HALEY & ALDRICH, INC.
465 Medford St.
Suite 2200
Boston, MA 02129
617.886.7400

23 October 2018
Revised 25 October 2018
File No. 132470-002

US Environmental Protection Agency
Office of Ecosystem Protection
5 Post Office Square – Suite 100 (OEP06-01)
Boston, MA 02109-3912

Attention: Ms. Shelley Puleo; EPA/OEP RGP Applications Coordinator

Subject: NPDES RGP Permit Application - Temporary Construction Dewatering
150 Seaport Boulevard
Boston, Massachusetts

Dear Ms. Puleo:

On behalf of our client, 150 Seaport LLC, Haley & Aldrich, Inc. (Haley & Aldrich) has prepared this submission for a NPDES RGP temporary construction dewatering permit during building construction activities at the subject site located at 150 Seaport Boulevard (the "site") in Boston, Massachusetts, as shown on Figure 1. The information presented herein has been prepared to follow requirements of the 2017 US Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) General Remediation General Permit (RGP). A copy of the completed Notice of Intent (NOI) form is enclosed as Appendix A.

EXISTING SITE CONDITIONS

The site consists of an approximately 13,500 square feet (sf) parcel of land located along the Boston Harbor Waterfront and is currently an active construction site. The site was previously occupied by two restaurants, The Whiskey Priest and The Atlantic Beer Garden, which are currently being demolished for site redevelopment. Existing exterior site grades are generally level across the site at approximately El. 15.5 to El. 17[1].

The site is located in an urban setting in Boston, Massachusetts. Properties in the surrounding area are generally commercial and residential in nature. The site is bordered by 100 Pier 4, a 21-story apartment tower to the northwest, Boston Harbor to the northeast and southeast, and Seaport Boulevard to the southwest. The Boston Harbor sides of the site are contained by a steel sheetpile bulkhead wall.

[1] Elevations reported reference Boston City Base (BCB) Datum.

SITE HISTORY

Haley & Aldrich assessed past and present usage and filling history of the site through a review of available historical records including Sanborn maps dated 1923 to 2002, nearby properties, and documentation in "Gaining Ground: A History of Landmaking in Boston".[2]

Prior to the mid-1800s, the area in the vicinity of the site was part of the South Boston tidal flats. From the mid-1860s through 1880s, the majority of the tidal flats were filled, and the area became a center for railroad and shipping commerce for the remainder of the 1800s through the early 1900s. According to Gaining Ground, the site is located within a 50-acre lot formerly owned by the New York & New England Railroad, which filled the property in the 1880s and 1890s with "gravel, ash, and refuse". The railroad company developed the site as a terminal ground. The 1923 Sanborn Maps indicate three smaller buildings located on the site, including an engineering house, lobster boiling building, and a presumed shed. Three larger buildings are present in the 1950 Sanborn Map, indicated as a store, a wholesale fish building, and a larger lobster boiling building. By 1964, the wholesale fish building was replaced with a cold storage building and a fish warehouse. These buildings are present at the site through 1995, and in the 1998 and 2002 Sanborn Maps, the lobster boiling building is no longer present. The Whiskey Priest and Atlantic Beer Garden restaurants opened at the site around 2008.

ENVIRONMENTAL CONDITIONS AND REGULATORY BACKGROUND

Haley & Aldrich, Inc. conducted subsurface exploration and soil sampling programs for project design and construction. Results of soil and groundwater sampling programs indicate concentrations of select semi-volatile organic compounds (SVOCs) and total lead in soil and dissolved lead in groundwater above applicable Reportable Concentrations, which triggered a 120-day reporting condition under the MCP in accordance with 310 CMR 40.0315. 150 Seaport LLC filed a Release Notification Form (RNF) with Mass DEP for soil and groundwater on 25 September 2018. MassDEP assigned RTN 3-35200 to the release. A Release Abatement Measure (RAM) Plan was submitted to MassDEP on 10 October 2018.

PROPOSED CONSTRUCTION

The proposed development consists of a new 22-story residential tower with three levels of below grade parking. A new Harbor Walk with a deck extending over the water will be located along the Boston Harbor sides of the site. A mix of pavement and permeable surfaces will surround the land-sides of the building.

Figure 2 shows the layout of the existing buildings and approximate limits of below-grade construction. The proposed first floor level of the new building will be finished at approximately El. 18.5 and the top of the lowest level garage slab is planned at El. -22.5. Site groundwater levels were measured at approximately El. 8.5.

[2] Seasholes, N.S. (2003). Gaining Ground: A History of Landmaking in Boston. Cambridge, MA: The MIT Press.

The new tower will be supported on deep foundations consisting of Load Bearing Elements (LBEs) deriving their support in bedrock. Excavation for construction of the below grade garage will extend to depths of approximately 45 ft below current site grades and approximately 35 ft below groundwater. Excavation and dewatering will be completed inside an impervious perimeter concrete diaphragm wall constructed by the slurry trench excavation method (i.e., slurry wall), which will serve as both temporary earth support during construction and the permanent foundation wall.

Construction of the slurry wall, excavation and dewatering will be conducted inside a cofferdam installed in Boston Harbor on the northeast and southeast sides of the site consisting of epoxy coated interlocking steel sheetpiling embedded into the Marine Clay. The cofferdam has been designed and will be installed to protect the work, allow for removal of the existing steel bulkhead wall, control tidal influence, and to create a stable working platform.

CURRENT GROUNDWATER QUALITY INFORMATION

On 18 July 2018, Haley & Aldrich collected one groundwater sample from existing observation well HA17-2(OW) and one surface water sample from Boston Harbor adjacent to the property near the proposed outfall. The samples were collected to assess groundwater and surface water quality at the site and for use in the construction dewatering permit application. The sample was submitted to Alpha Analytical, Inc. of Westborough, Massachusetts (Alpha) for analysis of volatile organic compounds (VOCs), SVOCs, total petroleum hydrocarbons (TPH), total and/or dissolved metals, polychlorinated biphenyls (PCBs), ammonia, chloride, residual chlorine, phenols, pH, salinity, and total suspended solids (TSS).

The results of the laboratory analysis detected dissolved lead in groundwater above the applicable MCP Reportable Concentration for Groundwater (RCGW-2). Additional sampling at HA17-2(OW) for dissolved and total lead was conducted on 12 September 2018 and 2 October 2018, which yielded results consistent with the first round of sampling. A summary of the groundwater quality data is provided in Table I. Copies of the laboratory data reports are included in Appendix G.

ETHANOL SAMPLING

Ethanol sampling was not conducted on the groundwater sample as site history does not suggest that ethanol was stored at the property, nor that a petroleum product containing ethanol was released at the site. Ethanol has been increasingly used in fuels since 2006 (according to the 2016 NOI Fact Sheet), and according to site history, the site has been a cold storage building and a fish warehouse since 1964 until two restaurants opened at the site around 2008.

RECEIVING WATERS SAMPLING AND DILUTION FACTOR

On 18 July 2018, one sample was collected adjacent to the site in Boston Harbor and submitted to Alpha Analytical to be analyzed for salinity, pH, and ammonia. The laboratory data report is included in Appendix G. The results of the surface water sampling program are provided in Table II.

The pH and temperature readings from the site on the day of sampling were used to calculate the site Water Quality Based Effluent Limitations (WQBELs). It is our understanding that since the receiving water is a saltwater body in Massachusetts, the dilution factor is assumed to be 1:1.

EFFLUENT CRITERIA DETERMINATION

Groundwater and Receiving Water data were input into the WQBEL Calculation spreadsheet and used to calculate the effluent criteria for the site. Copies of the "EnterData" and "SaltwaterResults" tabs from the excel file provided as an additional resource by EPA are included in Appendix B. The effluent limitation calculations are included for reference in Table I.

DEWATERING SYSTEM AND OFF-SITE DISCHARGE

During construction of the building, it will be necessary to perform temporary dewatering to dewater the excavation, control surface water runoff from precipitation, groundwater seepage, and construction-generated water, to enable below grade garage construction to be completed in-the-dry. Construction and construction dewatering activities are currently anticipated to be required for a period of up to 24 months. On average, we estimate effluent discharge rates of about 50 to 100 gallons per minute (gpm) or less, with occasional peak flows of approximately 150 gpm during significant precipitation events. Temporary dewatering will be conducted from sumps located within the excavation.

Construction dewatering will include piping and discharging to a storm drain located near the site that discharges into the Boston Harbor through outfall SDO195. The proposed discharge route is shown on Figure 2. Prior to discharge, collected water will be routed through a sedimentation tank and bag filters and other necessary treatment components, to remove suspended solids and undissolved chemical constituents, as shown on Sketch 1. The contractor's dewatering submittal documents are included in Appendix D. A Notice of Change (NOC) will be submitted to EPA if additional treatment components need to be mobilized at the site.

DOCUMENTATION OF NATIONAL HISTORIC PRESERVATION ACT ELIGIBILITY REQUIREMENTS

Based on a review of the resources provided by the U.S. National Register of Historic Places and a review of the Massachusetts Cultural Resource Information System (MACRIS), no historic properties have been established to be present at the project site, and discharges and discharge-related activities are not considered to have the potential to affect historic properties. The discharge is considered to meet Criterion A. Documentation is included in Appendix E. Note that a review of MACRIS was performed for both 150 Seaport Boulevard and Northern Avenue, as Northern Avenue is the former street name of Seaport Boulevard.

DETERMINATION OF ENDANGERED SPECIES ACT ELIGIBILITY

According to the guidelines outlined in Appendix I of the 2017 NPDES RGP, a preliminary determination for the action area associated with this project was established using the U.S. Fish and Wildlife Service

(FWS) Information, Planning, and Conservation (IPAC) online system; a copy of the determination is attached in Appendix F. Based on the results of the determination, the project and action area are considered to meet FWS Criterion A as no listed species or critical habitat have been established to be present within the project action area. Additionally, a MassDEP Phase 1 site Assessment Map is included in Appendix F, which confirms that no critical habitats are present at the site.

It is our understanding that listed species under the jurisdiction of National Marine Fisheries Service (NMFS) are the Atlantic Sturgeon and the Shortnose Sturgeon, as well as two species of whales (North Atlantic Right Whale and Fin Whale and four species of sea turtles (Loggerhead Sea Turtle, Kemp's Ridley Sea Turtle, Leatherback Sea Turtle, Green Sea Turtle) in the marine environment. Based upon our review of National Oceanic and Atmospheric Administration (NOAA) Protected Resources Section 7 Program Species Information and Maps, accessed by Haley & Aldrich on 25 October 2018, no listed species under the jurisdiction of NMFS have been established to be present within the project action area. Tables providing the regions and nearshore areas of importance for each of the NMFS listed species are provided in Appendix F.

SUPPLEMENTAL INFORMATION

An application for a temporary construction dewatering permit is being submitted to the City of Boston; a copy of the application is provided in Appendix C. Approval will be received prior to the start of discharge. A Best Management Practices Plan (BMPP), which outlines the proposed discharge operations covered under the RGP, will be available at the site.

Owner and Operator Information

Owner:
150 Seaport LLC
250 Northern Avenue, Suite 400
Boston, Massachusetts 02210
Attn: Jon Cronin

Operator:
John Moriarty & Associates
3 Church Street, Suite 2
Winchester, MA 01890
Attn: Rick Lennon

CLOSING

Thank you for your consideration. Please feel free to contact us should you have any questions or require additional information.

Sincerely yours,
HALEY & ALDRICH, INC.

Samantha Butwill, EIT
Engineer

Lee S. Vanzler, P.E.

TABLE I
SUMMARY OF GROUNDWATER QUALITY DATA
150 SEAPORT BOULEVARD
BOSTON, MA
FILE NO. 132470-004

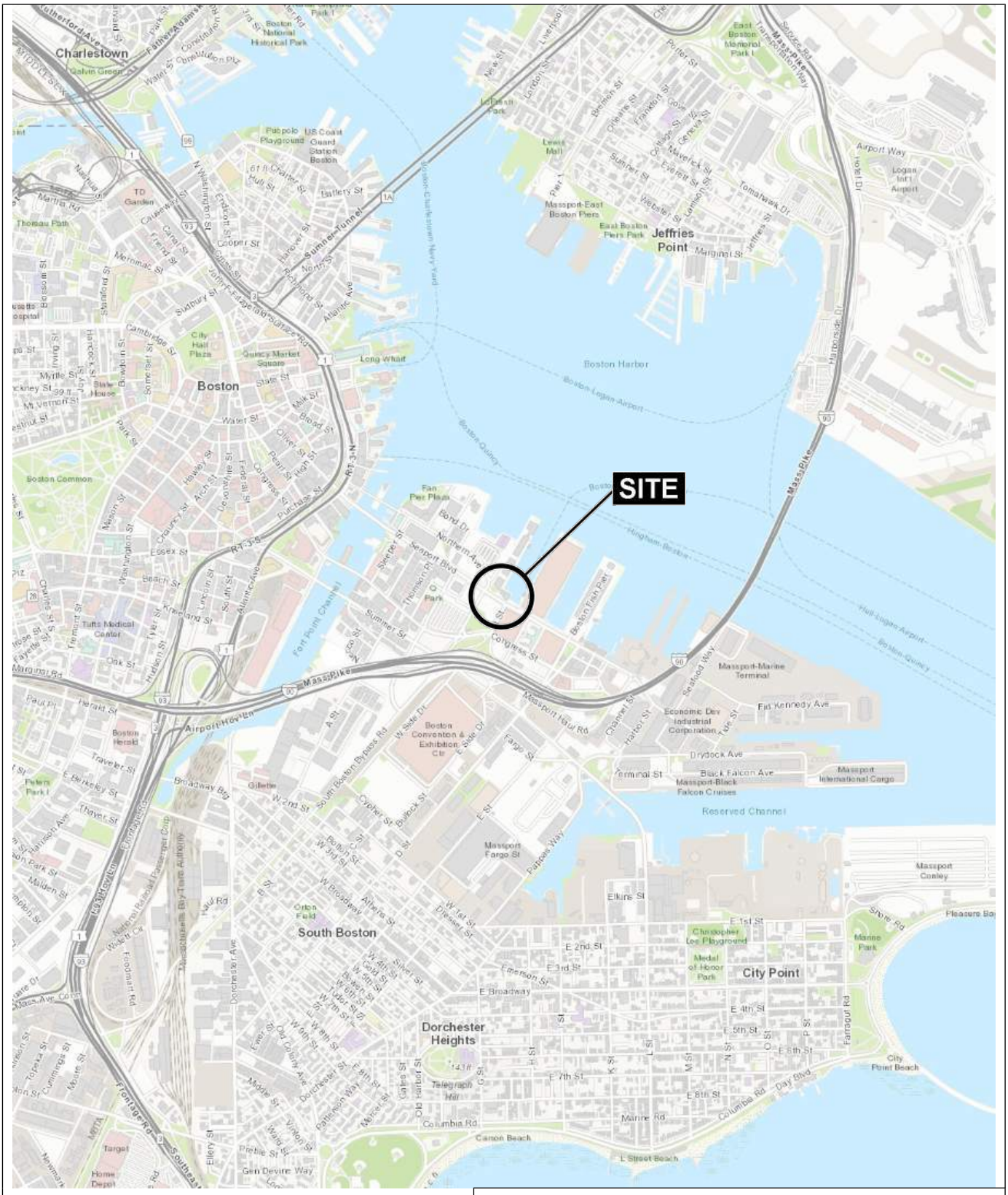
Location Name	Regulatory Criteria		HA17-2 (OW)		
Sample Name	MCP Reportable Concentration RCGW-2 2014	2017 NPDES RGP Project-Specific Effluent Limits	HA17-2 (OW)-20180718	HA17-2 (OW)	HA17-2 (OW)
Sample Date			07/18/2018	9/12/2018	10/2/2018
Lab Sample ID			L1827537-01 L1830713-01	L1836195-01	L1839688-01
Volatile Organic Compounds (ug/L)					
SUM Of BTEX Compounds	NA	100	ND	-	-
SUM of Volatile Organic Compounds	ND	NA	ND	-	-
Volatile Organic Compounds SIM (ug/L)					
SUM of Volatile Organic Compounds SIM	ND	NA	ND	-	-
Semi-Volatile Organic Compounds (ug/L)					
SUM of Semi-Volatile Organic Compounds	ND	NA	ND	-	-
Semi-Volatile Organic Compounds (SIM) (ug/L)					
SUM of Group II PAHs	NA	100	ND	-	-
SUM of Semi-Volatile Organic Compounds (SIM)	ND	NA	ND	-	-
Total Petroleum Hydrocarbons (mg/L)					
Petroleum hydrocarbons	5	5	ND (4)	-	-
Dissolved Metals (mg/L)					
Chromium VI (Hexavalent)	0.3	NA	ND (0.01)	-	-
Lead	0.01	NA	**0.12**	ND (0.01)	**0.228**
Total Metals (mg/L)					
Antimony	NA	0.206	0.06686	-	-
Arsenic	NA	0.104	0.01124	-	-
Cadmium	NA	0.0102	ND (0.002)	-	-
Chromium	NA	0.323	ND (0.01)	-	-
Chromium III (Trivalent)	NA	0.323	ND (0.01)	-	-
Copper	NA	0.242	ND (0.01)	-	-
Cyanide	NA	0.178	ND (0.005)	-	-
Iron	NA	5	2.04	-	-
Lead	NA	0.0085	0.12	3.58	0.202
Mercury	NA	0.000739	ND (0.0002)	-	-
Nickel	NA	1.45	ND (0.02)	-	-
Selenium	NA	0.2358	ND (0.05)	-	-
Silver	NA	0.0351	ND (0.004)	-	-
Zinc	NA	0.086	0.3123	-	-
PCBs (ug/L)					
Aroclor-1016 (PCB-1016)	5	NA	ND (0.25)	-	-
Aroclor-1221 (PCB-1221)	5	NA	ND (0.25)	-	-
Aroclor-1232 (PCB-1232)	5	NA	ND (0.25)	-	-
Aroclor-1242 (PCB-1242)	5	NA	ND (0.25)	-	-
Aroclor-1248 (PCB-1248)	5	NA	ND (0.25)	-	-
Aroclor-1254 (PCB-1254)	5	NA	ND (0.25)	-	-
Aroclor-1260 (PCB-1260)	5	NA	ND (0.2)	-	-
SUM of PCBs	5	0.000064	ND	-	-
Other					
Total Ammonia (mg/L)	NA	Report	0.276	-	-
Total Chloride (mg/L)	NA	Report	17900	-	-
Total Residual Chlorine (mg/L)	NA	0.0075	ND (0.02)	-	-
Total phenols (mg/L)	NA	1.08	ND (0.03)	-	-
Total Suspended Solids (TSS) (mg/L)	NA	30	5.8	-	-

ABBREVIATIONS AND NOTES:
-: Not Analyzed
NA: Not Applicable
ND (2.5): Not detected, number in parentheses is the laboratory detection limit

- Volatile and Semi-Volatile Organic analytes detected in at least one sample are reported herein. For a complete list of analytes see the laboratory data sheets.
- Bold values indicate an exceedance of the **RCGW-2** criteria. RCGW-2 for metals is based on dissolved concentrations.
- Underlined values indicate an exceedance of the NPDES RGP criteria.
- Bold underlined values indicate an exceedance of the **RCGW-2 and NPDES RGP** criteria. RCGW-2 for metals is based on dissolved concentrations.

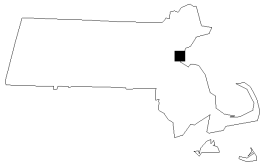
TABLE II
SUMMARY OF SURFACE WATER QUALITY DATA
150 SEAPORT BOULEVARD
BOSTON, MA
FILE NO. 132470-004

Location Name	HASW
Sample Name	HASW_07182018
Sample Date	07/18/2018
Lab Sample ID	L1827531-01
Other	
Total Ammonia (mg/L)	0.194
pH (lab)	7.7
Total Salinity (SU)	16



MAP SOURCE: ESRI

SITE COORDINATES: 42°21'3"N, 71°2'34"W



HALEY ALDRICH

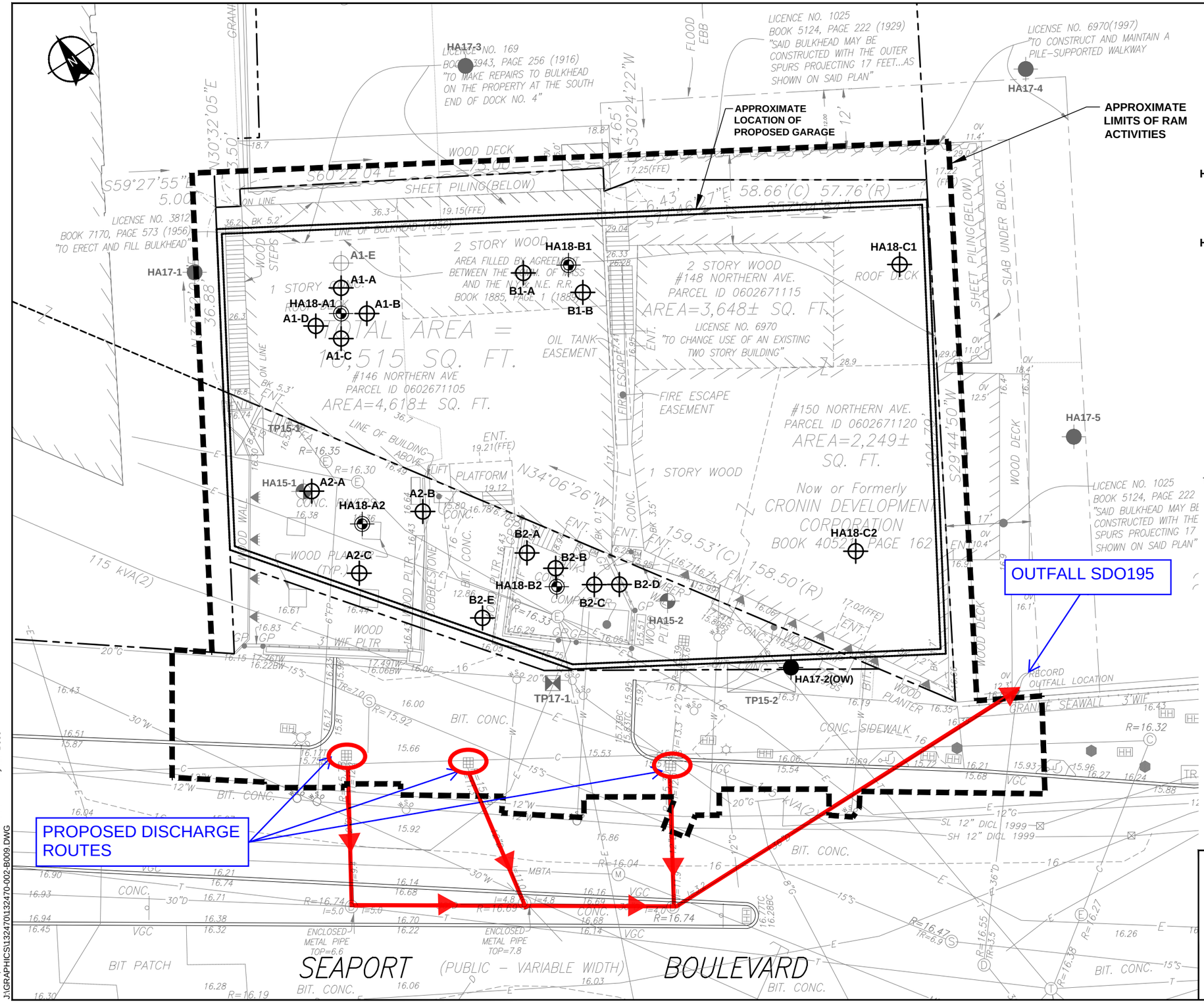
150 SEAPORT BOULEVARD
BOSTON, MASSACHUSETTS

PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
OCTOBER 2018

FIGURE 1

132470-002 A006.PDF



LEGEND

HA18-C1 — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING COMPLETED BY GEOLOGIC-EARTH EXPLORATION, INC. AND MONITORED BY HALEY & ALDRICH, INC. BETWEEN 17 SEPTEMBER TO 21 OCTOBER 2018

HA18-A1 — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING COMPLETED BY GEOLOGIC-EARTH EXPLORATION, INC. AND MONITORED BY HALEY & ALDRICH, INC. BETWEEN 2 AND 17 JULY 2018

HA17-1 — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING COMPLETED BY GEOLOGIC-EARTH EXPLORATION, INC. AND MONITORED BY HALEY & ALDRICH, INC. BETWEEN 22 MAY AND 3 AUGUST 2017

TP17-1 — DESIGNATION AND APPROXIMATE LOCATION OF TEST PIT COMPLETED BY JAMES W. FLETT CO., INC. AND MONITORED BY HALEY & ALDRICH, INC. ON 24 MAY 2017

HA15-1 — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING COMPLETED BY NORTHERN DRILL SERVICE, INC. AND MONITORED BY HALEY & ALDRICH, INC. BETWEEN 18 AND 25 NOVEMBER 2015

TP15-1 — DESIGNATION AND APPROXIMATE LOCATION OF TEST PIT COMPLETED BY JAMES W. FLETT CO., INC. AND MONITORED BY HALEY & ALDRICH, INC. ON 16 NOVEMBER 2015

GRAYED OUT EXPLORATIONS INDICATE NO ENVIRONMENTAL DATA AVAILABLE

NOTES

1. BASE PLAN TAKEN FROM PLAN TITLED "EXISTING CONDITIONS PLAN OF LAND, 146-150 NORTHERN AVENUE, BOSTON, MASS" PREPARED BY FELDMAN LAND SURVEYORS DATED 4 MARCH 2014.
2. PROPOSED GARAGE BUILDING FOOTPRINT TAKEN FROM ELECTRONIC FILE TITLED "1341402UT.dwg" PROVIDED BY VANASSE HANGEN BRUSTLIN, INC. ON 30 JUNE 2017.

0 20 40
SCALE IN FEET

HALEY ALDRICH
150 SEAPORT BOULEVARD
BOSTON, MASSACHUSETTS

SITE AND SUBSURFACE EXPLORATION LOCATION PLAN

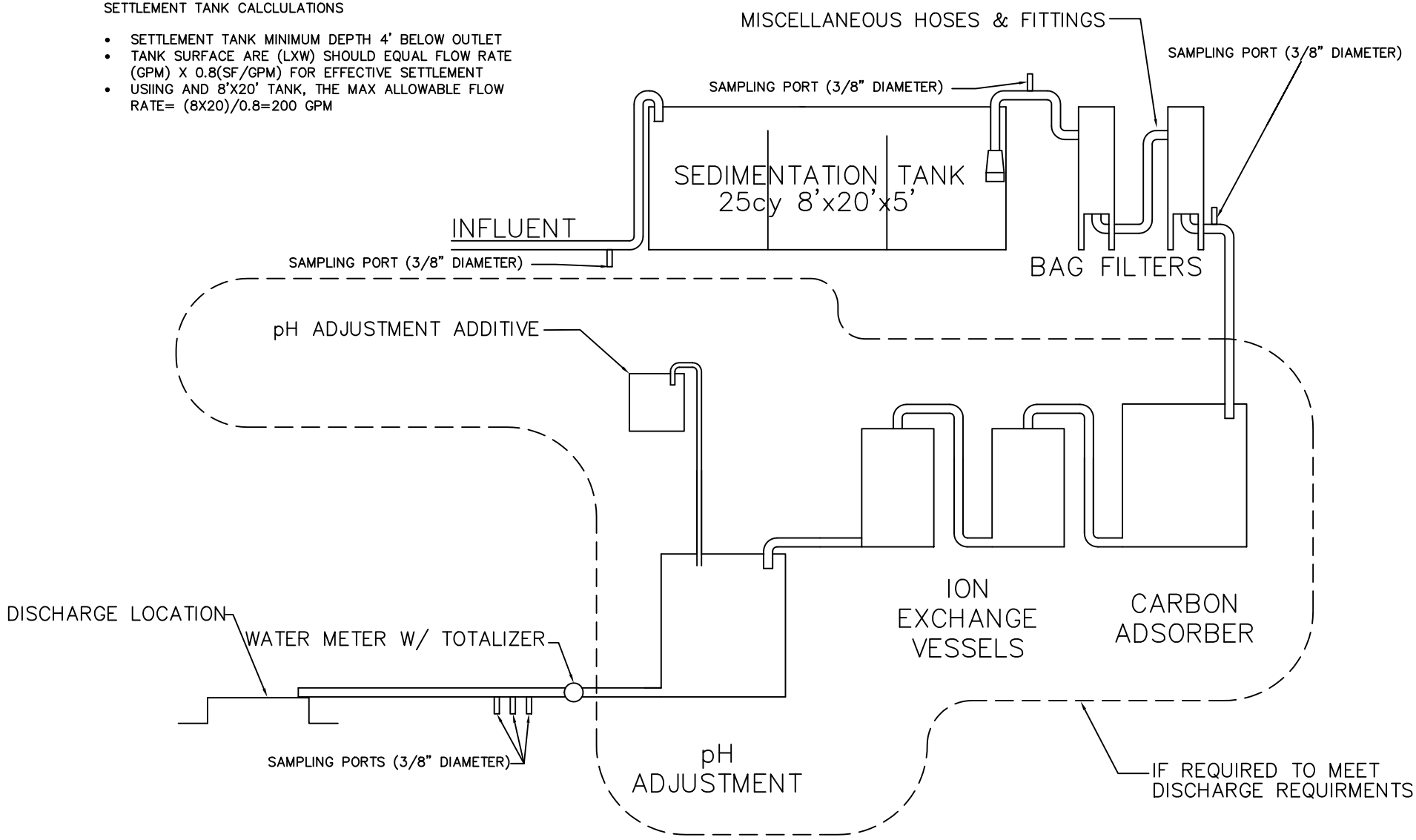
SCALE: AS SHOWN
OCTOBER 2018

FIGURE 2

Layout: B009
Printed:10/4/2018 1:06 PM
ERVIN, DAYNA
J:\GRAPHICS\132470\132470-002-B009.DWG

SETTLEMENT TANK CALCLULATIONS

- SETTLEMENT TANK MINIMUM DEPTH 4' BELOW OUTLET
- TANK SURFACE ARE (LXW) SHOULD EQUAL FLOW RATE (GPM) X 0.8(SF/GPM) FOR EFFECTIVE SETTLEMENT
- USIING AND 8'X20' TANK, THE MAX ALLOWABLE FLOW RATE= (8X20)/0.8=200 GPM



150 SEAPORT BLVD BOSTON, MA DEWATERING TREATMENT SYSTEM	A.A. WILL CORPORATION 145 ISLAND STREET STOUGHTON, MA	DATE: 10/4/2018 DRAWN: RPM SCALE: NTS	SKETCH 1

APPENDIX A

Notice of Intent (NOI)

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

A. General site information:

<table>
<tr><td rowspan="2">1. Name of site:
150 Seaport Boulevard</td><td colspan="3">Site address: 150 Seaport Boulevard
Street:</td></tr>
<tr><td>City: Boston</td><td>State: MA</td><td>Zip: 02210</td></tr>
<tr><td rowspan="4">2. Site owner
150 Seaport LLC

Owner is (check one): ☐ Federal ☐ State/Tribal ■ Private
☐ Other; if so, specify:</td><td colspan="3">Contact Person: Jon Cronin</td></tr>
<tr><td colspan="2">Telephone: (617) 737-2366</td><td>Email: jon@joncronin.com</td></tr>
<tr><td colspan="3">Mailing address: 250 Northern Avenue, Suite 400
Street:</td></tr>
<tr><td>City: Boston</td><td>State: MA</td><td>Zip: 02210</td></tr>
<tr><td rowspan="4">3. Site operator, if different than owner
John Moriarty & Associates</td><td colspan="3">Contact Person: Rick Lennon</td></tr>
<tr><td colspan="2">Telephone: 781-760-7387</td><td>Email: rlennon@jm-a.com</td></tr>
<tr><td colspan="3">Mailing address:
Street: 3 Church Street, Suite 2</td></tr>
<tr><td>City: Winchester</td><td>State: MA</td><td>Zip: 01890</td></tr>
<tr><td>4. NPDES permit number assigned by EPA:
not applicable

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): 3-35200
☐ 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):
Boston Inner Harbor	MA70-02	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:

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. Impaired; Cause - Entercoccus, Fecal Colliform, Dissolved Oxygen, PCB in Fish Tissue; No final TMDL; Impaired Designated Uses - aquatic life, primary and secondary contact, fish consumption, and shellfish harvesting.

