ZINC PLATED	6
19	1	INTERNALS	6" – SCH 80 PVC1 ALL SOCKET 90 Deg ELBOW	COLONIAL	
20	2	INTERNALS	3" – SCH 80 PVC1 ALL SOCKET 90 Deg ELBOW	COLONIAL	
21	1	INTERNALS	6" – SCH 80 PVC1 ALL SOCKET TEE	COLONIAL	
22	4	INTERNALS	4" – SCH 80 PVC1 ALL SOCKET TEE	COLONIAL	
23	2	INTERNALS	3" – SCH 80 PVC1 ALL SOCKET TEE	COLONIAL	
24	2	INTERNALS	6" x 4" – SCH 80 PVC1 ALL SOCKET REDUCER BUSHING	COLONIAL	
25	2	INTERNALS	4" x 3" – SCH 80 PVC1 ALL SOCKET REDUCER BUSHING	COLONIAL	
26	4	INTERNALS	4" – SCH 80 PVC1 SOCKET CAP	COLONIAL	
27	4	INTERNALS	3" – SCH 80 PVC1 SOCKET CAP	COLONIAL	
28	1	INTERNALS	6" – SCH 80 PVC PIPE x 3'– 2 3/16" LG	PVC PLASTIC	
29	1	INTERNALS	6" – SCH 80 PVC PIPE x 3'– 2 3/16" LG	PVC PLASTIC	
30	1	INTERNALS	6" – SCH 80 PVC PIPE x 10" LG	PVC PLASTIC	
31	2	INTERNALS	4" – SCH 80 PVC PIPE x 4 13/16" LG	PVC PLASTIC	
32	2	INTERNALS	4" – SCH 80 PVC PIPE x 5" LG	PVC PLASTIC	
33	2	INTERNALS	3" – SCH 80 PVC PIPE x 1'– 4" LG	PVC PLASTIC	
34	1	INTERNALS	3" – SCH 80 PVC PIPE x 4 11/16" LG	PVC PLASTIC	
35	4	INTERNALS	4" – SCH 40 PVC (.010) WELL SCREEN SLOTTED PIPE x 3'– 2" LG	PVC PLASTIC	
36	4	INTERNALS	3" – SCH 40 PVC (.010) WELL SCREEN SLOTTED PIPE x 2'– 1" LG	PVC PLASTIC	
37	1	INTERNALS	ORTHOS LIQ SYS MODEL R2 FILTER NOZZLE c/w 0.3 mm SLOTS & 2" MPT CONN	PLASTIC	
38	1	SLURY VLV	3" – FEMALE NPT FULL PORT BALL VALVE (RUB #S82)	FORGED BRASS	
39	1	DRAIN VLV	2" – FEMALE NPT FULL PORT BALL VALVE (RUB #S82)	FORGED BRASS	
40	1	VENT VLV	1" – FEMALE NPT FULL PORT BALL VALVE (RUB #S82)	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" – XH WALL CLOSE NIPPLE	SA–53–B	
44	1	SLURY VLV	3" – STD MERCHANT F.S. SCRD 90 Deg ELBOW	SA–197	
45	1	INTERNALS	6" – BAND TYPE PIPE STRAP	STAINLESS	

SCHEDULE OF OPENINGS

MARK	SIZE	QTY	RATING	TYPE	DESCRIPTION	INT PROJ	WELD DETAIL	A	B	D
A	6"	1	150#	RFSO	INLET	AS SHOWN	7 & 12	1/4	1/4	
B	6"	1	150#	RFSO	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 FLGNK	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. Metal 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 & Corr'd)	75 PSIG (LIMITED BY HEAD)	Internal Surface Prep	SANDBLAST 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 PLYMASTIC (Lt GRAY) 5–7 mils DFT

REV	DESCRIPTION OF REVISIONS	BY	DATE

REV	DRAWING ISSUE RECORD	BY	DATE

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

CUSTOMER: UNKNOWN
PROJECT: UNKNOWN

GENERAL ASSEMBLY LAYOUT – ELEVATION AND ORIENTATION
FOR
MODEL AF–10,000 FILTER 96" OD x 7' – 6" SEAM – SEAM

DRN BY	CHK'D BY	APP'D BY	DATE	SCALE	JOB No.	DRAWING No.	REV
DB (TF)	TB (TF)	EP (TF)	MAR 31/00	1" = 1'–0"	UNKNOWN	AF10000–STD	0

