



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

August 26, 2019

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)
111 Maplewood Street
Portsmouth, NH

Dear Sir/Madam:

On behalf of Boston Environmental Company (BEC) and 111 Maplewood Avenue LLC (Maplewood), 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 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 of groundwater that will be generated during dewatering activities associated with construction of a new office building located at 111 Maplewood Street in Portsmouth, New Hampshire (the Site). This work will take place on lot 8, a 101,362 sqft. (2.3 acre) parcel. The new building will have a footprint of approximately 74,000 sqft. and is anticipated to be completed within twelve months. A Site Locus is provided as **Figure 1** and a Site Plan satisfying the requirements of RGP Appendix IV Part I.B and I.D is provided as **Figure 2**.

Work Summary

The project includes the construction of an approximately 74,000 square foot office building and general site improvements. To complete portions of the excavations in the dry, dewatering is required to lower the groundwater table as the work is being performed. To achieve this, filtered sumps will be placed in low spots within the excavation. The water generated during dewatering (Source water) will be pumped to a treatment system prior to discharge to a storm drain with a final outfall in North Mill Pond. To characterize groundwater from the proposed excavation area, BEC collected representative groundwater samples from two monitoring wells on site on July 16, 2019, a sample of the receiving water (North Mill

Pond) was collected on the same date. The samples were analyzed for various parameters in accordance with the NPDES RGP Activity Category III-G.

Discharge and Receiving Surface Water Information

A summary of the analytical results is provided in **Tables 1 and 2** included within **Appendix A**, and copies of the laboratory data reports are provided in **Appendix B**. Concentrations of ammonia and chloride were detected over detection limits. In addition, several Category A Inorganics were detected in groundwater samples at concentrations above the respective NPDES RGP Effluent Limitations. To meet these standards, Source water will undergo treatment that includes a settling basin and bag filtration. It is assumed that metal concentrations will be addressed through settling and bag filtration. If analytes are detected over effluent limitations, the water treatment system will be modified with carbon filtration and ion exchange prior to discharge. Details of the water treatment system are provided below.

Water Treatment System

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

Source water will be pumped to a treatment system with a design flow of up to 100 gallons per minute (gpm); the average effluent flow of the system is estimated to be 75 gpm, and the maximum flow will not exceed 100 gpm. 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 triple-bag filter skid (with three single bag filters), followed by two contingent carbon vessels plumbed in series. Each contingent carbon vessel will contain 2,000 pounds of reactivated liquid-phase carbon. Following the carbon, water will be pumped into two contingent resin media vessels one vessel will hold 40 cubic yards cation resin media and the other 40 cubic yards anion resin media. Discharge from the resin vessels will pass through a flow/totalizer meter prior to discharge into a storm drain with an outfall in North Mill Pond. The discharge will be at one location as depicted on **Figure 2**.

Consultation with Federal Services

LRT reviewed online electronic data viewers and databases from the Arc Global Information System (ArcGIS) the New Hampshire Natural Heritage Bureau, and the U.S. National Parks Service Natural Historic Places (NPS). Based on this review, the Site and the point where the proposed discharge reaches the receiving surface water body are not located within an Area of Critical Environmental Concern

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

No formal or informal consultation with National Marine Fisheries Service (NMFS) has been conducted. However, the Operator (Maplewood) certifies eligibility according to the NMFS Criterion as the remediation activity discharges are not likely to adversely affect listed species and will result in either no effect or no adverse modification of critical habitat and also result in no impact of a listed species. In support of this certification, the remaining Documentation for Eligibility Determination is provided.

Coverage under NPDES RGP

It is our opinion that the proposed discharge is eligible for coverage under the NPDES RGP. On behalf of BEC and 111 Maplewood Avenue LLC., we are requesting coverage under the NPDES RGP for the discharge of treated wastewater to North Mill Pond in support of construction dewatering activities that are to take place at 111 Maplewood Street Portsmouth, NH.

The enclosed NOI form provides required information on the general site conditions, discharge, treatment system, receiving water, and consultation with federal services. For this project, 111 Maplewood Avenue LLC 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

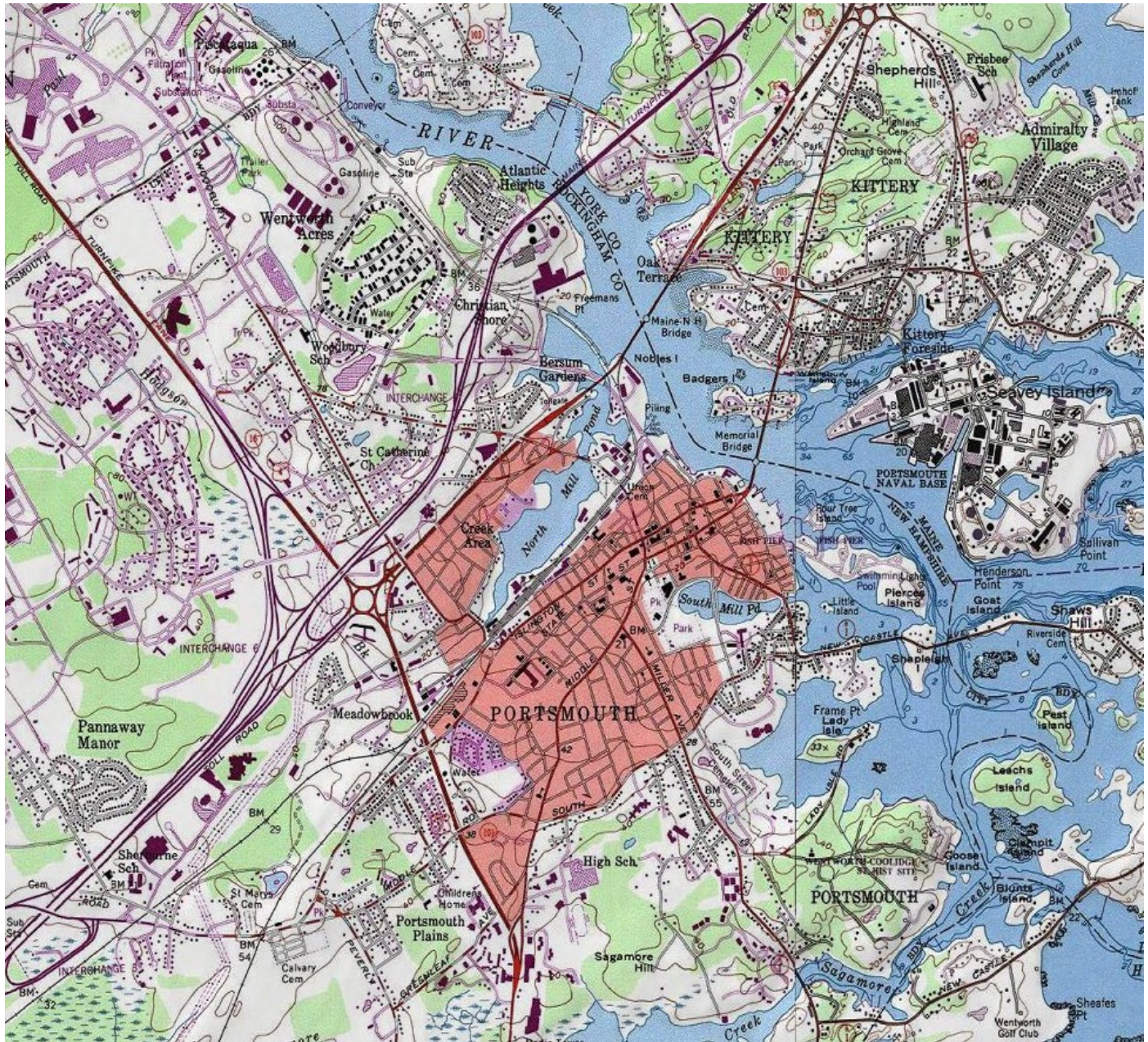
Kim Gravelle

Kim Gravelle, P.G.
Senior Project Manager

Encl: Figure 1 - Locus Plan
Figure 2 - Site Plan
Figure 3 - Water Treatment System Schematic
Appendix A - NOI Form
Appendix B - Laboratory Data
Appendix C - Water Treatment System
Appendix D - Supplemental Information

cc: Richard Stromberg – BEC
Mike Toomey - BEC
Eric Nelson - 111 Maple wood Ave. LLC
Hayley Franz - DES

Figures



Source: MassGIS, Oliver Mapping Tool

Notes

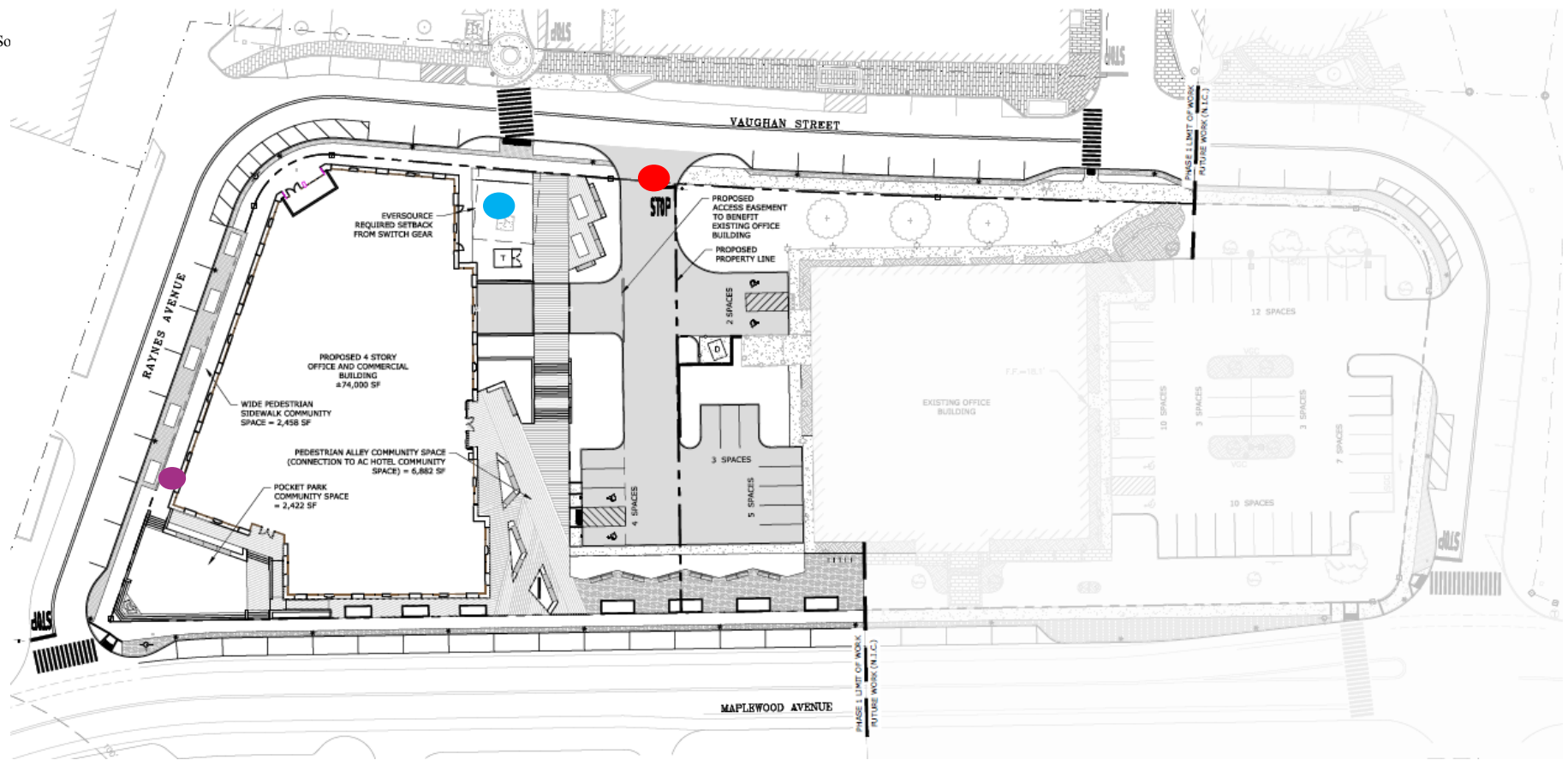
1. Figure is not to scale.



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

Figure 1 – Locus Plan
 111 Maplewood Street
 Portsmouth, NH

So



Source: 111 Maplewood Street Drawing set

Notes

1. Figure is not to scale

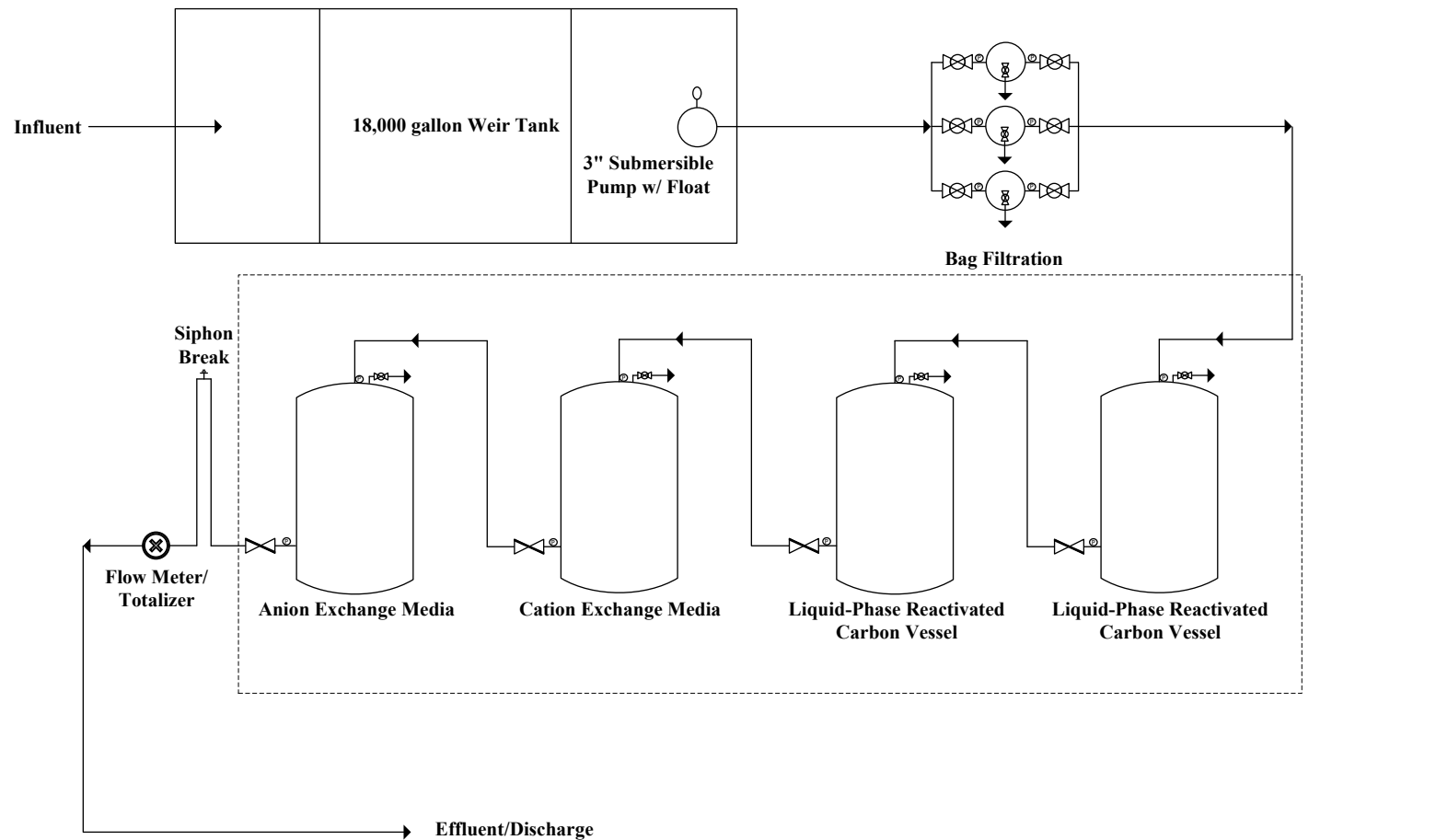
Key

- Discharge location
- Water Treatment System location
- Monitoring Well Location



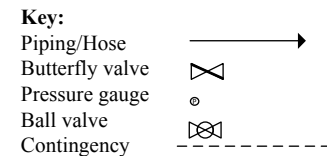
89 Crawford Street
Leominster, Massachusetts 01453
Tel: 774.450.7177
Fax: 888.835.0617
www.lrt-llc.net

Figure 2 – Site plan
111 Maplewood Street
Portsmouth, NH



Notes:

- 1.) Figure is not to scale
- 2.) System rated for 100 GPM



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

DESIGNED BY: LRT
 CHECKED BY:

DRAWN BY: JHJ
 DATE:

Water Treatment System Schematic

111 Maplewood Street
 Portsmouth, NH

PROJECT No.

FIGURE No.
 3

Appendix A
NOI Form

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

A. General site information:

1. Name of site:	Site address:		
	Street:		
	City:	State:	Zip:
2. Site owner Owner is (check one): <input type="checkbox"/> Federal <input type="checkbox"/> State/Tribal <input type="checkbox"/> Private <input type="checkbox"/> Other; if so, specify:	Contact Person:		
	Telephone:	Email:	
	Mailing address:		
	Street:		
	City:	State:	Zip:
3. Site operator, if different than owner	Contact Person:		
	Telephone:	Email:	
	Mailing address:		
	Street:		
	City:	State:	Zip:
4. NPDES permit number assigned by EPA: NPDES permit is (check all that apply): <input type="checkbox"/> RGP <input type="checkbox"/> DGP <input type="checkbox"/> CGP <input type="checkbox"/> MSGP <input type="checkbox"/> Individual NPDES permit <input type="checkbox"/> Other; if so, specify:	5. Other regulatory program(s) that apply to the site (check all that apply):		
	<input type="checkbox"/> MA Chapter 21e; list RTN(s): <input type="checkbox"/> NH Groundwater Management Permit or Groundwater Release Detection Permit:	<input type="checkbox"/> CERCLA <input type="checkbox"/> UIC Program <input type="checkbox"/> POTW Pretreatment <input type="checkbox"/> CWA Section 404	

B. Receiving water information:

1. Name of receiving water(s):	Waterbody identification of receiving water(s):	Classification of receiving water(s):
Receiving water is (check any that apply): <input type="checkbox"/> Outstanding Resource Water <input type="checkbox"/> Ocean Sanctuary <input type="checkbox"/> territorial sea <input type="checkbox"/> Wild and Scenic River		
2. Has the operator attached a location map in accordance with the instructions in B, above? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No Are sensitive receptors present near the site? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, specify:		
3. Indicate if the receiving water(s) is listed in the State’s Integrated List of Waters (i.e., CWA Section 303(d)). Include which designated uses are impaired, and any pollutants indicated. Also, indicate if a final TMDL is available for any of the indicated pollutants. For more information, contact the appropriate State as noted in Part 4.6 of the RGP.		
4. Indicate the seven day-ten-year low flow (7Q10) of the receiving water determined in accordance with the instructions in Appendix V for sites located in Massachusetts and Appendix VI for sites located in New Hampshire.		
5. Indicate the requested dilution factor for the calculation of water quality-based effluent limitations (WQBELs) determined in accordance with the instructions in Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire.		
6. Has the operator received confirmation from the appropriate State for the 7Q10 and dilution factor indicated? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, indicate date confirmation received:		
7. Has the operator attached a summary of receiving water sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No		

C. Source water information:

1. Source water(s) is (check any that apply):			
<input type="checkbox"/> Contaminated groundwater Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Contaminated surface water Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> The receiving water <input type="checkbox"/> A surface water other than the receiving water; if so, indicate waterbody:	<input type="checkbox"/> Potable water; if so, indicate municipality or origin: <input type="checkbox"/> Other; if so, specify:

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

D. Discharge information

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

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

4. Influent and Effluent Characteristics

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

E. Treatment system information

<p>1. Indicate the type(s) of treatment that will be applied to effluent prior to discharge: (check all that apply)</p> <p><input type="checkbox"/> Adsorption/Absorption <input type="checkbox"/> Advanced Oxidation Processes <input type="checkbox"/> Air Stripping <input type="checkbox"/> Granulated Activated Carbon (“GAC”)/Liquid Phase Carbon Adsorption</p> <p><input type="checkbox"/> Ion Exchange <input type="checkbox"/> Precipitation/Coagulation/Flocculation <input type="checkbox"/> Separation/Filtration <input type="checkbox"/> Other; if so, specify:</p>	
<p>2. Provide a written description of all treatment system(s) or processes that will be applied to the effluent prior to discharge.</p> <p>Identify each major treatment component (check any that apply):</p> <p><input type="checkbox"/> Fractionation tanks <input type="checkbox"/> Equalization tank <input type="checkbox"/> Oil/water separator <input type="checkbox"/> Mechanical filter <input type="checkbox"/> Media filter</p> <p><input type="checkbox"/> Chemical feed tank <input type="checkbox"/> Air stripping unit <input type="checkbox"/> Bag filter <input type="checkbox"/> Other; if so, specify:</p> <p>Indicate if either of the following will occur (check any that apply):</p> <p><input type="checkbox"/> Chlorination <input type="checkbox"/> De-chlorination</p>	
<p>3. Provide the design flow capacity in gallons per minute (gpm) of the most limiting component.</p> <p>Indicate the most limiting component:</p> <p>Is use of a flow meter feasible? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No, if so, provide justification:</p>	
<p>Provide the proposed maximum effluent flow in gpm.</p>	
<p>Provide the average effluent flow in gpm.</p>	
<p>If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:</p>	
<p>4. Has the operator attached a schematic of flow in accordance with the instructions in E, above? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	

F. Chemical and additive information

<p>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)</p> <p><input type="checkbox"/> Algaecides/biocides <input type="checkbox"/> Antifoams <input type="checkbox"/> Coagulants <input type="checkbox"/> Corrosion/scale inhibitors <input type="checkbox"/> Disinfectants <input type="checkbox"/> Flocculants <input type="checkbox"/> Neutralizing agents <input type="checkbox"/> Oxidants <input type="checkbox"/> Oxygen <input type="checkbox"/> scavengers <input type="checkbox"/> pH conditioners <input type="checkbox"/> Bioremedial agents, including microbes <input type="checkbox"/> Chlorine or chemicals containing chlorine <input type="checkbox"/> Other; if so, specify:</p>
<p>2. Provide the following information for each chemical/additive, using attachments, if necessary:</p> <ul style="list-style-type: none">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; andf. If available, the vendor's reported aquatic toxicity (NOAEL and/or LC50 in percent for aquatic organism(s)).
<p>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): <input type="checkbox"/> Yes <input type="checkbox"/> 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): <input type="checkbox"/> Yes <input type="checkbox"/> No</p>

G. Endangered Species Act eligibility determination

<p>1. Indicate under which criterion the discharge(s) is eligible for coverage under this general permit:</p> <ul style="list-style-type: none"><input type="checkbox"/> 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”.<input type="checkbox"/> 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): <input type="checkbox"/> Yes <input type="checkbox"/> No; if no, is consultation underway? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No<input type="checkbox"/> 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) <input type="checkbox"/> the operator <input type="checkbox"/> EPA <input type="checkbox"/> 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 that meets the requirements of this permit. The BMPP will be implemented on-site prior to 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 Check one: Yes No NA
 Other, if so, specify:

Signature:



Date:

8/2/19

Print Name and Title:

ERIC J. NELSON, COO, THE KANE CO. INC.