4. Indicate the seven day-ten-year low flow (7Q10) of the receiving water determined in accordance with the instructions in Appendix V for sites located in Massachusetts and Appendix VI for sites located in New Hampshire.	0
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:

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: Pb, Sb, As, Fe, Zn	
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): SDO195 Boston Harbor Outfall	Outfall location(s): (Latitude, Longitude) 42°21'02.6"N 71°02'33.7"W 42.350715, -71.042690
Discharges enter the receiving water(s) via (check any that apply): ☐ Direct discharge to the receiving water ■ Indirect discharge, if so, specify: ☐ 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: BWSC permit is being simultaneously submitted. Anticipate obtaining permission from BWSC within 4-6 weeks. 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): 12/2018 - 11/2020 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="5">☐ I – Petroleum-Related Site Remediation
☐ II – Non-Petroleum-Related Site Remediation
■ III – Contaminated Site Dewatering
☐ IV – Dewatering of Pipelines and Tanks
☐ V – Aquifer Pump Testing
☐ VI – Well Development/Rehabilitation
☐ VII – Collection Structure Dewatering/Remediation
☐ VIII – Dredge-Related Dewatering</td><td colspan="2">a. If Activity Category I or II: (check all that apply)

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

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

4. Influent and Effluent Characteristics

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
A. Inorganics									
Ammonia		✓	1	4500NH3	75	276	276	Report mg/L	---
Chloride		✓	1	300.0	12500	17900000	17900000	Report µg/l	---
Total Residual Chlorine	✓		1	4500CL-D	20	0	0	0.2 mg/L	7.5 ug/L
Total Suspended Solids		✓	1	2540D	5000	5800	5800	30 mg/L	---
Antimony		✓	1	200.8	40	66.86	66.86	206 µg/L	
Arsenic		✓	1	200.8	10	11.24	11.24	104 µg/L	
Cadmium		✓	1	200.8	2	0	0	10.2 µg/L	
Chromium III		✓	1	200.8	1	0	0	323 µg/L	
Chromium VI			0	7196A	10	0	0	323 µg/L	
Copper		✓	1	200.8	10	0	0	242 µg/L	
Iron		✓	1	200.7	50	2040	2040	5,000 µg/L	
Lead		✓	3	200.8	10	3580	1301	160 µg/L	8.5 ug/L
Mercury		✓	1	245.1	0.2	0	0	0.739 µg/L	
Nickel		✓	1	200.8	20	0	0	1,450 µg/L	
Selenium	✓		1	200.8	50	0	0	235.8 µg/L	
Silver		✓	1	200.8	4	0	0	35.1 µg/L	
Zinc		✓	1	200.8	100	312.3	312.3	420 µg/L	86 ug/L
Cyanide	✓		1	4500CN	5	0	0	178 mg/L	
B. Non-Halogenated VOCs									
Total BTEX	✓		1	624.1	NA	0	0	100 µg/L	---
Benzene		✓	1	624.1	1	0	0	5.0 µg/L	---
1,4 Dioxane	✓		1	624.1	50	0	0	200 µg/L	---
Acetone		✓	1	624.1	10	0	0	7.97 mg/L	---
Phenol	✓		1	624.1	5	0	0	1,080 µg/L	

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
C. Halogenated VOCs									
Carbon Tetrachloride	✓		1	624.1	1	0	0	4.4 µg/L	NA
1,2 Dichlorobenzene	✓		1	624.1	5	0	0	600 µg/L	---
1,3 Dichlorobenzene	✓		1	624.1	5	0	0	320 µg/L	---
1,4 Dichlorobenzene	✓		1	624.1	5	0	0	5.0 µg/L	---
Total dichlorobenzene	✓		1	624.1	5	0	0	763 µg/L in NH	---
1,1 Dichloroethane	✓		1	624.1	1.5	0	0	70 µg/L	---
1,2 Dichloroethane	✓		1	624.1	1.5	0	0	5.0 µg/L	---
1,1 Dichloroethylene	✓		1	624.1	1	0	0	3.2 µg/L	---
Ethylene Dibromide	✓		1	624.1	2	0	0	0.05 µg/L	---
Methylene Chloride	✓		1	624.1	1	0	0	4.6 µg/L	---
1,1,1 Trichloroethane	✓		1	624.1	2	0	0	200 µg/L	---
1,1,2 Trichloroethane	✓		1	624.1	1.5	0	0	5.0 µg/L	---
Trichloroethylene	✓		1	624.1	1	0	0	5.0 µg/L	---
Tetrachloroethylene	✓		1	624.1	1.5	0	0	5.0 µg/L	NA
cis-1,2 Dichloroethylene	✓		1	624.1	1	0	0	70 µg/L	---
Vinyl Chloride	✓		1	624.1	1	0	0	2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates	✓		1	625.1	NA	0	0	190 µg/L	
Diethylhexyl phthalate	✓		1	625.1	5	0	0	101 µg/L	
Total Group I PAHs		✓	1	625.1	0.1	0	0	1.0 µg/L	---
Benzo(a)anthracene		✓	1	625.1	0.1	0	0	As Total PAHs	
Benzo(a)pyrene		✓	1	625.1	0.1	0	0		
Benzo(b)fluoranthene		✓	1	625.1	0.1	0	0		
Benzo(k)fluoranthene		✓	1	625.1	0.1	0	0		
Chrysene		✓	1	625.1	0.1	0	0		
Dibenzo(a,h)anthracene		✓	1	625.1	0.1	0	0		
Indeno(1,2,3-cd)pyrene		✓	1	625.1	0.1	0	0		

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
Total Group II PAHs		✔	1	625.1	0.1	0	0	100 µg/L	---
Naphthalene		✔	1	625.1	0.1	0	0	20 µg/L	---
E. Halogenated SVOCs									
Total PCBs		✔	1	608.3	0.250	0	0	0.000064 µg/L	---
Pentachlorophenol	✔		1	625.1-SIM	0.80	0	0	1.0 µg/L	---
F. Fuels Parameters									
Total Petroleum Hydrocarbons		✔	1	1664A	4000	0	0	5.0 mg/L	---
Ethanol	✔		0	1671	2000	0	0	Report mg/L	---
Methyl-tert-Butyl Ether	✔		1	624.1	1	0	0	70 µg/L	
tert-Butyl Alcohol	✔		1	624.1	10	0	0	120 µg/L in MA 40 µg/L in NH	---
tert-Amyl Methyl Ether	✔		1	624.1	2	0	0	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:									
pH		✔	1	121,400H	NA	7.7 (SU)	7.7 (SU)		
Cymene (P-Isopropyltoluene)		✔	1	624.1	1.9	0	0		

E. Treatment system information

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

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

2. Provide a written description of all treatment system(s) or processes that will be applied to the effluent prior to discharge.
Prior to discharge, collected water is routed through a sedimentation tank and bag filters to remove suspended solids and undissolved chemical constituents. A Notice of Change (NOC) will be submitted to EPA if additional treatment components need to be mobilized at the site.

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: Flowmeter Is use of a flow meter feasible? (check one): ■ Yes ☐ No, if so, provide justification:	170 gpm
Provide the proposed maximum effluent flow in gpm.	150 gpm
Provide the average effluent flow in gpm.	50 gpm
If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:	NA

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

F. Chemical and additive information

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

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

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

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

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

G. Endangered Species Act eligibility determination

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

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

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

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

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

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

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

H. National Historic Preservation Act eligibility determination

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

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

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

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

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

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

I. Supplemental information

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

Refer to attached Haley & Aldrich, Inc. letter

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 implemented at the site.

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 ☐

BWSC PERMIT IS BEING SUBMITTED SIMULTANEOUSLY. PERMISSION FROM BWSC IS ANTICIPATED IN 4-6 WEEKS

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: R. Lennon Date: 10/24/18

Print Name and Title: Rick Lennon, Site Superintendent

APPENDIX B

Dilution Factor and Effluent Limit Calculations

Enter number values in green boxes below

Enter values in the units specified

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

Enter a dilution factor, if other than zero

1	

Enter values in the units specified

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

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

7.7	pH in **Standard Units**
12	Temperature in **°C**
0.194	Ammonia in **mg/L**
0	Hardness in **mg/L** $CaCO_3$
16	Salinity in **ppt**
0	Antimony in **µg/L**
0	Arsenic in **µg/L**
0	Cadmium in **µg/L**
0	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
0	Copper in **µg/L**
0	Iron in **µg/L**
0	Lead in **µg/L**
0	Mercury in **µg/L**
0	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
0	Zinc in **µg/L**

Enter **influent** concentrations in the units specified

0	TRC in **µg/L**
0.276	Ammonia in **mg/L**
66.86	Antimony in **µg/L**
11.24	Arsenic in **µg/L**
0	Cadmium in **µg/L**
0	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
0	Copper in **µg/L**
2040	Iron in **µg/L**
120	Lead in **µg/L**
0	Mercury in **µg/L**
0	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
312.3	Zinc in **µg/L**
0	Cyanide in **µg/L**
0	Phenol in **µg/L**
0	Carbon Tetrachloride in **µg/L**
0	Tetrachloroethylene in **µg/L**
0	Total Phthalates in **µg/L**
0	Diethylhexylphthalate in **µg/L**
0	Benzo(a)anthracene in **µg/L**
0	Benzo(a)pyrene in **µg/L**
0	Benzo(b)fluoranthene in **µg/L**
0	Benzo(k)fluoranthene in **µg/L**
0	Chrysene in **µg/L**
0	Dibenzo(a,h)anthracene in **µg/L**
0	Indeno(1,2,3-cd)pyrene in **µg/L**
0	Methyl-tert butyl ether in **µg/L**

Notes:

Freshwater: Q_R equal to the 7Q10; enter alternate Q_R if approved by the State; enter 0 if no dilution factor approved
Saltwater (estuarine and marine): enter Q_R if approved by the State; enter 0 if no entry
Discharge flow is equal to the design flow or 1 MGD, whichever is less
Only if approved by State as the entry for Q_R; leave 0 if no entry

Saltwater (estuarine and marine): only if approved by the State
Leave 0 if no entry

Freshwater only

pH, temperature, and ammonia required for all discharges
Hardness required for freshwater
Salinity required for saltwater (estuarine and marine)
Metals required for all discharges if present and if dilution factor is > 1
Enter 0 if non-detect or testing not required

if >1 sample, enter maximum
if >10 samples, may enter 95th percentile
Enter 0 if non-detect or testing not required

Dilution Factor	1.0					
A. Inorganics	TBEL applies if bolded		WQBEL applies if bolded		Compliance Level applies if shown	
Ammonia	**Report**	mg/L	---			
Chloride	**Report**	µg/L	---			
Total Residual Chlorine	0.2	mg/L	**7.5**	µg/L	50	µg/L
Total Suspended Solids	**30**	mg/L	---			
Antimony	**206**	µg/L	640	µg/L		
Arsenic	**104**	µg/L	36	µg/L		
Cadmium	**10.2**	µg/L	8.9	µg/L		
Chromium III	**323**	µg/L	100.0	µg/L		
Chromium VI	**323**	µg/L	50	µg/L		
Copper	**242**	µg/L	3.7	µg/L		
Iron	**5000**	µg/L	---	µg/L		
Lead	160	µg/L	**8.5**	µg/L		
Mercury	**0.739**	µg/L	1.11	µg/L		
Nickel	**1450**	µg/L	8.3	µg/L		
Selenium	**235.8**	µg/L	71	µg/L		
Silver	**35.1**	µg/L	2.2	µg/L		
Zinc	420	µg/L	**86**	µg/L		
Cyanide	**178**	mg/L	1.0	µg/L	---	µg/L
B. Non-Halogenated VOCs						
Total BTEX	**100**	µg/L	---			
Benzene	**5.0**	µg/L	---			
1,4 Dioxane	**200**	µg/L	---			
Acetone	**7.97**	mg/L	---			
Phenol	**1,080**	µg/L	300	µg/L		
C. Halogenated VOCs						
Carbon Tetrachloride	**4.4**		1.6	µg/L		
1,2 Dichlorobenzene	**600**	µg/L	---			
1,3 Dichlorobenzene	**320**	µg/L	---			
1,4 Dichlorobenzene	**5.0**	µg/L	---			
Total dichlorobenzene	**---**	µg/L	---			
1,1 Dichloroethane	**70**	µg/L	---			
1,2 Dichloroethane	**5.0**	µg/L	---			
1,1 Dichloroethylene	**3.2**	µg/L	---			
Ethylene Dibromide	**0.05**	µg/L	---			
Methylene Chloride	**4.6**	µg/L	---			
1,1,1 Trichloroethane	**200**	µg/L	---			
1,1,2 Trichloroethane	**5.0**	µg/L	---			
Trichloroethylene	**5.0**	µg/L	---			
Tetrachloroethylene	**5.0**	µg/L	3.3	µg/L		
cis-1,2 Dichloroethylene	**70**	µg/L	---			
Vinyl Chloride	**2.0**	µg/L	---			
D. Non-Halogenated SVOCs						
Total Phthalates	**190**	µg/L	---	µg/L		
Diethylhexyl phthalate	**101**	µg/L	2.2	µg/L		
Total Group I Polycyclic Aromatic Hydrocarbons	**1.0**	µg/L	---			
Benzo(a)anthracene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Benzo(a)pyrene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Benzo(b)fluoranthene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Benzo(k)fluoranthene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Chrysene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Dibenzo(a,h)anthracene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Indeno(1,2,3-cd)pyrene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Total Group II Polycyclic Aromatic Hydrocarbons	**100**	µg/L	---			
Naphthalene	**20**	µg/L	---			
E. Halogenated SVOCs						
Total Polychlorinated Biphenyls	**0.000064**	µg/L	---		0.5	µg/L
Pentachlorophenol	**1.0**	µg/L	---			
F. Fuels Parameters						
Total Petroleum Hydrocarbons	**5.0**	mg/L	---			
Ethanol	**Report**	mg/L	---			
Methyl-tert-Butyl Ether	**70**	µg/L	20	µg/L		
tert-Butyl Alcohol	**120**	µg/L	---			
tert-Amyl Methyl Ether	**90**	µg/L	---			

APPENDIX C

Copy of City of Boston Dewatering Permit Application

Haley & Aldrich, Inc.
465 Medford St.
Suite 2200
Boston, MA 02129
617.886.7400

23 October 2017
File No. 132470-002

Boston Water and Sewer Commission
Engineering Customer Services
900 Harrison Avenue
Boston, MA 02119

Attention: Matthew Tuttle

Subject: Request for Approval of Temporary Construction Dewatering
150 Seaport Boulevard
Boston, Massachusetts

Dear Mr. Tuttle:

On behalf of our client, 150 Seaport LLC, this letter submits the Dewatering Discharge Permit Application in support of the planned 150 Seaport Boulevard construction.

Dewatering is necessary to enable construction in-the-dry and is anticipated to begin in December 2018 and continue for up to 24 months. Prior to discharge, collected water will be routed through at minimum a sedimentation tank and 5-micron bag filter to remove suspended solids and un-dissolved chemical constituents. Other pre-treatment may be conducted as necessary to comply with NPDES discharge criteria. The site location is shown on Figure 1 and the proposed dewatering discharge route and BWSC outfall location are shown on Figure 2.

A Notice of Intent to discharge under the 2017 NPDES Remediation General Permit (RGP) has been submitted to the Environmental Protection Agency (EPA). A copy of the submitted application is attached. If you have any questions, please feel free to contact the undersigned at 617-886-7477.

Sincerely yours,

HALEY & ALDRICH, INC.

Samantha Butwill, E.I.T.
Engineer

Michael J. Cronan, LSP
Senior Project Manager

Attachments:
Dewatering Discharge Permit Application
Figure 1 – Project Locus
Figure 2 – Proposed Discharge Route
Copy of NPDES RGP Application

\\haleyaldrich.com\share\bos_common\132470 - 150 Seaport Blvd\002 - Environmental\SID 3 - Temporary Construction Dewatering\NPDES RGP Application\BWSC Permit Application\2018 1004-HAI-150 Seaport BWSC Letter_D1.docx

Boston Water and Sewer Commission
980 Harrison Avenue
Boston, MA 02119-2540

DEWATERING DISCHARGE PERMIT APPLICATION

OWNER / AUTHORIZED APPLICANT PROVIDE INFORMATION HERE:

Company Name: 150 Seaport LLC Address: 250 Northern Avenue, Suite 400, Boston, MA 02210

Phone Number: (617) 737-2366 Fax number: N/A

Contact person name: Jon Cronin Title: Authorized Signatory

Cell number: _____ Email address: jon@joncronin.com

Permit Request (check one): ☒ New Application ☐ Permit Extension ☐ Other (Specify):_____

Owner's Information (if different from above):

Owner of property being dewatered: _____

Owner's mailing address: _____ Phone number: _____

Location of Discharge & Proposed Treatment System(s):

Street number and name: 150 Seaport Boulevard Neighborhood Seaport

Discharge is to a: ☐ Sanitary Sewer ☐ Combined Sewer ☒ Storm Drain ☐ Other (specify):_____

Describe Proposed Pre-Treatment System(s): Sedimentation tank, bag filters

BWSC Outfall No. SDO195 Receiving Waters Boston Harbor

Temporary Discharges (Provide Anticipated Dates of Discharge): From December 2018 To November 2020

☐ Groundwater Remediation	☐ Tank Removal/Installation	☒ Foundation Excavation
☐ Utility/Manhole Pumping	☐ Test Pipe	☐ Trench Excavation
☐ Accumulated Surface Water	☐ Hydrogeologic Testing	☐ Other _____

Permanent Discharges

☐ Foundation Drainage	☐ Crawl Space/Footing Drain
☐ Accumulated Surface Water	☐ Non-contact/Uncontaminated Cooling
☐ Non-contact/Uncontaminated Process	☐ Other; _____

---

1. Attach a Site Plan showing the source of the discharge and the location of the point of discharge (i.e. the sewer pipe or catch basin). Include meter type, meter number, size, make and start reading. Note. All discharges to the Commission's sewer system will be assessed current sewer charges.
2. If discharging to a sanitary or combined sewer, attach a copy of MWRA's Sewer Use Discharge permit or application.
3. If discharging to a separate storm drain, attach a copy of EPA's NPDES Permit or NOI application, or NPDES Permit exclusion letter for the discharge, as well as other relevant information.
4. Dewatering Drainage Permit will be denied or revoked if applicant fails to obtain the necessary permits from MWRA or EPA.

Submit Completed Application to: Boston Water and Sewer Commission
Engineering Customer Services
980 Harrison Avenue, Boston, MA 02119
Attn: Matthew Tuttle, Engineering Customer Service
E-mail: tuttlemp@bwsc.org
Phone: 617-989-7204 Fax: 617-989-7716

Signature of Authorized Representative for Property Owner: _____ Date: _____

APPENDIX D

Contractor's Dewatering Submittal

Bag Filters & Filter Media
Manufacturer's Information

Model NCO and NLCO Bag or Cartridge Filter Housings

Low cost filter housings for flow rates to 100 gpm*

NCO high-capacity bag filters offer an exceptional value in basic filtration applications. Offered in trade sizes 1, 2, and 12, the NCO is also available with our Platinum 700 cartridge series.

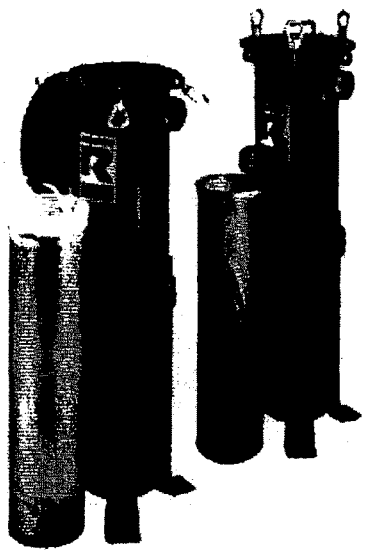
NCO housings provide large dirt-holding capacity combined with a rugged design rated to 150 psi. The housings incorporate an eyenut cover that is easily removed, reducing time spent on bag or cartridge change-out. The NCO bag housing offers versatility for any piping arrangement, utilizing our unistyle design (side and bottom outlet). Two connection sizes are available for both bag and cartridge filters.

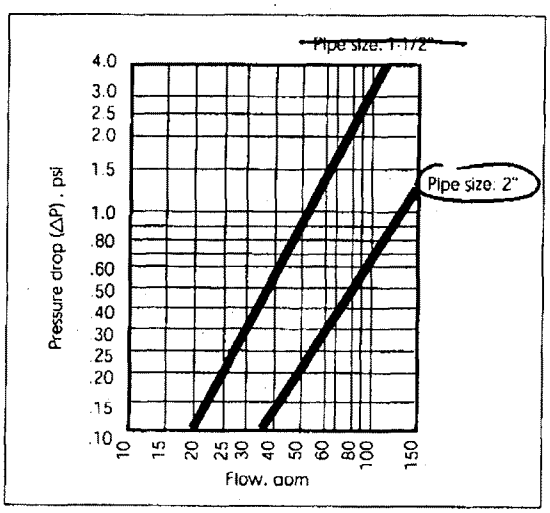
The NCO housings are electropolished creating a smooth, easy-to-clean surface. A variety of filter bags or cartridges (rated 0.5µ absolute to 100µ nominal) can be utilized in this housing. Keep your filtration process cost effective without sacrificing quality.

Features

- Permanently piped housings are opened without special tools
- Carbon or stainless steel housings
- Covers are O-ring sealed
- O-ring seals: Buna N, EPR and Viton®
- 150 psi rated housing
- Heavy-duty basket, over 50% open area
- Uses standard number 1, 2 or 12 size bags and 500 or 700 series cartridges

- Filter selection surface area is:
  2.3 square feet (number 1 size bag),
  4.4 square feet (number 2 size bag),
  5.6 square feet (number 12 size bag)
  68 square feet (500 series cartridge)
  100 square feet (700 series cartridge)
- ~~1-1/2-inch~~ or 2-inch NPT inlet and outlet
- 1/4-inch NPT vent connection
- Adjustable leg assembly





*Based on housing only. Fluid viscosity, filter bag used, and expected dirt loading should be considered when sizing a filter.

How To Order

Build an ordering code as shown in the example.

NCO8-30-2P-*-150-C-B-PB

	Housing	Options
Example:	NCO8-30-2P-	*-150-C-B-PB

MODEL
- **NCO8** (#1, #2 bag & 500 cartridge)
- **NLCO8** (#1/2 bag)
- **NCO8135** (700 cartridge)
- **NCO8135** convertible

BASKET SIZE
- 15-inch (NCO or NLCO) = **15**
- 30-inch (NCO or NLCO) = **30**
- NCO8135 = **No Symbol**

PIPE SIZE
- 1-1/2-inch female NPT = **1-1/2P**
- 2-inch female NPT = **2P**

OUTLET STYLE
- Side/Bottom Unistyle (NCO or NLCO) = *
- Bottom = **1**

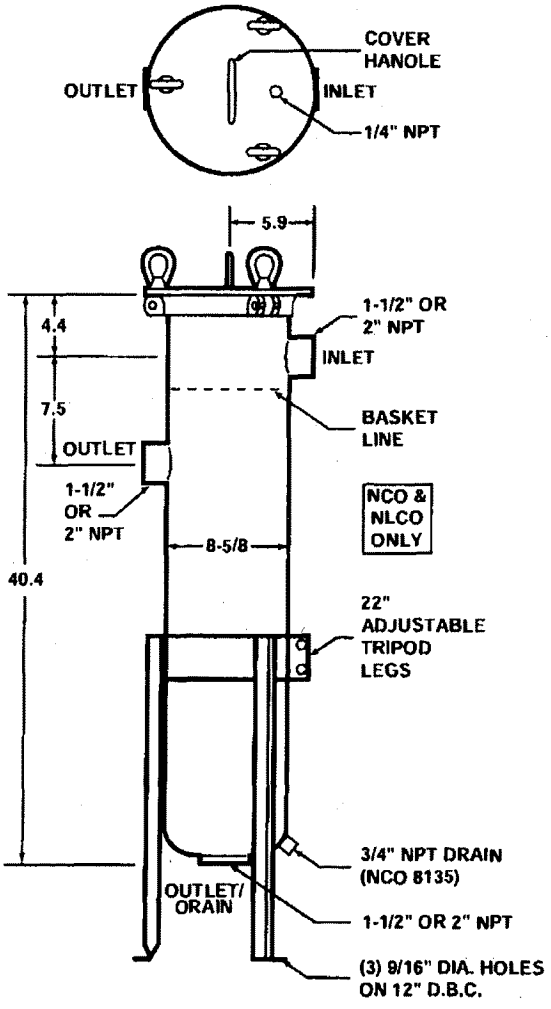
PRESSURE RATING
- 150 psi = **150**

HOUSING MATERIAL
- Carbon steel = **C**
- 304 Stainless steel = **S**

COVER SEAL
- Buna N = **B**
- Ethylene propylene = **E**
- Viton® Fluoroelastomer = **V**

BASKET TYPE
- Filter bag basket (NCO or NLCO) = **PB**
- 700 Cartridge (NCO8135) = **700**
- Convertible (NCO8135)[4] = **700PB**

1. Filter bags are specified separately.
2. Basket material is compatible with housing.
3. Weight (approximately): 70 lbs.
4. Accepts 700 Series cartridge as well as filter bag



Dimensions are reference only and should not be used for hard plumbing. Consult factory for certified drawings.

FILTER BAG Design Details

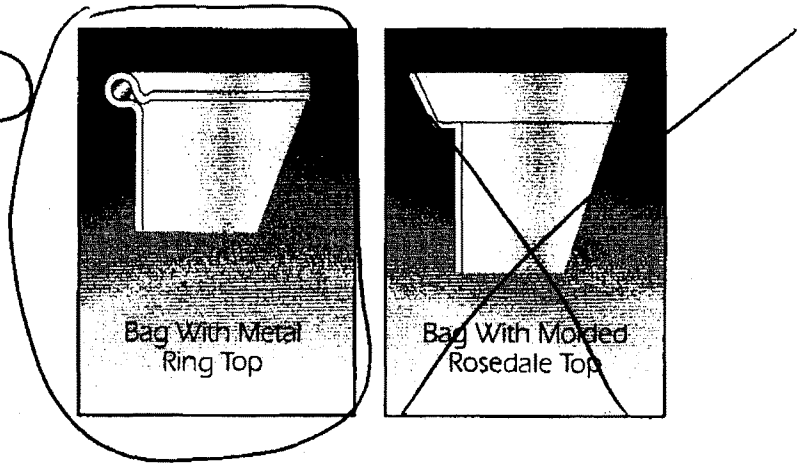
Standard Filter Bag Types

RING TOP BAGS are stocked in sizes 1, 2, 3, 4, 8, 9 & 12 with galvanized steel, rings.

MOLDED ROSEDALE TOP BAGS are stocked with polypropylene tops in sizes 1, 2, 3, 4, 8 & 9.

HANDLES are standard on all bags.

ALL STANDARD STOCK BAGS have sewn construction.



FILTER BAG FINISH

Felt filter bags are supplied with a glazed finish to reduce fiber migration. Mesh filter bags are supplied with a plain finish as woven.

Microfiber filter bags have spunbonded covers to prevent fiber migration.

CONSTRUCTION

Standard filter bags are typically manufactured with a metal ring, either galvanized carbon steel or stainless steel, sewn in the top of the filter bag. Woven fabric handles are also sewn.

Another design incorporates a molded plastic top. These tops typically are polypropylene or polyester with molded lifting handles. Various types of tops are available to fit specific manufacturers' housings.

All Welded Construction

All seams and the collar are sonically welded, enhancing filtration quality, eliminating leaks and bypass that may have occurred with sewn seams.

Felt Filter Bag Micron Rating

For years filter bag manufacturers have used nominal ratings, i.e. about 50% efficiency for polyester and polypropylene felt filter bags. The table gives the micron ratings at about 95% efficiency.

