



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

4 May 2021
File No. 129198-009

Environmental Protection Agency (EPA) Region 1
5 Post Office Square, Suite 100
Mail Code OEP06-4
Boston, Massachusetts 02109

Attention: Ms. Shauna Little
EPA/OEP RGP Applications Coordinator

Subject: NPDES RGP Application for Temporary Construction Dewatering
60 Kilbarnock Street
Boston, Massachusetts

Dear Ms. Little:

On behalf of our client, 60 Kilbarnock (Boston) Owner, LLC, Haley & Aldrich, Inc. (Haley & Aldrich) is submitting this application to request authorization under the National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) for off-site discharge of temporary construction dewatering effluent during construction activities for the construction of the 60 Kilbarnock Street Project. A copy of the Notice of Intent (NOI) is included in Appendix A.

A. GENERAL SITE DESCRIPTION

A.1 Site and Work Description

The site is located at the intersection of Kilbarnock and Queensberry Streets in Boston, Massachusetts as generally shown on the attached Figure 1. The site consists of four parcels totaling approximately 1.7 acres, surrounded by city streets and adjacent structures in a residential and commercial neighborhood. Existing grades within the limits of the site vary from El. 10.5 to El. 16 and adjacent street grades along Kilbarnock Street and Queensberry Street range from approximately El. 16 to El. 16.5. The site is currently occupied by two, two story parking garages with partial basement levels, a one-story commercial building with a basement, and surface parking.

The proposed development consists of two, 8-story residential buildings (Building 1A and 1B) which will occupy the majority of the site footprint. The buildings are planned to have one basement level with a slab at approximately El. 4. New site utilities including stormwater infiltration are also planned. Final site grades will closely match existing adjacent street and alley grades.

Dewatering is anticipated to be required to allow for building and utility construction in the dry. Additional dewatering effluent may also be generated from surface runoff due to precipitation, and construction-generated water (e.g., wheel washes, decontamination activities). Temporary construction dewatering is anticipated to begin in August 2021 and is estimated to occur intermittently over a period of approximately 24 months.

A.2 MCP Regulatory Compliance Status in Work Zone Areas

The work described above will be located within the limits of three Massachusetts Contingency Plan (310 CMR 40.0000) (MCP) Disposal Sites as summarized below. Approximate Disposal Site boundaries are shown on Figure 2.

- Release Tracking Number (RTN) 3-34561 is associated with lead, antimony, arsenic, polycyclic aromatic hydrocarbons (PAHs) and petroleum hydrocarbons detected in soil during due diligence and soil precharacterization investigations. The release was initially reported to the Massachusetts Department of Environmental Protection (MassDEP) on 19 October 2017 and a Phase I Initial Site Assessment, Tier II Classification and Conceptual Phase II Scope of Work was submitted to MassDEP on 18 October 2018. Contamination is associated with historic site filling and site use. A revised Release Notification Form (RNF) was submitted to MassDEP on 6 February 2020 to update types and concentrations of constituents detected following additional site precharacterization.
- RTN 3-34562 is associated with gasoline-related compounds (volatile petroleum hydrocarbons and benzene) in groundwater and benzene in soil in the area south of the 59 Queensberry Street garage. The release is associated with a gasoline underground storage tank (UST) historically located in that area. The release to groundwater was initially reported to MassDEP on 19 October 2017 and a Phase I Initial Site Assessment, Tier II Classification and Conceptual Phase II Scope of Work was submitted to MassDEP on 18 October 2018. A revised RNF was submitted to MassDEP 6 February 2020 to report the detection of benzene in soil.
- RTN 3-20681 is associated with petroleum hydrocarbons detected in soil samples collected near the location of two fuel oil and one gasoline UST formerly located south of the 59 Queensberry Garage and removed in 1999 (including the same UST described in relation to RTN 3-34562 above). Excavation and removal of petroleum impacted soil was performed as a Limited Removal Action (LRA) and Release Abatement Measure (RAM), but residual concentrations remained. Groundwater was not encountered nor evaluated in relationship to RTN 3-20681. A Class A-2 Response Action Outcome (RAO), equivalent to a Permanent Solution with No Conditions Statement, was filed for the Site in August 2001.

Work will be performed under a RAM Plan under RTNs 3-34561 and 3-34562.

B. RECEIVING WATER INFORMATION

Receiving water quality data was collected by Haley & Aldrich on 5 May 2020. The laboratory data results are summarized in Table I. Receiving water temperature was obtained in the field and is noted on the effluent limitations input calculation page in Appendix B. The sample was collected at the approximate location of the outfall intended to be used for dewatering, BWSC outfall SDO 042. The laboratory data report is provided in Appendix C.

The seven-day-ten-year flow (7Q10) of the receiving water was established using the U.S. Geological Survey (USGS) StreamStats program and confirmed by Massachusetts Department of Environmental Protection (MassDEP) on 20 April 2021. The StreamStats report, Dilution Factor calculations, and MassDEP confirmation of the 7Q10 and DF are included in Appendix B.

A copy of the Excel file “MALimitsBookRev1” provided as an additional resource by EPA is included in Appendix B and will be transmitted electronically with the NOI.

C. SOURCE WATER INFORMATION

To evaluate groundwater (source water) quality at the site, a groundwater sample was obtained from observation well OW-3 on 5 May 2020. The sample was submitted to Alpha Analytical, Inc. of Westborough, Massachusetts (Alpha Analytical) for analysis of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), total metals, pH, polychlorinated biphenyls (PCBs), chloride, total residual chlorine, total cyanide, ammonia nitrogen, total phenolics, total suspended solids (TSS), and total petroleum hydrocarbons (TPH). We note that the sample was collected in May 2020 as a NOI was initially planned for submission at that time, but was not completed due to changes in project schedule. Based on conversations with EPA, we understand that this source water sample can be used to support a permit application up until 5 May 2021 under the existing data provisions of the RGP. Source water quality data is summarized on Table I and its sampling location is shown on Figure 2. Laboratory data reports are included in Appendix C.

In addition to the source water sample collected 5 May 2020, additional groundwater data from the site has been collected as part of MCP investigations related to RTNs 3-34561 and 3-34562. This data is presented as supplemental information on Table I. In some cases, the supplemental groundwater data was analyzed using methods and/or detection limits that were different than those required by the RGP. However, the 5 May 2020 groundwater sample was analyzed using the required methods and detection limits.

Many of the supplemental groundwater samples presented on Table I were collected from within the Disposal Site boundary associated with RTN 3-34562, which represents a small portion of the site as shown on Figure 2, to investigate petroleum impacts in this area. This data was included in the site-wide average and maximum values reported on the NOI Section D.4., but is likely a conservative estimate of the actual influent.

D. DISCHARGE INFORMATION

Construction dewatering is anticipated to be performed using a single dewatering system. The approximate location of the proposed discharge locations are shown on Figure 2. The proposed storm drains and discharge route flows into the Charles River via an existing BWSC outfall (SDO 042) shown on Figure 3A and 3B. We anticipate effluent discharge rates to be about 100 gallons per minute (gpm) or less, with occasional peak flows (maximum design flow) of about 200 gpm during significant precipitation events. The temporary dewatering will take place in excavations and will be conducted with sumps.

E. DEWATERING TREATMENT SYSTEM INFORMATION

The effluent treatment systems will be designed and implemented by the Contractor to meet the applicable 2017 RGP Discharge Effluent Criteria. Prior to discharge, collected water will be routed through a sedimentation tank and bag filters to remove suspended solids and undissolved chemical constituents, as shown on Figure 4. Additional treatment may include granulated activated carbon (GAC), a chemically aided settling system, ion exchange, and pH adjustment. The catch basin locations proposed for discharge are shown on Figure 2.

F. TREATMENT CHEMICALS AND ADDITIVES INFORMATION

If necessary, to meet the 2017 RGP Discharge Effluent Criteria, additional treatment including GAC, a chemically aided settling system, ion exchange, and pH adjustment may be added to the treatment system.

Product information for the proposed GAC and ion exchange systems, including Safety Data Sheets (SDSs), associated hazards, manufacturer, and proper system operation, are provided in Appendix D.

pH adjustment, if required, will be conducted using sulfuric acid or sodium hydroxide that will be dosed to reduce or increase pH using a metered system. Product information, including chemical formula, SDS, CAS registry number, manufacturer, and associated hazards, toxicological and ecological information, and manufacturer information, including dosing and metering, are provided in Appendix D. The sulfuric acid or sodium hydroxide will be stored in 55-gallon drums with secondary containment systems in place; a summary of control measures for proper handling and spill prevention is provided in Appendix D. The addition of sulfuric acid or sodium hydroxide control pH is a standard treatment for temporary construction dewatering; it is not expected to exceed applicable permit limitations and water quality standards or alter conditions in the receiving water. No additional testing is considered necessary for use of this product or to demonstrate that use of this product will not adversely affect the receiving water.

If necessary, a chemical aided settling system may be added to the treatment system. The system would allow of the application of coagulant and nonionic dry polymer. The product information for the proposed coagulant and dry polymer, including product name, manufacturer, purpose and use,

associated hazards and risks, reported aquatic toxicity (LC_{50}), and proper handling and storage measures, are included in the attached SDSs. The coagulant and dry polymer is considered a typical treatment for temporary construction dewatering; addition of these compounds is not expected to add pollutants in concentrations which exceed permit effluent limitations or applicable water quality standards or alter conditions in receiving water. No additional testing is considered to be necessary for use of these products or to demonstrate that use of these products will not adversely affect the receiving water.

The dosing concentration for both the coagulant and dry polymer typically ranges from 25-50 parts per million (ppm). The actual dosing concentration is based on visual observations in the field and will be adjusted and calibrated by the operator during startup of the additional components to achieve the appropriate set-point for the system. Dosing is continuous at the set concentration while the system is running.

It is important to note that although the dosing concentration is 25-50 ppm, the detected concentration in the carryover (post bag filter) is in the parts per trillion (ppt) range (about 6 orders of magnitude less than the dosing concentration). This is because nearly all the applied chemical becomes incorporated in the sludge and removed from the waste stream as a solid from the weir tank and as part of typical system operations and maintenance.

G. 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 E. 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.

H. DOCUMENTATION OF NATIONAL HISTORIC PRESERVATION ACT 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 F.

I. SUPPLEMENTAL INFORMATION

Permits for temporary construction dewatering will also be required from the Boston Water and Sewer Commission (BWSC). The permit application is being submitted concurrently with this NOI. A copy of the BWSC Permit Application is included in Appendix G.

Owner and operator information are provided below for reference:

Owner:

60 Kilbarnock (Boston) Owner LLC
c/o Cabot, Cabot & Forbes
185 Dartmouth Street
Boston, MA 02116
Attn: John Sullivan

Operator:

Consigli Construction Company
266 Summer Street
Boston, MA 02210
Attn: Christopher Scarvalas, Project Executive

60 Kilbarnock (Boston) Owner LLC and Consigli Construction Company are seeking coverage under the RGP as co-permittees.

CLOSING

Thank you very much for your consideration. Please feel free to contact us should you wish to discuss the information contained herein or if you need additional information.

Sincerely yours,
HALEY & ALDRICH, INC.



Elizabeth L. White, EIT
Environmental Engineer



Beck Straley, LSP (MA)
Senior Project Manager

Enclosures:

Table I – Summary of Source Water Quality Data
Figure 1 – Project Locus
Figure 2 – Site and Subsurface Exploration Location Plan
Figure 3A and 3B – Dewatering Discharge Route
Figure 4 – Proposed Treatment System Schematic
Appendix A – Notice of Intent (NOI)
Appendix B – Effluent Limitations Documentation
Appendix C – Chemicals and Additives Information
Appendix D – Endangered Species Act Assessment
Appendix E – National Historic Preservation Act Review
Appendix F – Copies of Construction Dewatering Permit Applications
Appendix G – Laboratory Data Reports

c: 60 Kilbarnock Boston (Owner) LLC; John Sullivan, Jacob Vance
Consigli; Attn: Chris Scarvalas
BWSC; Attn: Jodi Dobay
MassDEP, Attn: Catherine Vakalopoulos