City of Portsmouth, NH - Approval to Discharge

From: [Mike Toomey](#)
To: [Jake Jennings](#); [Kim Gravelle](#); [Paul Lockwood](#)
Subject: Fwd: Revised Dewatering plan for 111 Maplewood Avenue
Date: Tuesday, November 19, 2019 9:28:18 PM

Jake here is the email with the City of Portsmouth which states that we have approval to use the catch basin for a alternative discharge point

Sent from my iPad

Begin forwarded message:

From: "Raymond C. Pezzullo" <rcezzullo@cityofportsmouth.com>
Date: November 19, 2019 at 5:49:59 PM EST
To: "Nicholas J. Cracknell" <njcracknell@cityofportsmouth.com>
Cc: "James V. Tow" <jvtow@cityofportsmouth.com>, Mike Toomey <toomey@bostonenvcorp.com>, "Terry L. Desmarais" <tldesmarais@cityofportsmouth.com>
Subject: FW: Revised Dewatering plan for 111 Maplewood Avenue

Hi Nick,

DPW has reviewed SUR's revised temporary Construction Dewatering Plan (Plan), dated 11/6/19, for the 111 Maplewood Avenue site and the developments team's request to connect/discharge to a City catch basin, if needed, after treatment of the groundwater. DPW approves the request to connect to the City's stormwater system with the following conditions:

- A copy of EPA's approval of the Remediation General Permit and associated documentation must be submitted to the City.
- A detail showing the pipe connection to the catch basin must be approved by DPW.
- SUR must provide notification to DPW when they will begin discharging to the City's stormwater system and also when they stop discharging.
- SUR must monitor the Catch Basin into which they will be connecting/discharging to insure that no overflow is occurring. Discharge into the CB should not occur when the downstream stormwater system is restricted, i.e.: by a tidal influence, a significant rainfall event, a blockage, etc..
- The rate of flow of the discharge must be monitored and limited to the Plan requirements.

As we discussed, this approval with the above conditions is recommended to be included in an amended CMMP for the project.

If you have any questions, please let me know.

Thanks,
Ray

Raymond C. Pezzullo, P.E.
DPW Engineer
City of Portsmouth
Public Works Department
Office: 603-766-1755
Cell: 603-957-8843

From: Terry L. Desmarais
Sent: Thursday, November 14, 2019 8:48 AM
To: Raymond C. Pezzullo <rcezzullo@cityofportsmouth.com>
Subject: FW: Revised Dewatering plan for 111 Maplewood Avenue

Terry Desmarais, Jr., P.E.
City Engineer
City of Portsmouth
Public Works Department
680 Peverly Hill Road
Portsmouth, NH 03801
Office: 603.766.1421
Cell: 603.828.1915
Fax: 603.427.1539
email: tldesmarais@cityofportsmouth.com<<mailto:tldesmarais@cityofportsmouth.com>>

From: Nicholas J. Cracknell
Sent: Thursday, November 7, 2019 8:27 AM
To: Terry L. Desmarais <tldesmarais@cityofportsmouth.com><<mailto:tldesmarais@cityofportsmouth.com>>>
Cc: Peter H. Rice <phrice@cityofportsmouth.com><<mailto:phrice@cityofportsmouth.com>>>; Dave Desfosses <djdesfosses@cityofportsmouth.com><<mailto:djdesfosses@cityofportsmouth.com>>>; Juliet T.H. Walker <jthwalker@cityofportsmouth.com><<mailto:jthwalker@cityofportsmouth.com>>>; Raymond C. Pezzullo <rcezzullo@cityofportsmouth.com><<mailto:rcezzullo@cityofportsmouth.com>>>
Subject: RE: Revised Dewatering plan for 111 Maplewood Avenue

Thanks for the heads up Terry. I'll check with Juliet but I think it makes sense for you folks to bless the modification before we make any changes to the default setting for dewatering of the site that's listed in the CMMP.

Nick

From: Terry L. Desmarais
Sent: Wednesday, November 06, 2019 4:25 PM
To: Nicholas J. Cracknell <njcracknell@cityofportsmouth.com<<mailto:njcracknell@cityofportsmouth.com>>>
Cc: Peter H. Rice <phrice@cityofportsmouth.com<<mailto:phrice@cityofportsmouth.com>>>; Dave Desfosses <djesfosses@cityofportsmouth.com<<mailto:djesfosses@cityofportsmouth.com>>>; Juliet T.H. Walker <jthwalker@cityofportsmouth.com<<mailto:jthwalker@cityofportsmouth.com>>>; Raymond C. Pezzullo <rpezzullo@cityofportsmouth.com<<mailto:rpezzullo@cityofportsmouth.com>>>
Subject: Fwd: Revised Dewatering plan for 111 Maplewood Avenue

Nick,

Just so you are aware, the team at the 111 Maplewood has requested an alternative dewatering discharge approach that will (should) require a modification to the CMMP.

You will see they reached out to us first and have asked for DPW ok on the approach before going to planning. They are aware that they need to get a revision to the CMMP approved. We will look at their information and see if it acceptable to DPW.

Please let me know if you see any issues with this procedural approach.

Thanks,

Terry

Terry Desmarais, P.E., City Engineer
City of Portsmouth NH
Cell: 603-828-1915

Begin forwarded message:

From: Mike Toomey <toomey@bostonenvcorp.com<<mailto:toomey@bostonenvcorp.com>>>
Date: November 6, 2019 at 2:17:01 PM EST
To: "Terry L. Desmarais" <tldesmarais@cityofportsmouth.com<<mailto:tldesmarais@cityofportsmouth.com>>>, Richard Stromberg <rstromberg@bostonenvcorp.com<<mailto:rstromberg@bostonenvcorp.com>>>, Kim Gravelle <kgravelle@lrt-llc.net<<mailto:kgravelle@lrt-llc.net>>>
Cc: Lance Bennett <lbennett@proconinc.com<<mailto:lbennett@proconinc.com>>>, Eric Nelson <enelson@netkane.com<<mailto:enelson@netkane.com>>>, Patrick Cahill <pcahill@proconinc.com<<mailto:pcahill@proconinc.com>>>, Scott Martinelli <smartinelli@proconinc.com<<mailto:smartinelli@proconinc.com>>>
Subject: FW: Revised Dewatering plan for 111 Maplewood Avenue

Terry

Thank you again for meeting with Rick Stromberg last week. Attached is SUR's revised dewatering plan with the contingency for off site discharge through the EPA RGP permit, should the on site infiltration become over taxed.

Tighe Bond performed a watershed analysis on the existing system previously and confirmed that the permitted flow rate of 100 GPM will not overburden the system.

After you get a chance to review it and if acceptable Lance Bennett will revise the Site CMMP to incorporate this into the CMMP plan for the Site

If you have any questions please feel free to give me a call. Thank you in advance to taking the time to review this

Mike

T. Michael Toomey
Executive Vice President
Boston Environmental Corporation
203 Spark St. Brockton, MA 02302
O 508.897.8062 | C 617.877.6648
www.bostonenvironmentalcorp.com<https://linkprotect.eudasvc.com?url=http%3a%2f%2fwww.bostonenvironmentalcorp.com%2f&e=E.L.x-QcDrGMI2ZKDTXr3ItaVDNR_uR24gXilHQDxO6vup1W8ellJCwTqQGrz4OGTWpTGJnKV498UJbzAFODPVTXmClZwSEsh2lnG4fKpElfD03QIZg...&typo=1>

Enter number values in green boxes below

Enter values in the units specified



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

Enter a dilution factor, if other than zero



0

Enter values in the units specified



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

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



7.4	pH in Standard Units
21.4	Temperature in °C
0.122	Ammonia in mg/L
0	Hardness in mg/L CaCO_3
28.5	Salinity in ppt
0	Antimony in µg/L
33	Arsenic in µg/L
0	Cadmium in µg/L
2	Chromium III in µg/L
0	Chromium VI in µg/L
79	Copper in µg/L
280	Iron in µg/L
0	Lead in µg/L
0	Mercury in µg/L
14	Nickel in µg/L
120	Selenium in µg/L
0	Silver in µg/L
0	Zinc in µg/L

Enter **influent** concentrations in the units specified

↓

0	TRC in µg/L
4.04	Ammonia in mg/L
0	Antimony in µg/L
79	Arsenic in µg/L
1.5	Cadmium in µg/L
39	Chromium III in µg/L
0	Chromium VI in µg/L
100	Copper in µg/L
110000	Iron in µg/L
210	Lead in µg/L
0.53	Mercury in µg/L
92	Nickel in µg/L
0	Selenium in µg/L
0	Silver in µg/L
290	Zinc in µg/L
3	Cyanide in µg/L
0	Phenol in µg/L
0	Carbon Tetrachloride in µg/L
0	Tetrachloroethylene in µg/L
0	Total Phthalates in µg/L
0	Diethylhexylphthalate in µg/L
0	Benzo(a)anthracene in µg/L
0	Benzo(a)pyrene in µg/L
0	Benzo(b)fluoranthene in µg/L
0	Benzo(k)fluoranthene in µg/L
0	Chrysene in µg/L
0	Dibenzo(a,h)anthracene in µg/L
0	Indeno(1,2,3-cd)pyrene in µg/L
0	Methyl-tert butyl ether in µg/L

Dilution Factor

0.0

A. Inorganics

TBEL applies if bolded

WQBEL applies if bolded

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

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

Appendix B
Laboratory Data

July 22, 2019

Rick Stromberg
Boston Environmental Corp. - Brockton, MA
203 Spark St., Brockton, MA
Brockton, MA 02302

Project Location: 111 Maplewood Ave., Portsmouth, NH
Client Job Number:
Project Number: BEC19157
Laboratory Work Order Number: 19G0771

Enclosed are results of analyses for samples received by the laboratory on July 16, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Kerry K. McGee". The signature is written in a cursive, flowing style.

Kerry K. McGee
Project Manager

Table of Contents

Sample Summary	4
Case Narrative	5
Sample Results	9
19G0771-01	9
19G0771-02	18
19G0771-03	20
Sample Preparation Information	24
QC Data	26
Volatile Organic Compounds by GC/MS	26
B235689	26
B235796	28
Semivolatile Organic Compounds by GC/MS	29
B235695	29
Semivolatile Organic Compounds by - GC/MS	30
B235593	30
Polychlorinated Biphenyls By GC/ECD	34
B235659	34
Metals Analyses (Total)	35
B235599	35
B235657	35
B235658	35
Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)	37
B235663	37
B235664	37
B235670	37

Table of Contents (continued)

B235677	37
B235678	38
B235858	38
Dual Column RPD Report	39
Flag/Qualifier Summary	41
Certifications	42
Chain of Custody/Sample Receipt	46

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

Boston Environmental Corp. - Brockton, MA
 203 Spark St., Brockton, MA
 Brockton, MA 02302
 ATTN: Rick Stromberg

REPORT DATE: 7/22/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: BEC19157

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19G0771

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

PROJECT LOCATION: 111 Maplewood Ave., Portsmouth, NH

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
VB-5 (MW)	19G0771-01	Ground Water		608.3	
				624.1	
				625.1	
				EPA 1664B	
				EPA 200.7	
				EPA 200.8	
				EPA 245.1	
				EPA 300.0	
				SM19-22 4500 NH3 C	MA M-MA-086/CT PH-0574/NY11148
				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			
	SM21-22 4500 H B				
	Tri Chrome Calc.				
VB-1 (MW)	19G0771-02	Ground Water		624.1	
RW-1	19G0771-03	Ground Water		EPA 200.7	
				EPA 200.8	
				EPA 245.1	
				SM19-22 4500 NH3 C	MA M-MA-086/CT PH-0574/NY11148
				SM21-22 3500 Cr B	
				SM21-22 4500 H B	
				SM2520B	MA M-CT007/CT PH-0618/NY11301
	Tri Chrome Calc.				

CASE NARRATIVE SUMMARY

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

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

624.1

Qualifications:**PR-17**

Preservation of pH<4 does not meet method specifications for Acrolein and/or Acrylonitrile. Reported results are estimated.

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

19G0771-01[VB-5 (MW)], 19G0771-02[VB-1 (MW)]

Acrylonitrile

19G0771-01[VB-5 (MW)], 19G0771-02[VB-1 (MW)]

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:**Bromomethane**

19G0771-01[VB-5 (MW)], 19G0771-02[VB-1 (MW)], B235689-BLK1, B235689-BS1, B235689-BSD1

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:**N-Nitrosodimethylamine**

19G0771-01[VB-5 (MW)], B235593-BLK1, B235593-BS1, B235593-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**

19G0771-01[VB-5 (MW)], B235593-BLK1, B235593-BS1, B235593-BSD1

V-04

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

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

19G0771-01[VB-5 (MW)], B235593-BLK1, B235593-BS1, B235593-BSD1, S038183-CCV1

Benzidine

19G0771-01[VB-5 (MW)], B235593-BLK1, B235593-BS1, B235593-BSD1, S038183-CCV1

Bis(2-ethylhexyl)phthalate (SIM)

19G0771-01[VB-5 (MW)], B235695-BLK1, B235695-BS1, B235695-BSD1, S038176-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**

19G0771-01[VB-5 (MW)], B235593-BLK1, B235593-BS1, B235593-BSD1, S038183-CCV1

V-06

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

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

19G0771-01[VB-5 (MW)], B235593-BLK1, B235593-BS1, B235593-BSD1, S038183-CCV1

Bis(2-ethylhexyl)phthalate (SIM)

B235695-BS1, B235695-BSD1, S038176-CCV1

V-20

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

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

B235593-BLK1, S038183-CCV1

Bis(2-ethylhexyl)phthalate (SIM)

19G0771-01[VB-5 (MW)], B235695-BLK1

EPA 1664B**Qualifications:**

R-02

Duplicate RPD is outside of control limits. Outlier can be attributed to sample non-homogeneity encountered during sample prep.

Analyte & Samples(s) Qualified:**Silica Gel Treated HEM (SGT-HEM)**

19G0771-01[VB-5 (MW)], B235677-DUP1

EPA 200.8**Qualifications:**

DL-15

Sample required a dilution due to low internal standard recovery of the lesser diluted digestion, reporting limit is elevated.

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

19G0771-03[RW-1], B235658-DUP1

Cadmium

19G0771-03[RW-1], B235658-DUP1

Lead

19G0771-03[RW-1], B235658-DUP1

Silver

19G0771-03[RW-1], B235658-DUP1

Zinc

19G0771-03[RW-1], B235658-DUP1

EPA 300.0**Qualifications:**

MS-19

Sample to spike ratio is greater than or equal to 4:1. Spiked amount is not representative of the native amount in the sample. Appropriate or meaningful recoveries cannot be calculated.

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

19G0771-01[VB-5 (MW)], B235858-MS1

SM21-22 2540D**Qualifications:**

R-02

Duplicate RPD is outside of control limits. Outlier can be attributed to sample non-homogeneity encountered during sample prep.

Analyte & Samples(s) Qualified:**Total Suspended Solids**

19G0771-01[VB-5 (MW)], B235678-DUP1

SM21-22 4500 CL G**Qualifications:**

W-06

Elevated method reporting limit due to intense color of sample

Analyte & Samples(s) Qualified:**Chlorine, Residual**

19G0771-01[VB-5 (MW)], B235663-DUP1

Z-01

SM4500 test had calibration points outside of acceptable back calculated recoveries. Reanalysis yielded similar nonconformance.

Analyte & Samples(s) Qualified:**Chlorine, Residual**

19G0771-01[VB-5 (MW)], B235663-BLK1, B235663-BS1, B235663-BSD1, B235663-DUP1, B235663-MS1

SM21-22 4500 H B

Qualifications:**H-05**

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

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

19G0771-01[VB-5 (MW)], 19G0771-03[RW-1], B235670-DUP1

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

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



Lisa A. Worthington
Technical Representative

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

Project Location: 111 Maplewood Ave., Portsmouth

Sample Description:

Work Order: 19G0771

Date Received: 7/16/2019

Field Sample #: VB-5 (MW)

Sampled: 7/16/2019 08:20

Sample ID: 19G0771-01

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	<50.0	50.0	3.79	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
Acrolein	<20	20	3.9	µg/L	1	PR-17	624.1	7/18/19	7/18/19 13:15	MFF
Acrylonitrile	<5.0	5.0	0.52	µg/L	1	PR-17	624.1	7/18/19	7/18/19 13:15	MFF
tert-Amyl Methyl Ether (TAME)	<0.500	0.500	0.140	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
Benzene	<1.00	1.00	0.180	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
Bromodichloromethane	<2.00	2.00	0.160	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
Bromoform	<2.00	2.00	0.460	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
Bromomethane	<5.00	5.00	0.780	µg/L	1	R-05	624.1	7/17/19	7/17/19 10:07	MFF
tert-Butyl Alcohol (TBA)	<20.0	20.0	4.17	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
Carbon Tetrachloride	<2.00	2.00	0.110	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
Chlorobenzene	<2.00	2.00	0.150	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
Chlorodibromomethane	<2.00	2.00	0.210	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
Chloroethane	<2.00	2.00	0.350	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
2-Chloroethyl Vinyl Ether	<10	10	2.2	µg/L	1		624.1	7/18/19	7/18/19 12:44	MFF
Chloroform	<2.00	2.00	0.170	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
Chloromethane	<2.00	2.00	0.450	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
1,2-Dichlorobenzene	<2.00	2.00	0.160	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
1,3-Dichlorobenzene	<2.00	2.00	0.120	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
1,4-Dichlorobenzene	<2.00	2.00	0.130	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
1,2-Dichloroethane	<2.00	2.00	0.410	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
1,1-Dichloroethane	<2.00	2.00	0.160	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
1,1-Dichloroethylene	<2.00	2.00	0.320	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
trans-1,2-Dichloroethylene	<2.00	2.00	0.310	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
1,2-Dichloropropane	<2.00	2.00	0.200	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
cis-1,3-Dichloropropene	<2.00	2.00	0.130	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
1,4-Dioxane	<50.0	50.0	22.5	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
trans-1,3-Dichloropropene	<2.00	2.00	0.230	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
Ethanol	<50.0	50.0	10.5	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
Ethylbenzene	<2.00	2.00	0.130	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
Methyl tert-Butyl Ether (MTBE)	<2.00	2.00	0.250	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
Methylene Chloride	<5.00	5.00	0.340	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
1,1,2,2-Tetrachloroethane	<2.00	2.00	0.220	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
Tetrachloroethylene	<2.00	2.00	0.180	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
Toluene	<1.00	1.00	0.140	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
1,1,1-Trichloroethane	<2.00	2.00	0.200	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
1,1,2-Trichloroethane	<2.00	2.00	0.160	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
Trichloroethylene	<2.00	2.00	0.240	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
Trichlorofluoromethane (Freon 11)	<2.00	2.00	0.330	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
Vinyl Chloride	<2.00	2.00	0.450	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
m+p Xylene	<2.00	2.00	0.300	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF
o-Xylene	<2.00	2.00	0.170	µg/L	1		624.1	7/17/19	7/17/19 10:07	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual
1,2-Dichloroethane-d4	88.8	70-130	7/17/19 10:07
1,2-Dichloroethane-d4	89.4	70-130	7/18/19 13:15

