Tighe&Bond
Engineers | Environmental Specialists

E-0754-03
August 20, 2019

Ms. Shauna Little
United States Environmental Protection Agency – Region 1
5 Post Office Square
Suite 100/OEP06-1
Boston, Massachusetts 02109-3912

Re: **Submittal of Notice of Intent (NOI) for Coverage Under the Remediation General Permit (RGP)**
Station 131
Construction Site Dewatering
0 Condor Street/ 338 East Eagle Street
East Boston, Massachusetts

Dear Ms. Little:

On behalf of NSTAR Electric Company d/b/a Eversource Energy (Eversource) and Charter Contracting Company (Charter), Tighe & Bond is submitting this Notice of Intent (NOI) for coverage under the National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) for discharge of treated groundwater from pre-construction remediation activities that will occur at 0 Condor Street and 338 East Eagle Street in East Boston, Massachusetts (the "Site"). Remediation activities are being conducted in preparation for the construction of a proposed electrical substation (Station 131) and are scheduled to begin in August 2019 and will continue through December 2019.

Dewatered groundwater from within excavation areas is proposed to be treated on-Site and discharged to a catch basin on Condor Street under the jurisdiction of the Boston Water and Sewer Commission (BWSC), with ultimate discharge to the Chelsea River. Permission from BWSC for use of their stormwater drainage system will be obtained prior to discharge activities. The NOI fillable form is attached as Appendix A. An Aerial Dewatering Site Plan showing the project location is included in Appendix B as Figure 1

Project Description and Background

The Project involved the pre-construction remediation of a new electrical substation, Station 131, in East Boston, Massachusetts. The Site is in a mixed residential and industrial portion of East Boston, directly south of the Chelsea River.

Located directly south of the Chelsea River, both parcels of the Site were primarily tidelands that were historically filled to raise the Site to existing grade. The historical 1630 shoreline crosses a small portion of the southern portion of the Site parallel to East Eagle Street. A drumlin rises to the southwest of the Site. The Site was predominantly filled between 1837 and 1851 with the remainder of the filling of the abutting property to the east (338 East Eagle) occurring between 1880 and 1911. Based on a review of historical topographic maps and soil boring/test pitting observations, approximately 15-20 feet of historical fill material is present at the Site.

0 Condor Street Parcel & 338 East Eagle Street Parcel

According to Sanborn Maps, historical atlases, and previous reports prepared for the Site by PES Associates (PES) and Weston & Sampson, the Site was historically occupied by industrial

manufacturing from as early as 1888 through the early 1900s. Sanborn Maps indicate that W. H. Swift & Co. Color and Chemical Works, who reportedly manufactured acid chemicals, occupied the Site from 1888 through 1900. Tighe & Bond also found reference to the Historical Boston Atlases which reportedly show the Site was occupied in 1892 by Swift & Tide Company, and by Matfield Fertilizer Works.

As documented on the 1888 and 1900 Sanborn maps, the W. H. Swift & Co. Color and Chemical Works operations were present on both the southern and northern portions of the property. The 1927 Sanborn Map indicates that the W. H. Swift & Co. operations no longer occupied the Site, but the date that operations ceased, or manner in which the Site facilities were decommissioned, has not been determined.

338 East Eagle Street Parcel

Sanborn maps, historical atlases, and previous reports indicate the Massachusetts Bay Transportation Authority (MBTA - formerly the Metropolitan Transit Authority) occupied the 338 East Eagle Street Site from at least 1900 until approximately 1980. During MBTA ownership, the Site was used primarily as a rail car and bus repair and storage facility. An electrical substation, which operated as a power generation facility for electric street cars until 1911, was reportedly located in the southwest portion of the Site through much of the period of MBTA ownership. MBTA ceased active operations at the Site around 1980, and the Site buildings were razed in the late 1980s.

A January 25, 1988 *Environmental Site Assessment Study - East Boston Maintenance Yard* prepared for the Site by *Green International Affiliates, Inc (Green*) noted that the Site was used as a storage facility for salt, gravel, asphalt, cold patch, and other street maintenance materials. This usage appears to have continued until approximately April 2011. TRC Solutions (TRC) noted that during their initial Site reconnaissance, the Site was used by the Boston Public Works Department (PWD) for storage of road salt and asphalt patch materials, and to park utility vehicles such as snow plows and street sweepers.

MCP History

The 0 Condor Street parcel has RTN 3-30299 assigned due to the presence of petroleum hydrocarbons, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals in soil, and metals in groundwater. This portion of the Site is subject to an Administrative Consent Order (ACO) ACO-NE-16-3R003 issued to the City of Boston by MassDEP. As required by the ACO, Weston and Sampson, on behalf of the City of Boston, prepared a Temporary Solution Statement (TSS), which was submitted to MassDEP on April 1, 2019.

Additionally, RTN 3-33978 was assigned to the 338 East Eagle Street Site (Parcel 0103711003) for PAHs and metal contaminated urban fill throughout the Site. Petroleum impacted soil was identified above the Reportable Concentrations (RCS-1) standards within the southeastern portion of the Site. According to Weston & Sampson, the source of the petroleum impacted soil appears to be a historical fuel island and underground storage tank (UST) located in this area. Analysis of groundwater samples collected throughout the Site did not identify impacts above RCs with the exception of one sample location where dissolved lead was identified above the RC.

Groundwater Characterization

To characterize groundwater at the Site and design the appropriate treatment system, six groundwater samples were collected in November 2018. Two samples were collected from monitoring wells MW-1, MW-5 and MW-13, one filtered and one unfiltered sample. Groundwater samples were submitted to ESS Laboratory of Cranston, Rhode Island for

laboratory analysis of Environmental Protection Agency (EPA) RGP parameters. The laboratory analytical results are summarized in Table 1 (Appendix E). Copies of the laboratory analytical reports are included in Appendix F. Laboratory analytical results were compared to either the RGP Technology Based Effluent Limitations (TBEL) or Water Quality Based Effluent Limitations (WQBEL).

Contaminants of concern (COCs) are analytes that exceeded the applicable effluent limitations. COCs detected in monitoring wells at the Site include ammonia, chloride, total suspended solids (TSS), arsenic, cadmium, copper, iron, lead, zinc, total cyanide, and several Group I PAHs and total Group I PAHs. The locations of the monitoring wells are shown on Figure 1 (Aerial Dewatering Site Plan) in Appendix B.

Receiving Water Classification

The Chelsea River (waterbody identification MA71-06) is classified as a Class SB (CSO) and is listed as a Category 5 impaired water body in the 303(d) Impaired Waterbodies document. The SB classification indicates that the River is a saltwater body designated as a habitat for aquatic life including fish and wildlife. The CSO designation indicates that the River is impacted by the discharge of combined sewer overflows and that a long-term control plan has not been approved or fully implemented. During critical low flow conditions, it is assumed that there is no flow in saltwater environments; therefore, a 7-day 10-year low flow (7Q10) value was not calculated for this RGP. Additionally, dilution factors for sites discharging to saltwater receiving waters is assumed to be zero (1:1) in accordance with *Appendix V*: *Dilution Factor and Effluent Limitation Calculations for Massachusetts* of the NPDES RGP.

As required a surface water sample ("Chelsea River") was collected from the Chelsea River within a quarter mile of outfall location. The surface water sample was collected in April 2019 and sent to ESS for analysis of ammonia, salinity and RGP metals present at the Site. Temperature and pH of the Chelsea River were recorded in the field at the time of sample collection. The surface water sample location is shown on Figure 1 in Appendix B. Surface water analytical data is summarized in Table 2 of Appendix E with complete Laboratory Reports included in Appendix F.

Treatment System

To evaluate groundwater treatment and management options, a bench scale treatability test was conducted by Lockwood Remediation Technologies (LRT) of Leominster, Massachusetts. The bench scale treatability utilized groundwater samples collected from monitoring well MW-5.

The proposed treatment system is capable of treating water up to 50 gallons per minute (gpm) and begins with one (1) 10,000-gallon weir tank. In the weir tank, sulfuric acid, LRT-E-50 Coagulant and LRT-800 Series Flocculant will be added sequentially as depicted on the Groundwater Treatment Schematic in Appendix A. The system includes three chemical feed metering pumps and two 55-gallon drums and/or totes. The pH adjustment, flocculant and coagulant chemicals will be stored within secondary containment.

Water from the weir tank will gravity flow into a 10,000-gallon clarifier that contains baffles, settling tube media and clean-out ports along the v-shaped bottom for sludge/sediment removal.

The weir tank will be raised approximately 12 inches above grade to allow for optimal gravity flow to the clarifier. Sludge/sediment that accumulates on the bottom of the clarifier will be pumped to 3,000-gallon cone bottom poly tanks (or equivalent) for sludge consolidation and storage. An electric or gas-powered sludge pump will be used for the transfer.

From the clarifier, a 3-inch submersible pump will transfer water through a duplex bag filter skid with two single bag filters plumbed in parallel, such that one bag filter vessel can operate while the other remains on standby. During a bag filter change-out, one vessel is opened while the other is closed so that water treatment is not interrupted. Each bag filter vessel includes isolation valves, sample ports and pressure gauges on the influent and effluent piping so that it is clear when a bag filter change-out is required.

From the bag filters, water will be discharged to two carbon vessels, each containing 1,000 pounds of activated liquid phase carbon, followed by one media vessel containing 20 cubic feet of anion exchange resin and one media vessel containing 4,000 pounds of zeolite. Each vessel is rated for a maximum flow rate of 50 gpm and 75 PSI and includes isolation valves, sample ports and pressure gauges on the influent and effluent piping so that it is clear when backwashing is required. Water from the media vessels will flow through a flow meter/totalizer meter prior to discharge. The proposed treatment system is depicted on Figure 3: Process Flow Diagram included in Appendix B.

Chemical and Additives Information

Based on groundwater samples collected from the Site and in order to achieve the expected effluent limitations for the groundwater, the following chemicals and additives have been proposed for the treatment system: pH adjustment by sodium hydroxide and chemical aided settling systems through coagulants/flocculants. Product names, chemical formula, manufacturer information and Chemical Abstract Services (CAS) Registry numbers are provided on the Safety Data Sheets (SDS) included in Appendix G.

The pH adjustment (sodium hydroxide) will be added in-stream prior to the influent entering the weir tank of the treatment system. The sodium hydroxide will only be added if required to meet effluent limitations. The pH adjustment system includes an automatic metered acid feed system with a mix tank and acid feed pumps. The dosing of sodium hydroxide to the influent will be dependent on the pH of the influent water and flow rate. At maximum, assuming the system operates at 50 gallons per minute (gpm), 24 hours a day for 7 days a week, the maximum dose of sodium hydroxide will be 27.8 parts per million (ppm) (equivalent to 2 gallons per day).

The chemical aided settling system will be added in two parts, the coagulant (LRT-E-50) will be injected into the influent stream prior to entering the weir tanks while the flocculant (LRT-800) will be injected directly into the weir tank. The coagulant and flocculant will continually dose as dewatering activities occur at a maximum dosage rate of 25 ppm. Although the dosage rate for the coagulant and flocculants will be 25 ppm, the detected concentration in the post bag filter (carryover) has been recorded in the parts per trillion (ppt) range, (about 6 orders of magnitude less than the dosing concentration). This is because nearly all the chemical becomes incorporated in the sludge and removed from the waste stream as a solid from the weir tank.

The additional of the pH adjustment and/or chemical aided settling system will not add any pollutants in concentrations which exceed permit effluent limitations, will not exceed any applicable water quality standard, and will not add any pollutants that would justify the application of permit conditions that are different from or absent in this permit.

Best Management Practices Plan – The system operator (Charter Contracting Company, LLC [Charter]), will develop a Best Management Practices Plan (BMPP) for the groundwater extraction and treatment systems for the Project. The BMPP will be developed in accordance with the requirements of the RGP and implemented upon initiation of the discharge.

Owner and Operator

The Site owner and Site operator will be co-permittees for this NPDES RGP application. The Site operator has not been selected; however, notification will be made to the EPA upon selection.

Owner
NSTAR Electric Company
d/b/a Eversource Energy
Matthew Calvert
107 Selden Street
Berlin, Connecticut 06037

Operator
Charter Contracting Company
Alasdair Cunningham
500 Harrison Avenue
Suite 4R
Boston, Massachusetts 02118

Notice of Intent

Preparation of this NOI has included a review of literature pertaining to Areas of Critical Environmental Concern (ACEC), Endangered Species Act (ESA), and the National Historic Preservation Act (NHPA), as documented below:

- Review of a MassGIS Priority Resource Map, Figure 2, shows the Project is not within an ACEC and no National Heritage & Endangered Species Program (NHESP) Priority Habitats for Rare Species or Estimated Habitats for Rare Wildlife are present within a half mile downstream of the discharge location;
- Review of the "Federally Listed Endangered and Threatened Species in Massachusetts" (Appendix C) found that there are three species listed in Suffolk County, including the Piping Plover, the Red Knot, and the Northern Long-Eared Bat. Piping Plover are reportedly found in Revere and Winthrop. As this Project is not located in either of these towns, the Piping Plover will not be affected by construction activities or the proposed discharge to the Chelsea River. The Red Knot is migratory only, scattered along the coast in small numbers and prefers coastal beaches, rocky shores, and sand and mud flats. The Northern Long-Eared Bat prefers mines and caves during winter months and forested habitats in the summer. The Project consists of partially paved areas and a fenced in dirt area. Additionally, no coastal beaches, rocky shores, or forested habitats will be disturbed during construction activities. The dewatering discharge will go through a treatment system prior to being discharged to the Chelsea River, which will remove solids and COCs such as metals from the groundwater. The discharge will also travel through an existing drainage network. Based on all of these factors, it is the opinion of Tighe & Bond that the habitats for Red Knot and Northern Long-Eared Bats will not be disturbed during construction and implementation of this Project.
- According to the United States Fish and Wildlife Services (USFWS) Information, Planning and Conservation (IPaC) tool, there are no federally threatened or endangered species within the Site or outfall area. There are also no critical habitats for any federally threatened or endangered species in the action area; therefore, the permit eligibility meets "Criterion A."
- Tighe & Bond has done a review of federally threatened or endangered listed species and critical habitat under the jurisdiction of National Marine Fisheries Services (NMFS).

There are no threatened or endangered species or critical habitat in the Chelsea River. A review of the 10 x 10 latitude and longitude squares, Summary of Essential Fish Habitat (EFH) Designations for Boston Harbor, provided by the National Oceanic and Atmospheric Administration (NOAA) confirmed there are no EFH for the threatened or endangered species under NMFS jurisdiction. Therefore, Tighe & Bond affirms the determination made by EPA that the proposed discharges and discharge related activities are not likely to adversely affect any federally threatened or endangered listed species or critical habitat under the jurisdiction of NMFS.

- An electronic review of the Massachusetts Cultural Resource Information System database (Appendix D), made available through the Massachusetts Historical Commission, found several historical buildings or areas in the vicinity of the Project. In addition, according to the National Register of Historic Places, the Eagle Hill Historic District is located on the south side of East Eagle Street just west of the Project. A screen shot of the historic mapping is provided in Appendix D. It is the opinion of Tighe & Bond that discharges and discharge related activities will not affect historic properties as groundwater will be pumped into a treatment system (such as a fractionation tank), treated, and discharged to an existing drainage network. Therefore, permit eligibility meets "Criterion B."
- Two groundwater samples were collected from each groundwater monitoring well: MW-1, MW-5, and MW-13 in November 2018 (one filtered and one unfiltered). The groundwater samples were submitted for laboratory analysis of RGP parameters. The laboratory analytical results are summarized in Table 1 and are compared to the RGP TBEL and WQBEL to determine the applicable effluent limitations for the Project. The certificates of analysis from the laboratory are included in Appendix F.
- A surface water sample was collected from the Chelsea River within a quarter mile of the potential outfall location in April 2019. The surface water sample was submitted for laboratory analysis of RGP metals, ammonia, and salinity. The laboratory analytical results are summarized in Table 2 included in Appendix E. A copy of the laboratory analytical report is included in Appendix F.

The proposed treatment system has been designed to reduce the levels of associated COCs to below the applicable effluent limits. Treated effluent will be sampled at start up and in accordance with permit requirements and submitted for laboratory analysis for ammonia, chloride, total suspended solids (TSS), metals (arsenic, cadmium, copper, iron, lead and zinc), total cyanide, and PAHs to confirm the treatment system is operating as designed. Additionally, the flowrate, pH, and turbidity levels will be monitored in the field and recorded in accordance with RGP requirements.

If you need any additional information or assistance on this project, please do not hesitate to contact Michael E. Martin at (508) 304-6355 or Gary Hedman at (508) 304-6357 at your convenience.

Very truly yours,

TIGHE & BOND, INC.

Michael E. Martin
Project Manager

Gary W.T. Hedman, LSP
Project Manager

Enclosures
Copy: Michael Zylich, Eversource

MassDEP, Division of Watershed Management
MassDEP, Boston

List of Appendices

Appendix A	Notice of Intent
Appendix B	Figures
Appendix C	Federally Listed Endangered Species in Massachusetts Summary of Essential Fish Habitat (EFH) Designations (NOAA)
Appendix D	Massachusetts Cultural Resources Information System Report
Appendix E	Groundwater Summary (Table 1) Surface Water Summary (Table 2) WQBEL Calculations
Appendix F	Laboratory Analytical Reports
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List of Figures

Figure 1	Aerial Dewatering Site Plan
Figure 2	MassDEP Priority Resource Map
Figure 3	Process Flow Diagrams

APPENDIX A

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

A. General site information:

<table>
<tr><td rowspan="3">1. Name of site:
Eversource East Eagle Substation 131</td><td colspan="3">Site address: 0 Condor Street and 338 East East Street
Street:</td></tr>
<tr><td>City: East Boston</td><td>State: MA</td><td>Zip: 02128</td></tr>
<tr><td colspan="3"></td></tr>
<tr><td rowspan="4">2. Site owner
NSTAR Electric Company d/b/a Eversource Energy

Owner is (check one): ☐ Federal ☐ State/Tribal ☐ Private
■ Other; if so, specify: Utility company</td><td colspan="3">Contact Person: Matthew Calvert</td></tr>
<tr><td colspan="2">Telephone: 860-665-3446</td><td>Email: matthew.calvert@eversource.com</td></tr>
<tr><td colspan="3">Mailing address: 107 Selden Street
Street:</td></tr>
<tr><td>City: Berlin</td><td>State: CT</td><td>Zip: 06037</td></tr>
<tr><td rowspan="4">3. Site operator, if different than owner
Charter Contracting Company</td><td colspan="3">Contact Person: Alasdair Cunningham</td></tr>
<tr><td colspan="2">Telephone: 857-246-6800</td><td>Email: acunningham@charter.us</td></tr>
<tr><td colspan="3">Mailing address:
Street: 500 Harrison Avenue, Suite 4R</td></tr>
<tr><td>City: Boston</td><td>State: MA</td><td>Zip: 02118</td></tr>
<tr><td>4. NPDES permit number assigned by EPA:
NA

NPDES permit is (check all that apply: ☐ RGP ☐ DGP ☐ CGP
☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:</td><td colspan="3">5. Other regulatory program(s) that apply to the site (check all that apply):
■ MA Chapter 21e; list RTN(s):
3-30299 and 3-33978
☐ NH Groundwater Management Permit or Groundwater Release Detection Permit:
☐ CERCLA
☐ UIC Program
☐ POTW Pretreatment
☐ CWA Section 404</td></tr>
</table>

B. Receiving water information:

1. Name of receiving water(s):	Waterbody identification of receiving water(s):	Classification of receiving water(s):
Chelsea River	MA71-06	Class SB (CSO)

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

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

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

If yes, specify: Chelsea River - surface water body, wetland resource areas associated with river

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. Impairments include debris/floatables/trash, ammonia (un-ionized), fecal coliform, other (contaminants in shellfish), dissolved oxygen, PCB in fish tissue, petroleum hydrocarbons, sediment screening value exceedance, taste and odor, turbidity, and other

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.	Not Applicable (Saltwater Body)
5. Indicate the requested dilution factor for the calculation of water quality-based effluent limitations (WQBELs) determined in accordance with the instructions in Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire.	1:1

6. Has the operator received confirmation from the appropriate State for the 7Q10and dilution factor indicated? (check one): ☐ Yes ■ No

If yes, indicate date confirmation received: No dilution factor requested.

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

C. Source water information:

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

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

2. Source water contaminants: Ammonia, Chloride, Total Suspended Solids, Arsenic, Cadmium, Copper, Iron, Lead, Zinc, Cyanide, Group I PAHs	
a. For source waters that are contaminated groundwater or contaminated surface water, indicate are any contaminants present that are not included in the RGP? (check one): ☐ Yes ■ No If yes, indicate the contaminant(s) and the maximum concentration present in accordance with the instructions in Appendix VIII.	b. For a source water that is a surface water other than the receiving water, potable water or other, indicate any contaminants present at the maximum concentration in accordance with the instructions in Appendix VIII? (check one): ☐ Yes ☐ No
3. Has the source water been previously chlorinated or otherwise contains residual chlorine? (check one): ☐ Yes ■ No	

D. Discharge information

1.The discharge(s) is a(n) (check any that apply): ☐ Existing discharge ■ New discharge ☐ New source	
Outfall(s): (1) Outfall 29M049	Outfall location(s): (Latitude, Longitude) 42.382938° by -71.029982°
Discharges enter the receiving water(s) via (check any that apply): ☐ Direct discharge to the receiving water ■ Indirect discharge, if so, specify: Under jurisdiction of Boston Water and Sewer Commission ☐ A private storm sewer system ■ A municipal storm sewer system If the discharge enters the receiving water via a private or municipal storm sewer system: Has notification been provided to the owner of this system? (check one): ☐ Yes ■ No Has the operator has received permission from the owner to use such system for discharges? (check one): ☐ Yes ■ No, if so, explain, with an estimated timeframe for obtaining permission: Discharge activities will not occur until permission is received from BWSC for use of their stormwater drainage system, expected to oc Has the operator attached a summary of any additional requirements the owner of this system has specified? (check one): ☐ Yes ■ No	
Provide the expected start and end dates of discharge(s) (month/year): August 2019 to January 2020 Indicate if the discharge is expected to occur over a duration of: ■ less than 12 months ☐ 12 months or more ☐ is an emergency discharge	
Has the operator attached a site plan in accordance with the instructions in D, above? (check one): ■ Yes ☐ No	

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

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

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

4. Influent and Effluent Characteristics

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
A. Inorganics									
Ammonia		✔	6	350.1	0.1 mg/L	6.51 mg/L	2.95 mg/L	Report mg/L	---
Chloride		✔	6	300.0	1,000,000	24,000,000	14,062,000	Report µg/l	---
Total Residual Chlorine	✔		6	4500Cl D	20 mg/L	<20 mg/L	<20 mg/L	0.2 mg/L	7.5
Total Suspended Solids		✔	6	2540D	200 mg/L	46,400 mg/L	8,118 mg/L	30 mg/L	---
Antimony	✔		6	200.7	100	<100	<100	206 µg/L	640
Arsenic		✔	6	200.7	100	484	226.5	104 µg/L	36
Cadmium		✔	6	200.7	10	10.2	8.4	10.2 µg/L	8.9
Chromium III		✔	6	200.7	40	63.6	20.28	323 µg/L	100
Chromium VI	✔		6	3500Cr	10	<10	<10	323 µg/L	50
Copper		✔	6	200.7	40	1,030	366.8	242 µg/L	3.7
Iron		✔	6	200.7	200	94,400	51,516.67	5,000 µg/L	NE
Lead		✔	6	200.7	40	5,610	1,323.34	160 µg/L	8.5
Mercury		✔	6	245.1	0.2	0.2	0.1167	0.739 µg/L	1.11
Nickel	✔		6	200.7	100	<100	<100	1,450 µg/L	8.3
Selenium	✔		6	200.7	100	<100	<100	235.8 µg/L	71
Silver	✔		6	200.7	10	<10	<10	35.1 µg/L	2.2
Zinc		✔	6	200.7	100	3,300	1,093	420 µg/L	86
Cyanide		✔	6	4500 CN	5 ug/L	111 ug/L	27.5 ug/L	178 mg/L	1.0
B. Non-Halogenated VOCs									
Total BTEX		✔	6	524.2	0.5	4.8	2.1	100 µg/L	---
Benzene		✔	6	524.2	0.5	4.8	2.1	5.0 µg/L	---
1,4 Dioxane	✔		6	8270D	0.250	<0.250	<0.250	200 µg/L	---
Acetone	✔		6	524.2	5 ug/L	<5 ug/L	<5 ug/L	7.97 mg/L	---
Phenol	✔		6	420.1	100	<100	<100	1,080 µg/L	300

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
C. Halogenated VOCs									
Carbon Tetrachloride	✔		6	524.2	0.3	<0.3	<0.3	4.4 µg/L	1.6
1,2 Dichlorobenzene	✔		6	524.2	0.5	<0.5	<0.5	600 µg/L	---
1,3 Dichlorobenzene	✔		6	524.2	0.5	<0.5	<0.5	320 µg/L	---
1,4 Dichlorobenzene	✔		6	524.2	0.5	<0.5	<0.5	5.0 µg/L	---
Total dichlorobenzene	✔		6	524.2	0.5	<0.5	<0.5	763 µg/L in NH	---
1,1 Dichloroethane	✔		6	524.2	0.5	<0.5	<0.5	70 µg/L	---
1,2 Dichloroethane		✔	6	524.2	0.5	3.7	1.69	5.0 µg/L	---
1,1 Dichloroethylene	✔		6	524.2	0.5	<0.5	<0.5	3.2 µg/L	---
Ethylene Dibromide	✔		6	504.1	0.015	<0.015	<0.015	0.05 µg/L	---
Methylene Chloride	✔		6	524.2	0.5	<0.5	<0.5	4.6 µg/L	---
1,1,1 Trichloroethane	✔		6	524.2	0.5	<0.5	<0.5	200 µg/L	---
1,1,2 Trichloroethane	✔		6	524.2	0.5	<0.5	<0.5	5.0 µg/L	---
Trichloroethylene	✔		6	524.2	0.5	<0.5	<0.5	5.0 µg/L	---
Tetrachloroethylene	✔		6	524.2	0.5	<0.5	<0.5	5.0 µg/L	3.3
cis-1,2 Dichloroethylene	✔		6	524.2	0.5	<0.5	<0.5	70 µg/L	---
Vinyl Chloride	✔		6	524.2	0.2	<0.2	<0.2	2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates	✔		6	625.1 SIM	5	<5	<5	190 µg/L	NE
Diethylhexyl phthalate	✔		6	625.1 SIM	5	<5	<5	101 µg/L	2.2
Total Group I PAHs		✔	6	625.1 SIM	0.1	14.4	2.69	1.0 µg/L	---
Benzo(a)anthracene		✔	6	625.1 SIM	0.1	2.77	0.54	As Total PAHs	0.0038
Benzo(a)pyrene		✔	6	625.1 SIM	0.1	2.82	0.54		0.0038
Benzo(b)fluoranthene		✔	6	625.1 SIM	0.1	2.6	0.52		0.0038
Benzo(k)fluoranthene		✔	6	625.1 SIM	0.1	1.43	0.305		0.0038
Chrysene		✔	6	625.1 SIM	0.1	2.7	0.53		0.0038
Dibenzo(a,h)anthracene		✔	6	625.1 SIM	0.1	0.47	0.12		0.0038
Indeno(1,2,3-cd)pyrene		✔	6	625.1 SIM	0.1	1.58	0.327		0.0038

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
Total Group II PAHs		✔	6	625.1 SIM	0.4	20.42	3.87	100 µg/L	---
Naphthalene		✔	6	524.2	0.50	0.6	0.53	20 µg/L	---
E. Halogenated SVOCs									
Total PCBs	✔		6	608.3	0.5	<0.5	<0.5	0.000064 µg/L	---
Pentachlorophenol	✔		6	625.1 SIM	1.8	<1.8	<1.8	1.0 µg/L	---
F. Fuels Parameters									
Total Petroleum Hydrocarbons	✔		6	1664A	5 mg/L	<5 mg/L	<5 mg/L	5.0 mg/L	---
Ethanol	✔		6	ASTM	10 mg/L	<10 mg/L	<10 mg/L	Report mg/L	---
Methyl-tert-Butyl Ether	✔		6	524.2	0.5	<0.5	<0.5	70 µg/L	20
tert-Butyl Alcohol	✔		6	524.2	25	<25	<25	120 µg/L in MA 40 µg/L in NH	---
tert-Amyl Methyl Ether	✔		6	524.2	1	<1	<1	90 µg/L in MA 140 µg/L in NH	---
Other (i.e., pH, temperature, hardness, salinity, LC_{50}, additional pollutants present); if so, specify:									

E. Treatment system information

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

☐ Adsorption/Absorption ☐ Advanced Oxidation Processes ☐ Air Stripping ■ Granulated Activated Carbon ("GAC")/Liquid Phase Carbon Adsorption
■ Ion Exchange ■ Precipitation/Coagulation/Flocculation ■ Separation/Filtration ■ Other; if so, specify:
pH adjustment

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

The treatment system is comprised of weir tank, a clarifier, pH adjustment system with sodium hydroxide, a chemical aided settling system, bag filtration, carbon treatment, metals treatment, zeolite media and a flow meter. See attached cover letter for additional treatment system information.

Identify each major treatment component (check any that apply):
■ Fractionation tanks☐ Equalization tank ☐ Oil/water separator ■ Mechanical filter ■ Media filter
☐ Chemical feed tank ☐ Air stripping unit ■ Bag filter ☐ Other; if so, specify:

Indicate if either of the following will occur (check any that apply):
☐ Chlorination ☐ De-chlorination

3. Provide the **design flow capacity** in gallons per minute (gpm) of the most limiting component. Indicate the most limiting component: Flow through media vessels Is use of a flow meter feasible? (check one): ■ Yes ☐ No, if so, provide justification:	50
Provide the proposed maximum effluent flow in gpm.	100
Provide the average effluent flow in gpm.	50
If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:	N/A

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

F. Chemical and additive information

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

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

The Safety Data Sheets are provided in Appendix G of the RGP NOI. Dosage information for each chemical additive is provided in the RGP NOI narrative.