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

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

GENERAL DESCRIPTION

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

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

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

RESINTECH INC
INNOVATIONS IN ION EXCHANGE

CGS

CATION EXCHANGE RESIN
SOFTENING GRADE
Na FORM

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

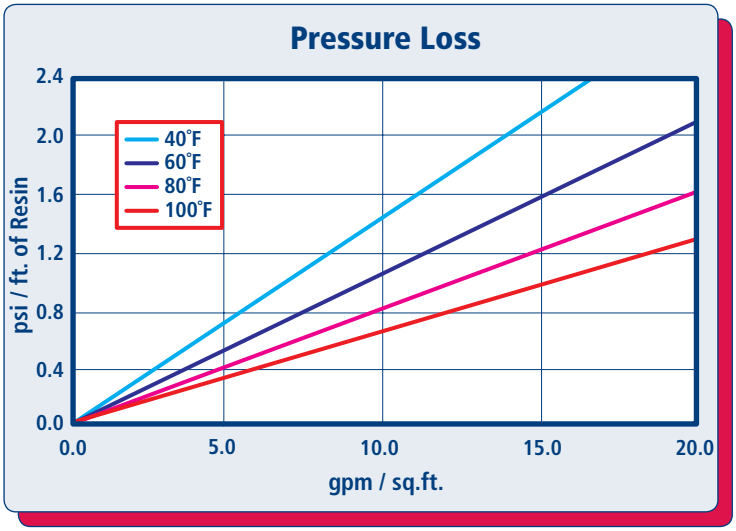
NSF/ANSI 44-61 CERTIFIED FOR MATERIAL SAFETY

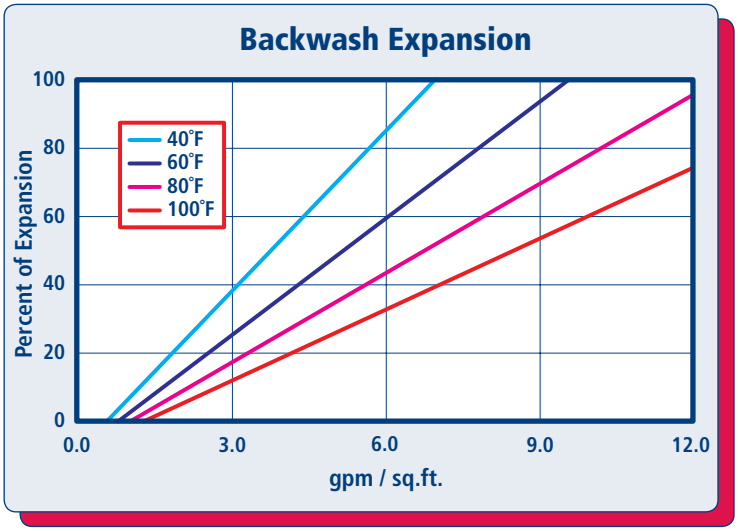
FEATURES & BENEFITS

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

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

HYDRAULIC PROPERTIES





PRESSURE LOSS

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

BACKWASH

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

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

RESINTECH® CGS

PHYSICAL PROPERTIES

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

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

SUGGESTED OPERATING CONDITIONS

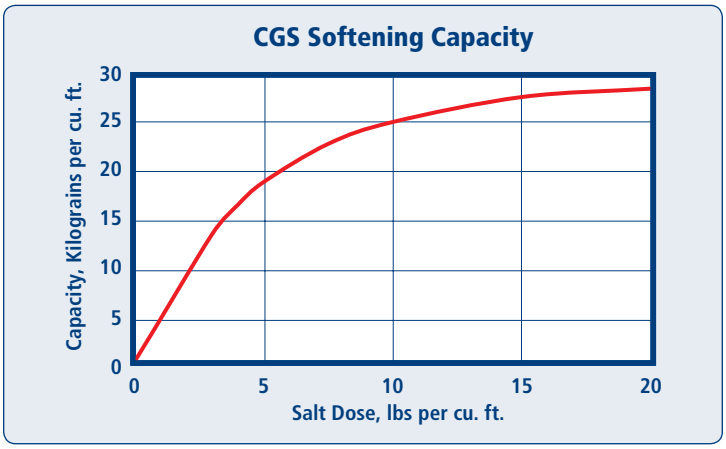
Maximum continuous temperature	
Sodium form	250˚F
Minimum bed depth	24 inches
Backwash expansion	25 to 50 percent
Maximum pressure loss	25 psi
Operating pH range	0 to 14 SU
Regenerant Concentration	
Salt cycle	10 to 15 percent NaCl
Regenerant level	4 to 15 lbs./cu.ft.
Regenerant flow rate.	0.5 to 1.5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