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

Project Location: 111 Maplewood Ave., Portsmouth

Sample Description:

Work Order: 19G0771

Date Received: 7/16/2019

Field Sample #: VB-5 (MW)

Sampled: 7/16/2019 08:20

Sample ID: 19G0771-01

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
Surrogates		% Recovery		Recovery Limits		Flag/Qual				
1,2-Dichloroethane-d4		87.8		70-130					7/18/19 12:44	
Toluene-d8		110		70-130					7/18/19 13:15	
Toluene-d8		112		70-130					7/18/19 12:44	
Toluene-d8		110		70-130					7/17/19 10:07	
4-Bromofluorobenzene		99.9		70-130					7/17/19 10:07	
4-Bromofluorobenzene		96.6		70-130					7/18/19 13:15	
4-Bromofluorobenzene		97.8		70-130					7/18/19 12:44	

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

Project Location: 111 Maplewood Ave., Portsmouth

Sample Description:

Work Order: 19G0771

Date Received: 7/16/2019

Field Sample #: VB-5 (MW)

Sampled: 7/16/2019 08:20

Sample ID: 19G0771-01

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)	<0.052	0.052	0.016	µg/L	1		625.1	7/16/19	7/17/19 10:30	CLA
Benzo(a)pyrene (SIM)	<0.10	0.10	0.012	µg/L	1		625.1	7/16/19	7/17/19 10:30	CLA
Benzo(b)fluoranthene (SIM)	<0.052	0.052	0.015	µg/L	1		625.1	7/16/19	7/17/19 10:30	CLA
Benzo(k)fluoranthene (SIM)	<0.21	0.21	0.012	µg/L	1		625.1	7/16/19	7/17/19 10:30	CLA
Bis(2-ethylhexyl)phthalate (SIM)	<1.0	1.0	1.0	µg/L	1	V-04, V-20	625.1	7/16/19	7/17/19 10:30	CLA
Chrysene (SIM)	<0.21	0.21	0.015	µg/L	1		625.1	7/16/19	7/17/19 10:30	CLA
Dibenz(a,h)anthracene (SIM)	<0.21	0.21	0.018	µg/L	1		625.1	7/16/19	7/17/19 10:30	CLA
Indeno(1,2,3-cd)pyrene (SIM)	<0.21	0.21	0.019	µg/L	1		625.1	7/16/19	7/17/19 10:30	CLA
Pentachlorophenol (SIM)	<1.0	1.0	1.0	µg/L	1		625.1	7/16/19	7/17/19 10:30	CLA
Surrogates	% Recovery		Recovery Limits		Flag/Qual					
2-Fluorophenol (SIM)	36.7		15-110						7/17/19 10:30	
Phenol-d6 (SIM)	28.9		15-110						7/17/19 10:30	
Nitrobenzene-d5 (SIM)	60.3		30-130						7/17/19 10:30	
2-Fluorobiphenyl (SIM)	39.1		30-130						7/17/19 10:30	
2,4,6-Tribromophenol (SIM)	61.3		15-110						7/17/19 10:30	
p-Terphenyl-d14 (SIM)	40.0		30-130						7/17/19 10:30	

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

Project Location: 111 Maplewood Ave., Portsmouth

Sample Description:

Work Order: 19G0771

Date Received: 7/16/2019

Field Sample #: VB-5 (MW)

Sampled: 7/16/2019 08:20

Sample ID: 19G0771-01

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	<5.15	5.15	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
Acenaphthylene	<5.15	5.15	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
Anthracene	<5.15	5.15	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
Benzidine	<20.6	20.6	µg/L	1	V-04, V-05, R-05	625.1	7/16/19	7/17/19 9:44	KLB
Benzo(g,h,i)perylene	<5.15	5.15	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
4-Bromophenylphenylether	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
Butylbenzylphthalate	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
4-Chloro-3-methylphenol	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
Bis(2-chloroethyl)ether	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
Bis(2-chloroisopropyl)ether	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
2-Chloronaphthalene	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
2-Chlorophenol	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
4-Chlorophenylphenylether	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
Di-n-butylphthalate	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
1,3-Dichlorobenzene	<5.15	5.15	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
1,4-Dichlorobenzene	<5.15	5.15	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
1,2-Dichlorobenzene	<5.15	5.15	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
3,3-Dichlorobenzidine	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
2,4-Dichlorophenol	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
Diethylphthalate	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
2,4-Dimethylphenol	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
Dimethylphthalate	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
4,6-Dinitro-2-methylphenol	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
2,4-Dinitrophenol	<10.3	10.3	µg/L	1	V-04, V-06	625.1	7/16/19	7/17/19 9:44	KLB
2,4-Dinitrotoluene	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
2,6-Dinitrotoluene	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
Di-n-octylphthalate	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
1,2-Diphenylhydrazine/Azobenzene	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
Bis(2-Ethylhexyl)phthalate	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
Fluoranthene	<5.15	5.15	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
Fluorene	<5.15	5.15	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
Hexachlorobenzene	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
Hexachlorobutadiene	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
Hexachlorocyclopentadiene	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
Hexachloroethane	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
Isophorone	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
Naphthalene	<5.15	5.15	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
Nitrobenzene	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
2-Nitrophenol	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
4-Nitrophenol	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
N-Nitrosodimethylamine	<10.3	10.3	µg/L	1	L-04	625.1	7/16/19	7/17/19 9:44	KLB
N-Nitrosodiphenylamine	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
N-Nitrosodi-n-propylamine	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
2-Methylnaphthalene	<5.15	5.15	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB

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

Project Location: 111 Maplewood Ave., Portsmouth

Sample Description:

Work Order: 19G0771

Date Received: 7/16/2019

Field Sample #: VB-5 (MW)

Sampled: 7/16/2019 08:20

Sample ID: 19G0771-01

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	<5.15	5.15	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
2-Methylphenol	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
Phenol	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
3/4-Methylphenol	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
Pyrene	<5.15	5.15	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
1,2,4-Trichlorobenzene	<5.15	5.15	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
2,4,6-Trichlorophenol	<10.3	10.3	µg/L	1		625.1	7/16/19	7/17/19 9:44	KLB
Surrogates	% Recovery		Recovery Limits		Flag/Qual				
2-Fluorophenol	37.4		15-110				7/17/19 9:44		
Phenol-d6	27.4		15-110				7/17/19 9:44		
Nitrobenzene-d5	60.7		30-130				7/17/19 9:44		
2-Fluorobiphenyl	66.1		30-130				7/17/19 9:44		
2,4,6-Tribromophenol	75.3		15-110				7/17/19 9:44		
p-Terphenyl-d14	69.7		30-130				7/17/19 9:44		

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

Project Location: 111 Maplewood Ave., Portsmouth

Sample Description:

Work Order: 19G0771

Date Received: 7/16/2019

Field Sample #: VB-5 (MW)

Sampled: 7/16/2019 08:20

Sample ID: 19G0771-01

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]	<0.100	0.100	0.0920	µg/L	1		608.3	7/16/19	7/17/19 14:50	AYH
Aroclor-1221 [1]	<0.100	0.100	0.0805	µg/L	1		608.3	7/16/19	7/17/19 14:50	AYH
Aroclor-1232 [1]	<0.100	0.100	0.0995	µg/L	1		608.3	7/16/19	7/17/19 14:50	AYH
Aroclor-1242 [1]	<0.100	0.100	0.0865	µg/L	1		608.3	7/16/19	7/17/19 14:50	AYH
Aroclor-1248 [1]	<0.100	0.100	0.0950	µg/L	1		608.3	7/16/19	7/17/19 14:50	AYH
Aroclor-1254 [1]	<0.100	0.100	0.0525	µg/L	1		608.3	7/16/19	7/17/19 14:50	AYH
Aroclor-1260 [1]	<0.100	0.100	0.0980	µg/L	1		608.3	7/16/19	7/17/19 14:50	AYH
Surrogates	% Recovery		Recovery Limits		Flag/Qual					
Decachlorobiphenyl [1]	45.9		30-150				7/17/19 14:50			
Decachlorobiphenyl [2]	53.6		30-150				7/17/19 14:50			
Tetrachloro-m-xylene [1]	74.1		30-150				7/17/19 14:50			
Tetrachloro-m-xylene [2]	69.5		30-150				7/17/19 14:50			

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

Project Location: 111 Maplewood Ave., Portsmouth

Sample Description:

Work Order: 19G0771

Date Received: 7/16/2019

Field Sample #: VB-5 (MW)

Sampled: 7/16/2019 08:20

Sample ID: 19G0771-01

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	7/16/19	7/17/19 11:43	MJH
Arsenic	79	0.80		µg/L	1		EPA 200.8	7/16/19	7/17/19 11:43	MJH
Cadmium	1.5	0.20		µg/L	1		EPA 200.8	7/16/19	7/17/19 11:43	MJH
Chromium	39	1.0		µg/L	1		EPA 200.8	7/16/19	7/17/19 11:43	MJH
Chromium, Trivalent	0.039			mg/L	1		Tri Chrome Calc.	7/16/19	7/17/19 12:49	MJH
Copper	100	1.0		µg/L	1		EPA 200.8	7/16/19	7/17/19 11:43	MJH
Iron	110	1.0		mg/L	20		EPA 200.7	7/16/19	7/18/19 14:13	EJB
Lead	210	5.0		µg/L	10		EPA 200.8	7/16/19	7/17/19 16:36	QNW
Mercury	0.00053	0.00010		mg/L	1		EPA 245.1	7/17/19	7/17/19 11:26	AJL
Nickel	92	5.0		µg/L	1		EPA 200.8	7/16/19	7/17/19 11:43	MJH
Selenium	ND	5.0	1.6	µg/L	1		EPA 200.8	7/16/19	7/17/19 11:43	MJH
Silver	ND	0.20		µg/L	1		EPA 200.8	7/16/19	7/17/19 11:43	MJH
Zinc	290	10		µg/L	1		EPA 200.8	7/16/19	7/17/19 11:43	MJH
Hardness	330			mg/L	1		EPA 200.7	7/16/19	7/17/19 10:33	EJB

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

Project Location: 111 Maplewood Ave., Portsmouth

Sample Description:

Work Order: 19G0771

Date Received: 7/16/2019

Field Sample #: VB-5 (MW)

Sampled: 7/16/2019 08:20

Sample ID: 19G0771-01

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
Chloride	580	25		mg/L	25	MS-19	EPA 300.0	7/19/19	7/19/19 8:17	MMH
Chlorine, Residual	ND	0.10		mg/L	5	W-06, Z-01	SM21-22 4500 CL G	7/16/19	7/16/19 21:00	MJG
Hexavalent Chromium	ND	0.0040		mg/L	1		SM21-22 3500 Cr B	7/16/19	7/16/19 21:20	MJG
pH @21.4°C	7.9			pH Units	1	H-05	SM21-22 4500 H B	7/16/19	7/16/19 22:25	MG2
Total Suspended Solids	6100	50		mg/L	1	R-02	SM21-22 2540D	7/17/19	7/17/19 9:10	LL
Silica Gel Treated HEM (SGT-HEM)	ND	28		mg/L	1	R-02	EPA 1664B	7/17/19	7/17/19 9:10	LL

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

Project Location: 111 Maplewood Ave., Portsmouth

Sample Description:

Work Order: 19G0771

Date Received: 7/16/2019

Field Sample #: VB-5 (MW)

Sampled: 7/16/2019 08:20

Sample ID: 19G0771-01

Sample Matrix: Ground Water

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

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Ammonia as N	4.04	0.375	0.12	mg/L	5		SM19-22 4500 NH3 C			AAL
Cyanide	0.003	0.005	0.001	mg/L	1		SM21-22 4500 CN E			AAL

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

Project Location: 111 Maplewood Ave., Portsmouth

Sample Description:

Work Order: 19G0771

Date Received: 7/16/2019

Field Sample #: VB-1 (MW)

Sampled: 7/16/2019 10:35

Sample ID: 19G0771-02

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	<50.0	50.0	3.79	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
Acrolein	<20	20	3.9	µg/L	1	PR-17	624.1	7/18/19	7/18/19 14:16	MFF
Acrylonitrile	<5.0	5.0	0.52	µg/L	1	PR-17	624.1	7/18/19	7/18/19 14:16	MFF
tert-Amyl Methyl Ether (TAME)	<0.500	0.500	0.140	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
Benzene	<1.00	1.00	0.180	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
Bromodichloromethane	<2.00	2.00	0.160	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
Bromoform	<2.00	2.00	0.460	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
Bromomethane	<5.00	5.00	0.780	µg/L	1	R-05	624.1	7/17/19	7/17/19 9:36	MFF
tert-Butyl Alcohol (TBA)	<20.0	20.0	4.17	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
Carbon Tetrachloride	<2.00	2.00	0.110	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
Chlorobenzene	<2.00	2.00	0.150	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
Chlorodibromomethane	<2.00	2.00	0.210	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
Chloroethane	<2.00	2.00	0.350	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
2-Chloroethyl Vinyl Ether	<10	10	2.2	µg/L	1		624.1	7/18/19	7/18/19 13:45	MFF
Chloroform	<2.00	2.00	0.170	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
Chloromethane	<2.00	2.00	0.450	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
1,2-Dichlorobenzene	<2.00	2.00	0.160	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
1,3-Dichlorobenzene	<2.00	2.00	0.120	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
1,4-Dichlorobenzene	<2.00	2.00	0.130	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
1,2-Dichloroethane	<2.00	2.00	0.410	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
1,1-Dichloroethane	<2.00	2.00	0.160	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
1,1-Dichloroethylene	<2.00	2.00	0.320	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
trans-1,2-Dichloroethylene	<2.00	2.00	0.310	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
1,2-Dichloropropane	<2.00	2.00	0.200	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
cis-1,3-Dichloropropene	<2.00	2.00	0.130	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
1,4-Dioxane	<50.0	50.0	22.5	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
trans-1,3-Dichloropropene	<2.00	2.00	0.230	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
Ethanol	<50.0	50.0	10.5	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
Ethylbenzene	<2.00	2.00	0.130	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
Methyl tert-Butyl Ether (MTBE)	<2.00	2.00	0.250	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
Methylene Chloride	<5.00	5.00	0.340	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
1,1,2,2-Tetrachloroethane	<2.00	2.00	0.220	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
Tetrachloroethylene	<2.00	2.00	0.180	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
Toluene	<1.00	1.00	0.140	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
1,1,1-Trichloroethane	<2.00	2.00	0.200	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
1,1,2-Trichloroethane	<2.00	2.00	0.160	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
Trichloroethylene	<2.00	2.00	0.240	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
Trichlorofluoromethane (Freon 11)	<2.00	2.00	0.330	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
Vinyl Chloride	<2.00	2.00	0.450	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
m+p Xylene	<2.00	2.00	0.300	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF
o-Xylene	<2.00	2.00	0.170	µg/L	1		624.1	7/17/19	7/17/19 9:36	MFF

Surrogates	% Recovery	Recovery Limits	Flag/Qual
1,2-Dichloroethane-d4	88.8	70-130	7/18/19 14:16
1,2-Dichloroethane-d4	90.2	70-130	7/18/19 13:45

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

Project Location: 111 Maplewood Ave., Portsmouth

Sample Description:

Work Order: 19G0771

Date Received: 7/16/2019

Field Sample #: VB-1 (MW)

Sampled: 7/16/2019 10:35

Sample ID: 19G0771-02

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
Surrogates		% Recovery		Recovery Limits		Flag/Qual				
1,2-Dichloroethane-d4		90.2		70-130				7/17/19	9:36	
Toluene-d8		111		70-130				7/18/19	13:45	
Toluene-d8		111		70-130				7/17/19	9:36	
Toluene-d8		110		70-130				7/18/19	14:16	
4-Bromofluorobenzene		92.6		70-130				7/18/19	14:16	
4-Bromofluorobenzene		98.9		70-130				7/18/19	13:45	
4-Bromofluorobenzene		97.8		70-130				7/17/19	9:36	

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

Project Location: 111 Maplewood Ave., Portsmouth

Sample Description:

Work Order: 19G0771

Date Received: 7/16/2019

Field Sample #: RW-1

Sampled: 7/16/2019 12:30

Sample ID: 19G0771-03

Sample Matrix: Ground Water

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	10		µg/L	10	DL-15	EPA 200.8	7/16/19	7/17/19 16:32	QNW
Arsenic	33	8.0		µg/L	10		EPA 200.8	7/16/19	7/18/19 11:55	QNW
Cadmium	ND	2.0		µg/L	10	DL-15	EPA 200.8	7/16/19	7/17/19 16:32	QNW
Chromium	2.0	1.0		µg/L	1		EPA 200.8	7/16/19	7/17/19 11:40	MJH
Chromium, Trivalent	0.0020			mg/L	1		Tri Chrome Calc.	7/16/19	7/17/19 12:49	MJH
Copper	79	1.0		µg/L	1		EPA 200.8	7/16/19	7/17/19 11:40	MJH
Iron	0.28	0.25		mg/L	5		EPA 200.7	7/16/19	7/17/19 12:28	EJB
Lead	ND	5.0		µg/L	10	DL-15	EPA 200.8	7/16/19	7/17/19 16:32	QNW
Mercury	ND	0.00010		mg/L	1		EPA 245.1	7/17/19	7/17/19 11:32	AJL
Nickel	14	5.0		µg/L	1		EPA 200.8	7/16/19	7/17/19 11:40	MJH
Selenium	120	50	16	µg/L	10		EPA 200.8	7/16/19	7/17/19 16:32	QNW
Silver	ND	2.0		µg/L	10	DL-15	EPA 200.8	7/16/19	7/17/19 16:32	QNW
Zinc	ND	100		µg/L	10	DL-15	EPA 200.8	7/16/19	7/17/19 16:32	QNW

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

Project Location: 111 Maplewood Ave., Portsmouth

Sample Description:

Work Order: 19G0771

Date Received: 7/16/2019

Field Sample #: RW-1

Sampled: 7/16/2019 12:30

Sample ID: 19G0771-03

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
Hexavalent Chromium	ND	0.0040		mg/L	1		SM21-22 3500 Cr B	7/16/19	7/16/19 21:20	MJG
pH @21.4°C	7.4			pH Units	1	H-05	SM21-22 4500 H B	7/16/19	7/16/19 22:25	MG2

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

Project Location: 111 Maplewood Ave., Portsmouth

Sample Description:

Work Order: 19G0771

Date Received: 7/16/2019

Field Sample #: RW-1

Sampled: 7/16/2019 12:30

Sample ID: 19G0771-03

Sample Matrix: Ground Water

SM2520B-10

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Salinity	28.5	0.5		ppt	1		SM2520B-10		7/18/19 20:16	PEL

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

Project Location: 111 Maplewood Ave., Portsmouth

Sample Description:

Work Order: 19G0771

Date Received: 7/16/2019

Field Sample #: RW-1

Sampled: 7/16/2019 12:30

Sample ID: 19G0771-03

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	0.122	0.075	0.024	mg/L	1		SM19-22 4500 NH3 C			AAL

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

Sample Extraction Data

Prep Method: SW-846 3510C-608.3

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19G0771-01 [VB-5 (MW)]	B235659	1000	5.00	07/16/19

Prep Method: SW-846 5035-624.1

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19G0771-01 [VB-5 (MW)]	B235689	5	5.00	07/17/19
19G0771-02 [VB-1 (MW)]	B235689	5	5.00	07/17/19

Prep Method: SW-846 5030B-624.1

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19G0771-01 [VB-5 (MW)]	B235796	5	5.00	07/18/19
19G0771-02 [VB-1 (MW)]	B235796	5	5.00	07/18/19

Prep Method: SW-846 3510C-625.1

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19G0771-01 [VB-5 (MW)]	B235593	970	1.00	07/16/19

Prep Method: SW-846 3510C-625.1

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19G0771-01 [VB-5 (MW)]	B235695	970	1.00	07/16/19

EPA 1664B

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19G0771-01 [VB-5 (MW)]	B235677	50.0		07/17/19

Prep Method: EPA 200.7-EPA 200.7

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19G0771-01 [VB-5 (MW)]	B235657	50.0	50.0	07/16/19
19G0771-01 [VB-5 (MW)]	B235657	50.0		07/16/19
19G0771-03 [RW-1]	B235657	50.0	50.0	07/16/19

Prep Method: EPA 200.8-EPA 200.8

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19G0771-01 [VB-5 (MW)]	B235658	50.0	50.0	07/16/19
19G0771-03 [RW-1]	B235658	50.0	50.0	07/16/19

Prep Method: EPA 245.1-EPA 245.1

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

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

Sample Extraction Data

Prep Method: EPA 245.1-EPA 245.1

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19G0771-01 [VB-5 (MW)]	B235599	6.00	6.00	07/17/19
19G0771-03 [RW-1]	B235599	6.00	6.00	07/17/19

EPA 300.0

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19G0771-01 [VB-5 (MW)]	B235858	10.0	10.0	07/19/19

SM21-22 2540D

Lab Number [Field ID]	Batch	Initial [mL]	Date
19G0771-01 [VB-5 (MW)]	B235678	10.0	07/17/19

SM21-22 3500 Cr B

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19G0771-01 [VB-5 (MW)]	B235664	50.0	50.0	07/16/19
19G0771-03 [RW-1]	B235664	50.0	50.0	07/16/19

SM21-22 4500 CL G

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19G0771-01 [VB-5 (MW)]	B235663	100	100	07/16/19

SM21-22 4500 H B

Lab Number [Field ID]	Batch	Initial [mL]	Date
19G0771-01 [VB-5 (MW)]	B235670	50.0	07/16/19
19G0771-03 [RW-1]	B235670	50.0	07/16/19

Prep Method: EPA 200.8-Tri Chrome Calc.