Nominal Micron Rating-50%	High Efficiency Micron Rating-95%
1	35
5	48
10	55
25	65
50	70
100	110
200	200

Filter Bag Pressure Drop

The graphs give the clean pressure drop through a number 2 size bag for water, 1 CPS @ 68°F

To determine the pressure drop caused by the filter bag, follow these steps:

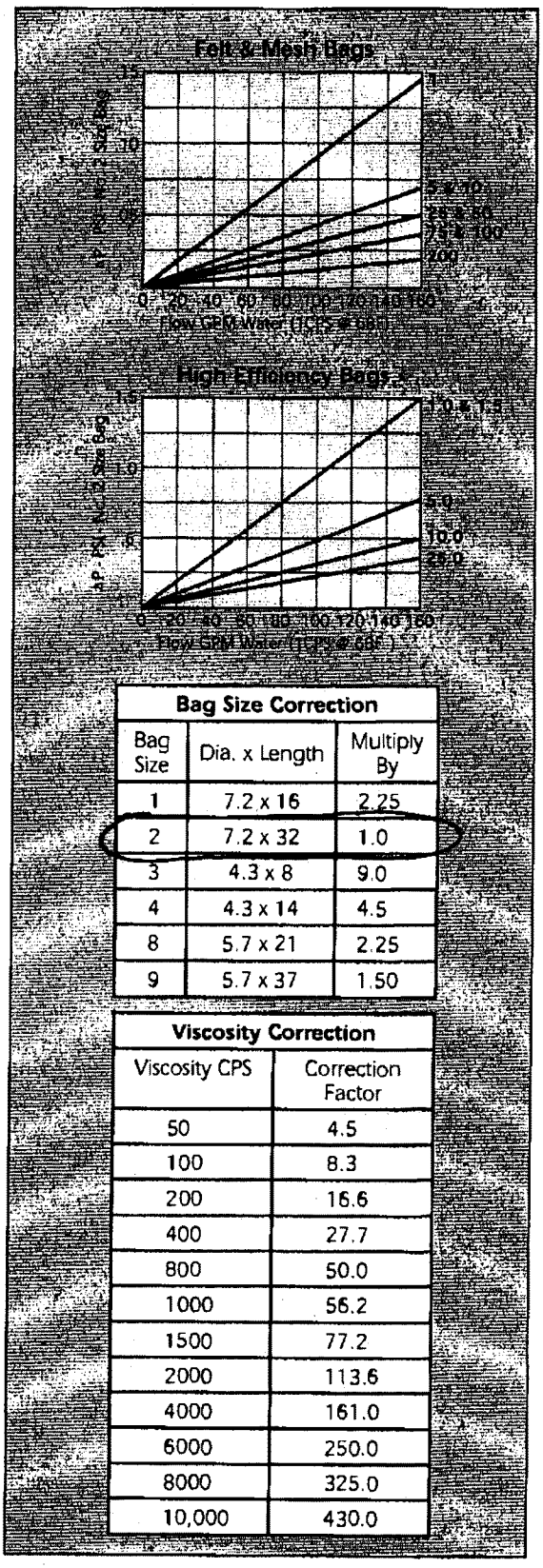
Step 1 Select the type of bag, micron rating and flow rate, determine the pressure drop for water, 1 cps @ 68°F, for a size #2 bag.

Step 2 Correct for bag size from the Bag Size Correction table at the right if the bag size is different than a #2 size.

Step 3 If the viscosity of the liquid is greater than 1 cps (water@ 68°F.),multiply the result from step 2 by the proper correction factor from the Viscosity Correction table at the right.

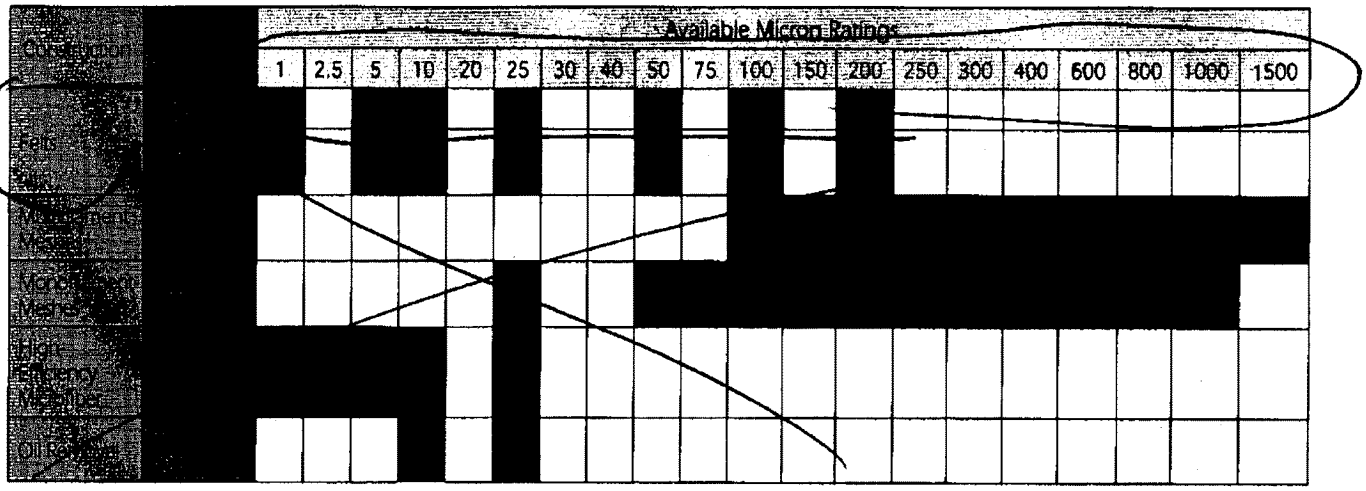
The value obtained in Step 3 is the clean pressure drop caused by the filter bag.

SUMMARY
For new applications, the clean pressure drop of the system, housing and bag should be 2.0 PSI or less. The lower the value is, the more contaminant a bag will hold. For applications with low dirt loading, this value can go to 3.0 PSI or more. Consult the factory for recommendations when the clean pressure drop of the system exceeds 3.0 PSI.

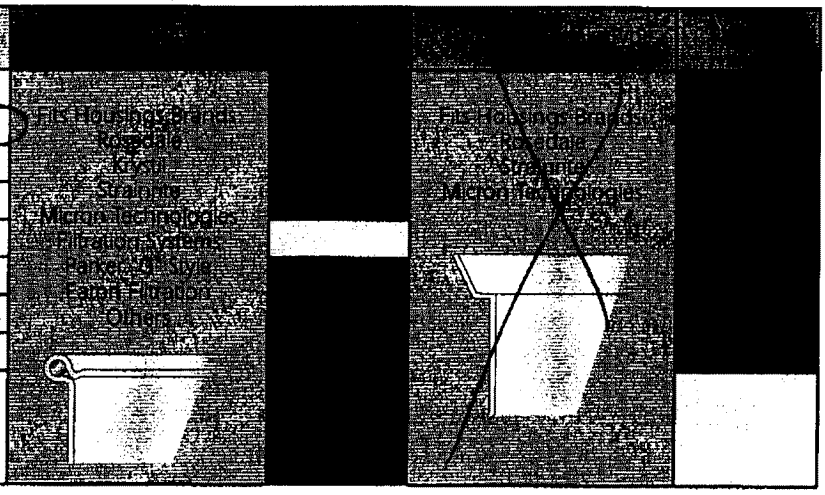


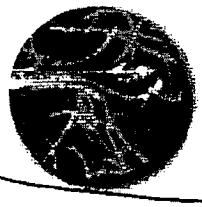
Bag Size Correction		
Bag Size	Dia. x Length	Multiply By
1	7.2 x 16	2.25
2	7.2 x 32	1.0
3	4.3 x 8	9.0
4	4.3 x 14	4.5
8	5.7 x 21	2.25
9	5.7 x 37	1.50

Viscosity Correction	
Viscosity CPS	Correction Factor
50	4.5
100	8.3
200	16.6
400	27.7
800	50.0
1000	56.2
1500	77.2
2000	113.6
4000	161.0
6000	250.0
8000	325.0
10,000	430.0

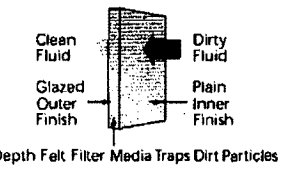


	Diameter (Inches)	Length (Inches)	Area Ft²
1	7.2	16	2.0
2	7.2	32	4.5
3	4.3	8	0.5
4	4.3	14	1.0
5	6.1	20	2.8
7	5.7	15	1.5
8	5.7	32	3.0
9	5.7	32	3.0
12	8.4	34	5.5



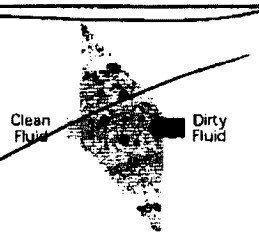


FELT filter bag materials are made from synthetic fibers in polypropylene or polyester. The proper combination of fiber diameters, weights and thickness results in an economical depth type filter media. Polypropylene and polyester bags are suppled with a glazed finish to reduce fiber migration. These bags have a nominal micron rating. Filter efficiency is about 50%.



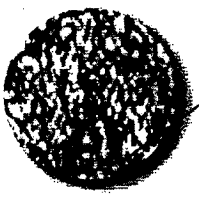
Depth Felt Filter Media Traps Dirt Particles

MULTIFILAMENT MESH materials are offered in polyester and are woven from threads made of small fibers twisted together. Bags made of this material are low cost and considered disposable. They have lower efficiencies than the monofilament mesh. Filter efficiencies are about 80%.



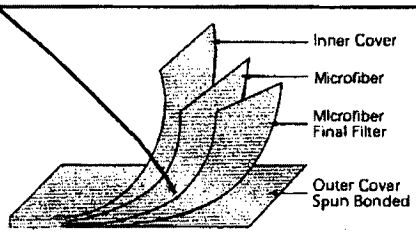
MONOFILAMENT MESH is offered in nylon and is a woven material. Each thread is a single filament The openings are square. They have excellent strength and are considered to be cleanable. Filter efficiency is 90% or more.

- Operates on the principle of surface filtration
- Wide range of micron ratings
- Reusable or disposable
- Non-fiber releasing
- Good efficiencies
- High contaminant quantities under correct conditions



MICROFIBER filter bags provide high efficiency and high contaminant holding capacity at low ratings. Bags are available in polypropylene. Filter efficiency is 95% or more.

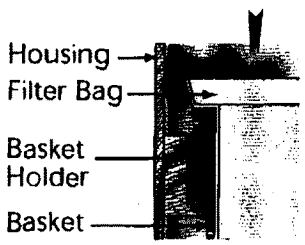
MICROFIBER polypropylene filter bags also can remove oil from water and other liquids. Optimized designs are called "OIL REMOVAL BAGS".



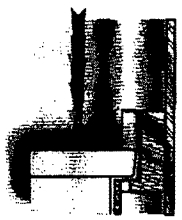
MOLDED ROSEDALE TOPS - POR STYLE

Filter bags with molded Rosedale tops require no filter bag hold down devices. As the differential pressure in the application increases, the integrity of the seal improves. Polypropylene tops are standard with polyester optional for temperatures over 200°F, or for chemical capatibility.

THE MOLDED ROSEDALE TOP OFFERS THE BEST BAG-TO-HOUSING SEAL IN TODAY'S MARKETPLACE, IN ADDITION TO BEING THE EASIEST TO INSTALL AND REMOVE.



FILTER BAG WITH MOLDED ROSEDALE TOP JUST PRIOR TO INSTALLATION IN BASKET HOLDER



FILTER BAG WITH MOLDED ROSEDALE TOP INSTALLED IN HOUSING

OTHER BAG TYPES AND DESIGNS

500 SERIES 3M TYPE multiple layer filter bags with microfiber filter layers and felt prefilter layers. Up to 5 layers of felt

DOUBLE & TRIPLE LAYER felt bags where the micron rating of the layers are designed to optimize service life.

SPECIAL SIZE & DESIGN bags are available in all materials and most micron ratings.

OIL REMOVAL BAGS require a special design to obtain to result in the largest surface area of fibers in a bag for maximum oil removal capacity. These are standard in micron ratings of 10 and 25.

FILTER BAG HOLD-DOWNS

Adjustable filter bag hold-downs for Size #1 and #2 bags are available for side entry housings manufactured by:

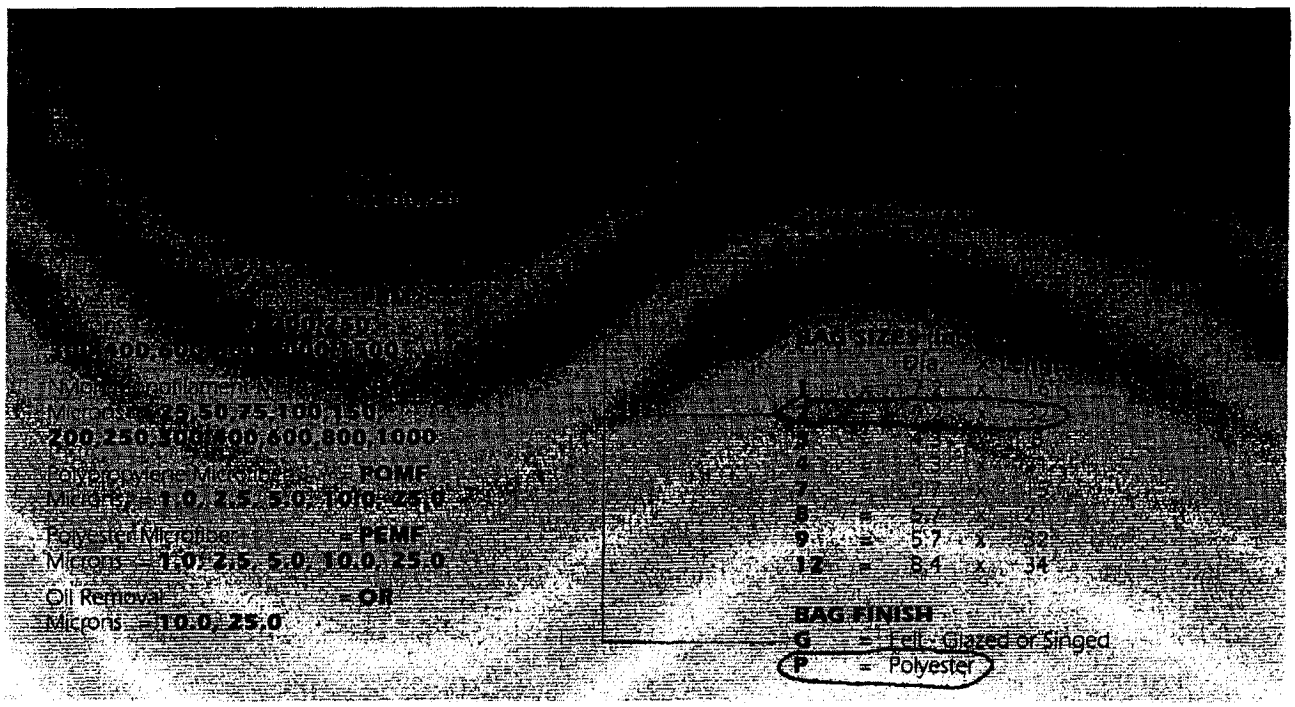
Filter Specialists, Inc. / Micron Technologies / Krystil Klear / Strainrite / Other Side Entry Brands

Available in polypropylene, they provide additional positive filter bag hold-down capabilities for critical applications where necessary. It is suitable for ring top bags and bags with molded plastic tops. It is necessary for many bags with molded tops and ring bags if the bag manufacturer improperly designs and manufactures them.

A FILTER BAG HOLD-DOWN IS NOT REQUIRED WHEN USING FILTER BAGS WITH MOLDED ROSEDALE TOPS.

PE- -P-2-S

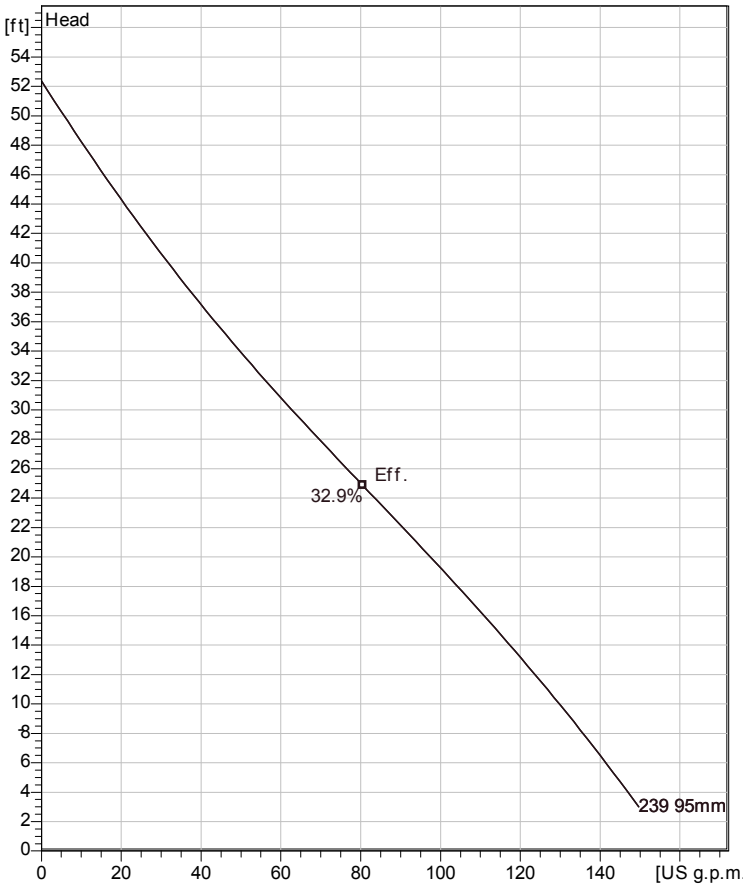
How To Order Build an ordering code as shown in the example



Dewatering Pumps
Manufacturer's Information

KS 2610 MT 1~ 239

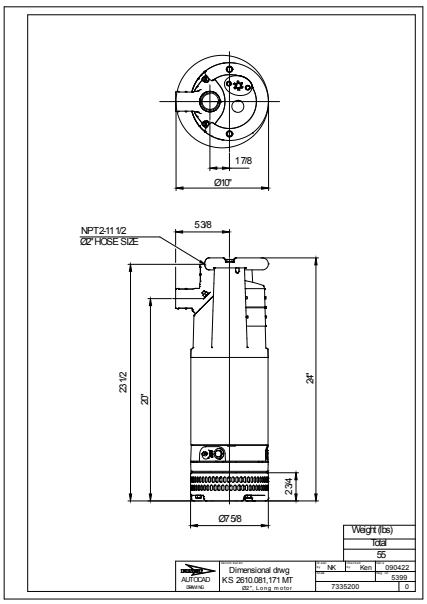
Technical specification



Curve according to: ISO 9906 grade 2 annex 1 or 2

Note: Picture might not correspond to the current configuration.

Installation: S - Portable Semi permanent, Wet



General

Portable pumps ideal for applications in which the water or liquid contains concentrations of abrasives when clogging problems can occur

Impeller

Impeller material	Hard-Iron ™
Outlet width	1 15/16 inch
Inlet diameter	72 mm
Impeller diameter	95 mm
Number of blades	2
	0 inch

Motor

Motor #	K2610.171 13-10-2BB-W 1.8hp
Stator variant	7
Frequency	60 Hz
Rated voltage	220 V
Number of poles	2
Phases	1~
Rated power	1.8 hp
Rated current	7.5 A
Starting current	35 A
Rated speed	3465 rpm
Power factor	
1/1 Load	0.98
3/4 Load	0.98
1/2 Load	0.98
Efficiency	
1/1 Load	82.0 %
3/4 Load	80.5 %
1/2 Load	75.5 %

Configuration

Project	Project ID	Created by	Created on	Last update
			2013-04-24	

KS 2610 MT 1~ 239

Performance curve

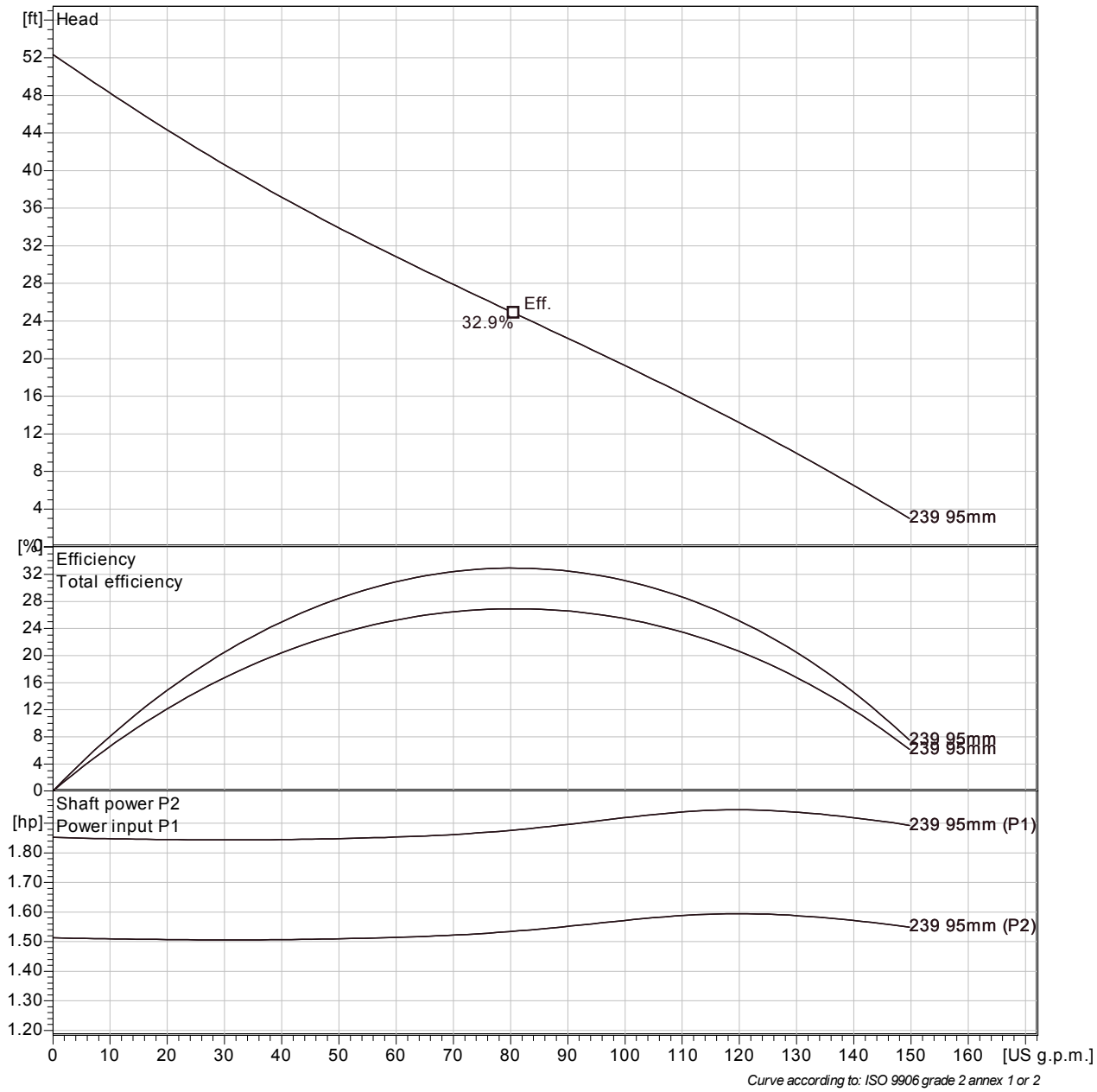
Pump

Outlet width	1 15/16 inch
Inlet diameter	72 mm
Impeller diameter	3 3/4"
Number of blades	2
	0 inch

Motor

Motor #	K2610.171 13-10-2BB-W 1.8hp
Stator variant	7
Frequency	60 Hz
Rated voltage	220 V
Number of poles	2
Phases	1~
Rated power	1.8 hp
Rated current	7.5 A
Starting current	35 A
Rated speed	3465 rpm

Power factor	
1/1 Load	0.98
3/4 Load	0.98
1/2 Load	0.98
Efficiency	
1/1 Load	82.0 %
3/4 Load	80.5 %
1/2 Load	75.5 %