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TABLE

TABLE I
SUMMARY OF ANALYTICAL RESULTS
60 KILMARNOCK (BOSTON) OWNER, LLC
60 KILMARNOCK STREET
BOSTON, MA

	Sample Type	Action Level	RECEIVING WATER SAMPLE	NPDES SOURCE SAMPLE							
	Location Name	MCP	CHARLES-SDO	OW-3	HA16-4	BGWT-1	HA16-05 (OW)	HA16-2(OW)	HA16-3(OW)	HA16-5(OW)	HA17-5
	Sample Name	Reportable	CHARLES-SDO-042_05052020	OW-3-NPDES_05052020	HA16-4-20161115	BGWT-1_2017-1107	HA16-05 (OW)	HA16-2(OW)-20161117	HA16-3(OW)-20161117	HA16-5(OW)-20161117	HA17-5(OW)-20171204
	Sample Date	Concentration	05/05/2020	05/05/2020	11/15/2016	11/07/2017	11/18/2016	11/17/2016	11/17/2016	11/17/2016	12/04/2017
	Lab Sample ID	RCGW-2	L2018518-02	L2018518-01	L1637094-01	L1741042-01	L1637787-01	L1637534-01	L1637534-02	L1637534-03	L1744381-01
Volatile Organic Compounds (ug/L)											
1,2,4-Trimethylbenzene	100000	-	-	ND (12)	-	-	-	-	ND (2)	-	-
1,3,5-Trimethylbenzene	1000	-	-	ND (12)	-	-	-	-	ND (2)	-	-
2-Butanone (Methyl Ethyl Ketone)	50000	-	-	ND (25)	-	-	-	-	ND (5)	-	-
2-Phenylbutane (sec-Butylbenzene)	NA	-	-	3	-	-	-	-	ND (2)	-	-
Acetone	50000	-	ND (10)	ND (25)	-	-	-	-	6.3	-	-
Benzene	1000	-	28	6.5	-	-	-	-	ND (0.5)	-	-
Ethylbenzene	5000	-	ND (1)	ND (2.5)	-	-	-	-	ND (1)	-	-
Isopropylbenzene (Cumene)	100000	-	-	7	-	-	-	-	ND (2)	-	-
Methyl Tert Butyl Ether	5000	-	12	28	-	-	-	-	ND (2)	-	-
n-Butylbenzene	NA	-	-	ND (2.5)	-	-	-	-	ND (2)	-	-
n-Propylbenzene	10000	-	-	ND (2.5)	-	-	-	-	ND (2)	-	-
Tert-Butyl Alcohol (tert-Butanol)	NA	-	250	78	-	-	-	-	-	-	-
Toluene	40000	-	ND (1)	ND (3.8)	-	-	-	-	ND (1)	-	-
Xylene (total)	3000	-	ND (1)	ND (5)	-	-	-	-	ND (1)	-	-
Total BTEX	NA	-	28.	6.5	-	-	-	-	ND	-	-
Semi-Volatile Organic Compounds (ug/L)											
Total Group I PAHs		-	1.801	0	-	-	-	-	-	-	-
Total Group II PAHs		-	2.722	1.29	-	-	-	-	-	-	-
Total Phthalates		-	ND	ND	-	-	-	-	-	-	-
Semi-Volatile Organic Compounds (SIM) (ug/L)											
1-Methylnaphthalene	NA	-	-	ND (0.2)	-	-	-	-	-	-	-
2-Chloronaphthalene	100000	-	-	ND (0.2)	-	-	-	-	-	-	-
2-Methylnaphthalene	2000	-	-	ND (0.2)	-	-	-	-	-	-	-
Acenaphthene	6000	-	0.917	0.83	-	-	-	-	-	-	-
Acenaphthylene	40	-	0.101	ND (0.2)	-	-	-	-	-	-	-
Anthracene	30	-	0.259	ND (0.2)	-	-	-	-	-	-	-
Benzo(a)anthracene	1000	-	0.301	ND (0.2)	-	-	-	-	-	-	-
Benzo(a)pyrene	500	-	0.25	ND (0.2)	-	-	-	-	-	-	-
Benzo(b)fluoranthene	400	-	0.276	ND (0.2)	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	20	-	0.232	ND (0.2)	-	-	-	-	-	-	-
Benzo(k)fluoranthene	100	-	0.246	ND (0.2)	-	-	-	-	-	-	-
Chrysene	70	-	0.242	ND (0.2)	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	40	-	0.234	ND (0.2)	-	-	-	-	-	-	-
Fluoranthene	200	-	0.242	ND (0.2)	-	-	-	-	-	-	-
Fluorene	40	-	0.572	0.46	-	-	-	-	-	-	-
Hexachlorobenzene	1	-	-	ND (0.8)	-	-	-	-	-	-	-
Hexachlorobutadiene	50	-	-	ND (0.5)	-	-	-	-	-	-	-
Hexachloroethane	100	-	-	ND (0.8)	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	100	-	0.252	ND (0.2)	-	-	-	-	-	-	-
Naphthalene	700	-	0.134	ND (0.2)	-	-	-	-	-	-	-
Pentachlorophenol	200	-	ND (1)	ND (0.8)	-	-	-	-	-	-	-
Phenanthrene	10000	-	0.177	ND (0.2)	-	-	-	-	-	-	-
Pyrene	20	-	0.222	ND (0.2)	-	-	-	-	-	-	-

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BOSTON, MA

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	Location Name	MCP	CHARLES-SDO	OW-3	HA16-4	BGWT-1	HA16-05 (OW)	HA16-2(OW)	HA16-3(OW)	HA16-5(OW)
	Sample Name	Reportable	CHARLES-SDO-042_05052020	OW-3-NPDES_05052020	HA16-4-20161115	BGWT-1_2017-1107	HA16-05 (OW)	HA16-2(OW)-20161117	HA16-3(OW)-20161117	HA16-5(OW)-20161117
	Sample Date	Concentration	05/05/2020	05/05/2020	11/15/2016	11/07/2017	11/18/2016	11/17/2016	11/17/2016	11/17/2016
	Lab Sample ID	RCGW-2	L2018518-02	L2018518-01	L1637094-01	L1741042-01	L1637787-01	L1637534-01	L1637534-02	L1637534-03
Total Petroleum Hydrocarbons (mg/L)										
Petroleum hydrocarbons		5	-	ND (4)	ND (4)	-	-	-	-	-
EPH (ug/L)										
MADEP C11-C22 Aromatic Hydrocarbons, Adjusted		5000	-	-	ND (100)	-	ND (100)	-	-	-
MADEP C19-C36 Aliphatic Hydrocarbons		50000	-	-	ND (100)	-	ND (100)	-	-	-
MADEP C9-C18 Aliphatic Hydrocarbons		5000	-	-	ND (100)	-	ND (100)	-	-	-
2-Methylnaphthalene		2000	-	-	ND (10)	-	ND (0.4)	-	-	-
Acenaphthene		6000	-	-	ND (10)	-	ND (0.4)	-	-	-
Acenaphthylene		40	-	-	ND (10)	-	ND (0.4)	-	-	-
Anthracene		30	-	-	ND (10)	-	ND (0.4)	-	-	-
Benzo(a)anthracene		1000	-	-	ND (10)	-	ND (0.4)	-	-	-
Benzo(a)pyrene		500	-	-	ND (10)	-	ND (0.2)	-	-	-
Benzo(b)fluoranthene		400	-	-	ND (10)	-	ND (0.4)	-	-	-
Benzo(g,h,i)perylene		20	-	-	ND (10)	-	ND (0.4)	-	-	-
Benzo(k)fluoranthene		100	-	-	ND (10)	-	ND (0.4)	-	-	-
Chrysene		70	-	-	ND (10)	-	ND (0.4)	-	-	-
Dibenz(a,h)anthracene		40	-	-	ND (10)	-	ND (0.4)	-	-	-
Fluoranthene		200	-	-	ND (10)	-	ND (0.4)	-	-	-
Fluorene		40	-	-	ND (10)	-	ND (0.4)	-	-	-
Indeno(1,2,3-cd)pyrene		100	-	-	ND (10)	-	ND (0.4)	-	-	-
Naphthalene		700	-	-	ND (10)	-	ND (0.4)	-	-	-
Phenanthrene		10000	-	-	ND (10)	-	ND (0.4)	-	-	-
Pyrene		20	-	-	ND (10)	-	ND (0.4)	-	-	-
VPH (ug/L)										
MADEP C5-C8 Aliphatic Hydrocarbons, Adjusted		3000	-	-	ND (250)	11200	-	ND (250)	-	ND (250)
MADEP C9-C10 Aromatic Hydrocarbons		4000	-	-	ND (250)	ND (10000)	-	ND (250)	-	ND (250)
MADEP C9-C12 Aliphatic Hydrocarbons, Adjusted		5000	-	-	ND (250)	ND (10000)	-	ND (250)	-	ND (250)
Benzene		1000	-	-	ND (10)	31000	-	ND (10)	-	23.8
Ethylbenzene		5000	-	-	ND (10)	ND (400)	-	ND (10)	-	ND (10)
m,p-Xylenes		NA	-	-	ND (10)	810	-	ND (10)	-	18.6
Methyl Tert Butyl Ether		5000	-	-	27	ND (600)	-	ND (15)	-	ND (15)
Naphthalene		700	-	-	ND (20)	ND (800)	-	ND (20)	-	ND (20)
o-Xylene		NA	-	-	ND (10)	ND (600)	-	ND (10)	-	ND (15)
Toluene		40000	-	-	ND (10)	ND (400)	-	ND (10)	-	ND (10)
Metals (mg/L)										
Antimony, Dissolved		8	-	-	ND (0.004)	-	-	-	-	-
Arsenic, Dissolved		0.9	-	-	0.00274	-	-	-	-	-
Cadmium, Dissolved		0.004	-	-	ND (0.0002)	-	-	-	-	-
Chromium, Dissolved		0.3	-	-	ND (0.001)	-	-	-	-	-
Chromium VI (Hexavalent), Dissolved		0.3	-	-	ND (0.01)	-	-	-	-	-
Copper, Dissolved		100	-	-	ND (0.001)	-	-	-	-	-
Iron, Dissolved		NA	-	-	0.33	-	-	-	-	-
Lead, Dissolved		0.01	-	-	ND (0.0005)	-	-	-	-	-
Mercury, Dissolved		0.02	-	-	ND (0.0002)	-	-	-	-	-
Nickel, Dissolved		0.2	-	-	0.00241	-	-	-	-	-
Selenium, Dissolved		0.1	-	-	ND (0.005)	-	-	-	-	-
Silver, Dissolved		0.007	-	-	ND (0.0004)	-	-	-	-	-
Zinc, Dissolved		0.9	-	-	ND (0.01)	-	-	-	-	-
Antimony, Total		8	ND (0.004)	ND (0.004)	-	-	-	-	-	-
Arsenic, Total		0.9	ND (0.001)	0.00303	-	-	-	-	-	-
Cadmium, Total		0.004	ND (0.0002)	ND (0.0002)	-	-	-	-	-	-
Chromium, Total		0.3	ND (0.001)	ND (0.001)	-	-	-	-	-	-
Chromium III (Trivalent), Total (mg/L)		0.6	ND (0.01)	ND (0.01)	-	-	-	-	-	-
Chromium VI (Hexavalent), Total		0.3	ND (0.01)	ND (0.01)	-	-	-	-	-	-
Copper, Total		100	0.00242	ND (0.001)	-	-	-	-	-	-
Hardness, Total		NA	51.6	743	-	-	-	-	-	-
Iron, Total		NA	0.42	23.1	-	-	-	-	-	-
Lead, Total		0.01	0.00169	ND (0.001)	-	-	-	-	-	-
Mercury, Total		0.02	ND (0.0002)	ND (0.0002)	-	-	-	-	-	-
Nickel, Total		0.2	ND (0.002)	0.00365	-	-	-	-	-	-
Selenium, Total		0.1	ND (0.005)	ND (0.005)	-	-	-	-	-	-
Silver, Total		0.007	ND (0.0004)	ND (0.0004)	-	-	-	-	-	-
Zinc, Total		0.9	0.01215	0.01215	-	-	-	-	-	-

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60 KILMARNOCK STREET
BOSTON, MA

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	Sample Name	Reportable	CHARLES-SDO-042_05052020	OW-3-NPDES_05052020	HA16-4-20161115	BGWT-1_2017-1107	HA16-05 (OW)	HA16-2(OW)-20161117	HA16-3(OW)-20161117	HA16-5(OW)-20161117
	Sample Date	Concentration	05/05/2020	05/05/2020	11/15/2016	11/07/2017	11/18/2016	11/17/2016	11/17/2016	11/17/2016
	Lab Sample ID	RCGW-2	L2018518-02	L2018518-01	L1637094-01	L1741042-01	L1637787-01	L1637534-01	L1637534-02	L1637534-03
Other										
Ammonia, Total (mg/L)		NA	0.101	4.62	-	-	-	-	-	-
Chloride, Total (mg/L)		NA	-	1110	606	-	-	-	-	-
Chlorine, residual, Total (mg/L)		NA	-	ND (0.02)	ND (0.02)	-	-	-	-	-
Cyanide, Total (mg/L)		0.03	-	ND (0.005)	ND (0.005)	-	-	-	-	-
Total Phenols (mg/L)		NA	-	ND (0.03)	ND (0.03)	-	-	-	-	-
Total Suspended Solids (TSS) (mg/L)		NA	-	8.9	89	-	-	-	-	-
PCBs (ug/L)										
Aroclor-1016 (PCB-1016)		5	-	ND (0.25)	ND (0.25)	-	-	-	-	-
Aroclor-1221 (PCB-1221)		5	-	ND (0.25)	ND (0.25)	-	-	-	-	-
Aroclor-1232 (PCB-1232)		5	-	ND (0.25)	ND (0.25)	-	-	-	-	-
Aroclor-1242 (PCB-1242)		5	-	ND (0.25)	ND (0.25)	-	-	-	-	-
Aroclor-1248 (PCB-1248)		5	-	ND (0.25)	ND (0.25)	-	-	-	-	-
Aroclor-1254 (PCB-1254)		5	-	ND (0.25)	ND (0.25)	-	-	-	-	-
Aroclor-1260 (PCB-1260)		5	-	ND (0.2)	ND (0.2)	-	-	-	-	-
Field Parameters										
Temperature (Deg C)		NA	16	12.3	-	17.5	-	-	-	17.1
Dissolved Oxygen, Field (mg/L)		NA	-	-	-	0.49	-	-	-	1.55
Conductivity, Field (mS/cm)		NA	-	-	-	14188	-	-	-	11.62
Turbidity, Field (NTU)		NA	-	-	-	71000	-	-	-	53.5
pH, Field (SU)		NA	7.9	6.42	-	6.18	-	-	-	6.46

ABBREVIATIONS AND NOTES:

- : Not Analyzed
- µg/L: micrograms per liter
- MCP: 310 CMR 40.0000 Massachusetts Contingency Plan effective 25 April 2014; revisions 23 May 2014.
- mg/L: milligram per liter
- NA: Not Applicable
- ND (2.5): Not detected, number in parentheses is the laboratory reporting limit
- NTU: Nephelometric Turbidity Unit
- 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.
- Groundwater samples analyzed for dissolved metals were filtered in the field with a 0.45 micrometer filter.