Lab Number [Field ID]	Batch	Initial [mL]	Date
19G0771-01 [VB-5 (MW)]	B235658	50.0	07/16/19
19G0771-03 [RW-1]	B235658	50.0	07/16/19

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

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 B235689 - SW-846 5035

Blank (B235689-BLK1)

Prepared & Analyzed: 07/17/19

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							R-05
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							
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	2.00	µg/L							
Surrogate: 1,2-Dichloroethane-d4	22.2		µg/L	25.0		88.9	70-130			
Surrogate: Toluene-d8	27.7		µg/L	25.0		111	70-130			
Surrogate: 4-Bromofluorobenzene	24.6		µg/L	25.0		98.4	70-130			

LCS (B235689-BS1)

Prepared & Analyzed: 07/17/19

Acetone	170	50.0	µg/L	200		85.8	70-160			†
tert-Amyl Methyl Ether (TAME)	17	0.500	µg/L	20.0		84.0	70-130			
Benzene	19	1.00	µg/L	20.0		94.8	65-135			
Bromodichloromethane	18	2.00	µg/L	20.0		92.0	65-135			
Bromoform	18	2.00	µg/L	20.0		91.7	70-130			
Bromomethane	7.3	2.00	µg/L	20.0		36.4	15-185			R-05
tert-Butyl Alcohol (TBA)	200	20.0	µg/L	200		97.6	40-160			†
Carbon Tetrachloride	17	2.00	µg/L	20.0		84.2	70-130			
Chlorobenzene	19	2.00	µg/L	20.0		96.9	65-135			

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

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 B235689 - SW-846 5035

LCS (B235689-BS1)

Prepared & Analyzed: 07/17/19

Chlorodibromomethane	20	2.00	µg/L	20.0		97.7	70-135			
Chloroethane	16	2.00	µg/L	20.0		80.0	40-160			
Chloroform	17	2.00	µg/L	20.0		83.4	70-135			
Chloromethane	13	2.00	µg/L	20.0		65.7	20-205			
1,2-Dichlorobenzene	19	2.00	µg/L	20.0		94.9	65-135			
1,3-Dichlorobenzene	19	2.00	µg/L	20.0		93.2	70-130			
1,4-Dichlorobenzene	18	2.00	µg/L	20.0		91.3	65-135			
1,2-Dichloroethane	18	2.00	µg/L	20.0		92.0	70-130			
1,1-Dichloroethane	20	2.00	µg/L	20.0		97.8	70-130			
1,1-Dichloroethylene	16	2.00	µg/L	20.0		79.8	50-150			
trans-1,2-Dichloroethylene	20	2.00	µg/L	20.0		101	70-130			
1,2-Dichloropropane	22	2.00	µg/L	20.0		111	35-165			
cis-1,3-Dichloropropene	19	2.00	µg/L	20.0		93.6	25-175			
1,4-Dioxane	250	50.0	µg/L	200		123	40-130			†
trans-1,3-Dichloropropene	18	2.00	µg/L	20.0		88.4	50-150			
Ethanol	200	50.0	µg/L	200		98.7	40-160			
Ethylbenzene	19	2.00	µg/L	20.0		94.0	60-140			
Methyl tert-Butyl Ether (MTBE)	18	2.00	µg/L	20.0		90.2	70-130			
Methylene Chloride	21	5.00	µg/L	20.0		104	60-140			
1,1,2,2-Tetrachloroethane	21	2.00	µg/L	20.0		104	60-140			
Tetrachloroethylene	21	2.00	µg/L	20.0		105	70-130			
Toluene	19	1.00	µg/L	20.0		94.3	70-130			
1,1,1-Trichloroethane	17	2.00	µg/L	20.0		83.1	70-130			
1,1,2-Trichloroethane	20	2.00	µg/L	20.0		102	70-130			
Trichloroethylene	19	2.00	µg/L	20.0		94.6	65-135			
Trichlorofluoromethane (Freon 11)	14	2.00	µg/L	20.0		70.8	50-150			
Vinyl Chloride	17	2.00	µg/L	20.0		82.9	5-195			
m+p Xylene	37	2.00	µg/L	40.0		91.4	70-130			
o-Xylene	19	2.00	µg/L	20.0		92.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	22.0		µg/L	25.0		87.8	70-130			
Surrogate: Toluene-d8	25.9		µg/L	25.0		104	70-130			
Surrogate: 4-Bromofluorobenzene	26.6		µg/L	25.0		106	70-130			

LCS Dup (B235689-BSD1)

Prepared & Analyzed: 07/17/19

Acetone	170	50.0	µg/L	200		84.6	70-160	1.47	25	†
tert-Amyl Methyl Ether (TAME)	17	0.500	µg/L	20.0		82.7	70-130	1.50	25	
Benzene	18	1.00	µg/L	20.0		90.0	65-135	5.30	20	
Bromodichloromethane	17	2.00	µg/L	20.0		86.7	65-135	5.88	20	
Bromoform	18	2.00	µg/L	20.0		89.4	70-130	2.48	20	
Bromomethane	9.8	2.00	µg/L	20.0		49.0	15-185	29.6 *	20	R-05
tert-Butyl Alcohol (TBA)	190	20.0	µg/L	200		96.5	40-160	1.17	25	†
Carbon Tetrachloride	16	2.00	µg/L	20.0		79.2	70-130	6.12	20	
Chlorobenzene	18	2.00	µg/L	20.0		91.2	65-135	6.01	20	
Chlorodibromomethane	19	2.00	µg/L	20.0		95.2	70-135	2.54	20	
Chloroethane	15	2.00	µg/L	20.0		77.0	40-160	3.82	20	
Chloroform	16	2.00	µg/L	20.0		79.1	70-135	5.35	20	
Chloromethane	13	2.00	µg/L	20.0		63.2	20-205	3.96	20	
1,2-Dichlorobenzene	18	2.00	µg/L	20.0		91.2	65-135	4.03	20	
1,3-Dichlorobenzene	18	2.00	µg/L	20.0		89.0	70-130	4.56	20	
1,4-Dichlorobenzene	18	2.00	µg/L	20.0		89.4	65-135	2.05	20	
1,2-Dichloroethane	18	2.00	µg/L	20.0		88.2	70-130	4.16	20	
1,1-Dichloroethane	19	2.00	µg/L	20.0		93.2	70-130	4.82	20	

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

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 B235689 - SW-846 5035

LCS Dup (B235689-BSD1)

Prepared & Analyzed: 07/17/19

1,1-Dichloroethylene	15	2.00	µg/L	20.0		73.8	50-150	7.75	20	
trans-1,2-Dichloroethylene	19	2.00	µg/L	20.0		94.4	70-130	6.65	20	
1,2-Dichloropropane	21	2.00	µg/L	20.0		107	35-165	4.40	20	
cis-1,3-Dichloropropene	18	2.00	µg/L	20.0		89.8	25-175	4.20	20	
1,4-Dioxane	260	50.0	µg/L	200		129	40-130	4.31	50	† ‡
trans-1,3-Dichloropropene	17	2.00	µg/L	20.0		84.7	50-150	4.33	20	
Ethanol	200	50.0	µg/L	200		100	40-160	1.38	25	
Ethylbenzene	18	2.00	µg/L	20.0		88.5	60-140	6.03	20	
Methyl tert-Butyl Ether (MTBE)	18	2.00	µg/L	20.0		88.6	70-130	1.73	20	
Methylene Chloride	20	5.00	µg/L	20.0		99.5	60-140	4.57	20	
1,1,2,2-Tetrachloroethane	21	2.00	µg/L	20.0		104	60-140	0.193	20	
Tetrachloroethylene	20	2.00	µg/L	20.0		99.5	70-130	5.14	20	
Toluene	18	1.00	µg/L	20.0		90.0	70-130	4.61	20	
1,1,1-Trichloroethane	15	2.00	µg/L	20.0		77.4	70-130	7.17	20	
1,1,2-Trichloroethane	19	2.00	µg/L	20.0		97.0	70-130	4.93	20	
Trichloroethylene	18	2.00	µg/L	20.0		90.4	65-135	4.54	20	
Trichlorofluoromethane (Freon 11)	13	2.00	µg/L	20.0		65.2	50-150	8.31	20	
Vinyl Chloride	15	2.00	µg/L	20.0		75.8	5-195	8.88	20	
m+p Xylene	35	2.00	µg/L	40.0		87.2	70-130	4.73	25	
o-Xylene	18	2.00	µg/L	20.0		88.0	70-130	5.09	20	
Surrogate: 1,2-Dichloroethane-d4	21.8		µg/L	25.0		87.4	70-130			
Surrogate: Toluene-d8	25.7		µg/L	25.0		103	70-130			
Surrogate: 4-Bromofluorobenzene	26.2		µg/L	25.0		105	70-130			

Batch B235796 - SW-846 5030B

LCS (B235796-BS1)

Prepared & Analyzed: 07/18/19

Acrolein	99.0	20	µg/L	100		99.0	60-140			
Acrylonitrile	12.6	5.0	µg/L	10.0		126	60-140			
2-Chloroethyl Vinyl Ether	77.8	10	µg/L	100		77.8	10-225			
Surrogate: 1,2-Dichloroethane-d4	21.8		µg/L	25.0		87.2	70-130			
Surrogate: Toluene-d8	26.1		µg/L	25.0		104	70-130			
Surrogate: 4-Bromofluorobenzene	26.4		µg/L	25.0		106	70-130			

LCS Dup (B235796-BSD1)

Prepared & Analyzed: 07/18/19

Acrolein	102	20	µg/L	100		102	60-140	3.42	20	
Acrylonitrile	13.0	5.0	µg/L	10.0		130	60-140	2.50	20	
2-Chloroethyl Vinyl Ether	76.0	10	µg/L	100		76.0	10-225	2.28	20	
Surrogate: 1,2-Dichloroethane-d4	22.1		µg/L	25.0		88.6	70-130			
Surrogate: Toluene-d8	26.4		µg/L	25.0		106	70-130			
Surrogate: 4-Bromofluorobenzene	26.7		µg/L	25.0		107	70-130			

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

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 B235695 - SW-846 3510C										
Blank (B235695-BLK1)										
Prepared: 07/16/19 Analyzed: 07/17/19										
Benzo(a)anthracene (SIM)	ND	0.050	µg/L							
Benzo(a)pyrene (SIM)	ND	0.10	µg/L							
Benzo(b)fluoranthene (SIM)	ND	0.050	µg/L							
Benzo(k)fluoranthene (SIM)	ND	0.20	µg/L							
Bis(2-ethylhexyl)phthalate (SIM)	ND	1.0	µg/L							V-04, V-20
Chrysene (SIM)	ND	0.20	µg/L							
Dibenz(a,h)anthracene (SIM)	ND	0.20	µg/L							
Indeno(1,2,3-cd)pyrene (SIM)	ND	0.20	µg/L							
Pentachlorophenol (SIM)	ND	1.0	µg/L							
Surrogate: 2-Fluorophenol (SIM)	74.6		µg/L	200		37.3	15-110			
Surrogate: Phenol-d6 (SIM)	52.7		µg/L	200		26.4	15-110			
Surrogate: Nitrobenzene-d5 (SIM)	65.7		µg/L	100		65.7	30-130			
Surrogate: 2-Fluorobiphenyl (SIM)	42.7		µg/L	100		42.7	30-130			
Surrogate: 2,4,6-Tribromophenol (SIM)	130		µg/L	200		64.9	15-110			
Surrogate: p-Terphenyl-d14 (SIM)	46.2		µg/L	100		46.2	30-130			
LCS (B235695-BS1)										
Prepared: 07/16/19 Analyzed: 07/17/19										
Benzo(a)anthracene (SIM)	34.5	1.0	µg/L	50.0		69.0	33-143			
Benzo(a)pyrene (SIM)	38.6	2.0	µg/L	50.0		77.2	17-163			
Benzo(b)fluoranthene (SIM)	38.4	1.0	µg/L	50.0		76.8	24-159			
Benzo(k)fluoranthene (SIM)	38.3	4.0	µg/L	50.0		76.6	11-162			
Bis(2-ethylhexyl)phthalate (SIM)	51.1	20	µg/L	50.0		102	8-158			V-04, V-06
Chrysene (SIM)	34.0	4.0	µg/L	50.0		68.0	17-168			
Dibenz(a,h)anthracene (SIM)	41.1	4.0	µg/L	50.0		82.2	10-227			
Indeno(1,2,3-cd)pyrene (SIM)	41.8	4.0	µg/L	50.0		83.7	10-171			
Pentachlorophenol (SIM)	30.7	20	µg/L	50.0		61.4	14-176			
Surrogate: 2-Fluorophenol (SIM)	70.8		µg/L	200		35.4	15-110			
Surrogate: Phenol-d6 (SIM)	57.2		µg/L	200		28.6	15-110			
Surrogate: Nitrobenzene-d5 (SIM)	62.1		µg/L	100		62.1	30-130			
Surrogate: 2-Fluorobiphenyl (SIM)	51.4		µg/L	100		51.4	30-130			
Surrogate: 2,4,6-Tribromophenol (SIM)	147		µg/L	200		73.4	15-110			
Surrogate: p-Terphenyl-d14 (SIM)	57.3		µg/L	100		57.3	30-130			
LCS Dup (B235695-BS1)										
Prepared: 07/16/19 Analyzed: 07/17/19										
Benzo(a)anthracene (SIM)	35.6	1.0	µg/L	50.0		71.2	33-143	3.02	53	
Benzo(a)pyrene (SIM)	39.7	2.0	µg/L	50.0		79.4	17-163	2.81	72	
Benzo(b)fluoranthene (SIM)	39.4	1.0	µg/L	50.0		78.9	24-159	2.62	71	
Benzo(k)fluoranthene (SIM)	39.3	4.0	µg/L	50.0		78.7	11-162	2.73	63	
Bis(2-ethylhexyl)phthalate (SIM)	52.8	20	µg/L	50.0		106	8-158	3.31	82	V-04, V-06
Chrysene (SIM)	34.8	4.0	µg/L	50.0		69.6	17-168	2.27	87	
Dibenz(a,h)anthracene (SIM)	42.2	4.0	µg/L	50.0		84.3	10-227	2.55	126	
Indeno(1,2,3-cd)pyrene (SIM)	42.8	4.0	µg/L	50.0		85.7	10-171	2.36	99	‡
Pentachlorophenol (SIM)	31.9	20	µg/L	50.0		63.9	14-176	3.89	86	
Surrogate: 2-Fluorophenol (SIM)	59.3		µg/L	200		29.6	15-110			
Surrogate: Phenol-d6 (SIM)	53.0		µg/L	200		26.5	15-110			
Surrogate: Nitrobenzene-d5 (SIM)	62.0		µg/L	100		62.0	30-130			
Surrogate: 2-Fluorobiphenyl (SIM)	52.3		µg/L	100		52.3	30-130			
Surrogate: 2,4,6-Tribromophenol (SIM)	151		µg/L	200		75.7	15-110			
Surrogate: p-Terphenyl-d14 (SIM)	58.9		µg/L	100		58.9	30-130			

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

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 B235593 - SW-846 3510C										
Blank (B235593-BLK1)										
Prepared: 07/16/19 Analyzed: 07/17/19										
Acenaphthene	ND	5.00	µg/L							
Acenaphthylene	ND	5.00	µg/L							
Anthracene	ND	5.00	µg/L							
Benzidine	ND	20.0	µg/L							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							V-04, V-06, V-20
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							L-04
N-Nitrosodiphenylamine	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	10.0	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	76.7		µg/L	200		38.3	15-110			

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 B235593 - SW-846 3510C

Blank (B235593-BLK1)

Prepared: 07/16/19 Analyzed: 07/17/19

Surrogate: Phenol-d6	51.7		µg/L	200		25.9	15-110			
Surrogate: Nitrobenzene-d5	70.1		µg/L	100		70.1	30-130			
Surrogate: 2-Fluorobiphenyl	77.4		µg/L	100		77.4	30-130			
Surrogate: 2,4,6-Tribromophenol	170		µg/L	200		85.2	15-110			
Surrogate: p-Terphenyl-d14	84.0		µg/L	100		84.0	30-130			

LCS (B235593-BS1)

Prepared: 07/16/19 Analyzed: 07/17/19

Acenaphthene	39.4	5.00	µg/L	50.0		78.7	47-145			
Acenaphthylene	39.4	5.00	µg/L	50.0		78.9	33-145			
Anthracene	41.0	5.00	µg/L	50.0		82.0	27-133			
Benzenzidine	42.2	20.0	µg/L	50.0		84.4	40-140			V-04, V-05, R-05
Benzo(g,h,i)perylene	43.1	5.00	µg/L	50.0		86.1	10-219			
4-Bromophenylphenylether	39.7	10.0	µg/L	50.0		79.4	53-127			
Butylbenzylphthalate	41.8	10.0	µg/L	50.0		83.6	10-152			
4-Chloro-3-methylphenol	41.2	10.0	µg/L	50.0		82.4	22-147			
Bis(2-chloroethyl)ether	33.1	10.0	µg/L	50.0		66.1	12-158			
Bis(2-chloroisopropyl)ether	36.2	10.0	µg/L	50.0		72.4	36-166			
2-Chloronaphthalene	35.1	10.0	µg/L	50.0		70.2	60-120			
2-Chlorophenol	31.1	10.0	µg/L	50.0		62.2	23-134			
4-Chlorophenylphenylether	40.0	10.0	µg/L	50.0		80.0	25-158			
Di-n-butylphthalate	39.8	10.0	µg/L	50.0		79.7	10-120			
1,3-Dichlorobenzene	28.0	5.00	µg/L	50.0		56.0	10-172			
1,4-Dichlorobenzene	28.8	5.00	µg/L	50.0		57.7	20-124			
1,2-Dichlorobenzene	28.8	5.00	µg/L	50.0		57.5	32-129			
3,3-Dichlorobenzidine	45.6	10.0	µg/L	50.0		91.3	10-262			
2,4-Dichlorophenol	39.8	10.0	µg/L	50.0		79.5	39-135			
Diethylphthalate	40.6	10.0	µg/L	50.0		81.2	10-120			
2,4-Dimethylphenol	37.8	10.0	µg/L	50.0		75.6	32-120			
Dimethylphthalate	40.9	10.0	µg/L	50.0		81.7	10-120			
4,6-Dinitro-2-methylphenol	43.5	10.0	µg/L	50.0		87.1	10-181			
2,4-Dinitrophenol	51.3	10.0	µg/L	50.0		103	10-191			V-04, V-06
2,4-Dinitrotoluene	43.9	10.0	µg/L	50.0		87.8	39-139			
2,6-Dinitrotoluene	46.9	10.0	µg/L	50.0		93.9	50-158			
Di-n-octylphthalate	40.4	10.0	µg/L	50.0		80.8	4-146			
1,2-Diphenylhydrazine/Azobenzene	38.9	10.0	µg/L	50.0		77.8	40-140			
Bis(2-Ethylhexyl)phthalate	41.0	10.0	µg/L	50.0		82.1	8-158			
Fluoranthene	42.2	5.00	µg/L	50.0		84.4	26-137			
Fluorene	40.5	5.00	µg/L	50.0		81.0	59-121			
Hexachlorobenzene	40.3	10.0	µg/L	50.0		80.6	10-152			
Hexachlorobutadiene	34.1	10.0	µg/L	50.0		68.3	24-120			
Hexachlorocyclopentadiene	35.3	10.0	µg/L	50.0		70.6	40-140			
Hexachloroethane	29.2	10.0	µg/L	50.0		58.3	40-120			
Isophorone	41.6	10.0	µg/L	50.0		83.3	21-196			
Naphthalene	36.2	5.00	µg/L	50.0		72.3	21-133			
Nitrobenzene	36.0	10.0	µg/L	50.0		72.0	35-180			
2-Nitrophenol	39.1	10.0	µg/L	50.0		78.2	29-182			
4-Nitrophenol	23.1	10.0	µg/L	50.0		46.2	10-132			
N-Nitrosodimethylamine	18.6	10.0	µg/L	50.0		37.3	* 40-140			L-04
N-Nitrosodiphenylamine	ND	10.0	µg/L	50.0			* 40-140			
N-Nitrosodi-n-propylamine	37.0	10.0	µg/L	50.0		74.1	10-230			
2-Methylnaphthalene	41.5	5.00	µg/L	50.0		83.0	40-140			
Phenanthrene	41.3	5.00	µg/L	50.0		82.5	54-120			