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

See attachment

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

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

(check one): ☐ Yes ☐ No

G. Endangered Species Act eligibility determination

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

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

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

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

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

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

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

H. National Historic Preservation Act eligibility determination

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

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

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

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

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

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

I. Supplemental information

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

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

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

J. Certification requirement

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

BMPP certification statement: A BMPP meeting the requirements of this general permit will be developed and implemented upon initiation of discharge.	
Notification provided to the appropriate State, including a copy of this NOI, if required.	Check one: Yes ■ No ☐
Notification provided to the municipality in which the discharge is located, including a copy of this NOI, if requested.	Check one: Yes ■ No ☐
Notification provided to the owner of a private or municipal storm sewer system, if such system is used for site discharges, including a copy of this NOI, if requested.	Check one: Yes ☐ No ■ NA ☐
Permission obtained from the owner of a private or municipal storm sewer system, if such system is used for site discharges. If yes, attach additional conditions. If no, attach explanation and timeframe for obtaining permission.	Check one: Yes ☐ No ■ NA ☐
Notification provided to the owner/operator of the area associated with activities covered by an additional discharge permit(s). Additional discharge permit is (check one): ■ RGP ☐ DGP ■ CGP ☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:	Check one: Yes ■ No ☐ NA ☐
Signature: 	Date: 8/16/2019
Print Name and Title: Matthew Calvert, Sr. Env. Specialist	

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 meeting the requirements of this general permit will be developed and implemented upon initiation of discharge.

Notification provided to the appropriate State, including a copy of this NOI, if required. Check one: Yes ■ No ☐

Notification provided to the municipality in which the discharge is located, including a copy of this NOI, if requested. Check one: Yes ■ No ☐

Notification provided to the owner of a private or municipal storm sewer system, if such system is used for site discharges, including a copy of this NOI, if requested. Check one: Yes ☐ No ■ NA ☐

Permission obtained from the owner of a private or municipal storm sewer system, if such system is used for site discharges. If yes, attach additional conditions. If no, attach explanation and timeframe for obtaining permission. Check one: Yes ☐ No ■ NA ☐

Notification provided to the owner/operator of the area associated with activities covered by an additional discharge permit(s). Additional discharge permit is (check one): ■ RGP ☐ DGP ■ CGP ☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify: Check one: Yes ■ No ☐ NA ☐

Signature: Alasdair Cunningham

Digitally signed by Alasdair Cunningham
DN: cn=Alasdair Cunningham, o=Charter Contracting, ou, email=acunningham@charter.us, c=US
Date: 2019.08.20 13:35:39 -04'00'

Date: 8/20/19

Print Name and Title: Alasdair Cunningham, Project Manager

APPENDIX B

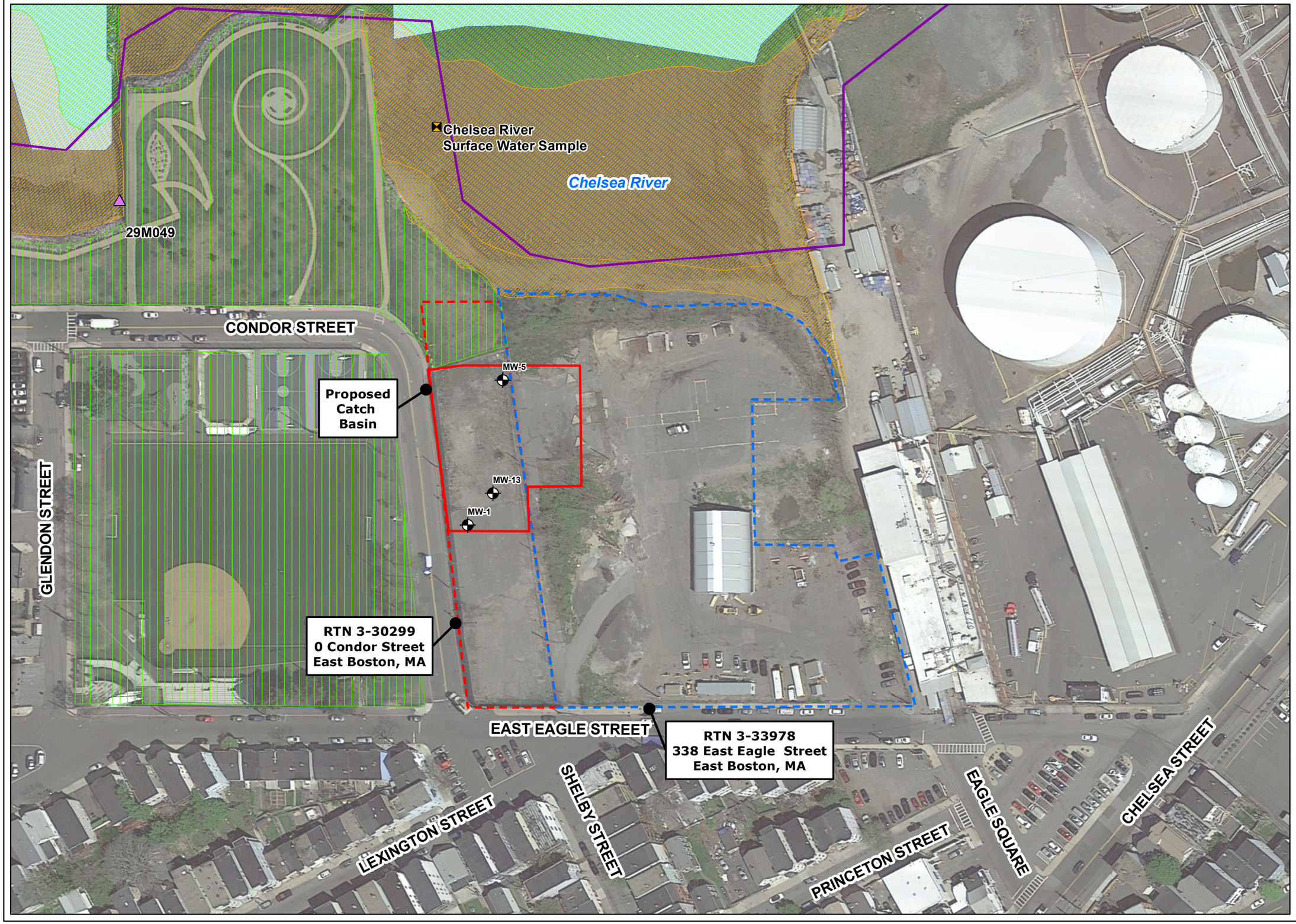


Figure 1: Aerial Dewatering Site Plan

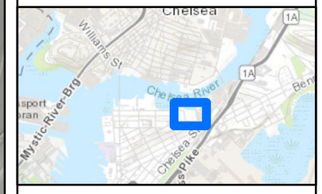
LEGEND

- Chelsea River Suface Water Sample
- Outfall
- Monitoring Well
- Substation Boundary

Disposal Site Boundary

- RTN-3-30299
- RTN-3-33978
- Protected and Recreational Open Space
- Major Drainage Basin
- MassDEP Open Water
- MassDEP Coastal Wetlands

LOCUS MAP



N

0 50 100

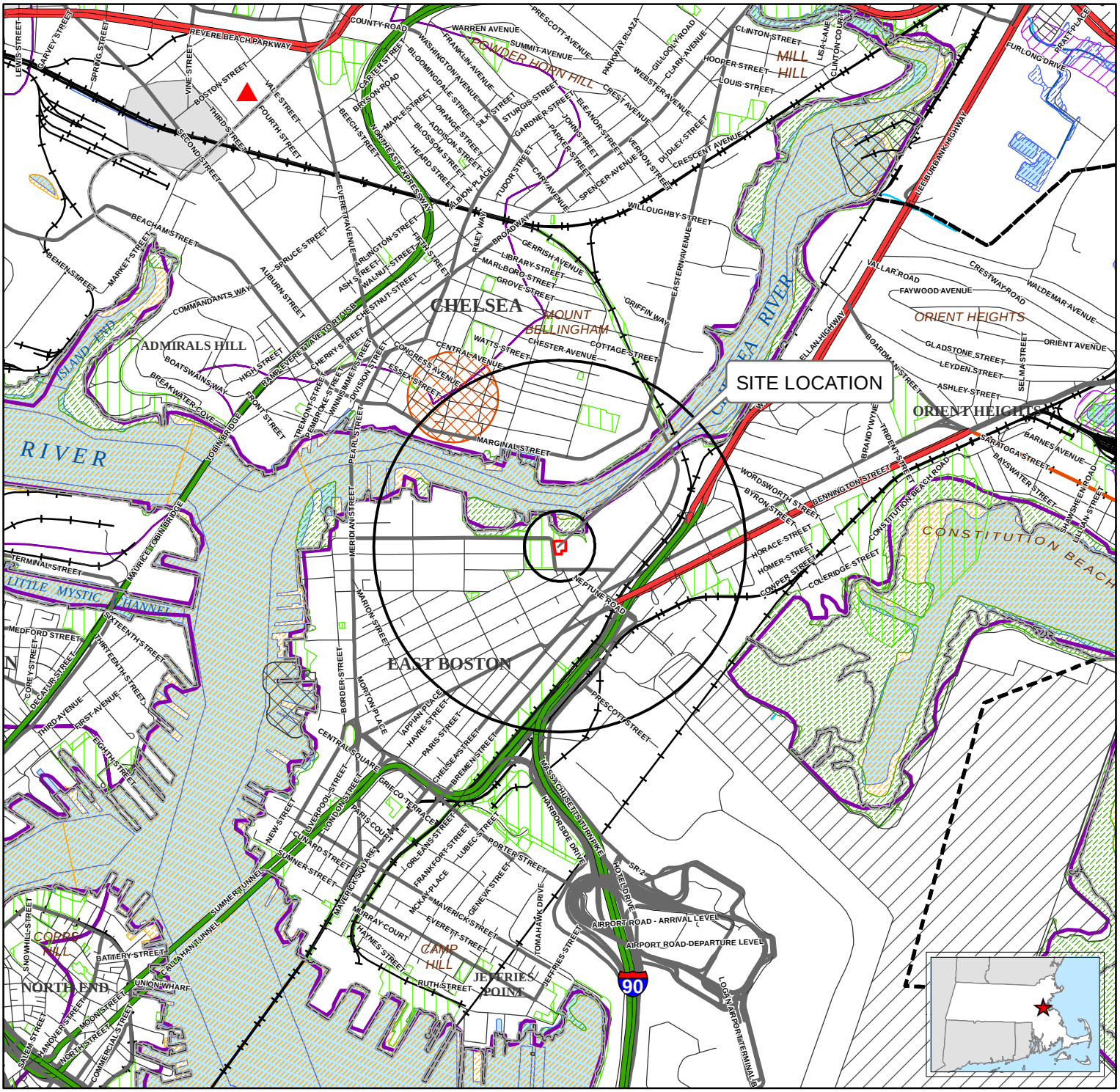
Feet

1:1,200

NOTES

Station 131
MCP Disposal Site Plan
East Boston, Massachusetts
August 2019

Tighe&Bond
Engineers | Environmental Specialists



Legend

- NHESP Certified Vernal Pools
- NHESP Potential Vernal Pools
- Non-Landfill Solid Waste Sites
- Community Public Water Supply - Surface Water
- Community Public Water Supply - Groundwater
- Non-Community Non-Transient Public Water Supply
- Non-Community Transient Public Water Supply
- Limited Access Highway
- Multi-Lane Highway, NOT Limited Access
- Other Numbered Highway
- Major Road - Collector
- Minor Street or Road
- Aqueducts
- Hydrologic Connections
- Stream/Intermittent Stream
- Powerline
- Pipeline
- Track or Trail
- Trains
- Public Surface Water Supply Protection Area (Zone A)
- DEP Approved Wellhead Protection Area (Zone I)
- DEP Approved Wellhead Protection Area (Zone II)
- DEP Interim Wellhead Protection Area (IWPA)
- Protected and Recreational Open Space
- Solid Waste Landfill
- Area of Critical Environmental Concern (ACEC)
- NHESP Priority Habitats for Rare Species
- NHESP Estimated Habitats for Rare Wildlife
- EPA Designated Sole Source Aquifer
- Major Drainage Basin
- Sub Drainage Basin
- MassDEP Open Water
- MassDEP Inland Wetlands
- MassDEP Coastal Wetlands
- MassDEP Not Interpreted Wetlands
- Public Surface Water Supply (PSWS)
- Water Bodies
- Non-Potential Drinking Water Source Area - High Yield
- Non-Potential Drinking Water Source Area - Medium Yield
- Potentially Productive Medium Yield Aquifer
- Potentially Productive High Yield Aquifer
- County Boundary
- Town Boundary
- Substation Boundary

1:24,000

0 1,000 2,000

Feet

N

FIGURE 2
PRIORITY RESOURCES

Eversource Station 131
East Eagle Street
East Boston, Massachusetts

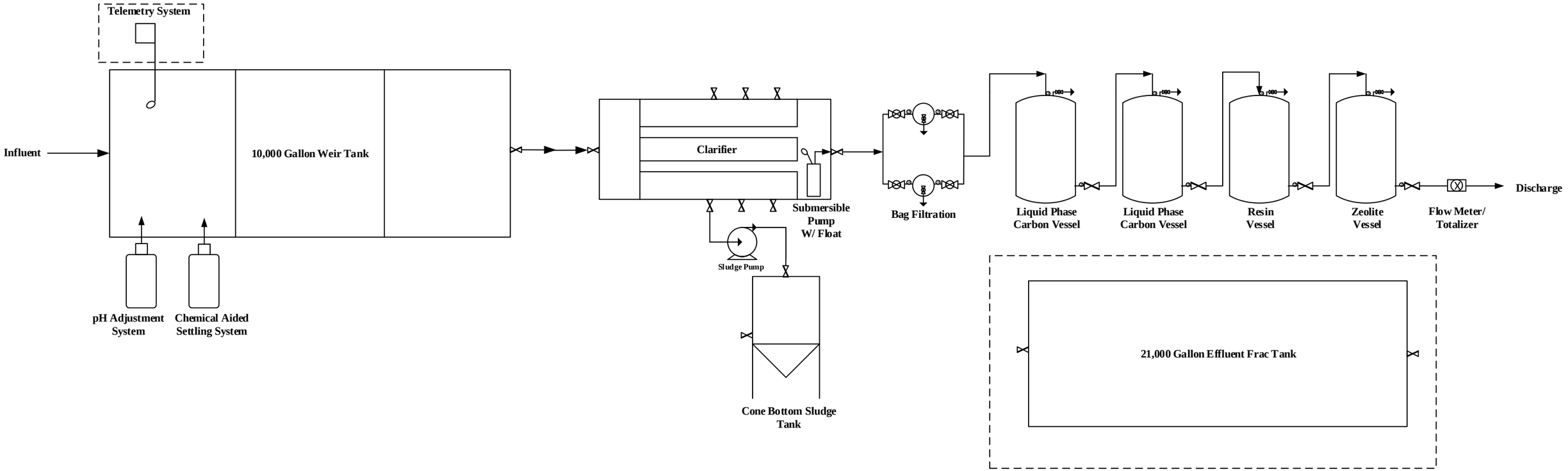
Data source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology
Circles indicate 500-foot and half-mile radii.
Data valid as of April 2019.

April 2019

Tighe&Bond
Engineers | Environmental Specialists

G:\GIS\MA\EversourceEnergy\E-0754\Mystic_EastEagle\avproj\MassGIS_Station131.mxd [Exported By: abc, 4/5/2019, 10:29:03 AM]

H-1512



Notes:
1. Figure not drawn to scale
2. System rated for 50 GPM
3. Sampling ports on all treatment system components
4. Weir tank will need to be elevated approx. 1' to facilitate gravity drain into clarifier

Key:
Piping/Hose
Ball Valve
Butterfly Valve
Gate Valve
Bleed Valve Assembly
Pressure Gauge
Check Valve
Optional

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

DESIGNED BY: LRT DRAWN BY: JHJ.
DATE: REVISION:

Figure 3:
Water Treatment System Schematic

Water Treatment System

Substation 131
331 East Eagle Street
East Boston, MA

PROJECT No. 2-1891

FIGURE No. 4

APPENDIX C

United States Department of the Interior

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

In Reply Refer To:
Consultation Code: 05E1NE00-2019-SLI-0725
Event Code: 05E1NE00-2019-E-01665
Project Name: Station 131

January 31, 2019

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-0725

Event Code: 05E1NE00-2019-E-01665

Project Name: Station 131

Project Type: ** OTHER **

Project Description: The project proposes the construction of a new electrical substation at 0 Condor Street in East Boston, Massachusetts.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/42.381994521331784N71.0282759117761W

Counties: Suffolk, MA

Endangered Species Act Species

There is a total of 0 threatened, endangered, or candidate species on this species list.

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

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

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

---

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

Critical habitats

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

Summary of Essential Fish Habitat (EFH) Designations

Name of Estuary/ Bay/ River: Boston Harbor, Massachusetts

10° x 10° latitude and longitude squares included in this bay or estuary or river (southeast corner boundaries):

4220/7100; 4210/7050; 4210/7100

Species	Eggs	Larvae	Juveniles	Adults	Spawning Adults
Atlantic salmon *(Salmo salar)*					
Atlantic cod *(Gadus morhua)*	S	S	M,S	M,S	S
haddock *(Melanogrammus aeglefinus)*	S	S			
pollock *(Pollachius virens)*	S	S	M,S		
whiting *(Merluccius bilinearis)*	S	S	M,S	M,S	
offshore hake *(Merluccius albidus)*					
red hake *(Urophycis chuss)*		S	S	S	
white hake *(Urophycis tenuis)*	S	S	S	S	
redfish *(Sebastes fasciatus)*	n/a				
witch flounder *(Glyptocephalus cynoglossus)*					
winter flounder *(Pleuronectes americanus)*	M,S	M,S	M,S	M,S	M,S
yellowtail flounder *(Pleuronectes ferruginea)*	S	S	S	S	S
windowpane flounder *(Scopthalmus aquosus)*	M,S	M,S	M,S	M,S	M,S
American plaice *(Hippoglossoides platessoides)*	S	S	S	S	S
ocean pout *(Macrozoarces americanus)*			S	S	
Atlantic halibut *(Hippoglossus hippoglossus)*	S	S	S	S	S
Atlantic sea scallop *(Placopecten magellanicus)*					
Atlantic sea herring *(Clupea harengus)*		S	M,S	M,S	
monkfish *(Lophius americanus)*					
bluefish *(Pomatomus saltatrix)*			M,S	M,S	
long finned squid *(Loligo pealei)*	n/a	n/a			

short finned squid *(Illex illecebrosus)*	n/a	n/a			
Atlantic butterfish *(Peprilus triacanthus)*	S	S			
Atlantic mackerel *(Scomber scombrus)*	M,S	M,S	M,S	M,S	
summer flounder *(Paralicthys dentatus)*					
scup *(Stenotomus chrysops)*					
black sea bass *(Centropristus striata)*					
surf clam *(Spisula solidissima)*	n/a	n/a			
ocean quahog *(Artica islandica)*	n/a	n/a			
spiny dogfish *(Squalus acanthias)*	n/a	n/a			
tilefish *(Lopholatilus chamaeleonticeps)*					

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN MASSACHUSETTS

COUNTY	SPECIES	FEDERAL STATUS	GENERAL LOCATION/HABITAT	TOWNS
Barnstable	Piping Plover	Threatened	Coastal Beaches	All Towns
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	All Towns
	Northeastern beach tiger beetle	Threatened	Coastal Beaches	Chatham
	Sandplain gerardia	Endangered	Open areas with sandy soils.	Sandwich and Falmouth.
	Northern Red-bellied Cooter	Endangered	Inland Ponds and Rivers	Bourne (north of the Cape Cod Canal)
	Red Knot[1]	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Berkshire	Bog Turtle	Threatened	Wetlands	Egremont and Sheffield
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Bristol	Piping Plover	Threatened	Coastal Beaches	Fairhaven, Dartmouth, Westport
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Fairhaven, New Bedford, Dartmouth, Westport
	Northern Red-bellied Cooter	Endangered	Inland Ponds and Rivers	Taunton
	Red Knot[1]	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Dukes	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	All Towns
	Piping Plover	Threatened	Coastal Beaches	All Towns
	Northeastern beach tiger beetle	Threatened	Coastal Beaches	Aquinnah and Chilmark
	Sandplain gerardia	Endangered	Open areas with sandy soils.	West Tisbury
	Red Knot[1]	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide

Updated 02/05/2016

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN MASSACHUSETTS

COUNTY	SPECIES	FEDERAL STATUS	GENERAL LOCATION/HABITAT	TOWNS
Essex	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Gloucester, Essex and Manchester
	Piping Plover	Threatened	Coastal Beaches	Gloucester, Essex, Ipswich, Rowley, Revere, Newbury, Newburyport and Salisbury
	Red Knot[1]	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Franklin	Northeastern bulrush	Endangered	Wetlands	Montague, Warwick
	Dwarf wedgemussel	Endangered	Mill River	Whately
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Hampshire	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Hadley
	Puritan tiger beetle	Threatened	Sandy beaches along the Connecticut River	Northampton and Hadley
	Dwarf wedgemussel	Endangered	Rivers and Streams.	Hatfield, Amherst and Northampton
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Hampden	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Southwick
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Middlesex	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Groton
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Nantucket	Piping Plover	Threatened	Coastal Beaches	Nantucket
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Nantucket
	American burying beetle	Endangered	Upland grassy meadows	Nantucket
	Red Knot[1]	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide

Updated 02/05/2016

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN MASSACHUSETTS

COUNTY	SPECIES	FEDERAL STATUS	GENERAL LOCATION/HABITAT	TOWNS
Plymouth	Piping Plover	Threatened	Coastal Beaches	Scituate, Marshfield, Duxbury, Plymouth, Wareham and Mattapoisett
	Northern Red-bellied Cooter	Endangered	Inland Ponds and Rivers	Kingston, Middleborough, Carver, Plymouth, Bourne, Wareham, Halifax, and Pembroke
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Plymouth, Marion, Wareham, and Mattapoisett.
	Red Knot[1]	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Suffolk	Piping Plover	Threatened	Coastal Beaches	Revere, Winthrop
	Red Knot[1]	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Worcester	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Leominster
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide

[1]Migratory only, scattered along the coast in small numbers

-Eastern cougar and gray wolf are considered extirpated in Massachusetts.
-Endangered gray wolves are not known to be present in Massachusetts, but dispersing individuals from source populations in Canada may occur statewide.
-Critical habitat for the Northern Red-bellied Cooter is present in Plymouth County.

Updated 02/05/2016

APPENDIX D

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

Search Criteria: Town(s): Boston; Place: East Boston; Street Name: Condor; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year
BOS.12872	Citizens Electric Light Company	84-92 Condor St	Boston	c 1886
BOS.20	Boston and Lockport Block Company	100 Condor St	Boston	1907
BOS.21	Boston and Lockport Block Company	102-140 Condor St	Boston	c 1920

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

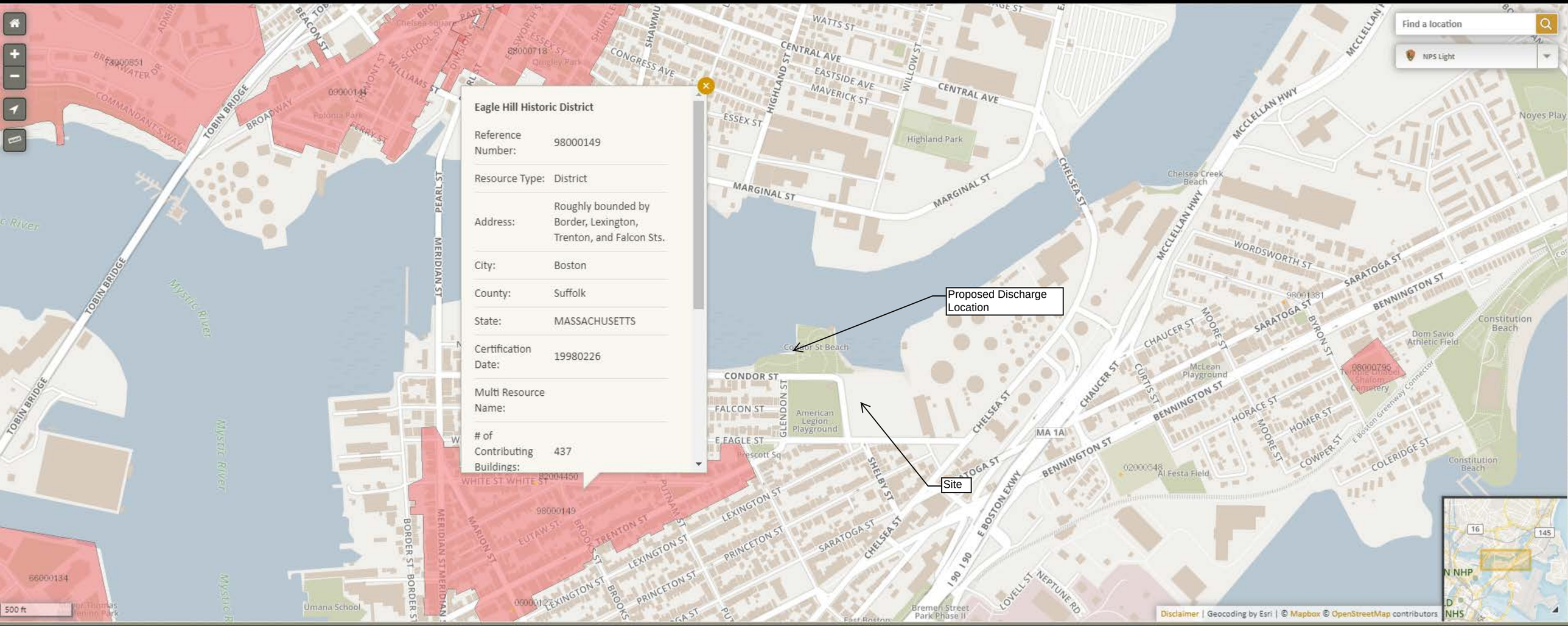
Search Criteria: Town(s): Boston; Place: East Boston; Street Name: East Eagle; Resource Type(s): ü, Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year
BOS.12873	Boston Ice Company Distribution Building	370 East Eagle St	Boston	c 1927

National Register of Historic Places

Public, non-restricted data depicting National Register spatial data processed by the Cultural Resources GIS facility. Data last updated in April, 2014.

National Park Service
U.S. Department of the Interior



Tighe&Bond

APPENDIX E

TABLE 1
Groundwater Remediation General Permit Analytical Results
Eversource Station 131
East Eagle Street
East Boston, MA

Monitoring Well ID Sample Date Lab Sample ID	**RGP Effluent Limits**	**MW-1** 11/27/2018 1811657-01	**MW-13** 11/27/2018 1811657-03	**MW-13F** 11/27/2018 1811657-04	**MW-1F** 11/27/2018 1811657-02	**MW-5** 11/27/2018 1811657-05	**MW-5F** 11/27/2018 1811657-06
Inorganics							
Ammonia (ug/L)	Report	1,230	1,210	1,080	3,190	6,510	4,500
Chloride (ug/L)	Report	7,830,000	10,100,000	10,100,000	8,440,000	23,900,000	24,000,000
Chlorine, Total Residual (ug/L)	7.5	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
Total Suspended Solids (ug/L)	**30,000**	**46,400,000**	**380,000**	**884,000**	**64,000**	**512,000**	**468,000**
Phenol (ug/L)	1,080	<100	<100	<100	<100	<100	<100
Metals SW-846 6010C-D (ug/l)							
Antimony	206	<100	<100	<100	<100	<100	<100
Arsenic	**36**	**484**	**193**	**112**	**431**	**89.6**	**49.5**
Cadmium	**8.9**	**10.2**	<10.0	<20.0	<20.0	<10.0	<20.0
Chromium	323	63.6	<40.0	<40.0	<40.0	58	<40.0
Chromium, hexavalent (Cr+6)	323	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
Chromium, trivalent (Cr+3)	323	63.6	<0.0400	<0.0400	<0.0400	58	<0.0400
Copper	**3.7**	1,000	<40.0	48	<40.0	1,030	82.8
Iron (Ferric)	**5,000**	**81,400**	**4,260**	**8,540**	**88,400**	**94,400**	**32,100**
Lead	**8.5**	**5,610**	<40.0	<40.0	<40.0	**2,250**	<40.0
Mercury	0.739	<0.2	<0.2	<0.20	<0.20	<0.2	<0.20
Nickel	1,450	<100	<100	<100	<100	<100	<100
Selenium	235.8	<100	<100	<100	<100	<100	<100
Silver	35.1	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Zinc	**86**	**1,460**	<100	159	694	**3,300**	895
Cyanide SW-846 9014 (ug/l)							
Total Cyanide	**1.0**	<5.00	<5.00	<5.00	<5.00	**111**	**43.9**
Non-Halogenated VOCs (ug/l)							
BTEX							
Benzene	5	4.6	<0.5	<0.5	4.8	<0.5	<5.0
Toluene	NE	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
Ethylbenzene	NE	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
Total Xylenes	NE	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
Total BTEX	100	4.6	ND	ND	4.8	ND	ND
1,4-Dioxane	200	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
Acetone	7,970	<5.0	<5.0	<5.0	<5.0	<5.0	<50.0
Halogenated VOCs (ug/l)							
Carbon tetrachloride	4.4	<0.3	<0.3	<0.3	<0.3	<0.3	<3.0
Dichlorobenzene							
1,2-Dichlorobenzene	600	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
1,3-Dichlorobenzene	320	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
1,4-Dichlorobenzene	5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
Total Dichlorobenzene	NE	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	70	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
1,2-Dichloroethane	5.0	3.2	<0.5	<0.5	3.7	<0.5	<5.0
1,1-Dichloroethene	3.2	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
Methylene chloride	4.6	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
1,1,1-Trichloroethane	200	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
1,1,2-Trichloroethane	5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
Tetrachloroethylene	5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
Trichloroethene	5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
cis-1,2-Dichloroethene	70	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
Vinyl chloride	2.0	<0.2	<0.2	<0.2	<0.2	<0.2	<2.0
1,2-Dibromoethane (EDB)	0.05	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Non-Halogenated SVOCs (ug/l)							
Phthalates							
bis(2-Ethylhexyl)phthalate	101	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Butyl benzyl phthalate	NE	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Di-N-Butyl phthalate	NE	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Diethyl phthalate	NE	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Dimethyl phthalate	NE	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Di-N-Octyl phthalate	NE	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Total Phthalates	190	ND	ND	ND	ND	ND	ND
Group I PAHs							
Benzo(a)anthracene	**0.0038**	**2.77**	<0.10	<0.10	<0.10	**0.29**	<0.10
Benzo(a)pyrene	**0.0038**	**2.82**	<0.10	<0.10	<0.10	**0.24**	<0.10
Benzo(b)fluoranthene	**0.0038**	**2.6**	<0.10	<0.10	<0.10	**0.34**	<0.10
Benzo(k)fluoranthene	**0.0038**	**1.43**	<0.10	<0.10	<0.10	**0.2**	<0.10
Chrysene	**0.0038**	**2.7**	<0.10	<0.10	<0.10	**0.29**	<0.10
Dibenz(a,h)anthracene	**0.0038**	**0.47**	<0.10	<0.10	<0.10	<0.10	<0.10
Indeno(1,2,3-cd)pyrene	**0.0038**	**1.58**	<0.10	<0.10	<0.10	**0.18**	<0.10
Total Group I PAHs	**1.0**	**14.37**	ND	ND	ND	**1.54**	ND
Group II PAHs							
Acenaphthene	NE	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Acenaphthylene	NE	0.4	<0.40	<0.40	<0.40	<0.40	<0.40
Anthracene	NE	1.15	<0.40	<0.40	<0.40	<0.40	<0.40
Benzo(g,h,i)perylene	NE	1.68	<0.40	<0.40	<0.40	<0.40	<0.40
Fluoranthene	NE	6.38	<0.40	<0.40	<0.40	0.73	<0.40
Fluorene	NE	0.53	<0.40	<0.40	<0.40	<0.40	<0.40
Phenanthrene	NE	4.18	<0.40	<0.40	<0.40	0.61	<0.40
Pyrene	NE	6.1	<0.40	<0.40	<0.40	0.67	<0.40
Total Group II PAHs	100	20.42	ND	ND	ND	2.01	ND
Naphthalene	20	<0.5	<0.5	<0.5	<0.5	0.6	<5.0
Halogenated SVOCs							
PCBs SW-846 8082A (ug/l)							
Aroclor-1016	NE	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50
Aroclor-1221	NE	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50
Aroclor-1232	NE	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50
Aroclor-1242	NE	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50
Aroclor-1248	NE	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50
Aroclor-1254	NE	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50
Aroclor-1260	NE	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50
Aroclor-1262	NE	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50
Aroclor-1268	NE	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50
Total PCBs	0.000064	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00
Pentachlorophenol	1.0	<1.80	<1.80	<1.80	<1.80	<1.80	<1.80
Fuel Parameters							
TPH (mg/l)	5.0	<5	<5	<5	<5	<5	<5
Ethanol (ug/L)	Report	<10,000	<10,000	<10,000	<10,000	<10,000	<10,000
Methyl tert-butyl ether	70	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
tert-Amyl Methyl Ether (TAME)	120	<1.0	<1.0	<1.0	<1.0	<1.0	<10.0
tert Butyl Alcohol (ug/L)	90	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0

Notes
TPH - Total Petroleum Hydrocarbons
PCBs- Polychlorinated Biphenyls
VOCs- Volatile Organic Compounds
SVOCs- Semi-Volatile Organic Compounds
Results presented in micrograms per liter (µg/L), are equivalent to parts per billion (ppb)
Results presented in milligrams per liter (mg/L), are equivalent to parts per billion (ppm)
< xx indicates compound was not detected. Detection limit is provided.
Boxed/Bold values indicate exceedance of indicated standard
NE- Not established

TABLE 2
Chelsea River Surface Water Sample
Eversource Station 131
East Eagle Street
East Boston, MA

Sample Location	**Chelsea River**
Sample Date	4/24/2019
Lab Sample ID	1904739-01
Classic Chemistry	
Ammonia (mg/L)	0.3
Salinity (ppt)	16.4
pH	8.77
Temperature (degrees Celsius)	14.4
Total Metals (ug/L)	
Antimony	<5
Arsenic	3.8
Cadmium	<0.5
Chromium	<2
Copper	26.8
Iron	8200
Lead	40.9
Mercury	<0.2
Nickel	<5
Selenium	<5
Silver	<2.5
Zinc	65.4

Notes
pH and temperature were recorded with a pH pen in the field
< xx indicates compound was not detected. Detection limit is provided.