TABLE I
SUMMARY OF ANALYTICAL RESULTS
60 KILMARNOCK (BOSTON) OWNER, LLC
60 KILMARNOCK STREET
BOSTON, MA

	Sample Type	Action Level	SUPPLEMENTAL SOURCE WATER SAMPLES											
	Location Name	MCP	HA17-5	HA17-5	HA17-5	HA17-6	HA17-6	HA17-6	HA17-6	HA18-1	HA18-1	HA18-1	OW-2	OW-3
	Sample Name	Reportable	HA17-5_2018-1121	HA17-5_83019	HA17-5_05062020	HA17-6(OW)-20171204	HA17-6_2018-1119	HA17-6_82919	HA17-6_05062020	HA18-1_2018-1115	HA18-1_82919	HA18-1_05062020	OW-2-20170511	OW-3-20170510
	Sample Date	Concentration	11/21/2018	08/30/2019	05/06/2020	12/04/2017	11/19/2018	08/29/2019	05/06/2020	11/15/2018	08/29/2019	05/06/2020	05/11/2017	05/10/2017
	Lab Sample ID	RCGW-2	L1847993-02	L1939824-01	L2018710-02	L1744381-02	L1847502-02	L1939576-02	L2018710-03	L1846917-01	L1939576-01	L2018710-01	L1715467-01	L1715230-01
Volatile Organic Compounds (ug/L)														
1,2,4-Trimethylbenzene		100000	-	-	-	-	-	-	-	-	-	-	ND (2)	ND (4)
1,3,5-Trimethylbenzene		1000	-	-	-	-	-	-	-	-	-	-	ND (2)	ND (4)
2-Butanone (Methyl Ethyl Ketone)		50000	-	-	-	-	-	-	-	-	-	-	6.6	ND (10)
2-Phenylbutane (sec-Butylbenzene)		NA	-	-	-	-	-	-	-	-	-	-	ND (2)	ND (4)
Acetone		50000	-	-	-	-	-	-	-	-	-	-	31	ND (10)
Benzene		1000	-	-	-	-	-	-	-	-	-	-	ND (0.5)	1.3
Ethylbenzene		5000	-	-	-	-	-	-	-	-	-	-	ND (1)	ND (2)
Isopropylbenzene (Cumene)		100000	-	-	-	-	-	-	-	-	-	-	ND (2)	ND (4)
Methyl Tert Butyl Ether		5000	-	-	-	-	-	-	-	-	-	-	ND (2)	17
n-Butylbenzene		NA	-	-	-	-	-	-	-	-	-	-	ND (2)	ND (4)
n-Propylbenzene		10000	-	-	-	-	-	-	-	-	-	-	ND (2)	ND (4)
Tert-Butyl Alcohol (tert-Butanol)		NA	-	-	-	-	-	-	-	-	-	-	-	-
Toluene		40000	-	-	-	-	-	-	-	-	-	-	ND (1)	ND (2)
Xylene (total)		3000	-	-	-	-	-	-	-	-	-	-	ND (1)	ND (2)
Total BTEX		NA	-	-	-	-	-	-	-	-	-	-	ND	1.3
Semi-Volatile Organic Compounds (ug/L)														
Total Group I PAHs			-	-	-	-	-	-	-	-	-	-	-	-
Total Group II PAHs			-	-	-	-	-	-	-	-	-	-	-	-
Total Phthalates			-	-	-	-	-	-	-	-	-	-	-	-
Semi-Volatile Organic Compounds (SIM) (ug/L)														
1-Methylnaphthalene		NA	-	-	-	-	-	-	-	-	-	-	-	-
2-Chloronaphthalene		100000	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene		2000	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene		6000	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene		40	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene		30	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene		1000	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene		500	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene		400	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene		20	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene		100	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene		70	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene		40	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene		200	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene		40	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene		1	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene		50	-	-	-	-	-	-	-	-	-	-	-	-
Hexachloroethane		100	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene		100	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene		700	-	-	-	-	-	-	-	-	-	-	-	-
Pentachlorophenol		200	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene		10000	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene		20	-	-	-	-	-	-	-	-	-	-	-	-

TABLE I
SUMMARY OF ANALYTICAL RESULTS
60 KILMARNOCK (BOSTON) OWNER, LLC
60 KILMARNOCK STREET
BOSTON, MA

Sample Type Location Name Sample Name Sample Date Lab Sample ID	Action Level	SUPPLEMENTAL SOURCE WATER SAMPLES											
	MCP	HA17-5	HA17-5	HA17-5	HA17-6	HA17-6	HA17-6	HA17-6	HA18-1	HA18-1	HA18-1	OW-2	OW-3
	Reportable	HA17-5_2018-1121	HA17-5_83019	HA17-5_05062020	HA17-6(OW)-20171204	HA17-6_2018-1119	HA17-6_82919	HA17-6_05062020	HA18-1_2018-1115	HA18-1_82919	HA18-1_05062020	OW-2-20170511	OW-3-20170510
	Concentration RCGW-2	11/21/2018 L1847993-02	08/30/2019 L1939824-01	05/06/2020 L2018710-02	12/04/2017 L1744381-02	11/19/2018 L1847502-02	08/29/2019 L1939576-02	05/06/2020 L2018710-03	11/15/2018 L1846917-01	08/29/2019 L1939576-01	05/06/2020 L2018710-01	05/11/2017 L1715467-01	05/10/2017 L1715230-01
Total Petroleum Hydrocarbons (mg/L)													
Petroleum hydrocarbons	5	-	-	-	-	-	-	-	-	-	-	-	-
EPH (ug/L)													
MADEP C11-C22 Aromatic Hydrocarbons, Adjusted	5000	-	-	-	-	-	-	-	-	-	-	ND (100)	ND (100)
MADEP C19-C36 Aliphatic Hydrocarbons	50000	-	-	-	-	-	-	-	-	-	-	ND (100)	ND (100)
MADEP C9-C18 Aliphatic Hydrocarbons	5000	-	-	-	-	-	-	-	-	-	-	ND (100)	ND (100)
2-Methylnaphthalene	2000	-	-	-	-	-	-	-	-	-	-	ND (0.4)	ND (0.4)
Acenaphthene	6000	-	-	-	-	-	-	-	-	-	-	ND (0.4)	0.834
Acenaphthylene	40	-	-	-	-	-	-	-	-	-	-	ND (0.4)	ND (0.4)
Anthracene	30	-	-	-	-	-	-	-	-	-	-	ND (0.4)	ND (0.4)
Benzo(a)anthracene	1000	-	-	-	-	-	-	-	-	-	-	ND (0.4)	ND (0.4)
Benzo(a)pyrene	500	-	-	-	-	-	-	-	-	-	-	ND (0.2)	ND (0.2)
Benzo(b)fluoranthene	400	-	-	-	-	-	-	-	-	-	-	ND (0.4)	ND (0.4)
Benzo(g,h,i)perylene	20	-	-	-	-	-	-	-	-	-	-	ND (0.4)	ND (0.4)
Benzo(k)fluoranthene	100	-	-	-	-	-	-	-	-	-	-	ND (0.4)	ND (0.4)
Chrysene	70	-	-	-	-	-	-	-	-	-	-	ND (0.4)	ND (0.4)
Dibenz(a,h)anthracene	40	-	-	-	-	-	-	-	-	-	-	ND (0.4)	ND (0.4)
Fluoranthene	200	-	-	-	-	-	-	-	-	-	-	ND (0.4)	ND (0.4)
Fluorene	40	-	-	-	-	-	-	-	-	-	-	ND (0.4)	0.414
Indeno(1,2,3-cd)pyrene	100	-	-	-	-	-	-	-	-	-	-	ND (0.4)	ND (0.4)
Naphthalene	700	-	-	-	-	-	-	-	-	-	-	ND (0.4)	ND (0.4)
Phenanthrene	10000	-	-	-	-	-	-	-	-	-	-	ND (0.4)	ND (0.4)
Pyrene	20	-	-	-	-	-	-	-	-	-	-	ND (0.4)	ND (0.4)
VPH (ug/L)													
MADEP C5-C8 Aliphatic Hydrocarbons, Adjusted	3000	ND (50)	ND (100)	ND (100)	ND (50)	ND (50)	ND (100)	ND (100)	ND (50)	ND (100)	ND (100)	ND (50)	93
MADEP C9-C10 Aromatic Hydrocarbons	4000	ND (50)	ND (100)	ND (100)	ND (50)	ND (50)	ND (100)	ND (100)	ND (50)	ND (100)	ND (100)	ND (50)	ND (50)
MADEP C9-C12 Aliphatic Hydrocarbons, Adjusted	5000	ND (50)	ND (100)	ND (100)	ND (50)	ND (50)	ND (100)	ND (100)	ND (50)	ND (100)	ND (100)	ND (50)	ND (50)
Benzene	1000	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	-	-
Ethylbenzene	5000	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	-	-
m,p-Xylenes	NA	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	-	-
Methyl Tert Butyl Ether	5000	ND (3)	ND (3)	ND (3)	ND (3)	ND (3)	ND (3)	ND (3)	ND (3)	ND (3)	ND (3)	-	-
Naphthalene	700	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)	-	-
o-Xylene	NA	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	-	-
Toluene	40000	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	-	-
Metals (mg/L)													
Antimony, Dissolved	8	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic, Dissolved	0.9	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium, Dissolved	0.004	-	-	-	-	-	-	-	-	-	-	-	-
Chromium, Dissolved	0.3	-	-	-	-	-	-	-	-	-	-	-	-
Chromium VI (Hexavalent), Dissolved	0.3	-	-	-	-	-	-	-	-	-	-	-	-
Copper, Dissolved	100	-	-	-	-	-	-	-	-	-	-	-	-
Iron, Dissolved	NA	-	-	-	-	-	-	-	-	-	-	-	-
Lead, Dissolved	0.01	-	-	-	-	-	-	-	-	-	-	-	-
Mercury, Dissolved	0.02	-	-	-	-	-	-	-	-	-	-	-	-
Nickel, Dissolved	0.2	-	-	-	-	-	-	-	-	-	-	-	-
Selenium, Dissolved	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Silver, Dissolved	0.007	-	-	-	-	-	-	-	-	-	-	-	-
Zinc, Dissolved	0.9	-	-	-	-	-	-	-	-	-	-	-	-
Antimony, Total	8	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic, Total	0.9	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium, Total	0.004	-	-	-	-	-	-	-	-	-	-	-	-
Chromium, Total	0.3	-	-	-	-	-	-	-	-	-	-	-	-
Chromium III (Trivalent), Total (mg/L)	0.6	-	-	-	-	-	-	-	-	-	-	-	-
Chromium VI (Hexavalent), Total	0.3	-	-	-	-	-	-	-	-	-	-	-	-
Copper, Total	100	-	-	-	-	-	-	-	-	-	-	-	-
Hardness, Total	NA	-	-	-	-	-	-	-	-	-	-	-	-
Iron, Total	NA	-	-	-	-	-	-	-	-	-	-	-	-
Lead, Total	0.01	-	-	-	-	-	-	-	-	-	-	-	-
Mercury, Total	0.02	-	-	-	-	-	-	-	-	-	-	-	-
Nickel, Total	0.2	-	-	-	-	-	-	-	-	-	-	-	-
Selenium, Total	0.1	-	-	-	-	-	-	-	-	-	-	-	-
Silver, Total	0.007	-	-	-	-	-	-	-	-	-	-	-	-
Zinc, Total	0.9	-	-	-	-	-	-	-	-	-	-	-	-

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60 KILMARNOCK (BOSTON) OWNER, LLC
60 KILMARNOCK STREET
BOSTON, MA

Sample Type Location Name Sample Name Sample Date Lab Sample ID	Action Level	SUPPLEMENTAL SOURCE WATER SAMPLES												
	MCP	HA17-5	HA17-5	HA17-5	HA17-6	HA17-6	HA17-6	HA17-6	HA17-6	HA18-1	HA18-1	HA18-1	OW-2	OW-3
	Reportable	HA17-5_2018-1121	HA17-5_83019	HA17-5_05062020	HA17-6(OW)-20171204	HA17-6_2018-1119	HA17-6_82919	HA17-6_05062020	HA18-1_2018-1115	HA18-1_82919	HA18-1_05062020	OW-2-20170511	OW-3-20170510	
	Concentration	11/21/2018	08/30/2019	05/06/2020	12/04/2017	11/19/2018	08/29/2019	05/06/2020	11/15/2018	08/29/2019	05/06/2020	05/11/2017	05/10/2017	
	RCGW-2	L1847993-02	L1939824-01	L2018710-02	L1744381-02	L1847502-02	L1939576-02	L2018710-03	L1846917-01	L1939576-01	L2018710-01	L1715467-01	L1715230-01	
Other														
Ammonia, Total (mg/L)	NA	-	-	-	-	-	-	-	-	-	-	-	-	
Chloride, Total (mg/L)	NA	-	-	-	-	-	-	-	-	-	-	-	-	
Chlorine, residual, Total (mg/L)	NA	-	-	-	-	-	-	-	-	-	-	-	-	
Cyanide, Total (mg/L)	0.03	-	-	-	-	-	-	-	-	-	-	-	-	
Total Phenols (mg/L)	NA	-	-	-	-	-	-	-	-	-	-	-	-	
Total Suspended Solids (TSS) (mg/L)	NA	-	-	-	-	-	-	-	-	-	-	-	-	
PCBs (ug/L)														
Aroclor-1016 (PCB-1016)	5	-	-	-	-	-	-	-	-	-	-	-	-	
Aroclor-1221 (PCB-1221)	5	-	-	-	-	-	-	-	-	-	-	-	-	
Aroclor-1232 (PCB-1232)	5	-	-	-	-	-	-	-	-	-	-	-	-	
Aroclor-1242 (PCB-1242)	5	-	-	-	-	-	-	-	-	-	-	-	-	
Aroclor-1248 (PCB-1248)	5	-	-	-	-	-	-	-	-	-	-	-	-	
Aroclor-1254 (PCB-1254)	5	-	-	-	-	-	-	-	-	-	-	-	-	
Aroclor-1260 (PCB-1260)	5	-	-	-	-	-	-	-	-	-	-	-	-	
Field Parameters														
Temperature (Deg C)	NA	13.1	-	-	16.5	15.18	-	-	16.16	-	-	-	-	
Dissolved Oxygen, Field (mg/L)	NA	0.62	-	-	1	0.72	-	-	0.63	-	-	-	-	
Conductivity, Field (mS/cm)	NA	7269	-	-	14.42	20536	-	-	1081	-	-	-	-	
Turbidity, Field (NTU)	NA	4.5	-	-	139	68.4	-	-	4.7	-	-	-	-	
pH, Field (SU)	NA	6.05	-	-	6.43	6.47	-	-	6.66	-	-	-	-	

ABBREVIATIONS AND NOTES:

-: Not Analyzed
µg/L: micrograms per liter
MCP: 310 CMR 40.0000 Massachusetts Contingency Plan effective 25 April 2014; revisions 23 May 2014.
mg/L: milligram per liter
NA: Not Applicable

ND (2.5): Not detected, number in parentheses is the laboratory reporting limit

NTU: Nephelometric Turbidity Unit

- 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.
- Groundwater samples analyzed for dissolved metals were filtered in the field with a 0.45 micrometer filter.