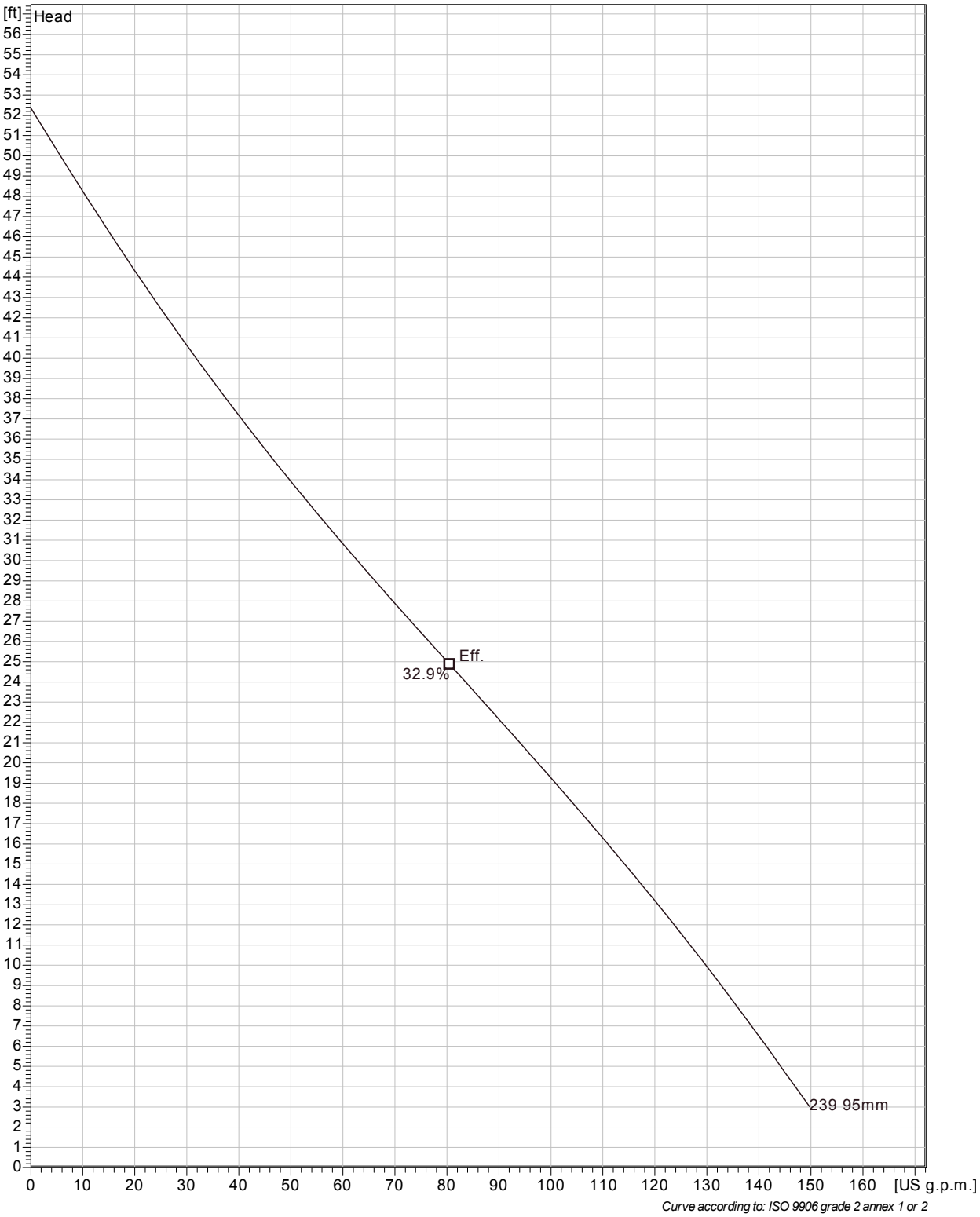


Curve according to: ISO 9906 grade 2 annex 1 or 2

Project	Project ID	Created by	Created on	Last update
			2013-04-24	

KS 2610 MT 1~ 239

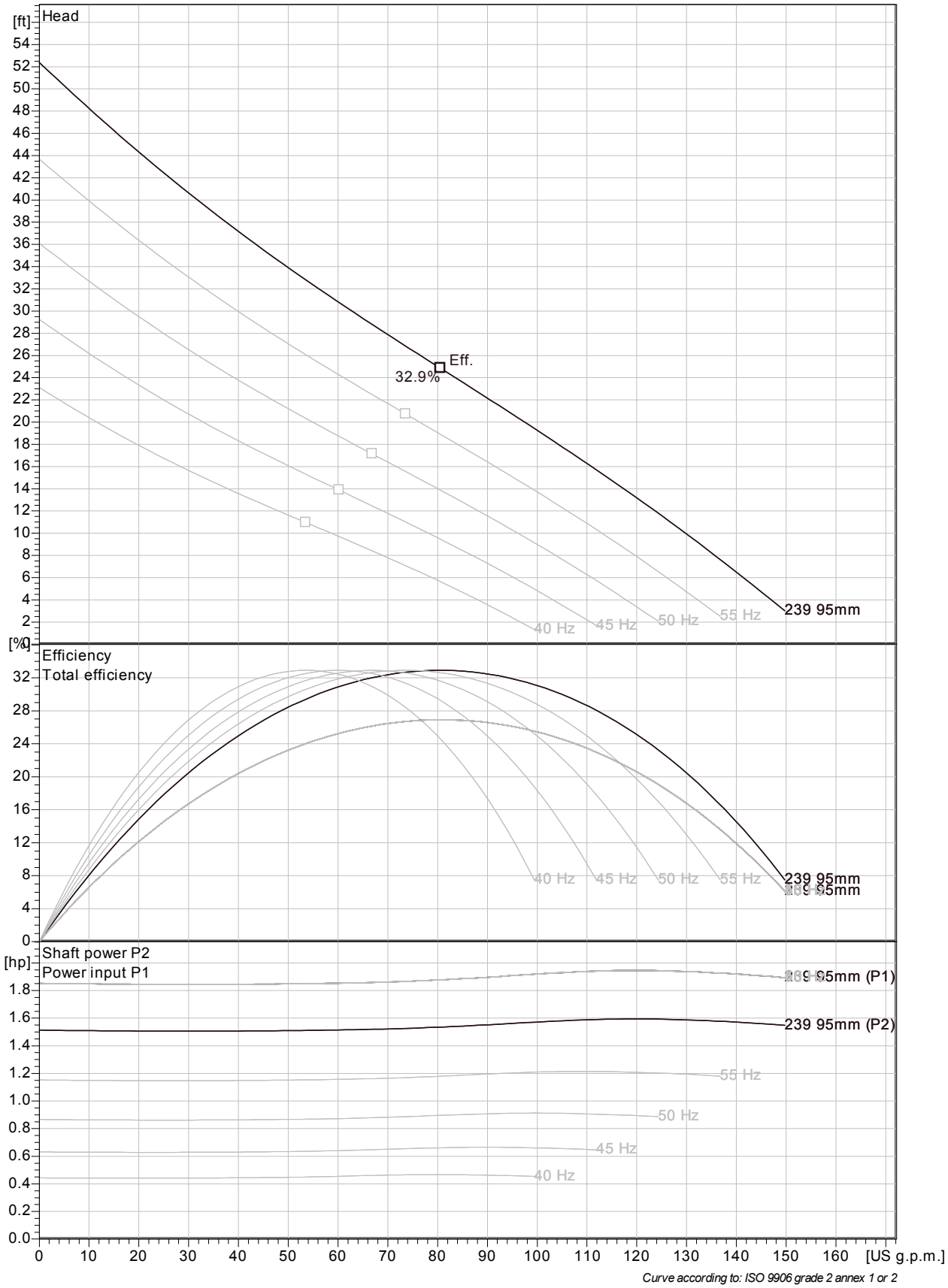
Duty Analysis



Project	Project ID	Created by	Created on	Last update
			2013-04-24	

KS 2610 MT 1~ 239

VFD Curve

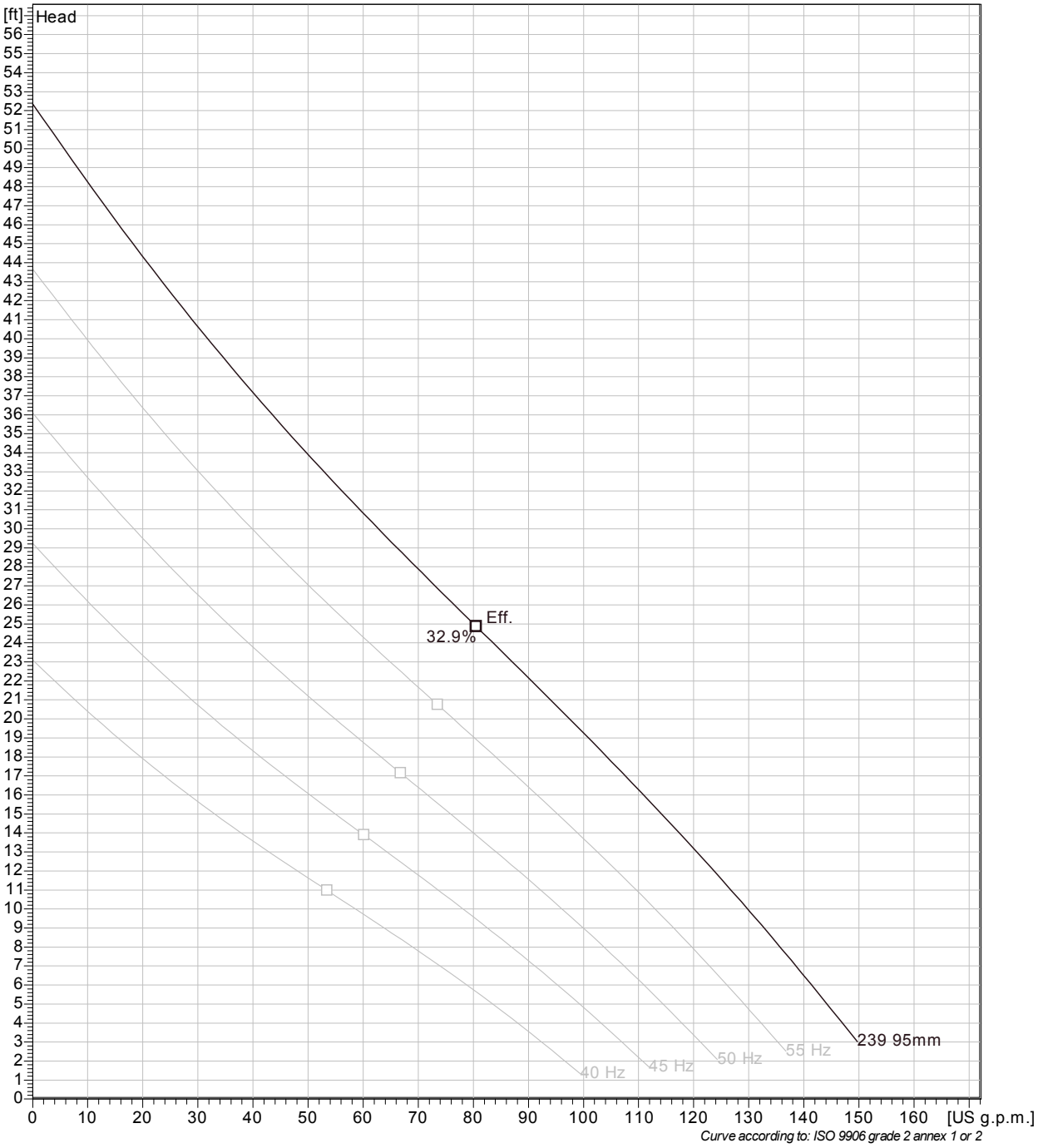


Curve according to: ISO 9906 grade 2 annex 1 or 2

Project	Project ID	Created by	Created on	Last update
			2013-04-24	

KS 2610 MT 1~ 239

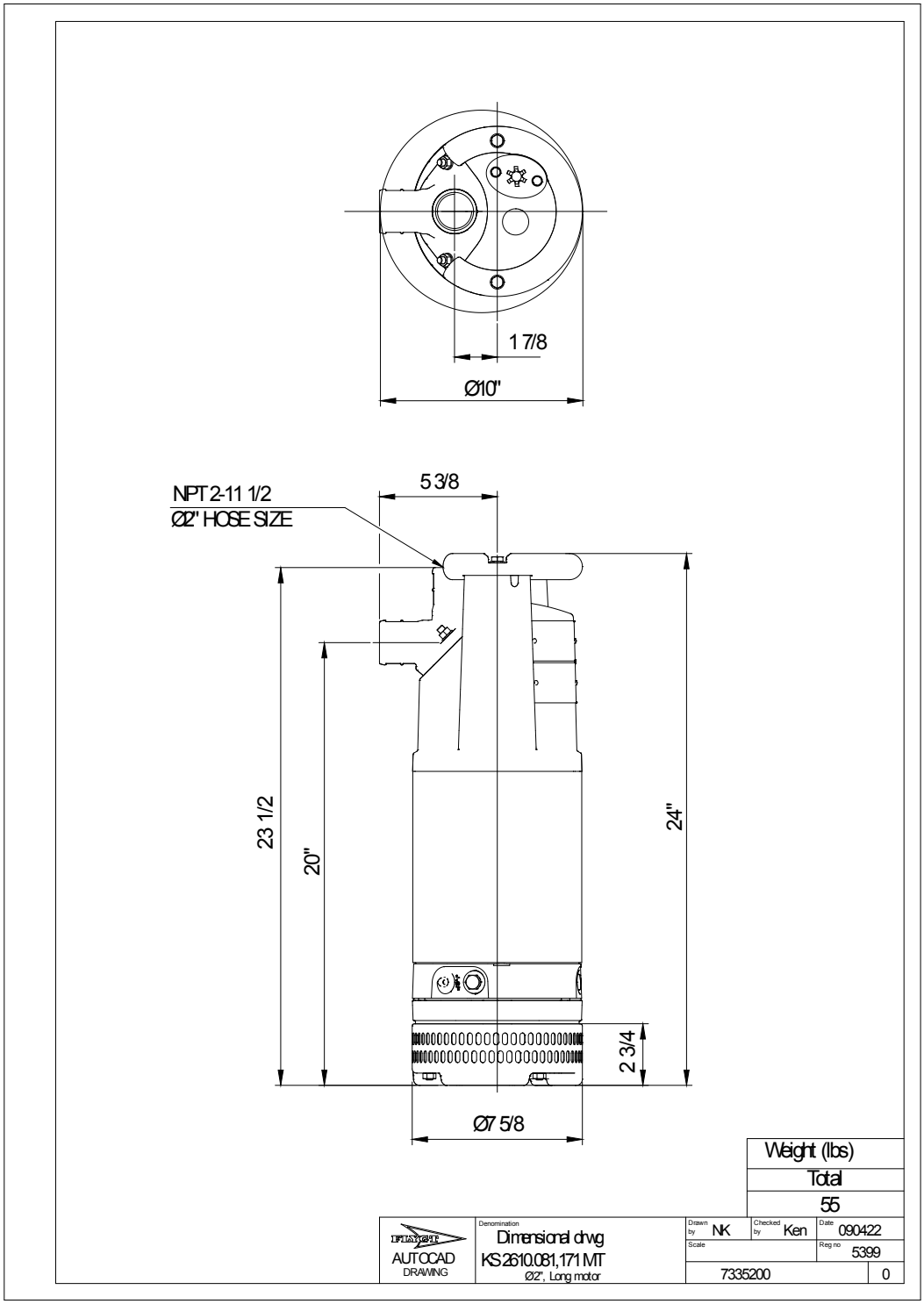
VFD Analysis



Project	Project ID	Created by	Created on	Last update
			2013-04-24	

KS 2610 MT 1~ 239

Dimensional drawing



Project	Project ID	Created by	Created on	Last update
			2013-04-24	

TSURUMI PUMP

LB-800/LBT-800
SEMI-VORTEX - DEWATERING PUMP

SPECIFICATIONS

FEATURES

1. Semi-vortex, urethane rubber impeller, urethane front & rear ware plates and ethylene propylene rubber casing increases wear resistance when pumpage contains abrasive particles.

2. Double inside mechanical seals with silicon carbide faces, (both top and bottom) running in an oil filled chamber and further protected by a lip seal running against a replaceable, 304 stainless steel shaft sleeve, provides for the most durable seal design available.

3. Highly efficient, continuous duty air filled, copper wound motor with class B, insulation minimizes the cost of operation.

4. Built in thermal protector prevents motor failure due to- overloading or accidental run -dry conditions.

5. Double shielded, permanently lubricated, high temperature C3 ball bearings, extend operational life.

6. Top discharge, flow-thru design enables operation at low water levels for extended periods.

APPLICATIONS

1. Residential, commercial, industrial wastewater and construction site drainage.

2. Effluent transfer.

3. Decorative waterfalls and fountains.

4. Raw water supply from rivers or lakes..

EQUIPPED

SPECIFICATIONS

Discharge Size	2" Npt (50 mm)
Horsepower Range	1 Hp. (.75 Kw)
Performance Range Capacity	10 ~ 82 Gpm. (.037 ~ .31 m^3/min)
Head	7 ~ 59 Ft. (2.1 ~ 17.9 m)
Maximum water temperature	104° F. (40° C.)
Materials of Construction	
Casing	Ethylene Propylene Rubber
Impeller	Urethane Rubber
Shaft	403 Stainless Steel
Motor Frame	Aluminum alloy
Fasteners	304 Stainless Steel
Mechanical Seal	Silicon Carbide/Silicon Carbide
Elastomers	NBR (Nitril Buna Rubber)
Impeller Type	Semi-vortex, solids handling.
Solids Handling Capability	Screen opening
Bearings	Pre-lubricated, Double Shielded C3
Motor Nomenclature	
Type, Speed, Hz.	Air Filled, 3600 Rpm, 60 Hz.
Voltage, Phase	115/230 V., 1 Phase 230/460/575 V. 3 Phase (LBT-800)
Insulation	Class E
Accessories	Submersible Power Cable 50' (9.75 m)
Operational Mode	Manual

STANDARD

OPTIONS

Length as Required, (97' Max)

*See Technical Data section for details.

TSURUMI PUMP

LB SERIES
SEMI-VORTEX - DEWATERING PUMP

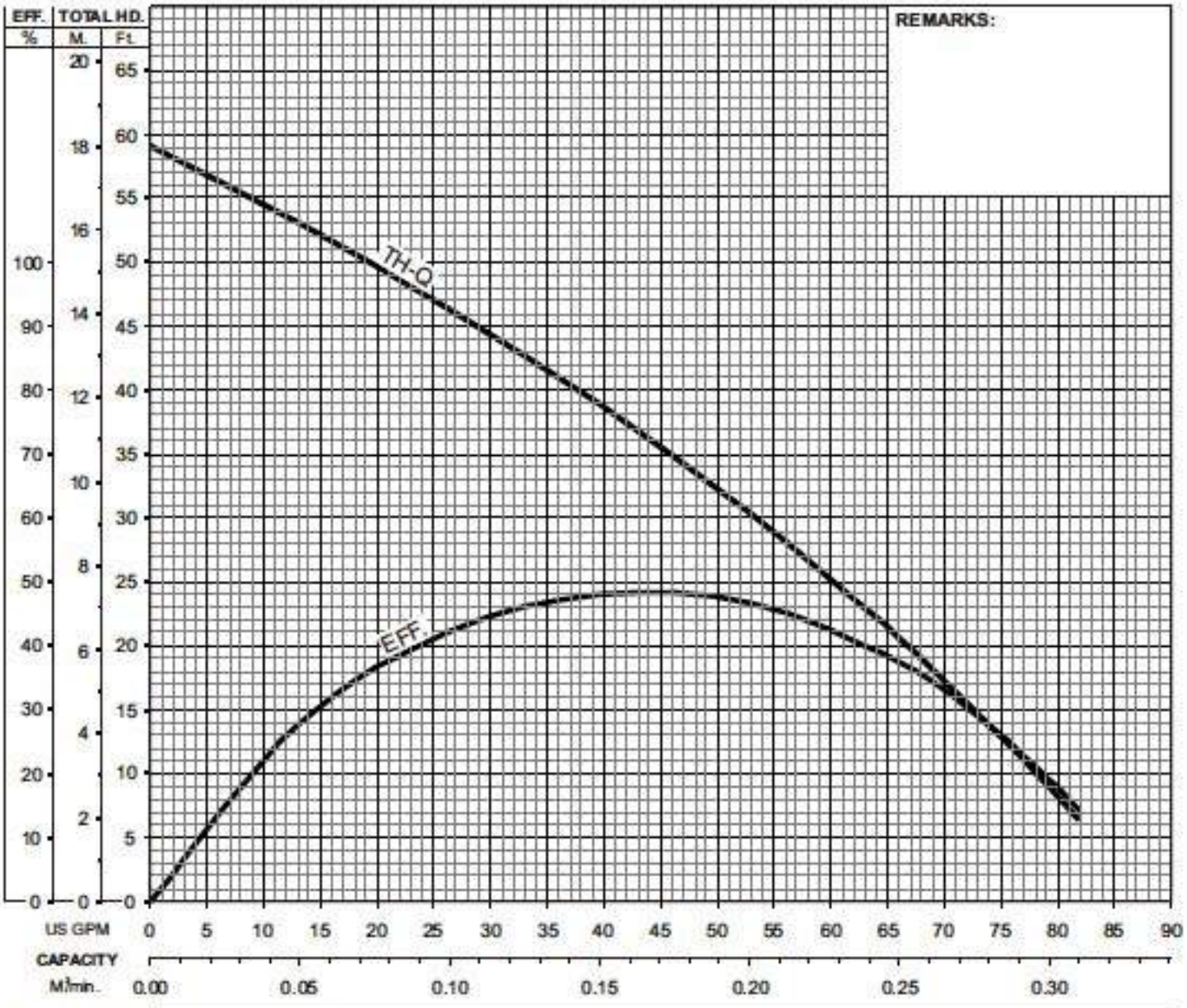
PERFORMANCE CURVE

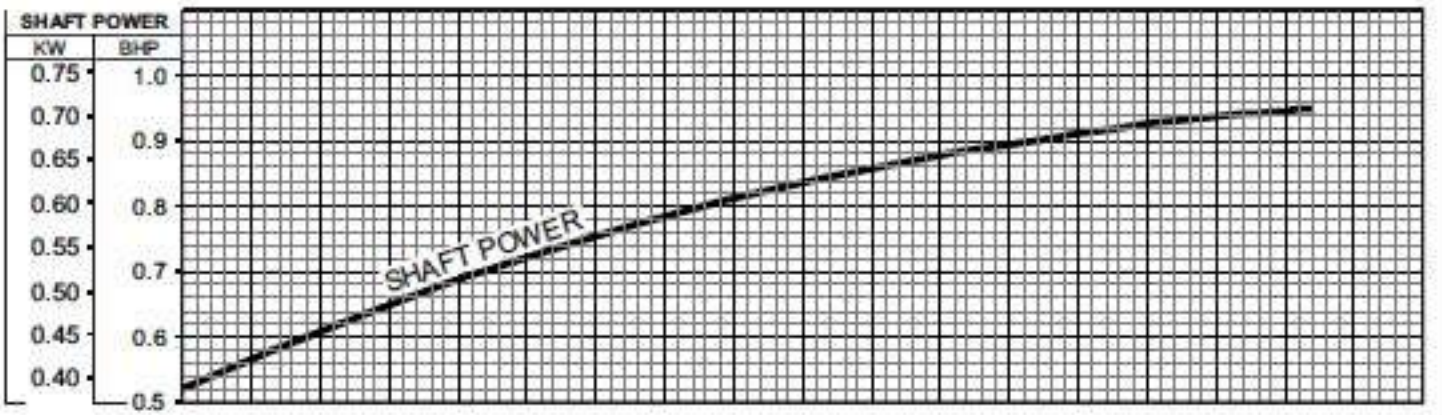
MODEL	BORE	HP	KW	RPM	SOLIDS DIA	LIQUID	SG.	VISCOSITY	TEMP.
LB-800-60	2"/50mm	1	0.75	3330	0.236"/6mm	Water	1.0	1.81 CST	60F

PUMP TYPE	PHASE	VOLTAGE	AMPERAGE	HZ	STARTING METHOD	INS. CLASS
Semi-Vortex - Dewatering Pump	Single	110/115/220/230	10.8/10.3 / 5.7/5.5	60	Capacitor Start	E

CURVE No.	DATE	PHASE	VOLTAGE	AMPERAGE	HZ	STARTING METHOD	INS. CLASS
-	-	-	-	-	-	-	-

REMARKS:





Water Meter w/Totalizer
Manufacturer's Information

Recordall® Cold Water Top Load Bronze Disc Meter	Size 2" (DN 50mm)	Technical Brief

DESCRIPTION

Badger Meter offers the Recordall Disc meter in Cast Bronze and a Low Lead Alloy. The Low Lead Alloy (Trade Designation: M170 LL) version complies with NSF/ANSI Standard 61 and carries the NSF-61 Mark on the housing. All components of the Low Lead Alloy meter, i.e., disc, chamber, housing, seals, etc., comprise the certified system.

APPLICATIONS: For use in measurement of potable cold water in residential, commercial and industrial services where flow is in one direction only.

OPERATION: Water flows through the meter's strainer and into the measuring chamber where it causes the disc to nutate. The disc, which moves treely, nutates on its own ball, guided by a thrust roller. A drive magnet transmits the motion of the disc to a follower magnet located within the permanently-sealed register. The follower magnet is connected to the register gear train. The gear train reduces the disc nutations into volume totalization units displayed on the register dial face.

OPERATING PERFORMANCE: The Badger Recordall Disc meters meet or exceed registration accuracy for the low flow rates (95%), normal operating flow rates (100 ± 1.5%), and maximum continuous operation flow rates as specifically stated by AWWA Standard C700.

CONSTRUCTION: Badger Recordall Disc meter construction, which complies with ANSI/AWWA standard C700, consists of three basic components: bronze meter housing, measuring chamber, and permanently, sealed register. A corrosion-resistant thermoplastic material is used tor the measuring chamber.

To simplity maintenance, the register, measuring chamber, and strainer can be replaced without removing the meter housing from the installation. No change gears are required for accuracy calibration. Interchangeability of parts among like-sized meters also minimizes spare parts inventory investment. The built-in strainer has an etfective straining area of twice the inlet size.

MAGNETIC DRIVE: Direct magnetic drive, through the use of high-strength magnets, provides positive, reliable and dependable register coupling for straight-reading, remote or automatic meter reading options.

SEALED REGISTER: The standard register consists of a straight-reading, odometer-type totalization display, 360° test circle with center sweep hand and flow finder to detect leaks. Register gearing consists of self-lubricating thermoplastic gears to minimize friction and provides long life. Permanently sealed; dirt, moisture, tampering and lens fogging problems are eliminated. Multi-position register simplifies meter installation and reading. Generator-type remote reading and automatic meter reading systems are available for all Recordall Disc meters. All reading options are removable from the meter without disrupting water service.

TAMPER-PROOF FEATURES: Customer removal of the register to obtain free water can be prevented when the optional tamper detection seal wire screw/or Torx® tamper seal resistant screw is added to the meter. Both can be installed at the meter site or at the factory.

MAINTENANCE: Badger Recordall Disc meters are designed and manufactured to provide long-term service with minimal maintenance. When maintenance is required, it can be performed easily either at the meter installation or at any other convenient location. As an alternative to repair by the utility, Badger offers various maintenance and meter component exchange programs to tit the needs ot the utility.

CONNECTIONS: Tailpieces/Flanges for installations of meters on various pipe types and sizes, including misaligned pipes, are available as an option.

Model 170 shown with optional 1" Test Plug

SPECIFICATIONS

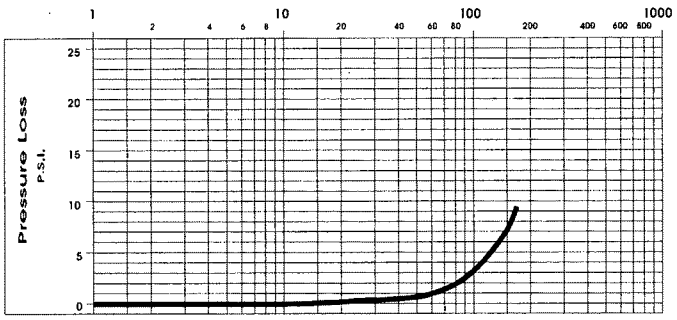
Typical Operating Range (100% ± 1.5%)	2 1/2 - 170 GPM (.57 to 39 m^3/hr)
Low Flow (Min. 95%)	1 1/2 GPM (.34 m^3/hr)
Maximum Continuous Operation	100 GPM (23 m^3/hr)
Pressure Loss at Maximum Continuous Operation	3.3 PSI at 100 GPM (.23 bar at 23 m^3/hr)
Maximum Operating Temperature	80°F (26°C)
Maximum Operating Pressure	150 PSI (10 bar)
Measuring Element	Nutating disc, positive displacement
Register Type	Straight reading, permanently sealed magnetic drive standard. Remote reading or Automatic Meter Reading units optional.
Registration	100 Gallons, 10 Cubic Feet, 1 m^3
Register Capacity	100,000,000 Gallons, 10,000,000 Cubic Feet, 1,000,000 m^3. 6 odometer wheels.
Meter Connections	2" AWWA two bolt elliptical flange, drilled, or 2" - 11 1/2 NPT internal pipe threads.
Optional Test Plug	1" NPT test plug (TP) available on elliptical long and short versions.

MATERIALS

Meter Housing	Cast Bronze, Low Lead Alloy
Housing Top Plates	Bronze, Low Lead Alloy
Measuring Chamber	Thermoplastic
Disc	Thermoplastic
Trim	Stainless Steel/Bronze
Strainer	Thermoplastic
Disc Spindle	Stainless Steel
Magnet	Ceramic
Magnet Spindle	Stainless Steel
Register Lid and Box	Thermoplastic or Bronze
Generator Housing	Thermoplastic

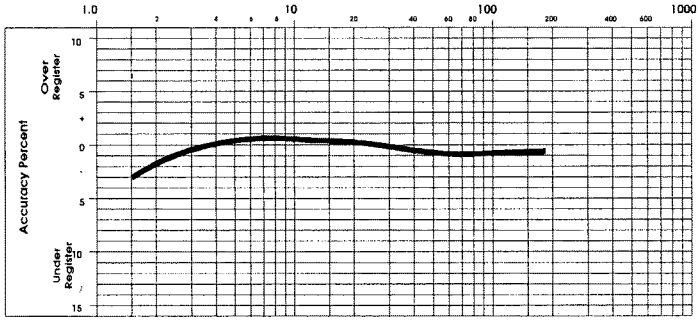
PRESSURE LOSS CHART

Rate of Flow, in Gallons per Minute



ACCURACY CHART

Rate of Flow, in Gallons per Minute

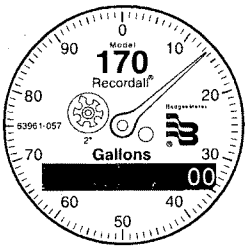


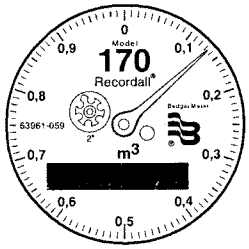
METER SIZE	METER MODEL	A LAYING LENGTH	B HEIGHT REG./RTR	C HEIGHT GEN.	D CENTERLINE BASE	WIDTH	APPROX. SHIPPING WEIGHT
2" (50mm)	170 EL, Hex. 170 EL, TP	15¼" (387mm)	8" (203mm)	9⅜" (238mm)	2⅞" (73mm)	9½" (241mm)	30 lb. (13.6kg)
2" (50mm)	170 ELL, 170 ELL, TP	17" (432mm)	8" (203mm)	9⅜" (238mm)	2⅞" (73mm)	9½" (241mm)	30 lb. (13.6kg)

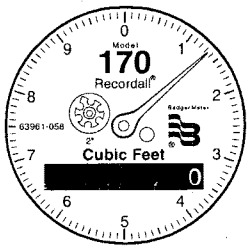
EL = Elliptical ELL = Elliptical Long Hex = Hexagon, 2" - 11½ NPT Thread TP=Test Plug 1"

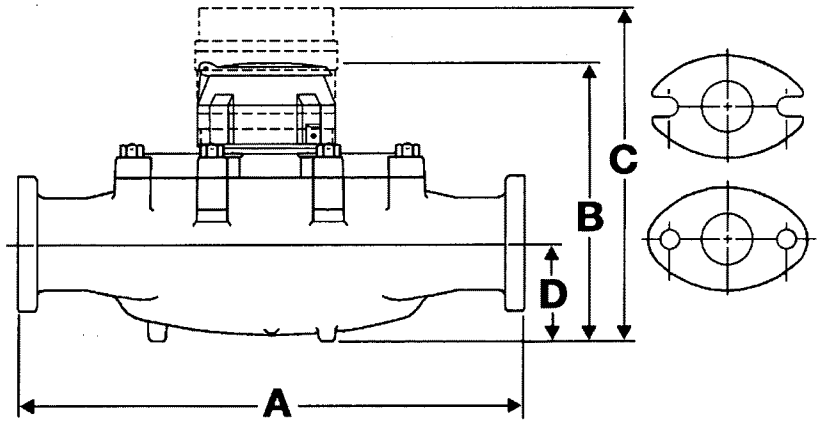
Sweep Hand Registration

MODEL	GALLON	CU.FT.	CU. METER
M170	100	10	1









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TORX® is a registered trademark of Camcar, Division of Textron, Inc.

TÜV MANAGEMENT SERVICE ISO 9001

Please see our website at
www.badgermeter.com
for specific contacts.

Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists.

BadgerMeter, Inc.
P.O. Box 245036, Milwaukee, WI 53224-9536
(800) 876-3837 / Fax: (888) 371-5982
www.badgermeter.com

APPENDIX E

National Register of Historic Places Documentation

Massachusetts Historical Commission

William Francis Galvin, Secretary of the Commonwealth

Massachusetts Cultural Resource Information System

MACRIS

Scanned forms and photos now available for selected towns!

The Massachusetts Cultural Resource Information System (MACRIS) allows you to search the Massachusetts Historical Commission database for information on historic properties and areas in the Commonwealth.

Users of the database should keep in mind that it does not include information on all historic properties and areas in Massachusetts, nor does it reflect all the information on file on historic properties and areas at the Massachusetts Historical Commission.

Click here to begin your search of the MACRIS database.




Massachusetts Cultural Resource Information Sy

MACRIS

MHC Home | MACRIS Home

Results

Get Results in Report Format
PDF Spreadsheet

Below are the results of your search, using the following search criteria:
Town(s): Boston
Street No: 150
Street Name: Seaport Blvd
Resource Type(s): Area, Building, Burial Ground, Object, Structure

For more information about this page and how to use it, click here

No Results Found.

New Search | New Search – Same Town(s) | Previous

MHC Home | MACRIS Home

Massachusetts Cultural Resource Information Sy

MACRIS

MHC Home | MACRIS Home

Results

Get Results in Report Format
PDF Spreadsheet

Below are the results of your search, using the following search criteria:
Town(s): Boston
Place: South Boston
Street Name: Northern Ave
Resource Type(s): Area, Building, Burial Ground, Object, Structure

For more information about this page and how to use it, click here

Inv. No.	Property Name	Street	Town	Year	SR
BOS.9000	Northern Avenue Draw Bridge	Northern Ave	Boston	c 1907	SR
BOS.12967	Boston Army Supply Base - Refrigeration Plant	Northern Ave	Boston	c 1980	
BOS.12968	Boston Army Supply Base - Building 38	Northern Ave	Boston	c 1940	
BOS.12971	Boston Army Supply Base - Building 18	Northern Ave	Boston	c 1940	
BOS.15356	Northern Avenue Draw Bridge Tenders House	Northern Ave	Boston	1908	SR
BOS.15229	Chapel of Our Lady of Good Voyage	65 Northern Ave	Boston	1952	
BOS.9252	South Boston Fish Pier	212-234 Northern Ave	Boston	c 1910	SR
BOS.16589	South Boston Fish Pier - East Building	212-234 Northern Ave	Boston	c 1910	SR
BOS.16590	South Boston Fish Pier - West Building	212-234 Northern Ave	Boston	c 1910	SR
BOS.16591	South Boston Fish Pier - Fish Exchange Building	212-234 Northern Ave	Boston	c 1910	SR
BOS.12969	Boston Army Supply Base - Building 56	300 Northern Ave	Boston	c 1940	
BOS.12970	Boston Army Supply Base - Building 53	306 Northern Ave	Boston	c 1940	
BOS.7179	Commonwealth Pier Five	162 Seaport Blvd	Boston	1914	SR

13 Properties Found

New Search | New Search – Same Town(s) | Previous

MHC Home | MACRIS Home

APPENDIX F

Endangered Species Act Documentation

HALEY ALDRICH

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Suffolk County, Massachusetts

Local office

New England Ecological Services Field Office

(603) 223-2541
(603) 223-0104

70 Commercial Street, Suite 300
Concord, NH 03301-5094

http://www.fws.gov/newengland

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. 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.