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

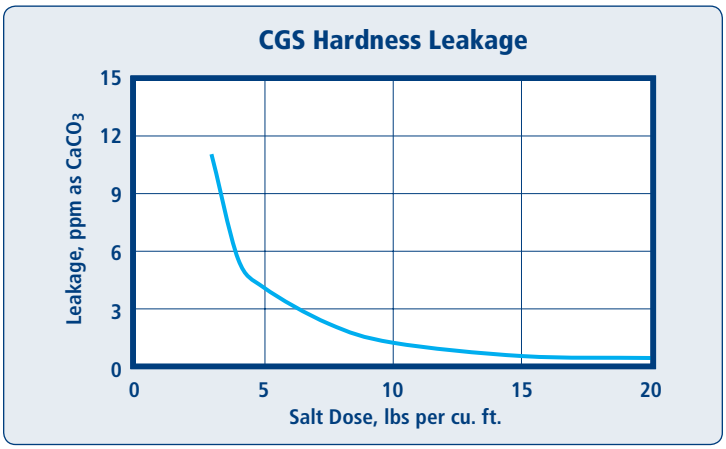
APPLICATIONS

SOFTENING

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



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



RESINTECH INC
INNOVATIONS IN ION EXCHANGE
East Coast - West Berlin, NJ p:856.768.9600 • Midwest - Chicago, IL p:708.777.1167 • West Coast - Los Angeles, CA p:323.262.1600

SBG1

ANION EXCHANGE RESIN TYPE ONE GEL Cl OR OH FORM

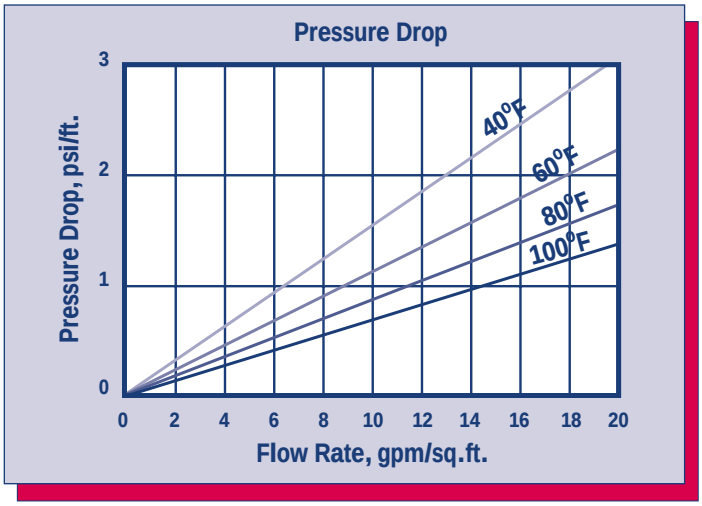
RESINTECH SBG1 is a high capacity, shock resistant, gelular, Type 1, strongly basic anion exchange resin supplied in the chloride or hydroxide form as moist, tough, uniform, spherical beads. *RESINTECH SBG1* is intended for use in all types of deionization systems and chemical processing applications.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