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60 KILMARNOCK (BOSTON) OWNER, LLC
60 KILMARNOCK STREET
BOSTON, MA

	Sample Type	Action Level												
	Location Name	MCP	OW-4	OW-5	OW-6	OW-7	OW-7	OW-7	OW-7	OW-7	OW-8	OW-8	OW-8	OW-8
	Sample Name	Reportable	OW-4-20170511	OW-5-20170510	OW-6-20170510	OW-7-20170511	OW-7_2017-1020	OW-7_2018-1121	OW-7_83019	OW-7_05052020	OW-8-20170511	OW-8_2017-1020	OW-8_2018-1119	OW-8_83019
	Sample Date	Concentration	05/11/2017	05/10/2017	05/10/2017	05/11/2017	10/20/2017	11/21/2018	08/30/2019	05/05/2020	05/11/2017	10/20/2017	11/19/2018	08/30/2019
	Lab Sample ID	RCGW-2	L1715467-04	L1715230-02	L1715230-03	L1715467-02	L1738260-02	L1847993-01	L1939824-02	L2018710-04	L1715467-03	L1738260-01	L1847502-01	L1939824-03
Volatile Organic Compounds (ug/L)														
1,2,4-Trimethylbenzene		100000	ND (2)	4.5	ND (2)	2.4	-	-	-	-	ND (400)	-	-	-
1,3,5-Trimethylbenzene		1000	ND (2)	ND (4)	ND (2)	2.2	-	-	-	-	ND (400)	-	-	-
2-Butanone (Methyl Ethyl Ketone)		50000	ND (5)	ND (10)	ND (5)	ND (5)	-	-	-	-	ND (1000)	-	-	-
2-Phenylbutane (sec-Butylbenzene)		NA	ND (2)	4.7	ND (2)	ND (2)	-	-	-	-	ND (400)	-	-	-
Acetone		50000	ND (5)	ND (10)	ND (5)	15	-	-	-	-	ND (1000)	-	-	-
Benzene		1000	ND (0.5)	66	ND (0.5)	85	-	-	-	-	15000	-	-	-
Ethylbenzene		5000	ND (1)	16	ND (1)	8.8	-	-	-	-	320	-	-	-
Isopropylbenzene (Cumene)		100000	ND (2)	23	ND (2)	2.8	-	-	-	-	ND (400)	-	-	-
Methyl Tert Butyl Ether		5000	8.1	27	ND (2)	4.9	-	-	-	-	ND (400)	-	-	-
n-Butylbenzene		NA	ND (2)	6.9	ND (2)	ND (2)	-	-	-	-	ND (400)	-	-	-
n-Propylbenzene		10000	ND (2)	58	ND (2)	ND (2)	-	-	-	-	ND (400)	-	-	-
Tert-Butyl Alcohol (tert-Butanol)		NA	-	-	-	-	-	-	-	-	-	-	-	-
Toluene		40000	ND (1)	3.5	ND (1)	5.1	-	-	-	-	ND (200)	-	-	-
Xylene (total)		3000	ND (1)	12	ND (1)	14	-	-	-	-	1200	-	-	-
Total BTEX		NA	ND	97.5	ND	112.9	-	-	-	-	16520.	-	-	-
Semi-Volatile Organic Compounds (ug/L)														
Total Group I PAHs			-	-	-	-	-	-	-	-	-	-	-	-
Total Group II PAHs			-	-	-	-	-	-	-	-	-	-	-	-
Total Phthalates			-	-	-	-	-	-	-	-	-	-	-	-
Semi-Volatile Organic Compounds (SIM) (ug/L)														
1-Methylnaphthalene		NA	-	-	-	-	-	-	-	-	-	-	-	-
2-Chloronaphthalene		100000	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene		2000	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene		6000	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene		40	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene		30	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene		1000	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene		500	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene		400	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene		20	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene		100	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene		70	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene		40	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene		200	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene		40	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene		1	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene		50	-	-	-	-	-	-	-	-	-	-	-	-
Hexachloroethane		100	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene		100	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene		700	-	-	-	-	-	-	-	-	-	-	-	-
Pentachlorophenol		200	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene		10000	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene		20	-	-	-	-	-	-	-	-	-	-	-	-

TABLE I
SUMMARY OF ANALYTICAL RESULTS
60 KILMARNOCK (BOSTON) OWNER, LLC
60 KILMARNOCK STREET
BOSTON, MA

	Sample Type	Action Level													
	Location Name	MCP	OW-4	OW-5	OW-6	OW-7	OW-7	OW-7	OW-7	OW-7	OW-8	OW-8	OW-8	OW-8	OW-8
	Sample Name	Reportable	OW-4-20170511	OW-5-20170510	OW-6-20170510	OW-7-20170511	OW-7_2017-1020	OW-7_2018-1121	OW-7_83019	OW-7_05052020	OW-8-20170511	OW-8_2017-1020	OW-8_2018-1119	OW-8_83019	OW-8_05062020
	Sample Date	Concentration	05/11/2017	05/10/2017	05/10/2017	05/11/2017	10/20/2017	11/21/2018	08/30/2019	05/05/2020	05/11/2017	10/20/2017	11/19/2018	08/30/2019	05/06/2020
	Lab Sample ID	RCGW-2	L1715467-04	L1715230-02	L1715230-03	L1715467-02	L1738260-02	L1847993-01	L1939824-02	L2018710-04	L1715467-03	L1738260-01	L1847502-01	L1939824-03	L2018710-05
Total Petroleum Hydrocarbons (mg/L)															
Petroleum hydrocarbons			5	-	-	-	-	-	-	-	-	-	-	-	-
EPH (ug/L)															
MADEP C11-C22 Aromatic Hydrocarbons, Adjusted			5000	ND (100)	218	165	ND (100)	-	-	-	-	108	-	-	-
MADEP C19-C36 Aliphatic Hydrocarbons			50000	ND (100)	154	ND (100)	ND (100)	-	-	-	-	ND (100)	-	-	-
MADEP C9-C18 Aliphatic Hydrocarbons			5000	ND (100)	ND (100)	ND (100)	ND (100)	-	-	-	-	ND (100)	-	-	-
2-Methylnaphthalene			2000	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	-	-	-	-	9.5	-	-	-
Acenaphthene			6000	ND (0.4)	3.01	ND (0.4)	ND (0.4)	-	-	-	-	ND (0.4)	-	-	-
Acenaphthylene			40	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	-	-	-	-	ND (0.4)	-	-	-
Anthracene			30	ND (0.4)	0.634	ND (0.4)	ND (0.4)	-	-	-	-	ND (0.4)	-	-	-
Benzo(a)anthracene			1000	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	-	-	-	-	ND (0.4)	-	-	-
Benzo(a)pyrene			500	ND (0.2)	0.25	ND (0.2)	ND (0.2)	-	-	-	-	ND (0.2)	-	-	-
Benzo(b)fluoranthene			400	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	-	-	-	-	ND (0.4)	-	-	-
Benzo(g,h,i)perylene			20	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	-	-	-	-	ND (0.4)	-	-	-
Benzo(k)fluoranthene			100	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	-	-	-	-	ND (0.4)	-	-	-
Chrysene			70	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	-	-	-	-	ND (0.4)	-	-	-
Dibenz(a,h)anthracene			40	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	-	-	-	-	ND (0.4)	-	-	-
Fluoranthene			200	ND (0.4)	1.4	0.458	ND (0.4)	-	-	-	-	ND (0.4)	-	-	-
Fluorene			40	ND (0.4)	2.29	ND (0.4)	ND (0.4)	-	-	-	-	ND (0.4)	-	-	-
Indeno(1,2,3-cd)pyrene			100	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	-	-	-	-	ND (0.4)	-	-	-
Naphthalene			700	ND (0.4)	0.902	ND (0.4)	ND (0.4)	-	-	-	-	72	-	-	-
Phenanthrene			10000	ND (0.4)	1.87	ND (0.4)	ND (0.4)	-	-	-	-	ND (0.4)	-	-	-
Pyrene			20	ND (0.4)	1.32	0.468	ND (0.4)	-	-	-	-	ND (0.4)	-	-	-
VPH (ug/L)															
MADEP C5-C8 Aliphatic Hydrocarbons, Adjusted			3000	ND (50)	446	ND (50)	96.4	100	137	ND (500)	153	15800	11900	10300	11400
MADEP C9-C10 Aromatic Hydrocarbons			4000	ND (50)	614	ND (50)	55.5	ND (50)	88.1	ND (500)	ND (100)	ND (5000)	ND (6250)	ND (5000)	ND (10000)
MADEP C9-C12 Aliphatic Hydrocarbons, Adjusted			5000	ND (50)	ND (50)	ND (50)	ND (50)	53.7	ND (50)	ND (500)	ND (100)	7850	ND (6250)	ND (5000)	ND (10000)
Benzene			1000	-	-	-	-	50.3	65.1	103	91.6	-	16700	19700	17800
Ethylbenzene			5000	-	-	-	-	4.73	6.19	ND (10)	6.33	-	378	291	ND (200)
m,p-Xylenes			NA	-	-	-	-	2.6	18.2	27.3	28.3	-	331	496	470
Methyl Tert Butyl Ether			5000	-	-	-	-	ND (3)	ND (3)	ND (15)	5.74	-	ND (375)	ND (300)	ND (300)
Naphthalene			700	-	-	-	-	ND (4)	ND (4)	ND (20)	ND (4)	-	ND (500)	ND (400)	ND (400)
o-Xylene			NA	-	-	-	-	2.83	9.14	ND (10)	11.7	-	ND (375)	234	ND (200)
Toluene			40000	-	-	-	-	3.01	7.61	ND (10)	11.3	-	408	269	378
Metals (mg/L)															
Antimony, Dissolved			8	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic, Dissolved			0.9	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium, Dissolved			0.004	-	-	-	-	-	-	-	-	-	-	-	-
Chromium, Dissolved			0.3	-	-	-	-	-	-	-	-	-	-	-	-
Chromium VI (Hexavalent), Dissolved			0.3	-	-	-	-	-	-	-	-	-	-	-	-
Copper, Dissolved			100	-	-	-	-	-	-	-	-	-	-	-	-
Iron, Dissolved			NA	-	-	-	-	-	-	-	-	-	-	-	-
Lead, Dissolved			0.01	-	-	-	-	-	-	-	-	-	-	-	-
Mercury, Dissolved			0.02	-	-	-	-	-	-	-	-	-	-	-	-
Nickel, Dissolved			0.2	-	-	-	-	-	-	-	-	-	-	-	-
Selenium, Dissolved			0.1	-	-	-	-	-	-	-	-	-	-	-	-
Silver, Dissolved			0.007	-	-	-	-	-	-	-	-	-	-	-	-
Zinc, Dissolved			0.9	-	-	-	-	-	-	-	-	-	-	-	-
Antimony, Total			8	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic, Total			0.9	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium, Total			0.004	-	-	-	-	-	-	-	-	-	-	-	-
Chromium, Total			0.3	-	-	-	-	-	-	-	-	-	-	-	-
Chromium III (Trivalent), Total (mg/L)			0.6	-	-	-	-	-	-	-	-	-	-	-	-
Chromium VI (Hexavalent), Total			0.3	-	-	-	-	-	-	-	-	-	-	-	-
Copper, Total			100	-	-	-	-	-	-	-	-	-	-	-	-
Hardness, Total			NA	-	-	-	-	-	-	-	-	-	-	-	-
Iron, Total			NA	-	-	-	-	-	-	-	-	-	-	-	-
Lead, Total			0.01	-	-	-	-	-	-	-	-	-	-	-	-
Mercury, Total			0.02	-	-	-	-	-	-	-	-	-	-	-	-
Nickel, Total			0.2	-	-	-	-	-	-	-	-	-	-	-	-
Selenium, Total			0.1	-	-	-	-	-	-	-	-	-	-	-	-
Silver, Total			0.007	-	-	-	-	-	-	-	-	-	-	-	-
Zinc, Total			0.9	-	-	-	-	-	-	-	-	-	-	-	-