THERE ARE NO ENDANGERED SPECIES EXPECTED TO OCCUR AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE.

"BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

American Oystercatcher Haematopus palliatus — Breeds Apr 15 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8935

Bald Eagle Haliaeetus leucocephalus — Breeds Oct 15 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1626

Black Skimmer Rynchops niger — Breeds May 20 to Sep 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/5234

Bobolink Dolichonyx oryzivorus — Breeds May 20 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Buff-breasted Sandpiper Calidris subruficollis — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9488

Canada Warbler Cardellina canadensis — Breeds May 20 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Dunlin Calidris alpina arcticola — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

King Rail Rallus elegans — Breeds May 1 to Sep 5
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8936

Least Tern Sterna antillarum — Breeds Apr 20 to Sep 10
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Lesser Yellowlegs Tringa flavipes — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9679

Long-eared Owl asio otus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3631

Nelson's Sparrow Ammodramus nelsoni — Breeds May 15 to Sep 5
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Prairie Warbler Dendroica discolor — Breeds May 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Purple Sandpiper Calidris maritima — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Red-throated Loon Gavia stellata — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Ruddy Turnstone Arenaria interpres morinella — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Rusty Blackbird Euphagus carolinus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Saltmarsh Sparrow Ammodramus caudacutus — Breeds May 15 to Sep 5
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Seaside Sparrow Ammodramus maritimus — Breeds May 10 to Aug 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Semipalmated Sandpiper Calidris pusilla — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Short-billed Dowitcher Limnodromus griseus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Snowy Owl Bubo scandiacus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Whimbrel Numenius phaeopus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9483	Breeds elsewhere
Willet Tringa semipalmata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 5
Wood Thrush Hylocichla mustelina This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any

week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

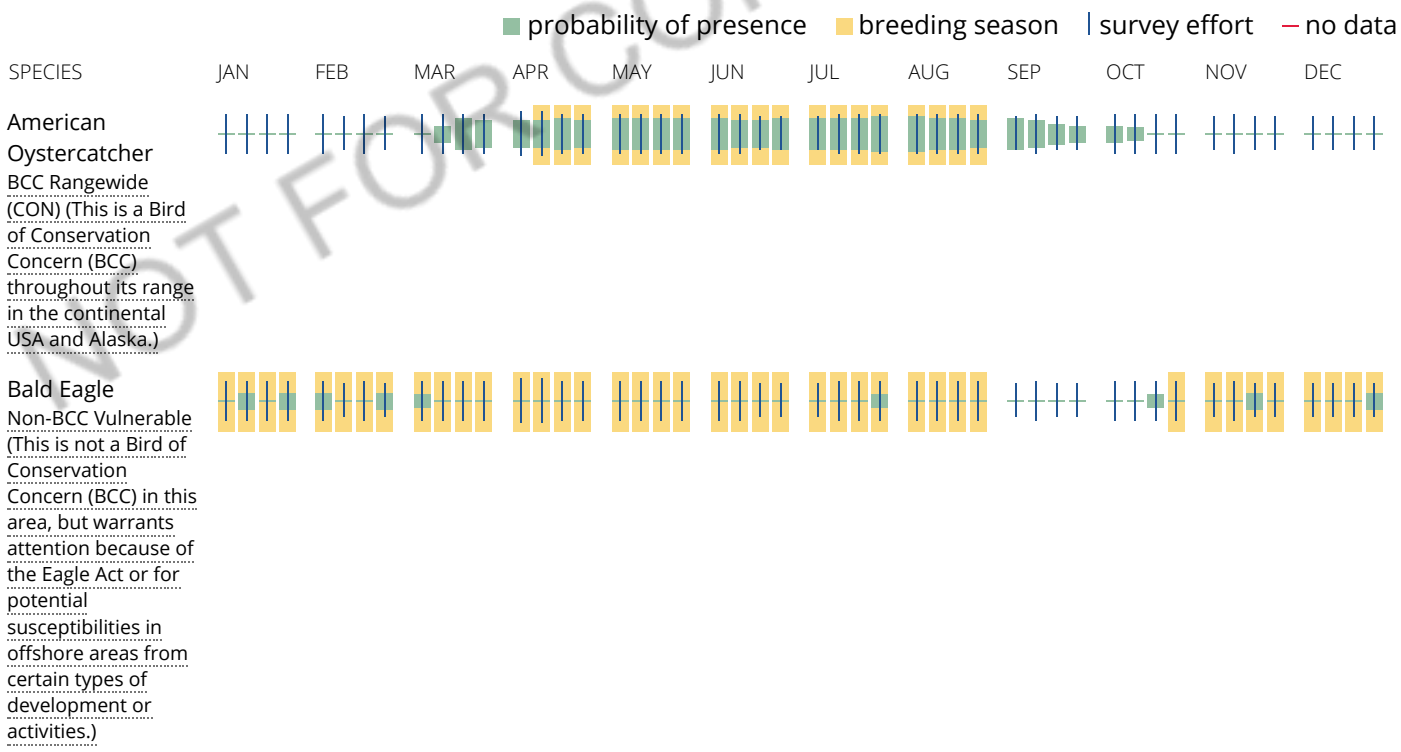
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

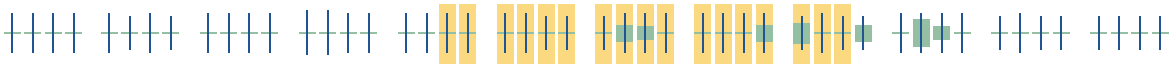
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

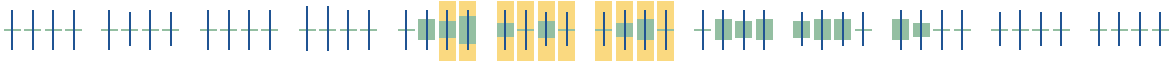
Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Black Skimmer
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

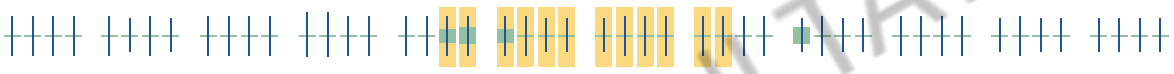


Bobolink
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



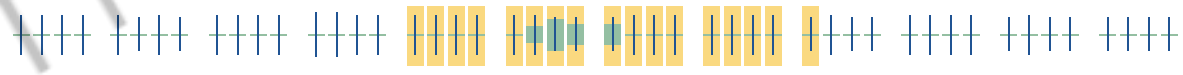
Buff-breasted Sandpiper
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Canada Warbler
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



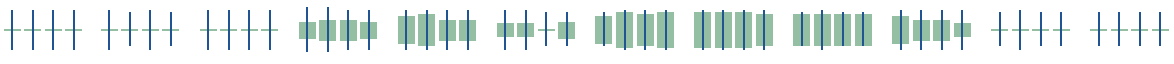
Dunlin
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

King Rail
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Least Tern
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Lesser Yellowlegs
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Long-eared Owl
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Nelson's Sparrow
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

SPECIES JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

Prairie Warbler
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Purple Sandpiper
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Red-throated Loon
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Ruddy Turnstone
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Rusty Blackbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Saltmarsh Sparrow
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and

avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the E-bird Explore Data Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird

impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data” indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ “Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds” at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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-0025
Event Code: 05E1NE00-2019-E-00053
Project Name: 150 Seaport Boulevard

October 03, 2018

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2019-SLI-0025

Event Code: 05E1NE00-2019-E-00053

Project Name: 150 Seaport Boulevard

Project Type: DEVELOPMENT

Project Description: The project is located at 150 Seaport Boulevard, Boston, Massachusetts. The Site consists of a 13,500 square feet (sf) parcel of land located along the Boston Harbor Waterfront and is currently occupied by two one- to two-story wood framed and concrete block buildings. The proposed development consists of a new 23-story residential tower with three levels of below grade parking. The project is expected to take place from October 2018 through October 2019.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/42.35080967790394N71.04291562137091W

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.

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

Critical habitats

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

MassDEP - Bureau of Waste Site Cleanup

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

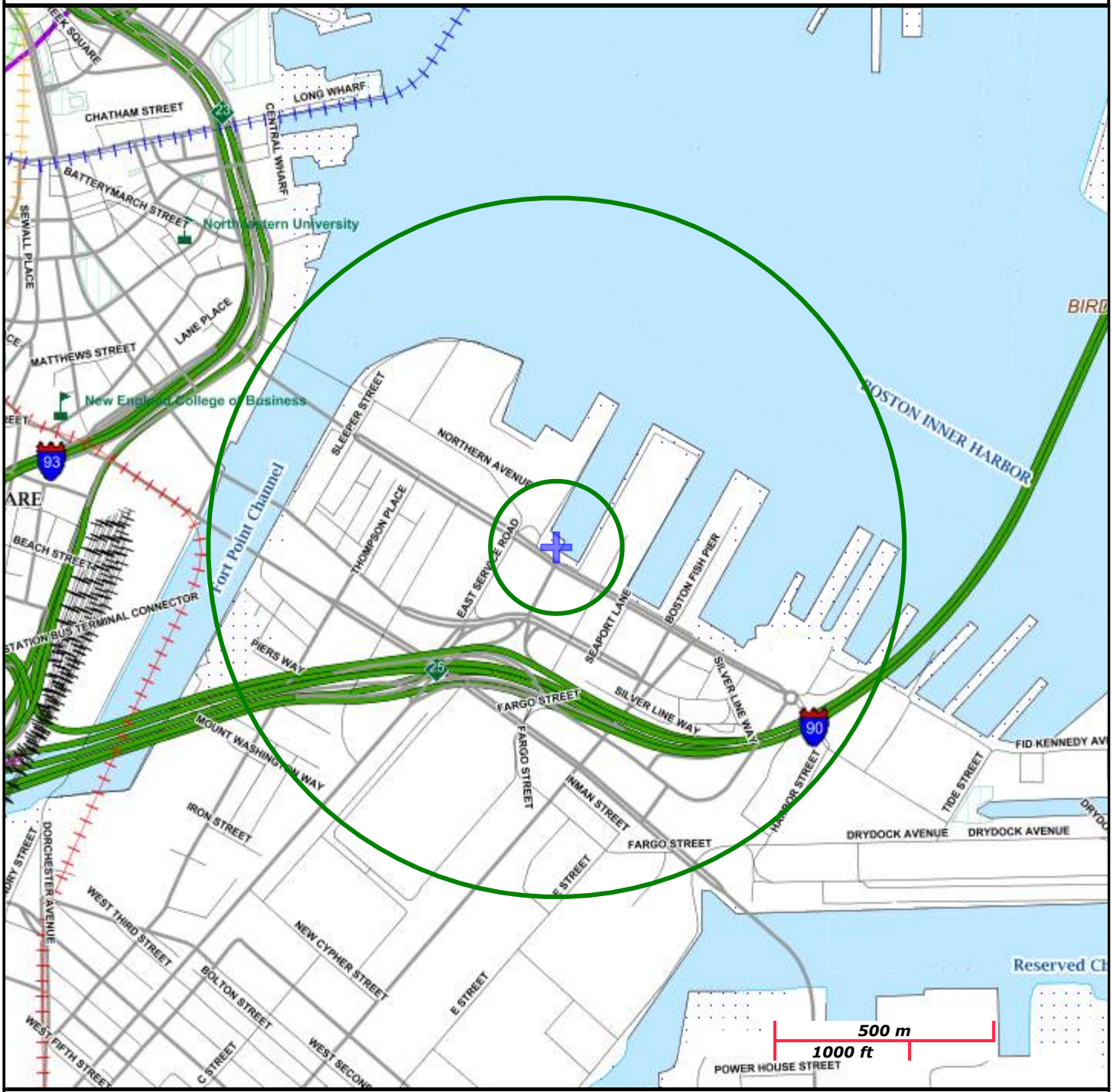
Site Information:

150 SEAPORT BLVD BOSTON, MA

NAD83 UTM Meters:
4690746mN , 331752mE (Zone: 19)
October 3, 2018

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

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection



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

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

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

Aquifers: Medium Yield, High Yield, EPA Sole Source

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

PWS Protection Areas: Zone II, IWPA, Zone A

Hydrography: Open Water, PWS Reservoir, Tidal Flat

Wetlands: Freshwater, Saltwater, Cranberry Bog

FEMA 100yr Floodplain; Protected Open Space; ACEC

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

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

General distribution: Atlantic Ocean waters and associated bays, estuaries, and coastal river systems from Minas Basin, Nova Scotia, Canada, to the St. Johns River, Florida; only adults occur in marine waters, with some adults making coastal migrations between river systems (e.g., Penobscot River to Merrimack River via the Gulf of Maine; Merrimack River to Connecticut River via the Gulf of Maine and Long Island Sound; Connecticut River to Hudson River via Long Island Sound and the East River); typically, distribution in rivers and inshore bays occurs from the estuary or river mouth up to the first impassible barrier (e.g., a dam or falls); comprehensive information on species biology and distribution is available in the Shortnose Sturgeon Status Review Team's Biological Asessment (SSSRT 2010; available at: http://www.nmfs.noaa.gov/pr/pdfs/species/shortnosesturgeon_biological_assessment2010.pdf)

Disclaimer: the best available information on shortnose sturgeon presence within the Greater Atlantic Region is presented below; waterbodies included are ones where we have information specific to shortnose sturgeon use of the area that would be helpful for action agencies reviewing proposed actions and their potential effects on shortnose sturgeon; for waterbodies not listed below, we have no data on usage by shortnose sturgeon; however, we expect the species may be present in other coastal waters in the Gulf of Maine and along the U.S. Atlantic coast between the Merrimack and Hudson Rivers; bracketed footnotes are provided in the table to match up "Use of the Watershed" information to the specific reference(s) from which it came; a description of shortnose sturgeon life history stages are included at the end of the table below

Body of Water (State)	Distribution/Range in Watershed	Life Stages Present	Use of the Watershed	References
Narraguagus River (ME)	Up to Cherryfield Dam (RKM 10.6)	adults	**Foraging** - May be used for foraging; tag detections indicate that usage of the river is for short periods during coastal migrations[1]	[1] Dionne et al. 2013
Penobscot River (ME)	Up to Milford Dam (RKM 62)	adults documented; other life stages assumed but unknown	**Spawning** - Not documented to date; suitable spawning habitat is accessible[3] **Foraging** - Foraging concentrations from RKM 10-24.5 during the summer months as well as throughout the lower and middle estuary; RKM 21-45 by mid-July and August[1] **Overwintering** - Aggregations located from RKM 36.5-42 from mid-August to mid-April[2]	[1] Fernandes et al. 2010; [2] Lachapelle 2013; [3] Johnston 2016
St. George River (ME)	Up to RKM 39 in lower estuary	adults	**Foraging** - May be used for foraging; tag detections indicate that usage of the river is for short periods during coastal migrations[1][2]	[1] Zydlewski et al. 2011; [2] Dionne et al. 2013
Medomak River (ME)	Up to RKM 17.5	adults	**Foraging** - May be used for foraging; tag detections indicate that usage of the river is for short periods during coastal migrations[1][2][3]	[1] Zydlewski et al. 2011; [2] Dionne et al. 2013; [3] Johnston 2016
Damariscotta River (ME)	Up to Damariscotta Lake Dam (RKM 30.3)	adults	**Foraging** - May be used for foraging; tag detections indicate that usage of the river is for short periods during coastal migrations[1][2]	[1] Zydlewski et al. 2011; [2] Dionne et al. 2013
Sheepscot River (ME)	Up to Head Tide Dam (RKM 35)	adults	**Foraging** - Montsweag Bay during the summer [1] **Overwintering** - Suspected to occur in the estuary[2]	[1] Fried and McCleave 1973; [2] SSSRT 2010

General distribution: Atlantic Ocean waters and associated bays, estuaries, and coastal river systems from Minas Basin, Nova Scotia, Canada, to the St. Johns River, Florida; only adults occur in marine waters, with some adults making coastal migrations between river systems (e.g., Penobscot River to Merrimack River via the Gulf of Maine; Merrimack River to Connecticut River via the Gulf of Maine and Long Island Sound; Connecticut River to Hudson River via Long Island Sound and the East River); typically, distribution in rivers and inshore bays occurs from the estuary or river mouth up to the first impassible barrier (e.g., a dam or falls); comprehensive information on species biology and distribution is available in the Shortnose Sturgeon Status Review Team's Biological Asessment (SSSRT 2010; available at: http://www.nmfs.noaa.gov/pr/pdfs/species/shortnosesturgeon_biological_assessment2010.pdf)

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Body of Water (State)	Distribution/Range in Watershed	Life Stages Present	Use of the Watershed	References
Kennebec River (ME)	Up to Lockwood Dam (RKM 103), also includes Merrymeeting Bay, Sagadahoc Bay, and the entirety of the Back, Sasanoa, Eastern, and Cathance Rivers	eggs, larvae, YOY, juveniles, and adults	**Spawning** - Occurs at two sites: below the former Edwards Dam[7] (RKM 58-74) and downstream of the Lockwood Dam[8] (RKM 87-103) **Rearing** - Eggs and larvae occur in freshwater reaches below the spawning sites[8] **Foraging** - Throughout the lower estuary to the mouth of the river[4][5][8] (below RKM 70) with concentration areas near Bath[3][5][8] (RKM 16-29) including Sagadahoc Bay[6] and the Back and Sasanoa Rivers[1][5][8] **Overwintering** - Majority in Merrymeeting Bay [5][7] (RKM 37-40 and 40-42), also Bluff Head [2][5] (RKM 15), and in the lower portions of the Eastern and Cathance Rivers (tributaries to Merrymeeting Bay)[2]	[1] McCleave et al. 1977; [2] Squiers and Robillard 1997; [3] Squiers 2003; [4] Fernandes et al. 2010; [5] SSSRT 2010; [6] Fire et al. 2012; [7] Wippelhauser and Squiers 2015; [8] Wippelhauser et al. 2015
Androscoggin River (ME)	Up to Brunswick Dam (RKM 8.4)	eggs, larvae, YOY, juveniles, and adults	**Spawning** - Below Brunswick Dam to the Rt. 201 Bridge(RKM 7.7-8.4)[2] **Rearing** - Eggs and larvae occur in freshwater reaches below the spawning sites[3] **Foraging** - Montsweag Bay during the summer [1]	[1] McCleave et al. 1977; [2] Wippelhauser and Squiers 2015; [3] Wippelhauser et al. 2015
Presumpscot River (ME)	Up to Presumpscot Falls (RKM 4)	adults	**Foraging** - May be used for foraging[1]	[1] Yoder et al. 2009
Saco River (ME)	Up to Cataract Dam (RKM 10)	adults	**Foraging** - Used seasonally May-November[1]	[1] Little et al. 2013; [2] Hodgdon et al. 2018
Piscataqua River (NH)	Entirety of Piscataqua River including Cocheco River from its confluence with Piscataqua River upstream to Cocheco Falls Dam and waters of Salmon Falls River from its confluence with Piscataqua River upstream to the Route 4 Dam	adults	**Foraging** - Used seasonally for foraging and resting during spring and fall migrations; tracking data indicates that use by individual sturgeon is limited to days or weeks[1]	[1] Kieffer and Trefry, pers. comm., April 18, 2017

General distribution: Atlantic Ocean waters and associated bays, estuaries, and coastal river systems from Minas Basin, Nova Scotia, Canada, to the St. Johns River, Florida; only adults occur in marine waters, with some adults making coastal migrations between river systems (e.g., Penobscot River to Merrimack River via the Gulf of Maine; Merrimack River to Connecticut River via the Gulf of Maine and Long Island Sound; Connecticut River to Hudson River via Long Island Sound and the East River); typically, distribution in rivers and inshore bays occurs from the estuary or river mouth up to the first impassible barrier (e.g., a dam or falls); comprehensive information on species biology and distribution is available in the Shortnose Sturgeon Status Review Team's Biological Asessment (SSSRT 2010; available at: http://www.nmfs.noaa.gov/pr/pdfs/species/shortnosesturgeon_biological_assessment2010.pdf)

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Body of Water (State)	Distribution/Range in Watershed	Life Stages Present	Use of the Watershed	References
Merrimack River (MA)	Up to Essex Dam (RKM 46)	eggs, larvae, YOY, juveniles, and adults	**Spawning** - Near Haverhill[2] (RKM 30-32) **Rearing** - Eggs and larvae present in spawning grounds four weeks after spawning occurs, following which they would begin to move downstream continuing their development in the freshwater reach of the river[1] (RKM 16-32) **Foraging** - Lower river with concentrations near Amesbury and the lower islands[1][3] (RKM 6-24) **Overwintering** - Late fall to early spring[1]; multiple overwintering sites from RKM 15-29 in freshwater reaches beyond the maximum salt penetration[4]	[1] Kieffer and Kynard 1993; [2] Kieffer and Kynard 1996; [3] Kynard et al. 2000; [4] Wippelhauser et al. 2015
Narragansett Bay (RI)	Throughout the bay	adults	**Foraging** - Potentially occurs where suitable forage is present[1]	[1] NMFS 1998
Thames River (CT)	Up to the Greenville Dam (RKM 28)	adults undocumented, but assumed based on documented occurrences of Atlantic sturgeon in the river	**Foraging** - Assumed to occur where suitable forage is present[1]	[1] The Day June 17, 2016 (http://www.theday.com/article/20160617/NWS01/160619212)

General distribution: Atlantic Ocean waters and associated bays, estuaries, and coastal river systems from Minas Basin, Nova Scotia, Canada, to the St. Johns River, Florida; only adults occur in marine waters, with some adults making coastal migrations between river systems (e.g., Penobscot River to Merrimack River via the Gulf of Maine; Merrimack River to Connecticut River via the Gulf of Maine and Long Island Sound; Connecticut River to Hudson River via Long Island Sound and the East River); typically, distribution in rivers and inshore bays occurs from the estuary or river mouth up to the first impassible barrier (e.g., a dam or falls); comprehensive information on species biology and distribution is available in the Shortnose Sturgeon Status Review Team's Biological Asessment (SSSRT 2010; available at: http://www.nmfs.noaa.gov/pr/pdfs/species/shortnosesturgeon_biological_assessment2010.pdf)

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Body of Water (State)	Distribution/Range in Watershed	Life Stages Present	Use of the Watershed	References
Connecticut River (CT/MA)	Up to Turners Falls Dam, MA (RKM 198)	eggs, larvae, YOY, juveniles, and adults	**Spawning** - Below Turners Falls Dam/Cabot Station at two locations depending on river conditions[3] (RKM 193-194); limited spawning may occasionally occur below Holyoke Dam[3] (RKM 139-140) **Rearing** - Eggs and larvae spawned upstream documented up to 20 km downstream of the spawning site[3]; if spawning is successful downstream of Holyoke, early life stages would be present in downstream freshwater reaches [1][3] (RKM 13-194) **Foraging** - Concentrations above the Holyoke Dam in the Deerfield Concentration Area[3] (RKM 144-192), Agawam Concentration Area [1] (RKM 114-119), and the lower Connecticut Concentration Area[3] (RKM 0-110) **Overwintering** - Concentrations above the Holyoke Dam in the Deerfield Concentration Area[3] (RKM 144-192); below the Holyoke Dam concentrations near Holyoke[2] (RKM 137-140), Agawam[3] (RKM 114-119), Hartford [2] (RKM 82-86), Portland, CT[3] (RKM 46), and the lower river[2] (RKM 0-25)	[1] Buckley and Kynard 1983; [2] Buckley and Kynard 1985; [3] Kynard et al. 2012
Deerfield River (MA), tributary of the Connecticut River	Up to Deerfield No. 2 at Shelburne Falls (RKM 22.5)	adults documented in lower 3 km; larvae spawned in Connecticut River may be present during certain flow conditions	**Rearing** - Water flow could potentially draw migrating larvae into unfavorable habitat in the Deerfield River[1]; potential refuge area during high flows[2] **Foraging** - Spring through fall in lower river[2] (RKM 0-3.5) **Overwintering** - May be used as an overwintering area potential pre-spawning staging area for adults[1]	[1] Kieffer and Kynard 1992; [2] Kynard et al. 2012

General distribution: Atlantic Ocean waters and associated bays, estuaries, and coastal river systems from Minas Basin, Nova Scotia, Canada, to the St. Johns River, Florida; only adults occur in marine waters, with some adults making coastal migrations between river systems (e.g., Penobscot River to Merrimack River via the Gulf of Maine; Merrimack River to Connecticut River via the Gulf of Maine and Long Island Sound; Connecticut River to Hudson River via Long Island Sound and the East River); typically, distribution in rivers and inshore bays occurs from the estuary or river mouth up to the first impassible barrier (e.g., a dam or falls); comprehensive information on species biology and distribution is available in the Shortnose Sturgeon Status Review Team's Biological Asessment (SSSRT 2010; available at: http://www.nmfs.noaa.gov/pr/pdfs/species/shortnosesturgeon_biological_assessment2010.pdf)

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Body of Water (State)	Distribution/Range in Watershed	Life Stages Present	Use of the Watershed	References
Westfield River (MA), tributary of the Connecticut River	Up to DSI Dam (RKM 9.5)	adults	**Foraging** - Assumed to occur where suitable forage is present[1]	[1] USFWS 2007 in SSSRT 2010
Quinnipiac River (CT)	Up to Wallace Dam (RKM 27)	adults undocumented, but assumed based on documented occurrences of Atlantic sturgeon in the river	**Foraging** - Assumed to occur where suitable forage is present[1]	[1] Hartford Courant September 30, 1994 (http://articles.courant.com/1994-09-30/news/9409300111_1_sturgeon-fish-story-giant-fish)
Housatonic River (CT)	Up to Derby Dam (RKM 23.5)	adults	**Spawning** - Historical spawning occurred above the Derby Dam, none known to occur currently[1] **Foraging** - Potentially occurs where suitable forage is present[1]	[1] Savoy and Benway 2006 in SSSRT 2010
Long Island Sound (CT/NY)	Full length of Long Island Sound in nearshore coastal waters	adults	**Foraging** - Potentially occurs where suitable forage is present[1]	[1] Savoy 2004 in SSSRT 2010
East River (NY)	Full length of the East River	transient adults undocumented, but assumed based on detections of Atlantic sturgeon and occasional movements of shortnose sturgeon from Hudson River to Connecticut River	**Foraging** - Potentially occurs where suitable forage is present[1]	[1] Savoy 2004 in SSSRT 2010

General distribution: Atlantic Ocean waters and associated bays, estuaries, and coastal river systems from Minas Basin, Nova Scotia, Canada, to the St. Johns River, Florida; only adults occur in marine waters, with some adults making coastal migrations between river systems (e.g., Penobscot River to Merrimack River via the Gulf of Maine; Merrimack River to Connecticut River via the Gulf of Maine and Long Island Sound; Connecticut River to Hudson River via Long Island Sound and the East River); typically, distribution in rivers and inshore bays occurs from the estuary or river mouth up to the first impassible barrier (e.g., a dam or falls); comprehensive information on species biology and distribution is available in the Shortnose Sturgeon Status Review Team's Biological Asessment (SSSRT 2010; available at: http://www.nmfs.noaa.gov/pr/pdfs/species/shortnosesturgeon_biological_assessment2010.pdf)

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Body of Water (State)	Distribution/Range in Watershed	Life Stages Present	Use of the Watershed	References
Hudson River (NY/NJ)	Up to Troy Dam, NY (approximately RKM 246)	eggs, larvae, YOY, juveniles, and adults	**Spawning** - Documented from late March to early May when water temperatures reach 10° -18°C[1] from Coxsackie to below the Federal Dam at Troy[1][3] (RKM 190-246) **Rearing** - Eggs on the spawning grounds; larvae downstream to at least RKM 104; YOY downstream to at least RKM 64[1] **Foraging** - Throughout the Hudson River (RKM 38-175) [3][4] with concentrations in Haverstraw Bay[1] (RKM 56-64) **Overwintering** - Late fall to early spring[3]; largest area (mainly spawning adults) near Kingston[2] (RKM 137-149); smaller overwintering areas are located from Saugerties to Hyde Park[2] (RKM 123-170) and in the Croton-Haverstraw Bay area[2] (RKM 54-61); many juveniles overwinter in the lower river[1] (RKM 0-64)	[1] Dovel et al. 1992; [2] Geoghegan et al. 1992; [3] Bain 1997; [4] Pendleton et al. 2018

General distribution: Atlantic Ocean waters and associated bays, estuaries, and coastal river systems from Minas Basin, Nova Scotia, Canada, to the St. Johns River, Florida; only adults occur in marine waters, with some adults making coastal migrations between river systems (e.g., Penobscot River to Merrimack River via the Gulf of Maine; Merrimack River to Connecticut River via the Gulf of Maine and Long Island Sound; Connecticut River to Hudson River via Long Island Sound and the East River); typically, distribution in rivers and inshore bays occurs from the estuary or river mouth up to the first impassible barrier (e.g., a dam or falls); comprehensive information on species biology and distribution is available in the Shortnose Sturgeon Status Review Team's Biological Asessment (SSSRT 2010; available at: http://www.nmfs.noaa.gov/pr/pdfs/species/shortnosesturgeon_biological_assessment2010.pdf)