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

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 B235593 - SW-846 3510C

LCS (B235593-BS1)

Prepared: 07/16/19 Analyzed: 07/17/19

2-Methylphenol	30.8	10.0	µg/L	50.0		61.7	40-140			
Phenol	15.1	10.0	µg/L	50.0		30.2	5-120			
3/4-Methylphenol	29.6	10.0	µg/L	50.0		59.2	40-140			
Pyrene	42.2	5.00	µg/L	50.0		84.3	52-120			
1,2,4-Trichlorobenzene	34.9	5.00	µg/L	50.0		69.9	44-142			
2,4,6-Trichlorophenol	40.2	10.0	µg/L	50.0		80.3	37-144			
Surrogate: 2-Fluorophenol	76.0		µg/L	200		38.0	15-110			
Surrogate: Phenol-d6	59.1		µg/L	200		29.6	15-110			
Surrogate: Nitrobenzene-d5	76.4		µg/L	100		76.4	30-130			
Surrogate: 2-Fluorobiphenyl	84.3		µg/L	100		84.3	30-130			
Surrogate: 2,4,6-Tribromophenol	189		µg/L	200		94.3	15-110			
Surrogate: p-Terphenyl-d14	89.8		µg/L	100		89.8	30-130			

LCS Dup (B235593-BS1)

Prepared: 07/16/19 Analyzed: 07/17/19

Acenaphthene	39.0	5.00	µg/L	50.0		78.0	47-145	0.893	48	
Acenaphthylene	39.1	5.00	µg/L	50.0		78.1	33-145	0.994	74	
Anthracene	40.8	5.00	µg/L	50.0		81.7	27-133	0.415	66	
Benzidine	30.3	20.0	µg/L	50.0		60.6	40-140	32.8 *	30	R-05, V-04, V-05
Benzo(g,h,i)perylene	42.2	5.00	µg/L	50.0		84.5	10-219	1.95	97	
4-Bromophenylphenylether	39.7	10.0	µg/L	50.0		79.4	53-127	0.0252	43	
Butylbenzylphthalate	41.4	10.0	µg/L	50.0		82.7	10-152	1.13	60	
4-Chloro-3-methylphenol	40.2	10.0	µg/L	50.0		80.5	22-147	2.43	73	
Bis(2-chloroethyl)ether	29.3	10.0	µg/L	50.0		58.6	12-158	12.1	108	
Bis(2-chloroisopropyl)ether	33.1	10.0	µg/L	50.0		66.1	36-166	9.07	76	
2-Chloronaphthalene	32.6	10.0	µg/L	50.0		65.3	60-120	7.18	24	
2-Chlorophenol	28.3	10.0	µg/L	50.0		56.5	23-134	9.60	61	
4-Chlorophenylphenylether	40.4	10.0	µg/L	50.0		80.9	25-158	1.14	61	
Di-n-butylphthalate	40.4	10.0	µg/L	50.0		80.8	10-120	1.47	47	
1,3-Dichlorobenzene	23.0	5.00	µg/L	50.0		46.0	10-172	19.6	30	
1,4-Dichlorobenzene	23.1	5.00	µg/L	50.0		46.3	20-124	22.0	30	
1,2-Dichlorobenzene	24.0	5.00	µg/L	50.0		47.9	32-129	18.2	30	
3,3-Dichlorobenzidine	44.4	10.0	µg/L	50.0		88.7	10-262	2.87	108	
2,4-Dichlorophenol	39.0	10.0	µg/L	50.0		78.0	39-135	1.93	50	
Diethylphthalate	40.7	10.0	µg/L	50.0		81.5	10-120	0.270	100	
2,4-Dimethylphenol	36.5	10.0	µg/L	50.0		73.0	32-120	3.50	58	
Dimethylphthalate	40.8	10.0	µg/L	50.0		81.7	10-120	0.0979	183	
4,6-Dinitro-2-methylphenol	44.2	10.0	µg/L	50.0		88.4	10-181	1.53	203	
2,4-Dinitrophenol	53.1	10.0	µg/L	50.0		106	10-191	3.54	132	V-04, V-06
2,4-Dinitrotoluene	44.5	10.0	µg/L	50.0		89.0	39-139	1.38	42	
2,6-Dinitrotoluene	47.5	10.0	µg/L	50.0		95.0	50-158	1.19	48	
Di-n-octylphthalate	41.0	10.0	µg/L	50.0		82.0	4-146	1.52	69	
1,2-Diphenylhydrazine/Azobenzene	38.8	10.0	µg/L	50.0		77.6	40-140	0.258	30	
Bis(2-Ethylhexyl)phthalate	41.8	10.0	µg/L	50.0		83.7	8-158	1.95	82	
Fluoranthene	42.6	5.00	µg/L	50.0		85.1	26-137	0.873	66	
Fluorene	40.8	5.00	µg/L	50.0		81.5	59-121	0.689	38	
Hexachlorobenzene	40.4	10.0	µg/L	50.0		80.9	10-152	0.322	55	
Hexachlorobutadiene	30.6	10.0	µg/L	50.0		61.2	24-120	10.9	62	
Hexachlorocyclopentadiene	34.0	10.0	µg/L	50.0		67.9	40-140	3.87	30	
Hexachloroethane	23.0	10.0	µg/L	50.0		46.0	40-120	23.5	52	
Isophorone	40.8	10.0	µg/L	50.0		81.5	21-196	2.16	93	
Naphthalene	33.8	5.00	µg/L	50.0		67.7	21-133	6.63	65	
Nitrobenzene	32.6	10.0	µg/L	50.0		65.1	35-180	10.1	62	

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

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 B235593 - SW-846 3510C										
LCS Dup (B235593-BSD1)										
					Prepared: 07/16/19 Analyzed: 07/17/19					
2-Nitrophenol	37.2	10.0	µg/L	50.0		74.4	29-182	4.95	55	
4-Nitrophenol	22.7	10.0	µg/L	50.0		45.4	10-132	1.83	131	
N-Nitrosodimethylamine	15.7	10.0	µg/L	50.0		31.4	* 40-140	17.0	30	L-04
N-Nitrosodiphenylamine	ND	10.0	µg/L	50.0			* 40-140	NC	30	
N-Nitrosodi-n-propylamine	35.0	10.0	µg/L	50.0		70.0	10-230	5.66	87	
2-Methylnaphthalene	39.9	5.00	µg/L	50.0		79.8	40-140	3.93	30	
Phenanthrene	41.1	5.00	µg/L	50.0		82.1	54-120	0.510	39	
2-Methylphenol	29.6	10.0	µg/L	50.0		59.2	40-140	4.17	30	
Phenol	14.4	10.0	µg/L	50.0		28.8	5-120	4.61	64	
3/4-Methylphenol	28.6	10.0	µg/L	50.0		57.1	40-140	3.54	30	
Pyrene	41.6	5.00	µg/L	50.0		83.2	52-120	1.29	49	
1,2,4-Trichlorobenzene	31.5	5.00	µg/L	50.0		63.1	44-142	10.3	50	
2,4,6-Trichlorophenol	39.4	10.0	µg/L	50.0		78.9	37-144	1.81	58	
Surrogate: 2-Fluorophenol	65.3		µg/L	200		32.6	15-110			
Surrogate: Phenol-d6	56.4		µg/L	200		28.2	15-110			
Surrogate: Nitrobenzene-d5	69.8		µg/L	100		69.8	30-130			
Surrogate: 2-Fluorobiphenyl	83.0		µg/L	100		83.0	30-130			
Surrogate: 2,4,6-Tribromophenol	188		µg/L	200		93.9	15-110			
Surrogate: p-Terphenyl-d14	89.3		µg/L	100		89.3	30-130			

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

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 B235659 - SW-846 3510C										
Blank (B235659-BLK1)										
Prepared: 07/16/19 Analyzed: 07/17/19										
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	0.821		µg/L	1.00		82.1	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.872		µg/L	1.00		87.2	30-150			
Surrogate: Tetrachloro-m-xylene	0.749		µg/L	1.00		74.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.694		µg/L	1.00		69.4	30-150			
LCS (B235659-BS1)										
Prepared: 07/16/19 Analyzed: 07/17/19										
Aroclor-1016	0.464	0.200	µg/L	0.500		92.8	50-140			
Aroclor-1016 [2C]	0.440	0.200	µg/L	0.500		88.0	50-140			
Aroclor-1260	0.478	0.200	µg/L	0.500		95.6	8-140			
Aroclor-1260 [2C]	0.469	0.200	µg/L	0.500		93.7	8-140			
Surrogate: Decachlorobiphenyl	1.86		µg/L	2.00		92.9	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.99		µg/L	2.00		99.6	30-150			
Surrogate: Tetrachloro-m-xylene	1.64		µg/L	2.00		81.8	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.52		µg/L	2.00		76.0	30-150			
LCS Dup (B235659-BSD1)										
Prepared: 07/16/19 Analyzed: 07/17/19										
Aroclor-1016	0.488	0.200	µg/L	0.500		97.7	50-140	5.16		
Aroclor-1016 [2C]	0.471	0.200	µg/L	0.500		94.3	50-140	6.93		
Aroclor-1260	0.482	0.200	µg/L	0.500		96.3	8-140	0.738		
Aroclor-1260 [2C]	0.506	0.200	µg/L	0.500		101	8-140	7.60		
Surrogate: Decachlorobiphenyl	1.89		µg/L	2.00		94.3	30-150			
Surrogate: Decachlorobiphenyl [2C]	2.07		µg/L	2.00		103	30-150			
Surrogate: Tetrachloro-m-xylene	1.74		µg/L	2.00		86.9	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.63		µg/L	2.00		81.6	30-150			

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

QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B235599 - EPA 245.1										
Blank (B235599-BLK1)				Prepared & Analyzed: 07/17/19						
Mercury	ND	0.00010	mg/L							
LCS (B235599-BS1)				Prepared & Analyzed: 07/17/19						
Mercury	0.00380	0.00010	mg/L	0.00400		95.1	85-115			
LCS Dup (B235599-BSD1)				Prepared & Analyzed: 07/17/19						
Mercury	0.00381	0.00010	mg/L	0.00400		95.2	85-115	0.108	20	
Batch B235657 - EPA 200.7										
Blank (B235657-BLK1)				Prepared: 07/16/19 Analyzed: 07/17/19						
Iron	ND	0.050	mg/L							
LCS (B235657-BS1)				Prepared: 07/16/19 Analyzed: 07/17/19						
Iron	4.41	0.050	mg/L	4.00		110	85-115			
LCS Dup (B235657-BSD1)				Prepared: 07/16/19 Analyzed: 07/17/19						
Iron	4.32	0.050	mg/L	4.00		108	85-115	1.90	20	
Batch B235658 - EPA 200.8										
Blank (B235658-BLK1)				Prepared: 07/16/19 Analyzed: 07/17/19						
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 (B235658-BS1)				Prepared: 07/16/19 Analyzed: 07/17/19						
Antimony	527	10	µg/L	500		105	85-115			
Arsenic	539	8.0	µg/L	500		108	85-115			
Cadmium	521	2.0	µg/L	500		104	85-115			
Chromium	506	10	µg/L	500		101	85-115			
Copper	1010	10	µg/L	1000		101	85-115			
Lead	521	5.0	µg/L	500		104	85-115			
Nickel	516	50	µg/L	500		103	85-115			
Selenium	528	50	µg/L	500		106	85-115			
Silver	519	2.0	µg/L	500		104	85-115			
Zinc	1070	100	µg/L	1000		107	85-115			

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

QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B235658 - EPA 200.8

LCS Dup (B235658-BSD1)

Prepared: 07/16/19 Analyzed: 07/17/19

Antimony	529	10	µg/L	500		106	85-115	0.333	20	
Arsenic	553	8.0	µg/L	500		111	85-115	2.63	20	
Cadmium	525	2.0	µg/L	500		105	85-115	0.679	20	
Chromium	513	10	µg/L	500		103	85-115	1.29	20	
Copper	1020	10	µg/L	1000		102	85-115	1.58	20	
Lead	528	5.0	µg/L	500		106	85-115	1.36	20	
Nickel	523	50	µg/L	500		105	85-115	1.18	20	
Selenium	551	50	µg/L	500		110	85-115	4.24	20	
Silver	522	2.0	µg/L	500		104	85-115	0.607	20	
Zinc	1080	100	µg/L	1000		108	85-115	1.58	20	

Duplicate (B235658-DUP1)

Source: 19G0771-03

Prepared: 07/16/19 Analyzed: 07/17/19

Antimony	ND	10	µg/L		ND			NC	20	DL-15
Arsenic	33.7	8.0	µg/L		33.0			2.38	20	
Cadmium	ND	2.0	µg/L		ND			NC	20	DL-15
Chromium	1.82	1.0	µg/L		1.99			8.91	20	
Chromium, Trivalent	0.00		mg/L		0.00200					
Copper	84.9	1.0	µg/L		79.2			6.89	20	
Lead	ND	5.0	µg/L		ND			NC	20	DL-15
Nickel	15.3	5.0	µg/L		14.2			7.47	20	
Selenium	110	50	µg/L		116			5.08	20	
Silver	ND	2.0	µg/L		ND			NC	20	DL-15
Zinc	ND	100	µg/L		ND			NC	20	DL-15

Matrix Spike (B235658-MS1)

Source: 19G0771-03

Prepared: 07/16/19 Analyzed: 07/17/19

Antimony	541	10	µg/L	500	ND	108	70-130			
Arsenic	549	8.0	µg/L	500	33.0	103	70-130			
Cadmium	516	2.0	µg/L	500	ND	103	70-130			
Chromium	501	10	µg/L	500	ND	100	70-130			
Copper	1030	10	µg/L	1000	79.2	95.2	70-130			
Lead	533	5.0	µg/L	500	3.12	106	70-130			
Nickel	519	50	µg/L	500	14.2	101	70-130			
Selenium	554	50	µg/L	500	116	87.7	70-130			
Silver	499	2.0	µg/L	500	ND	99.8	70-130			
Zinc	985	100	µg/L	1000	ND	98.5	70-130			

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B235663 - SM21-22 4500 CL G										
Blank (B235663-BLK1)				Prepared & Analyzed: 07/16/19						
Chlorine, Residual	ND	0.020	mg/L							Z-01
LCS (B235663-BS1)				Prepared & Analyzed: 07/16/19						
Chlorine, Residual	1.4	0.020	mg/L	1.28		110	66.3-134			Z-01
LCS Dup (B235663-BSD1)				Prepared & Analyzed: 07/16/19						
Chlorine, Residual	1.4	0.020	mg/L	1.28		111	66.3-134	0.865	9.96	Z-01
Duplicate (B235663-DUP1)				Source: 19G0771-01		Prepared & Analyzed: 07/16/19				
Chlorine, Residual	ND	0.10	mg/L		ND			NC	32.5	Z-01, W-06
Matrix Spike (B235663-MS1)				Source: 19G0771-01		Prepared & Analyzed: 07/16/19				
Chlorine, Residual	3.8	0.10	mg/L	1.00	ND	382 *	10-167			Z-01
Batch B235664 - SM21-22 3500 Cr B										
Blank (B235664-BLK1)				Prepared & Analyzed: 07/16/19						
Hexavalent Chromium	ND	0.0040	mg/L							
LCS (B235664-BS1)				Prepared & Analyzed: 07/16/19						
Hexavalent Chromium	0.10	0.0040	mg/L	0.100		100	83.9-121			
LCS Dup (B235664-BSD1)				Prepared & Analyzed: 07/16/19						
Hexavalent Chromium	0.11	0.0040	mg/L	0.100		106	83.9-121	6.17	10	
Duplicate (B235664-DUP1)				Source: 19G0771-03		Prepared & Analyzed: 07/16/19				
Hexavalent Chromium	ND	0.0040	mg/L		ND			NC	45.7	
Matrix Spike (B235664-MS1)				Source: 19G0771-03		Prepared & Analyzed: 07/16/19				
Hexavalent Chromium	0.099	0.0040	mg/L	0.100	ND	98.8	25.5-193			
Batch B235670 - SM21-22 4500 H B										
LCS (B235670-BS1)				Prepared & Analyzed: 07/16/19						
pH	5.97		pH Units	6.00		99.5	90-110			
Duplicate (B235670-DUP1)				Source: 19G0771-03		Prepared & Analyzed: 07/16/19				
pH	7.5		pH Units		7.4			0.606	5	H-05
Batch B235677 - EPA 1664B										
Blank (B235677-BLK1)				Prepared & Analyzed: 07/17/19						
Silica Gel Treated HEM (SGT-HEM)	ND	1.4	mg/L							

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B235677 - EPA 1664B										
Blank (B235677-BLK2)				Prepared & Analyzed: 07/17/19						
Silica Gel Treated HEM (SGT-HEM)	ND	28	mg/L							
LCS (B235677-BS1)				Prepared & Analyzed: 07/17/19						
Silica Gel Treated HEM (SGT-HEM)	11		mg/L	10.0		113	64-132			
LCS (B235677-BS2)				Prepared & Analyzed: 07/17/19						
Silica Gel Treated HEM (SGT-HEM)	170		mg/L	200		86.0	64-132			
Duplicate (B235677-DUP1)				Source: 19G0771-01		Prepared & Analyzed: 07/17/19				
Silica Gel Treated HEM (SGT-HEM)	ND	28	mg/L		ND			NC	18	R-02
Matrix Spike (B235677-MS1)				Source: 19G0771-01		Prepared & Analyzed: 07/17/19				
Silica Gel Treated HEM (SGT-HEM)	90	14	mg/L	100	10	80.0	64-132			
Batch B235678 - SM21-22 2540D										
Blank (B235678-BLK1)				Prepared & Analyzed: 07/17/19						
Total Suspended Solids	ND	2.5	mg/L							
LCS (B235678-BS1)				Prepared & Analyzed: 07/17/19						
Total Suspended Solids	200	10	mg/L	200		100	57.6-118			
Duplicate (B235678-DUP1)				Source: 19G0771-01		Prepared & Analyzed: 07/17/19				
Total Suspended Solids	6400	50	mg/L		6100			5.10 *	5	R-02
Batch B235858 - EPA 300.0										
Blank (B235858-BLK1)				Prepared & Analyzed: 07/19/19						
Chloride	ND	1.0	mg/L							
LCS (B235858-BS1)				Prepared & Analyzed: 07/19/19						
Chloride	4.6	1.0	mg/L	5.00		91.0	90-110			
LCS Dup (B235858-BSD1)				Prepared & Analyzed: 07/19/19						
Chloride	4.6	1.0	mg/L	5.00		91.5	90-110	0.546	20	
Duplicate (B235858-DUP1)				Source: 19G0771-01		Prepared & Analyzed: 07/19/19				
Chloride	580	25	mg/L		580			0.386	20	
Matrix Spike (B235858-MS1)				Source: 19G0771-01		Prepared & Analyzed: 07/19/19				
Chloride	770	25	mg/L	250	580	74.1 *	80-120			MS-19

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

LCS

608.3

Lab Sample ID: B235659-BS1 Date(s) Analyzed: 07/17/2019 07/17/2019

Instrument ID (1): ECD1 Instrument ID (2): ECD1

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	0.464	
	2	0.000	0.000	0.000	0.440	4.4
Aroclor-1260	1	0.000	0.000	0.000	0.478	
	2	0.000	0.000	0.000	0.469	2.3

**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES**

LCS Dup

608.3

Lab Sample ID: B235659-BSD1 Date(s) Analyzed: 07/17/2019 07/17/2019

Instrument ID (1): ECD1 Instrument ID (2): ECD1

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	0.488	
	2	0.000	0.000	0.000	0.471	4.0
Aroclor-1260	1	0.000	0.000	0.000	0.482	
	2	0.000	0.000	0.000	0.506	5.3

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.
- DL-15 Sample required a dilution due to low internal standard recovery of the lesser diluted digestion, reporting limit is elevated.
 - H-05 Holding time was exceeded. pH analysis should be performed immediately at time of sampling. Nominal 15 minute holding time was exceeded.
 - L-04 Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.
 - MS-19 Sample to spike ratio is greater than or equal to 4:1. Spiked amount is not representative of the native amount in the sample. Appropriate or meaningful recoveries cannot be calculated.
 - PR-17 Preservation of pH<4 does not meet method specifications for Acrolein and/or Acrylonitrile. Reported results are estimated.
 - R-02 Duplicate RPD is outside of control limits. Outlier can be attributed to sample non-homogeneity encountered during sample prep.
 - R-05 Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.
 - 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.
 - V-06 Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.
 - V-20 Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.
 - W-06 Elevated method reporting limit due to intense color of sample
 - Z-01 SM4500 test had calibration points outside of acceptable back calculated recoveries. Reanalysis yielded similar nonconformance.