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

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

APPENDIX F

CERTIFICATE OF ANALYSIS

Michael Martin
Tighe & Bond
4 Barlows Landing Road, Unit 15
Pocasset, MA 02559

RE: Eversource Station 131 - RGP (140754003A)
ESS Laboratory Work Order Number: 1811657

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 5:42 pm, Dec 06, 2018

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP

ESS Laboratory Work Order: 1811657

SAMPLE RECEIPT

The following samples were received on November 27, 2018 for the analyses specified on the enclosed Chain of Custody Record.

The samples and analyses listed below were analyzed in accordance with the 2017 Remediation General Permit under the National Pollutant Discharge Elimination System (NPDES).

ESS Laboratory is unable to achieve the required detection limit of 0.4 mg/L for Ethanol for the RGP permit. We have also been unable to procure a subcontract laboatory that is able to achieve this limit. The data for Ethanol has been reported using our current method reporting limit.

Samples MW-1F, MW-13F, and MW-5F were field filtered for all parameters listed on the COC.

Lab Number	Sample Name	Matrix	Analysis
1811657-01	MW-1	Ground Water	1664A, 200.7, 245.1, 2540D, 300.0, 350.1, 3500Cr B-2009, 4500 CN CE, 4500Cl D, 504.1, 524.2, 608.3, 625.1 SIM, 8270D SIM, ASTM D3695
1811657-02	MW-1F	Ground Water	1664A, 200.7, 245.1, 2540D, 300.0, 350.1, 3500Cr B-2009, 4500 CN CE, 4500Cl D, 504.1, 524.2, 608.3, 625.1 SIM, 8270D SIM, ASTM D3695
1811657-03	MW-13	Ground Water	1664A, 200.7, 245.1, 2540D, 300.0, 3113B, 350.1, 3500Cr B-2009, 4500 CN CE, 4500Cl D, 504.1, 524.2, 608.3, 625.1 SIM, 8270D SIM, ASTM D3695
1811657-04	MW-13F	Ground Water	1664A, 200.7, 245.1, 2540D, 300.0, 3113B, 350.1, 3500Cr B-2009, 4500 CN CE, 4500Cl D, 504.1, 524.2, 608.3, 625.1 SIM, 8270D SIM, ASTM D3695
1811657-05	MW-5	Ground Water	1664A, 200.7, 245.1, 2540D, 300.0, 3113B, 350.1, 3500Cr B-2009, 4500 CN CE, 4500Cl D, 504.1, 524.2, 608.3, 625.1 SIM, 8270D SIM, ASTM D3695
1811657-06	MW-5F	Ground Water	1664A, 200.7, 245.1, 2540D, 300.0, 3113B, 350.1, 3500Cr B-2009, 4500 CN CE, 4500Cl D, 504.1, 524.2, 608.3, 625.1 SIM, 8270D SIM, ASTM D3695

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP

ESS Laboratory Work Order: 1811657

PROJECT NARRATIVE

504.1 1,2-Dibromoethane / 1,2-Dibromo-3-chloropropane

1811657-02	**Field filtered**
1811657-04	**Field filtered**
1811657-06	**Field filtered**

524.2 Volatile Organic Compounds

1811657-02	**Field filtered**
1811657-03	**Surrogate recovery(ies) above upper control limit (S+).**
	1,2-Dichlorobenzene-d4 (121% @ 80-120%)
1811657-04	**Field filtered**
1811657-04	**Surrogate recovery(ies) above upper control limit (S+).**
	1,2-Dichlorobenzene-d4 (121% @ 80-120%)
1811657-05	**Surrogate recovery(ies) outside of criteria. Reextraction/Reanalysis confirms results (SC).**
	1,2-Dichlorobenzene-d4 (131% @ 80-120%)
1811657-06	**Field filtered**

608.3 Polychlorinated Biphenyls (PCB)

1811657-02	**Field filtered**
1811657-04	**Field filtered**
1811657-06	**Field filtered**

625.1(SIM) Semi-Volatile Organic Compounds

1811657-01	**Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
	1,2-Dichlorobenzene-d4 (3% @ 30-130%), 2-Fluorobiphenyl (5% @ 30-130%), Nitrobenzene-d5 (15% @ 30-130%), p-Terphenyl-d14 (8% @ 30-130%)
1811657-02	**Field filtered**
1811657-02	**Surrogate recovery(ies) above upper control limit (S+).**
	2,4,6-Tribromophenol (120% @ 15-110%)
1811657-03	**Surrogate recovery(ies) above upper control limit (S+).**
	2,4,6-Tribromophenol (128% @ 15-110%)
1811657-04	**Field filtered**
1811657-04	**Surrogate recovery(ies) above upper control limit (S+).**
	2,4,6-Tribromophenol (115% @ 15-110%)
1811657-05	**Surrogate recovery(ies) below lower control limit (S-).**
	1,2-Dichlorobenzene-d4 (22% @ 30-130%)
1811657-06	**Field filtered**
1811657-06	**Surrogate recovery(ies) below lower control limit (S-).**
	1,2-Dichlorobenzene-d4 (20% @ 30-130%)
C8K0527-CCV1	**Continuing Calibration %Diff/Drift is above control limit (CD+).**
	2,4,6-Tribromophenol (36% @ 20%)
C8K0527-TUN1	**Pentachlorophenol tailing factor > 2.**
CK83001-BLK1	**Surrogate recovery(ies) below lower control limit (S-).**

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP ESS Laboratory Work Order: 1811657

1,2-Dichlorobenzene-d4 (18% @ 30-130%)

CK83001-BS1 **Surrogate recovery(ies) above upper control limit (S+).**
2,4,6-Tribromophenol (127% @ 15-110%)

CK83001-BSD1 **Relative percent difference for duplicate is outside of criteria (D+).**
Acenaphthene (25% @ 20%), Acenaphthylene (21% @ 20%), Naphthalene (47% @ 20%), Pentachlorophenol (26% @ 20%)

CK83001-BSD1 **Surrogate recovery(ies) above upper control limit (S+).**
2,4,6-Tribromophenol (111% @ 15-110%)

CK83001-BSD1 **Surrogate recovery(ies) below lower control limit (S-).**
1,2-Dichlorobenzene-d4 (22% @ 30-130%)

8270D(SIM) Semi-Volatile Organic Compounds w/ Isotope Dilution

1811657-02 **Field filtered**
1811657-04 **Field filtered**
1811657-06 **Field filtered**
C8L0057-TUN1 **Benzidine tailing factor >2.**
C8L0057-TUN1 **Pentachlorophenol tailing factor > 2.**

Alcohol Scan by GC/FID

1811657-02 **Field filtered**
1811657-04 **Field filtered**
1811657-06 **Field filtered**

Classical Chemistry

1811657-01 **The maximum holding time listed in 40 CFR Part 136 Table II for pH, Dissolved Oxygen, Sulfite and Residual Chlorine is fifteen minutes.**
1811657-02 **Field filtered**
1811657-02 **The maximum holding time listed in 40 CFR Part 136 Table II for pH, Dissolved Oxygen, Sulfite and Residual Chlorine is fifteen minutes.**
1811657-03 **The maximum holding time listed in 40 CFR Part 136 Table II for pH, Dissolved Oxygen, Sulfite and Residual Chlorine is fifteen minutes.**
1811657-04 **Field filtered**
1811657-04 **The maximum holding time listed in 40 CFR Part 136 Table II for pH, Dissolved Oxygen, Sulfite and Residual Chlorine is fifteen minutes.**
1811657-05 **The maximum holding time listed in 40 CFR Part 136 Table II for pH, Dissolved Oxygen, Sulfite and Residual Chlorine is fifteen minutes.**
1811657-06 **Field filtered**
1811657-06 **The maximum holding time listed in 40 CFR Part 136 Table II for pH, Dissolved Oxygen, Sulfite and Residual Chlorine is fifteen minutes.**

Dissolved Metals

1811657-02 **Elevated Method Reporting Limits due to sample matrix (EL).**
Antimony , Cadmium , Chromium , Copper , Lead , Nickel , Selenium , Silver
1811657-02 **Field filtered**
1811657-04 **Elevated Method Reporting Limits due to sample matrix (EL).**
Antimony , Cadmium , Chromium , Lead , Nickel , Selenium , Silver
1811657-04 **Field filtered**

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP ESS Laboratory Work Order: 1811657

1811657-06 **Elevated Method Reporting Limits due to sample matrix (EL).**
Antimony , Cadmium , Chromium , Lead , Nickel , Selenium , Silver
1811657-06 **Field filtered**

Total Metals
1811657-01 **Elevated Method Reporting Limits due to sample matrix (EL).**
Antimony , Nickel , Selenium , Silver
1811657-02 **Field filtered**
1811657-03 **Elevated Method Reporting Limits due to sample matrix (EL).**
Antimony , Cadmium , Chromium , Copper , Lead , Nickel , Selenium , Silver , Zinc
1811657-04 **Field filtered**
1811657-05 **Elevated Method Reporting Limits due to sample matrix (EL).**
Antimony , Cadmium , Nickel , Selenium , Silver
1811657-06 **Field filtered**

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

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Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP

ESS Laboratory Work Order: 1811657

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH
MADEP 04-2.1 - VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-1
Date Sampled: 11/27/18 08:00
Percent Solids: N/A

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-01
Sample Matrix: Ground Water
Units: ug/L

Extraction Method: 3005A/200.7

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	**EL** ND (100)		200.7		20	KJK	12/04/18 18:53	100	10	CK82842
Arsenic	**484** (100)		200.7		20	KJK	12/04/18 18:53	100	10	CK82842
Cadmium	**10.2** (10.0)		200.7		20	KJK	12/04/18 18:53	100	10	CK82842
Chromium	**63.6** (40.0)		200.7		20	KJK	12/04/18 18:53	100	10	CK82842
Chromium III	**63.6** (40.0)		200.7		20	CCP	12/04/18 18:53	1	1	[CALC]
Copper	**1000** (40.0)		200.7		20	KJK	12/04/18 18:53	100	10	CK82842
Hardness	**1010000** (1650)		200.7		20	KJK	12/04/18 18:53	1	1	[CALC]
Iron	**81400** (200)		200.7		20	KJK	12/04/18 18:53	100	10	CK82842
Lead	**5610** (40.0)		200.7		20	KJK	12/04/18 18:53	100	10	CK82842
Mercury	ND (0.2)		245.1		1	MJV	11/30/18 10:05	20	40	CK82843
Nickel	**EL** ND (100)		200.7		20	KJK	12/04/18 18:53	100	10	CK82842
Selenium	**EL** ND (100)		200.7		20	KJK	12/04/18 18:53	100	10	CK82842
Silver	**EL** ND (10.0)		200.7		20	KJK	12/04/18 18:53	100	10	CK82842
Zinc	**1460** (100)		200.7		20	KJK	12/04/18 18:53	100	10	CK82842

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-1
Date Sampled: 11/27/18 08:00
Percent Solids: N/A
Initial Volume: 25
Final Volume: 25
Extraction Method: 524.2

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

524.2 Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1-Trichloroethane	ND (0.5)		524.2		1	11/29/18 18:35	C8K0504	CK82955
1,1,2-Trichloroethane	ND (0.5)		524.2		1	11/29/18 18:35	C8K0504	CK82955
1,1-Dichloroethane	ND (0.5)		524.2		1	11/29/18 18:35	C8K0504	CK82955
1,1-Dichloroethene	ND (0.5)		524.2		1	11/29/18 18:35	C8K0504	CK82955
1,2-Dichlorobenzene	ND (0.5)		524.2		1	11/29/18 18:35	C8K0504	CK82955
1,2-Dichloroethane	**3.2** (0.5)		524.2		1	11/29/18 18:35	C8K0504	CK82955
1,3-Dichlorobenzene	ND (0.5)		524.2		1	11/29/18 18:35	C8K0504	CK82955
1,4-Dichlorobenzene	ND (0.5)		524.2		1	11/29/18 18:35	C8K0504	CK82955
Acetone	ND (5.0)		524.2		1	11/29/18 18:35	C8K0504	CK82955
Benzene	**4.6** (0.5)		524.2		1	11/29/18 18:35	C8K0504	CK82955
Carbon Tetrachloride	ND (0.3)		524.2		1	11/29/18 18:35	C8K0504	CK82955
cis-1,2-Dichloroethene	ND (0.5)		524.2		1	11/29/18 18:35	C8K0504	CK82955
Ethylbenzene	ND (0.5)		524.2		1	11/29/18 18:35	C8K0504	CK82955
Methyl tert-Butyl Ether	ND (0.5)		524.2		1	11/29/18 18:35	C8K0504	CK82955
Methylene Chloride	ND (0.5)		524.2		1	11/29/18 18:35	C8K0504	CK82955
Naphthalene	ND (0.5)		524.2		1	11/29/18 18:35	C8K0504	CK82955
Tertiary-amyl methyl ether	ND (1.0)		524.2		1	11/29/18 18:35	C8K0504	CK82955
Tertiary-butyl Alcohol	ND (25.0)		524.2		1	11/29/18 18:35	C8K0504	CK82955
Tetrachloroethene	ND (0.5)		524.2		1	11/29/18 18:35	C8K0504	CK82955
Toluene	ND (0.5)		524.2		1	11/29/18 18:35	C8K0504	CK82955
Trichloroethene	ND (0.5)		524.2		1	11/29/18 18:35	C8K0504	CK82955
Vinyl Chloride	ND (0.2)		524.2		1	11/29/18 18:35	C8K0504	CK82955
Xylene O	ND (0.5)		524.2		1	11/29/18 18:35	C8K0504	CK82955
Xylene P,M	ND (0.5)		524.2		1	11/29/18 18:35	C8K0504	CK82955

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*109 %*		*80-120*
Surrogate: 4-Bromofluorobenzene	*106 %*		*80-120*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-1
Date Sampled: 11/27/18 08:00
Percent Solids: N/A
Initial Volume: 250
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: CAD
Prepared: 11/28/18 10:38

608.3 Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.20)		608.3		1	11/29/18 18:07		CK82703
Aroclor 1221	ND (0.20)		608.3		1	11/29/18 18:07		CK82703
Aroclor 1232	ND (0.20)		608.3		1	11/29/18 18:07		CK82703
Aroclor 1242	ND (0.20)		608.3		1	11/29/18 18:07		CK82703
Aroclor 1248	ND (0.20)		608.3		1	11/29/18 18:07		CK82703
Aroclor 1254	ND (0.20)		608.3		1	11/29/18 18:07		CK82703
Aroclor 1260	ND (0.20)		608.3		1	11/29/18 18:07		CK82703
Aroclor 1262	ND (0.20)		608.3		1	11/29/18 18:07		CK82703
Aroclor 1268	ND (0.20)		608.3		1	11/29/18 18:07		CK82703

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*58 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*64 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*65 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*74 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-1
Date Sampled: 11/27/18 08:00
Percent Solids: N/A
Initial Volume: 500
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: VSC
Prepared: 11/30/18 11:44

625.1(SIM) Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Acenaphthene	ND (0.40)		625.1 SIM		1	11/30/18 18:57	C8K0527	CK83001
Acenaphthylene	**0.40** (0.40)		625.1 SIM		1	11/30/18 18:57	C8K0527	CK83001
Anthracene	**1.15** (0.40)		625.1 SIM		1	11/30/18 18:57	C8K0527	CK83001
Benzo(a)anthracene	**2.77** (0.10)		625.1 SIM		1	11/30/18 18:57	C8K0527	CK83001
Benzo(a)pyrene	**2.82** (0.10)		625.1 SIM		1	11/30/18 18:57	C8K0527	CK83001
Benzo(b)fluoranthene	**2.60** (0.10)		625.1 SIM		1	11/30/18 18:57	C8K0527	CK83001
Benzo(g,h,i)perylene	**1.68** (0.40)		625.1 SIM		1	11/30/18 18:57	C8K0527	CK83001
Benzo(k)fluoranthene	**1.43** (0.10)		625.1 SIM		1	11/30/18 18:57	C8K0527	CK83001
bis(2-Ethylhexyl)phthalate	ND (5.00)		625.1 SIM		1	11/30/18 18:57	C8K0527	CK83001
Butylbenzylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 18:57	C8K0527	CK83001
Chrysene	**2.70** (0.10)		625.1 SIM		1	11/30/18 18:57	C8K0527	CK83001
Dibenzo(a,h)Anthracene	**0.47** (0.10)		625.1 SIM		1	11/30/18 18:57	C8K0527	CK83001
Diethylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 18:57	C8K0527	CK83001
Dimethylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 18:57	C8K0527	CK83001
Di-n-butylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 18:57	C8K0527	CK83001
Di-n-octylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 18:57	C8K0527	CK83001
Fluoranthene	**6.38** (0.40)		625.1 SIM		1	11/30/18 18:57	C8K0527	CK83001
Fluorene	**0.53** (0.40)		625.1 SIM		1	11/30/18 18:57	C8K0527	CK83001
Indeno(1,2,3-cd)Pyrene	**1.58** (0.10)		625.1 SIM		1	11/30/18 18:57	C8K0527	CK83001
Naphthalene	ND (0.40)		625.1 SIM		1	11/30/18 18:57	C8K0527	CK83001
Pentachlorophenol	ND (1.80)		625.1 SIM		1	11/30/18 18:57	C8K0527	CK83001
Phenanthrene	**4.18** (0.40)		625.1 SIM		1	11/30/18 18:57	C8K0527	CK83001
Pyrene	**6.10** (0.40)		625.1 SIM		1	11/30/18 18:57	C8K0527	CK83001

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*3 %*	*SM*	*30-130*
Surrogate: 2,4,6-Tribromophenol	*34 %*		*15-110*
Surrogate: 2-Fluorobiphenyl	*5 %*	*SM*	*30-130*
Surrogate: Nitrobenzene-d5	*15 %*	*SM*	*30-130*
Surrogate: p-Terphenyl-d14	*8 %*	*SM*	*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-1
Date Sampled: 11/27/18 08:00
Percent Solids: N/A
Initial Volume: 500
Final Volume: 0.5
Extraction Method: 3535A

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: VSC
Prepared: 11/28/18 17:00

8270D(SIM) Semi-Volatile Organic Compounds w/ Isotope Dilution

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,4-Dioxane	ND (0.250)		8270D SIM		1	11/30/18 2:47	C8K0510	CK82749

	%Recovery	Qualifier	Limits
Surrogate: 1,4-Dioxane-d8	19 %		15-115

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-1
Date Sampled: 11/27/18 08:00
Percent Solids: N/A

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-01
Sample Matrix: Ground Water

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Ammonia as N	**1.23** (0.10)		350.1		1	JLK	12/03/18 20:25	mg/L	CK83017
Chloride	**7830** (1000)		300.0		2000	JLK	11/30/18 18:07	mg/L	CK83048
Hexavalent Chromium	ND (10.0)		3500Cr B-2009		1	CCP	11/27/18 21:15	ug/L	CK82727
Total Cyanide	ND (5.00)		4500 CN CE		1	EEM	11/30/18 13:20	ug/L	CK83019
Total Petroleum Hydrocarbon	ND (5)		1664A		1	LAB	12/03/18 8:08	mg/L	CK82904
Total Residual Chlorine	ND (20.0)		4500Cl D		1	JLK	11/27/18 22:03	ug/L	CK82726
Total Suspended Solids	**46400** (200)		2540D		1	CCP	11/30/18 18:18	mg/L	CK83036

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-1
Date Sampled: 11/27/18 08:00
Percent Solids: N/A
Initial Volume: 35
Final Volume: 2
Extraction Method: 504/8011

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: SMR
Prepared: 12/3/18 11:25

504.1 1,2-Dibromoethane / 1,2-Dibromo-3-chloropropane

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2-Dibromoethane	ND (0.015)		504.1		1	12/03/18 21:15		CL80333

	%Recovery	Qualifier	Limits
Surrogate: Pentachloroethane	*105 %*		*30-150*
Surrogate: Pentachloroethane [2C]	*105 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-1
Date Sampled: 11/27/18 08:00
Percent Solids: N/A
Initial Volume: 1
Final Volume: 1
Extraction Method: No Prep

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-01
Sample Matrix: Ground Water
Units: mg/L
Analyst: ZLC
Prepared: 12/3/18 8:01

Alcohol Scan by GC/FID

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Sequence	Batch
Ethanol	ND (10)		ASTM D3695		1	ZLC	12/04/18 10:09		CL80301

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-1F
Date Sampled: 11/27/18 08:30
Percent Solids: N/A

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-02
Sample Matrix: Ground Water
Units: ug/L

Extraction Method: 3005A/200.7

Dissolved Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	**EL** ND (100)		200.7		20	KJK	12/04/18 18:57	100	10	CK82842
Arsenic	**431** (100)		200.7		20	KJK	12/04/18 18:57	100	10	CK82842
Cadmium	**EL** ND (20.0)		200.7		20	KJK	12/04/18 18:57	100	10	CK82842
Chromium	**EL** ND (40.0)		200.7		20	KJK	12/04/18 18:57	100	10	CK82842
Copper	**EL** ND (40.0)		200.7		20	KJK	12/04/18 18:57	100	10	CK82842
Iron	**88400** (200)		200.7		20	KJK	12/04/18 18:57	100	10	CK82842
Lead	**EL** ND (40.0)		200.7		20	KJK	12/04/18 18:57	100	10	CK82842
Mercury	ND (0.20)		245.1		1	MJV	11/30/18 10:07	20	40	CK82843
Nickel	**EL** ND (100)		200.7		20	KJK	12/04/18 18:57	100	10	CK82842
Selenium	**EL** ND (100)		200.7		20	KJK	12/04/18 18:57	100	10	CK82842
Silver	**EL** ND (10.0)		200.7		20	KJK	12/04/18 18:57	100	10	CK82842
Zinc	**694** (100)		200.7		20	KJK	12/04/18 18:57	100	10	CK82842

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-1F
Date Sampled: 11/27/18 08:30
Percent Solids: N/A

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-02
Sample Matrix: Ground Water
Units: ug/L

Extraction Method: [CALC]

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Chromium III	ND (40.0)		200.7		20	CCP	12/04/18 18:57	1	1	[CALC]
Hardness	**1100000** (1650)		200.7		20	KJK	12/04/18 18:57	1	1	[CALC]

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-1F
Date Sampled: 11/27/18 08:30
Percent Solids: N/A
Initial Volume: 25
Final Volume: 25
Extraction Method: 524.2

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-02
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

524.2 Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1-Trichloroethane	ND (0.5)		524.2		1	11/29/18 19:10	C8K0504	CK82955
1,1,2-Trichloroethane	ND (0.5)		524.2		1	11/29/18 19:10	C8K0504	CK82955
1,1-Dichloroethane	ND (0.5)		524.2		1	11/29/18 19:10	C8K0504	CK82955
1,1-Dichloroethene	ND (0.5)		524.2		1	11/29/18 19:10	C8K0504	CK82955
1,2-Dichlorobenzene	ND (0.5)		524.2		1	11/29/18 19:10	C8K0504	CK82955
1,2-Dichloroethane	**3.7** (0.5)		524.2		1	11/29/18 19:10	C8K0504	CK82955
1,3-Dichlorobenzene	ND (0.5)		524.2		1	11/29/18 19:10	C8K0504	CK82955
1,4-Dichlorobenzene	ND (0.5)		524.2		1	11/29/18 19:10	C8K0504	CK82955
Acetone	ND (5.0)		524.2		1	11/29/18 19:10	C8K0504	CK82955
Benzene	**4.8** (0.5)		524.2		1	11/29/18 19:10	C8K0504	CK82955
Carbon Tetrachloride	ND (0.3)		524.2		1	11/29/18 19:10	C8K0504	CK82955
cis-1,2-Dichloroethene	ND (0.5)		524.2		1	11/29/18 19:10	C8K0504	CK82955
Ethylbenzene	ND (0.5)		524.2		1	11/29/18 19:10	C8K0504	CK82955
Methyl tert-Butyl Ether	ND (0.5)		524.2		1	11/29/18 19:10	C8K0504	CK82955
Methylene Chloride	ND (0.5)		524.2		1	11/29/18 19:10	C8K0504	CK82955
Naphthalene	ND (0.5)		524.2		1	11/29/18 19:10	C8K0504	CK82955
Tertiary-amyl methyl ether	ND (1.0)		524.2		1	11/29/18 19:10	C8K0504	CK82955
Tertiary-butyl Alcohol	ND (25.0)		524.2		1	11/29/18 19:10	C8K0504	CK82955
Tetrachloroethene	ND (0.5)		524.2		1	11/29/18 19:10	C8K0504	CK82955
Toluene	ND (0.5)		524.2		1	11/29/18 19:10	C8K0504	CK82955
Trichloroethene	ND (0.5)		524.2		1	11/29/18 19:10	C8K0504	CK82955
Vinyl Chloride	ND (0.2)		524.2		1	11/29/18 19:10	C8K0504	CK82955
Xylene O	ND (0.5)		524.2		1	11/29/18 19:10	C8K0504	CK82955
Xylene P,M	ND (0.5)		524.2		1	11/29/18 19:10	C8K0504	CK82955

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*105 %*		*80-120*
Surrogate: 4-Bromofluorobenzene	*102 %*		*80-120*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-1F
Date Sampled: 11/27/18 08:30
Percent Solids: N/A
Initial Volume: 250
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-02
Sample Matrix: Ground Water
Units: ug/L
Analyst: CAD
Prepared: 11/28/18 10:38

608.3 Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.20)		608.3		1	11/29/18 18:26		CK82703
Aroclor 1221	ND (0.20)		608.3		1	11/29/18 18:26		CK82703
Aroclor 1232	ND (0.20)		608.3		1	11/29/18 18:26		CK82703
Aroclor 1242	ND (0.20)		608.3		1	11/29/18 18:26		CK82703
Aroclor 1248	ND (0.20)		608.3		1	11/29/18 18:26		CK82703
Aroclor 1254	ND (0.20)		608.3		1	11/29/18 18:26		CK82703
Aroclor 1260	ND (0.20)		608.3		1	11/29/18 18:26		CK82703
Aroclor 1262	ND (0.20)		608.3		1	11/29/18 18:26		CK82703
Aroclor 1268	ND (0.20)		608.3		1	11/29/18 18:26		CK82703

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*88 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*93 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*84 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*87 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-1F
Date Sampled: 11/27/18 08:30
Percent Solids: N/A
Initial Volume: 500
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-02
Sample Matrix: Ground Water
Units: ug/L
Analyst: VSC
Prepared: 11/30/18 11:44