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Body of Water (State)	Distribution/Range in Watershed	Life Stages Present	Use of the Watershed	References
Delaware River and Bay (NJ/DE/PA)	Up to Lambertville, PA (RKM 240)	eggs, larvae, YOY, juveniles, and adults	**Spawning** - Documented from late March through late May; water temperatures 6-18°C; between Trenton and Lambertville[6] (RKM 214-238) **Rearing** - Eggs and larvae between Trenton and Lambertville[6] (RKM 214-238); juveniles located upstream of the salt wedge from Wilmington to Philadelphia[3] (RKM 114-148) **Foraging** - Throughout the river, between the vicinity of Trenton south to Artificial Island[7] (RKM 79) **Overwintering** - November to March[1]; overwinter when waters reach 10°C (typically mid-November)[2]; many adults concentrate from RKM 190-212[1][4], but occur downstream below Wilmington[4] (RKM 116); juveniles overwinter from Philadelphia to below Artificial Island[5] (RKM 70-154); variety of behaviors from sedentary to active[6]	[1] O'Herron et al. 1993; [2] USGS gauge at Philadelphia (01467200) during the 2003-2008 time period; [3] Burton et al. 2005; [4] ERC 2006; [5] Brundage and O'Herron 2009; [6] ERC 2009; [7] SSSRT 2010
Schuylkill River (PA), tributary of the Delaware River	Up to Fairmount Dam (RKM 13.6)	juveniles and adults	**Foraging** - Potentially occurs where suitable forage is present[1]	[1] Philadelphia Water Department November 7, 2014 (http://www.phillywatersheds.org/endangered-shortnose-sturgeon-returns-schuylkill)
C&D Canal (DE/MD)	Used at least occasionally to move from Chesapeake Bay to the Delaware River	adults	**Foraging** - Assumed to occur in areas with suitable forage[1]	[1] Welsh et al. 2002
Chesapeake Bay (MD/VA)	Maryland and Virigina waters of mainstem bay and tidal tributaries including those specifically listed below.	adults documented; other life stage presence unknown	**Foraging, Resting, and Overwintering** - Assumed to occur in areas with suitable forage [1][2]	[1] SSSRT 2010; [2] Balazik 2017

General distribution: Atlantic Ocean waters and associated bays, estuaries, and coastal river systems from Minas Basin, Nova Scotia, Canada, to the St. Johns River, Florida; only adults occur in marine waters, with some adults making coastal migrations between river systems (e.g., Penobscot River to Merrimack River via the Gulf of Maine; Merrimack River to Connecticut River via the Gulf of Maine and Long Island Sound; Connecticut River to Hudson River via Long Island Sound and the East River); typically, distribution in rivers and inshore bays occurs from the estuary or river mouth up to the first impassible barrier (e.g., a dam or falls); comprehensive information on species biology and distribution is available in the Shortnose Sturgeon Status Review Team's Biological Asessment (SSSRT 2010; available at: http://www.nmfs.noaa.gov/pr/pdfs/species/shortnosesturgeon_biological_assessment2010.pdf)

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Body of Water (State)	Distribution/Range in Watershed	Life Stages Present	Use of the Watershed	References
Susquehanna River (MD)	Up to Conowingo Dam (RKM 16)	adults documented; other life stages assumed but unknown	**Spawning** - Historically occurred; currently unknown as suitability of habitat is likely impacted by dam operations[1] **Foraging** - Assumed to occur in areas with suitable forage[2] **Overwintering** - Not documented but assumed based on anecdotal reports of aggregations of sturgeon in deep holes near Lapidum and Perrysville[2]	[1] Litwiler 2001; [2] SSSRT 2010
Potomac River (MD/VA)	Up to Little Falls Dam (RKM 189)	adults documented; other life stages assumed but unknown	**Spawning** - Historically occurred; current spawning not documented but assumed based on presence of pre-spawning females and suitable habitat at RKM 185-187[1] **Rearing** - Eggs expected at RKM 185-187, larvae would be present downstream in freshwater[1] **Foraging** - Mainly in the deepwater channel from RKM 63-141[1][2] **Overwintering** - Near Mattawoman Creek; saltwater/freshwater reach near Craney Island [1][2] (RKM 63-141)	[1] Kynard et al. 2007; [2] Kynard et al. 2009
Rappahannock River (VA)	Range not confirmed, but they have been documented in this river (likely throughout the entire river)	adults	**Foraging** - Potentially occurs where suitable forage is present; one was captured in May 1998[1]	[1] Spells 1998
York River (VA)	Range unknown (potentially throughout the river and tributaries)	adults	**Foraging** - Potentially occurs where suitable forage is present [1]	[1] Balazik, pers. comm., June 7, 2018

General distribution: Atlantic Ocean waters and associated bays, estuaries, and coastal river systems from Minas Basin, Nova Scotia, Canada, to the St. Johns River, Florida; only adults occur in marine waters, with some adults making coastal migrations between river systems (e.g., Penobscot River to Merrimack River via the Gulf of Maine; Merrimack River to Connecticut River via the Gulf of Maine and Long Island Sound; Connecticut River to Hudson River via Long Island Sound and the East River); typically, distribution in rivers and inshore bays occurs from the estuary or river mouth up to the first impassible barrier (e.g., a dam or falls); comprehensive information on species biology and distribution is available in the Shortnose Sturgeon Status Review Team's Biological Asessment (SSSRT 2010; available at: http://www.nmfs.noaa.gov/pr/pdfs/species/shortnosesturgeon_biological_assessment2010.pdf)

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Body of Water (State)	Distribution/Range in Watershed	Life Stages Present	Use of the Watershed	References
James River (VA)	Range not confirmed, but likely up to Boshers Dam (RKM 182.3)	adults	**Foraging/Spawning** - Foraging potentially occurs where suitable forage is present; a sturgeon, possibly from the Potomac or Delaware River, was captured on March 13, 2016, at RKM 48[1]; on February 2018, a second sturgeon (a confirmed gravid female) was captured near RKM 48[2] (genetics results not yet available); spawning area unknown; the salinity at RKM 48 is usually low (brackish).	[1] Balazik 2017; [2] Balazik, pers. comm., February 10, 2018

Listing rule: 32 FR 4001, March 11, 1967; **Recovery plan**: NMFS 1998. Available online: http://www.nmfs.noaa.gov/pr/pdfs/recovery/sturgeon_shortnose.pdf

General distribution: Atlantic Ocean waters and associated bays, estuaries, and coastal river systems from Hamilton Inlet, Labrador, Canada, to Cape Canaveral, Florida; only subadult and adult lifestages occur in marine waters, where they are typically found in waters 5-50 meters in depth (Stein et al. 2004; ASMFC TC 2007); subadults and adults may travel long distances in marine waters, aggregate in both ocean and estuarine areas at certain times of the year, and exhibit seasonal coastal movements in the spring and fall; distribution in rivers and inshore bays typically occurs from the estuary or river mouth generally up to the first impassible barrier (e.g., a dam or falls); Atlantic sturgeon generally use the deepest habitats available to them in rivers, but they have also been collected over shallow (2.5 meters), tidally influenced flats and substrates ranging from mud to sand and mixed rubble and cobble (Savoy and Pacileo 2003)

Disclaimer: the best available information on Atlantic sturgeon presence within coastal rivers, estuaries, and bays of the Greater Atlantic Region is presented below; waterbodies highlighted below are ones where we have information specific to Atlantic sturgeon use of the area that would be helpful for action agencies reviewing proposed actions and their potential effects on Atlantic sturgeon; however, they may occur in other watersheds within this range for which we do not currently have specific information; note: individuals from any of the five listed DPSs (Gulf of Maine, New York Bight, Chesapeake Bay, Carolina, and South Atlantic) may occur in any of the areas identified throughout the species' range; a description of Atlantic sturgeon life history stages are included at the end of the table below

Body of Water (State)	Distribution/Range in Watershed	Life Stages Present	Use of the Watershed	References
Cobscook Bay/St. Croix River (ME)	Up to the Milltown Dam at Calais, ME (RKM 16)	subadults and adults	**Foraging** - assumed to occur wherever suitable forage is present[1]	[1] Zydlewski (UMaine) pers. comm., September 21, 2015
Penobscot River (ME)	Up to the Milford Dam (RKM 62)	subadults and adults (potentially eggs, larvae, YOY, and juveniles)	**Spawning** - undocumented, but 12 km of suitable spawning habitat is accessible[2] **Foraging -** wherever suitable forage is present, documented in the lower river (RKM 21-24.5)[1]	[1] Fernandes et al. 2010; [2] Wippelhauser et al. 2017
Damariscotta River (ME)	Up to Damariscotta Lake Dam (RKM 30.3)	subadults and adults	**Foraging** - assumed to occur wherever suitable forage is present; tag detections indicate that usage of the river is for short periods during coastal migrations[1]	[1] Picard and Zydlewski 2014
Sheepscot River (ME)	Up to the head-of-tide dam (RKM 35)	subadults and adults	**Foraging** - assumed to occur wherever suitable forage is present; may occur in Montsweag Bay as shortnose sturgeon foraging has been documented there[1]; subadults have been captured in the river[2]	[1] Fried and McCleave 1973; [2] ASSRT 2007
Kennebec River (ME)	Up to the Lockwood Dam (RKM 102), also includes the entirety of the Back and Sasanoa Rivers	eggs, larvae, YOY, juveniles, subadults, and adults	**Spawning** - May-August[4]; documented via captures of spawning condition adults and larvae (RKM 52.8-76)[1][4]; potentially occurs as far upstream as the Lockwood Dam in the restored spawning habitat (RKM 87-102)[4] **Rearing -** ELS have been documented near the spawning grounds[4]; juveniles have also been documented in the river[3] **Foraging** - assumed to occur wherever suitable forage is present (documented from RKM 0-42)[4]; also documented in the Sasanoa and Back Rivers[2][3]	[1] Wippelhauser 2011; [2] Wippelhauser 2012; [3] Wippelhauser and Squiers 2015; [4] Wippelhauser et al. 2017

Androscoggin River (ME)	Up to the Brunswick Dam (RKM 8.4)	eggs, larvae, YOY, juveniles, subadults, and adults	**Spawning** - May-August[2]; capture of a ripe male[2] in the summer below the Brunswick Dam (RKM 7.7-8.4)[1] indicates that spawning is likely occurring **Rearing** - Juveniles likely present throughout the river year-round **Foraging** - assumed to occur wherever suitable forage is present	[1] Wippelhauser and Squiers 2015; [2] Wippelhauser et al. 2017
Presumpscot River (ME)	Up to Presumpscot Falls (RKM 3)	subadults and adults	**Foraging** - assumed to occur wherever suitable forage is present; an Atlantic sturgeon was caught below Presumpscot Falls[1]	[1] Yoder et al. 2009
Scarborough River (ME)	Throughout the entire river	subadults and adults	**Foraging** - assumed to occur wherever suitable forage is present[1]	[1] Wippelhauser et al. 2017
Saco River (ME)	Up to Cataract Dam (RKM 10)	juveniles, subadults, and adults	**Foraging** - assumed to occur wherever suitable forage is present[1]	[1] Novak et al. 2017
Piscataqua River Watershed including Salmon Falls and Cocheco tributaries (NH)	Up to the confluence with the Salmon Falls and Cocheco Rivers (RKM 15) and including Great Bay; Salmon Falls River – up to the Route 4/South Berswick Dam (RKM 7); Cocheco River – up to the Cocheco Falls Dam (RKM 6)	subadults and adults (eggs, larvae, YOY, and juveniles possible)	**Spawning** - potentially occurs in the Salmon Falls and Cocheco rivers based on the presence of features necessary to support reproduction and recruitment as well as the capture of an adult female Atlantic sturgeon in spawning condition in 1990[1][3] **Rearing** - Juveniles potentially present throughout the river year-round **Foraging** - used seasonally for foraging and resting during spring and fall migrations; tagging data indicates that use by individual sturgeon is limited to days or weeks[2]	[1] ASSRT 2007; [2] Kieffer and Trefry 2017 pers. comm.; [3] NMFS 2017
Merrimack River (MA)	Up to the Essex Dam (RKM 46); often found around the lower islands reach (RKM 3-12) and the mouth of the river	subadults and adults (potentially eggs, larvae, YOY, and juveniles)	**Spawning** - potentially occurs due to the presence of features necessary to support reproduction and recruitment[4] **Rearing** - data suggests it is used as a nursery area for juveniles[3] **Foraging** - mouth of the river and the lower islands area (RKM 0-12); subadults use RKM 7-12[1][2]	[1] Kieffer and Kynard 1993; [2] Kynard et al. 2000; [3] ASSRT 2007; [4] NMFS 2017
Charles River (MA)	Up to Charles River Locks (RKM 5.5)	subadults and adults	**Foraging** - assumed to occur wherever suitable forage is present[1]	[1] Boston.com February 20, 2012 (http://archive.boston.com/news/science/articles/2012/02/20/from_depths_of_the_charles_an_ancient_species/)
North River (MA)	Up to Dam #1 on the Indian Head Reservoir at Luddam's Ford (RKM 21)	subadults and adults	**Foraging** - assumed to occur wherever suitable forage is present; an adult was found in the North River, 4 miles from the mouth in 2012[1]	[1] The Patriot Ledger June 1, 2012 (http://www.patriotledger.com/article/20120601/NEWS/306019786)
Taunton River (MA)	Up to the convergence of the Town River and Matfield River	subadults and adults	**Foraging** - assumed to occur wherever suitable forage is present[1][2]	[1] Buerkett and Kynard 1993; [2] ASSRT 2007

Narragansett Bay (RI)	Throughout the bay	subadults and adults	**Foraging** - assumed to occur wherever suitable forage is present[1]	[1] ASSRT 2007
Thames River (CT)	Up to the Yantic Dam in the Yantic River and up to the Greenville Dam in the Shetucket River	subadults and adults	**Foraging** - assumed to occur wherever suitable forage is present[1][2][3]	[1] Whitworth 1996; [2] ASSRT 2007; [3] The Day June 17, 2016 (http://www.theday.com/article/20160617/NWS01/160619212)
Connecticut River (CT/MA)	Up to the Holyoke Dam (RKM 140); mainly stay in the summer range of the salt wedge (RKM 0-26)	eggs, larvae, YOY, juveniles, subadults, and adults	**Spawning/Rearing** - captures of pre-migratory juvenile sturgeon in the river strongly suggests that spawning is occurring in this river[3] **Foraging** - assumed to occur wherever suitable forage is present[1][2]	[1] Savoy and Shake 1993; [2] Savoy and Pacileo 2003; [3] Savoy et al. 2017
Quinnipiac River (CT)	Up to bridge at Quinnipiac Street and River Road in Wallingford (RKM 27)	subadults and adults	**Foraging** - assumed to occur wherever suitable forage is present[1]	[1] Hartford Courant September 30, 1994 (http://articles.courant.com/1994-09-30/news/9409300111_1_sturgeon-fish-story-giant-fish)
Housatonic River (CT)	Up to the Derby Dam (RKM 23.5)	subadults and adults (potentially eggs, larvae, YOY, and juveniles)	**Spawning** - not documented; potentially occurs due to the presence of features necessary to support reproduction and recruitment[3] **Foraging** - assumed to occur wherever suitable forage is present[1][2]	[1] Whitworth 1996; [2] ASSRT 2007; [3] NMFS 2017
Long Island Sound (NY/CT)	All of Long Island Sound	subadults and adults	**Foraging** - where suitable forage is present; 85% of Atlantic sturgeon caught in Long Island Sound are over mud/transitional bottoms of 27-37 meters deep in the central basin[1]	[1] Savoy and Pacileo 2003
East River (NY)	full length of the East River	subadults and adults	**Migration** - subadults and adults have been documented using this waterbody to move between the Hudson River and western Long Island Sound[1][2] **Foraging** - assumed to occur wherever suitable forage is present, but forage is limited[1][2]	[1] Savoy and Pacileo 2003; [2] Tomichek et al. 2014

Hudson River (NY/NJ)	up to the Troy Dam (approximately RKM 246)	eggs, larvae, YOY, juveniles, subadults, and adults	**Spawning** - late April through August[1][6], notably around Hyde Park (RKM 129-135) [4] and Catskill (RKM 182)[2], as well as throughout RKM 113-184[4]; evidence strongly suggests that there is also spawning further upstream of RKM 193[6] **Rearing** - larvae and YOY - RKM 60-148[1] [3]; remain upstream of the salt wedge[2]; juveniles - RKM 63-140[1][3]; utilize the estuary up through Kingston (RKM 148)[1]; Newburgh and Haverstraw Bays (RKM 55-61) are areas of known juvenile concentrations[5] **Foraging** - assumed to occur wherever suitable forage is present **Overwintering** - juveniles - RKM 19-74 from fall through winter[1]; some juveniles were recorded in Esopus Meadows (RKM 134)[3]	[1] Dovel and Berggren 1983; [2] Van Eenennaam et al. 1996; [3] Bain 1997; [4] Bain et al. 1998; [5] Sweka et al. 2006; [6] Dewayne Fox, DSU, and Kathy Hattala, NYDEC, personal communication April 2014
Delaware River (NJ/DE/PA)	Up to the fall line near Trenton, NJ (RKM 211)	eggs, larvae, YOY, juveniles, subadults, and adults	**Spawning** - documented and/or potential spawning habitat in April through July from the Marcus Hook Bar to the fall line at Trenton, NJ (RKM 125-211)[2][3][5] **Rearing** - YOY/juveniles - Deepwater to Roebling, NJ (RKM 105-199)[4] with most of the detections in the Marcus Hook Area (RKM 127-129)[7] **Foraging** - where suitable forage and appropriate habitat conditions are present **Overwintering** - juveniles - move between lower (RKM 100-150) and upper (RKM 185-199) tidal areas[6]; may overwinter in tidal fresh water[1]	[1] Lazzari et al. 1986; [2] Simpson and Fox 2006; [3] Simpson 2008; [4] Calvo et al. 2010; [5] Breece et al. 2013; [6] Stetzar et al. 2015; [7] Hale et al. 2016
C&D Canal (DE/MD)	Used at least occasionally to move from Chesapeake Bay to the Delaware River	juveniles, subadults, and adults	**Foraging** - Assumed to occur in areas with suitable forage [1][2]	[1] Simpson 2008; [2] Brundage and O'Herron 2009
Chesapeake Bay (MD/VA)	Throughout the bay typically in spring through fall	juveniles, subadults, and adults	**Migration** - April-November for adults[5] and subadults[1]; year round for juveniles[2] [3]; these lifestages wander among coastal and estuarine habitats[5] **Foraging** - typically in areas where suitable forage and appropriate habitat conditions are present; typically tidally influenced flats and mud, sand and mixed cobble substrates[4]	[1] Dovel and Berggren 1983; [2] Secor et al. 2000; [3] Welsh et al. 2002; [4] Stein et al. 2004; [5] Horne and Stence 2016
Susquehanna River (MD)	Up to the Conowingo Dam (RKM 16)	subadults and adults (potentially eggs, larvae, YOY, and juveniles)	**Foraging** - where suitable forage and appropriate habitat conditions are present [1]	[1] ASSRT 2007

Choptank River (MD)	Range not confirmed, but they have been documented in this river (likely up to the dam at RKM 102)	subadults and adults (potentially eggs, larvae, YOY, and juveniles)	**Foraging -** where suitable forage and appropriate habitat conditions are present [2] **Spawning** - not documented, but a gravid female was caught at the mouth of the river near Tilghman Island[1]	[1] The Baltimore Sun June 13, 2007 (http://articles.baltimoresun.com/2007-06-13/news/0706130110_1_sturgeon-chesapeake-bay-university-of-maryland); [2] ASSRT 2007
Nanticoke River, including Marshyhope Creek and Broad Creek tributaries (MD)	Range not confirmed, but they have been documented in the Nanticoke River up to the mouth of Broad Creek; they have also been found up to Federalsburg, MD in Marshyhope Creek and up to Laurel, DE in Broad Creek[2]	subadults and adults (potentially eggs, larvae, YOY, and juveniles)	**Spawning -** potential for spawning due to the presence of features necessary to support reproduction and recruitment in one of its tributaries (in Marshyhope Creek, spawn ready adults have been captured)[2] **Rearing** - may be used as a nursery for juveniles[1] **Foraging** - assumed to occur wherever suitable forage is present[1]	[1] ASSRT 2007; [2] Horne and Stence 2016
Pocomoke River (MD)	To the limit of tidal influence where Whiton Crossing Road crosses the river	subadults and adults	**Foraging** - assumed to occur wherever suitable forage is present[1]	[1] Horne and Stence 2016
Potomac River (MD/VA)	Up to Little Falls Dam (RKM 189)	juveniles, subadults, and adults (potentially eggs, larvae, and YOY)	**Spawning** - potentially occurs as three small juveniles[3] and a large mature female[2] have been captured and due to the presence of features necessary to support reproduction and recruitment[1][2] **Rearing** - three juveniles have been captured[3] **Foraging** - where suitable forage and appropriate habitat conditions are present [2]	[1] Niklitschek and Secor 2005; [2] ASSRT 2007; [3] Kynard et al. 2007
Rappahannock River (VA)	Range not confirmed, but they have been documented in this river (likely throughout the entire river)	subadults and adults (potentially eggs, larvae, YOY, and juveniles)	**Spawning** - potentially occurs due to the capture of a male sturgeon in spawning condition in September 2015 and the presence of features necessary to support reproduction and recruitment[1][3] **Rearing** - may be used as a nursery for juveniles[2] **Foraging** - where suitable forage and appropriate habitat conditions are present [2]	[1] Bushnoe et al. 2005; [2] ASSRT 2007; [3] NMFS 2016

York River, including Mattaponi and Pamunkey River tributaries (VA)	York River - up to confluence with the Mattaponi and Pamunkey Rivers (RKM 55); Pamunkey River - up to RKM 150; Mattaponi River - up to RKM 120	eggs, larvae, YOY, juveniles, subadults, and adults	**Spawning** - potential for fall spawning due to the presence of features necessary to support reproduction in its tributaries (Mattaponi and Pamunkey Rivers) and recruitment in both the York River and its tributaries[1]; documented in the Pamunkey River through the capture of an adult female sturgeon in post-spawning condition in the fall and the presence of features necessary to support reproduction and recruitment[3]; may occur in the Pamunkey River as far upstream as RKM 150[4] **Rearing** - in freshwater reaches downstream of spawning sites; four age-0 Atlantic sturgeon were captured in the York River[2]; Juveniles likely present throughout the river year-round **Foraging** - where suitable forage and appropriate habitat conditions are present [1]	[1] Bushnoe et al. 2005; [2] Balazik et al. 2012; [3] Hager et al. 2014; [4] Kahn et al. 2014
James River (VA)	Up to Boshers Dam (RKM 182.3)	eggs, larvae, YOY, juveniles, subadults, and adults	**Staging** - likely done by fall spawners, during summer and fall in brackish water before and after the fall spawn (RKM 22-107)[4] **Spawning** - both a spring (likely at RKM 90-95)[4] and fall spawning event (likely between RKM 105 and the fall line near Richmond, VA at RKM 155)[3] **Rearing** - freshwater reaches downstream of spawning locations[1][2]; Juveniles likely present throughout the river year-round **Foraging** - where suitable forage and appropriate habitat conditions are present [2]	[1] Florida Museum of Natural History 2004; [2] ASSRT 2007; [3] Balazik et al. 2012; [4] Balazik and Musick 2015
Appomattox River (VA), tributary of the James River	Range not confirmed, but they have been documented in this river (likely up to Battersea Dam, RKM 21)	subadults and adults	**Foraging** - where suitable forage and appropriate habitat conditions are present [1]	[1] The Hopewell News 2013

Listing rules: 77 FR 5880 and 77 FR 5914, February 6, 2012; **Recovery plan**: none published

GARFO Master ESA Species Table - Marine Mammals

Species	Region	Offshore distribution	Nearshore areas of importance	Likely Presence	Life Stages Present	Behaviors Anticipated to Occur
North Atlantic right whale	Northeast (ME to Cape Cod, MA)	throughout continental shelf and slope waters	Cape Cod Bay, Massachusetts Bay, Great South Channel, western Gulf of Maine, Georges Bank, Jordan Basin, Wilkinson Basin, Jeffreys Ledge, Cashes Ledge	Year round	Adults and juveniles	**Foraging -** Cape Cod Bay (January-April), Massachusetts Bay (January-April), Great South Channel (April-June), the western Gulf of Maine (April-May and July-October), the northern edge of Georges Bank (May-July), Jordan Basin (August-October), and Wilkinson Basin (April-July) **Wintering -** Increasing evidence of wintering areas (approximately November-January) in Cape Cod Bay, Jeffreys and Cashes Ledge, Jordan Basin, and Massachusetts Bay (e.g., Stellwagen Bank)
	Mid-Atlantic (Cape Cod, MA to VA)	throughout continental shelf and slope waters	possibly waters off New Jersey and Virginia	Year round	Adults and juveniles	**Migration** - Migratory pathway to/from northern (high latitude) foraging and southern calving grounds (primarily November-April)
Fin whale	Northeast (ME to Cape Cod, MA)	throughout continental shelf and slope waters	Massachusetts Bay, Stellwagen Bank, Great South Channel, east of Cape Cod, western Gulf of Maine, eastern perimeter of Georges Bank	Year round	Adults and juveniles	**Foraging** - Greatest densities from March-August; lower densities from September-November; important foraging grounds include Massachusetts Bay (especially Stellwagen Bank), Great South Channel, waters off Cape Cod (~40-50 meter contour), the western Gulf of Maine (especially Jeffreys Ledge), and the eastern perimenter of Georges Bank **Wintering** - Evidence of wintering areas in Stellwagen Bank and eastern perimeter of Georges Bank
	Mid-Atlantic (Cape Cod, MA to VA)	throughout continental shelf and slope waters	east end of Long Island, mid-shelf east of New Jersey	Year round	Adults and juveniles	**Foraging** - Year round in the mid-shelf area off the east end of Long Island **Migration** - Migratory pathway to/from northern (high latitude) foraging and southern (low latitude) calving grounds **Wintering** - Evidence of wintering areas in mid-shelf areas east of New Jersey **Calving** - Possible offshore calving area (October-January)

Sei whale	Northeast (ME to Cape Cod, MA)	continental shelf edge/slope waters with depths greater than 200 meters	none	Year round	Adults and juveniles	**Foraging** - Spring through summer, found in greatest densities in offshore waters of the Gulf of Maine and Georges Bank (eastern margin into the Northeast Channel area; along the southwestern edge in the area of Hydrographer Canyon); prefer continental shelf edge/slope waters (i.e., >200 meters), although incursions into continental shelf waters do occur seasonally or sporadically during periods of high prey abundance; generally feed on copepods and can often be found in areas where right whales are also found foraging, typically a bit further offshore than Cape Cod Bay **Migration** - The population is believed to migrate from south of Cape Cod and along the coast of eastern Canada in June-July, and return on a southward migration again in September-October
Sperm whale	Northeast and Mid-Atlantic (ME to VA)	areas with depths greater than 600 meters, and are relatively uncommon in waters less than 300 meters deep	none	Year round	Adults and juveniles	**Foraging** - In winter, concentrated east and northeast of Cape Hatteras; in spring, the center of distribution shifts northward to east of Delaware and Virginia, and is widespread throughout the central portion of the Mid-Atlantic Bight and the southern portion of Georges Bank; in summer, the distribution is similar but also includes the area east and north of Georges Bank and into the Northeast Channel region, as well as the continental shelf (inshore of the 100 meter isobath) south of New England; in fall, occurrence south of New England on the continental shelf is at its highest level, and there remains a continental shelf edge occurrence in the Mid-Atlantic Bight **Migration** - In some mid-latitudes, there seems to be a general trend to migrate north and south depending on the seasons (they move poleward in the summer); in temperate areas, there appears to be no obvious seasonal migration

Blue whale	Northeast and Mid-Atlantic (ME to VA)	continental shelf edge/slope waters with depths greater than 200 meters	none	Year round	Adults and juveniles	**Foraging** - Off the U.S. Northeast and Mid-Atlantic coasts, they are most common during the summer and fall feeding seasons and typically leave by early winter; although they are rare in continental shelf waters, blue whales are occasionally seen off Cape Cod; best considered an occasional visitor in U.S. Atlantic waters, which may represent the southern limit of its feeding range **Migration** - Migrate seasonally between summer and winter, but some evidence suggests that individuals remain in certain areas year round; information about movements varies with location, and migratory routes are not well known

Species	Listing Rule	Recovery Plan
North Atlantic right whale	73 FR 12024; March 6, 2008	NMFS 2005
Fin whale	35 FR 18319; December 2, 1970	NMFS 2010a
Sei whale	35 FR 18319; December 2, 1970	NMFS 2011
Sperm whale	35 FR 18319; December 2, 1970	NMFS 2010b
Blue whale	35 FR 18319; December 2, 1970	NMFS 1998

References: CETAP 1982; Watkins and Schevill 1982; Payne 1984; Kenney et al. 1986, 1995; Schevill et al. 1986; Winn et al. 1986; Wenzel et al. 1988; Hamilton and Mayo 1990; Payne et al.1990; Hain et al. 1992; Brown et al. 2002; McClellan et al. 2004; Good 2008; NOAA 2008; Baumgartner et al. 2011; Cole et al. 2013; Khan et al. 2013, 2014, 2016; Waring et al. 2016; 81 FR 4837, January 27, 2016; 50 CFR 224.105.