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
Acrolein	CT,MA,NH,NY,RI,NC,ME,VA
Acrolein	CT,NY,MA,NH,RI,NC,ME,VA
Acrylonitrile	CT,NY,MA,NH,RI,NC,ME,VA
Acrylonitrile	CT,MA,NH,NY,RI,NC,ME,VA
tert-Amyl Methyl Ether (TAME)	MA
Benzene	CT,NY,MA,NH,RI,NC,ME,VA
Bromodichloromethane	CT,NY,MA,NH,RI,NC,ME,VA
Bromofom	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
2-Chloroethyl Vinyl Ether	CT,NY,MA,NH,RI,NC,ME,VA
2-Chloroethyl Vinyl Ether	CT,MA,NH,NY,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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
624.1 in Water	
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
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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
625.1 in Water	
Fluorene	CT,MA,NH,NY,NC,RI,ME,VA
Hexachlorobenzene	CT,MA,NH,NY,NC,RI,ME,VA
Hexachlorobutadiene	CT,MA,NH,NY,NC,RI,ME,VA
Hexachlorocyclopentadiene	CT,MA,NH,NY,NC,RI,ME,VA
Hexachloroethane	CT,MA,NH,NY,NC,RI,ME,VA
Isophorone	CT,MA,NH,NY,NC,RI,ME,VA
Naphthalene	CT,MA,NH,NY,NC,RI,ME,VA
Nitrobenzene	CT,MA,NH,NY,NC,RI,ME,VA
2-Nitrophenol	CT,MA,NH,NY,NC,RI,ME,VA
4-Nitrophenol	CT,MA,NH,NY,NC,RI,ME,VA
N-Nitrosodimethylamine	CT,MA,NH,NY,NC,RI,ME,VA
N-Nitrosodiphenylamine	CT,MA,NH,NY,NC,RI,ME,VA
N-Nitrosodi-n-propylamine	CT,MA,NH,NY,NC,RI,ME,VA
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
SM19-22 4500 NH3 C in Water	
Ammonia as N	NY,MA,CT,RI,VA,NC,ME

CERTIFICATIONS

Certified Analyses included in this Report

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

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

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Public Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2019
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

KKM 196-0771



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

Address: 338 Howard Street, Brockton, MA
Phone: 508-347-8000
111 Maplewood Ave, Roxbury, MA

Project Location:
Project Number: BEC 19157
Project Manager: Rick Steinhilber
Con-Test Quote Name/Number: Rick Steinhilber

Invoice Recipient:
Sampled By: BEC

Con-Test Work Order #	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	Matrix Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE
1	VB-5 (MW)	7/16	8:20	G	GW	9	0			
2	VB-1 (MW)	10:35	10:35	G	GW	9				
3	Rw-1	12:30	12:30	G	GW	1				

Relinquished by: (signature)
 Date/Time: 7/16/19

Received by: (signature)
 Date/Time: 7-16-19

Relinquished by: (signature)
 Date/Time: 7-16-19 18:45

Received by: (signature)
 Date/Time: 7/16/19 19:00

Relinquished by: (signature)
 Date/Time: 7/16/19 20:20

Received by: (signature)
 Date/Time: 7/16/19 20:20

Relinquished by: (signature)
 Date/Time: 7/16/19 20:20

Received by: (signature)
 Date/Time: 7/16/19 20:20

Client Comments:
• No address needed for RW-1 only.
- See KKM for Project Requirements.

MA MCP Required	MA MCP Certification Form Required	CT RCP Required	CT RCP Certification Form Required	MA State DW Required
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Project Entity: Government Federal City Municipality 21 J Brownfield AWRA School MBTA WRTA

Other: Chromatogram AIHA-LAP, LLC PCB ONLY Soxhlet Non Soxhlet

RELAC and AIHA-LAP, LLC Accredited

Format: PDF EXCEL

7-Day PFAS 10-Day (Std) 10-Day Due Date: 1-Day 3-Day 4-Day

Field Filtered Lab to Filter

Field Filtered Lab to Filter

ANALYSIS REQUESTED

PCBs / GSS SoCs
TSS
Cyanide
Copper
TSP
TPH
GAP
C-VI
TRC / Chloride
Total Met / Metals

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)

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

Con-Test Labs is not responsible for any omitted information on the Chain of Custody. The Chain of Custody is a legal document that must be complete and accurate and is used to determine whether the laboratory will perform. Any missing information is not the laboratory's responsibility. Con-Test values your partnership on each project and will try to assist with missing information, but will not hold accountable.

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 BeC
 Received By SL Date 7/16/19 Time _____
 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 # 1 Actual Temp - 4.4
 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 T
 Project T ID's T Collection Dates/Times T
 Are Sample labels filled out and legible? T
 Are there Lab to Filters? T Who was notified? _____
 Are there Rushes? T Who was notified? Miranda, Natalie
 Are there Short Holds? T Who was notified? mmx
 Is there enough Volume? T
 Is there Headspace where applicable? N/A 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 KL Base _____

Vials	#	Containers:	#	#	#
Unp-	3	1 Liter Amb.	4	1 Liter Plastic	16 oz Amb.
HCL-	15	500 mL Amb.		500 mL Plastic	8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic	4oz Amb/Clear
Bisulfate-		Flashpoint		Col./Bacteria	2oz Amb/Clear
DI-		Other Glass	2	Other Plastic	Encore
Thiosulfate-		SOC Kit		Plastic Bag	Frozen:
Sulfuric-		Perchlorate		Ziplock	

Unused Media

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

Comments:

**NHDES Supplementary
Sample Data**

October 25, 2019

Rick Stromberg
Boston Environmental Corp. - Brockton, MA
203 Spark St., Brockton, MA
Brockton, MA 02302

Project Location: 111 Maplewood Dr. Portsmouth, NH
Client Job Number:
Project Number: BEC19157
Laboratory Work Order Number: 19J1136

Enclosed are results of analyses for samples received by the laboratory on October 17, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Kerry K. McGee". The signature is written in a cursive, flowing style.

Kerry K. McGee
Project Manager

Table of Contents

Sample Summary	3
Case Narrative	4
Sample Results	5
19J1136-01	5
19J1136-02	6
19J1136-03	7
19J1136-04	8
Sample Preparation Information	9
QC Data	10
Semivolatile Organic Compounds by - LC/MS-MS	10
B243571	10
Flag/Qualifier Summary	11
Certifications	12
Chain of Custody/Sample Receipt	13

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

Boston Environmental Corp. - Brockton, MA
203 Spark St., Brockton, MA
Brockton, MA 02302
ATTN: Rick Stromberg

REPORT DATE: 10/25/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: BEC19157

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19J1136

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

PROJECT LOCATION: 111 Maplewood Dr. Portsmouth, NH

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
VB-1	19J1136-01	Ground Water		SOP-454 PFAS	
VB-1 Blank	19J1136-02	Field Blank		SOP-454 PFAS	
RW-1	19J1136-03	Surface Water		SOP-454 PFAS	
RW-1 Blank	19J1136-04	Field Blank		SOP-454 PFAS	

CASE NARRATIVE SUMMARY

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

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

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

A handwritten signature in black ink, appearing to read "Tod Kopycinski". The signature is written in a cursive style with a large, sweeping initial "T".

Tod E. Kopycinski
Laboratory Director

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

Project Location: 111 Maplewood Dr. Portsmouth, N

Sample Description:

Work Order: 19J1136

Date Received: 10/17/2019

Field Sample #: VB-1

Sampled: 10/17/2019 10:25

Sample ID: 19J1136-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L	1		SOP-454 PFAS	10/18/19	10/23/19 14:17	ZZZ
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L	1		SOP-454 PFAS	10/18/19	10/23/19 14:17	ZZZ
Perfluorooctanesulfonic acid (PFOS)	3.4	2.0	ng/L	1		SOP-454 PFAS	10/18/19	10/23/19 14:17	ZZZ
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1		SOP-454 PFAS	10/18/19	10/23/19 14:17	ZZZ
Surrogates	% Recovery		Recovery Limits		Flag/Qual				
M3PFHxS	111		50-150				10/23/19 14:17		
M8PFOA	103		50-150				10/23/19 14:17		
M8PFOS	96.5		50-150				10/23/19 14:17		
M9PFNA	92.9		50-150				10/23/19 14:17		

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

Project Location: 111 Maplewood Dr. Portsmouth, N

Sample Description:

Work Order: 19J1136

Date Received: 10/17/2019

Field Sample #: VB-1 Blank

Sampled: 10/17/2019 10:25

Sample ID: 19J1136-02

Sample Matrix: Field Blank

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L	1		SOP-454 PFAS	10/18/19	10/23/19 13:59	ZZZ
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L	1		SOP-454 PFAS	10/18/19	10/23/19 13:59	ZZZ
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L	1		SOP-454 PFAS	10/18/19	10/23/19 13:59	ZZZ
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1		SOP-454 PFAS	10/18/19	10/23/19 13:59	ZZZ

Surrogates	% Recovery	Recovery Limits	Flag/Qual
M3PFHxS	103	50-150	
M8PFOA	104	50-150	
M8PFOS	84.8	50-150	
M9PFNA	94.1	50-150	

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

Project Location: 111 Maplewood Dr. Portsmouth, N

Sample Description:

Work Order: 19J1136

Date Received: 10/17/2019

Field Sample #: RW-1

Sampled: 10/17/2019 11:30

Sample ID: 19J1136-03

Sample Matrix: Surface Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorohexanesulfonic acid (PFHxS)	4.0	2.0	ng/L	1		SOP-454 PFAS	10/18/19	10/23/19 14:35	ZZZ
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L	1		SOP-454 PFAS	10/18/19	10/23/19 14:35	ZZZ
Perfluorooctanesulfonic acid (PFOS)	16	2.0	ng/L	1		SOP-454 PFAS	10/18/19	10/23/19 14:35	ZZZ
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1		SOP-454 PFAS	10/18/19	10/23/19 14:35	ZZZ

Surrogates	% Recovery	Recovery Limits	Flag/Qual
M3PFHxS	104	50-150	
M8PFOA	106	50-150	
M8PFOS	89.9	50-150	
M9PFNA	100	50-150	

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

Project Location: 111 Maplewood Dr. Portsmouth, N

Sample Description:

Work Order: 19J1136

Date Received: 10/17/2019

Field Sample #: RW-1 Blank

Sampled: 10/17/2019 11:30

Sample ID: 19J1136-04

Sample Matrix: Field Blank

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L	1		SOP-454 PFAS	10/18/19	10/23/19 14:52	ZZZ
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L	1		SOP-454 PFAS	10/18/19	10/23/19 14:52	ZZZ
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L	1		SOP-454 PFAS	10/18/19	10/23/19 14:52	ZZZ
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1		SOP-454 PFAS	10/18/19	10/23/19 14:52	ZZZ
Surrogates	% Recovery		Recovery Limits		Flag/Qual				
M3PFHxS	98.7		50-150				10/23/19 14:52		
M8PFOA	105		50-150				10/23/19 14:52		
M8PFOS	83.2		50-150				10/23/19 14:52		
M9PFNA	94.9		50-150				10/23/19 14:52		

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

Sample Extraction Data

Prep Method: SOP 454-PFAAS-SOP-454 PFAS

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19J1136-01 [VB-1]	B243571	250	1.00	10/18/19
19J1136-02 [VB-1 Blank]	B243571	250	1.00	10/18/19
19J1136-03 [RW-1]	B243571	250	1.00	10/18/19
19J1136-04 [RW-1 Blank]	B243571	250	1.00	10/18/19

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

QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B243571 - SOP 454-PFAAS

Blank (B243571-BLK1)

Prepared: 10/18/19 Analyzed: 10/23/19

Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L							
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L							
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L							
Surrogate: MPFBA	<i>5.90</i>		ng/L	40.0		14.8	*	30-110		
Surrogate: M3PFBS	<i>39.4</i>		ng/L	37.2		106		70-130		
Surrogate: M5PFPeA	<i>39.6</i>		ng/L	40.0		99.1		70-130		
Surrogate: M5PFHxA	<i>40.3</i>		ng/L	40.0		101		70-130		
Surrogate: M3PFHxS	<i>38.4</i>		ng/L	37.8		101		50-150		
Surrogate: M4PFHpA	<i>40.9</i>		ng/L	40.0		102		70-130		
Surrogate: M8PFOA	<i>42.0</i>		ng/L	40.0		105		50-150		
Surrogate: M8PFOS	<i>36.0</i>		ng/L	38.3		94.2		50-150		
Surrogate: M9PFNA	<i>37.5</i>		ng/L	40.0		93.7		50-150		

LCS (B243571-BS1)

Prepared: 10/18/19 Analyzed: 10/23/19

Perfluorohexanesulfonic acid (PFHxS)	2.21	2.0	ng/L	1.82		122		50-150		
Perfluorooctanoic acid (PFOA)	2.69	2.0	ng/L	2.00		135		50-150		
Perfluorooctanesulfonic acid (PFOS)	2.46	2.0	ng/L	1.85		133		50-150		
Perfluorononanoic acid (PFNA)	2.63	2.0	ng/L	2.00		131		50-150		
Surrogate: MPFBA	<i>37.6</i>		ng/L	40.0		94.0		30-110		
Surrogate: M3PFBS	<i>34.4</i>		ng/L	37.2		92.5		70-130		
Surrogate: M5PFPeA	<i>31.6</i>		ng/L	40.0		79.1		70-130		
Surrogate: M5PFHxA	<i>38.5</i>		ng/L	40.0		96.3		70-130		
Surrogate: M3PFHxS	<i>32.8</i>		ng/L	37.8		86.7		50-150		
Surrogate: M4PFHpA	<i>38.1</i>		ng/L	40.0		95.2		70-130		
Surrogate: M8PFOA	<i>40.0</i>		ng/L	40.0		100		50-150		
Surrogate: M8PFOS	<i>34.8</i>		ng/L	38.3		90.8		50-150		
Surrogate: M9PFNA	<i>37.7</i>		ng/L	40.0		94.1		50-150		

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

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.

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SOP-454 PFAS in Water</i>	
Perfluorohexanesulfonic acid (PFHxS)	NH-P
Perfluorooctanoic acid (PFOA)	NH-P
Perfluorooctanesulfonic acid (PFOS)	NH-P
Perfluorononanoic acid (PFNA)	NH-P

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

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Public Health	PH-0567	09/30/2021
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2020
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2020
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020



ANALYSIS REQUESTED

Requested Turnaround Time: 7-Day 10-Day 15-Day 30-Day Other: _____

Disolved Metals Samples: Field Filtered Lab to Filter

Orthophosphate Samples: Field Filtered Lab to Filter

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

Data Delivery: PDF EXCEL

Project Number: _____

Project Location: 111 Maplewood Drive, Portsmouth, NH

Project Manager: Rick Stenberg (311) P. MIKET

Con-Test Quote Name/Number: See Steve Beck

Invoice Recipient: ZL

Sampled By: BLC

Company Name: KKM

Address: 228 Howard Street, Portsmouth, NH

Phone: 508-897-5008

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	Matrix Code	Conc Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE
1	VB-1	10/7	10/5	G	G	G	2				
2	VB-1 Blank	10/7	10/5	G	G	G	1				
3	RW-1	10/7	11:30	G	G	G	2				
4	RW-1 Blank	10/7	11:30	G	G	G	1				

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)

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

*Contest is not responsible for missing samples from prepackaged coolers

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)

Relinquished by: (signature) [Signature]

Received by: (signature) [Signature]

Relinquished by: (signature) [Signature]

Received by: (signature) [Signature]

Relinquished by: (signature) [Signature]

Received by: (signature) [Signature]

Client Comments: ASAP TAT See Kerry [Signature]

Detection Limit Requirements: MA

Special Requirements: MA MCP Required, MCP Certification Form Required, CT RCP Required, RCP Certification Form Required, MA State DW Required

Project Entity: Government Federal City

Municipality: 21 J Brownfield

AWRA School MBTA

WRTA

Other: Chromatogram AIHA-LAP, LLC

PCB ONLY: Soxhlet Non Soxhlet

NEHA and AIHA-LAP, LLC are advised

Disclaimers: Con-Test Labs is not responsible for any omitted information on the Chain of Custody. The Chain of Custody is a legal document that must be complete and accurate and is used to determine what analyses the laboratory will perform. Any missing information is not the laboratory's responsibility. Con-Test values your partnership on each project and will try to assist with missing information, but will not be held accountable.

Page 1 of 1

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 BEC

Received By LR Date 10-17-19 Time 1720

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 - 4.3
By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? NA Were Samples Tampled with? NA
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 T
Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F

Are there Rushes? F

Are there Short Holds? F

Is there enough Volume? T

Is there Headspace where applicable? NA

Proper Media/Containers Used? T

Were trip blanks received? F

Do all samples have the proper pH? NA

Acid _____ Base _____

MS/MSD? F

Is splitting samples required? F

On COC? F

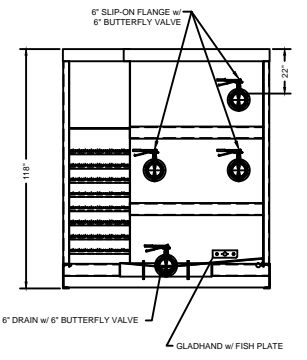
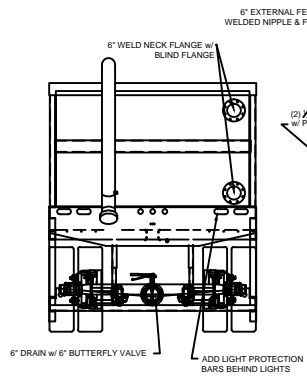
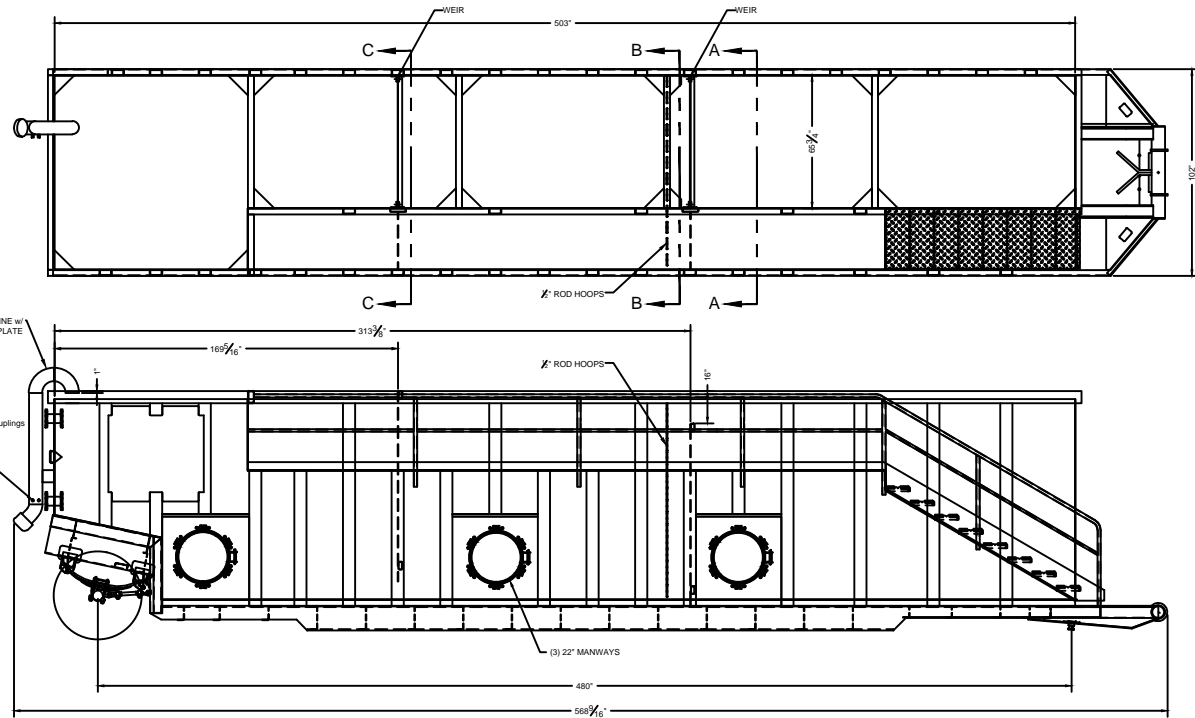
Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic	<u>6</u>	4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit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

Unused Media

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

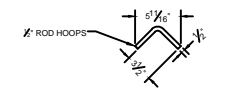
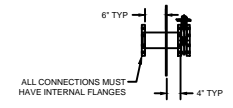
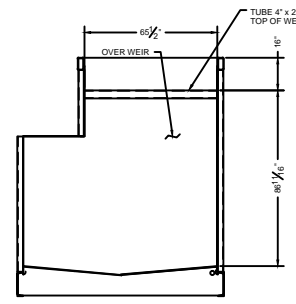
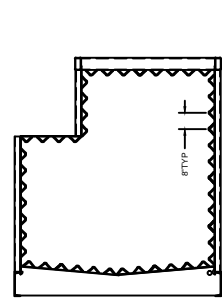
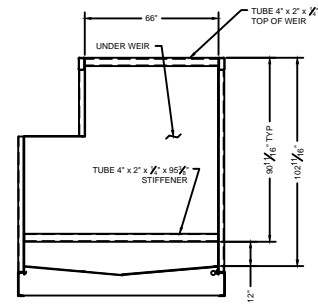
Comments:

Appendix C
Cutsheets



STANDARD SPECIFICATION

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



18,000 Gal. Weir Tank



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

Centrifugal - Single Phase

Motor Protection

All models provide built-in thermal overload protection that shuts down the pump when operating temperature becomes too high, and automatically restarts once the motor cools and a proper temperature is met.