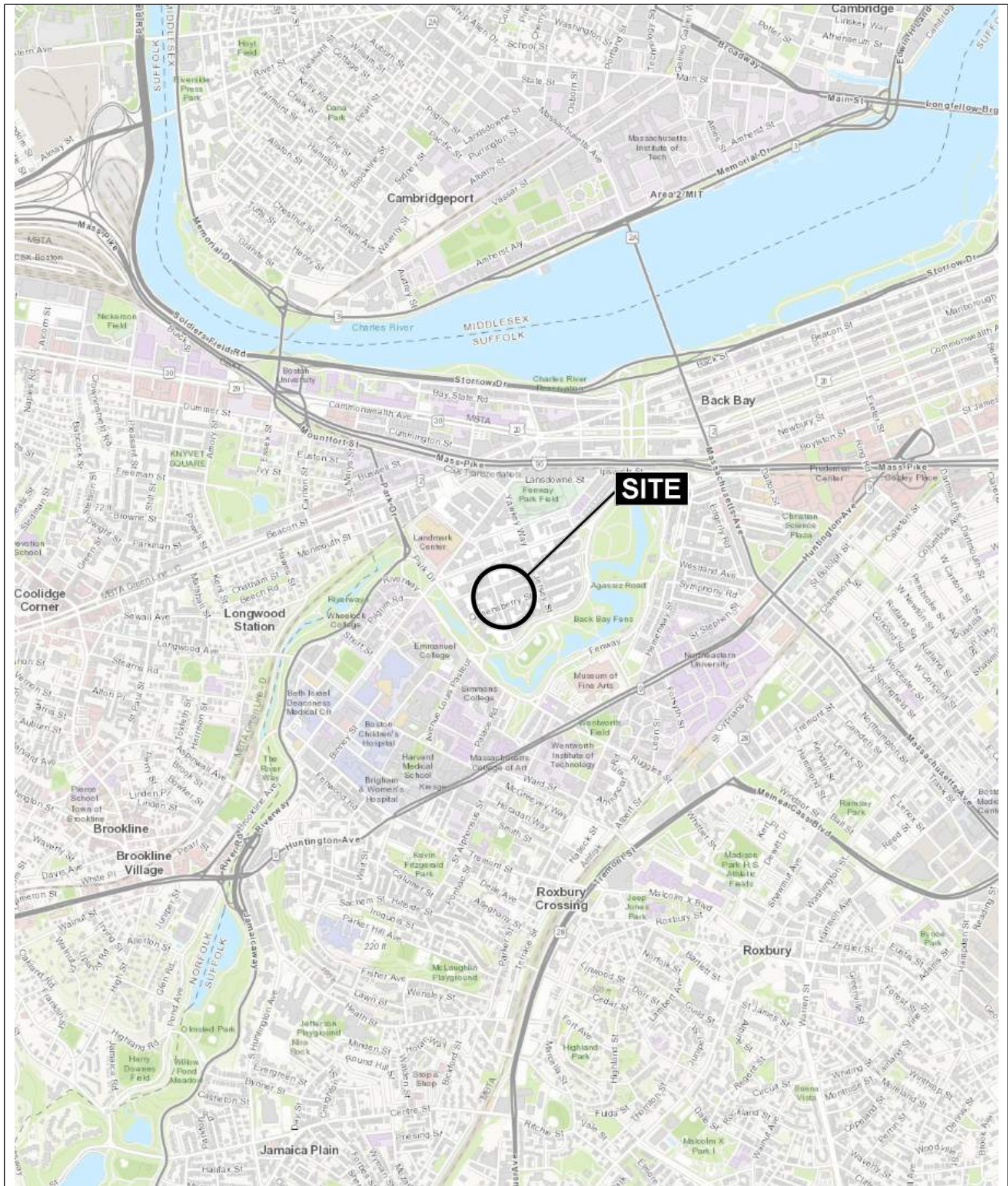
TABLE I
SUMMARY OF ANALYTICAL RESULTS
60 KILMARNOCK (BOSTON) OWNER, LLC
60 KILMARNOCK STREET
BOSTON, MA

	Sample Type	Action Level												
	Location Name	MCP	OW-4	OW-5	OW-6	OW-7	OW-7	OW-7	OW-7	OW-7	OW-8	OW-8	OW-8	OW-8
	Sample Name	Reportable	OW-4-20170511	OW-5-20170510	OW-6-20170510	OW-7-20170511	OW-7_2017-1020	OW-7_2018-1121	OW-7_83019	OW-7_05052020	OW-8-20170511	OW-8_2017-1020	OW-8_2018-1119	OW-8_83019
	Sample Date	Concentration	05/11/2017	05/10/2017	05/10/2017	05/11/2017	10/20/2017	11/21/2018	08/30/2019	05/05/2020	05/11/2017	10/20/2017	11/19/2018	08/30/2019
	Lab Sample ID	RCGW-2	L1715467-04	L1715230-02	L1715230-03	L1715467-02	L1738260-02	L1847993-01	L1939824-02	L2018710-04	L1715467-03	L1738260-01	L1847502-01	L1939824-03
Other														
Ammonia, Total (mg/L)			NA	-	-	-	-	-	-	-	-	-	-	-
Chloride, Total (mg/L)			NA	-	-	-	-	-	-	-	-	-	-	-
Chlorine, residual, Total (mg/L)			NA	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Total (mg/L)			0.03	-	-	-	-	-	-	-	-	-	-	-
Total Phenols (mg/L)			NA	-	-	-	-	-	-	-	-	-	-	-
Total Suspended Solids (TSS) (mg/L)			NA	-	-	-	-	-	-	-	-	-	-	-
PCBs (ug/L)														
Aroclor-1016 (PCB-1016)			5	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1221 (PCB-1221)			5	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1232 (PCB-1232)			5	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1242 (PCB-1242)			5	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1248 (PCB-1248)			5	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1254 (PCB-1254)			5	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1260 (PCB-1260)			5	-	-	-	-	-	-	-	-	-	-	-
Field Parameters														
Temperature (Deg C)			NA	-	-	-	-	19.55	14.22	-	-	19.75	15.29	-
Dissolved Oxygen, Field (mg/L)			NA	-	-	-	-	1.7	1.55	-	-	0.79	0.58	-
Conductivity, Field (mS/cm)			NA	-	-	-	-	15620	14380	-	-	16008	15535	-
Turbidity, Field (NTU)			NA	-	-	-	-	12.8	17.2	-	-	6.55	7.3	-
pH, Field (SU)			NA	-	-	-	-	6.63	6.55	-	-	6.44	6.28	-

ABBREVIATIONS AND NOTES:

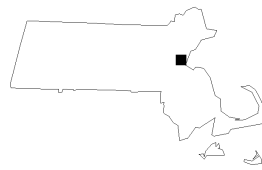
- : Not Analyzed
- µg/L: micrograms per liter
- MCP: 310 CMR 40.0000 Massachusetts Contingency Plan effective 25 April 2014; revisions 23 May 2014.
- mg/L: milligram per liter
- NA: Not Applicable
- ND (2.5): Not detected, number in parentheses is the laboratory reporting limit
- NTU: Nephelometric Turbidity Unit
- 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.
- Groundwater samples analyzed for dissolved metals were filtered in the field with a 0.45 micrometer filter.

FIGURES



MAP SOURCE: ESRI

SITE COORDINATES: 42°20'34"N, 71°5'56"W



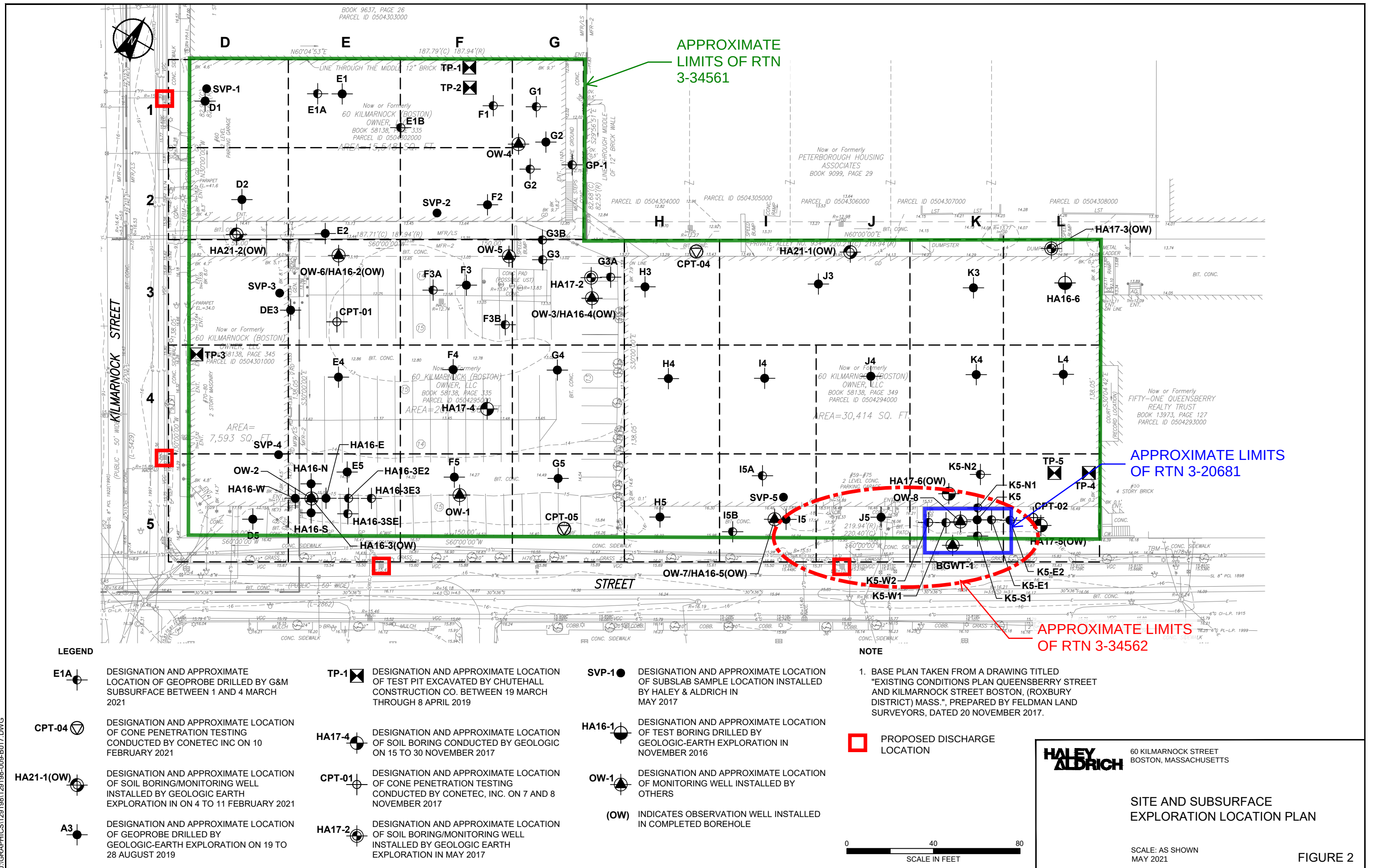
**HALEY
ALDRICH**

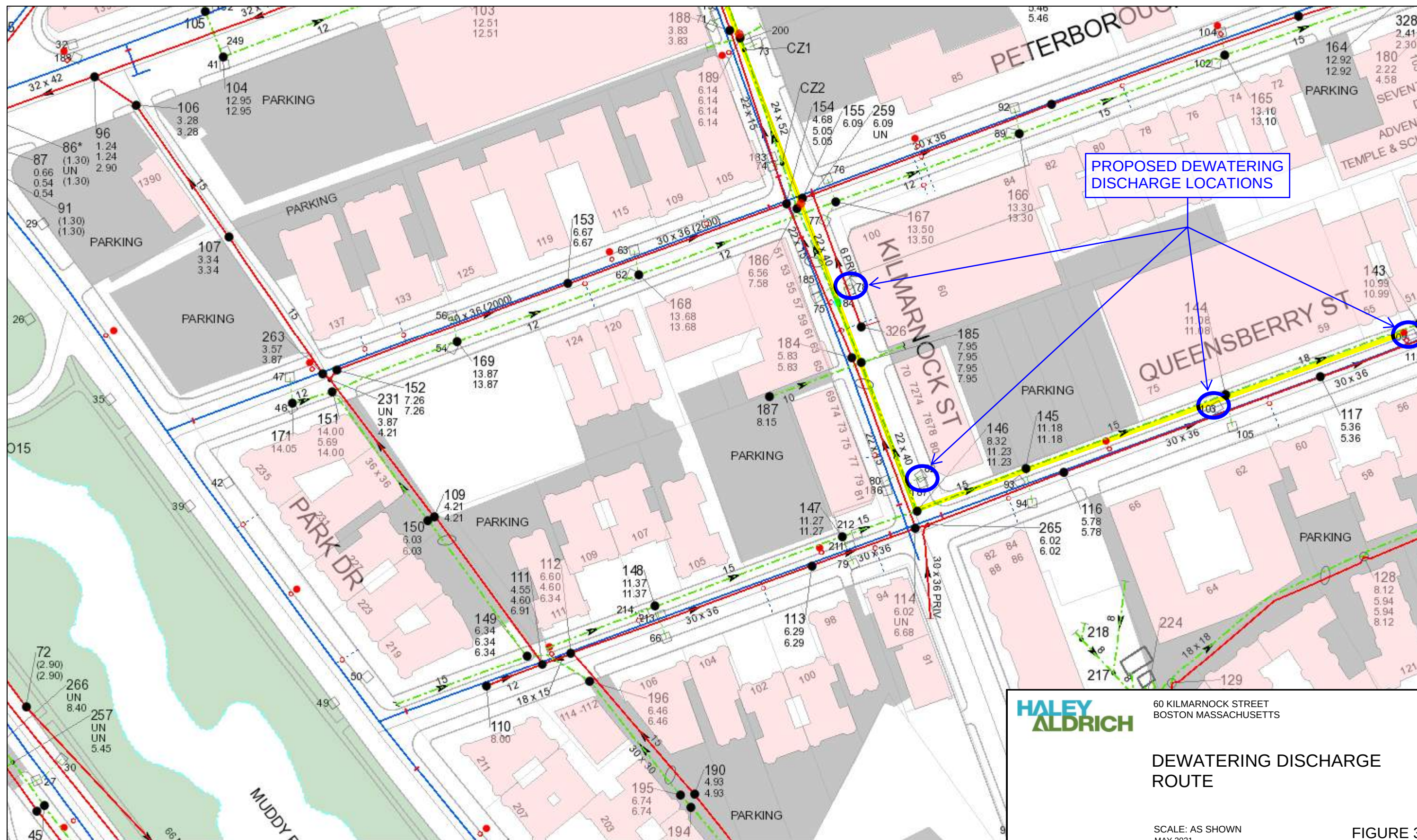
60 KILMARNOCK STREET
BOSTON, MASSACHUSETTS

PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
MAY 2021

FIGURE 1





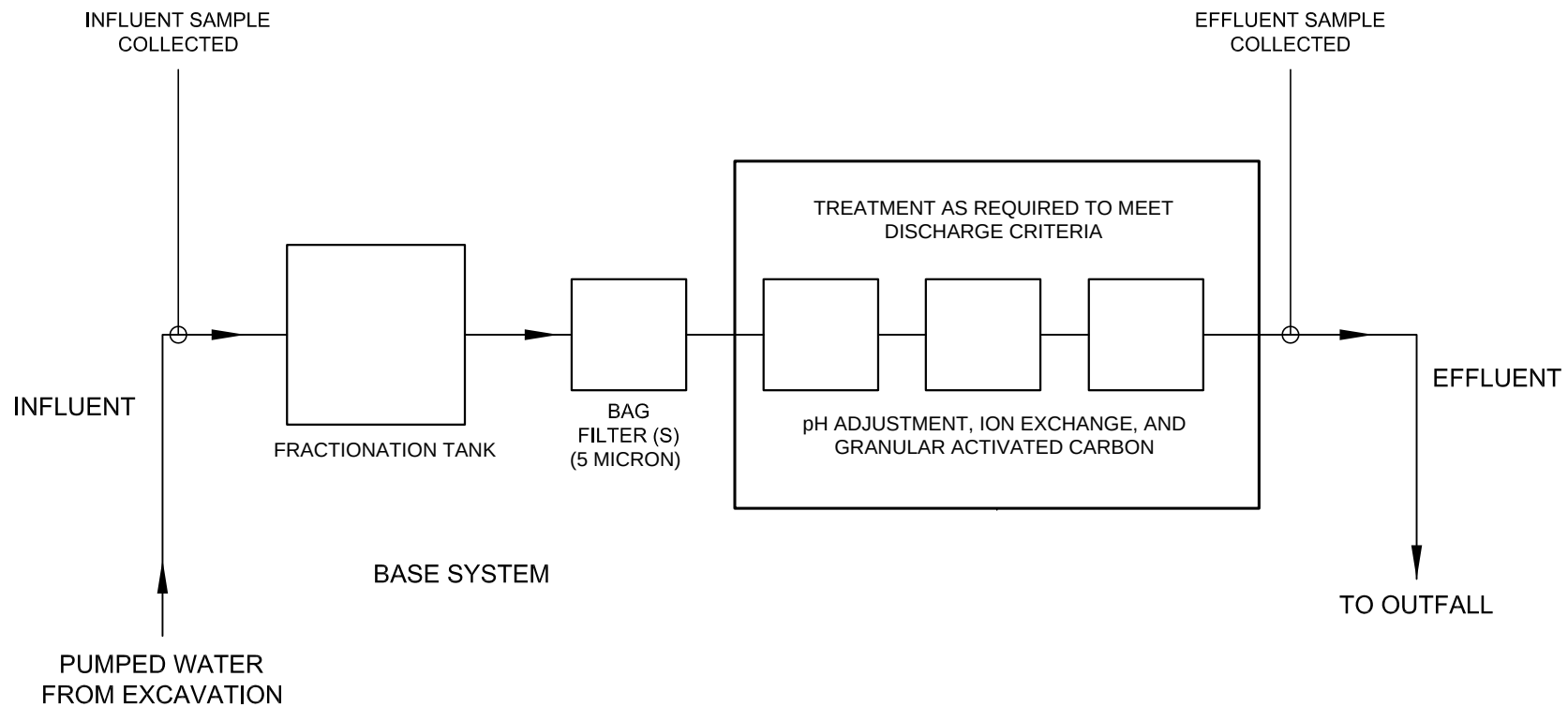
BOSTON WATER AND SEWER

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0 25 50 100 150 200 Feet

GIS MAP



LEGEND:

→ DIRECTION OF FLOW

NOTE:

1. DETAILS OF TREATMENT SYSTEM MAY VARY FROM SYSTEM INDICATED ABOVE. SPECIFIC MEANS AND METHODS OF TREATMENT TO BE SELECTED BY CONTRACTOR. WATER WILL BE TREATED TO MEET REQUIRED EFFLUENT STANDARDS.

**HALEY
ALDRICH**

60 KILMARNOCK STREET
BOSTON MASSACHUSETTS

TREATMENT SCHEMATIC

SCALE: NONE
MAY 2021

FIGURE 4

APPENDIX A
Notice of Intent (NOI)

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

A. General site information:

1. Name of site: 60 Kilmarnock Street	Site address: 60 Kilmarnock Street Street:		
2. Site owner 60 Kilmarnock (Boston) Owner, LLC Owner is (check one): ☐ Federal ☐ State/Tribal ☒ Private ☐ Other; if so, specify:	City: Boston	State: MA	Zip: 02215
3. Site operator, if different than owner Consigli Construction Company	Contact Person: John Sullivan Telephone: 617-603-4006 Email: jsullivan@ccfne.com Mailing address: 185 Dartmouth Street Street: City: Boston State: MA Zip: 02116		
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:	5. Other regulatory program(s) that apply to the site (check all that apply): ☒ MA Chapter 21e; list RTN(s): 3-34561, 3-34562, 3-20681 ☐ NH Groundwater Management Permit or Groundwater Release Detection Permit: ☐ CERCLA ☐ UIC Program ☐ POTW Pretreatment ☐ CWA Section 404		

B. Receiving water information:

1. Name of receiving water(s): Charles River	Waterbody identification of receiving water(s): MA72-38	Classification of receiving water(s): Class B
Receiving water is (check any that apply): ☐ Outstanding Resource Water ☐ Ocean Sanctuary ☐ territorial sea ☐ Wild and Scenic River		
2. Has the operator attached a location map in accordance with the instructions in B, above? (check one): ☒ Yes ☐ No Are sensitive receptors present near the site? (check one): ☐ Yes ☒ No If yes, specify:		
3. Indicate if the receiving water(s) is listed in the State's Integrated List of Waters (i.e., CWA Section 303(d)). Include which designated uses are impaired, and any pollutants indicated. Also, indicate if a final TMDL is available for any of the indicated pollutants. For more information, contact the appropriate State as noted in Part 4.6 of the RGP. Impaired for: Chlorophyll-a (TMDL), Combined Biota/Habitat Bioassessments, DDT in Fish Tissue, Dissolved Oxygen, Dissolved Oxygen Supersaturation (TMDL), E. coli (TMDL), Harmful Algal Blooms (TMDL), Nutrient/Eutrophication Biological Indicators (TMDL), Odor (TMDL), Oil and Grease, PCBs in Fish Tissue, Phosphorus (TMDL), Salinity, Temperature, Transparency/Clarity (TMDL)		
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.		24.7 cfs
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.		56.24
6. Has the operator received confirmation from the appropriate State for the 7Q10 and dilution factor indicated? (check one): ☒ Yes ☐ No If yes, indicate date confirmation received: 4/20/2021		
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	☐ Potable water; if so, indicate municipality or origin: ☐ Other; if so, specify:
		☐ A surface water other than the receiving water; if so, indicate waterbody:	

2. Source water contaminants: See Section D	
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): SDO 042	Catch Basins Proposed Discharge Location	Outfall location(s): (Latitude, Longitude) 42.351074, -71.097742	Catch Basin Locations 42.34287, -71.09947 42.34240, -71.09924 42.34241, -71.09981 42.34261, -71.09802
Discharges enter the receiving water(s) via (check any that apply): ☐ Direct discharge to the receiving water ☒ Indirect discharge, if so, specify: Catch basins shown on Figure 2 of the NPDES RGP application for temporary dewatering ☐ 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 in review, we anticipate approval in 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): August 2021 to August 2023			
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			

2. Activity Category: (check all that apply)	3. Contamination Type Category: (check all that apply)	
☐ 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	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	
	b. If Activity Category III, IV, V, VI, VII or VIII: (check either G or H)	
	<table border="1"> <tr> <td data-bbox="970 799 1419 873">☒ G. Sites with Known Contamination</td><td data-bbox="1419 799 2003 873">☐ H. Sites with Unknown Contamination</td></tr> </table>	☒ G. Sites with Known Contamination
☒ G. Sites with Known Contamination	☐ H. Sites with Unknown Contamination	
<table border="1"> <tr> <td data-bbox="970 873 1419 1409"> 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 data-bbox="1419 873 2003 1409"> 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>	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	d. If Category III-H, IV-H, V-H, VI-H, VII-H or VIII-H Contamination Type Categories A through F apply
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	d. If Category III-H, IV-H, V-H, VI-H, VII-H or VIII-H Contamination Type Categories A through F apply	

4. Influent and Effluent Characteristics

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	4620	4620	Report mg/L	---
Chloride		✓	2	300.0	50000	1,110,000	858,000	Report µg/l	---
Total Residual Chlorine	✓		2	4500CL-D	20	0	0	0.2 mg/L	618 µg/L
Total Suspended Solids		✓	2	2540D	5000	89	48.95	30 mg/L	---
Antimony		✓	1	200.8	4	0	0	206 µg/L	35973 µg/L
Arsenic		✓	1	200.8	1	3.03	3.03	104 µg/L	562 µg/L
Cadmium		✓	1	200.8	0.2	0	0	10.2 µg/L	10,916 µg/L
Chromium III		✓	1	200.8	10	0	0	323 µg/L	3356.7 µg/L
Chromium VI		✓	2	7196A	10	0	0	323 µg/L	642.7 µg/L
Copper		✓	1	200.8	1	0	0	242 µg/L	357.6 µg/L
Iron		✓	1	200.7	50	23,100	23,100	5,000 µg/L	33021 µg/L
Lead		✓	1	200.8	1	0	0	160 µg/L	7.82 µg/L
Mercury		✓	1	245.1	0.2	0	0	0.739 µg/L	50.92 µg/L
Nickel		✓	1	200.8	2	3.65	3.65	1,450 µg/L	2007.3 µg/L
Selenium	✓		1	200.8	5	0	0	235.8 µg/L	281.0 µg/L
Silver		✓	1	200.8	0.4	0	0	35.1 µg/L	98.5 µg/L
Zinc		✓	1	200.8	10	12.15	12.15	420 µg/L	3937.3 µg/L
Cyanide	✓		1	4500CN	5	0	0	178 mg/L	292.3 µg/L
B. Non-Halogenated VOCs									
Total BTEX		✓	32	624.1	NA	31,810	659	100 µg/L	---
Benzene		✓	32	624.1	1	31,000	473	5.0 µg/L	---
1,4 Dioxane	✓		10	624.1-SIM	50	0	0	200 µg/L	---
Acetone		✓	10	624.1	10	31	5.23	7.97 mg/L	---
Phenol		✓	1	420.1	5	0	0	1,080 µg/L	16863 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	✓		10	624.1	2.5	0	0	4.4 µg/L	89.9 µg/L
1,2 Dichlorobenzene	✓		10	624.1	12	0	0	600 µg/L	---
1,3 Dichlorobenzene	✓		10	624.1	12	0	0	320 µg/L	---
1,4 Dichlorobenzene	✓		10	624.1	12	0	0	5.0 µg/L	---
Total dichlorobenzene	✓		10	624.1	12	0	0	763 µg/L in NH	---
1,1 Dichloroethane	✓		10	624.1	3.8	0	0	70 µg/L	---
1,2 Dichloroethane	✓		10	624.1	2.5	0	0	5.0 µg/L	---
1,1 Dichloroethylene	✓		10	624.1	2.5	0	0	3.2 µg/L	---
Ethylene Dibromide	✓		10	624.1	10	0	0	0.05 µg/L	---
Methylene Chloride	✓		10	624.1	15	0	0	4.6 µg/L	---
1,1,1 Trichloroethane	✓		10	624.1	2.5	0	0	200 µg/L	---
1,1,2 Trichloroethane	✓		10	624.1	3.8	0	0	5.0 µg/L	---
Trichloroethylene	✓		10	624.1	2.5	0	0	5.0 µg/L	---
Tetrachloroethylene	✓		10	624.1	2.5	0	0	5.0 µg/L	185.5 µg/L
cis-1,2 Dichloroethylene	✓		10	624.1	2.5	0	0	70 µg/L	---
Vinyl Chloride	✓		10	624.1	5	0	0	2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates		✓	2	625.1	5	0	0	190 µg/L	---
Diethylhexyl phthalate		✓	2	625.1	3	0	0	101 µg/L	123.7 µg/L
Total Group I PAHs		✓	10	624.1-SIM	0.2	1.8	0.205	1.0 µg/L	---
Benzo(a)anthracene		✓	10	624.1-SIM	0.2	0.301	0.0301	As Total PAHs	0.2136 µg/L
Benzo(a)pyrene		✓	10	624.1-SIM	0.2	0.25	0.025		0.2136 µg/L
Benzo(b)fluoranthene		✓	10	624.1-SIM	0.2	0.276	0.0276		0.2136 µg/L
Benzo(k)fluoranthene		✓	10	624.1-SIM	0.2	0.246	0.0246		0.2136 µg/L
Chrysene		✓	10	624.1-SIM	0.2	0.242	0.0242		0.2136 µg/L
Dibenzo(a,h)anthracene		✓	10	624.1-SIM	0.2	0.234	0.0234		0.2136 µg/L
Indeno(1,2,3-cd)pyrene		✓	10	624.1-SIM	0.2	0.252	0.0252		0.2136 µg/L