625.1(SIM) Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Acenaphthene	ND (0.40)		625.1 SIM		1	11/30/18 19:46	C8K0527	CK83001
Acenaphthylene	ND (0.40)		625.1 SIM		1	11/30/18 19:46	C8K0527	CK83001
Anthracene	ND (0.40)		625.1 SIM		1	11/30/18 19:46	C8K0527	CK83001
Benzo(a)anthracene	ND (0.10)		625.1 SIM		1	11/30/18 19:46	C8K0527	CK83001
Benzo(a)pyrene	ND (0.10)		625.1 SIM		1	11/30/18 19:46	C8K0527	CK83001
Benzo(b)fluoranthene	ND (0.10)		625.1 SIM		1	11/30/18 19:46	C8K0527	CK83001
Benzo(g,h,i)perylene	ND (0.40)		625.1 SIM		1	11/30/18 19:46	C8K0527	CK83001
Benzo(k)fluoranthene	ND (0.10)		625.1 SIM		1	11/30/18 19:46	C8K0527	CK83001
bis(2-Ethylhexyl)phthalate	ND (5.00)		625.1 SIM		1	11/30/18 19:46	C8K0527	CK83001
Butylbenzylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 19:46	C8K0527	CK83001
Chrysene	ND (0.10)		625.1 SIM		1	11/30/18 19:46	C8K0527	CK83001
Dibenzo(a,h)Anthracene	ND (0.10)		625.1 SIM		1	11/30/18 19:46	C8K0527	CK83001
Diethylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 19:46	C8K0527	CK83001
Dimethylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 19:46	C8K0527	CK83001
Di-n-butylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 19:46	C8K0527	CK83001
Di-n-octylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 19:46	C8K0527	CK83001
Fluoranthene	ND (0.40)		625.1 SIM		1	11/30/18 19:46	C8K0527	CK83001
Fluorene	ND (0.40)		625.1 SIM		1	11/30/18 19:46	C8K0527	CK83001
Indeno(1,2,3-cd)Pyrene	ND (0.10)		625.1 SIM		1	11/30/18 19:46	C8K0527	CK83001
Naphthalene	ND (0.40)		625.1 SIM		1	11/30/18 19:46	C8K0527	CK83001
Pentachlorophenol	ND (1.80)		625.1 SIM		1	11/30/18 19:46	C8K0527	CK83001
Phenanthrene	ND (0.40)		625.1 SIM		1	11/30/18 19:46	C8K0527	CK83001
Pyrene	ND (0.40)		625.1 SIM		1	11/30/18 19:46	C8K0527	CK83001

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*42 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*120 %*	*S+*	*15-110*
Surrogate: 2-Fluorobiphenyl	*67 %*		*30-130*
Surrogate: Nitrobenzene-d5	*86 %*		*30-130*
Surrogate: p-Terphenyl-d14	*89 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-1F
Date Sampled: 11/27/18 08:30
Percent Solids: N/A
Initial Volume: 500
Final Volume: 0.5
Extraction Method: 3535A

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-02
Sample Matrix: Ground Water
Units: ug/L
Analyst: VSC
Prepared: 12/3/18 18:45

8270D(SIM) Semi-Volatile Organic Compounds w/ Isotope Dilution

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,4-Dioxane	ND (0.250)		8270D SIM		1	12/04/18 16:28	C8L0057	CL80359

	%Recovery	Qualifier	Limits
Surrogate: 1,4-Dioxane-d8	*28 %*		*15-115*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-1F
Date Sampled: 11/27/18 08:30
Percent Solids: N/A

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-02
Sample Matrix: Ground Water

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Ammonia as N	**3.19** (0.10)		350.1		1	JLK	12/03/18 20:26	mg/L	CK83017
Chloride	**8440** (2500)		300.0		5000	JLK	11/30/18 18:23	mg/L	CK83048
Hexavalent Chromium	ND (10.0)		3500Cr B-2009		1	CCP	11/27/18 21:15	ug/L	CK82727
Total Cyanide	ND (5.00)		4500 CN CE		1	EEM	11/30/18 13:20	ug/L	CK83019
Total Petroleum Hydrocarbon	ND (5)		1664A		1	LAB	12/03/18 8:08	mg/L	CK82904
Total Residual Chlorine	ND (20.0)		4500Cl D		1	JLK	11/27/18 22:03	ug/L	CK82726
Total Suspended Solids	**64** (10)		2540D		1	CCP	11/30/18 18:18	mg/L	CK83036

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-1F
Date Sampled: 11/27/18 08:30
Percent Solids: N/A
Initial Volume: 35
Final Volume: 2
Extraction Method: 504/8011

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-02
Sample Matrix: Ground Water
Units: ug/L
Analyst: SMR
Prepared: 12/3/18 11:25

504.1 1,2-Dibromoethane / 1,2-Dibromo-3-chloropropane

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2-Dibromoethane	ND (0.015)		504.1		1	12/03/18 21:41		CL80333

	%Recovery	Qualifier	Limits
Surrogate: Pentachloroethane	*112 %*		*30-150*
Surrogate: Pentachloroethane [2C]	*108 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-1F
Date Sampled: 11/27/18 08:30
Percent Solids: N/A
Initial Volume: 1
Final Volume: 1
Extraction Method: No Prep

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-02
Sample Matrix: Ground Water
Units: mg/L
Analyst: ZLC
Prepared: 12/3/18 8:01

Alcohol Scan by GC/FID

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Sequence	Batch
Ethanol	ND (10)		ASTM D3695		1	ZLC	12/04/18 10:57		CL80301

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-13
Date Sampled: 11/27/18 09:00
Percent Solids: N/A

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-03
Sample Matrix: Ground Water
Units: ug/L

Extraction Method: 3005A/200.7

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	**EL** ND (100)		200.7		20	KJK	12/04/18 19:09	100	10	CK82842
Arsenic	**193** (25.0)		3113B		50	KJK	12/04/18 20:38	100	10	CK82842
Cadmium	**EL** ND (10.0)		200.7		20	KJK	12/04/18 19:09	100	10	CK82842
Chromium	**EL** ND (40.0)		200.7		20	KJK	12/04/18 19:09	100	10	CK82842
Chromium III	ND (40.0)		200.7		20	CCP	12/04/18 19:09	1	1	[CALC]
Copper	**EL** ND (40.0)		200.7		20	KJK	12/04/18 19:09	100	10	CK82842
Hardness	**3890000** (4120)		200.7		50	KJK	12/05/18 12:32	1	1	[CALC]
Iron	**4260** (200)		200.7		20	KJK	12/04/18 19:09	100	10	CK82842
Lead	**EL** ND (40.0)		200.7		20	KJK	12/04/18 19:09	100	10	CK82842
Mercury	ND (0.2)		245.1		1	MJV	11/30/18 10:09	20	40	CK82843
Nickel	**EL** ND (100)		200.7		20	KJK	12/04/18 19:09	100	10	CK82842
Selenium	**EL** ND (100)		200.7		20	KJK	12/04/18 19:09	100	10	CK82842
Silver	**EL** ND (10.0)		200.7		20	KJK	12/04/18 19:09	100	10	CK82842
Zinc	**EL** ND (100)		200.7		20	KJK	12/04/18 19:09	100	10	CK82842

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-13
Date Sampled: 11/27/18 09:00
Percent Solids: N/A
Initial Volume: 25
Final Volume: 25
Extraction Method: 524.2

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-03
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

524.2 Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1-Trichloroethane	ND (0.5)		524.2		1	11/29/18 19:45	C8K0504	CK82955
1,1,2-Trichloroethane	ND (0.5)		524.2		1	11/29/18 19:45	C8K0504	CK82955
1,1-Dichloroethane	ND (0.5)		524.2		1	11/29/18 19:45	C8K0504	CK82955
1,1-Dichloroethene	ND (0.5)		524.2		1	11/29/18 19:45	C8K0504	CK82955
1,2-Dichlorobenzene	ND (0.5)		524.2		1	11/29/18 19:45	C8K0504	CK82955
1,2-Dichloroethane	ND (0.5)		524.2		1	11/29/18 19:45	C8K0504	CK82955
1,3-Dichlorobenzene	ND (0.5)		524.2		1	11/29/18 19:45	C8K0504	CK82955
1,4-Dichlorobenzene	ND (0.5)		524.2		1	11/29/18 19:45	C8K0504	CK82955
Acetone	ND (5.0)		524.2		1	11/29/18 19:45	C8K0504	CK82955
Benzene	ND (0.5)		524.2		1	11/29/18 19:45	C8K0504	CK82955
Carbon Tetrachloride	ND (0.3)		524.2		1	11/29/18 19:45	C8K0504	CK82955
cis-1,2-Dichloroethene	ND (0.5)		524.2		1	11/29/18 19:45	C8K0504	CK82955
Ethylbenzene	ND (0.5)		524.2		1	11/29/18 19:45	C8K0504	CK82955
Methyl tert-Butyl Ether	ND (0.5)		524.2		1	11/29/18 19:45	C8K0504	CK82955
Methylene Chloride	ND (0.5)		524.2		1	11/29/18 19:45	C8K0504	CK82955
Naphthalene	ND (0.5)		524.2		1	11/29/18 19:45	C8K0504	CK82955
Tertiary-amyl methyl ether	ND (1.0)		524.2		1	11/29/18 19:45	C8K0504	CK82955
Tertiary-butyl Alcohol	ND (25.0)		524.2		1	11/29/18 19:45	C8K0504	CK82955
Tetrachloroethene	ND (0.5)		524.2		1	11/29/18 19:45	C8K0504	CK82955
Toluene	ND (0.5)		524.2		1	11/29/18 19:45	C8K0504	CK82955
Trichloroethene	ND (0.5)		524.2		1	11/29/18 19:45	C8K0504	CK82955
Vinyl Chloride	ND (0.2)		524.2		1	11/29/18 19:45	C8K0504	CK82955
Xylene O	ND (0.5)		524.2		1	11/29/18 19:45	C8K0504	CK82955
Xylene P,M	ND (0.5)		524.2		1	11/29/18 19:45	C8K0504	CK82955

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*121 %*	*S+*	*80-120*
Surrogate: 4-Bromofluorobenzene	*105 %*		*80-120*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-13
Date Sampled: 11/27/18 09:00
Percent Solids: N/A
Initial Volume: 250
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-03
Sample Matrix: Ground Water
Units: ug/L
Analyst: CAD
Prepared: 11/28/18 10:38

608.3 Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.20)		608.3		1	11/29/18 18:45		CK82703
Aroclor 1221	ND (0.20)		608.3		1	11/29/18 18:45		CK82703
Aroclor 1232	ND (0.20)		608.3		1	11/29/18 18:45		CK82703
Aroclor 1242	ND (0.20)		608.3		1	11/29/18 18:45		CK82703
Aroclor 1248	ND (0.20)		608.3		1	11/29/18 18:45		CK82703
Aroclor 1254	ND (0.20)		608.3		1	11/29/18 18:45		CK82703
Aroclor 1260	ND (0.20)		608.3		1	11/29/18 18:45		CK82703
Aroclor 1262	ND (0.20)		608.3		1	11/29/18 18:45		CK82703
Aroclor 1268	ND (0.20)		608.3		1	11/29/18 18:45		CK82703

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*81 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*77 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*79 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-13
Date Sampled: 11/27/18 09:00
Percent Solids: N/A
Initial Volume: 500
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-03
Sample Matrix: Ground Water
Units: ug/L
Analyst: VSC
Prepared: 11/30/18 11:44

625.1(SIM) Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Acenaphthene	ND (0.40)		625.1 SIM		1	11/30/18 20:35	C8K0527	CK83001
Acenaphthylene	ND (0.40)		625.1 SIM		1	11/30/18 20:35	C8K0527	CK83001
Anthracene	ND (0.40)		625.1 SIM		1	11/30/18 20:35	C8K0527	CK83001
Benzo(a)anthracene	ND (0.10)		625.1 SIM		1	11/30/18 20:35	C8K0527	CK83001
Benzo(a)pyrene	ND (0.10)		625.1 SIM		1	11/30/18 20:35	C8K0527	CK83001
Benzo(b)fluoranthene	ND (0.10)		625.1 SIM		1	11/30/18 20:35	C8K0527	CK83001
Benzo(g,h,i)perylene	ND (0.40)		625.1 SIM		1	11/30/18 20:35	C8K0527	CK83001
Benzo(k)fluoranthene	ND (0.10)		625.1 SIM		1	11/30/18 20:35	C8K0527	CK83001
bis(2-Ethylhexyl)phthalate	ND (5.00)		625.1 SIM		1	11/30/18 20:35	C8K0527	CK83001
Butylbenzylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 20:35	C8K0527	CK83001
Chrysene	ND (0.10)		625.1 SIM		1	11/30/18 20:35	C8K0527	CK83001
Dibenzo(a,h)Anthracene	ND (0.10)		625.1 SIM		1	11/30/18 20:35	C8K0527	CK83001
Diethylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 20:35	C8K0527	CK83001
Dimethylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 20:35	C8K0527	CK83001
Di-n-butylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 20:35	C8K0527	CK83001
Di-n-octylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 20:35	C8K0527	CK83001
Fluoranthene	ND (0.40)		625.1 SIM		1	11/30/18 20:35	C8K0527	CK83001
Fluorene	ND (0.40)		625.1 SIM		1	11/30/18 20:35	C8K0527	CK83001
Indeno(1,2,3-cd)Pyrene	ND (0.10)		625.1 SIM		1	11/30/18 20:35	C8K0527	CK83001
Naphthalene	ND (0.40)		625.1 SIM		1	11/30/18 20:35	C8K0527	CK83001
Pentachlorophenol	ND (1.80)		625.1 SIM		1	11/30/18 20:35	C8K0527	CK83001
Phenanthrene	ND (0.40)		625.1 SIM		1	11/30/18 20:35	C8K0527	CK83001
Pyrene	ND (0.40)		625.1 SIM		1	11/30/18 20:35	C8K0527	CK83001

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*45 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*128 %*	*S+*	*15-110*
Surrogate: 2-Fluorobiphenyl	*68 %*		*30-130*
Surrogate: Nitrobenzene-d5	*90 %*		*30-130*
Surrogate: p-Terphenyl-d14	*95 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-13
Date Sampled: 11/27/18 09:00
Percent Solids: N/A
Initial Volume: 500
Final Volume: 0.5
Extraction Method: 3535A

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-03
Sample Matrix: Ground Water
Units: ug/L
Analyst: VSC
Prepared: 11/28/18 17:00

8270D(SIM) Semi-Volatile Organic Compounds w/ Isotope Dilution

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,4-Dioxane	ND (0.250)		8270D SIM		1	11/30/18 3:54	C8K0510	CK82749

	%Recovery	Qualifier	Limits
Surrogate: 1,4-Dioxane-d8	*38 %*		*15-115*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-13
Date Sampled: 11/27/18 09:00
Percent Solids: N/A

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-03
Sample Matrix: Ground Water

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Ammonia as N	**1.21** (0.10)		350.1		1	JLK	12/03/18 20:29	mg/L	CK83017
Chloride	**10100** (2500)		300.0		5000	JLK	11/30/18 18:39	mg/L	CK83048
Hexavalent Chromium	ND (10.0)		3500Cr B-2009		1	CCP	11/27/18 21:15	ug/L	CK82727
Total Cyanide	ND (5.00)		4500 CN CE		1	EEM	11/30/18 13:20	ug/L	CK83019
Total Petroleum Hydrocarbon	ND (5)		1664A		1	LAB	12/03/18 8:08	mg/L	CK82904
Total Residual Chlorine	ND (20.0)		4500Cl D		1	JLK	11/27/18 22:03	ug/L	CK82726
Total Suspended Solids	**380** (20)		2540D		1	CCP	11/30/18 18:18	mg/L	CK83036

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-13
Date Sampled: 11/27/18 09:00
Percent Solids: N/A
Initial Volume: 35
Final Volume: 2
Extraction Method: 504/8011

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-03
Sample Matrix: Ground Water
Units: ug/L
Analyst: SMR
Prepared: 12/3/18 11:25

504.1 1,2-Dibromoethane / 1,2-Dibromo-3-chloropropane

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2-Dibromoethane	ND (0.015)		504.1		1	12/03/18 22:08		CL80333

	%Recovery	Qualifier	Limits
Surrogate: Pentachloroethane	*105 %*		*30-150*
Surrogate: Pentachloroethane [2C]	*101 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-13
Date Sampled: 11/27/18 09:00
Percent Solids: N/A
Initial Volume: 1
Final Volume: 1
Extraction Method: No Prep

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-03
Sample Matrix: Ground Water
Units: mg/L
Analyst: ZLC
Prepared: 12/3/18 8:01

Alcohol Scan by GC/FID

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Sequence	Batch
Ethanol	ND (10)		ASTM D3695		1	ZLC	12/04/18 11:21		CL80301

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-13F
Date Sampled: 11/27/18 09:30
Percent Solids: N/A

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-04
Sample Matrix: Ground Water
Units: ug/L

Extraction Method: 3005A/200.7

Dissolved Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	**EL** ND (100)		200.7		20	KJK	12/04/18 19:13	100	10	CK82842
Arsenic	**112** (12.5)		3113B		25	KJK	12/04/18 20:50	100	10	CK82842
Cadmium	**EL** ND (20.0)		200.7		20	KJK	12/04/18 19:13	100	10	CK82842
Chromium	**EL** ND (40.0)		200.7		20	KJK	12/04/18 19:13	100	10	CK82842
Copper	**48.0** (40.0)		200.7		20	KJK	12/04/18 19:13	100	10	CK82842
Iron	**8540** (200)		200.7		20	KJK	12/04/18 19:13	100	10	CK82842
Lead	**EL** ND (40.0)		200.7		20	KJK	12/04/18 19:13	100	10	CK82842
Mercury	ND (0.20)		245.1		1	MJV	11/30/18 10:15	20	40	CK82843
Nickel	**EL** ND (100)		200.7		20	KJK	12/04/18 19:13	100	10	CK82842
Selenium	**EL** ND (100)		200.7		20	KJK	12/04/18 19:13	100	10	CK82842
Silver	**EL** ND (10.0)		200.7		20	KJK	12/04/18 19:13	100	10	CK82842
Zinc	**159** (100)		200.7		20	KJK	12/04/18 19:13	100	10	CK82842

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-13F
Date Sampled: 11/27/18 09:30
Percent Solids: N/A

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-04
Sample Matrix: Ground Water
Units: ug/L

Extraction Method: [CALC]

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Chromium III	ND (40.0)		200.7		20	CCP	12/04/18 19:13	1	1	[CALC]
Hardness	**3620000** (4120)		200.7		50	KJK	12/06/18 13:30	1	1	[CALC]

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-13F
Date Sampled: 11/27/18 09:30
Percent Solids: N/A
Initial Volume: 25
Final Volume: 25
Extraction Method: 524.2

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-04
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

524.2 Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1-Trichloroethane	ND (0.5)		524.2		1	11/29/18 20:19	C8K0504	CK82955
1,1,2-Trichloroethane	ND (0.5)		524.2		1	11/29/18 20:19	C8K0504	CK82955
1,1-Dichloroethane	ND (0.5)		524.2		1	11/29/18 20:19	C8K0504	CK82955
1,1-Dichloroethene	ND (0.5)		524.2		1	11/29/18 20:19	C8K0504	CK82955
1,2-Dichlorobenzene	ND (0.5)		524.2		1	11/29/18 20:19	C8K0504	CK82955
1,2-Dichloroethane	ND (0.5)		524.2		1	11/29/18 20:19	C8K0504	CK82955
1,3-Dichlorobenzene	ND (0.5)		524.2		1	11/29/18 20:19	C8K0504	CK82955
1,4-Dichlorobenzene	ND (0.5)		524.2		1	11/29/18 20:19	C8K0504	CK82955
Acetone	ND (5.0)		524.2		1	11/29/18 20:19	C8K0504	CK82955
Benzene	ND (0.5)		524.2		1	11/29/18 20:19	C8K0504	CK82955
Carbon Tetrachloride	ND (0.3)		524.2		1	11/29/18 20:19	C8K0504	CK82955
cis-1,2-Dichloroethene	ND (0.5)		524.2		1	11/29/18 20:19	C8K0504	CK82955
Ethylbenzene	ND (0.5)		524.2		1	11/29/18 20:19	C8K0504	CK82955
Methyl tert-Butyl Ether	ND (0.5)		524.2		1	11/29/18 20:19	C8K0504	CK82955
Methylene Chloride	ND (0.5)		524.2		1	11/29/18 20:19	C8K0504	CK82955
Naphthalene	ND (0.5)		524.2		1	11/29/18 20:19	C8K0504	CK82955
Tertiary-amyl methyl ether	ND (1.0)		524.2		1	11/29/18 20:19	C8K0504	CK82955
Tertiary-butyl Alcohol	ND (25.0)		524.2		1	11/29/18 20:19	C8K0504	CK82955
Tetrachloroethene	ND (0.5)		524.2		1	11/29/18 20:19	C8K0504	CK82955
Toluene	ND (0.5)		524.2		1	11/29/18 20:19	C8K0504	CK82955
Trichloroethene	ND (0.5)		524.2		1	11/29/18 20:19	C8K0504	CK82955
Vinyl Chloride	ND (0.2)		524.2		1	11/29/18 20:19	C8K0504	CK82955
Xylene O	ND (0.5)		524.2		1	11/29/18 20:19	C8K0504	CK82955
Xylene P,M	ND (0.5)		524.2		1	11/29/18 20:19	C8K0504	CK82955

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*121 %*	*S+*	*80-120*
Surrogate: 4-Bromofluorobenzene	*110 %*		*80-120*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-13F
Date Sampled: 11/27/18 09:30
Percent Solids: N/A
Initial Volume: 250
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-04
Sample Matrix: Ground Water
Units: ug/L
Analyst: CAD
Prepared: 11/28/18 10:38

608.3 Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.20)		608.3		1	11/29/18 19:04		CK82703
Aroclor 1221	ND (0.20)		608.3		1	11/29/18 19:04		CK82703
Aroclor 1232	ND (0.20)		608.3		1	11/29/18 19:04		CK82703
Aroclor 1242	ND (0.20)		608.3		1	11/29/18 19:04		CK82703
Aroclor 1248	ND (0.20)		608.3		1	11/29/18 19:04		CK82703
Aroclor 1254	ND (0.20)		608.3		1	11/29/18 19:04		CK82703
Aroclor 1260	ND (0.20)		608.3		1	11/29/18 19:04		CK82703
Aroclor 1262	ND (0.20)		608.3		1	11/29/18 19:04		CK82703
Aroclor 1268	ND (0.20)		608.3		1	11/29/18 19:04		CK82703

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*72 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*78 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*83 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*85 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-13F
Date Sampled: 11/27/18 09:30
Percent Solids: N/A
Initial Volume: 500
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-04
Sample Matrix: Ground Water
Units: ug/L
Analyst: VSC
Prepared: 11/30/18 11:44

625.1(SIM) Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Acenaphthene	ND (0.40)		625.1 SIM		1	11/30/18 21:23	C8K0527	CK83001
Acenaphthylene	ND (0.40)		625.1 SIM		1	11/30/18 21:23	C8K0527	CK83001
Anthracene	ND (0.40)		625.1 SIM		1	11/30/18 21:23	C8K0527	CK83001
Benzo(a)anthracene	ND (0.10)		625.1 SIM		1	11/30/18 21:23	C8K0527	CK83001
Benzo(a)pyrene	ND (0.10)		625.1 SIM		1	11/30/18 21:23	C8K0527	CK83001
Benzo(b)fluoranthene	ND (0.10)		625.1 SIM		1	11/30/18 21:23	C8K0527	CK83001
Benzo(g,h,i)perylene	ND (0.40)		625.1 SIM		1	11/30/18 21:23	C8K0527	CK83001
Benzo(k)fluoranthene	ND (0.10)		625.1 SIM		1	11/30/18 21:23	C8K0527	CK83001
bis(2-Ethylhexyl)phthalate	ND (5.00)		625.1 SIM		1	11/30/18 21:23	C8K0527	CK83001
Butylbenzylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 21:23	C8K0527	CK83001
Chrysene	ND (0.10)		625.1 SIM		1	11/30/18 21:23	C8K0527	CK83001
Dibenzo(a,h)Anthracene	ND (0.10)		625.1 SIM		1	11/30/18 21:23	C8K0527	CK83001
Diethylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 21:23	C8K0527	CK83001
Dimethylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 21:23	C8K0527	CK83001
Di-n-butylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 21:23	C8K0527	CK83001
Di-n-octylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 21:23	C8K0527	CK83001
Fluoranthene	ND (0.40)		625.1 SIM		1	11/30/18 21:23	C8K0527	CK83001
Fluorene	ND (0.40)		625.1 SIM		1	11/30/18 21:23	C8K0527	CK83001
Indeno(1,2,3-cd)Pyrene	ND (0.10)		625.1 SIM		1	11/30/18 21:23	C8K0527	CK83001
Naphthalene	ND (0.40)		625.1 SIM		1	11/30/18 21:23	C8K0527	CK83001
Pentachlorophenol	ND (1.80)		625.1 SIM		1	11/30/18 21:23	C8K0527	CK83001
Phenanthrene	ND (0.40)		625.1 SIM		1	11/30/18 21:23	C8K0527	CK83001
Pyrene	ND (0.40)		625.1 SIM		1	11/30/18 21:23	C8K0527	CK83001

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*38 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*115 %*	*S+*	*15-110*
Surrogate: 2-Fluorobiphenyl	*61 %*		*30-130*
Surrogate: Nitrobenzene-d5	*82 %*		*30-130*
Surrogate: p-Terphenyl-d14	*87 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-13F
Date Sampled: 11/27/18 09:30
Percent Solids: N/A
Initial Volume: 500
Final Volume: 0.5
Extraction Method: 3535A

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-04
Sample Matrix: Ground Water
Units: ug/L
Analyst: VSC
Prepared: 11/28/18 17:00

8270D(SIM) Semi-Volatile Organic Compounds w/ Isotope Dilution

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,4-Dioxane	ND (0.250)		8270D SIM		1	11/30/18 4:29	C8K0510	CK82749

	%Recovery	Qualifier	Limits
Surrogate: 1,4-Dioxane-d8	*35 %*		*15-115*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-13F
Date Sampled: 11/27/18 09:30
Percent Solids: N/A

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-04
Sample Matrix: Ground Water

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Ammonia as N	**1.08** (0.10)		350.1		1	JLK	12/03/18 20:30	mg/L	CK83017
Chloride	**10100** (2500)		300.0		5000	JLK	11/30/18 18:55	mg/L	CK83048
Hexavalent Chromium	ND (10.0)		3500Cr B-2009		1	CCP	11/27/18 21:15	ug/L	CK82727
Total Cyanide	ND (5.00)		4500 CN CE		1	EEM	11/30/18 13:20	ug/L	CK83019
Total Petroleum Hydrocarbon	ND (5)		1664A		1	LAB	12/03/18 8:08	mg/L	CK82904
Total Residual Chlorine	ND (20.0)		4500Cl D		1	JLK	11/27/18 22:03	ug/L	CK82726
Total Suspended Solids	**884** (20)		2540D		1	CCP	11/30/18 18:18	mg/L	CK83036

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-13F
Date Sampled: 11/27/18 09:30
Percent Solids: N/A
Initial Volume: 35
Final Volume: 2
Extraction Method: 504/8011

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-04
Sample Matrix: Ground Water
Units: ug/L
Analyst: SMR
Prepared: 12/3/18 11:25

504.1 1,2-Dibromoethane / 1,2-Dibromo-3-chloropropane

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2-Dibromoethane	ND (0.015)		504.1		1	12/03/18 22:35		CL80333

	%Recovery	Qualifier	Limits
Surrogate: Pentachloroethane	*110 %*		*30-150*
Surrogate: Pentachloroethane [2C]	*108 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-13F
Date Sampled: 11/27/18 09:30
Percent Solids: N/A
Initial Volume: 1
Final Volume: 1
Extraction Method: No Prep

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-04
Sample Matrix: Ground Water
Units: mg/L
Analyst: ZLC
Prepared: 12/3/18 8:01

Alcohol Scan by GC/FID

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Sequence	Batch
Ethanol	ND (10)		ASTM D3695		1	ZLC	12/04/18 11:45		CL80301

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-5
Date Sampled: 11/27/18 10:00
Percent Solids: N/A

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-05
Sample Matrix: Ground Water
Units: ug/L

Extraction Method: 3005A/200.7

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	**EL** ND (100)		200.7		20	KJK	12/04/18 19:18	100	10	CK82842
Arsenic	**89.6** (12.5)		3113B		25	KJK	12/04/18 21:01	100	10	CK82842
Cadmium	**EL** ND (10.0)		200.7		20	KJK	12/04/18 19:18	100	10	CK82842
Chromium	**58.0** (40.0)		200.7		20	KJK	12/04/18 19:18	100	10	CK82842
Chromium III	**58.0** (40.0)		200.7		20	CCP	12/04/18 19:18	1	1	[CALC]
Copper	**1030** (40.0)		200.7		20	KJK	12/04/18 19:18	100	10	CK82842
Hardness	**2620000** (4120)		200.7		50	KJK	12/05/18 12:36	1	1	[CALC]
Iron	**94400** (200)		200.7		20	KJK	12/04/18 19:18	100	10	CK82842
Lead	**2250** (40.0)		200.7		20	KJK	12/04/18 19:18	100	10	CK82842
Mercury	ND (0.2)		245.1		1	MJV	11/30/18 10:17	20	40	CK82843
Nickel	**EL** ND (100)		200.7		20	KJK	12/04/18 19:18	100	10	CK82842
Selenium	**EL** ND (100)		200.7		20	KJK	12/04/18 19:18	100	10	CK82842
Silver	**EL** ND (10.0)		200.7		20	KJK	12/04/18 19:18	100	10	CK82842
Zinc	**3300** (100)		200.7		20	KJK	12/04/18 19:18	100	10	CK82842

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-5
Date Sampled: 11/27/18 10:00
Percent Solids: N/A
Initial Volume: 25
Final Volume: 25
Extraction Method: 524.2

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-05
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

524.2 Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1-Trichloroethane	ND (0.5)		524.2		1	11/29/18 20:54	C8K0504	CK82955
1,1,2-Trichloroethane	ND (0.5)		524.2		1	11/29/18 20:54	C8K0504	CK82955
1,1-Dichloroethane	ND (0.5)		524.2		1	11/29/18 20:54	C8K0504	CK82955
1,1-Dichloroethene	ND (0.5)		524.2		1	11/29/18 20:54	C8K0504	CK82955
1,2-Dichlorobenzene	ND (0.5)		524.2		1	11/29/18 20:54	C8K0504	CK82955
1,2-Dichloroethane	ND (0.5)		524.2		1	11/29/18 20:54	C8K0504	CK82955
1,3-Dichlorobenzene	ND (0.5)		524.2		1	11/29/18 20:54	C8K0504	CK82955
1,4-Dichlorobenzene	ND (0.5)		524.2		1	11/29/18 20:54	C8K0504	CK82955
Acetone	ND (5.0)		524.2		1	11/29/18 20:54	C8K0504	CK82955
Benzene	ND (0.5)		524.2		1	11/29/18 20:54	C8K0504	CK82955
Carbon Tetrachloride	ND (0.3)		524.2		1	11/29/18 20:54	C8K0504	CK82955
cis-1,2-Dichloroethene	ND (0.5)		524.2		1	11/29/18 20:54	C8K0504	CK82955
Ethylbenzene	ND (0.5)		524.2		1	11/29/18 20:54	C8K0504	CK82955
Methyl tert-Butyl Ether	ND (0.5)		524.2		1	11/29/18 20:54	C8K0504	CK82955
Methylene Chloride	ND (0.5)		524.2		1	11/29/18 20:54	C8K0504	CK82955
Naphthalene	**0.6** (0.5)		524.2		1	11/29/18 20:54	C8K0504	CK82955
Tertiary-amyl methyl ether	ND (1.0)		524.2		1	11/29/18 20:54	C8K0504	CK82955
Tertiary-butyl Alcohol	ND (25.0)		524.2		1	11/29/18 20:54	C8K0504	CK82955
Tetrachloroethene	ND (0.5)		524.2		1	11/29/18 20:54	C8K0504	CK82955
Toluene	ND (0.5)		524.2		1	11/29/18 20:54	C8K0504	CK82955
Trichloroethene	ND (0.5)		524.2		1	11/29/18 20:54	C8K0504	CK82955
Vinyl Chloride	ND (0.2)		524.2		1	11/29/18 20:54	C8K0504	CK82955
Xylene O	ND (0.5)		524.2		1	11/29/18 20:54	C8K0504	CK82955
Xylene P,M	ND (0.5)		524.2		1	11/29/18 20:54	C8K0504	CK82955