Quality and Safety

ST Series Single Phase Pumps are in accordance with ISO9001 Quality Management System standard. Also, all Single Phase models carry the Underwriters Laboratories (UL) Listing for compliance with both U.S. or Canadian electrical safety codes.



YELLSUB 1 1/4" Discharge 33 GPM - 15' HEAD

The Yellow Submarine is MQ's most lightweight, compact submersible pump. A great choice for common household moving water applications. One piece polymer pump casing body resists corrosion and heat. Includes internal thermal overload protection, dual shaft seals, and positive direct drive thermoplastic impeller secured with stainless steel fittings.



SS233 2" Discharge 60 GPM - 20' HEAD

This lightweight, compact submersible pump is the first choice for many applications: flooded rooms, flat roofs, fill tanks, basins, fountains and waterfalls. Hardy thermoplastic pump casing body resists corrosion and heat. Further, the SS233 incorporates internal thermal overload protection, dual shaft seals, and positive direct drive thermoplastic impeller secured with stainless steel fittings.



ST2038P 2" Discharge 60 GPM - 38' HEAD

This lightweight, compact submersible pump is ideal for moving water in multiple confined and open area applications. The unique casing design permits it to draw water to a level of 1/16" without having to place the pump in any kind of sump. The ST2038P incorporates a rugged cast aluminum housing, internal thermal overload protection, and sealed dual shaft seals and bearings.



ST2037 2" Discharge 73 GPM - 37' HEAD

The ST2037 incorporates a rugged cast aluminum housing, internal thermal overload protection, dual shaft seals, sealed ball bearings impeller and molded 25' Power Cable with strain relief. This is a powerful, versatile, low maintenance pump that is perfect for a wide range of operations supporting Contractors Service Utilities, Municipalities, and Homeowners.



ST2047 2" Discharge 87 GPM - 47' HEAD

A compact, powerful pump that tackles tough dewatering jobs. Perfect for Contractors, Service Utilities, Municipalities, and Homeowners. The ST2047 incorporates a rugged cast aluminum housing, internal thermal overload protection, dual shaft seals, sealed ball bearings impeller and molded 50' Power Cable with strain relief.



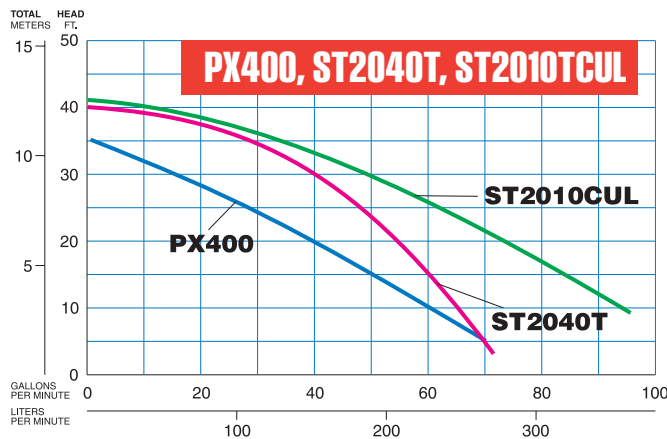
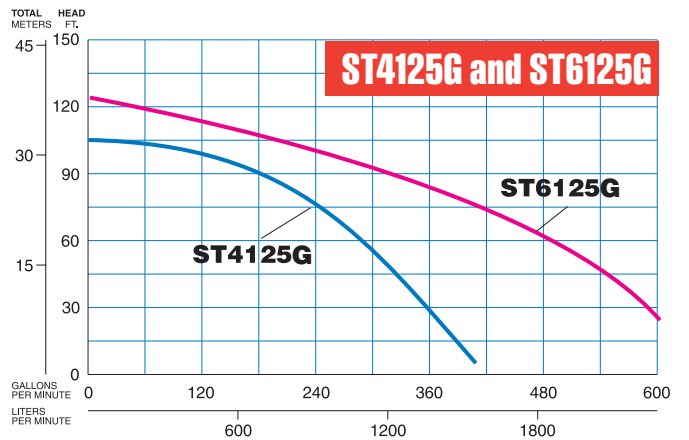
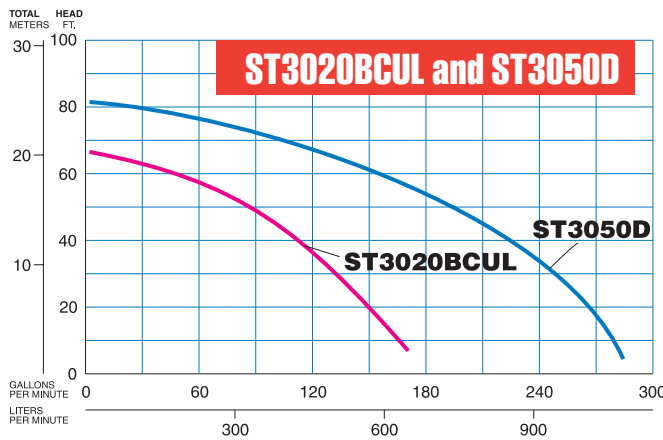
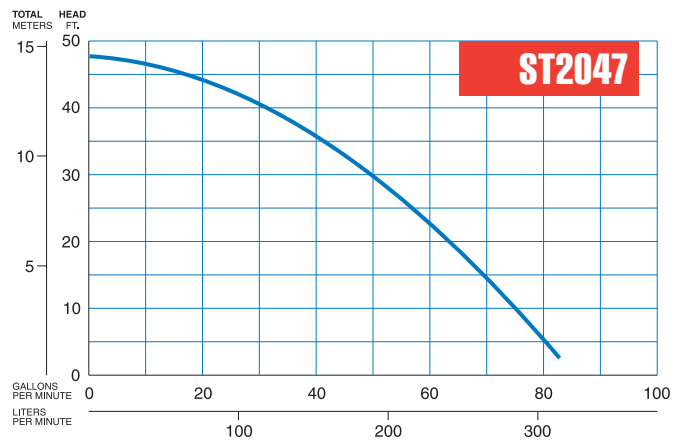
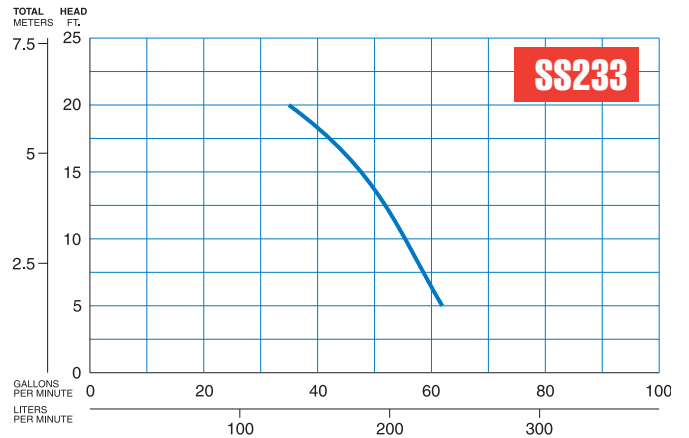
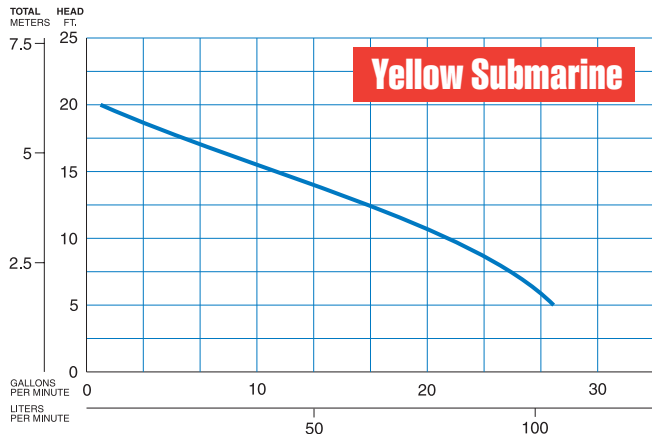
ST3020BCUL 3" Discharge 170 GPM - 72' HEAD

This is a rugged 2HP 230V pump with a heat conducting cast iron/steel motor casing. Pumps liquid up to 120° and de-waters surfaces up to 1/2". The ST3020BCUL incorporates reliable double mechanical oil-filled seals, internal thermal overload protection, sealed ball bearings, Ductile Iron impeller, carrying handle, and molded 50' Power Cable with strain relief. The 6.7" diameter design permits the pump to fit into tight spaces & conduits.

* All Multiquip single phase submersible pumps do not require a Control Box for safe, efficient operations. However, a Control Box may be desired if operations call for a manual ON/OFF Switch option.



Pump Performance Curves





Polyester Liquid Filter Bag



Features

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

Applications

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

Sizes

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

Micron Ratings

Available fibers range from 1 to 1500 microns

Options

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

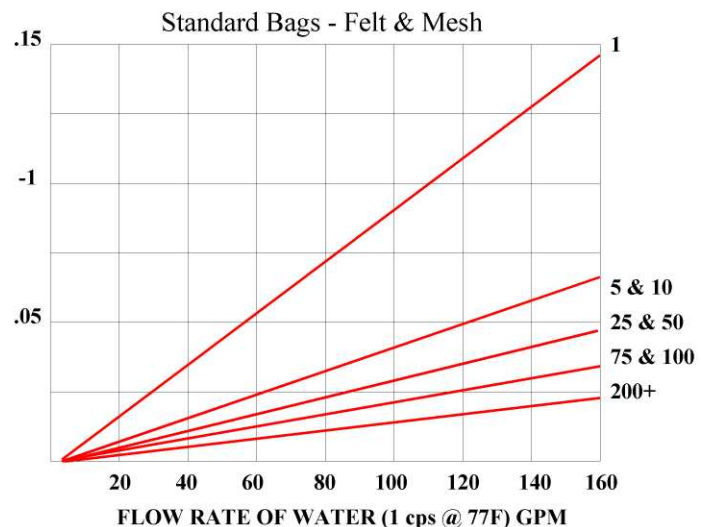
Optional Filter Media

Felt: Nomex, Polyester, Polypropylene

Monofilament: Nylon, Polyester, Polypropylene

Multifilament: Nylon, Polyester

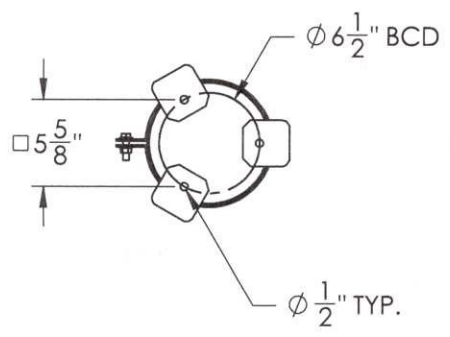
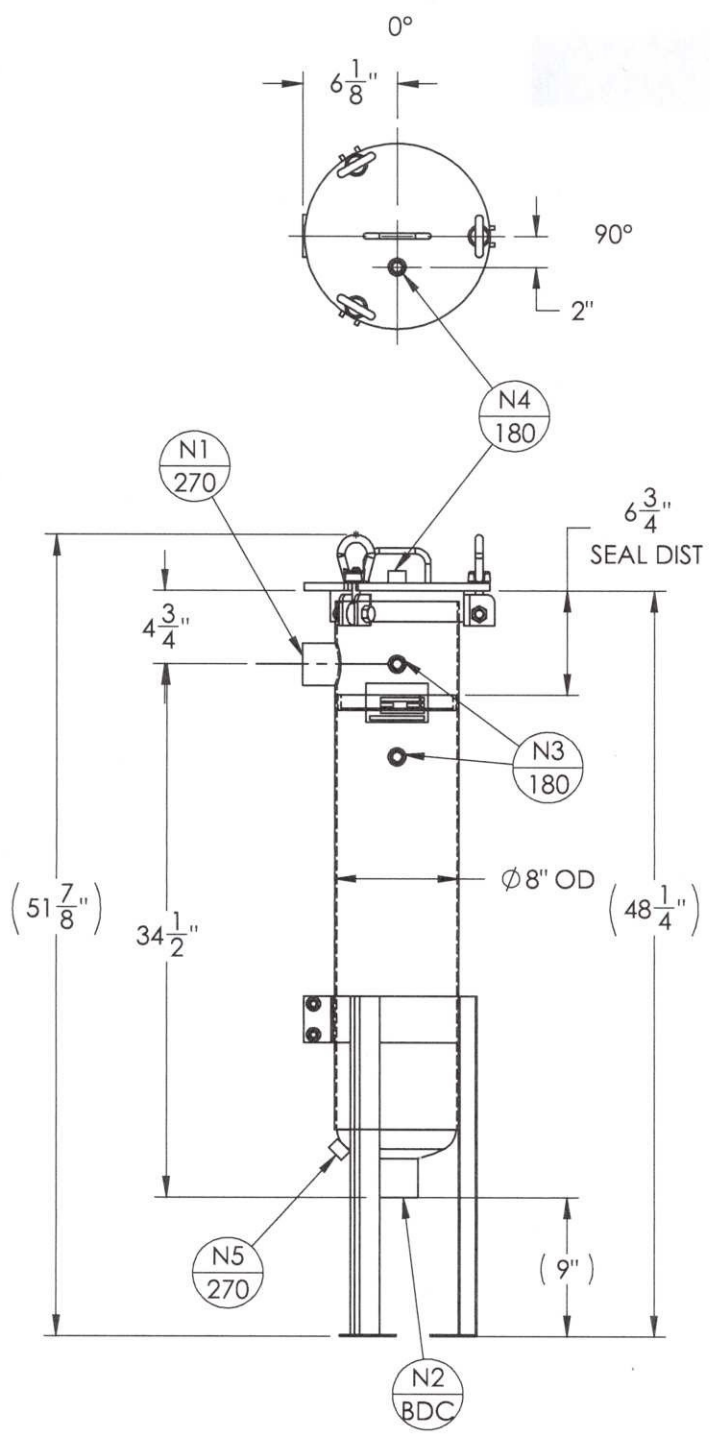
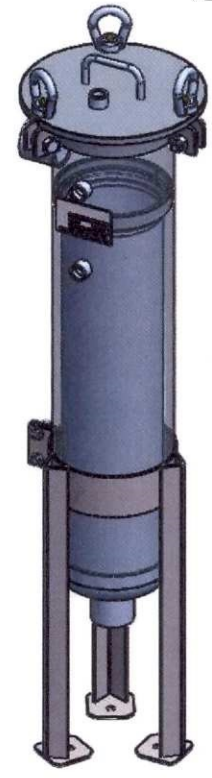
Polypropylene: Oil Removal



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

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

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



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

1:1

REV.	DATE	REVISION	DRAWN	APP'D
 89 Crawford Street Leominster, MA 01453 Tel: 774.450.7177 Fax: 888.835.0617				
LRT Provided Bag Filter Housing				
EQUIPMENT: BAG FILTER HOUSING (EB SERIES)				
MODEL NO: S4EB112-2P-SW				
CUSTOMER:				
PARENT: NONE	DRAWN: CR	DATE: JAN 13 2011	JOB No. V-	DWG. No. 001-0123
PAGE: 1 OF 4	CHK'D: JM	SCALE: NTS		REV. No. 0

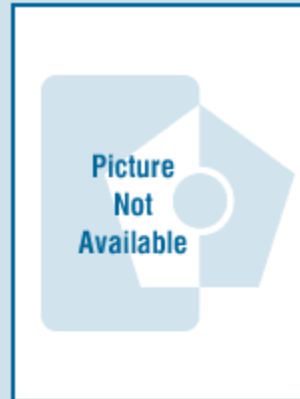


89 Crawford Street
Leominster, Massachusetts 01453
Tel: 774.450.7177
Fax: 888.835.0617
www.lrt-llc.net

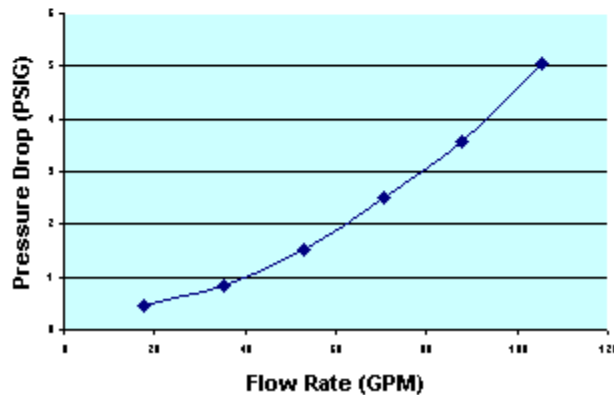
HPAF SERIES FILTERS MODEL HPAF-2000

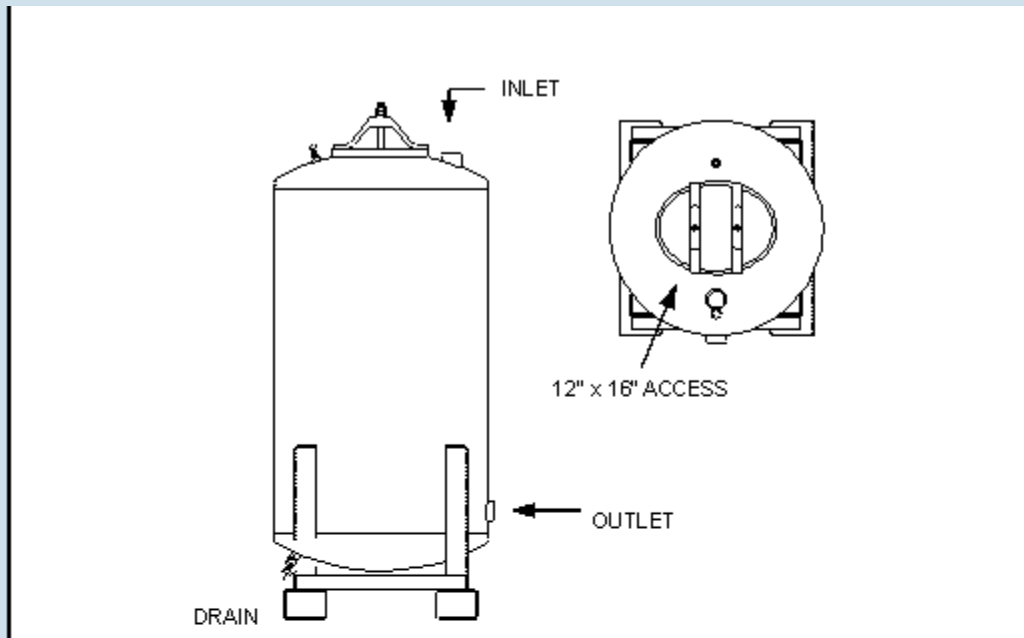
The HPAF-2000 filter is a media filter vessel designed to treat liquid streams. While the typical design application is a activated carbon adsorption unit, the filter can easily accommodate many medias. Some applications include:

- Dissolved Organic Removal (Activated Carbon)
- Suspended Solids Removal (Sand Filter)
- Dissolved Minerals (Softener Resin)
- Oil and Grease Removal (Organo-Clays)
- Dissolved and Precipitated Metals Removal
- Special Organics (Resin/Carbon Blend)
- Catalytic Reactor (Chlorine and Peroxide Removal)
- Bio-Remediation Contactor Unit



PRESSURE DROP GRAPH
(As Filled - 8"30 GAC)





HPAF-2000 SPECIFICATIONS			
Overall Height	8'6"	Vessel/Internal Piping Materials	CS (SA-36) / SCH 40 PVC
Diameter	48"	Internal Coating	Polyamide Epoxy Resin
Inlet / Outlet (FNPT)	3"	External Coating	Epoxy Mastic
Drain / Vent (FNPT)	3/4" / 1/2"	Maximum Pressure / Temp	75 PSIG / 140° F
GAC Fill (lbs)	2,000	Cross Sectional Bed Area	12.5 FT ²
Shipping / Operational Weight (lbs)	1,295 / 3,295	Bed Depth/Volume	5.5 FT / 68.7 FT ³



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



**NSF/ANSI 44-61 CERTIFIED FOR
MATERIAL SAFETY**

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.