[illegible]

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: Granulated Activated Carbon (GAC), Coagulation/Flocculation, Ion Exchange, and/or pH adjustment may be added to meet necessary effluent limits.	
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. Additional treatment may include granulated activated carbon (GAC), a chemical aided settling system (coagulation/flocculation) ion exchange, and/or pH adjustment, as needed to meet necessary effluent limits. 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: Granulated Activated Carbon (GAC), a chemical aided settling system (coagulation/flocculation) Ion Exchange, and/or pH adjustment may be added to meet necessary effluent limits. 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: Bag Filters Is use of a flow meter feasible? (check one): ☒ Yes ☐ No, if so, provide justification:	200 gpm
Provide the proposed maximum effluent flow in gpm.	200 gpm
Provide the average effluent flow in gpm.	100 gpm
If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:	N/A
4. Has the operator attached a schematic of flow in accordance with the instructions in E, above? (check one): ☒ Yes ☐ No	

F. Chemical and additive information

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

☐ Algaecides/biocides ☐ Antifoams ☐ Coagulants ☐ Corrosion/scale inhibitors ☐ Disinfectants ☐ Flocculants ☐ Neutralizing agents ☐ Oxidants ☐ Oxygen ☐ scavengers ☐ pH conditioners ☐ Bioremedial agents, including microbes ☐ Chlorine or chemicals containing chlorine ☒ Other; if so, specify:
pH or a chemical aided settling system may be added to the treatment system if necessary to meet effluent limits.

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

Refer to attached Haley & Aldrich, Inc. letter

- Product name, chemical formula, and manufacturer of the chemical/additive;
- Purpose or use of the chemical/additive or remedial agent;
- Material Safety Data Sheet (MSDS) and Chemical Abstracts Service (CAS) Registry number for each chemical/additive;
- The frequency (hourly, daily, etc.), duration (hours, days), quantity (maximum and average), and method of application for the chemical/additive;
- Any material compatibility risks for storage and/or use including the control measures used to minimize such risks; and
- 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.

A BMPP meeting the requirements of this general permit will be implemented at the site.

BMPP certification statement:

Notification provided to the appropriate State, including a copy of this NOI, if required.

Check one: Yes ☒ No ☐

Notification provided to the municipality in which the discharge is located, including a copy of this NOI, if requested.

Check one: Yes ☒ No ☐

Notification provided to the owner of a private or municipal storm sewer system, if such system is used for site discharges, including a copy of this NOI, if requested.

Check one: Yes ☒ No ☐ NA ☐

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

Check one: Yes ☒ No ☐ NA ☐

Notification provided to the owner/operator of the area associated with activities covered by an additional discharge permit(s). Additional discharge permit is (check one): ☐ RGP ☐ DGP ☐ CGP ☐ MSGP ☐ Individual NPDES permit ☒ Other; if so, specify:

Check one: Yes ☐ No ☐ NA ☒

Signature:



Date:

4/29/21

Print Name and Title:

John Sullivan, Executive Vice President

J. Certification requirement

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

A BMPP meeting the requirements of this general permit will be implemented at the site.

BMPP certification statement:

Notification provided to the appropriate State, including a copy of this NOI, if required.

Check one: Yes ☒ No ☐

Notification provided to the municipality in which the discharge is located, including a copy of this NOI, if requested.

Check one: Yes ☒ No ☐

Notification provided to the owner of a private or municipal storm sewer system, if such system is used for site discharges, including a copy of this NOI, if requested.

Check one: Yes ☒ No ☐ NA ☐

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

Check one: Yes ☐ No ☒ NA ☐

Notification provided to the owner/operator of the area associated with activities covered by an additional discharge permit(s). Additional discharge permit is (check one): ☐ RGP ☐ DGP ☐ CGP ☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:

Check one: Yes ☐ No ☐ NA ☒

Signature:



Date:

4-3-21

Print Name and Title:

Christopher Scarvalas, Project Executive

APPENDIX B

Effluent Limitations Documentation

From: Keohane, Kathleen (DEP) <kathleen.keohane@state.ma.us>
Sent: Tuesday, April 20, 2021 5:51 PM
To: Straley, Beck
Cc: Vakalopoulos, Catherine (DEP); Ruan, Xiaodan (DEP)
Subject: RGP - 60 Kilmarnock St, Boston

CAUTION: External Email

The 7Q10 of 24.7 cfs (15.91 MGD) and the dilution factor calculation of 56.24 using a design flow of 200 gpm (0.288 MGD) for the proposed discharge to the Charles River from 60 Kilmarnock Street in Boston at outfall SDO 042 on the Charles River is correct. This location was confirmed by BWSC.

Here is water quality information to assist you with filling out the NOI (some of which you already have):

Waterbody and ID: Charles River (MA72-38)
Classification: B, Warm water fishery
Outstanding Resource Water?: No

State's most recent Integrated List is located here: <https://www.epa.gov/sites/production/files/2020-01/documents/2016-ma-303d-list-report.pdf>, search for "MA72-38" to see the causes of impairments. TMDLs: There are approved TMDL (pathogens and phosphorus) for this segment.

As you may know, if this is not a *current* MCP site, then in addition to submitting the NOI to EPA, you need to apply with MassDEP and submit a \$500 fee (unless fee exempt, e.g., municipality) using ePLACE. Instructions on how to apply are located here: <https://www.mass.gov/how-to/wm-15-npdes-general-permit-notice-of-intent> and information on how to get ePLACE technical assistance is available on the ePLACE Portal webpage: <https://eplace.eea.mass.gov/citizenaccess/>.

Please let me know if you have any questions.

Kathleen M. Keohane
MassDEP Surface Water Discharge Permit Program
kathleen.Keohane@mass.gov

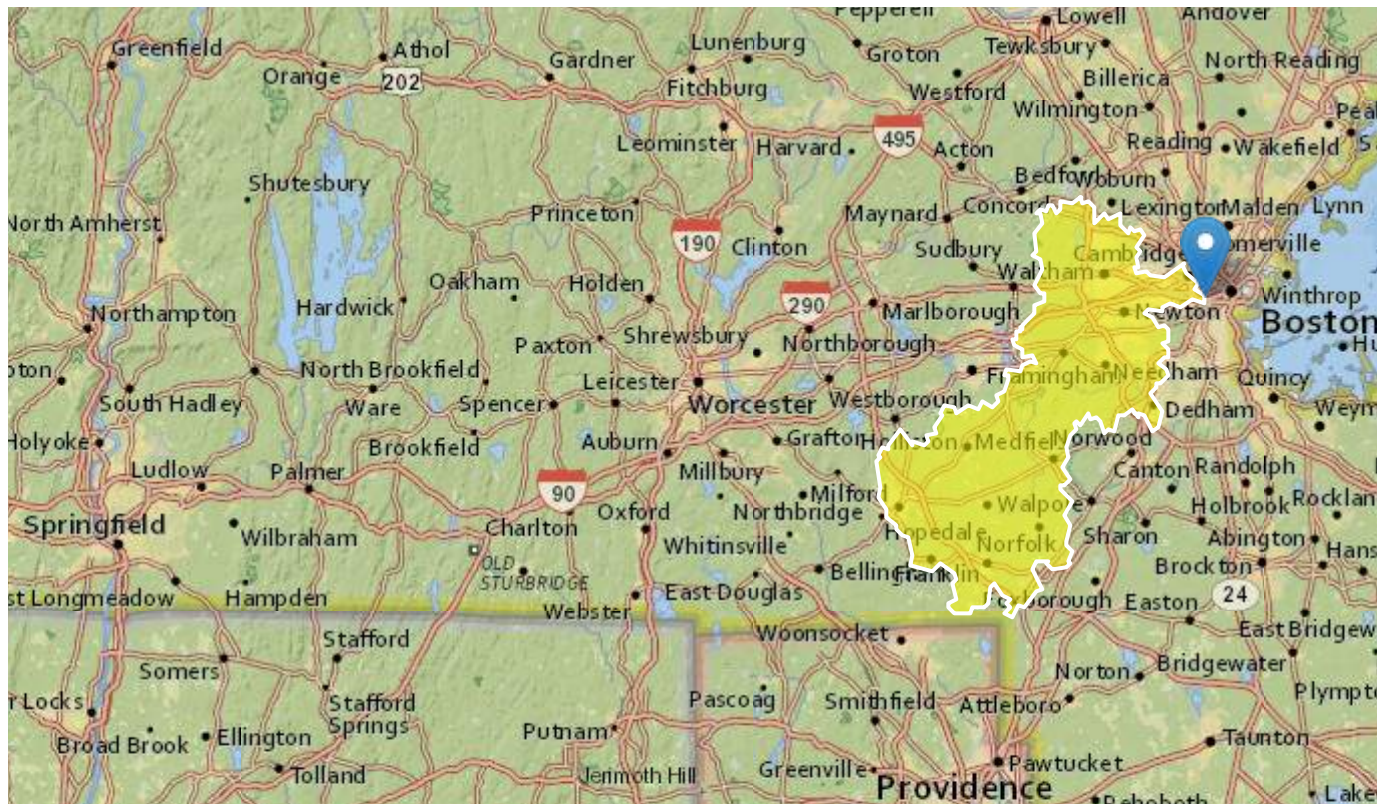
StreamStats Report

Region ID: MA

Workspace ID: MA20210416145103921000

Clicked Point (Latitude, Longitude): 42.35306, -71.09788

Time: 2021-04-16 10:51:22 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	283	square miles
BSLDEM250	Mean basin slope computed from 1:250K DEM	2.327	percent
DRFTPERSTR	Area of stratified drift per unit of stream length	0.23	square mile per mile
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless

Low-Flow Statistics Parameters [Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	283	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	2.327	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0.23	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

Low-Flow Statistics Disclaimers [Statewide Low Flow WRIR00 4135]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report [Statewide Low Flow WRIR00 4135]

Statistic	Value	Unit
7 Day 2 Year Low Flow	49.6	ft ³ /s
7 Day 10 Year Low Flow	24.7	ft ³ /s

Low-Flow Statistics Citations

Ries, K.G., III, 2000, Methods for estimating low-flow statistics for Massachusetts streams: U.S. Geological Survey Water Resources Investigations Report 00-4135, 81 p. (<http://pubs.usgs.gov/wri/wri004135/>)

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

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USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Application Version: 4.5.1

StreamStats Services Version: 1.2.22

NSS Services Version: 2.1.1

APPENDIX C

Laboratory Data Reports



ANALYTICAL REPORT

Lab Number:	L1637094
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Lee Vanzler
Phone:	(617) 886-7561
Project Name:	59 QUEENSBURY ST.
Project Number:	128982-002
Report Date:	11/21/16

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: NY (11627), CT (PH-0141), NH (2206), NJ NELAP (MA015), RI (LAO00299), ME (MA00030), PA (68-02089), VA (460194), LA NELAP (03090), FL (E87814), TX (T104704419), WA (C954), USFWS (Permit #LE2069641), USDA (Permit #P330-11-00109), US Army Corps of Engineers.

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



Project Name: 59 QUEENSBURY ST.
Project Number: 128982-002

Lab Number: L1637094
Report Date: 11/21/16

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1637094-01	HA16-4	WATER	BOSTON, MA	11/15/16 13:45	11/15/16
L1637094-02	TB20161115	WATER	BOSTON, MA	11/15/16 12:30	11/15/16

Project Name: 59 QUEENSBURY ST.
Project Number: 128982-002

Lab Number: L1637094
Report Date: 11/21/16

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: 59 QUEENSBURY ST.
Project Number: 128982-002

Lab Number: L1637094
Report Date: 11/21/16

Case Narrative (continued)

Volatile Organics

L1637094-01 (HA16-4): The sample has elevated detection limits due to the dilution required by the sample matrix (foamy).

Volatile Organics by SIM

L1637094-01 (HA16-4): The sample has elevated detection limits due to the dilution required by the sample matrix (foamy).

Microextractables

WG953841: An LCS/LCSD was performed in lieu of a Matrix Spike due to insufficient sample volume available for analysis.