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*131 %*	*SC*	*80-120*
Surrogate: 4-Bromofluorobenzene	*112 %*		*80-120*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-5
Date Sampled: 11/27/18 10:00
Percent Solids: N/A
Initial Volume: 100
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-05
Sample Matrix: Ground Water
Units: ug/L
Analyst: CAD
Prepared: 12/3/18 12:33

608.3 Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.50)		608.3		1	12/04/18 10:34		CL80326
Aroclor 1221	ND (0.50)		608.3		1	12/04/18 10:34		CL80326
Aroclor 1232	ND (0.50)		608.3		1	12/04/18 10:34		CL80326
Aroclor 1242	ND (0.50)		608.3		1	12/04/18 10:34		CL80326
Aroclor 1248	ND (0.50)		608.3		1	12/04/18 10:34		CL80326
Aroclor 1254	ND (0.50)		608.3		1	12/04/18 10:34		CL80326
Aroclor 1260	ND (0.50)		608.3		1	12/04/18 10:34		CL80326
Aroclor 1262	ND (0.50)		608.3		1	12/04/18 10:34		CL80326
Aroclor 1268	ND (0.50)		608.3		1	12/04/18 10:34		CL80326

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*37 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*46 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*70 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*70 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-5
Date Sampled: 11/27/18 10:00
Percent Solids: N/A
Initial Volume: 500
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-05
Sample Matrix: Ground Water
Units: ug/L
Analyst: VSC
Prepared: 11/30/18 11:44

625.1(SIM) Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Acenaphthene	ND (0.40)		625.1 SIM		1	11/30/18 22:12	C8K0527	CK83001
Acenaphthylene	ND (0.40)		625.1 SIM		1	11/30/18 22:12	C8K0527	CK83001
Anthracene	ND (0.40)		625.1 SIM		1	11/30/18 22:12	C8K0527	CK83001
Benzo(a)anthracene	**0.29** (0.10)		625.1 SIM		1	11/30/18 22:12	C8K0527	CK83001
Benzo(a)pyrene	**0.24** (0.10)		625.1 SIM		1	11/30/18 22:12	C8K0527	CK83001
Benzo(b)fluoranthene	**0.34** (0.10)		625.1 SIM		1	11/30/18 22:12	C8K0527	CK83001
Benzo(g,h,i)perylene	ND (0.40)		625.1 SIM		1	11/30/18 22:12	C8K0527	CK83001
Benzo(k)fluoranthene	**0.20** (0.10)		625.1 SIM		1	11/30/18 22:12	C8K0527	CK83001
bis(2-Ethylhexyl)phthalate	ND (5.00)		625.1 SIM		1	11/30/18 22:12	C8K0527	CK83001
Butylbenzylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 22:12	C8K0527	CK83001
Chrysene	**0.29** (0.10)		625.1 SIM		1	11/30/18 22:12	C8K0527	CK83001
Dibenzo(a,h)Anthracene	ND (0.10)		625.1 SIM		1	11/30/18 22:12	C8K0527	CK83001
Diethylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 22:12	C8K0527	CK83001
Dimethylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 22:12	C8K0527	CK83001
Di-n-butylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 22:12	C8K0527	CK83001
Di-n-octylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 22:12	C8K0527	CK83001
Fluoranthene	**0.73** (0.40)		625.1 SIM		1	11/30/18 22:12	C8K0527	CK83001
Fluorene	ND (0.40)		625.1 SIM		1	11/30/18 22:12	C8K0527	CK83001
Indeno(1,2,3-cd)Pyrene	**0.18** (0.10)		625.1 SIM		1	11/30/18 22:12	C8K0527	CK83001
Naphthalene	ND (0.40)		625.1 SIM		1	11/30/18 22:12	C8K0527	CK83001
Pentachlorophenol	ND (1.80)		625.1 SIM		1	11/30/18 22:12	C8K0527	CK83001
Phenanthrene	**0.61** (0.40)		625.1 SIM		1	11/30/18 22:12	C8K0527	CK83001
Pyrene	**0.67** (0.40)		625.1 SIM		1	11/30/18 22:12	C8K0527	CK83001

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*22 %*	*S-*	*30-130*
Surrogate: 2,4,6-Tribromophenol	*91 %*		*15-110*
Surrogate: 2-Fluorobiphenyl	*41 %*		*30-130*
Surrogate: Nitrobenzene-d5	*58 %*		*30-130*
Surrogate: p-Terphenyl-d14	*66 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-5
Date Sampled: 11/27/18 10:00
Percent Solids: N/A
Initial Volume: 500
Final Volume: 0.5
Extraction Method: 3535A

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-05
Sample Matrix: Ground Water
Units: ug/L
Analyst: VSC
Prepared: 11/28/18 17:00

8270D(SIM) Semi-Volatile Organic Compounds w/ Isotope Dilution

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,4-Dioxane	ND (0.250)		8270D SIM		1	11/30/18 5:02	C8K0510	CK82749

	%Recovery	Qualifier	Limits
Surrogate: 1,4-Dioxane-d8	*21 %*		*15-115*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-5
Date Sampled: 11/27/18 10:00
Percent Solids: N/A

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-05
Sample Matrix: Ground Water

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Ammonia as N	**6.51** (0.20)		350.1		2	JLK	12/03/18 20:45	mg/L	CK83017
Chloride	**23900** (2500)		300.0		5000	JLK	11/30/18 19:12	mg/L	CK83048
Hexavalent Chromium	ND (10.0)		3500Cr B-2009		1	CCP	11/27/18 21:15	ug/L	CK82727
Total Cyanide	**111** (5.00)		4500 CN CE		1	EEM	11/30/18 13:20	ug/L	CK83019
Total Petroleum Hydrocarbon	ND (5)		1664A		1	LAB	12/03/18 8:08	mg/L	CK82904
Total Residual Chlorine	ND (20.0)		4500Cl D		1	JLK	11/27/18 22:03	ug/L	CK82726
Total Suspended Solids	**512** (20)		2540D		1	CCP	11/30/18 18:18	mg/L	CK83036

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-5
Date Sampled: 11/27/18 10:00
Percent Solids: N/A
Initial Volume: 35
Final Volume: 2
Extraction Method: 504/8011

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-05
Sample Matrix: Ground Water
Units: ug/L
Analyst: SMR
Prepared: 12/3/18 11:25

504.1 1,2-Dibromoethane / 1,2-Dibromo-3-chloropropane

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2-Dibromoethane	ND (0.015)		504.1		1	12/03/18 23:02		CL80333

	%Recovery	Qualifier	Limits
Surrogate: Pentachloroethane	*104 %*		*30-150*
Surrogate: Pentachloroethane [2C]	*99 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-5
Date Sampled: 11/27/18 10:00
Percent Solids: N/A
Initial Volume: 1
Final Volume: 1
Extraction Method: No Prep

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-05
Sample Matrix: Ground Water
Units: mg/L
Analyst: ZLC
Prepared: 12/3/18 8:01

Alcohol Scan by GC/FID

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Sequence	Batch
Ethanol	ND (10)		ASTM D3695		1	ZLC	12/04/18 12:09		CL80301

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-5F
Date Sampled: 11/27/18 11:00
Percent Solids: N/A

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-06
Sample Matrix: Ground Water
Units: ug/L

Extraction Method: 3005A/200.7

Dissolved Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	**EL** ND (100)		200.7		20	KJK	12/04/18 19:22	100	10	CK82842
Arsenic	**49.5** (12.5)		3113B		25	KJK	12/04/18 21:30	100	10	CK82842
Cadmium	**EL** ND (20.0)		200.7		20	KJK	12/04/18 19:22	100	10	CK82842
Chromium	**EL** ND (40.0)		200.7		20	KJK	12/04/18 19:22	100	10	CK82842
Copper	**82.8** (40.0)		200.7		20	KJK	12/04/18 19:22	100	10	CK82842
Iron	**32100** (200)		200.7		20	KJK	12/04/18 19:22	100	10	CK82842
Lead	**EL** ND (40.0)		200.7		20	KJK	12/04/18 19:22	100	10	CK82842
Mercury	ND (0.20)		245.1		1	MJV	11/30/18 10:19	20	40	CK82843
Nickel	**EL** ND (100)		200.7		20	KJK	12/04/18 19:22	100	10	CK82842
Selenium	**EL** ND (100)		200.7		20	KJK	12/04/18 19:22	100	10	CK82842
Silver	**EL** ND (10.0)		200.7		20	KJK	12/04/18 19:22	100	10	CK82842
Zinc	**895** (100)		200.7		20	KJK	12/04/18 19:22	100	10	CK82842

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-5F
Date Sampled: 11/27/18 11:00
Percent Solids: N/A

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-06
Sample Matrix: Ground Water
Units: ug/L

Extraction Method: [CALC]

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Chromium III	ND (40.0)		200.7		20	CCP	12/04/18 19:22	1	1	[CALC]
Hardness	**1050000** (1650)		200.7		20	KJK	12/04/18 19:22	1	1	[CALC]

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-5F
Date Sampled: 11/27/18 11:00
Percent Solids: N/A
Initial Volume: 25
Final Volume: 25
Extraction Method: 524.2

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-06
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

524.2 Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1-Trichloroethane	ND (5.0)		524.2		10	11/30/18 13:55	C8K0530	CK83051
1,1,2-Trichloroethane	ND (5.0)		524.2		10	11/30/18 13:55	C8K0530	CK83051
1,1-Dichloroethane	ND (5.0)		524.2		10	11/30/18 13:55	C8K0530	CK83051
1,1-Dichloroethene	ND (5.0)		524.2		10	11/30/18 13:55	C8K0530	CK83051
1,2-Dichlorobenzene	ND (5.0)		524.2		10	11/30/18 13:55	C8K0530	CK83051
1,2-Dichloroethane	ND (5.0)		524.2		10	11/30/18 13:55	C8K0530	CK83051
1,3-Dichlorobenzene	ND (5.0)		524.2		10	11/30/18 13:55	C8K0530	CK83051
1,4-Dichlorobenzene	ND (5.0)		524.2		10	11/30/18 13:55	C8K0530	CK83051
Acetone	ND (50.0)		524.2		10	11/30/18 13:55	C8K0530	CK83051
Benzene	ND (5.0)		524.2		10	11/30/18 13:55	C8K0530	CK83051
Carbon Tetrachloride	ND (3.0)		524.2		10	11/30/18 13:55	C8K0530	CK83051
cis-1,2-Dichloroethene	ND (5.0)		524.2		10	11/30/18 13:55	C8K0530	CK83051
Ethylbenzene	ND (5.0)		524.2		10	11/30/18 13:55	C8K0530	CK83051
Methyl tert-Butyl Ether	ND (5.0)		524.2		10	11/30/18 13:55	C8K0530	CK83051
Methylene Chloride	ND (5.0)		524.2		10	11/30/18 13:55	C8K0530	CK83051
Naphthalene	ND (5.0)		524.2		10	11/30/18 13:55	C8K0530	CK83051
Tertiary-amyl methyl ether	ND (10.0)		524.2		10	11/30/18 13:55	C8K0530	CK83051
Tertiary-butyl Alcohol	ND (250)		524.2		10	11/30/18 13:55	C8K0530	CK83051
Tetrachloroethene	ND (5.0)		524.2		10	11/30/18 13:55	C8K0530	CK83051
Toluene	ND (5.0)		524.2		10	11/30/18 13:55	C8K0530	CK83051
Trichloroethene	ND (5.0)		524.2		10	11/30/18 13:55	C8K0530	CK83051
Vinyl Chloride	ND (2.0)		524.2		10	11/30/18 13:55	C8K0530	CK83051
Xylene O	ND (5.0)		524.2		10	11/30/18 13:55	C8K0530	CK83051
Xylene P,M	ND (5.0)		524.2		10	11/30/18 13:55	C8K0530	CK83051

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*100 %*		*80-120*
Surrogate: 4-Bromofluorobenzene	*99 %*		*80-120*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-5F
Date Sampled: 11/27/18 11:00
Percent Solids: N/A
Initial Volume: 100
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-06
Sample Matrix: Ground Water
Units: ug/L
Analyst: CAD
Prepared: 12/3/18 12:33

608.3 Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.50)		608.3		1	12/04/18 10:53		CL80326
Aroclor 1221	ND (0.50)		608.3		1	12/04/18 10:53		CL80326
Aroclor 1232	ND (0.50)		608.3		1	12/04/18 10:53		CL80326
Aroclor 1242	ND (0.50)		608.3		1	12/04/18 10:53		CL80326
Aroclor 1248	ND (0.50)		608.3		1	12/04/18 10:53		CL80326
Aroclor 1254	ND (0.50)		608.3		1	12/04/18 10:53		CL80326
Aroclor 1260	ND (0.50)		608.3		1	12/04/18 10:53		CL80326
Aroclor 1262	ND (0.50)		608.3		1	12/04/18 10:53		CL80326
Aroclor 1268	ND (0.50)		608.3		1	12/04/18 10:53		CL80326

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*56 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*65 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*72 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*76 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-5F
Date Sampled: 11/27/18 11:00
Percent Solids: N/A
Initial Volume: 500
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-06
Sample Matrix: Ground Water
Units: ug/L
Analyst: VSC
Prepared: 11/30/18 11:44

625.1(SIM) Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Acenaphthene	ND (0.40)		625.1 SIM		1	11/30/18 23:01	C8K0527	CK83001
Acenaphthylene	ND (0.40)		625.1 SIM		1	11/30/18 23:01	C8K0527	CK83001
Anthracene	ND (0.40)		625.1 SIM		1	11/30/18 23:01	C8K0527	CK83001
Benzo(a)anthracene	ND (0.10)		625.1 SIM		1	11/30/18 23:01	C8K0527	CK83001
Benzo(a)pyrene	ND (0.10)		625.1 SIM		1	11/30/18 23:01	C8K0527	CK83001
Benzo(b)fluoranthene	ND (0.10)		625.1 SIM		1	11/30/18 23:01	C8K0527	CK83001
Benzo(g,h,i)perylene	ND (0.40)		625.1 SIM		1	11/30/18 23:01	C8K0527	CK83001
Benzo(k)fluoranthene	ND (0.10)		625.1 SIM		1	11/30/18 23:01	C8K0527	CK83001
bis(2-Ethylhexyl)phthalate	ND (5.00)		625.1 SIM		1	11/30/18 23:01	C8K0527	CK83001
Butylbenzylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 23:01	C8K0527	CK83001
Chrysene	ND (0.10)		625.1 SIM		1	11/30/18 23:01	C8K0527	CK83001
Dibenzo(a,h)Anthracene	ND (0.10)		625.1 SIM		1	11/30/18 23:01	C8K0527	CK83001
Diethylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 23:01	C8K0527	CK83001
Dimethylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 23:01	C8K0527	CK83001
Di-n-butylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 23:01	C8K0527	CK83001
Di-n-octylphthalate	ND (5.00)		625.1 SIM		1	11/30/18 23:01	C8K0527	CK83001
Fluoranthene	ND (0.40)		625.1 SIM		1	11/30/18 23:01	C8K0527	CK83001
Fluorene	ND (0.40)		625.1 SIM		1	11/30/18 23:01	C8K0527	CK83001
Indeno(1,2,3-cd)Pyrene	ND (0.10)		625.1 SIM		1	11/30/18 23:01	C8K0527	CK83001
Naphthalene	ND (0.40)		625.1 SIM		1	11/30/18 23:01	C8K0527	CK83001
Pentachlorophenol	ND (1.80)		625.1 SIM		1	11/30/18 23:01	C8K0527	CK83001
Phenanthrene	ND (0.40)		625.1 SIM		1	11/30/18 23:01	C8K0527	CK83001
Pyrene	ND (0.40)		625.1 SIM		1	11/30/18 23:01	C8K0527	CK83001

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*20 %*	*S-*	*30-130*
Surrogate: 2,4,6-Tribromophenol	*78 %*		*15-110*
Surrogate: 2-Fluorobiphenyl	*40 %*		*30-130*
Surrogate: Nitrobenzene-d5	*63 %*		*30-130*
Surrogate: p-Terphenyl-d14	*80 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-5F
Date Sampled: 11/27/18 11:00
Percent Solids: N/A
Initial Volume: 500
Final Volume: 0.5
Extraction Method: 3535A

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-06
Sample Matrix: Ground Water
Units: ug/L
Analyst: VSC
Prepared: 12/3/18 18:45

8270D(SIM) Semi-Volatile Organic Compounds w/ Isotope Dilution

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,4-Dioxane	ND (0.250)		8270D SIM		1	12/04/18 17:02	C8L0057	CL80359

	%Recovery	Qualifier	Limits
Surrogate: 1,4-Dioxane-d8	*17 %*		*15-115*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-5F
Date Sampled: 11/27/18 11:00
Percent Solids: N/A

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-06
Sample Matrix: Ground Water

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Ammonia as N	**4.50** (0.10)		350.1		1	JLK	12/03/18 20:38	mg/L	CK83017
Chloride	**24000** (5000)		300.0		10000	JLK	11/30/18 21:05	mg/L	CK83048
Hexavalent Chromium	ND (10.0)		3500Cr B-2009		1	CCP	11/27/18 21:15	ug/L	CK82727
Total Cyanide	**43.9** (5.00)		4500 CN CE		1	EEM	11/30/18 13:20	ug/L	CK83019
Total Petroleum Hydrocarbon	ND (5)		1664A		1	LAB	12/03/18 8:08	mg/L	CK82904
Total Residual Chlorine	ND (20.0)		4500Cl D		1	JLK	11/27/18 22:03	ug/L	CK82726
Total Suspended Solids	**468** (20)		2540D		1	CCP	11/30/18 18:18	mg/L	CK83036

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-5F
Date Sampled: 11/27/18 11:00
Percent Solids: N/A
Initial Volume: 35
Final Volume: 2
Extraction Method: 504/8011

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-06
Sample Matrix: Ground Water
Units: ug/L
Analyst: SMR
Prepared: 12/3/18 11:25

504.1 1,2-Dibromoethane / 1,2-Dibromo-3-chloropropane

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,2-Dibromoethane	ND (0.015)		504.1		1	12/03/18 23:29		CL80333

	%Recovery	Qualifier	Limits
Surrogate: Pentachloroethane	*102 %*		*30-150*
Surrogate: Pentachloroethane [2C]	*101 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: MW-5F
Date Sampled: 11/27/18 11:00
Percent Solids: N/A
Initial Volume: 1
Final Volume: 1
Extraction Method: No Prep

ESS Laboratory Work Order: 1811657
ESS Laboratory Sample ID: 1811657-06
Sample Matrix: Ground Water
Units: mg/L
Analyst: ZLC
Prepared: 12/3/18 8:01

Alcohol Scan by GC/FID

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Sequence	Batch
Ethanol	ND (10)		ASTM D3695		1	ZLC	12/04/18 12:33		CL80301

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP

ESS Laboratory Work Order: 1811657

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Dissolved Metals										
Batch CK82842 - 3005A/200.7										
Blank										
Antimony	ND	10.0	ug/L							
Arsenic	ND	10.0	ug/L							
Arsenic	ND	0.5	ug/L							
Cadmium	ND	2.00	ug/L							
Chromium	ND	4.0	ug/L							
Copper	ND	4.0	ug/L							
Iron	ND	20.0	ug/L							
Lead	ND	4.0	ug/L							
Nickel	ND	10.0	ug/L							
Selenium	ND	10.0	ug/L							
Silver	ND	1.0	ug/L							
Zinc	ND	10.0	ug/L							
LCS										
Antimony	48.6	10.0	ug/L	50.15		97	85-115			
Arsenic	49.3	10.0	ug/L	50.00		99	85-115			
Arsenic	46.7	12.5	ug/L	50.00		93	85-115			
Cadmium	22.6	2.00	ug/L	25.02		90	85-115			
Chromium	45.2	4.0	ug/L	50.00		90	85-115			
Copper	48.0	4.0	ug/L	50.00		96	85-115			
Iron	223	20.0	ug/L	250.1		89	85-115			
Lead	45.3	4.0	ug/L	50.00		91	80-120			
Nickel	47.8	10.0	ug/L	50.00		96	85-115			
Selenium	89.8	10.0	ug/L	99.95		90	80-120			
Silver	23.3	1.0	ug/L	24.98		93	85-115			
Zinc	47.6	10.0	ug/L	50.00		95	85-115			
LCS Dup										
Arsenic	49.3	10.0	ug/L	50.00		99	85-115	0.1	20	
Batch CK82843 - 245.1/7470A										
Blank										
Mercury	ND	0.20	ug/L							
Blank										
Mercury	ND	0.20	ug/L							
LCS										
Mercury	5.84	0.20	ug/L	6.042		97	85-115			
LCS Dup										
Mercury	5.51	0.20	ug/L	6.042		91	85-115	6	20	
Total Metals										
Batch CK82842 - 3005A/200.7										
Blank										
Antimony	ND	10.0	ug/L							
Arsenic	ND	10.0	ug/L							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP

ESS Laboratory Work Order: 1811657

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CK82842 - 3005A/200.7										
Arsenic	ND	0.5	ug/L							
Cadmium	ND	1.00	ug/L							
Chromium	ND	4.0	ug/L							
Copper	ND	4.0	ug/L							
Iron	ND	20.0	ug/L							
Lead	ND	4.0	ug/L							
Nickel	ND	10.0	ug/L							
Selenium	ND	10	ug/L							
Silver	ND	1.0	ug/L							
Zinc	ND	10.0	ug/L							
LCS										
Antimony	48.6	10.0	ug/L	50.15		97	85-115			
Arsenic	46.7	12.5	ug/L	50.00		93	85-115			
Arsenic	49.3	10.0	ug/L	50.00		99	85-115			
Cadmium	22.6	2.00	ug/L	25.02		90	85-115			
Chromium	45.2	4.0	ug/L	50.00		90	85-115			
Copper	48.0	4.0	ug/L	50.00		96	85-115			
Iron	223	20.0	ug/L	250.1		89	85-115			
Lead	45.3	4.0	ug/L	50.00		91	85-115			
Nickel	47.8	10.0	ug/L	50.00		96	85-115			
Selenium	90	10	ug/L	99.95		90	85-115			
Silver	23.3	1.0	ug/L	24.98		93	85-115			
Zinc	47.6	10.0	ug/L	50.00		95	85-115			
LCS Dup										
Silver	23.6	1.0	ug/L	24.98		95	85-115	2	20	
Batch CK82843 - 245.1/7470A										
Blank										
Mercury	ND	0.2	ug/L							
Blank										
Mercury	ND	0.2	ug/L							
LCS										
Mercury	5.8	0.2	ug/L	6.042		97	85-115			
LCS Dup										
Mercury	5.5	0.2	ug/L	6.042		91	85-115	6	20	
524.2 Volatile Organic Compounds										
Batch CK82955 - 524.2										
Blank										
1,1,1-Trichloroethane	ND	0.5	ug/L							
1,1,2-Trichloroethane	ND	0.5	ug/L							
1,1-Dichloroethane	ND	0.5	ug/L							
1,1-Dichloroethene	ND	0.5	ug/L							
1,2-Dichlorobenzene	ND	0.5	ug/L							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP

ESS Laboratory Work Order: 1811657

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
524.2 Volatile Organic Compounds										
Batch CK82955 - 524.2										
1,2-Dichloroethane	ND	0.5	ug/L							
1,3-Dichlorobenzene	ND	0.5	ug/L							
1,4-Dichlorobenzene	ND	0.5	ug/L							
Acetone	ND	5.0	ug/L							
Benzene	ND	0.5	ug/L							
Carbon Tetrachloride	ND	0.3	ug/L							
cis-1,2-Dichloroethene	ND	0.5	ug/L							
Ethylbenzene	ND	0.5	ug/L							
Methyl tert-Butyl Ether	ND	0.5	ug/L							
Methylene Chloride	ND	0.5	ug/L							
Naphthalene	ND	0.5	ug/L							
Tertiary-amyl methyl ether	ND	1.0	ug/L							
Tertiary-butyl Alcohol	ND	25.0	ug/L							
Tetrachloroethene	ND	0.5	ug/L							
Toluene	ND	0.5	ug/L							
Trichloroethene	ND	0.5	ug/L							
Vinyl Chloride	ND	0.2	ug/L							
Xylene O	ND	0.5	ug/L							
Xylene P,M	ND	0.5	ug/L							
Surrogate: 1,2-Dichlorobenzene-d4	*4.88*		ug/L	*5.000*		*98*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*4.78*		ug/L	*5.000*		*96*	*80-120*			
LCS										
1,1,1-Trichloroethane	10.2		ug/L	10.00		102	70-130			
1,1,2-Trichloroethane	9.0		ug/L	10.00		90	70-130			
1,1-Dichloroethane	9.3		ug/L	10.00		93	70-130			
1,1-Dichloroethene	9.8		ug/L	10.00		98	70-130			
1,2-Dichlorobenzene	9.4		ug/L	10.00		94	70-130			
1,2-Dichloroethane	9.3		ug/L	10.00		93	70-130			
1,3-Dichlorobenzene	9.6		ug/L	10.00		96	70-130			
1,4-Dichlorobenzene	9.7		ug/L	10.00		97	70-130			
Acetone	53.2		ug/L	50.00		106	70-130			
Benzene	9.3		ug/L	10.00		93	70-130			
Carbon Tetrachloride	10.2		ug/L	10.00		102	70-130			
cis-1,2-Dichloroethene	9.6		ug/L	10.00		96	70-130			
Ethylbenzene	9.6		ug/L	10.00		96	70-130			
Methyl tert-Butyl Ether	9.9		ug/L	10.00		99	70-130			
Methylene Chloride	9.9		ug/L	10.00		99	70-130			
Naphthalene	9.8		ug/L	10.00		98	70-130			
Tertiary-amyl methyl ether	9.7		ug/L	10.00		97	70-130			
Tertiary-butyl Alcohol	52.7		ug/L	50.00		105	70-130			
Tetrachloroethene	9.8		ug/L	10.00		98	70-130			
Toluene	9.6		ug/L	10.00		96	70-130			
Trichloroethene	9.4		ug/L	10.00		94	70-130			
Vinyl Chloride	10.2		ug/L	10.00		102	70-130			
Xylene O	9.3		ug/L	10.00		93	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP

ESS Laboratory Work Order: 1811657

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
524.2 Volatile Organic Compounds										
Batch CK82955 - 524.2										
Xylene P,M	18.9		ug/L	20.00		95	70-130			
Surrogate: 1,2-Dichlorobenzene-d4	*5.24*		ug/L	*5.000*		*105*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*5.14*		ug/L	*5.000*		*103*	*80-120*			
LCS Dup										
1,1,1-Trichloroethane	10.4		ug/L	10.00		104	70-130	2	20	
1,1,2-Trichloroethane	9.2		ug/L	10.00		92	70-130	2	20	
1,1-Dichloroethane	9.5		ug/L	10.00		95	70-130	2	20	
1,1-Dichloroethene	10.1		ug/L	10.00		101	70-130	3	20	
1,2-Dichlorobenzene	9.5		ug/L	10.00		95	70-130	0.7	20	
1,2-Dichloroethane	9.6		ug/L	10.00		96	70-130	4	20	
1,3-Dichlorobenzene	9.7		ug/L	10.00		97	70-130	1	20	
1,4-Dichlorobenzene	9.8		ug/L	10.00		98	70-130	0.7	20	
Acetone	52.0		ug/L	50.00		104	70-130	2	20	
Benzene	9.4		ug/L	10.00		94	70-130	1	20	
Carbon Tetrachloride	10.5		ug/L	10.00		105	70-130	3	20	
cis-1,2-Dichloroethene	9.8		ug/L	10.00		98	70-130	2	20	
Ethylbenzene	9.7		ug/L	10.00		97	70-130	2	20	
Methyl tert-Butyl Ether	10.0		ug/L	10.00		100	70-130	0.3	20	
Methylene Chloride	8.8		ug/L	10.00		88	70-130	11	20	
Naphthalene	10.2		ug/L	10.00		102	70-130	3	20	
Tertiary-amyl methyl ether	9.9		ug/L	10.00		99	70-130	2	20	
Tertiary-butyl Alcohol	51.2		ug/L	50.00		102	70-130	3	25	
Tetrachloroethene	10.0		ug/L	10.00		100	70-130	1	20	
Toluene	9.8		ug/L	10.00		98	70-130	2	20	
Trichloroethene	9.6		ug/L	10.00		96	70-130	2	20	
Vinyl Chloride	10.6		ug/L	10.00		106	70-130	4	20	
Xylene O	9.3		ug/L	10.00		93	70-130	0.2	20	
Xylene P,M	19.1		ug/L	20.00		96	70-130	1	20	
Surrogate: 1,2-Dichlorobenzene-d4	*5.18*		ug/L	*5.000*		*104*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*5.12*		ug/L	*5.000*		*102*	*80-120*			
Batch CK83051 - 524.2										
Blank										
1,1,1-Trichloroethane	ND	0.5	ug/L							
1,1,2-Trichloroethane	ND	0.5	ug/L							
1,1-Dichloroethane	ND	0.5	ug/L							
1,1-Dichloroethene	ND	0.5	ug/L							
1,2-Dichlorobenzene	ND	0.5	ug/L							
1,2-Dichloroethane	ND	0.5	ug/L							
1,3-Dichlorobenzene	ND	0.5	ug/L							
1,4-Dichlorobenzene	ND	0.5	ug/L							
Acetone	ND	5.0	ug/L							
Benzene	ND	0.5	ug/L							
Carbon Tetrachloride	ND	0.3	ug/L							
cis-1,2-Dichloroethene	ND	0.5	ug/L							
Ethylbenzene	ND	0.5	ug/L							