GARFO Master ESA Species Table - Sea Turtles

General distribution: Four species (loggerhead, green, Kemp's ridley, and leatherback) found throughout continental shelf and slope waters of the Northwest Atlantic Ocean; tropical to boreal waters, preferred temperatures greater than 10°C; northward and inshore movement into waters of the Greater Atlantic Region begins in the spring, with turtles arriving into Mid-Atlantic waters in mid-April/May and into Gulf of Maine waters in June; in the fall, this trend is reversed with most turtles leaving the region's waters by the end of November; outside of these times, sea turtle presence in the region's waters is considered unlikely aside from cold-stunned individuals that fail to migrate south (see below); a fifth species (hawksbill) is considered extremely rare in the region based on only a few documented occurrences and its affinity for tropical waters and coral reef type habitats

Disclaimer: the best available information on the presence of sea turtles in the Greater Atlantic Region is presented below; coastal/inshore areas of regular occurrence highlighted below are ones where we have information specific to sea turtle use of the area that would be helpful for action agencies reviewing proposed actions and their potential effects on turtles; however, they may occur in other coastal/inshore areas within this region for which we do not currently have specific information; for nesting individuals, the U.S. Fish and Wildlife Service has jurisdiction over sea turtles when they are on land

State	Coastal / Inshore Areas of Regular Occurrence	Likely Presence	Life Stages Present	Behaviors Anticipated to Occur
ME/NH and MA (north of Cape Cod)	Cape Cod Bay	June to October/November (note: cold stunning of hard-shelled sea turtles occurs annually from October to January)	Loggerhead (Northwest Atlantic DPS) - Pelagic and benthic juveniles, subadults, and adults Green (North Atlantic DPS) - Juveniles and adults Kemp's ridley - Juveniles only Leatherback - Juveniles and adults	**Foraging** Loggerhead (Northwest Atlantic DPS) - Pelagic and benthic juveniles - omnivorous on bottom and surface - Sub-adults and adults - benthic invertebrates along the coast Green (North Atlantic DPS) - Juveniles - Omnivorous along coasts and in protected bays and lagoons - Adults - Herbivorous in nearshore areas Kemp's ridley - Juveniles - Benthic invertebrates in protected coastal areas Leatherback - Juveniles and adults - Primarily prey on jellyfish in offshore oceanic or coastal neritic areas **Nesting** North of North Carolina, sea turtle nesting is rare (there is occasional loggerhead nesting in Virginia, but no established nesting beaches further north)
MA (south of Cape Cod)	Buzzards Bay, Nantucket and Vineyard Sounds	May to November (note: cold stunning of hard-shelled sea turtles occurs annually from October to January)		
RI	Narragansett Bay and Block Island Sound			
CT/NY	Long Island Sound and associated bays/estuaries (e.g., Peconic Bay)			
NY/NJ	Coastal waters off the New York Harbor Complex (e.g., Raritan and Sandy Hook Bays)			
NJ/DE	Delaware Bay and other back bays (e.g., Barnegat Bay)			
DE/MD/VA	Coastal waters off Virginia Beach, coastal waters and back bays of the DelMarVa Peninsula, Chesapeake Bay, Tangier Sound, and lower portions of southern Chesapeake Bay tributaries (e.g., James, York, Rappahannock, and Potomac Rivers)			

GARFO Master ESA Species Table - Sea Turtles

Loggerhead (Northwest Atlantic DPS)	**Listing rule**: 76 FR 58868, September 22, 2011;**Recovery plan**: NMFS and USFWS 2008; **Additional references**: Shoop and Kenney 1992; Epperly et al. 1995a, 1995b, 1995c; Braun-McNeill and Epperly 2004; Morreale and Standora 2005; Braun-McNeill et al. 2008; Conant et al. 2009; Mansfield et al. 2009; NMFS NEFSC 2011; Griffin et al. 2013
Green (North Atlantic DPS)	**Listing rule**: 81 FR 20057, April 6, 2016;**Recovery plan**: NMFS and USFWS 1991; **Additional references**: Lahanas et al. 1994; Wynne and Schwartz 1999; Ruiz-Urquiola et al. 2010; Seminoff et al. 2015
Kemp's ridley	**Listing rule**: 35 FR 18319, December 2, 1970;**Recovery plan**: NMFS et al. 2011; **Additional references**: TEWG 2000; Morreale et al. 2007; NMFS and USFWS 2015
Leatherback	**Listing rule**: 35 FR 8491, June 2, 1970;**Recovery plan**: NMFS and USFWS 1992; **Additional references**: Bjorndal 1997; TEWG 2007; Fossette et al. 2008; Dodge et al. 2011; NMFS and USFWS 2013
Hawksbill	**Listing rule**: 35 FR 18319, December 2, 1970;**Recovery plan**: NMFS and USFWS 1992; **Additional references**: NMFS and USFWS 2013

APPENDIX G

Laboratory Data Reports

HALEY ALDRICH

ANALYTICAL REPORT

Lab Number:	L1827531
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Lee Vanzler
Phone:	(617) 886-7561
Project Name:	150 SEAPORT BOULEVARD
Project Number:	132470-002
Report Date:	07/23/18

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

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

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002

Lab Number: L1827531
Report Date: 07/23/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1827531-01	HASW_07182018	WATER	BOSTON, MA	07/18/18 08:40	07/18/18

Project Name:	150 SEAPORT BOULEVARD	**Lab Number:**	L1827531
Project Number:	132470-002	**Report Date:**	07/23/18

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:  Michelle M. Morris

Title: Technical Director/Representative Date: 07/23/18

INORGANICS
&
MISCELLANEOUS

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002
Lab Number: L1827531
Report Date: 07/23/18

SAMPLE RESULTS

Lab ID: L1827531-01
Client ID: HASW_07182018
Sample Location: BOSTON, MA
Sample Depth:
Matrix: Water

Date Collected: 07/18/18 08:40
Date Received: 07/18/18
Field Prep: Refer to COC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
SALINITY	16		SU	2.0	--	1	-	07/19/18 06:25	121,2520B	UN
pH (H)	7.7		SU	-	NA	1	-	07/19/18 04:39	121,4500H+-B	MA
Nitrogen, Ammonia	0.194		mg/l	0.075	--	1	07/19/18 12:58	07/19/18 23:09	121,4500NH3-BH	AT

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002
Lab Number: L1827531
Report Date: 07/23/18

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1137333-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	07/19/18 12:58	07/19/18 22:32	121,4500NH3-BH	AT

Lab Control Sample Analysis

Batch Quality Control

Project Name: 150 SEAPORT BOULEVARD

Project Number: 132470-002

Lab Number: L1827531

Report Date: 07/23/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1137244-1								
SALINITY	100		-			-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1137254-1								
pH	100		-		99-101	-		5
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1137333-2								
Nitrogen, Ammonia	93		-		80-120	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002

Lab Number: L1827531
Report Date: 07/23/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1137333-4 QC Sample: L1827531-01 Client ID: HASW_07182018												
Nitrogen, Ammonia	0.194	4	3.90	93		-	-		80-120	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: 150 SEAPORT BOULEVARD

Project Number: 132470-002

Lab Number: L1827531

Report Date: 07/23/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1137244-2 QC Sample: L1827531-01 Client ID: HASW_07182018						
SALINITY	16	16	SU	0		
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1137254-2 QC Sample: L1827102-01 Client ID: DUP Sample						
pH	7.4	7.4	SU	0		5
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1137333-3 QC Sample: L1827531-01 Client ID: HASW_07182018						
Nitrogen, Ammonia	0.194	0.174	mg/l	11		20

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002

Lab Number: L1827531
Report Date: 07/23/18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1827531-01A	Plastic 250ml HNO3 preserved	B	<2	<2	3.0	Y	Absent		HOLD-METAL-DISSOLVED(180)
L1827531-01B	Plastic 250ml HNO3 preserved	B	<2	<2	3.0	Y	Absent		HOLD-METAL-TOTAL(180)
L1827531-01C	Plastic 500ml H2SO4 preserved	B	<2	<2	3.0	Y	Absent		NH3-4500(28)
L1827531-01D	Plastic 60ml unpreserved	B	7	7	3.0	Y	Absent		PH-4500(.01)
L1827531-01E	Amber 120ml unpreserved	B	7	7	3.0	Y	Absent		SALINITY(28)
L1827531-01F	Plastic 500ml unpreserved	B	7	7	3.0	Y	Absent		ARCHIVE()

*Values in parentheses indicate holding time in days

Project Name:	150 SEAPORT BOULEVARD	**Lab Number:**	L1827531
Project Number:	132470-002	**Report Date:**	07/23/18

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample¿s toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

1	- The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Report Format: Data Usability Report

Project Name:	150 SEAPORT BOULEVARD	**Lab Number:**	L1827531
Project Number:	132470-002	**Report Date:**	07/23/18

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name:	150 SEAPORT BOULEVARD	**Lab Number:**	L1827531
Project Number:	132470-002	**Report Date:**	07/23/18

REFERENCES

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

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 300: DW: Bromide
EPA 6860: SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.**
EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Be, Cd, Cr, Cu, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

ALPHA ANALYTICAL

Service Centers
Brewer, ME 04412 Portsmouth, NH 03801 Mahwah, NJ 07430
Albany, NY 12205
Tonawanda, NY 14150 Holmes, PA 19043

Page of

Date Rec'd in Lab: 07/18/18

ALPHA Job #: L1827531

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

H&A Information

H&A Client: The Cronin Group, LLC
H&A Address: 465 Medford Street, Suite 2200
H&A Phone: 617-886-7400
H&A Fax: lvanzler@haleyaldrich.com
H&A Email: echristmas@haleyaldrich.com

Project Information

Project Name: 150 Seaport Boulevard
Project Location: Boston, MA
Project #: 132470-002
(Use Project name as Project #) ☐
Project Manager: Lee Vanzler
ALPHAQuote #:

Turn-Around Time

Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ Email ☐ Fax
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other:

Regulatory Requirements (Program/Criteria)

Note: Select State from menu & identify criteria.

Billing Information

☐ Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Total Metals - report antimony, arsenic, cadmium, chromium III, chromium VI, total chromium, copper, iron, lead, mercury, nickel, selenium, silver, zinc

Please specify Metals or TAL.

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	1. Salinity	2. pH	3. Total Metals (see note)	4. Hex Chromium	5. NH3	6. Dis. metals			Sample Specific Comments	Total Bottles
27531-01	HASW_07182018	7-18-18	0840	WATER	DRW	X	X	X	X	X	X			(6) Field Filtered	6
														See attached page for corrected analytes (6)C	

Sample Filtration

☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

Container Type	A	P	P	P	P	P			
Preservative	A	A	C	A	D	C			

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

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

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
	7-18-18	RA Oliver	7/18/18 5:00
RA Oliver	7/18/18 5:00	AAL	7/18/18 1715
	7/18/18 1840		7/18/18 1840

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. Alpha Analytical's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement# 2015-18-Alpha Analytical by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and Alpha Analytical.

Document ID: 20455 Rev 1 (1/28/2016)

CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581 — 8 Walkup Dr. — TEL: 508-898-9220 — FAX: 508-898-9193

Mansfield, MA 02048 — 320 Forbes Blvd — TEL: 508-822-9300 — FAX: 508-822-3288

Service Centers: Brewer, ME 04412 — Portsmouth, NH 03801 Mahwah, NJ 07430 — Albany, NY 12205 — Tonawanda, NY 14150 — Holmes, PA 19043

Page 1 of 1

Date Rec'd in Lab: 07/18/18

ALPHA Job #: L1827531

Project Information

Project Name: 150 Seaport Boulevard

Project Location: Boston, MA

Project #: 132470-002

(Use Project name as Project #) ☐

Project Manager: Lee Vanzler

ALPHAQuote #:

Turn-Around Time

Standard ☑ — Due Date:

(only if pre approved) ☐ — # of Days: 5 Day

H&A Information

H&A Client: The Cronin Group, LLC

H&A Address: 465 Medford St, Boston, MA 02129-1400

H&A Phone: 617-886-7400

H&A Fax: kchatterton@haleyaldrich.com

H&A Email: echristmas@haleyaldrich.com

Deliverables

☑ Email ☐ Fax

☐ EQuIS (1 File) ☐ EQuIS (4 File)

☐ Other:

Regulatory Requirements (Program/Criteria)

MA NPDES RGP

Note: Select State from menu & identify criteria.

Billing Information

☑ Same as Client Info

PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.

Disposal Facility:

☐ NJ ☐ NY

☐ Other:

These samples have been previously analyzed by Alpha [

Other project specific requirements/comments:

Please sample per EPA Approved 2017 RGP Permit methods

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Ammonia	pH	Salinity	Total and Dissolved Metals (HOLD)	Total Bottles
27531-01	HASW-07182018			AQ		X	X	X	X	
Container Type						P	P	P	P	
Preservative										

Sample Filtration

☐ Done
☐ Lab to do

Preservation
☐ Lab to do

(Please Specify below)

Sample Specific Comments

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, K/E = Zn Ac/NaOH, O = Other

Container Code: P = Plastic, A = Amber Glass, V = Vial, G = Glass, B = Bacteria Cup, C = Cube, O = Other, E = Encore, D = BOD Bottle

Westboro: Certification No: MA935

Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. Alpha Analytical's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement# 2015-18-Alpha Analytical by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and Alpha Analytical.

Document ID: 20455 Rev 1 (1/28/2016)

JOB: L1827537 REPORT STYLE: Data Usability Report
0010: Alpha Analytical Report Cover Page - OK
0015: Sample Cross Reference Summary - OK
0060: Case Narrative - OK
0100: Volatiles Cover Page - OK
0110: Volatiles Sample Results - OK
0120: Volatiles Method Blank Report - OK
0130: Volatiles LCS Report - OK
0150: Volatiles Matrix Spike Report - OK
0180: Semivolatiles Cover Page - OK
0190: Semivolatiles Sample Results - OK
0200: Semivolatiles Method Blank Report - OK
0210: Semivolatiles LCS Report - OK
0700: PCBs Cover Page - OK
0710: PCBs Sample Results - OK
0720: PCBs Method Blank Report - OK
0730: PCBs LCS Report - OK
1005: Metals Sample Results - OK
1010: Metals Method Blank Report - OK
1020: Metals LCS Report - OK
1040: Metals Matrix Spike Report - OK
1050: Metals Duplicate Report - OK
1180: Inorganics Cover Page - OK
1200: Wet Chemistry Sample Results - OK
1210: Wet Chemistry Method Blank Report - OK
1220: Wet Chemistry LCS Report - OK
1240: Wet Chemistry Matrix Spike Report - OK
1250: Wet Chemistry Duplicate Report - OK
5100: Sample Receipt & Container Information Report - OK
5200: Glossary - OK
5400: References - OK

ANALYTICAL REPORT

Lab Number:	L1827537
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Lee Vanzler
Phone:	(617) 886-7561
Project Name:	150 SEAPORT BOULEVARD
Project Number:	132470-002
Report Date:	07/25/18

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

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002

Lab Number: L1827537
Report Date: 07/25/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1827537-01	HA17-2 (OW)	WATER	BOSTON	07/18/18 10:45	07/18/18

Project Name: 150 SEAPORT BOULEVARD **Lab Number:** L1827537
Project Number: 132470-002 **Report Date:** 07/25/18

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name:	150 SEAPORT BOULEVARD	**Lab Number:**	L1827537
Project Number:	132470-002	**Report Date:**	07/25/18

Case Narrative (continued)

Report Submission

July 25, 2018: This is a preliminary report.

Semivolatile Organics

L1827537-01 (HA17-2 (OW)): The surrogate recovery is above the acceptance criteria for 4-terphenyl-d14 (115%). Since the sample(s) were non-detect for all target analytes, re-analysis was not required.

Semivolatile Organics by SIM

WG1138228: A Matrix Spike and Matrix Spike Duplicate were prepared with the sample batch, however, the native sample was not available for reporting; therefore, the Matrix Spike and Matrix Spike Duplicate results could not be reported.

Total Metals

L1827537-01 (HA17-2 (OW)): The sample has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by the high concentrations of target and non-target elements.

Phenolics, Total

The WG1137268-4 MS recovery, performed on L1827537-01 (HA17-2 (OW)), is outside the acceptance criteria for (39%); however, the associated LCS recovery is within criteria. No further action was taken.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Lisa Westerlind

Title: Technical Director/Representative Date: 07/25/18

ORGANICS

VOLATILES

Project Name: 150 SEAPORT BOULEVARD **Lab Number:** L1827537

Project Number: 132470-002 **Report Date:** 07/25/18

SAMPLE RESULTS

Lab ID: L1827537-01 Date Collected: 07/18/18 10:45
Client ID: HA17-2 (OW) Date Received: 07/18/18
Sample Location: BOSTON Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 07/20/18 12:16
Analyst: NLK

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

Project Name: 150 SEAPORT BOULEVARD **Lab Number:** L1827537

Project Number: 132470-002 **Report Date:** 07/25/18

SAMPLE RESULTS

Lab ID: L1827537-01 Date Collected: 07/18/18 10:45

Client ID: HA17-2 (OW) Date Received: 07/18/18

Sample Location: BOSTON Field Prep: Refer to COC

Sample Depth:

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	105		60-140
Fluorobenzene	105		60-140
4-Bromofluorobenzene	93		60-140

Project Name: 150 SEAPORT BOULEVARD
Lab Number: L1827537
Project Number: 132470-002
Report Date: 07/25/18

SAMPLE RESULTS

Lab ID: L1827537-01
Client ID: HA17-2 (OW)
Sample Location: BOSTON
Date Collected: 07/18/18 10:45
Date Received: 07/18/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1-SIM
Analytical Date: 07/20/18 12:16
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS-SIM - Westborough Lab						
1,4-Dioxane	ND		ug/l	50	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	112		60-140
4-Bromofluorobenzene	96		60-140

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002
Lab Number: L1827537
Report Date: 07/25/18

SAMPLE RESULTS

Lab ID: L1827537-01
Client ID: HA17-2 (OW)
Sample Location: BOSTON

Date Collected: 07/18/18 10:45
Date Received: 07/18/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 07/23/18 19:48
Analyst: AWS

Extraction Method: EPA 504.1
Extraction Date: 07/23/18 14:15

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	--	1	A
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	--	1	A

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002
Lab Number: L1827537
Report Date: 07/25/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 07/23/18 15:57
Analyst: AWS

Extraction Method: EPA 504.1
Extraction Date: 07/23/18 14:15

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 01 Batch: WG1137736-1						
1,2-Dibromoethane	ND		ug/l	0.010	--	A
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	--	A

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002
Lab Number: L1827537
Report Date: 07/25/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 07/20/18 10:27
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1137825-4					
Methylene chloride	ND		ug/l	1.0	--
1,1-Dichloroethane	ND		ug/l	1.5	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.5	--
Tetrachloroethene	ND		ug/l	1.5	--
1,2-Dichloroethane	ND		ug/l	1.5	--
1,1,1-Trichloroethane	ND		ug/l	2.0	--
Benzene	ND		ug/l	1.0	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Vinyl chloride	ND		ug/l	1.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--
1,2-Dichlorobenzene	ND		ug/l	5.0	--
1,3-Dichlorobenzene	ND		ug/l	5.0	--
1,4-Dichlorobenzene	ND		ug/l	5.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-xylene	ND		ug/l	1.0	--
Xylenes, Total	ND		ug/l	1.0	--
Acetone[1]	ND		ug/l	10	--
Methyl tert butyl ether	ND		ug/l	10	--
Tert-Butyl Alcohol	ND		ug/l	100	--
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002
Lab Number: L1827537
Report Date: 07/25/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 07/20/18 10:27
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1137825-4					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	110		60-140
Fluorobenzene	109		60-140
4-Bromofluorobenzene	98		60-140

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002
Lab Number: L1827537
Report Date: 07/25/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1-SIM
Analytical Date: 07/20/18 10:27
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1138102-4					
1,4-Dioxane	ND		ug/l	50	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	117		60-140
4-Bromofluorobenzene	98		60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: 150 SEAPORT BOULEVARD

Project Number: 132470-002

Lab Number: L1827537

Report Date: 07/25/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab	Associated sample(s): 01		Batch: WG1137736-2						
1,2-Dibromoethane	116		-		80-120	-			A
1,2-Dibromo-3-chloropropane	116		-		80-120	-			A

Lab Control Sample Analysis
Batch Quality Control

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002

Lab Number: L1827537
Report Date: 07/25/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1137825-3								
Methylene chloride	90		-		60-140	-		28
1,1-Dichloroethane	80		-		50-150	-		49
Carbon tetrachloride	85		-		70-130	-		41
1,1,2-Trichloroethane	85		-		70-130	-		45
Tetrachloroethene	90		-		70-130	-		39
1,2-Dichloroethane	90		-		70-130	-		49
1,1,1-Trichloroethane	90		-		70-130	-		36
Benzene	95		-		65-135	-		61
Toluene	95		-		70-130	-		41
Ethylbenzene	90		-		60-140	-		63
Vinyl chloride	85		-		5-195	-		66
1,1-Dichloroethene	85		-		50-150	-		32
cis-1,2-Dichloroethene	90		-		60-140	-		30
Trichloroethene	85		-		65-135	-		48
1,2-Dichlorobenzene	85		-		65-135	-		57
1,3-Dichlorobenzene	80		-		70-130	-		43
1,4-Dichlorobenzene	85		-		65-135	-		57
p/m-Xylene	88		-		60-140	-		30
o-xylene	85		-		60-140	-		30
Acetone[1]	96		-		40-160	-		30
Methyl tert butyl ether	90		-		60-140	-		30
Tert-Butyl Alcohol	91		-		60-140	-		30
Tertiary-Amyl Methyl Ether	95		-		60-140	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002

Lab Number: L1827537
Report Date: 07/25/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1137825-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Pentafluorobenzene	103				60-140
Fluorobenzene	104				60-140
4-Bromofluorobenzene	93				60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: 150 SEAPORT BOULEVARD

Project Number: 132470-002

Lab Number: L1827537

Report Date: 07/25/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1138102-3								
1,4-Dioxane	120		-		60-140	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Fluorobenzene	113				60-140
4-Bromofluorobenzene	93				60-140

Matrix Spike Analysis

Batch Quality Control

Project Name: 150 SEAPORT BOULEVARD

Project Number: 132470-002

Lab Number: L1827537

Report Date: 07/25/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1137736-3 QC Sample: L1827153-01 Client ID: MS Sample													
1,2-Dibromoethane	ND	0.251	0.310	**124**	Q	-	-		80-120	-		20	A
1,2-Dibromo-3-chloropropane	ND	0.251	0.313	**125**	Q	-	-		80-120	-		20	A

SEMIVOLATILES

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002
Lab Number: L1827537
Report Date: 07/25/18

SAMPLE RESULTS

Lab ID: L1827537-01
Client ID: HA17-2 (OW)
Sample Location: BOSTON

Date Collected: 07/18/18 10:45
Date Received: 07/18/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 07/24/18 01:32
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 07/22/18 11:35

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--	1
Butyl benzyl phthalate	ND		ug/l	5.0	--	1
Di-n-butylphthalate	ND		ug/l	5.0	--	1
Di-n-octylphthalate	ND		ug/l	5.0	--	1
Diethyl phthalate	ND		ug/l	5.0	--	1
Dimethyl phthalate	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	105		15-314
2-Fluorobiphenyl	87		55-108
4-Terphenyl-d14	**115**	Q	52-109

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002
Lab Number: L1827537
Report Date: 07/25/18

SAMPLE RESULTS

Lab ID: L1827537-01
Client ID: HA17-2 (OW)
Sample Location: BOSTON

Date Collected: 07/18/18 10:45
Date Received: 07/18/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1-SIM
Analytical Date: 07/24/18 10:43
Analyst: DV

Extraction Method: EPA 625.1
Extraction Date: 07/22/18 11:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.10	--	1
Fluoranthene	ND		ug/l	0.10	--	1
Naphthalene	ND		ug/l	0.10	--	1
Benzo(a)anthracene	ND		ug/l	0.10	--	1
Benzo(a)pyrene	ND		ug/l	0.10	--	1
Benzo(b)fluoranthene	ND		ug/l	0.10	--	1
Benzo(k)fluoranthene	ND		ug/l	0.10	--	1
Chrysene	ND		ug/l	0.10	--	1
Acenaphthylene	ND		ug/l	0.10	--	1
Anthracene	ND		ug/l	0.10	--	1
Benzo(ghi)perylene	ND		ug/l	0.10	--	1
Fluorene	ND		ug/l	0.10	--	1
Phenanthrene	ND		ug/l	0.10	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--	1
Pyrene	ND		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	1.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	49		35-77
Phenol-d6	46		24-61
Nitrobenzene-d5	92		15-314
2-Fluorobiphenyl	71		55-108
2,4,6-Tribromophenol	89		52-123
4-Terphenyl-d14	85		52-109

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002
Lab Number: L1827537
Report Date: 07/25/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
Analytical Date: 07/23/18 23:19
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 07/22/18 11:35

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1138227-1					
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--
Butyl benzyl phthalate	ND		ug/l	5.0	--
Di-n-butylphthalate	ND		ug/l	5.0	--
Di-n-octylphthalate	ND		ug/l	5.0	--
Diethyl phthalate	ND		ug/l	5.0	--
Dimethyl phthalate	ND		ug/l	5.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	91		15-314
2-Fluorobiphenyl	81		55-108
4-Terphenyl-d14	98		52-109

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002
Lab Number: L1827537
Report Date: 07/25/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1-SIM
Analytical Date: 07/23/18 16:45
Analyst: DV

Extraction Method: EPA 625.1
Extraction Date: 07/22/18 11:50

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1138228-1					
Acenaphthene	ND		ug/l	0.10	--
Fluoranthene	ND		ug/l	0.10	--
Naphthalene	ND		ug/l	0.10	--
Benzo(a)anthracene	ND		ug/l	0.10	--
Benzo(a)pyrene	ND		ug/l	0.10	--
Benzo(b)fluoranthene	ND		ug/l	0.10	--
Benzo(k)fluoranthene	ND		ug/l	0.10	--
Chrysene	ND		ug/l	0.10	--
Acenaphthylene	ND		ug/l	0.10	--
Anthracene	ND		ug/l	0.10	--
Benzo(ghi)perylene	ND		ug/l	0.10	--
Fluorene	ND		ug/l	0.10	--
Phenanthrene	ND		ug/l	0.10	--
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--
Pyrene	ND		ug/l	0.10	--
Pentachlorophenol	ND		ug/l	1.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	50		35-77
Phenol-d6	38		24-61
Nitrobenzene-d5	91		15-314
2-Fluorobiphenyl	70		55-108
2,4,6-Tribromophenol	95		52-123
4-Terphenyl-d14	82		52-109

Lab Control Sample Analysis
Batch Quality Control

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002

Lab Number: L1827537
Report Date: 07/25/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1138227-2								
Bis(2-ethylhexyl)phthalate	85		-		29-137	-		30
Butyl benzyl phthalate	87		-		1-140	-		30
Di-n-butylphthalate	90		-		8-120	-		30
Di-n-octylphthalate	91		-		19-132	-		30
Diethyl phthalate	85		-		1-120	-		30
Dimethyl phthalate	83		-		1-120	-		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	97				15-314
2-Fluorobiphenyl	81				55-108
4-Terphenyl-d14	99				52-109

Lab Control Sample Analysis
Batch Quality Control

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002

Lab Number: L1827537
Report Date: 07/25/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1138228-2								
Acenaphthene	88		-		60-132	-		30
Fluoranthene	99		-		43-121	-		30
Naphthalene	85		-		36-120	-		30
Benzo(a)anthracene	90		-		42-133	-		30
Benzo(a)pyrene	94		-		32-148	-		30
Benzo(b)fluoranthene	94		-		42-140	-		30
Benzo(k)fluoranthene	95		-		25-146	-		30
Chrysene	92		-		44-140	-		30
Acenaphthylene	91		-		54-126	-		30
Anthracene	94		-		43-120	-		30
Benzo(ghi)perylene	81		-		1-195	-		30
Fluorene	92		-		70-120	-		30
Phenanthrene	90		-		65-120	-		30
Dibenzo(a,h)anthracene	83		-		1-200	-		30
Indeno(1,2,3-cd)pyrene	85		-		1-151	-		30
Pyrene	98		-		70-120	-		30
Pentachlorophenol	68		-		38-152	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: 150 SEAPORT BOULEVARD

Project Number: 132470-002

Lab Number: L1827537

Report Date: 07/25/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1138228-2								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	55				35-77
Phenol-d6	42				24-61
Nitrobenzene-d5	96				15-314
2-Fluorobiphenyl	74				55-108
2,4,6-Tribromophenol	95				52-123
4-Terphenyl-d14	88				52-109

PCBS

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002
Lab Number: L1827537
Report Date: 07/25/18

SAMPLE RESULTS

Lab ID: L1827537-01
Client ID: HA17-2 (OW)
Sample Location: BOSTON

Date Collected: 07/18/18 10:45
Date Received: 07/18/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 07/24/18 03:38
Analyst: JW

Extraction Method: EPA 608.3
Extraction Date: 07/22/18 14:09
Cleanup Method: EPA 3665A
Cleanup Date: 07/23/18
Cleanup Method: EPA 3660B
Cleanup Date: 07/23/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	ND		ug/l	0.250	--	1	A
Aroclor 1248	ND		ug/l	0.250	--	1	A
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	ND		ug/l	0.200	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	69		37-123	A
Decachlorobiphenyl	44		38-114	A
2,4,5,6-Tetrachloro-m-xylene	73		37-123	B
Decachlorobiphenyl	53		38-114	B

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002
Lab Number: L1827537
Report Date: 07/25/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 127,608.3
Analytical Date: 07/24/18 02:23
Analyst: JW

Extraction Method: EPA 608.3
Extraction Date: 07/22/18 14:09
Cleanup Method: EPA 3665A
Cleanup Date: 07/23/18
Cleanup Method: EPA 3660B
Cleanup Date: 07/23/18

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01 Batch: WG1138251-1						
Aroclor 1016	ND		ug/l	0.250	--	A
Aroclor 1221	ND		ug/l	0.250	--	A
Aroclor 1232	ND		ug/l	0.250	--	A
Aroclor 1242	ND		ug/l	0.250	--	A
Aroclor 1248	ND		ug/l	0.250	--	A
Aroclor 1254	ND		ug/l	0.250	--	A
Aroclor 1260	ND		ug/l	0.200	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	58		37-123	A
Decachlorobiphenyl	44		38-114	A
2,4,5,6-Tetrachloro-m-xylene	58		37-123	B
Decachlorobiphenyl	53		38-114	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: 150 SEAPORT BOULEVARD

Project Number: 132470-002

Lab Number: L1827537

Report Date: 07/25/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 Batch: WG1138251-2									
Aroclor 1016	77		-		50-140	-		36	A
Aroclor 1260	48		-		8-140	-		38	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	59				37-123	A
Decachlorobiphenyl	41				38-114	A
2,4,5,6-Tetrachloro-m-xylene	58				37-123	B
Decachlorobiphenyl	49				38-114	B

METALS

Project Name: 150 SEAPORT BOULEVARD
Lab Number: L1827537
Project Number: 132470-002
Report Date: 07/25/18

SAMPLE RESULTS

Lab ID: L1827537-01
Client ID: HA17-2 (OW)
Sample Location: BOSTON
Date Collected: 07/18/18 10:45
Date Received: 07/18/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.06686		mg/l	0.04000	--	10	07/19/18 10:15	07/20/18 10:39	EPA 3005A	3,200.8	AM
Arsenic, Total	0.01124		mg/l	0.01000	--	10	07/19/18 10:15	07/20/18 10:39	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00200	--	10	07/19/18 10:15	07/20/18 10:39	EPA 3005A	3,200.8	AM
Chromium, Total	ND		mg/l	0.01000	--	10	07/19/18 10:15	07/20/18 10:39	EPA 3005A	3,200.8	AM
Copper, Total	ND		mg/l	0.01000	--	10	07/19/18 10:15	07/20/18 10:39	EPA 3005A	3,200.8	AM
Iron, Total	2.04		mg/l	0.050	--	1	07/19/18 10:15	07/19/18 18:56	EPA 3005A	19,200.7	AB
Lead, Total	0.1200		mg/l	0.01000	--	10	07/19/18 10:15	07/20/18 10:39	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	07/19/18 15:37	07/19/18 21:17	EPA 245.1	3,245.1	EA
Nickel, Total	ND		mg/l	0.02000	--	10	07/19/18 10:15	07/20/18 10:39	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.05000	--	10	07/19/18 10:15	07/20/18 10:39	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00400	--	10	07/19/18 10:15	07/20/18 10:39	EPA 3005A	3,200.8	AM
Zinc, Total	0.3123		mg/l	0.1000	--	10	07/19/18 10:15	07/20/18 10:39	EPA 3005A	3,200.8	AM
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		07/20/18 10:39	NA	107,-	