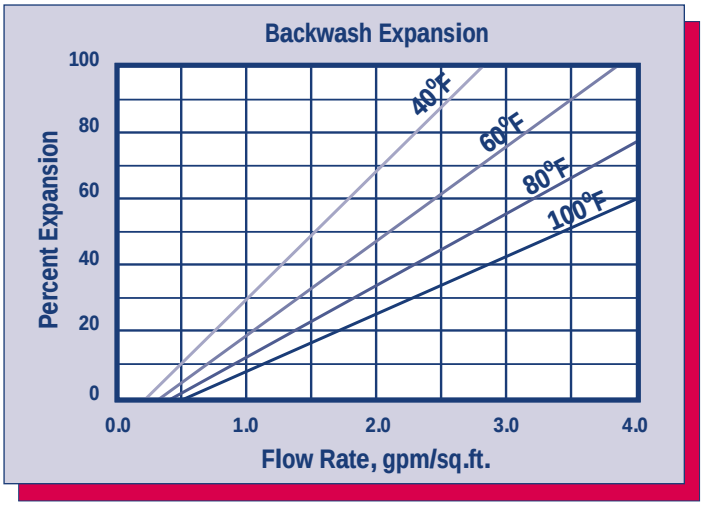
FEATURES & BENEFITS

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

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

HYDRAULIC PROPERTIES





PRESSURE DROP

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

BACKWASH

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

RESINTECH® SBG1

PHYSICAL PROPERTIES

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

SUGGESTED OPERATING CONDITIONS

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

OPERATING CAPACITY

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

Pounds NaOH/ft³	Capacity Kilograms per cubic foot			
	HCl	H_2SO_4	H_2SiO_3	H_2CO_3
4	11.3	14.0	14.7	18.6
6	12.8	16.3	17.3	19.8
8	14.3	13.3	19.5	21.6
10	15.5	20.0	22.2	22.2

APPLICATIONS

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

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

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

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

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

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

GROOVED & SMOOTH-END FLOWMETER MODEL MG/MS100

SPECIFICATIONS

PERFORMANCE

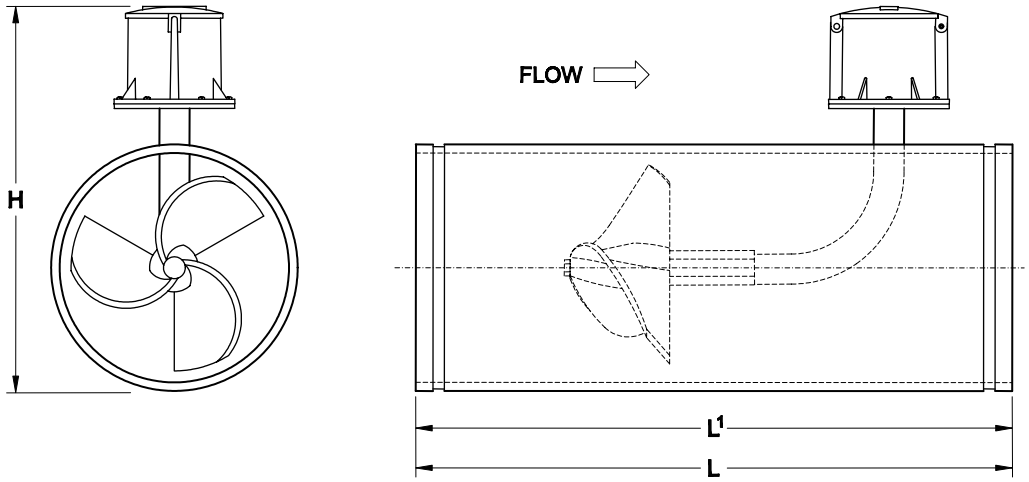
ACCURACY/REPEATABILITY: ±2% of reading guaranteed throughout full range. ±1% over reduced range. Repeatability 0.25% or better.
RANGE: (see dimensions chart below)
HEAD LOSS: (see dimensions chart below)
MAXIMUM TEMPERATURE: (Standard Construction) 160°F constant
PRESSURE RATING: 150 psi

MATERIALS

TUBE: Epoxy-coated carbon steel.
BEARING ASSEMBLY: Impeller shaft is 316 stainless steel. Ball bearings are 440C stainless steel.
MAGNETS: (Permanent type) Cast or sintered alnico
BEARING HOUSING: Brass; Stainless Steel optional
IMPELLER: Impellers are manufactured of high-impact plastic, retaining their shape and accuracy over the life of the meter. High temperature impeller is optional.
REGISTER: An instantaneous flowrate indicator and six-digit straight-reading totalizer are standard. The register is hermetically sealed within a die cast aluminum case. This protective housing includes a domed acrylic lens and hinged lens cover with locking hasp.
COATING: Fusion-bonded epoxy

OPTIONS

- Forward/reverse flow measurement
- High temperature construction
- "Over Run" bearing assembly for higher-than-normal flowrates
- Electronic Propeller Meter available in all sizes of this model
- A complete line of flow recording/control instrumentation
- Straightening vanes and register extensions available
- Certified calibration test results



McCrometer reserves the right to change design or specifications without notice.