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP

ESS Laboratory Work Order: 1811657

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
524.2 Volatile Organic Compounds										
Batch CK83051 - 524.2										
Methyl tert-Butyl Ether	ND	0.5	ug/L							
Methylene Chloride	ND	0.5	ug/L							
Naphthalene	ND	0.5	ug/L							
Tertiary-amyl methyl ether	ND	1.0	ug/L							
Tertiary-butyl Alcohol	ND	25.0	ug/L							
Tetrachloroethene	ND	0.5	ug/L							
Toluene	ND	0.5	ug/L							
Trichloroethene	ND	0.5	ug/L							
Vinyl Chloride	ND	0.2	ug/L							
Xylene O	ND	0.5	ug/L							
Xylene P,M	ND	0.5	ug/L							
Surrogate: 1,2-Dichlorobenzene-d4	*4.80*		ug/L	*5.000*		*96*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*4.88*		ug/L	*5.000*		*98*	*80-120*			
LCS										
1,1,1-Trichloroethane	10.4		ug/L	10.00		104	70-130			
1,1,2-Trichloroethane	9.7		ug/L	10.00		97	70-130			
1,1-Dichloroethane	9.8		ug/L	10.00		98	70-130			
1,1-Dichloroethene	10.1		ug/L	10.00		101	70-130			
1,2-Dichlorobenzene	9.6		ug/L	10.00		96	70-130			
1,2-Dichloroethane	9.8		ug/L	10.00		98	70-130			
1,3-Dichlorobenzene	9.7		ug/L	10.00		97	70-130			
1,4-Dichlorobenzene	9.8		ug/L	10.00		98	70-130			
Acetone	52.4		ug/L	50.00		105	70-130			
Benzene	9.8		ug/L	10.00		98	70-130			
Carbon Tetrachloride	10.2		ug/L	10.00		102	70-130			
cis-1,2-Dichloroethene	10.0		ug/L	10.00		100	70-130			
Ethylbenzene	10.0		ug/L	10.00		100	70-130			
Methyl tert-Butyl Ether	10.3		ug/L	10.00		103	70-130			
Methylene Chloride	8.3		ug/L	10.00		83	70-130			
Naphthalene	9.7		ug/L	10.00		97	70-130			
Tertiary-amyl methyl ether	10.2		ug/L	10.00		102	70-130			
Tertiary-butyl Alcohol	52.0		ug/L	50.00		104	70-130			
Tetrachloroethene	10.0		ug/L	10.00		100	70-130			
Toluene	10.1		ug/L	10.00		101	70-130			
Trichloroethene	9.8		ug/L	10.00		98	70-130			
Vinyl Chloride	10.6		ug/L	10.00		106	70-130			
Xylene O	9.5		ug/L	10.00		95	70-130			
Xylene P,M	19.5		ug/L	20.00		97	70-130			
Surrogate: 1,2-Dichlorobenzene-d4	*5.02*		ug/L	*5.000*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*5.17*		ug/L	*5.000*		*103*	*80-120*			
LCS Dup										
1,1,1-Trichloroethane	10.5		ug/L	10.00		105	70-130	0.6	20	
1,1,2-Trichloroethane	9.8		ug/L	10.00		98	70-130	0.3	20	
1,1-Dichloroethane	9.8		ug/L	10.00		98	70-130	0.1	20	
1,1-Dichloroethene	10.0		ug/L	10.00		100	70-130	0.9	20	

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
524.2 Volatile Organic Compounds										
Batch CK83051 - 524.2										
1,2-Dichlorobenzene	9.7		ug/L	10.00		97	70-130	2	20	
1,2-Dichloroethane	9.7		ug/L	10.00		97	70-130	0.7	20	
1,3-Dichlorobenzene	9.8		ug/L	10.00		98	70-130	1	20	
1,4-Dichlorobenzene	9.9		ug/L	10.00		99	70-130	0.5	20	
Acetone	52.4		ug/L	50.00		105	70-130	0.08	20	
Benzene	9.9		ug/L	10.00		99	70-130	0.6	20	
Carbon Tetrachloride	10.4		ug/L	10.00		104	70-130	2	20	
cis-1,2-Dichloroethene	10.1		ug/L	10.00		101	70-130	0.5	20	
Ethylbenzene	10.2		ug/L	10.00		102	70-130	2	20	
Methyl tert-Butyl Ether	10.1		ug/L	10.00		101	70-130	3	20	
Methylene Chloride	8.4		ug/L	10.00		84	70-130	2	20	
Naphthalene	9.6		ug/L	10.00		96	70-130	0.9	20	
Tertiary-amyl methyl ether	10.1		ug/L	10.00		101	70-130	2	20	
Tertiary-butyl Alcohol	53.2		ug/L	50.00		106	70-130	2	25	
Tetrachloroethene	10.3		ug/L	10.00		103	70-130	2	20	
Toluene	10.3		ug/L	10.00		103	70-130	2	20	
Trichloroethene	9.9		ug/L	10.00		99	70-130	0.9	20	
Vinyl Chloride	10.6		ug/L	10.00		106	70-130	0.09	20	
Xylene O	9.7		ug/L	10.00		97	70-130	2	20	
Xylene P,M	19.9		ug/L	20.00		99	70-130	2	20	
Surrogate: 1,2-Dichlorobenzene-d4	*5.02*		ug/L	*5.000*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*5.02*		ug/L	*5.000*		*100*	*80-120*			
608.3 Polychlorinated Biphenyls (PCB)										
Batch CK82703 - 3510C										
Blank										
Aroclor 1016	ND	0.05	ug/L							
Aroclor 1016 [2C]	ND	0.05	ug/L							
Aroclor 1221	ND	0.05	ug/L							
Aroclor 1221 [2C]	ND	0.05	ug/L							
Aroclor 1232	ND	0.05	ug/L							
Aroclor 1232 [2C]	ND	0.05	ug/L							
Aroclor 1242	ND	0.05	ug/L							
Aroclor 1242 [2C]	ND	0.05	ug/L							
Aroclor 1248	ND	0.05	ug/L							
Aroclor 1248 [2C]	ND	0.05	ug/L							
Aroclor 1254	ND	0.05	ug/L							
Aroclor 1254 [2C]	ND	0.05	ug/L							
Aroclor 1260	ND	0.05	ug/L							
Aroclor 1260 [2C]	ND	0.05	ug/L							
Aroclor 1262	ND	0.05	ug/L							
Aroclor 1262 [2C]	ND	0.05	ug/L							
Aroclor 1268	ND	0.05	ug/L							
Aroclor 1268 [2C]	ND	0.05	ug/L							

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Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
608.3 Polychlorinated Biphenyls (PCB)										
Batch CK82703 - 3510C										
Surrogate: Decachlorobiphenyl	*0.0388*		ug/L	*0.05000*		*78*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0432*		ug/L	*0.05000*		*86*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0377*		ug/L	*0.05000*		*75*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0389*		ug/L	*0.05000*		*78*	*30-150*			
LCS										
Aroclor 1016	0.99	0.05	ug/L	1.000		99	50-140			
Aroclor 1016 [2C]	0.93	0.05	ug/L	1.000		93	50-140			
Aroclor 1260	0.93	0.05	ug/L	1.000		93	1-164			
Aroclor 1260 [2C]	1.02	0.05	ug/L	1.000		102	1-164			
Surrogate: Decachlorobiphenyl	*0.0439*		ug/L	*0.05000*		*88*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0507*		ug/L	*0.05000*		*101*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0413*		ug/L	*0.05000*		*83*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0400*		ug/L	*0.05000*		*80*	*30-150*			
LCS Dup										
Aroclor 1016	1.08	0.05	ug/L	1.000		108	50-140	9	36	
Aroclor 1016 [2C]	0.97	0.05	ug/L	1.000		97	50-140	4	36	
Aroclor 1260	0.96	0.05	ug/L	1.000		96	1-164	3	38	
Aroclor 1260 [2C]	1.06	0.05	ug/L	1.000		106	1-164	4	38	
Surrogate: Decachlorobiphenyl	*0.0460*		ug/L	*0.05000*		*92*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0529*		ug/L	*0.05000*		*106*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0457*		ug/L	*0.05000*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0433*		ug/L	*0.05000*		*87*	*30-150*			
Batch CL80326 - 3510C										
Blank										
Aroclor 1016	ND	0.05	ug/L							
Aroclor 1016 [2C]	ND	0.05	ug/L							
Aroclor 1221	ND	0.05	ug/L							
Aroclor 1221 [2C]	ND	0.05	ug/L							
Aroclor 1232	ND	0.05	ug/L							
Aroclor 1232 [2C]	ND	0.05	ug/L							
Aroclor 1242	ND	0.05	ug/L							
Aroclor 1242 [2C]	ND	0.05	ug/L							
Aroclor 1248	ND	0.05	ug/L							
Aroclor 1248 [2C]	ND	0.05	ug/L							
Aroclor 1254	ND	0.05	ug/L							
Aroclor 1254 [2C]	ND	0.05	ug/L							
Aroclor 1260	ND	0.05	ug/L							
Aroclor 1260 [2C]	ND	0.05	ug/L							
Aroclor 1262	ND	0.05	ug/L							
Aroclor 1262 [2C]	ND	0.05	ug/L							
Aroclor 1268	ND	0.05	ug/L							
Aroclor 1268 [2C]	ND	0.05	ug/L							

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
608.3 Polychlorinated Biphenyls (PCB)										
Batch CL80326 - 3510C										
Surrogate: Decachlorobiphenyl	*0.0321*		ug/L	*0.05000*		*64*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0388*		ug/L	*0.05000*		*78*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0407*		ug/L	*0.05000*		*81*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0437*		ug/L	*0.05000*		*87*	*30-150*			
LCS										
Aroclor 1016	1.07	0.05	ug/L	1.000		107	50-140			
Aroclor 1016 [2C]	0.95	0.05	ug/L	1.000		95	50-140			
Aroclor 1260	0.93	0.05	ug/L	1.000		93	1-164			
Aroclor 1260 [2C]	1.03	0.05	ug/L	1.000		103	1-164			
Surrogate: Decachlorobiphenyl	*0.0417*		ug/L	*0.05000*		*83*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0494*		ug/L	*0.05000*		*99*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0458*		ug/L	*0.05000*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0447*		ug/L	*0.05000*		*89*	*30-150*			
LCS Dup										
Aroclor 1016	1.05	0.05	ug/L	1.000		105	50-140	2	36	
Aroclor 1016 [2C]	1.00	0.05	ug/L	1.000		100	50-140	5	36	
Aroclor 1260	0.94	0.05	ug/L	1.000		94	1-164	2	38	
Aroclor 1260 [2C]	1.02	0.05	ug/L	1.000		102	1-164	0.3	38	
Surrogate: Decachlorobiphenyl	*0.0423*		ug/L	*0.05000*		*85*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0491*		ug/L	*0.05000*		*98*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0381*		ug/L	*0.05000*		*76*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0339*		ug/L	*0.05000*		*68*	*30-150*			
625.1(SIM) Semi-Volatile Organic Compounds										
Batch CK83001 - 3510C										
Blank										
Acenaphthene	ND	0.20	ug/L							
Acenaphthylene	ND	0.20	ug/L							
Anthracene	ND	0.20	ug/L							
Benzo(a)anthracene	ND	0.05	ug/L							
Benzo(a)pyrene	ND	0.05	ug/L							
Benzo(b)fluoranthene	ND	0.05	ug/L							
Benzo(g,h,i)perylene	ND	0.20	ug/L							
Benzo(k)fluoranthene	ND	0.05	ug/L							
bis(2-Ethylhexyl)phthalate	ND	2.50	ug/L							
Butylbenzylphthalate	ND	2.50	ug/L							
Chrysene	ND	0.05	ug/L							
Dibenzo(a,h)Anthracene	ND	0.05	ug/L							
Diethylphthalate	ND	2.50	ug/L							
Dimethylphthalate	ND	2.50	ug/L							
Di-n-butylphthalate	ND	2.50	ug/L							
Di-n-octylphthalate	ND	2.50	ug/L							

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
625.1(SIM) Semi-Volatile Organic Compounds										
Batch CK83001 - 3510C										
Fluoranthene	ND	0.20	ug/L							
Fluorene	ND	0.20	ug/L							
Indeno(1,2,3-cd)Pyrene	ND	0.05	ug/L							
Naphthalene	6.77	0.20	ug/L							
Pentachlorophenol	ND	0.90	ug/L							
Phenanthrene	ND	0.20	ug/L							
Pyrene	ND	0.20	ug/L							
Surrogate: 1,2-Dichlorobenzene-d4	*0.446*		ug/L	*2.500*		*18*	*30-130*			*S-*
Surrogate: 2,4,6-Tribromophenol	*3.71*		ug/L	*3.750*		*99*	*15-110*			
Surrogate: 2-Fluorobiphenyl	*1.03*		ug/L	*2.500*		*41*	*30-130*			
Surrogate: Nitrobenzene-d5	*1.89*		ug/L	*2.500*		*76*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.20*		ug/L	*2.500*		*88*	*30-130*			
LCS										
Acenaphthene	3.34	0.20	ug/L	4.000		83	40-140			
Acenaphthylene	3.13	0.20	ug/L	4.000		78	40-140			
Anthracene	3.02	0.20	ug/L	4.000		76	40-140			
Benzo(a)anthracene	2.82	0.05	ug/L	4.000		71	40-140			
Benzo(a)pyrene	3.04	0.05	ug/L	4.000		76	40-140			
Benzo(b)fluoranthene	3.27	0.05	ug/L	4.000		82	40-140			
Benzo(g,h,i)perylene	3.27	0.20	ug/L	4.000		82	40-140			
Benzo(k)fluoranthene	3.04	0.05	ug/L	4.000		76	40-140			
bis(2-Ethylhexyl)phthalate	4.11	2.50	ug/L	4.000		103	40-140			
Butylbenzylphthalate	3.87	2.50	ug/L	4.000		97	40-140			
Chrysene	2.97	0.05	ug/L	4.000		74	40-140			
Dibenzo(a,h)Anthracene	3.44	0.05	ug/L	4.000		86	40-140			
Diethylphthalate	3.66	2.50	ug/L	4.000		91	40-140			
Dimethylphthalate	3.78	2.50	ug/L	4.000		94	40-140			
Di-n-butylphthalate	3.51	2.50	ug/L	4.000		88	40-140			
Di-n-octylphthalate	3.75	2.50	ug/L	4.000		94	40-140			
Fluoranthene	3.12	0.20	ug/L	4.000		78	40-140			
Fluorene	3.46	0.20	ug/L	4.000		87	40-140			
Indeno(1,2,3-cd)Pyrene	3.39	0.05	ug/L	4.000		85	40-140			
Naphthalene	2.84	0.20	ug/L	4.000		71	40-140			
Pentachlorophenol	3.92	0.90	ug/L	4.000		98	30-130			
Phenanthrene	2.93	0.20	ug/L	4.000		73	40-140			
Pyrene	3.04	0.20	ug/L	4.000		76	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*1.66*		ug/L	*2.500*		*66*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.77*		ug/L	*3.750*		*127*	*15-110*			*S+*
Surrogate: 2-Fluorobiphenyl	*2.21*		ug/L	*2.500*		*88*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.37*		ug/L	*2.500*		*95*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.31*		ug/L	*2.500*		*93*	*30-130*			
LCS Dup										
Acenaphthene	2.59	0.20	ug/L	4.000		65	40-140	25	20	D+
Acenaphthylene	2.52	0.20	ug/L	4.000		63	40-140	21	20	D+
Anthracene	2.82	0.20	ug/L	4.000		71	40-140	7	20	

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
625.1(SIM) Semi-Volatile Organic Compounds										
Batch CK83001 - 3510C										
Benzo(a)anthracene	2.80	0.05	ug/L	4.000		70	40-140	1	20	
Benzo(a)pyrene	2.94	0.05	ug/L	4.000		74	40-140	3	20	
Benzo(b)fluoranthene	3.26	0.05	ug/L	4.000		81	40-140	0.3	20	
Benzo(g,h,i)perylene	3.11	0.20	ug/L	4.000		78	40-140	5	20	
Benzo(k)fluoranthene	2.84	0.05	ug/L	4.000		71	40-140	7	20	
bis(2-Ethylhexyl)phthalate	4.37	2.50	ug/L	4.000		109	40-140	6	20	
Butylbenzylphthalate	4.17	2.50	ug/L	4.000		104	40-140	7	20	
Chrysene	2.88	0.05	ug/L	4.000		72	40-140	3	20	
Dibenzo(a,h)Anthracene	3.24	0.05	ug/L	4.000		81	40-140	6	20	
Diethylphthalate	3.59	2.50	ug/L	4.000		90	40-140	2	20	
Dimethylphthalate	3.62	2.50	ug/L	4.000		90	40-140	4	20	
Di-n-butylphthalate	3.44	2.50	ug/L	4.000		86	40-140	2	20	
Di-n-octylphthalate	3.77	2.50	ug/L	4.000		94	40-140	0.5	20	
Fluoranthene	3.08	0.20	ug/L	4.000		77	40-140	1	20	
Fluorene	3.03	0.20	ug/L	4.000		76	40-140	14	20	
Indeno(1,2,3-cd)Pyrene	3.26	0.05	ug/L	4.000		82	40-140	4	20	
Naphthalene	1.76	0.20	ug/L	4.000		44	40-140	47	20	D+
Pentachlorophenol	3.03	0.90	ug/L	4.000		76	30-130	26	20	D+
Phenanthrene	2.78	0.20	ug/L	4.000		70	40-140	5	20	
Pyrene	3.09	0.20	ug/L	4.000		77	40-140	2	20	
Surrogate: 1,2-Dichlorobenzene-d4	*0.558*		ug/L	*2.500*		*22*	*30-130*			*S-*
Surrogate: 2,4,6-Tribromophenol	*4.15*		ug/L	*3.750*		*111*	*15-110*			*S+*
Surrogate: 2-Fluorobiphenyl	*1.22*		ug/L	*2.500*		*49*	*30-130*			
Surrogate: Nitrobenzene-d5	*1.94*		ug/L	*2.500*		*78*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.18*		ug/L	*2.500*		*87*	*30-130*			
8270D(SIM) Semi-Volatile Organic Compounds w/ Isotope Dilution										
Batch CK82749 - 3535A										
Blank										
1,4-Dioxane	ND	0.250	ug/L							
Surrogate: 1,4-Dioxane-d8	*ND*		ug/L	*5.000*		*32*	*15-115*			
LCS										
1,4-Dioxane	10.4	0.250	ug/L	10.00		104	40-140			
Surrogate: 1,4-Dioxane-d8	*2.43*		ug/L	*5.000*		*49*	*15-115*			
LCS										
1,4-Dioxane	11.7	0.250	ug/L	10.00		117	40-140			
Surrogate: 1,4-Dioxane-d8	*1.84*		ug/L	*5.000*		*37*	*15-115*			
LCS Dup										
1,4-Dioxane	10.5	0.250	ug/L	10.00		105	40-140	1	20	
Surrogate: 1,4-Dioxane-d8	*2.67*		ug/L	*5.000*		*53*	*15-115*			
Batch CL80359 - 3535A										
Blank										
1,4-Dioxane	ND	0.250	ug/L							
Surrogate: 1,4-Dioxane-d8	*ND*		ug/L	*5.000*		*29*	*15-115*			

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D(SIM) Semi-Volatile Organic Compounds w/ Isotope Dilution										
Batch CL80359 - 3535A										
LCS										
1,4-Dioxane	11.1	0.250	ug/L	10.00		111	40-140			
Surrogate: 1,4-Dioxane-d8	*2.06*		ug/L	*5.000*		*41*	*15-115*			
LCS Dup										
1,4-Dioxane	10.7	0.250	ug/L	10.00		107	40-140	3	20	
Surrogate: 1,4-Dioxane-d8	*2.17*		ug/L	*5.000*		*43*	*15-115*			
Classical Chemistry										
Batch CK82726 - General Preparation										
Blank										
Total Residual Chlorine	ND	20.0	ug/L							
LCS										
Total Residual Chlorine	0.72		mg/L	0.7320		98	85-115			
Batch CK82727 - General Preparation										
Blank										
Hexavalent Chromium	ND	10.0	ug/L							
LCS										
Hexavalent Chromium	0.509		mg/L	0.4998		102	90-110			
LCS Dup										
Hexavalent Chromium	0.505		mg/L	0.4998		101	90-110	0.8	20	
Batch CK82904 - General Preparation										
Blank										
Total Petroleum Hydrocarbon	ND	5	mg/L							
LCS										
Total Petroleum Hydrocarbon	16	5	mg/L	19.38		82	66-114			
Batch CK83017 - NH4 Prep										
Blank										
Ammonia as N	ND	0.10	mg/L							
LCS										
Ammonia as N	0.09	0.10	mg/L	0.09994		88	80-120			
LCS										
Ammonia as N	1.11	0.10	mg/L	0.9994		111	80-120			
Batch CK83019 - TCN Prep										
Blank										
Total Cyanide	ND	5.00	ug/L							
LCS										
Total Cyanide	19.3	5.00	ug/L	20.06		96	90-110			
LCS										
Total Cyanide	148	5.00	ug/L	150.4		98	90-110			
LCS Dup										

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP

ESS Laboratory Work Order: 1811657

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Classical Chemistry										
Batch CK83019 - TCN Prep										
Total Cyanide	149	5.00	ug/L	150.4		99	90-110	0.6	20	
Batch CK83036 - General Preparation										
Blank										
Total Suspended Solids	ND	5	mg/L							
LCS										
Total Suspended Solids	82		mg/L	85.00		96	80-120			
Batch CK83048 - General Preparation										
Blank										
Chloride	ND	0.5	mg/L							
LCS										
Chloride	2.7		mg/L	2.500		108	90-110			
504.1 1,2-Dibromoethane / 1,2-Dibromo-3-chloropropane										
Batch CL80333 - 504/8011										
Blank										
1,2-Dibromoethane	ND	0.015	ug/L							
1,2-Dibromoethane [2C]	ND	0.015	ug/L							
Surrogate: Pentachloroethane	*0.199*		ug/L	*0.2000*		*99*	*30-150*			
Surrogate: Pentachloroethane [2C]	*0.191*		ug/L	*0.2000*		*95*	*30-150*			
LCS										
1,2-Dibromoethane	0.072	0.015	ug/L	0.08000		90	70-130			
1,2-Dibromoethane [2C]	0.080	0.015	ug/L	0.08000		100	70-130			
Surrogate: Pentachloroethane	*0.0796*		ug/L	*0.08000*		*100*	*30-150*			
Surrogate: Pentachloroethane [2C]	*0.0792*		ug/L	*0.08000*		*99*	*30-150*			
LCS										
1,2-Dibromoethane	0.198	0.015	ug/L	0.2000		99	70-130			
1,2-Dibromoethane [2C]	0.200	0.015	ug/L	0.2000		100	70-130			
Surrogate: Pentachloroethane	*0.197*		ug/L	*0.2000*		*99*	*30-150*			
Surrogate: Pentachloroethane [2C]	*0.189*		ug/L	*0.2000*		*95*	*30-150*			
Alcohol Scan by GC/FID										
Batch CL80301 - No Prep										
Blank										
Ethanol	ND	10	mg/L							
LCS										
Ethanol	928	10	mg/L	1134		82	60-140			
LCS Dup										
Ethanol	868	10	mg/L	1134		77	60-140	7	30	

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP ESS Laboratory Work Order: 1811657

Notes and Definitions

X5	Field filtered
U	Analyte included in the analysis, but not detected
SM	Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).
SC	Surrogate recovery(ies) outside of criteria. Reextraction/Reanalysis confirms results (SC).
S+	Surrogate recovery(ies) above upper control limit (S+).
S-	Surrogate recovery(ies) below lower control limit (S-).
PT	Pentachlorophenol tailing factor > 2.
HT	The maximum holding time listed in 40 CFR Part 136 Table II for pH, Dissolved Oxygen, Sulfite and Residual Chlorine is fifteen minutes.
EL	Elevated Method Reporting Limits due to sample matrix (EL).
D+	Relative percent difference for duplicate is outside of criteria (D+).
D	Diluted.
CD+	Continuing Calibration %Diff/Drift is above control limit (CD+).
BT	Benzidine tailing factor >2.
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report
RL	Reporting Limit
EDL	Estimated Detection Limit
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP

ESS Laboratory Work Order: 1811657

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Tighe & Bond - KPB/TB/MM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1811657
Date Received: 11/27/2018
Project Due Date: 12/4/2018
Days for Project: 5 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 3.5 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? No
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** (Yes) / No / NA
10. Were any analyses received outside of hold time? Yes (No)

11. Any Subcontracting needed? Yes (No)
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? (Yes) / No
    a. Air bubbles in aqueous VOAs? Yes / (No)
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? (Yes) No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOA vials frozen: Date: Time: By:

Sample Receiving Notes:

Rec'd 1 VOC/EDB vial empty for sample 4. Rec'd ethanol vial empty for sample 6.

pHs for samples 3--6 are all <12

14. Was there a need to contact Project Manager? (Yes) / No
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	294256	Yes	No	Yes	VOA Vial - HCl	HCl	
01	294257	Yes	No	Yes	VOA Vial - HCl	HCl	
01	294258	Yes	No	Yes	VOA Vial - HCl	HCl	
01	294259	Yes	No	Yes	VOA Vial - HCl	HCl	
01	294260	Yes	No	Yes	VOA Vial - HCl	HCl	
01	294261	Yes	No	Yes	VOA Vial - HCl	HCl	
01	294273	Yes	NA	Yes	VOA Vial - Unpres	NP	
01	294304	Yes	NA	Yes	1L Amber - Unpres	NP	
01	294305	Yes	NA	Yes	1L Amber - Unpres	NP	
01	294306	Yes	NA	Yes	1L Amber - Unpres	NP	
01	294307	Yes	NA	Yes	1L Amber - Unpres	NP	
01	294308	Yes	NA	Yes	1L Amber - Unpres	NP	
01	294309	Yes	NA	Yes	1L Amber - Unpres	NP	
01	294327	Yes	NA	Yes	1L Amber - H2SO4	H2SO4	
01	294333	Yes	NA	Yes	1L Poly - Unpres	NP	
01	294345	Yes	NA	Yes	250 mL Poly - Unpres	NP	
01	294351	Yes	NA	Yes	250 mL Poly - NaOH	NaOH	**pH > 12 11/27/18**
01	294357	Yes	NA	Yes	500 mL Poly - HNO3	HNO3	
01	294363	Yes	NA	Yes	250 mL Poly - HNO3	HNO3	
01	294566	Yes	NA	Yes	500 mL Poly - H2SO4	H2SO4	
01	294572	Yes	NA	Yes	500 mL Poly - HNO3	HNO3	
02	294250	Yes	No	Yes	VOA Vial - HCl	HCl	
02	294251	Yes	No	Yes	VOA Vial - HCl	HCl	
02	294252	Yes	No	Yes	VOA Vial - HCl	HCl	

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Tighe & Bond - KPB/TB/MM

ESS Project ID: 1811657

Date Received: 11/27/2018

02	294253	Yes	No	Yes	VOA Vial - HCl	HCl	
02	294254	Yes	No	Yes	VOA Vial - HCl	HCl	
02	294255	Yes	No	Yes	VOA Vial - HCl	HCl	
02	294271	Yes	NA	Yes	VOA Vial - Unpres	NP	
02	294298	Yes	NA	Yes	1L Amber - Unpres	NP	
02	294299	Yes	NA	Yes	1L Amber - Unpres	NP	
02	294300	Yes	NA	Yes	1L Amber - Unpres	NP	
02	294301	Yes	NA	Yes	1L Amber - Unpres	NP	
02	294302	Yes	NA	Yes	1L Amber - Unpres	NP	
02	294303	Yes	NA	Yes	1L Amber - Unpres	NP	
02	294324	Yes	NA	Yes	1L Amber - H2SO4	H2SO4	
02	294332	Yes	NA	Yes	1L Poly - Unpres	NP	
02	294344	Yes	NA	Yes	250 mL Poly - Unpres	NP	
02	294350	Yes	NA	Yes	250 mL Poly - NaOH	NaOH	**pH > 12 11/27/18**
02	294356	Yes	NA	Yes	500 mL Poly - HNO3	HNO3	
02	294362	Yes	NA	Yes	250 mL Poly - HNO3	HNO3	
02	294565	Yes	NA	Yes	500 mL Poly - H2SO4	H2SO4	
02	294571	Yes	NA	Yes	500 mL Poly - HNO3	HNO3	
03	294244	Yes	No	Yes	VOA Vial - HCl	HCl	
03	294245	Yes	No	Yes	VOA Vial - HCl	HCl	
03	294246	Yes	No	Yes	VOA Vial - HCl	HCl	
03	294247	Yes	No	Yes	VOA Vial - HCl	HCl	
03	294248	Yes	No	Yes	VOA Vial - HCl	HCl	
03	294249	Yes	No	Yes	VOA Vial - HCl	HCl	
03	294269	Yes	NA	Yes	VOA Vial - Unpres	NP	
03	294292	Yes	NA	Yes	1L Amber - Unpres	NP	
03	294293	Yes	NA	Yes	1L Amber - Unpres	NP	
03	294294	Yes	NA	Yes	1L Amber - Unpres	NP	
03	294295	Yes	NA	Yes	1L Amber - Unpres	NP	
03	294296	Yes	NA	Yes	1L Amber - Unpres	NP	
03	294297	Yes	NA	Yes	1L Amber - Unpres	NP	
03	294321	Yes	NA	Yes	1L Amber - H2SO4	H2SO4	
03	294331	Yes	NA	Yes	1L Poly - Unpres	NP	
03	294343	Yes	NA	Yes	250 mL Poly - Unpres	NP	
03	294349	Yes	NA	Yes	250 mL Poly - NaOH	NaOH	**pH = 11 11/27/18**
03	294355	Yes	NA	Yes	500 mL Poly - HNO3	HNO3	
03	294361	Yes	NA	Yes	250 mL Poly - HNO3	HNO3	
03	294564	Yes	NA	Yes	500 mL Poly - H2SO4	H2SO4	
03	294570	Yes	NA	Yes	500 mL Poly - HNO3	HNO3	
04	294239	Yes	No	Yes	VOA Vial - HCl	HCl	
04	294240	Yes	No	Yes	VOA Vial - HCl	HCl	
04	294241	Yes	No	Yes	VOA Vial - HCl	HCl	
04	294242	Yes	No	Yes	VOA Vial - HCl	HCl	
04	294243	Yes	No	Yes	VOA Vial - HCl	HCl	
04	294267	Yes	NA	Yes	VOA Vial - Unpres	NP	
04	294286	Yes	NA	Yes	1L Amber - Unpres	NP	
04	294287	Yes	NA	Yes	1L Amber - Unpres	NP	
04	294288	Yes	NA	Yes	1L Amber - Unpres	NP	
04	294289	Yes	NA	Yes	1L Amber - Unpres	NP	
04	294290	Yes	NA	Yes	1L Amber - Unpres	NP	
04	294291	Yes	NA	Yes	1L Amber - Unpres	NP	
04	294318	Yes	NA	Yes	1L Amber - H2SO4	H2SO4	
04	294330	Yes	NA	Yes	1L Poly - Unpres	NP	
04	294342	Yes	NA	Yes	250 mL Poly - Unpres	NP	
04	294348	Yes	NA	Yes	250 mL Poly - NaOH	NaOH	**pH = 11 11/27/18**
04	294354	Yes	NA	Yes	500 mL Poly - HNO3	HNO3	
04	294360	Yes	NA	Yes	250 mL Poly - HNO3	HNO3	
04	294563	Yes	NA	Yes	500 mL Poly - H2SO4	H2SO4	
04	294569	Yes	NA	Yes	500 mL Poly - HNO3	HNO3	
05	294232	Yes	No	Yes	VOA Vial - HCl	HCl	
05	294233	Yes	No	Yes	VOA Vial - HCl	HCl	
05	294234	Yes	No	Yes	VOA Vial - HCl	HCl	
05	294235	Yes	No	Yes	VOA Vial - HCl	HCl	
05	294236	Yes	No	Yes	VOA Vial - HCl	HCl	
05	294237	Yes	No	Yes	VOA Vial - HCl	HCl	
05	294265	Yes	NA	Yes	VOA Vial - Unpres	NP	
05	294280	Yes	NA	Yes	1L Amber - Unpres	NP	
05	294281	Yes	NA	Yes	1L Amber - Unpres	NP	
05	294282	Yes	NA	Yes	1L Amber - Unpres	NP	
05	294283	Yes	NA	Yes	1L Amber - Unpres	NP	