Project Name: 150 SEAPORT BOULEVARD **Lab Number:** L1827537

Project Number: 132470-002 **Report Date:** 07/25/18

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1137309-1										
Iron, Total	ND		mg/l	0.050	--	1	07/19/18 10:15	07/19/18 17:40	19,200.7	AB

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1137320-1										
Antimony, Total	ND		mg/l	0.00400	--	1	07/19/18 10:15	07/20/18 10:06	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	07/19/18 10:15	07/20/18 10:06	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	07/19/18 10:15	07/20/18 10:06	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	07/19/18 10:15	07/20/18 10:06	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	07/19/18 10:15	07/20/18 10:06	3,200.8	AM
Lead, Total	ND		mg/l	0.00100	--	1	07/19/18 10:15	07/20/18 10:06	3,200.8	AM
Nickel, Total	ND		mg/l	0.00200	--	1	07/19/18 10:15	07/20/18 10:06	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	07/19/18 10:15	07/20/18 10:06	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	07/19/18 10:15	07/20/18 10:06	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	07/19/18 10:15	07/20/18 10:06	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1137470-1										
Mercury, Total	ND		mg/l	0.00020	--	1	07/19/18 15:37	07/19/18 20:47	3,245.1	EA

Prep Information

Digestion Method: EPA 245.1

Lab Control Sample Analysis

Batch Quality Control

Project Name: 150 SEAPORT BOULEVARD

Project Number: 132470-002

Lab Number: L1827537

Report Date: 07/25/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1137309-2								
Iron, Total	104		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1137320-2								
Antimony, Total	92		-		85-115	-		
Arsenic, Total	103		-		85-115	-		
Cadmium, Total	106		-		85-115	-		
Chromium, Total	102		-		85-115	-		
Copper, Total	101		-		85-115	-		
Lead, Total	100		-		85-115	-		
Nickel, Total	101		-		85-115	-		
Selenium, Total	104		-		85-115	-		
Silver, Total	108		-		85-115	-		
Zinc, Total	104		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1137470-2								
Mercury, Total	102		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002

Lab Number: L1827537
Report Date: 07/25/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1137309-3 QC Sample: L1827299-02 Client ID: MS Sample												
Iron, Total	42.0	1	42.6	**60**	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1137309-7 QC Sample: L1827537-01 Client ID: HA17-2 (OW)												
Iron, Total	2.04	1	2.88	84		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1137320-3 QC Sample: L1827537-01 Client ID: HA17-2 (OW)												
Antimony, Total	0.06686	0.5	0.7112	129		-	-		70-130	-		20
Arsenic, Total	0.01124	0.12	0.1386	106		-	-		70-130	-		20
Cadmium, Total	ND	0.051	0.05470	107		-	-		70-130	-		20
Chromium, Total	ND	0.2	0.1736	87		-	-		70-130	-		20
Copper, Total	ND	0.25	0.2408	96		-	-		70-130	-		20
Lead, Total	0.1200	0.51	0.5560	85		-	-		70-130	-		20
Nickel, Total	ND	0.5	0.4617	92		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1330	111		-	-		70-130	-		20
Silver, Total	ND	0.05	0.04651	93		-	-		70-130	-		20
Zinc, Total	0.3123	0.5	0.8197	101		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1137470-3 QC Sample: L1827097-01 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00444	89		-	-		70-130	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002

Lab Number: L1827537
Report Date: 07/25/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1137309-4 QC Sample: L1827299-02 Client ID: DUP Sample						
Iron, Total	42.0	40.6	mg/l	3		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1137309-8 QC Sample: L1827537-01 Client ID: HA17-2 (OW)						
Iron, Total	2.04	2.05	mg/l	0		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1137320-4 QC Sample: L1827537-01 Client ID: HA17-2 (OW)						
Antimony, Total	0.06686	0.06981	mg/l	4		20
Arsenic, Total	0.01124	0.01181	mg/l	5		20
Cadmium, Total	ND	ND	mg/l	NC		20
Chromium, Total	ND	ND	mg/l	NC		20
Copper, Total	ND	ND	mg/l	NC		20
Lead, Total	0.1200	0.1220	mg/l	2		20
Nickel, Total	ND	ND	mg/l	NC		20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	0.3123	0.3055	mg/l	2		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1137470-4 QC Sample: L1827097-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20

INORGANICS
&
MISCELLANEOUS

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002
Lab Number: L1827537
Report Date: 07/25/18

SAMPLE RESULTS

Lab ID: L1827537-01
Client ID: HA17-2 (OW)
Sample Location: BOSTON
Sample Depth:
Matrix: Water

Date Collected: 07/18/18 10:45
Date Received: 07/18/18
Field Prep: Refer to COC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total Suspended	5.8		mg/l	5.0	NA	1	-	07/19/18 21:30	121,2540D	CW
Cyanide, Total	ND		mg/l	0.005	--	1	07/19/18 13:00	07/19/18 15:31	121,4500CN-CE	LH
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	07/19/18 06:21	121,4500CL-D	UN
Nitrogen, Ammonia	0.276		mg/l	0.075	--	1	07/20/18 01:00	07/20/18 21:38	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	4.00	--	1	07/20/18 23:55	07/21/18 01:30	74,1664A	MM
Phenolics, Total	ND		mg/l	0.030	--	1	07/19/18 08:00	07/20/18 05:40	4,420.1	GD
Chromium, Hexavalent	ND		mg/l	0.010	--	1	07/19/18 02:18	07/19/18 02:46	1,7196A	UN
Anions by Ion Chromatography - Westborough Lab										
Chloride	17900		mg/l	250	--	500	-	07/20/18 23:07	44,300.0	AU

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002
Lab Number: L1827537
Report Date: 07/25/18

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1137196-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	07/19/18 02:18	07/19/18 02:45	1,7196A	UN
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1137243-1										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	07/19/18 06:21	121,4500CL-D	UN
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1137268-1										
Phenolics, Total	ND		mg/l	0.030	--	1	07/19/18 08:00	07/20/18 05:34	4,420.1	GD
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1137402-1										
Cyanide, Total	ND		mg/l	0.005	--	1	07/19/18 13:00	07/19/18 15:22	121,4500CN-CE	LH
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1137501-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	07/19/18 21:30	121,2540D	CW
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1137604-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	07/20/18 01:00	07/20/18 21:35	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1137900-1										
TPH, SGT-HEM	ND		mg/l	4.00	--	1	07/20/18 23:55	07/21/18 01:30	74,1664A	MM
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1137997-1										
Chloride	ND		mg/l	0.500	--	1	-	07/20/18 17:43	44,300.0	AU

Lab Control Sample Analysis

Batch Quality Control

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002

Lab Number: L1827537
Report Date: 07/25/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1137196-2								
Chromium, Hexavalent	95		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1137243-2								
Chlorine, Total Residual	97		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1137268-2								
Phenolics, Total	88		-		70-130	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1137402-2								
Cyanide, Total	102		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1137604-2								
Nitrogen, Ammonia	92		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1137900-2								
TPH	72		-		64-132	-		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG1137997-2								
Chloride	104		-		90-110	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002

Lab Number: L1827537
Report Date: 07/25/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1137196-4 QC Sample: L1827537-01 Client ID: HA17-2 (OW)												
Chromium, Hexavalent	ND	0.1	0.095	95		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1137243-4 QC Sample: L1827537-01 Client ID: HA17-2 (OW)												
Chlorine, Total Residual	ND	0.248	0.25	101		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1137268-4 QC Sample: L1827537-01 Client ID: HA17-2 (OW)												
Phenolics, Total	ND	0.4	0.16	**39**	Q	-	-		70-130	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1137402-4 QC Sample: L1826290-10 Client ID: MS Sample												
Cyanide, Total	0.165	0.2	0.350	92		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1137604-4 QC Sample: L1827537-01 Client ID: HA17-2 (OW)												
Nitrogen, Ammonia	0.276	4	4.04	94		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1137900-4 QC Sample: L1827615-02 Client ID: MS Sample												
TPH	ND	20.2	11.4	**56**	Q	-	-		64-132	-		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1137997-3 QC Sample: L1825890-01 Client ID: MS Sample												
Chloride	39.3	4	42.0	**68**	Q	-	-		90-110	-		18

Lab Duplicate Analysis

Batch Quality Control

Project Name: 150 SEAPORT BOULEVARD

Project Number: 132470-002

Lab Number: L1827537

Report Date: 07/25/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1137196-3 QC Sample: L1827537-01 Client ID: HA17-2 (OW)						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1137243-3 QC Sample: L1827537-01 Client ID: HA17-2 (OW)						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1137268-3 QC Sample: L1827537-01 Client ID: HA17-2 (OW)						
Phenolics, Total	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1137402-3 QC Sample: L1826290-10 Client ID: DUP Sample						
Cyanide, Total	0.165	0.161	mg/l	2		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1137501-2 QC Sample: L1827494-01 Client ID: DUP Sample						
Solids, Total Suspended	33	30	mg/l	10		29
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1137604-3 QC Sample: L1827537-01 Client ID: HA17-2 (OW)						
Nitrogen, Ammonia	0.276	0.278	mg/l	1		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1137900-3 QC Sample: L1827615-01 Client ID: DUP Sample						
TPH	ND	ND	mg/l	NC		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1137997-4 QC Sample: L1825890-01 Client ID: DUP Sample						
Chloride	39.3	39.2	mg/l	0		18

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002

Lab Number: L1827537
Report Date: 07/25/18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1827537-01A	Vial HCl preserved	B	NA		3.0	Y	Absent		624.1-RGP(14),624.1-SIM-RGP(14)
L1827537-01B	Vial HCl preserved	B	NA		3.0	Y	Absent		624.1-RGP(14),624.1-SIM-RGP(14)
L1827537-01C	Vial HCl preserved	B	NA		3.0	Y	Absent		624.1-RGP(14),624.1-SIM-RGP(14)
L1827537-01D	Vial Na2S2O3 preserved	B	NA		3.0	Y	Absent		504(14)
L1827537-01E	Vial Na2S2O3 preserved	B	NA		3.0	Y	Absent		504(14)
L1827537-01F	Plastic 250ml HNO3 preserved	B	<2	<2	3.0	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L1827537-01G	Amber 1000ml Na2S2O3	B	7	7	3.0	Y	Absent		PCB-608.3(7)
L1827537-01H	Amber 1000ml Na2S2O3	B	7	7	3.0	Y	Absent		PCB-608.3(7)
L1827537-01I	Amber 1000ml unpreserved	B	7	7	3.0	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1827537-01J	Amber 1000ml unpreserved	B	7	7	3.0	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1827537-01K	Plastic 950ml unpreserved	B	7	7	3.0	Y	Absent		CL-300(28),HEXCR-7196(1),HOLD-WETCHEM(),TRC-4500(1)
L1827537-01L	Plastic 500ml H2SO4 preserved	B	<2	<2	3.0	Y	Absent		NH3-4500(28)
L1827537-01M	Plastic 250ml NaOH preserved	B	>12	>12	3.0	Y	Absent		TCN-4500(14)
L1827537-01N	Amber 1000ml HCl preserved	B	NA		3.0	Y	Absent		TPH-1664(28)
L1827537-01P	Amber 1000ml HCl preserved	B	NA		3.0	Y	Absent		TPH-1664(28)
L1827537-01Q	Amber 950ml H2SO4 preserved	B	<2	<2	3.0	Y	Absent		TPHENOL-420(28)
L1827537-01R	Plastic 950ml unpreserved	B	7	7	3.0	Y	Absent		TSS-2540(7)
L1827537-01S	Vial HCl preserved	B	NA		3.0	Y	Absent		SUB-ETHANOL(14)
L1827537-01T	Vial HCl preserved	B	NA		3.0	Y	Absent		SUB-ETHANOL(14)
L1827537-01U	Vial HCl preserved	B	NA		3.0	Y	Absent		SUB-ETHANOL(14)
L1827537-01V	Plastic 250ml HNO3 preserved	B	<2	<2	3.0	Y	Absent		HOLD-METAL-DISSOLVED(180)

*Values in parentheses indicate holding time in days

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002

Lab Number: L1827537
Report Date: 07/25/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)

*Values in parentheses indicate holding time in days

Project Name:	150 SEAPORT BOULEVARD	**Lab Number:**	L1827537
Project Number:	132470-002	**Report Date:**	07/25/18

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample¿s toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

1	- The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Report Format: Data Usability Report

Project Name:	150 SEAPORT BOULEVARD	**Lab Number:**	L1827537
Project Number:	132470-002	**Report Date:**	07/25/18

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name:	150 SEAPORT BOULEVARD	**Lab Number:**	L1827537
Project Number:	132470-002	**Report Date:**	07/25/18

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

4 Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. Revised March 1983.

14 Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water. EPA/600/4-88/039, Revised July 1991.

19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.

74 Method 1664,Revision A: N-Hexane Extractable Material (HEM; Oil & Grease) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry, EPA-821-R-98-002, February 1999.

107 Alpha Analytical - In-house calculation method.

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

127 Method 608.3: Organochlorine Pesticides and PCBs by GC/HSD, EPA 821-R-16-009, December 2016.

128 Method 624.1: Purgeables by GC/MS, EPA 821-R-16-008, December 2016.

129 Method 625.1: Base/Neutrals and Acids by GC/MS, EPA 821-R-16-007, December 2016.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 300: DW: Bromide
EPA 6860: SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.**
EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Be, Cd, Cr, Cu, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581 — 8 Walkup Dr. — TEL: 508-898-9220 — FAX: 508-898-9193
Mansfield, MA 02048 — 320 Forbes Blvd — TEL: 508-822-9300 — FAX: 508-822-3288

Service Centers
Brewer, ME 04412 Portsmouth, NH 03801 Mahwah, NJ 07430 Albany, NY 12205
Tonawanda, NY 14150 Holmes, PA 19043

Page [of (

Date Rec'd in Lab: 07/18/18

ALPHA Job #: L1827537

H&A Information
- H&A Client: The Cronin Group, LLC
- H&A Address: 150 Seaport Boulevard, Boston
- H&A Phone:
- H&A Fax:
- H&A Email:

Project Information
- Project Name: 150 Seaport Boulevard
- Project Location: Boston
- Project #: 132470-002
- (Use Project name as Project #) ☐
- Project Manager: Lee Vanzler
- ALPHAQuote #:

Turn-Around Time
- Standard ☑ Due Date:
- Rush (only if pre approved) ☐ # of Days:

Deliverables
- ☐ Email ☐ Fax
- ☐ EQuIS (1 File) ☐ EQuIS (4 File)
- ☐ Other:

Billing Information
- ☐ Same as Client Info
- PO #

Regulatory Requirements (Program/Criteria)
Note: Select State from menu & identify criteria.

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
- ☐ NJ ☐ NY
- ☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:
TCLP , HEX CR IF TRIGGERED

Please specify Metals or TAL.

ANALYSIS
NYDEC-RCP

Sample Filtration
- ☐ Done
- ☐ Lab to do

Preservation
- ☐ Lab to do

(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	Depth	Sample Specific Comments	Total Bottles
27537-01	HA17-2 (GW)	7-16-18	1045	WATER	DRW	GW	X	See attached page (EIC) for corrected analytes	21

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

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

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type													
Preservative													

Relinquished By:	Date/Time	Received By:	Date/Time
	7-18-18	RAO'Brien	7/18/18 5:00
RAO'Brien	7/18/18 5:00		7/18/18 1715
	7/18/18 1840		7/18/18 1840

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. Alpha Analytical's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement# 2015-18-Alpha Analytical by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and Alpha Analytical.

Document ID: 20455 Rev 2 (8/9/2016)

CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581 — 8 Walkup Dr. — TEL: 508-898-9220 — FAX: 508-898-9193

Mansfield, MA 02048 — 320 Forbes Blvd — TEL: 508-822-9300 — FAX: 508-822-3288

Service Centers: Brewer, ME 04412 — Portsmouth, NH 03801 — Mahwah, NJ 07430 — Albany, NY 12205 — Tonawanda, NY 14150 — Holmes, PA 19043

Page 1 of 1

Date Rec'd in Lab: 07/18/18

ALPHA Job #: L1827537

Project Information

Project Name: 150 Seaport Boulevard

Project Location: Boston, MA

Project #: 132470-002

(Use Project name as Project #) ☐

Project Manager: Lee Vanzler

ALPHAQuote #:

Turn-Around Time

Standard ☑ Due Date:

(only if pre approved) ☐ # of Days:

H&A Information

H&A Client: The Cronin Group, LLC

H&A Address: 465 Medford St, Boston, MA 0212-1400

H&A Phone: 617-886-7400

H&A Fax: echristmas@haleyaldrich.com

H&A Email: lvanzler@haleyaldrich.com

Deliverables

☑ Email ☐ Fax

☐ EQuIS (1 File) ☐ EQuIS (4 File)

☐ Other:

Regulatory Requirements (Program/Criteria)

Note: Select State from menu & identify criteria.

Billing Information

☑ Same as Client Info

PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.

Disposal Facility: ☐ NJ ☐ NY

Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

3. HOLD PACN & ACN 13. Dissolved Metals ON HOLD (Field Filtered)

Please sample per EPA Approved 2017 RGP Permit methods

Please specify Metals or TAL.

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	1. TSS - 2540	2. TRC-4500	3. TCN-4500 HOLD PACN & ACN	4. 504	5. 8260 & 8260 SIM for Dioxane, or applicable method	6. HEXCR-3500 & Trivalent Chromium	7. TPHENOL-420	8. 8270TCL (including Diethylhexylphthalate)	9. 8270TCL-SIM, or applicable method	10. CL-300	11. Total Metals - Ag, As, Cd, Cr, Cu, Ni, Pb, Sb, Se, Zn, Fe, Hg	12. Ammonia	13.Diss. Metals-Ag,As,Cd,Cr, Cu,Ni, Pb,Sb,Se,Zn,Fe,Hg	14. A2-ALCOHOL (Ethanol)	15. TPH-1664	16. PCB-608
27537-01	HA17-2 (OW)			AQ		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Sample Filtration

☐ Done ☐ Lab to do

Preservation ☐ Lab to do

(Please Specify below)

Sample Specific Comments

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, K/E = Zn Ac/NaOH, O = Other

Container Code: P = Plastic, A = Amber Glass, V = Vial, G = Glass, B = Bacteria Cup, C = Cube, O = Other, E = Encore, D = BOD Bottle

Westboro: Certification No: MA935

Mansfield: Certification No: MA015

Container Type

Preservative

Relinquished By:	Date/Time	Received By:	Date/Time

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. Alpha Analytical's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement# 2015-18-Alpha Analytical by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and Alpha Analytical.

Document ID: 20455 Rev 1 (1/26/2016)

ALPHA ANALYTICAL
World Class Chemistry

Subcontract Chain of Custody

Test America (Nashville)
2960 Foster Creighton Drive
Nashville, TN 37204

Alpha Job Number
L1827537

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 603.319.5010 Email: mgulli@alphalab.com	Project Location: MA Project Manager: Melissa Gulli **Turnaround & Deliverables Information** Due Date: 07/30/18 Deliverables:	State/Federal Program: Regulatory Criteria: RCS-1-14;S1/G1-14

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L1827537

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com NPDES

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	HA17-2 (OW)	07-18-18 10:45	WATER	Ethanol by EPA 1671 Revision A	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
	AAL	7/19/18		
Form No: AL_subcoc				

ANALYTICAL REPORT

Lab Number:	L1830713
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Lee Vanzler
Phone:	(617) 886-7561
Project Name:	150 SEAPORT BOULEVARD
Project Number:	132470-002
Report Date:	08/13/18

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

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002

Lab Number: L1830713
Report Date: 08/13/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1830713-01	HA17-2 (OW)	WATER	BOSTON	07/18/18 10:45	07/18/18

Project Name: 150 SEAPORT BOULEVARD **Lab Number:** L1830713
Project Number: 132470-002 **Report Date:** 08/13/18

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

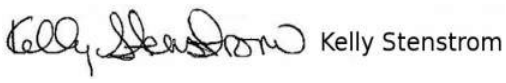
In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:  Kelly Stenstrom

Title: Technical Director/Representative Date: 08/13/18

METALS

Project Name: 150 SEAPORT BOULEVARD
Lab Number: L1830713
Project Number: 132470-002
Report Date: 08/13/18

SAMPLE RESULTS

Lab ID: L1830713-01
Client ID: HA17-2 (OW)
Sample Location: BOSTON
Date Collected: 07/18/18 10:45
Date Received: 07/18/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	0.1200		mg/l	0.0100	--	10	07/19/18 10:15	07/20/18 10:39	EPA 3005A	3,200.8	AM

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002
Lab Number: L1830713
Report Date: 08/13/18

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01 Batch: WG1145730-1										
Lead, Dissolved	ND		mg/l	0.0010	--	1	07/19/18 10:15	07/20/18 10:06	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: 150 SEAPORT BOULEVARD

Project Number: 132470-002

Lab Number: L1830713

Report Date: 08/13/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1145730-2								
Lead, Dissolved	100		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002

Lab Number: L1830713
Report Date: 08/13/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1145730-3 QC Sample: L1830713-01 Client ID: HA17-2 (OW)												
Lead, Dissolved	0.1200	0.51	0.5560	85		-	-		70-130	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: 150 SEAPORT BOULEVARD

Project Number: 132470-002

Lab Number: L1830713

Report Date: 08/13/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1145730-4 QC Sample: L1830713-01 Client ID: HA17-2 (OW)						
Lead, Dissolved	0.1200	0.1220	mg/l	2		20

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002

Lab Number: L1830713
Report Date: 08/13/18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1830713-01A	Plastic 250ml HNO3 preserved	B	<2	<2	3.0	Y	Absent		PB-2008S(180)

*Values in parentheses indicate holding time in days

Project Name:	150 SEAPORT BOULEVARD	**Lab Number:**	L1830713
Project Number:	132470-002	**Report Date:**	08/13/18

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample¿s toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

1	- The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Report Format: Data Usability Report

Project Name:	150 SEAPORT BOULEVARD	**Lab Number:**	L1830713
Project Number:	132470-002	**Report Date:**	08/13/18

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name:	150 SEAPORT BOULEVARD	**Lab Number:**	L1830713
Project Number:	132470-002	**Report Date:**	08/13/18

REFERENCES

3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 300: DW: Bromide
EPA 6860: SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.**
EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Be, Cd, Cr, Cu, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

L1830713

CHAIN OF CUSTODY

ALPHA

Service Centers
Brewer, ME 04412 Portsmouth, NH 03801 Mahwah, NJ 07430 Albany, NY 12205 Tonawanda, NY 14150 Holmes, PA 19043

Westborough, MA 01581, 8 Walkup Dr., TEL: 508-898-9220, FAX: 508-898-9193
Mansfield, MA 02048, 320 Forbes Blvd, TEL: 508-822-9300, FAX: 508-822-3288

Page 1 of 1

Date Rec'd in Lab: 07/18/18

ALPHA Job #: ~~L18?????~~ BB 8/7/18

Project Information	
Project Name:	150 Seaport Boulevard
Project Location:	Boston
Project #	132470-002
(Use Project name as Project #) ☐	
Project Manager:	Lee Vanzler
ALPHAQuote #:	

H&A Information	
H&A Client:	The Cronin Group, LLC
H&A Address:	150 Seaport Boulevard, Boston
H&A Phone:	
H&A Fax:	
H&A Email:	

Turn-Around Time
Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ Email ☐ Fax
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other:

Regulatory Requirements (Program/Criteria)
Note: Select State from menu & identify criteria.

Billing Information
☐ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:
TCLP , HEX CR IF TRIGGERED

Please specify Metals or TAL.

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	Depth	~~NPDES-RGP~~	PB-20085	Sample Specific Comments	Total Bottles
~~27539-01~~ (BB) 0713-01	HA17-2 (OW)	7-18-18	1045	WATER	DRW	GW	~~X~~	X	See attached page (EXC) for corrected analytes	2

Preservative Code	Container Code
A = None	P = Plastic
B = HCl	A = Amber Glass
C = HNO_3	V = Vial
D = H_2SO_4	G = Glass
E = NaOH	B = Bacteria Cup
F = MeOH	C = Cube
G = $NaHSO_4$	O = Other
H = $Na_2S_2O_3$	E = Encore
K/E = Zn Ac/NaOH	D = BOD Bottle
O = Other	

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	7-18-18	RA Olivia [signature]	7/18/18 5:00
RA Olivia [signature]	7/18/18 5:00	[signature] AAL	7/18/18 1715
[signature]	7/18/18 1840	[signature]	7/18/18 1840

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. Alpha Analytical's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement# 2015-18-Alpha Analytical by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and Alpha Analytical.

Document ID: 20455 Rev 2 (8/9/2016)

ANALYTICAL REPORT

Lab Number:	L1839688
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Lee Vanzler
Phone:	(617) 886-7561
Project Name:	150 SEAPORT BOULEVARD
Project Number:	132470-002
Report Date:	10/08/18

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

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

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002

Lab Number: L1839688
Report Date: 10/08/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1839688-01	HA17-2(OW)	WATER	BOSTON, MA	10/02/18 09:25	10/02/18

Project Name:	150 SEAPORT BOULEVARD	**Lab Number:**	L1839688
Project Number:	132470-002	**Report Date:**	10/08/18

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	N/A
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	N/A
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES

A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	YES
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	YES
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	NO

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002
Lab Number: L1839688
Report Date: 10/08/18

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002
Lab Number: L1839688
Report Date: 10/08/18

Case Narrative (continued)

MCP Related Narratives

Total Metals

In reference to question I:

All samples were analyzed for a subset of MCP analytes per client request.

Dissolved Metals

In reference to question I:

All samples were analyzed for a subset of MCP analytes per client request.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 10/08/18

METALS

Project Name: 150 SEAPORT BOULEVARD
Lab Number: L1839688
Project Number: 132470-002
Report Date: 10/08/18

SAMPLE RESULTS

Lab ID: L1839688-01
Client ID: HA17-2(OW)
Sample Location: BOSTON, MA
Date Collected: 10/02/18 09:25
Date Received: 10/02/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Lead, Total	0.202		mg/l	0.010	--	1	10/04/18 16:00	10/05/18 01:28	EPA 3005A	97,6010D	AB
MCP Dissolved Metals - Mansfield Lab											
Lead, Dissolved	0.228		mg/l	0.010	--	1	10/06/18 10:10	10/08/18 11:20	EPA 3005A	97,6010D	LC

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002
Lab Number: L1839688
Report Date: 10/08/18

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1164339-1										
Lead, Total	ND		mg/l	0.010	--	1	10/04/18 16:00	10/04/18 23:17	97,6010D	AB

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab for sample(s): 01 Batch: WG1165041-1										
Lead, Dissolved	ND		mg/l	0.010	--	1	10/06/18 10:10	10/08/18 10:17	97,6010D	LC

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: 150 SEAPORT BOULEVARD

Project Number: 132470-002

Lab Number: L1839688

Report Date: 10/08/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1164339-2 WG1164339-3								
Lead, Total	110		108		80-120	2		20
MCP Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1165041-2 WG1165041-3								
Lead, Dissolved	102		104		80-120	2		20

Project Name: 150 SEAPORT BOULEVARD
Project Number: 132470-002

Lab Number: L1839688
Report Date: 10/08/18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1839688-01A	Plastic 250ml HNO3 preserved	A	<2	<2	4.1	Y	Absent		MCP-PB-6010T-10(180)
L1839688-01B	Plastic 250ml HNO3 preserved	A	<2	<2	4.1	Y	Absent		MCP-PB-6010S-10(180)

*Values in parentheses indicate holding time in days

Project Name:	150 SEAPORT BOULEVARD	**Lab Number:**	L1839688
Project Number:	132470-002	**Report Date:**	10/08/18

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample¿s toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

1	- The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Report Format: Data Usability Report

Project Name:	150 SEAPORT BOULEVARD	**Lab Number:**	L1839688
Project Number:	132470-002	**Report Date:**	10/08/18

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name:	150 SEAPORT BOULEVARD	**Lab Number:**	L1839688
Project Number:	132470-002	**Report Date:**	10/08/18

REFERENCES

97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 300: DW: Bromide
EPA 6860: SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.**
EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Be, Cd, Cr, Cu, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Brewer, ME 04412 Portsmouth, NH 03801 Mahwah, NJ 07430
Albany, NY 12205
Tonawanda, NY 14150 Holmes, PA 19043

Page of

Date Rec'd in Lab: 10/2/18

ALPHA Job #: L1839688

H&A Information

H&A Client:	Cronin Holdings, L.P.
H&A Address:	465 Medford Street
Boston, MA 02129	
H&A Phone:	617-886-7400
H&A Fax:	echristmas@haleyaldrich.com
H&A Email:	kchatterton@haleyaldrich.com

Project Information

Project Name:	150 Seaport Boulevard
Project Location:	Boston, MA
Project #	132470-002
(Use Project name as Project #)	☐
Project Manager:	Lee Vanzler, Mike Cronan
ALPHAQuote #:	6339

Turn-Around Time

Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days: 5 Day

Deliverables

☑ Email ☐ Fax
☐ EQuIS (1 File) ☑ EQuIS (4 File)
☐ Other:

Billing Information

☑ Same as Client Info
PO #

Regulatory Requirements (Program/Criteria)

Note: Select State from menu & identify criteria.

Disposal Site Information

Please identify below location of applicable disposal facilities.

Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

2. Field filtered

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☑ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	1. Total Lead	2. Dissolved Lead (FF)	Sample Specific Comments	Total Bottles
39688 - 01	HA17-2(OW)	10-2-18	0925	AQ	DRW	X	X	Dissolved Pb = field filtered	2

Container Type			P	P					
Preservative			C	C					

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

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

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
	10-2-18		10/2/18 1613
	10/2/18 16:30	AAL	10/2/18 1630
AAL	10/2 1810		10/2 18 1810

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. Alpha Analytical's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement# 2015-18-Alpha Analytical by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and Alpha Analytical.

Document ID: 20455 Rev 1 (1/28/2016)