FEATURES & BENEFITS

- **RESIDENTIAL SOFTENING APPLICATIONS**

Resin parameters are optimized for residential softeners

- **LOW COLOR THROW**

- **SUPERIOR PHYSICAL STABILITY**

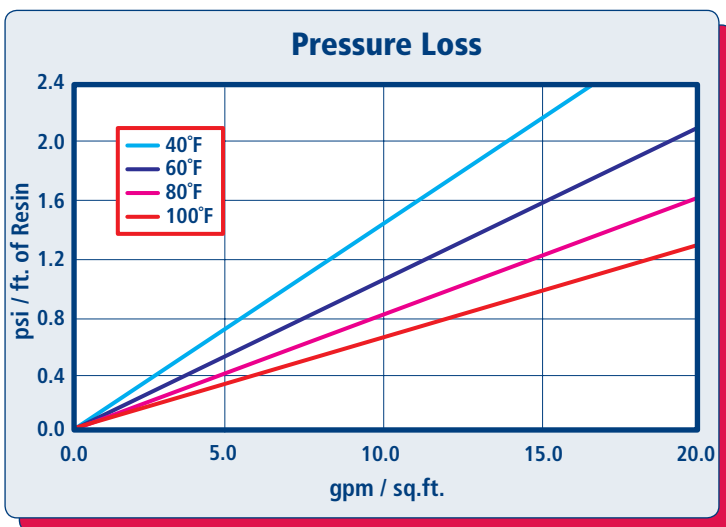
93% plus sphericity and high crush strengths together with carefully controlled particle distribution provides long life and low pressure drop

- **COMPLIES WITH US FDA REGULATIONS**

Conforms to paragraph 21CFR173.25 of the Food Additives Regulations of the US FDA

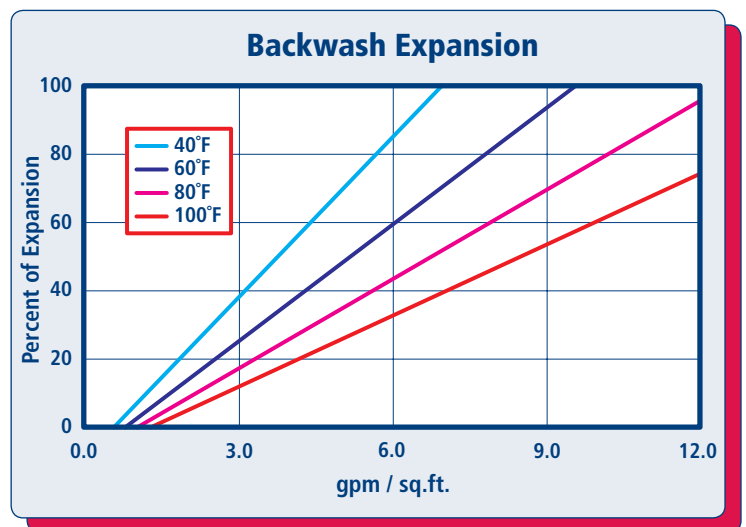
Prior to first use for potable water, resin should be backwashed for a minimum of 20 minutes, followed by 10 bed volumes of downflow rinse.

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.

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.

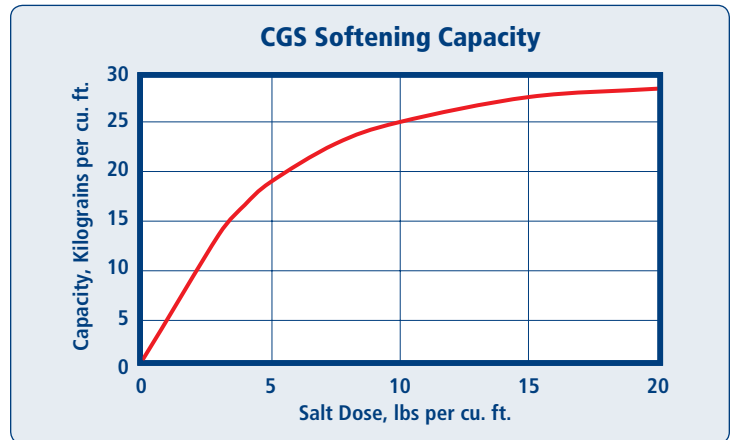
Note: These guidelines describe average low risk operating conditions. They are not intended to be absolute minimums or maximums.

For operation outside these guidelines, contact ResinTech Technical Support

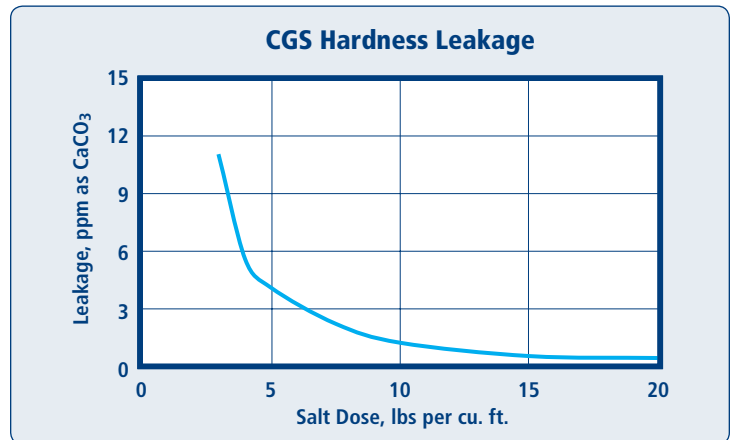
APPLICATIONS

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.



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

CAUTION: DO NOT MIX ION EXCHANGE RESIN WITH STRONG OXIDIZING AGENTS. Nitric acid and other strong oxidizing agents can cause explosive reactions when mixed with organic materials, such as ion exchange resins. MATERIAL SAFETY DATA SHEETS (MSDS) are available for all ResinTech Inc. products. To obtain a copy, contact your local ResinTech sales representative or our corporate headquarters. They contain important health and safety information. That information may be needed to protect your employees and customers from any known health and safety hazards associated with our products. We recommend that you secure and study the pertinent MSDS for our products and any other products being used. These suggestions and data are based on information we believe to be reliable. They are offered in good faith. However we do not make any guarantee or warranty. We caution against using these products in an unsafe manner or in violation of any patents; further we assume no liability for the consequences of any such actions.

RESINTECH is a registered trademark © of RESINTECH INC.

CGS rev 1.1



SBG1

**ANION EXCHANGE RESIN
TYPE ONE GEL
CI 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.

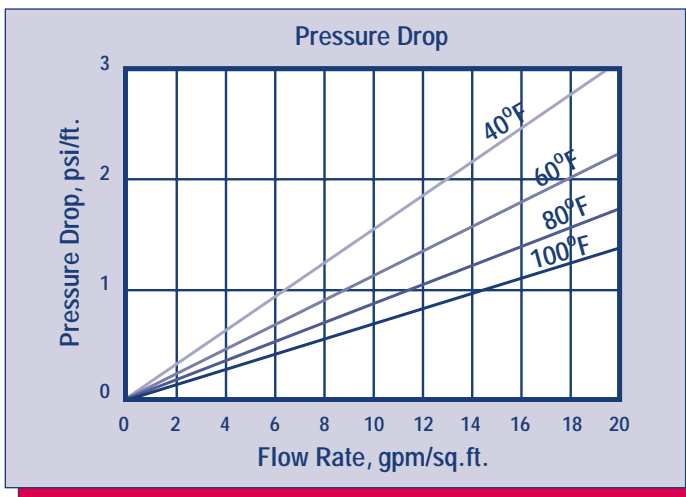
- **SUPERIOR PHYSICAL STABILITY**

- **LOWER TOC LEACH RATE**

Makes it ideal for polishing mixed beds in wafer washing and other high purity water polishing applications.

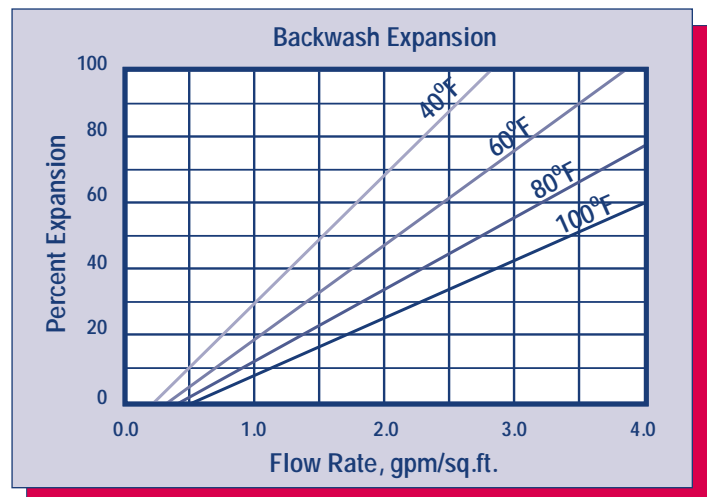
*For potable water applications, the resin must be properly pre-treated, usually by multiple exhaustion and regeneration cycles, to ensure compliance with extractable levels.

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 to 14
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 CaCO₃ is shown in the following table:

Pounds NaOH/ft ³	Capacity Kilograms per cubic foot			
	HCl	H ₂ SO ₄	H ₂ SiO ₃	H ₂ CO 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

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

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

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

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

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

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

RESINTECH is a registered trademark ® of RESINTECH INC.

SBG1serv050102

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

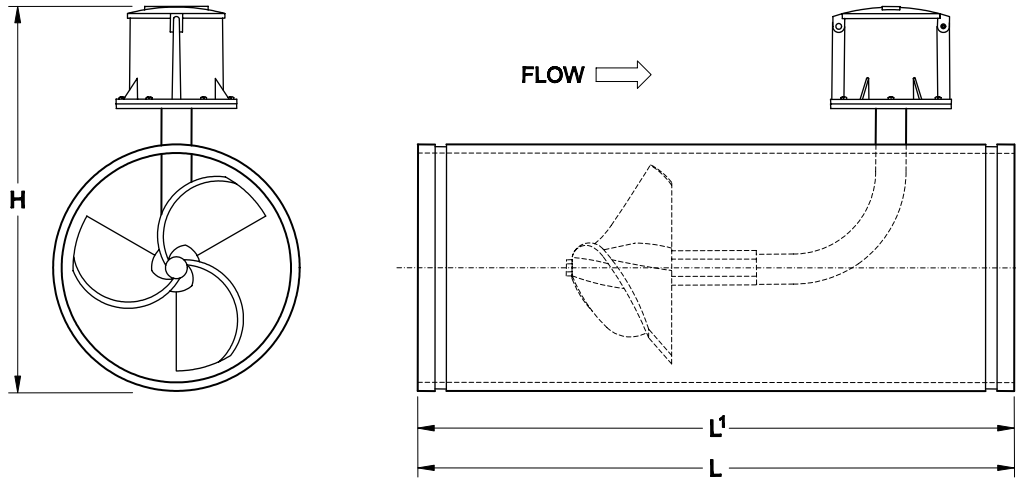
IMPELLER: Impellers are manufactured of high-impact plastic, retaining their shape and accuracy over the life of the meter. High temperature impeller is optional.

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.			17	40	54	68	87	106	140	144	172	181	223	
H (inches)	* See Special Note		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	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.



LB Series

Top discharge provides maximum motor cooling while allowing continuous duty operation.

Available in single-phase or three-phase. Pumps fit into 8-inch pipes.



LB Series Features

LB(T)-1500:

High chrome semi-open impeller resists wear for adhesive particles.

Diode motor protectors prevent stator damage in high amperage or run-dry situations.

Up to 70' shut off head

Slimline design allows pumps to fit into 8" pipes.



LB Series Features

LB-800:

Designed to fit an 8" pipe.

Up to 60' shut off head.

Available in 110V and 220V single-phase with 50 foot cables.

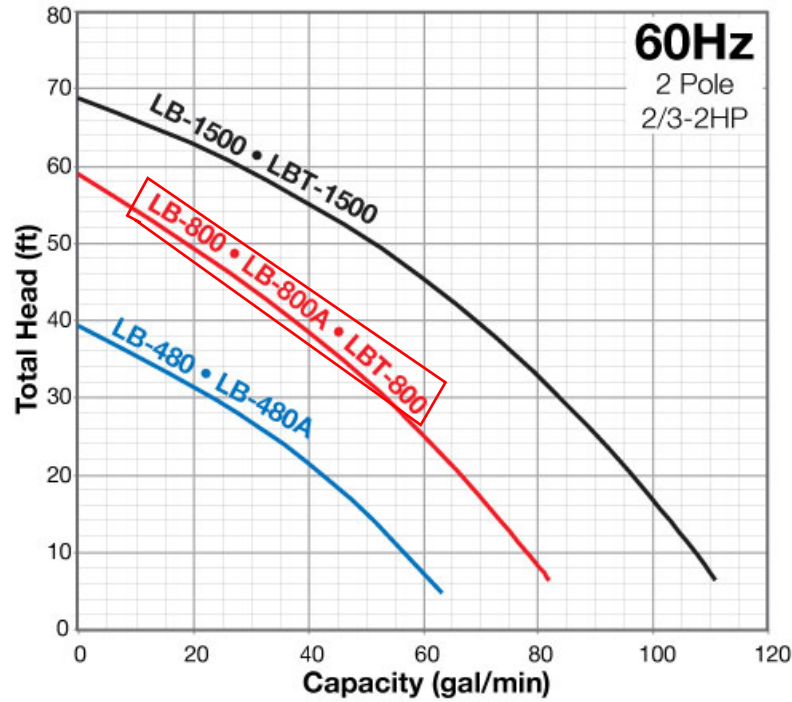
Double Inside Mechanical Seal With SiC faces provides the longest operational life.

Oil Lifter provides lubrication of the seal faces.

OPTIONAL ACCESSORIES

Float Switch for automatic operation
TS-302 for 110V, TS-303 for 220V.

Performance Range



Model	Discharge Size (in.)	Motor Output (HP)	Voltage (V)	Cable Length (ft.)	Diameter (in.)	Height (in.)	Weight (lbs.)
LB-1500	3	2	110V or 220V	50	7 3/8	23 5/16	72
LB-480	2	2/3	110V	32	7 3/8	11 1/4	28
LB-480A	2	2/3	110V	32	8 3/4	11 1/4	30
LB-800	2	1	115V or 230V	50	7 3/8	13 7/16	35
LB-800A	2	1	115 or 230	50	8 3/4	23 5/16	38
LBT-1500	2 or 3	2	230 or 460 or 575V	50	7 3/8	23 5/16	85
LBT-800	2	1	230 or 460 or 575V	50	7 3/8	13 7/16	35

Appendix D
Supplemental Information



Documentation of the Results of the ESA Eligibility Determination:

Using information in Appendix II of the NPDES RGP, the project located at 111 Maplewood Street Portsmouth, NH is eligible for coverage under this general permit under FWS Criterion C. This project is located in Rockingham 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” wherever it is found;

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 trees in the immediate vicinity of the site; however, 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.



New Hampshire Natural Heritage Bureau

To: Neil Hansen
177 Corporate Drive
Portsmouth, NH 03801

Date: 3/13/2019

From: NH Natural Heritage Bureau

Re: Review by NH Natural Heritage Bureau of request dated 3/13/2019
NHB File ID: NHB19-0824

Applicant: Michael Kane

Location: Tax Map(s)/Lot(s): Map 124 Lot 8
Portsmouth

Project Description: Construction of a 75,000 SF office building and associated site improvements

The NH Natural Heritage database has been checked for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government. We currently have no recorded occurrences for sensitive species near this project area.

A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

This report is valid through 3/12/2020.



MAP OF PROJECT BOUNDARIES FOR NHB FILE ID: NHB19-0824





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:

July 09, 2019

Consultation Code: 05E1NE00-2019-SLI-2244

Event Code: 05E1NE00-2019-E-05735

Project Name: 111 Maplewood - Office Building

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: 05E1NE00-2019-SLI-2244

Event Code: 05E1NE00-2019-E-05735

Project Name: 111 Maplewood - Office Building

Project Type: DEVELOPMENT

Project Description: The proposed office building project will include the construction of a 4-story, 74,000 SF building that consists of parking and commercial space on the basement level, office and commercial space on the ground level, and office space with a roof deck on the upper stories. The project will consist of associated site improvements such as paving, stormwater management, utilities, lighting, landscaping and community space.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/43.07912206460361N70.76290314575303W>



Counties: Rockingham, NH

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

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

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

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> 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 National Register of Historic Places did not list any potential historic properties on or near the project site in the databases. In addition, a request for project review by the New Hampshire Division of Historic Resources was conducted which also found that no historic properties are on or near the project site. Therefore, the proposed discharge will not have the potential to cause effects on historical properties.

Please mail the completed form and required material to:

New Hampshire Division of Historical Resources
State Historic Preservation Office
Attention: Review & Compliance
19 Pillsbury Street, Concord, NH 03301-3570

RECEIVED

JUL 11 2019

DHR Use Only	
R&C #	10880
Log In Date	7/11/19
Response Date	7/16/19
Sent Date	7/17/19

Request for Project Review by the New Hampshire Division of Historical Resources

- This is a new submittal
 This is additional information relating to DHR Review & Compliance (R&C) #:

GENERAL PROJECT INFORMATION

Project Title 111 Maplewood Ave - Office Building

Project Location 111 Maplewood Avenue

City/Town Portsmouth Tax Map 124 Lot # 8

NH State Plane - Feet Geographic Coordinates: Easting 1225602 Northing 212459 ✓
(See RPR Instructions and R&C FAQs for guidance.)

Lead Federal Agency and Contact (if applicable) EPA
(Agency providing funds, licenses, or permits)
Permit Type and Permit or Job Reference # CGP

State Agency and Contact (if applicable)
Permit Type and Permit or Job Reference #

APPLICANT INFORMATION

Applicant Name RW Norfolk Holdings, LLC

Mailing Address 210 Commerce Way, Suite 300 Phone Number 603.430.4000

City Portsmouth State NH Zip 03801 Email enelson@netkane.com

CONTACT PERSON TO RECEIVE RESPONSE

Name/Company Neil Hansen / Tighe & Bond, Inc.

Mailing Address 177 Corporate Drive Phone Number 6034338818

City Portsmouth State NH Zip 03801 Email nahansen@tighebond.com

This form is updated periodically. Please download the current form at www.nh.gov/nhdhr/review. Please refer to the Request for Project Review Instructions for direction on completing this form. Submit one copy of this project review form for each project for which review is requested. Include a self-addressed stamped envelope to expedite review response. Project submissions will not be accepted via facsimile or e-mail. This form is required. Review request form must be complete for review to begin. Incomplete forms will be sent back to the applicant without comment. Please be aware that this form may only initiate consultation. For some projects, additional information will be needed to complete the Section 106 review. All items and supporting documentation submitted with a review request, including photographs and publications, will be retained by the DHR as part of its review records. Items to be kept confidential should be clearly identified. For questions regarding the DHR review process and the DHR's role in it, please visit our website at: www.nh.gov/nhdhr/review or contact the R&C Specialist at marika.labash@dncr.nh.gov or 603.271.3558.

Project Boundaries and Description

- Attach the Project Mapping *using EMMIT or relevant portion of a 7.5' USGS Map.* (See RPR Instructions and R&C FAQs for guidance.)
- Attach a detailed narrative description of the proposed project.
- Attach a site plan. The site plan should include the project boundaries and areas of proposed excavation.
- Attach photos of the project area (overview of project location and area adjacent to project location, and specific areas of proposed impacts and disturbances.) (Informative photo captions are requested.)
- A DHR records search must be conducted to identify properties within or adjacent to the project area. Provide records search results via EMMIT or in **Table 1.** (Blank table forms are available on the DHR website.)
EMMIT or in-house records search conducted on 7/8/2019.

Architecture

Are there any buildings, structures (bridges, walls, culverts, etc.) objects, districts or landscapes within the project area? Yes No
If no, skip to Archaeology section. If yes, submit all of the following information:

Approximate age(s):

- Photographs of *each* resource or streetscape located within the project area, with captions, along with a mapped photo key. (Digital photographs are accepted. All photographs must be clear, crisp and focused.)
- If the project involves rehabilitation, demolition, additions, or alterations to existing buildings or structures, provide additional photographs showing detailed project work locations. (i.e. Detail photo of windows if window replacement is proposed.)

Archaeology

Does the proposed undertaking involve ground-disturbing activity? Yes No
If yes, submit all of the following information:

- Description of current and previous land use and disturbances.
- Available information concerning known or suspected archaeological resources within the project area (such as cellar holes, wells, foundations, dams, etc.)

Please note that for many projects an architectural and/or archaeological survey or other additional information may be needed to complete the Section 106 process.

DHR Comment/Finding Recommendation *This Space for Division of Historical Resources Use Only*

- Insufficient information to initiate review. Additional information is needed in order to complete review.
- No Potential to cause Effects No Historic Properties Affected No Adverse Effect Adverse Effect

Comments: _____

If plans change or resources are discovered in the course of this project, you must contact the Division of Historical Resources as required by federal law and regulation.

Authorized Signature: Neeraj Mullin DSAPO Date: 7/16/19