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Tighe & Bond - KPB/TB/MM

ESS Project ID: 1811657

Date Received: 11/27/2018

05	294284	Yes	NA	Yes	1L Amber - Unpres	NP	
05	294285	Yes	NA	Yes	1L Amber - Unpres	NP	
05	294315	Yes	NA	Yes	1L Amber - H2SO4	H2SO4	
05	294329	Yes	NA	Yes	1L Poly - Unpres	NP	
05	294341	Yes	NA	Yes	250 mL Poly - Unpres	NP	
05	294347	Yes	NA	Yes	250 mL Poly - NaOH	NaOH	**pH = 11 11/27/18**
05	294353	Yes	NA	Yes	500 mL Poly - HNO3	HNO3	
05	294359	Yes	NA	Yes	250 mL Poly - HNO3	HNO3	
05	294562	Yes	NA	Yes	500 mL Poly - H2SO4	H2SO4	
05	294568	Yes	NA	Yes	500 mL Poly - HNO3	HNO3	
06	294226	Yes	No	Yes	VOA Vial - HCl	HCl	
06	294227	Yes	No	Yes	VOA Vial - HCl	HCl	
06	294228	Yes	No	Yes	VOA Vial - HCl	HCl	
06	294229	Yes	No	Yes	VOA Vial - HCl	HCl	
06	294230	Yes	No	Yes	VOA Vial - HCl	HCl	
06	294231	Yes	No	Yes	VOA Vial - HCl	HCl	
06	294274	Yes	NA	Yes	1L Amber - Unpres	NP	
06	294275	Yes	NA	Yes	1L Amber - Unpres	NP	
06	294276	Yes	NA	Yes	1L Amber - Unpres	NP	
06	294277	Yes	NA	Yes	1L Amber - Unpres	NP	
06	294278	Yes	NA	Yes	1L Amber - Unpres	NP	
06	294279	Yes	NA	Yes	1L Amber - Unpres	NP	
06	294312	Yes	NA	Yes	1L Amber - H2SO4	H2SO4	
06	294328	Yes	NA	Yes	1L Poly - Unpres	NP	
06	294340	Yes	NA	Yes	250 mL Poly - Unpres	NP	
06	294346	Yes	NA	Yes	250 mL Poly - NaOH	NaOH	**pH = 11 11/27/18**
06	294352	Yes	NA	Yes	500 mL Poly - HNO3	HNO3	
06	294358	Yes	NA	Yes	250 mL Poly - HNO3	HNO3	
06	294561	Yes	NA	Yes	500 mL Poly - H2SO4	H2SO4	
06	294567	Yes	NA	Yes	500 mL Poly - HNO3	HNO3	

2nd Review

Are barcode labels on correct containers? (Yes) / No

Are all necessary stickers attached? (Yes) / No

Completed By: _____ Date & Time: 11/27/18 2237

Reviewed By: _____ Date & Time: 11/27/18 2252

Delivered By: _____ 11/28/18 2306

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS LAB PROJECT ID: 1811657

Turn Time: X Standard Rush _____ Approved By: _____

Reporting Limits - Discharge into: Fresh Water ☐ Salt Water ☒

State where samples were collected: (MA) NH

Is this project for: RGP

Electonic Deliverable Yes X No ____ Format: Excel X Access ___ PDF X Other Envirodata EDD to J. Libby

Project Manager: Michael Martin
Company: Tighe + Bond
Address: 4 Barlows Landing Suite #15 Pocasset, MA

Project # 140754003A
Project Name: Eversource: Station 131
PO #

ESS Lab Sample ID	Date	Collection Time	Grab -G Composite-C	Matrix	Sample Identification	# of Containers	RGP Metals Total	RGP Metals Dissolved	Hardness (Calculation)	Ethanol ASTM D3695*	Chloride 300.0*	Total Cyanide 4500 LL	TPH 1664	TSS 2540D*	TRC 4500-CL D*	Ammonia 350.1	Tri Cr (Calc. MUST run T. Cr)	Hex Cr 3500	Phenol 420.1	RGP VOC Long List 524	1,4-Dioxane 8270-SIM	EDB 504.1	RGP SVOC Log List 625-SIM	PCB 608	Comment #
1	11-27-18	800	G	GW	MW-1	22	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1,2
2	11-27-18	830	G	GW	MW-1F	22		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1,2
3	11-27-18	900	G	GW	MW-13	22	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1,2
4	11-27-18	930	G	GW	MW-13F	22		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1,2
5	11-27-18	1000	G	GW	MW-5	22	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1,2
6	11-27-18	~~1100~~ 1100	G	GW	MW-5F	22		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1,2
Preservation Code: 1-NP, 2-HCl, 3-H2SO4, 4-HNO3, 5-NaOH, 6-MeOH, 7-Asorbic Acid, 8-ZnAct, 9-_____							4	4	4	1	1	5	3	1	1	3	-	1	3	2	1	2	1	1	
Container Type: P-Poly G-Glass AG-Amber Glass S-Sterile V-VOA							P	P	P	V	P	P	AG	P	P	P	-	P	AG	V	AG	V	AG	AG	

Matrix: S-Soil SD-Solid D-Sludge WW-Wastewater GW-Groundwater SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filter

Cooler Present 1 Yes ____ No
Seals Intact ___ Yes ___ No NA: ✓
Cooler Temperature: ICC temp: 3.5

Sampled by: C. BROTHERS

Comments: 1) RGP Metals include Sb, As, Cd, Cu, Fe, Pb, Ni, Se, Ag and Zn by 200.7/3113B and Hg by 245.1
2) Parameters in **BOLD** have Short hold-time **PERMIT ATTACHED**
*** TSS, TRC and Cl taken from the same container**

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Colleen E Brothers	11-28-18 1135			11/27/18 18:35	11/28/18 2118
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)

Please E-mail all changes to Chain of Custody in writii

Per conversatio with Mike Martin all sample ID's dentoted with an "F" have been field filtered for all parameters - ML 12/6/18

Page ____ of ____

ESS Laboratory

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185 Frances Avenue, Cranston, RI 02910-2211
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS LAB PROJECT ID: 1811657

Turn Time: X Standard Rush _____ Approved By: _____

Reporting Limits -

State where samples were collected: (MA) NH

Discharge into: Fresh Water ☐ Salt Water ☒

Is this project for: RGP

Electonic Deliverable Yes X No ____ Format: Excel X Access ___ PDF X Other Envirodata EDD to J. Libby

Project Manager: Michael Martin
Company: Tighe + Bond
Address: 4 Barlows Landing Suite #15 Pocasset, MA

Project #: 140754003A
Project Name: Eversource: Station 131
PO #

ESS Lab Sample ID	Date	Collection Time	Grab -G Composite-C	Matrix	Sample Identification	# of Containers	RGP Metals Total	RGP Metals Dissolved	Hardness (Calculation)	Ethanol ASTM D3695*	Chloride 300.0*	Total Cyanide 4500 LL	TPH 1664	TSS 2540D*	TRC 4500-CL D*	Ammonia 350.1	Tri Cr (Calc. MUST run T. Cr)	Hex Cr 3500	Phenol 420.1	RGP VOC Long List 524	1,4-Dioxane 8270-SIM	EDB 504.1	RGP SVOC Log List 625-SIM	PCB 608	Comment #
1	11-27-18	800	G	GW	MW-1	22	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1,2
2	11-27-18	830	G	GW	MW-1F	22		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1,2
3	11-27-18	900	G	GW	MW-13	22	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1,2
4	11-27-18	930	G	GW	MW-13F	22		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1,2
5	11-27-18	1000	G	GW	MW-5	22	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1,2
6	11-27-18	~~1030~~ 1100	G	GW	MW-5F	22		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1,2
Preservation Code: 1-NP, 2-HCl, 3-H2SO4, 4-HNO3, 5-NaOH, 6-MeOH, 7-Asorbic Acid, 8-ZnAct, 9-_____							4	4	4	1	1	5	3	1	1	3	-	1	3	2	1	2	1	1	
Container Type: P-Poly G-Glass AG-Amber Glass S-Sterile V-VOA							P	P	P	V	P	P	AG	P	P	P	-	P	AG	V	AG	V	AG	AG	

Matrix: S-Soil SD-Solid D-Sludge WW-Wastewater GW-Groundwater SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filter

Cooler Present 1 Yes ____ No
Seals Intact ___ Yes ___ No NA: ✓
Cooler Temperature: ice temp: 3.5

Sampled by: C. BROTHERS

Comments: 1) RGP Metals include Sb, As, Cd, Cu, Fe, Pb, Ni, Se, Ag and Zn by 200.7/3113B and Hg by 245.1
2) Parameters in **BOLD** have Short hold-time **PERMIT ATTACHED**
*** TSS, TRC and Cl taken from the same container**

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Colleen E Brothers	11-28-18			11/27/18 18:35	11/28/18 2118
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)

Please E-mail all changes to Chain of Custody in writii

CERTIFICATE OF ANALYSIS

Michael Martin
Tighe & Bond
4 Barlows Landing Road, Unit 15
Pocasset, MA 02559

RE: Eversource Station 131 - RGP (E-0754-003A)
ESS Laboratory Work Order Number: 1812540

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 12:44 pm, Dec 31, 2018

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP

ESS Laboratory Work Order: 1812540

SAMPLE RECEIPT

The following samples were received on December 20, 2018 for the analyses specified on the enclosed Chain of Custody Record.

The samples and analyses listed below were analyzed in accordance with the 2017 Remediation General Permit under the National Pollutant Discharge Elimination System (NPDES).

ESS Laboratory is unable to achieve the required detection limit of 0.4 mg/L for Ethanol for the RGP permit. We have also been unable to procure a subcontract laboatory that is able to achieve this limit. The data for Ethanol has been reported using our current method reporting limit.

Lab Number	Sample Name	Matrix	Analysis
1812540-01	MW-1	Ground Water	420.1
1812540-02	MW-1F	Ground Water	420.1
1812540-03	MW-5	Ground Water	420.1
1812540-04	MW-5F	Ground Water	420.1
1812540-05	MW-13	Ground Water	420.1
1812540-06	MW-13F	Ground Water	420.1

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP

ESS Laboratory Work Order: 1812540

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP

ESS Laboratory Work Order: 1812540

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH
MADEP 04-2.1 - VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP

ESS Laboratory Work Order: 1812540

Classical Chemistry

Client Sample ID: MW-1
Date Sampled: 12/19/18 08:15
Percent Solids: N/A

ESS Laboratory Sample ID: 1812540-01
Sample Matrix: Ground Water

Analyte	Results	Units	MRL	Method	DF	Analyst	Analyzed
Phenols	ND	ug/L	100	420.1	1	JLK	12/26/18 16:41

Client Sample ID: MW-1F
Date Sampled: 12/19/18 08:15
Percent Solids: N/A

ESS Laboratory Sample ID: 1812540-02
Sample Matrix: Ground Water

Analyte	Results	Units	MRL	Method	DF	Analyst	Analyzed
Phenols	ND	ug/L	100	420.1	1	JLK	12/26/18 16:41

Client Sample ID: MW-5
Date Sampled: 12/19/18 13:00
Percent Solids: N/A

ESS Laboratory Sample ID: 1812540-03
Sample Matrix: Ground Water

Analyte	Results	Units	MRL	Method	DF	Analyst	Analyzed
Phenols	ND	ug/L	100	420.1	1	JLK	12/26/18 16:41

Client Sample ID: MW-5F
Date Sampled: 12/19/18 13:00
Percent Solids: N/A

ESS Laboratory Sample ID: 1812540-04
Sample Matrix: Ground Water

Analyte	Results	Units	MRL	Method	DF	Analyst	Analyzed
Phenols	ND	ug/L	100	420.1	1	JLK	12/26/18 16:41

Client Sample ID: MW-13
Date Sampled: 12/19/18 10:50
Percent Solids: N/A

ESS Laboratory Sample ID: 1812540-05
Sample Matrix: Ground Water

Analyte	Results	Units	MRL	Method	DF	Analyst	Analyzed
Phenols	ND	ug/L	100	420.1	1	JLK	12/26/18 16:41

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP

ESS Laboratory Work Order: 1812540

Classical Chemistry

Client Sample ID: MW-13F
Date Sampled: 12/19/18 10:50
Percent Solids: N/A

ESS Laboratory Sample ID: 1812540-06
Sample Matrix: Ground Water

Analyte	Results	Units	MRL	Method	DF	Analyst	Analyzed
Phenols	ND	ug/L	100	420.1	1	JLK	12/26/18 16:41

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP

ESS Laboratory Work Order: 1812540

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Classical Chemistry										
Batch CL82639 - General Preparation										
Blank										
Phenols	ND	100	ug/L							
LCS										
Phenols	99	100	ug/L	100.0		99	80-120			
LCS										
Phenols	1020	100	ug/L	1000		102	80-120			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
ESS Laboratory Work Order: 1812540

Notes and Definitions

U	Analyte included in the analysis, but not detected
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report
RL	Reporting Limit
EDL	Estimated Detection Limit
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP

ESS Laboratory Work Order: 1812540

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx

ESS Laboratory
Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston RI 02910
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 812540

Turn Time: 5-Day ☑ Rush: ☐
Regulatory State: Massachusetts
Is this project for any of the following?:
☐ MA-MCP ☐ CT-RCP ☑ RGP ☐ Remediation

Reporting Limits

Electonic Deliverables ☑ Limit Checker ☑ Excel ☑ Other (Please Specifiy) → EDD to J. Libby

Company Name	Project #	Project Name
Tighe & Bond	E-0754-003A	Station 131

Contact Person	Address
Michael Martin	15 Barlows Landing, Suite 4

City	State	Zip Code	PO #
Pocassett	MA		

Telephone Number	FAX Number	Email Address
		memartin@tighebond.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: Phenol - RGP
1	12/19/18	9:15AM	Grab	Ground Water	MW-1	X
2	12/19/18	8:15AM	Grab	Ground Water	MW-1F	X
3	12/19/18	1:00PM	Grab	Ground Water	MW-5	X
4	12/19/18	1:00PM	Grab	Ground Water	MW-5F	X
5	12/19/18	10:50AM	Grab	Ground Water	MW-13	X
6	12/19/18	10:50AM	Grab	Ground Water	MW-13F	X

Container Type: AG-Amber Glass B-BOD Bottle G-Glass P-Poly S-Sterile V-Vial O-Other — AG
Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other* — 3
Number of Containers: 1

Laboratory Use Only
Cooler Present: ✓
Seals Intact: N/A
Cooler Temperature: °C ice temp: 1.4

Sampled by : CBROTHERS

Comments: Please specify "Other" preservative and containers types in this space
email to cbrothers@tighebond.com

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
Colleen E Brothers 12-19-18 1400	12/20/18 9:37	12/20/18 16:17	12/20/18 1950
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

CERTIFICATE OF ANALYSIS

Michael Martin
Tighe & Bond
4 Barlows Landing Road, Unit 15
Pocasset, MA 02559

RE: Eversource Station 131 - RGP (140754003A E-0754-03)
ESS Laboratory Work Order Number: 1904739

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 2:59 pm, May 01, 2019

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP

ESS Laboratory Work Order: 1904739

SAMPLE RECEIPT

The following samples were received on April 24, 2019 for the analyses specified on the enclosed Chain of Custody Record.

The samples and analyses listed below were analyzed in accordance with the 2017 Remediation General Permit under the National Pollutant Discharge Elimination System (NPDES).

ESS Laboratory is unable to achieve the required detection limit of 0.4 mg/L for Ethanol for the RGP permit. We have also been unable to procure a subcontract laboatory that is able to achieve this limit. The data for Ethanol has been reported using our current method reporting limit.

Lab Number	Sample Name	Matrix	Analysis
1904739-01	Chelsea River	Surface Water	200.7, 200.8, 245.1, 2520B, 3113B, 350.1

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP

ESS Laboratory Work Order: 1904739

PROJECT NARRATIVE

Total Metals
1904739-01 **Elevated Method Reporting Limits due to sample matrix (EL).**
Silver

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP

ESS Laboratory Work Order: 1904739

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH
MADEP 18-2.1 - VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: Chelsea River
Date Sampled: 04/24/19 10:00
Percent Solids: N/A

ESS Laboratory Work Order: 1904739
ESS Laboratory Sample ID: 1904739-01
Sample Matrix: Surface Water
Units: ug/L

Extraction Method: 3005A/200.7

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (5.0)		200.7		1	KJK	04/26/19 16:07	100	10	CD92434
Arsenic	**3.8** (2.5)		3113B		5	KJK	04/30/19 19:09	100	10	CD92434
Cadmium	ND (0.500)		200.8		5	NAR	04/25/19 15:59	100	10	CD92434
Chromium	ND (2.0)		200.7		1	KJK	04/26/19 16:07	100	10	CD92434
Copper	**26.8** (10.0)		200.7		5	KJK	04/26/19 16:16	100	10	CD92434
Iron	**8200** (50.0)		200.7		5	KJK	04/26/19 16:16	100	10	CD92434
Lead	**40.9** (10.0)		200.7		5	KJK	04/26/19 16:16	100	10	CD92434
Mercury	ND (0.2)		245.1		1	BJV	04/29/19 13:08	20	40	CD92543
Nickel	ND (5.0)		200.7		1	KJK	04/26/19 16:07	100	10	CD92434
Selenium	ND (5.0)		3113B		5	KJK	04/30/19 22:58	100	10	CD92434
Silver	**EL** ND (2.5)		200.7		5	KJK	04/26/19 16:16	100	10	CD92434
Zinc	**65.4** (25.0)		200.7		5	KJK	04/26/19 16:16	100	10	CD92434

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP
Client Sample ID: Chelsea River
Date Sampled: 04/24/19 10:00
Percent Solids: N/A

ESS Laboratory Work Order: 1904739
ESS Laboratory Sample ID: 1904739-01
Sample Matrix: Surface Water

Classical Chemistry

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Units	Batch
Ammonia as N	**0.30** (0.10)		350.1		1	JLK	04/25/19 20:16	mg/L	CD92537
Salinity	**16.4** (0.1)		2520B		1	JLK	04/26/19 20:29	ppt	CD92638

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP

ESS Laboratory Work Order: 1904739

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CD92434 - 3005A/200.7										
Blank										
Antimony	ND	5.0	ug/L							
Arsenic	ND	0.5	ug/L							
Cadmium	ND	0.500	ug/L							
Chromium	ND	2.0	ug/L							
Copper	ND	2.0	ug/L							
Iron	ND	10.0	ug/L							
Lead	ND	2.0	ug/L							
Nickel	ND	5.0	ug/L							
Selenium	ND	1.0	ug/L							
Silver	ND	0.5	ug/L							
Zinc	ND	5.0	ug/L							
LCS										
Antimony	50.0	5.0	ug/L	50.00		100	85-115			
Arsenic	49.5	12.5	ug/L	50.00		99	85-115			
Cadmium	25.6	2.50	ug/L	25.00		102	85-115			
Chromium	49.1	2.0	ug/L	50.00		98	85-115			
Copper	50.0	2.0	ug/L	50.00		100	85-115			
Iron	244	10.0	ug/L	250.0		97	85-115			
Lead	51.3	2.0	ug/L	50.00		103	85-115			
Nickel	48.4	5.0	ug/L	50.00		97	85-115			
Selenium	91.6	25.0	ug/L	100.0		92	85-115			
Silver	24.7	0.5	ug/L	25.00		99	85-115			
Zinc	51.2	5.0	ug/L	50.00		102	85-115			
Batch CD92543 - 245.1/7470A										
Blank										
Mercury	ND	0.2	ug/L							
LCS										
Mercury	6.1	0.2	ug/L	6.042		100	85-115			
LCS Dup										
Mercury	6.1	0.2	ug/L	6.042		100	85-115	0.08	20	
Classical Chemistry										
Batch CD92537 - NH4 Prep										
Blank										
Ammonia as N	ND	0.10	mg/L							
LCS										
Ammonia as N	0.12	0.10	mg/L	0.09994		119	80-120			
LCS										
Ammonia as N	0.95	0.10	mg/L	0.9994		95	80-120			
Batch CD92638 - General Preparation										
LCS										

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP

ESS Laboratory Work Order: 1904739

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Classical Chemistry										
Batch CD92638 - General Preparation										
Salinity	1.0		ppt	1.000		101	85-115			

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP ESS Laboratory Work Order: 1904739

Notes and Definitions

U	Analyte included in the analysis, but not detected
EL	Elevated Method Reporting Limits due to sample matrix (EL).
D	Diluted.
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report
RL	Reporting Limit
EDL	Estimated Detection Limit
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Tighe & Bond
Client Project ID: Eversource Station 131 - RGP

ESS Laboratory Work Order: 1904739

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Tighe & Bond - KPB/TB/MM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1904739
Date Received: 4/24/2019
Project Due Date: 5/1/2019
Days for Project: 5 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 2.0 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? No
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / (NA)
10. Were any analyses received outside of hold time? Yes / (No)

11. Any Subcontracting needed? Yes / (No)
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? Yes / (No)
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? (Yes) / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOA vials frozen: Date: Time: By:

Sample Receiving Notes:

Rec'd bottle for Hex Cr, Hex Cr not on COC

14. Was there a need to contact Project Manager? (Yes) / No
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	337495	Yes	NA	Yes	250 mL Amber - Unpres	NP	
01	337496	Yes	NA	Yes	250 mL Poly - H2SO4	H2SO4	
01	337497	Yes	NA	Yes	500 mL Poly - HNO3	HNO3	
01	337541	Yes	NA	Yes	250 mL Poly - Unpres	NP	

2nd Review

Were all containers scanned into storage/lab? Initials MM
Are barcode labels on correct containers? (Yes) / No
Are all Flashpoint stickers attached/container ID # circled? Yes / No / (NA)
Are all Hex Chrome stickers attached? Yes / No / (NA)
Are all QC stickers attached? (Yes) / No / NA
Are VOA stickers attached if bubbles noted? Yes / No / (NA)

Completed By: Date & Time: 4/24/19 1516
Reviewed By: Date & Time: 4/24/19 1606
Delivered By: 4/24/19 1606

CHAIN OF CUSTODY

ESS Laboratory
Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston RI 02910
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

ESS Lab # 1904739

Reporting Limits: RGP detection limits/methods

Electonic Deliverables: ☐ Data Checker ☒ Excel ☒ Other (Please Specify →) EDD to Jill Libby

Turn Time: 5 Days

Regulatory State

Is this project for any of the following?: ○ CT RCP ○ MA MCP ☒ RGP

Company Name	Project #	Project Name
Tighe + Bond	E-0754-03	STATION 131

Contact Person	Address	
Michael Martin	~~55~~ 4 Barlows Landing Suite #15	

City	State	Zip Code	PO #
Pocasset	MA		

Telephone Number	Email Address
also email to: ~~FAX Number~~ CBrothers@tighebond.com	memartin@tighebond.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: Salinity	Ammonia	RGP metals
1	4-24-19	1000	Grab	SW	Chelsea River	X	X	X

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer J-Jar O-Other P-Poly S-Sterile V-Vial

Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*

Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other*

Number of Containers per Sample:		
AG	3	1
P	3	3
	1	3
	1	1

Laboratory Use Only

Cooler Present: ✓ ○ Drop Off

Seals Intact: ___ ⊘ Pickup

Cooler Temperature: 2.0 °C ICE RC

Sampled by: C-BROTHERS

Comments: Please specify "Other" preservative and containers types in this space

Surface water samples from saltwater body

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
Colleen Brothers 4-24-19 1300	RCarlson 4/24/19 ~~1500~~ 1400	RCarlson 4/24/19 1452	4/24/19 1506
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

Tighe&Bond

APPENDIX G

SAFETY DATA SHEET

M32415 - ANSI - EN

CAUSTIC SODA LIQUID (ALL GRADES)

SDS No.: M32415 **SDS Revision Date:** 13-Jan-2016

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Company Identification:	Occidental Chemical Corporation 5005 LBJ Freeway P.O. Box 809050 Dallas, TX 75380-9050 1-800-752-5151
24 Hour Emergency Telephone Number:	1-800-733-3665 or 1-972-404-3228 (USA); CANUTEC (Canada): 1-613-996-6666; CHEMTREC (within USA and Canada): 1-800-424-9300; CHEMTREC (outside USA and Canada): +1 703-527-3887; CHEMTREC Contract No: CCN16186
To Request an SDS:	MSDS@oxy.com or 1-972-404-3245
Customer Service:	1-800-752-5151 or 1-972-404-3700 (55) 55959542 (Mexico)
Product Identifier:	**CAUSTIC SODA LIQUID (ALL GRADES)**
Trade Name:	Caustic Soda Diaphragm Grade 10%, 15%, 18%, 20%, 25%, 30%, 35%, 40%, 50%, Caustic Soda Membrane 6%, 18%, 20%, 25%, 30%, 48%, 50%, 50% Caustic Soda Membrane OS, 50% Caustic Soda Diaphragm OS, Caustic Soda Low Salt 50%, Membrane Blended, 50% Caustic Soda Diaphragm (West Coast), Membrane Cell Liquor
Synonyms:	Sodium hydroxide solution, Liquid Caustic, Lye Solution, Caustic, Lye, Soda Lye, Secondary Caustic Soda Liquids
Product Use:	Metal finishing, Cleaner, Process chemical, Petroleum Industry
Uses Advised Against:	None identified

SECTION 2. HAZARDS IDENTIFICATION

OSHA REGULATORY STATUS: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

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EMERGENCY OVERVIEW:

Color: Colorless to slightly colored
Physical State: Liquid
Appearance: Clear to opaque
Odor: Odorless

Signal Word: **DANGER**

MAJOR HEALTH HAZARDS: CORROSIVE. CAUSES SERIOUS EYE DAMAGE. CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. MAY CAUSE RESPIRATORY IRRITATION. EFFECTS OF CONTACT OR INHALATION MAY BE DELAYED.

PHYSICAL HAZARDS: MAY BE CORROSIVE TO METALS. Mixing with water, acid or incompatible materials may cause splattering and release of heat. Do not store in aluminum container or use aluminum fittings or transfer lines, as flammable hydrogen gas may be generated.

ECOLOGICAL HAZARDS: This material has exhibited moderate toxicity to aquatic organisms. Keep out of water supplies and sewers. This material is alkaline and may raise the pH of surface waters.

PRECAUTIONARY STATEMENTS: Do not get in eyes, on skin, or on clothing. Wear eye protection, face protection, protective gloves. Do not breathe mist, vapors, or spray. Do not ingest. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wash thoroughly after handling- exposure can cause burns which are not immediately painful or visible.

ADDITIONAL HAZARD INFORMATION: This material is corrosive. It may cause severe burns and permanent damage to any tissue with which it comes into contact. Toxicity may be delayed, and may not be readily visible. To treat contacted tissue, flush with water to dilute. There is no specific antidote. Significant exposures must be referred for medical attention immediately.

****

GHS CLASSIFICATION:

GHS: PHYSICAL HAZARDS:	Corrosive to Metals Mixing with water may cause splattering and release of heat
GHS: CONTACT HAZARD - SKIN:	Category 1B - Causes severe skin burns and eye damage.
GHS: CONTACT HAZARD - EYE:	Category 1 - Causes serious eye damage

GHS: TARGET ORGAN TOXICITY (SINGLE EXPOSURE):	Category 3 - May cause respiratory irritation
GHS: CARCINOGENICITY:	Not classified as a carcinogen per GHS criteria. This product is not classified as a carcinogen by NTP, IARC or OSHA.
GHS: HAZARDOUS TO AQUATIC ENVIRONMENT - ACUTE HAZARD:	Category 3 - Harmful to aquatic life

UNKNOWN ACUTE TOXICITY: 100% of the mixture consists of ingredient(s) of unknown toxicity. There is no acute toxicity data available for this product.

GHS SYMBOL: Corrosive

GHS SIGNAL WORD: **DANGER**

GHS HAZARD STATEMENTS:

GHS - Physical Hazard Statement(s)
• May be corrosive to metals

GHS - Health Hazard Statement(s)
• Causes serious eye damage
• Causes severe skin burns and eye damage
• May cause respiratory irritation

GHS - Precautionary Statement(s) - Prevention
• Do not breathe mist, vapors, or spray
• Wear protective gloves, protective clothing, eye, and face protection
• Wash thoroughly after handling
• Keep only in original container
• Use only outdoors or in a well-ventilated area

GHS - Precautionary Statement(s) - Response
• IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower
• Wash contaminated clothing before reuse
• IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
• Immediately call a POISON CENTER or doctor/physician
• IF INHALED: Remove person to fresh air and keep comfortable for breathing
• Immediately call a POISON CENTER or doctor/physician
• IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
• IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
• Specific treatment (see First Aid information on product label and/or Section 4 of the SDS)
• Absorb spillage to prevent material damage

GHS - Precautionary Statement(s) - Storage
• Store locked up
• Store in a well-ventilated place. Keep container tightly closed
• Store in corrosive resistant and NON-ALUMINUM container with a resistant inner liner (NOTE: flammable hydrogen gas may be generated if aluminum container and/or aluminum fittings are used)

GHS - Precautionary Statement(s) - Disposal
• Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations

Hazards Not Otherwise Classified (HNOC)
Mixing with water may cause splattering and release of heat

Additional Hazard Information
Mixing with water may cause splattering and release of heat.