MG100 / MS100	DIMENSIONS												
Meter Size (inches)	**2**	**2 ½**	**3**	**4**	**6**	**8**	**10**	**12**	**14**	**16**	**18**	**20**	**24**
Maximum Flow U.S. GPM	250	250	250	600	1200	1500	1800	2500	3000	4000	5000	6000	8500
Minimum Flow U.S. GPM	40	40	40	50	90	100	125	150	250	275	400	475	700
Head Loss in Inches at Max. Flow	29.50	29.50	29.50	23.00	17.00	6.75	3.75	2.75	2.00	1.75	1.50	1.25	1.00
Shipping Weight, lbs.	* See Special Note		17	40	54	68	87	106	140	144	172	181	223
H (inches)			10.9	12.78	13.84	14.84	16.91	18.90	20.53	22.53	25.53	26.53	30.53
L (inches) MG100			13	20	20	20	20	20	20	22	22	22	22
L^1 (inches) MS100			13	20	22	22	22	22	22	24	24	24	24
O.D. of Meter Tube			3.50	4.500	6.625	8.625	10.750	12.750	14.00	16.00	18.00	20.00	24.00

Special Note—
Reducing fittings incorporating grooves are supplied to adapt the 3-inch model to smaller line sizes.

Larger flowmeters on special order.

Appendix D

Supporting Information

MassDEP - Bureau of Waste Site Cleanup

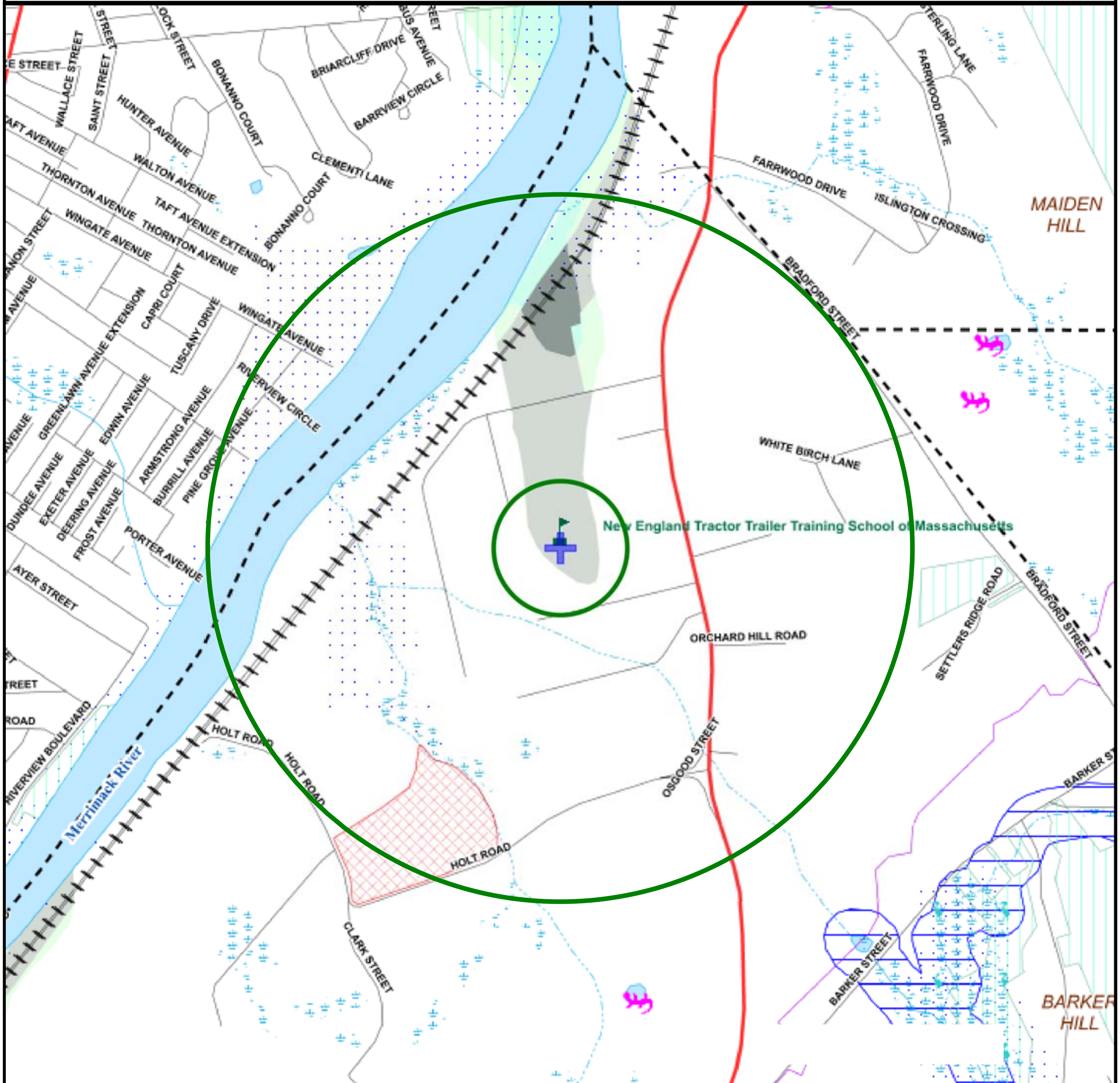
Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii

Site Information:
1600 OSGOOD STREET
1600 OSGOOD STREET NORTH ANDOVER, MA

NAD83 UTM Meters:
4733093mN , 326736mE (Zone: 19)
December 17, 2020

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

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection



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

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

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

Aquifers: Medium Yield, High Yield, EPA Sole Source

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

PWS Protection Areas: Zone II, IWPA, Zone A

Hydrography: Open Water, PWS Reservoir, Tidal Flat

Wetlands: Freshwater, Saltwater, Cranberry Bog

FEMA 100yr Floodplain; Protected Open Space; ACEC

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

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

Documentation of the Results of the ESA Eligibility Determination:

Using information in Appendix II of the NPDES RGP, the project is eligible for coverage under this general permit under FWS Criterion C. This project is located in Essex County. No designated critical habitats were listed in the project area.

An Endangered Species Consultation was conducted on the U.S. Fish & Wildlife Service New England Field Office ECOS IPaC webpage for the Site:

- The Northern long-eared bat was listed as "Threatened" in Essex County

Based upon a discussion with the U.S. Fish & Wildlife Service (USFWS), temporary dewatering activities at the site are not expected to impact the Northern Long-eared Bat.

Northern long-eared bats spend winter hibernating in caves and mines. They use areas in various sized caves or mines with constant temperatures, high humidity, and no air currents. During the summer, northern long-eared bats roost singly or in colonies underneath bark, in cavities or in crevices of both live trees and snags (dead trees). There are no caves and mines located at the site. There are no trees in the immediate vicinity of the site; and tree removal is not part of the scope of work related to this Notice of Intent. Therefore, temporary dewatering activities will have "no impact" to the Northern Long-eared Bat.

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: December 16, 2020
Consultation Code: 05E1NE00-2021-SLI-0752
Event Code: 05E1NE00-2021-E-02261
Project Name: 1600 Osgood Street

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: 05E1NE00-2021-SLI-0752

Event Code: 05E1NE00-2021-E-02261

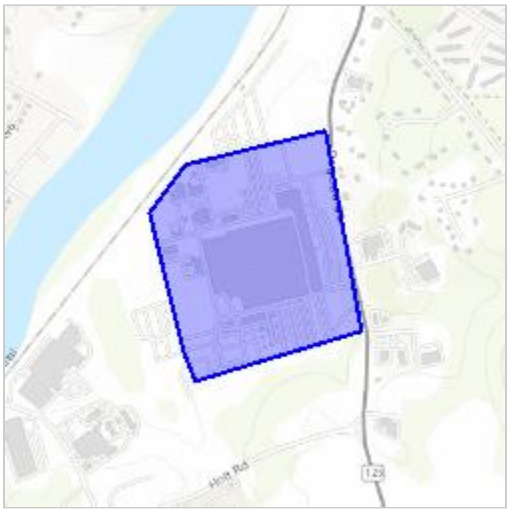
Project Name: 1600 Osgood Street

Project Type: Water Withdrawal / Depletion

Project Description: Construction Dewatering

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/42.73097663471946N71.11645067232263W



Counties: Essex, MA

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

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

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

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 and the National Register of Historic Places found no properties are located on or near the project route. In addition, construction and dewatering / water treatment work will be conducted on and along the roadway and will not impact surrounding areas. 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): North Andover; Street No: 1600; Street Name: Osgood St; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year