See Section 11: TOXICOLOGICAL INFORMATION

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Sodium hydroxide solution, Liquid Caustic, Lye Solution, Caustic, Lye, Soda Lye, Secondary Caustic Soda Liquids

Component	Percent [%]	CAS Number
Water	48.5 - 94.5	7732-18-5
Sodium Hydroxide	5.5 - 51.5	1310-73-2
Sodium Chloride	0 - 35	7647-14-5

Notes: *All hazardous and non-hazardous components of product composition are listed.*

SECTION 4. FIRST AID MEASURES

INHALATION: If inhalation of mists, vapors, or spray occurs and adverse effects result, remove to uncontaminated area. Evaluate ABC's (is Airway constricted, is Breathing occurring, and is blood Circulating) and treat symptomatically. GET MEDICAL ATTENTION IMMEDIATELY. There is no specific antidote, treat symptomatically.

SKIN CONTACT: Immediately flush contaminated areas with water. Remove contaminated clothing, jewelry, and shoes immediately. Wash contaminated areas with large amounts of water. GET MEDICAL ATTENTION IMMEDIATELY. Thoroughly clean and dry contaminated clothing before reuse. Discard contaminated leather goods.

EYE CONTACT: Immediately flush contaminated eyes with a directed stream of water for as long as possible. Remove contact lenses, if present and easy to do. Continue rinsing. GET MEDICAL ATTENTION IMMEDIATELY. Washing eyes within several seconds is essential to achieve maximum effectiveness.

INGESTION: If swallowed, do not induce vomiting. For definite or probable ingestion, do not administer oral fluids. If vomiting occurs spontaneously, keep airway clear. Monitor airway. Volume resuscitation (IV fluids) and circulatory support (CPR) may be required. Never give anything by mouth to an unconscious or convulsive person. GET MEDICAL ATTENTION IMMEDIATELY.

Most Important Symptoms/Effects (Acute and Delayed) Corrosive. This material may be corrosive to any tissue it comes in contact with. It can cause serious burns and extensive tissue destruction resulting in: liquefaction, necrosis, and/or perforation.

Acute Symptoms/Effects: Listed below.
Inhalation (Breathing): Respiratory System Effects: Exposure to airborne material may cause irritation, redness of upper and lower airways, coughing, laryngeospasm, shortness of breath, bronchoconstriction, and possible pulmonary edema. Severe and permanent scarring may occur. Pulmonary edema may develop several hours after a severe acute exposure. Aspiration of this material may cause the same conditions.
Skin: Skin Corrosion. Exposure to skin may cause redness, itching, irritation, swelling, burns (first, second, or third degree), liquefaction of skin, and damage to underlying tissues (deep and painful wounds).
Eye: Serious Eye Damage. Eye exposures may cause eye lid burns, conjunctivitis, corneal edema, corneal burn, corneal perforation, damage to internal contents of the eye, permanent visual defects, and blindness and/or loss of the eye.
Ingestion (Swallowing): Gastrointestinal System Effects: Exposure by ingestion may cause irritation, swelling, and perforation of upper and lower gastrointestinal tissues. Permanent scarring may occur.

Delayed Symptoms/Effects:
- Skin: Repeated and prolonged skin contact may cause a chronic dermatitis

Interaction with Other Chemicals Which Enhance Toxicity: None known.

Medical Conditions Aggravated by Exposure: May aggravate preexisting conditions such as: eye disorders that decrease tear production or have reduced integrity of the eye; skin disorders that compromise the integrity of the skin; and respiratory conditions including asthma and other breathing disorders.

Protection of First-Aiders: Protect yourself by avoiding contact with this material. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Do not ingest. Use personal protective equipment. Refer to Section 8 for specific personal protective equipment recommendations. At minimum, treating personnel should utilize PPE sufficient for prevention of bloodborne pathogen transmission.

Notes to Physician: Medical observation and assessment is recommended for all ingestions, all eye exposures, and symptomatic inhalation and dermal exposures. For symptomatic ingestion, do not administer oral fluids and consider investigation by endoscopy, X-ray, or CT scan. Esophageal perforation, airway compromise, hypotension, and shock are possible. For prolonged exposures and significant exposures, consider delayed injury to exposed tissues. There is no antidote. Treatment is supportive care. Follow normal parameters for airway, breathing, and circulation. Surgical intervention may be required.

SECTION 5. FIRE-FIGHTING MEASURES

Fire Hazard: Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. May react with chemically reactive metals such as aluminum, zinc, magnesium, copper, etc. to release hydrogen gas which can form explosive mixtures in air.

Extinguishing Media: Use extinguishing agents appropriate for surrounding fire.

Fire Fighting: Move container from fire area if it can be done without risk. Cool containers with water. Do not apply water directly on this product. Heat is generated when mixed with water. Wear NIOSH approved positive-pressure self-contained breathing apparatus operated in pressure demand mode. Avoid contact with skin.

Component	Immediately Dangerous to Life/ Health (IDLH)
Sodium Hydroxide 1310-73-2	10 mg/m^3 IDLH

Hazardous Combustion Products: Sodium hydroxide fumes can be generated by thermal decomposition at elevated temperatures

Sensitivity to Mechanical Impact: Not sensitive.

Sensitivity to Static Discharge: Not sensitive.

Lower Flammability Level (air): Not flammable

Upper Flammability Level (air): Not flammable

Flash point: Not flammable

Auto-ignition Temperature: Not applicable

GHS: PHYSICAL HAZARDS:
- Corrosive to Metals
- Mixing with water may cause splattering and release of heat

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:
Do not get in eyes, on skin or on clothing. Avoid breathing mist, vapor, or spray. Do not ingest. Wear appropriate personal protective equipment recommended in Section 8 of the SDS.

Methods and Materials for Containment and Cleaning Up:
In case of spill or leak, stop the leak as soon as possible, if safe to do so. Completely contain spilled materials with dikes, sandbags, etc. Shovel dry material into suitable container. Liquid material may be removed with a vacuum truck. Remaining material may be diluted with water and neutralized with dilute acid, then absorbed and collected. Flush spill area with water, if appropriate.

Environmental Precautions:
Keep out of water supplies and sewers. Do not flush into surface water or sanitary sewer system. This material is alkaline and may raise the pH of surface waters with low buffering capacity. Releases should be reported, if required, to appropriate agencies.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling:
Avoid breathing vapor or mist. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Do not ingest. Do not eat, drink or smoke in areas where this material is used. Wear personal protective equipment as described in Exposure Controls/Personal Protection (Section 8) of the SDS. NEVER add water to product. When mixing, slowly add to water to minimize heat generation and spattering.

Safe Storage Conditions:
Store and handle in accordance with all current regulations and standards. Keep container tightly closed and properly labeled. Do not store in aluminum container or use aluminum fittings or transfer lines, as flammable hydrogen gas may be generated. Keep separated from incompatible substances (see below or Section 10 of the Safety Data Sheet).

Incompatibilities/ Materials to Avoid:
Acids and halogenated compounds, Prolonged contact with aluminum, brass, bronze, copper, lead, tin, zinc or other alkali sensitive metals or alloys, Releases heat when diluted in water

GHS: PHYSICAL HAZARDS:
- Corrosive to Metals
- Mixing with water may cause splattering and release of heat

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Regulatory Exposure Limit(s): Listed below for the product components that have regulatory occupational exposure limits (OEL's).

Component	OSHA Final PEL TWA	OSHA Final PEL STEL	OSHA Final PELCeiling
Sodium Hydroxide 1310-73-2	2 mg/m^3	-----	-----

OEL: Occupational Exposure Limit; OSHA: United States Occupational Safety and Health Administration; PEL: Permissible Exposure Limit; TWA: Time Weighted Average; STEL: Short Term Exposure Limit

NON-REGULATORY EXPOSURE LIMIT(S): Listed below for the product components that have non-regulatory occupational exposure limits (OEL's).

Component	ACGIH TWA	ACGIH STEL	ACGIH Ceiling	OSHA TWA (Vacated)	OSHA STEL (Vacated)	OSHA Ceiling (Vacated)
Sodium Hydroxide	-----	-----	2 mg/m^3	-----	-----	2 mg/m^3

- The Non-Regulatory United States Occupational Safety and Health Administration (OSHA) limits, if shown, are the Vacated 1989 PEL's (vacated by 58 FR 35338, June 30, 1993).

- The American Conference of Governmental Industrial Hygienists (ACGIH) is a voluntary organization of professional industrial hygiene personnel in government or educational institutions in the United States. The ACGIH develops and publishes recommended occupational exposure limits each year called Threshold Limit Values (TLVs) for hundreds of chemicals, physical agents, and biological exposure indices.

Component	OXY REL 8 hr TWA	OXY REL STEL	OXY REL Ceiling
Sodium Chloride 7647-14-5 (0 - 35)	-----	-----	-----

ENGINEERING CONTROLS: Provide local exhaust ventilation where dust or mist may be generated. Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: Wear chemical safety goggles with a face-shield to protect against eye and skin contact when appropriate. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin and Body Protection: Wear protective clothing to minimize skin contact. Wear chemical resistant clothing and rubber boots when potential for contact with the material exists. Always place pants legs over boots. Contaminated clothing should be removed, then discarded or laundered. Discard contaminated leather goods.

Hand Protection: Wear appropriate chemical resistant gloves. Consult a glove supplier for assistance in selecting an appropriate chemical resistant glove.

Protective Material Types:
- Natural rubber
- Neoprene
- Nitrile
- Polyvinyl chloride (PVC)
- Tyvek®
- Tychem®

Respiratory Protection: A NIOSH approved respirator with N95 (dust, fume, mist) cartridges may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits, or when symptoms have been observed that are indicative of overexposure. If eye irritation occurs, a full face style mask should be used. A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

Component	Immediately Dangerous to Life/ Health (IDLH)
Sodium Hydroxide 1310-73-2	10 mg/m^3 IDLH

HYGIENE MEASURES: Handle in accordance with good industrial hygiene and safety practices. Wash hands and affected skin immediately after handling, before breaks, and at the end of the workday. When using do not eat or drink. When using do not smoke.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Appearance:	Clear to opaque
Color:	Colorless to slightly colored
Odor:	Odorless
Odor Threshold [ppm]:	No data available.
Molecular Weight:	40.01
Molecular Formula:	NaOH
Decomposition Temperature:	No data available
Boiling Point/Range:	215 - 291°F (102 - 144°C)
Freezing Point/Range:	-26 to 59°F (-32 to 15 °C).
Vapor Pressure:	13 - 135 mmHg @ 60 °C
Vapor Density (air=1):	No data available
Relative Density/Specific Gravity (water=1):	1.05 – 1.56 @ 15.6 °C
Density:	8.8 - 13.0 lbs/gal @ 15.6 °C
Water Solubility:	100%
pH:	14.0 (theoretical value of 7.5% solution)
Volatility:	No data available
Evaporation Rate (ether=1):	No data available
Partition Coefficient (n-octanol/water):	No data available
Flash point:	Not flammable
Flammability (solid, gas):	Not flammable
Lower Flammability Level (air):	Not flammable
Upper Flammability Level (air):	Not flammable
Auto-ignition Temperature:	Not applicable
Viscosity:	About 24cp for 50% solution at 40 °C (104 °F)

SECTION 10. STABILITY AND REACTIVITY

Reactivity: Soluble in water, releasing heat sufficient to ignite combustibles. Reacts with metals, and may form hydrogen gas.

Chemical Stability: Stable at normal temperatures and pressures.

Possibility of Hazardous Reactions:
Mixing with water, acid, or incompatible materials may cause splattering and release of large amounts of heat. Will react with some metals forming flammable hydrogen gas. Carbon monoxide gas may form upon contact with reducing sugars, food and beverage products in enclosed spaces.

Conditions to Avoid: (e.g., static discharge, shock, or vibration) -. None known.

Incompatibilities/ Materials to Avoid: Acids and halogenated compounds. Prolonged contact with aluminum, brass, bronze, copper, lead, tin, zinc or other alkali sensitive metals or alloys. Releases heat when diluted in water.

Hazardous Decomposition Products: Toxic fumes of sodium oxide

Hazardous Polymerization: Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

IRRITATION DATA: PRIMARY SKIN IRRITATION: Severe Irritation, Corrosive (rabbit, 24 hr)
PRIMARY EYE IRRITATION: Severe Irritation, Corrosive (rabbit, 24 hr)

TOXICITY DATA:

PRODUCT TOXICITY DATA: CAUSTIC SODA LIQUID (ALL GRADES)

LD50 Oral:	LD50 Dermal:	LC50 Inhalation:
No reliable data available	No reliable data available	No data available

COMPONENT TOXICITY DATA:
Note: The component toxicity data is populated by the LOLI database and may differ from the product toxicity data given.

Component	LD50 Oral:	LD50 Dermal:	LC50 Inhalation:
Water 7732-18-5	90 mL/kg (Rat)	-----	-----
Sodium Hydroxide 1310-73-2	140-3400 mg/kg	1350 mg/kg (Rabbit)	-----
Sodium Chloride 7647-14-5	3 g/kg (Rat)	-----	42 g/m^3 (1 hr-Rat)

****

POTENTIAL HEALTH EFFECTS:

Eye contact: Corrosive. Causes serious eye damage which can result in: severe irritation, pain and burns, and permanent damage including blindness.

Skin contact: Corrosive. Causes severe skin burns. Prolonged or repeat skin exposures can result in dermatitis.

Inhalation: Corrosive. Inhalation injury may result from ingestion and/or aspiration of this material. May cause severe irritation of the respiratory tract with potential airway compromise, coughing, choking, pain, and burns of the mucous membrane and respiratory system. This material can be extremely destructive to the tissue of the mucus membranes and respiratory system. Aspiration may cause chemical pneumonitis, pulmonary edema, damage to lung tissue, death.

Ingestion: Corrosive. If swallowed, may cause severe oral and esophageal, mucus membrane, and gastrointestinal burns and possible perforation. If swallowed, may pose a lung aspiration hazard during vomiting.

Chronic Effects: Repeated or prolonged skin contact may result in dermatitis.

SIGNS AND SYMPTOMS OF EXPOSURE:
This material may cause severe burns and permanent damage to any tissue with which it comes into contact. It can cause serious burns and extensive tissue destruction resulting in liquefaction, necrosis and/or perforation. Signs and symptoms of exposure vary, and are dependent on the route of exposure, degree of exposure, and duration of exposure.

Inhalation (Breathing): Respiratory System Effects: Exposure to airborne material may cause irritation, redness of upper and lower airways, coughing, laryngeospasm, shortness of breath, bronchoconstriction, and possible pulmonary edema. Severe and permanent scarring may occur. Pulmonary edema may develop several hours after a severe acute exposure. Aspiration of this material may cause the same conditions.
Skin: Skin Corrosion. Exposure to skin may cause redness, itching, irritation, swelling, burns (first, second, or third degree), liquefaction of skin, and damage to underlying tissues (deep and painful wounds).
Eye: Serious Eye Damage. Eye exposures may cause eye lid burns, conjunctivitis, corneal edema, corneal burn, corneal perforation, damage to internal contents of the eye, permanent visual defects, and blindness and/or loss of the eye.
Ingestion (Swallowing): Gastrointestinal System Effects: Exposure by ingestion may cause irritation, swelling, and perforation of upper and lower gastrointestinal tissues. Permanent scarring may occur.

TOXICITY:
When in solution, this material will affect all tissues with which it comes in contact. The severity of the tissue damage is a function of its concentration, the length of tissue contact time, and local tissue conditions. After exposure there may be a time delay before irritation and other effects occur. This material is a strong irritant and is corrosive to the skin, eyes, and mucus membranes. This material may cause severe burns and permanent damage to any tissue with which it comes into contact.

Interaction with Other Chemicals Which Enhance Toxicity: None known.

****

GHS HEALTH HAZARDS:

GHS: CONTACT HAZARD - EYE: Category 1 - Causes serious eye damage

GHS: CONTACT HAZARD - SKIN: Category 1B - Causes severe skin burns and eye damage

Skin Absorbent / Dermal Route? No.

GHS: CARCINOGENICITY:
Not classified as a carcinogen per GHS criteria. This product is not classified as a carcinogen by NTP, IARC or OSHA.

SPECIFIC TARGET ORGAN TOXICITY (Single Exposure):
Category 3 - Respiratory Irritation

SECTION 12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

Aquatic Toxicity:
This material has exhibited moderate toxicity to aquatic organisms. Data provided are for sodium hydroxide

Component	Freshwater Fish	Invertebrate Toxicity:	Algae Toxicity:	Other Toxicity:
Sodium Chloride 7647-14-5 (0 - 35)		340.7 - 469.2 mg/L EC50 = 1000 mg/L EC50	-----	

FATE AND TRANSPORT:

BIODEGRADATION: This material is inorganic and not subject to biodegradation

PERSISTENCE: This material is alkaline and may raise the pH of surface waters with low buffering capacity This material is believed to exist in the disassociated state in the environment

BIOCONCENTRATION: This material is not expected to bioconcentrate in organisms.

BIOACCUMULATIVE POTENTIAL: Does not bioaccumulate.

MOBILITY IN SOIL: No data available.

ADDITIONAL ECOLOGICAL INFORMATION: This material has exhibited slight toxicity to terrestrial organisms. This material has exhibited moderate toxicity to aquatic organisms.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste from material:
Reuse or reprocess, if possible. May be subject to disposal regulations. Dispose in accordance with all applicable regulations.

Container Management:
Dispose of container in accordance with applicable local, regional, national, and/or international regulations. Container rinsate must be disposed of in compliance with applicable regulations.

SECTION 14. TRANSPORT INFORMATION

LAND TRANSPORT

U.S. DOT 49 CFR 172.101:

UN NUMBER: UN1824
PROPER SHIPPING NAME: Sodium Hydroxide Solution
HAZARD CLASS/ DIVISION: 8

PACKING GROUP: II
LABELING REQUIREMENTS: 8
RQ (lbs): RQ 1000 lbs. (Sodium Hydroxide)

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

UN NUMBER: UN1824
SHIPPING NAME: Sodium hydroxide solution
CLASS OR DIVISION: 8
PACKING/RISK GROUP: II
LABELING REQUIREMENTS: 8

MARITIME TRANSPORT (IMO / IMDG) :

UN NUMBER: UN1824
PROPER SHIPPING NAME: Sodium hydroxide solution
HAZARD CLASS / DIVISION: 8
Packing Group: II
LABELING REQUIREMENTS: 8

SECTION 15. REGULATORY INFORMATION

U.S. REGULATIONS

OSHA REGULATORY STATUS:
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):
If a release is reportable under CERCLA section 103, notify the state emergency response commission and local emergency planning committee. In addition, notify the National Response Center at (800) 424-8802 or (202) 426-2675.

Component	CERCLA Reportable Quantities:
Sodium Hydroxide	1000 lb (final RQ)

SARA EHS Chemical (40 CFR 355.30)
No components are listed

EPCRA SECTIONS 311/312 HAZARD CATEGORIES (40 CFR 370.10):
Acute Health Hazard

EPCRA SECTION 313 (40 CFR 372.65):
No components are listed

DEPARTMENT OF HOMELAND SECURITY (DHS)- Chemical Facility Anti-Terrorism Standards (6 CFR 27):
No components in this material are regulated under DHS

OSHA PROCESS SAFETY (PSM) (29 CFR 1910.119):
Not regulated

FDA: This material has Generally Recognized as Safe (GRAS) status under specific FDA regulations. Additional information is available from the Code of Federal Regulations which is accessible on the FDA's website. This product is not produced under all current Good Manufacturing Practices (cGMP) requirements as defined by the Food and Drug Administration (FDA).

NATIONAL INVENTORY STATUS

U.S. INVENTORY STATUS: Toxic Substance Control Act (TSCA): All components are listed or exempt

Component	U.S. INVENTORY STATUS: Toxic Substance Control Act (TSCA):
Water 7732-18-5 (48.5 - 94.5)	Listed
Sodium Hydroxide 1310-73-2 (5.5 - 51.5)	Listed
Sodium Chloride 7647-14-5 (0 - 35)	Listed

TSCA 12(b): This product is not subject to export notification.

Canadian Chemical Inventory: All components of this product are listed on either the DSL or the NDSL.

STATE REGULATIONS

California Proposition 65:
This product and its ingredients are not listed, but it may contain impurities/trace elements known to the State of California to cause cancer or reproductive toxicity as listed under Proposition 65 State Drinking Water and Toxic Enforcement Act. For additional information, contact OxyChem Technical Services at 1-800-733-1165.

Component	California Proposition 65 Cancer WARNING:	California Proposition 65 CRT List - Male reproductive toxin:	California Proposition 65 CRT List - Female reproductive toxin:	Massachusetts Right to Know Hazardous Substance List	New Jersey Right to Know Hazardous Substance List	New Jersey Special Health Hazards Substance List
Sodium Hydroxide 1310-73-2	Not Listed	Not Listed	Not Listed	Listed	1706	corrosive

Component	New Jersey - Environmental Hazardous Substance List	Pennsylvania Right to Know Hazardous Substance List	Pennsylvania Right to Know Special Hazardous Substances	Pennsylvania Right to Know Environmental Hazard List	Rhode Island Right to Know Hazardous Substance List
Water 7732-18-5	Not Listed	Listed	Not Listed	Not Listed	Not Listed
Sodium Hydroxide 1310-73-2	Not Listed	Listed	Not Listed	Present	Listed

CANADIAN REGULATIONS

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

Component	Water
WHMIS - Classifications of Substances: Uncontrolled product according to WHMIS classification criteria	
Component	Sodium Hydroxide
WHMIS - Classifications of Substances: E	
Component	Sodium Chloride
WHMIS - Classifications of Substances: Uncontrolled product according to WHMIS classification criteria	

SECTION 16. OTHER INFORMATION

Prepared by: OxyChem Corporate HESS - Product Stewardship

Rev. Date: 13-Jan-2016

Other information:
The Safety Data Sheet for Caustic Soda Liquid (ALL Grades) can be used for hazard communication purposes for off-specification, secondary caustic soda liquids generated when cleaning caustic soda storage tanks, including the general disclaimer found in section 16 of the Safety Data Sheet

HMIS: (SCALE 0-4) (Rated using National Paint & Coatings Association HMIS: Rating Instructions, 2nd Edition)

Health Rating: 3 **Flammability Rating:** 0 **Reactivity Rating:** 1

NFPA 704 - Hazard Identification Ratings (SCALE 0-4) : Listed below.

Health Rating: 3 **Flammability:** 0 **Reactivity Rating:** 1

Reason for Revision:
• Changed GHS Classification: SEE SECTION 2
• Toxicological Information has been revised: SEE SECTION 11

CAUSTIC SODA LIQUID (ALL GRADES)

IMPORTANT:
The information presented herein, while not guaranteed, was prepared by technical personnel and is true and accurate to the best of our knowledge. NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, OR WARRANTY OR GUARANTY OF ANY OTHER KIND, EXPRESSED OR IMPLIED, IS MADE REGARDING PERFORMANCE, SAFETY, SUITABILITY, STABILITY OR OTHERWISE. This information is not intended to be all-inclusive as to the manner and conditions of use, handling, storage, disposal and other factors that may involve other or additional legal, environmental, safety or performance considerations, and OxyChem assumes no liability whatsoever for the use of or reliance upon this information. While our technical personnel will be happy to respond to questions, safe handling and use of the product remains the responsibility of the customer. No suggestions for use are intended as, and nothing herein shall be construed as, a recommendation to infringe any existing patents or to violate any Federal, State, local or foreign laws

OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Safety Data Sheet available to your employees

End of Safety Data Sheet

Revision date 2019-15-4

SAFETY DATA SHEET

Revision number 1

SECTION 1) CHEMICAL PRODUCT AND SUPPLIER'S IDENTIFICATION

Product ID:	Redux-823
Product Name:	Processing aid for industrial applications
Revision Date:	Apr 15, 2019
Supersedes Date:	Jan 25, 2018
Manufacturer's Name:	Azure Water Services
Address:	280 Callegari Drive West Haven, CT, US, 06516
Emergency Phone:	Chemtrec 800-424-9300, in US and Canada only

SECTION 2) HAZARDS IDENTIFICATION

Classification of the substance or mixture

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

Hazards Not Otherwise Classified (HNOC)

None.

SECTION 3) COMPOSITION / INFORMATION ON INGREDIENTS

None of the chemicals in this product are hazardous according to the GHS.

SECTION 4) FIRST-AID MEASURES

Inhalation

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

Eye Contact

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

Skin Contact

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

Ingestion

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

Most Important Symptoms and Effects, Both acute and Delayed

No data available.

Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available.

SECTION 5) FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

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

Use extinguishing agent suitable for type of surrounding fire.

Unsuitable Extinguishing Media

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

Specific Hazards in Case of Fire

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

Fire-Fighting Procedures

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

Special Protective Actions

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

SECTION 6) ACCIDENTAL RELEASE MEASURES

Emergency Procedure

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

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

Do not touch or walk through spilled material.

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

Recommended Equipment

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

Personal Precautions

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

Environmental Precautions

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

Methods and Materials for Containment and Cleaning Up

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

SECTION 7) HANDLING AND STORAGE

General

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

Ventilation Requirements

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

Storage Room Requirements

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

SECTION 8) EXPOSURE CONTROLS, PERSONAL PROTECTION

Eye Protection

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

Skin Protection

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

Respiratory Protection

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

Appropriate Engineering Controls

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

SECTION 9) PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Density	6.26 lb/gal
Specific Gravity	0.6 - 0.9
Appearance	granular, white solid
pH	5 - 9 @ 5 g/L
Odor Threshold	N/A
Odor Description	N/A
Water Solubility	Complete
Viscosity	N/A
Vapor Pressure	Similar to water
Vapor Density	N/A
Freezing Point	<32 °F
Boiling Point	>212 °F
Evaporation Rate	N/A
Flammability	Will not burn

SECTION 10) STABILITY AND REACTIVITY

Stability

Stable under normal storage and handling conditions.

Conditions To Avoid

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

Hazardous Reactions/Polymerization

Hazardous polymerization will not occur.

Incompatible Materials

Strong bases, acids, oxidizing and reducing agents.

Hazardous Decomposition Products

May produce carbon monoxide, carbon dioxide.

SECTION 11) TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

No Data Available

Acute Toxicity

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

Respiratory/Skin Sensitization

No Data Available

Serious Eye Damage/Irritation

No Data Available

Skin Corrosion/Irritation

No Data Available

Specific Target Organ Toxicity - Repeated Exposure

No Data Available

Specific Target Organ Toxicity - Single Exposure

No Data Available

SECTION 12) ECOLOGICAL INFORMATION

Acute Ecotoxicity

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

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

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

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

Mobility in Soil

No data available.

Bio-accumulative Potential

Not bioaccumulating.

Persistence and Degradability

Not readily biodegradable.

Other Adverse Effect

No data available.

SECTION 13) DISPOSAL CONSIDERATIONS

Waste Disposal

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

SECTION 14) TRANSPORT INFORMATION

U.S. DOT Information

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

DOT Shipping Designation:

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

SECTION 15) REGULATORY INFORMATION

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

SECTION 16) OTHER INFORMATION

Glossary

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

Additional Information

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

Version 1.0:

Revision Date: Jan 25, 2018
First Edition.

DISCLAIMER

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

Revision date 2019-15-4

SAFETY DATA SHEET

Revision number 1

SECTION 1) CHEMICAL PRODUCT AND SUPPLIER'S IDENTIFICATION

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

SECTION 2) HAZARDS IDENTIFICATION

Classification

Corrosive to metals - Category 1

Eye Irritation - Category 2

Skin Irritation - Category 2

Pictograms

Signal Word

Warning

Hazardous Statements - Health

Causes serious eye irritation

Causes skin irritation

Hazardous Statements - Physical

May be corrosive to metals

Precautionary Statements - General

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

Keep out of reach of children.

Read label before use.

Precautionary Statements - Prevention

Keep only in original packaging.

Wash thoroughly after handling.

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

Precautionary Statements - Response

Absorb spillage to prevent material damage.

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

If eye irritation persists: Get medical advice/attention.

IF ON SKIN: Wash with plenty of water.

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

If skin irritation occurs: Get medical advice/attention.

Take off contaminated clothing. And wash it before reuse.

Precautionary Statements - Storage

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

Precautionary Statements - Disposal

No precautionary statement available.

Hazards Not Otherwise Classified (HNOC)

None.

SECTION 3) COMPOSITION / INFORMATION ON INGREDIENTS

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

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

SECTION 4) FIRST-AID MEASURES

Inhalation

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

Eye Contact

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

Skin Contact

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

Ingestion

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

Most Important Symptoms and Effects, Both acute and Delayed

No data available.

Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available.

SECTION 5) FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

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

Use extinguishing agent suitable for type of surrounding fire.

Unsuitable Extinguishing Media

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

Specific Hazards in Case of Fire

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

Fire-Fighting Procedures

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

Special Protective Actions

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

SECTION 6) ACCIDENTAL RELEASE MEASURES

Emergency Procedure

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

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

Do not touch or walk through spilled material.

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

Recommended Equipment

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

Personal Precautions

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

Environmental Precautions

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

Methods and Materials for Containment and Cleaning Up

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

SECTION 7) HANDLING AND STORAGE

General

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

Ventilation Requirements

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

Storage Room Requirements

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

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

SECTION 8) EXPOSURE CONTROLS, PERSONAL PROTECTION

Eye Protection

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

Skin Protection

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

Respiratory Protection

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

Appropriate Engineering Controls

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

SECTION 9) PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

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

SECTION 10) STABILITY AND REACTIVITY

Stability

Stable under normal storage and handling conditions.

Conditions To Avoid

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

Hazardous Reactions/Polymerization

Hazardous polymerization will not occur.

Incompatible Materials

Strong bases, acids, oxidizing and reducing agents.

Hazardous Decomposition Products

May produce carbon monoxide, carbon dioxide.

SECTION 11) TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

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

Acute Toxicity

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

Aspiration Hazard

No Data Available

Respiratory/Skin Sensitization

No Data Available

Serious Eye Damage/Irritation

Causes serious eye irritation

Skin Corrosion/Irritation

Causes skin irritation

Specific Target Organ Toxicity - Repeated Exposure

No Data Available

Specific Target Organ Toxicity - Single Exposure

No Data Available

SECTION 12) ECOLOGICAL INFORMATION

Ecotoxicity

Acute aquatic toxicity - Product Information

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

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

Algae/aquatic plants
No information available

Acute aquatic toxicity - Component Information

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

Mobility in Soil

No data available.

Bio-accumulative Potential

No data available.

Persistence and Degradability

No data available.

Other Adverse Effect

No data available.

SECTION 13) DISPOSAL CONSIDERATIONS

Waste Disposal

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

SECTION 14) TRANSPORT INFORMATION

U.S. DOT Information

NOT REGULATED FOR TRANSPORTATION

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

SECTION 15) REGULATORY INFORMATION

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

SECTION 16) OTHER INFORMATION

Glossary

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

Additional Information

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

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