Semivolatile Organics

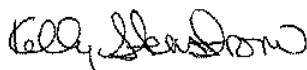
The WG953025-2/-3 LCS/LCSD recoveries, associated with L1637094-01 (HA16-4), are below the acceptance criteria for benzidine (0%/2%), aniline (LCS 5%) and pyridine (0%/6%); however, they have been identified as "difficult" analytes. The results of the associated sample are reported.

VPH

L1637094-01 (HA16-4): The sample has elevated detection limits due to the dilution required by the sample matrix (foam).

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: 11/21/16

ORGANICS

VOLATILES

Project Name: 59 QUEENSBURY ST.
Project Number: 128982-002

Lab Number: L1637094
Report Date: 11/21/16

SAMPLE RESULTS

Lab ID: L1637094-01
Client ID: HA16-4
Sample Location: BOSTON, MA
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 11/18/16 18:51
Analyst: NS

Date Collected: 11/15/16 13:45
Date Received: 11/15/16
Field Prep: Not Specified
Extraction Method: EPA 504.1
Extraction Date: 11/18/16 15:31

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

Project Name: 59 QUEENSBURY ST.**Lab Number:** L1637094**Project Number:** 128982-002**Report Date:** 11/21/16**SAMPLE RESULTS**

Lab ID: L1637094-01 D
Client ID: HA16-4
Sample Location: BOSTON, MA
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 11/17/16 12:20
Analyst: PK

Date Collected: 11/15/16 13:45
Date Received: 11/15/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	15	--	5
1,1-Dichloroethane	ND		ug/l	3.8	--	5
Chloroform	ND		ug/l	3.8	--	5
Carbon tetrachloride	ND		ug/l	2.5	--	5
1,2-Dichloropropane	ND		ug/l	8.8	--	5
Dibromochloromethane	ND		ug/l	2.5	--	5
1,1,2-Trichloroethane	ND		ug/l	3.8	--	5
Tetrachloroethene	ND		ug/l	2.5	--	5
Chlorobenzene	ND		ug/l	2.5	--	5
Trichlorofluoromethane	ND		ug/l	12	--	5
1,2-Dichloroethane	ND		ug/l	2.5	--	5
1,1,1-Trichloroethane	ND		ug/l	2.5	--	5
Bromodichloromethane	ND		ug/l	2.5	--	5
trans-1,3-Dichloropropene	ND		ug/l	2.5	--	5
cis-1,3-Dichloropropene	ND		ug/l	2.5	--	5
1,3-Dichloropropene, Total	ND		ug/l	2.5	--	5
1,1-Dichloropropene	ND		ug/l	12	--	5
Bromoform	ND		ug/l	10	--	5
1,1,2,2-Tetrachloroethane	ND		ug/l	2.5	--	5
Benzene	6.5		ug/l	2.5	--	5
Toluene	ND		ug/l	3.8	--	5
Ethylbenzene	ND		ug/l	2.5	--	5
Chloromethane	ND		ug/l	12	--	5
Bromomethane	ND		ug/l	5.0	--	5
Vinyl chloride	ND		ug/l	5.0	--	5
Chloroethane	ND		ug/l	5.0	--	5
1,1-Dichloroethene	ND		ug/l	2.5	--	5
1,2-Dichloroethene, Total	ND		ug/l	2.5	--	5
Trichloroethene	ND		ug/l	2.5	--	5
1,2-Dichlorobenzene	ND		ug/l	12	--	5



Project Name: 59 QUEENSBURY ST.

Lab Number: L1637094

Project Number: 128982-002

Report Date: 11/21/16

SAMPLE RESULTS

Lab ID: L1637094-01 D

Date Collected: 11/15/16 13:45

Client ID: HA16-4

Date Received: 11/15/16

Sample Location: BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	12	--	5
1,4-Dichlorobenzene	ND		ug/l	12	--	5
Methyl tert butyl ether	28		ug/l	5.0	--	5
p/m-Xylene	ND		ug/l	5.0	--	5
o-Xylene	ND		ug/l	5.0	--	5
Xylenes, Total	ND		ug/l	5.0	--	5
cis-1,2-Dichloroethene	ND		ug/l	2.5	--	5
Dibromomethane	ND		ug/l	25	--	5
1,4-Dichlorobutane	ND		ug/l	25	--	5
1,2,3-Trichloropropane	ND		ug/l	25	--	5
Styrene	ND		ug/l	5.0	--	5
Dichlorodifluoromethane	ND		ug/l	25	--	5
Acetone	ND		ug/l	25	--	5
Carbon disulfide	ND		ug/l	25	--	5
2-Butanone	ND		ug/l	25	--	5
Vinyl acetate	ND		ug/l	25	--	5
4-Methyl-2-pentanone	ND		ug/l	25	--	5
2-Hexanone	ND		ug/l	25	--	5
Ethyl methacrylate	ND		ug/l	25	--	5
Acrylonitrile	ND		ug/l	25	--	5
Bromochloromethane	ND		ug/l	12	--	5
Tetrahydrofuran	ND		ug/l	25	--	5
2,2-Dichloropropane	ND		ug/l	12	--	5
1,2-Dibromoethane	ND		ug/l	10	--	5
1,3-Dichloropropane	ND		ug/l	12	--	5
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	--	5
Bromobenzene	ND		ug/l	12	--	5
n-Butylbenzene	ND		ug/l	2.5	--	5
sec-Butylbenzene	3.0		ug/l	2.5	--	5
tert-Butylbenzene	ND		ug/l	12	--	5
o-Chlorotoluene	ND		ug/l	12	--	5
p-Chlorotoluene	ND		ug/l	12	--	5
1,2-Dibromo-3-chloropropane	ND		ug/l	12	--	5
Hexachlorobutadiene	ND		ug/l	2.5	--	5
Isopropylbenzene	7.0		ug/l	2.5	--	5
p-Isopropyltoluene	ND		ug/l	2.5	--	5
Naphthalene	ND		ug/l	12	--	5
n-Propylbenzene	ND		ug/l	2.5	--	5
1,2,3-Trichlorobenzene	ND		ug/l	12	--	5



Project Name: 59 QUEENSBURY ST.**Lab Number:** L1637094**Project Number:** 128982-002**Report Date:** 11/21/16**SAMPLE RESULTS**

Lab ID: L1637094-01 D

Date Collected: 11/15/16 13:45

Client ID: HA16-4

Date Received: 11/15/16

Sample Location: BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	12	--	5
1,3,5-Trimethylbenzene	ND		ug/l	12	--	5
1,2,4-Trimethylbenzene	ND		ug/l	12	--	5
trans-1,4-Dichloro-2-butene	ND		ug/l	12	--	5
Ethyl ether	ND		ug/l	12	--	5
Tert-Butyl Alcohol	78		ug/l	50	--	5
Tertiary-Amyl Methyl Ether	ND		ug/l	10	--	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	102		70-130

Project Name: 59 QUEENSBURY ST.**Lab Number:** L1637094**Project Number:** 128982-002**Report Date:** 11/21/16**SAMPLE RESULTS**

Lab ID: L1637094-01 D
Client ID: HA16-4
Sample Location: BOSTON, MA
Matrix: Water
Analytical Method: 1,8260C-SIM(M)
Analytical Date: 11/17/16 12:20
Analyst: PK

Date Collected: 11/15/16 13:45
Date Received: 11/15/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Volatile Organics by GC/MS-SIM - Westborough Lab

1,4-Dioxane	ND		ug/l	15	--	5

Project Name: 59 QUEENSBURY ST.**Lab Number:** L1637094**Project Number:** 128982-002**Report Date:** 11/21/16**SAMPLE RESULTS**

Lab ID: L1637094-02
Client ID: TB20161115
Sample Location: BOSTON, MA
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 11/17/16 11:13
Analyst: PK

Date Collected: 11/15/16 12:30
Date Received: 11/15/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	3.0	--	1
1,1-Dichloroethane	ND		ug/l	0.75	--	1
Chloroform	ND		ug/l	0.75	--	1
Carbon tetrachloride	ND		ug/l	0.50	--	1
1,2-Dichloropropane	ND		ug/l	1.8	--	1
Dibromochloromethane	ND		ug/l	0.50	--	1
1,1,2-Trichloroethane	ND		ug/l	0.75	--	1
Tetrachloroethene	ND		ug/l	0.50	--	1
Chlorobenzene	ND		ug/l	0.50	--	1
Trichlorofluoromethane	ND		ug/l	2.5	--	1
1,2-Dichloroethane	ND		ug/l	0.50	--	1
1,1,1-Trichloroethane	ND		ug/l	0.50	--	1
Bromodichloromethane	ND		ug/l	0.50	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	--	1
1,1-Dichloropropene	ND		ug/l	2.5	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	0.75	--	1
Ethylbenzene	ND		ug/l	0.50	--	1
Chloromethane	ND		ug/l	2.5	--	1
Bromomethane	ND		ug/l	1.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	1.0	--	1
1,1-Dichloroethene	ND		ug/l	0.50	--	1
1,2-Dichloroethene, Total	ND		ug/l	0.50	--	1
Trichloroethene	ND		ug/l	0.50	--	1
1,2-Dichlorobenzene	ND		ug/l	2.5	--	1



Project Name: 59 QUEENSBURY ST.

Lab Number: L1637094

Project Number: 128982-002

Report Date: 11/21/16

SAMPLE RESULTS

Lab ID: L1637094-02

Date Collected: 11/15/16 12:30

Client ID: TB20161115

Date Received: 11/15/16

Sample Location: BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.5	--	1
1,4-Dichlorobenzene	ND		ug/l	2.5	--	1
Methyl tert butyl ether	ND		ug/l	1.0	--	1
p/m-Xylene	ND		ug/l	1.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
Xylenes, Total	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	0.50	--	1
Dibromomethane	ND		ug/l	5.0	--	1
1,4-Dichlorobutane	ND		ug/l	5.0	--	1
1,2,3-Trichloropropane	ND		ug/l	5.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	5.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	5.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
Vinyl acetate	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Ethyl methacrylate	ND		ug/l	5.0	--	1
Acrylonitrile	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.5	--	1
Tetrahydrofuran	ND		ug/l	5.0	--	1
2,2-Dichloropropane	ND		ug/l	2.5	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.5	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	--	1
Bromobenzene	ND		ug/l	2.5	--	1
n-Butylbenzene	ND		ug/l	0.50	--	1
sec-Butylbenzene	ND		ug/l	0.50	--	1
tert-Butylbenzene	ND		ug/l	2.5	--	1
o-Chlorotoluene	ND		ug/l	2.5	--	1
p-Chlorotoluene	ND		ug/l	2.5	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Isopropylbenzene	ND		ug/l	0.50	--	1
p-Isopropyltoluene	ND		ug/l	0.50	--	1
Naphthalene	ND		ug/l	2.5	--	1
n-Propylbenzene	ND		ug/l	0.50	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	--	1



Project Name: 59 QUEENSBURY ST.**Lab Number:** L1637094**Project Number:** 128982-002**Report Date:** 11/21/16**SAMPLE RESULTS****Lab ID:** L1637094-02**Date Collected:** 11/15/16 12:30**Client ID:** TB20161115**Date Received:** 11/15/16**Sample Location:** BOSTON, MA**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	2.5	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	--	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	--	1
Ethyl ether	ND		ug/l	2.5	--	1
Tert-Butyl Alcohol	ND		ug/l	10	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	109		70-130

Project Name: 59 QUEENSBURY ST.
Project Number: 128982-002

Lab Number: L1637094
Report Date: 11/21/16

SAMPLE RESULTS

Lab ID: L1637094-02
Client ID: TB20161115
Sample Location: BOSTON, MA
Matrix: Water
Analytical Method: 1,8260C-SIM(M)
Analytical Date: 11/17/16 11:13
Analyst: PK

Date Collected: 11/15/16 12:30
Date Received: 11/15/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Volatile Organics by GC/MS-SIM - Westborough Lab

1,4-Dioxane	ND		ug/l	3.0	--	1

Project Name: 59 QUEENSBURY ST.
Project Number: 128982-002

Lab Number: L1637094
Report Date: 11/21/16

SAMPLE RESULTS

Lab ID: L1637094-02
Client ID: TB20161115
Sample Location: BOSTON, MA
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 11/18/16 19:08
Analyst: NS

Date Collected: 11/15/16 12:30
Date Received: 11/15/16
Field Prep: Not Specified
Extraction Method: EPA 504.1
Extraction Date: 11/18/16 15:31

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

Project Name: 59 QUEENSBURY ST.**Lab Number:** L1637094**Project Number:** 128982-002**Report Date:** 11/21/16**Method Blank Analysis**
Batch Quality Control

Analytical Method: 1,8260C-SIM(M)

Analytical Date: 11/17/16 07:20

Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-02 Batch: WG953310-5					
1,4-Dioxane	ND		ug/l	3.0	--

Project Name: 59 QUEENSBURY ST.

Lab Number: L1637094

Project Number: 128982-002

Report Date: 11/21/16

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C

Analytical Date: 11/17/16 07:20

Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG953484-5					
Methylene chloride	ND		ug/l	3.0	--
1,1-Dichloroethane	ND		ug/l	0.75	--
Chloroform	ND		ug/l	0.75	--
Carbon tetrachloride	ND		ug/l	0.50	--
1,2-Dichloropropane	ND		ug/l	1.8	--
Dibromochloromethane	ND		ug/l	0.50	--
1,1,2-Trichloroethane	ND		ug/l	0.75	--
Tetrachloroethene	ND		ug/l	0.50	--
Chlorobenzene	ND		ug/l	0.50	--
Trichlorofluoromethane	ND		ug/l	2.5	--
1,2-Dichloroethane	ND		ug/l	0.50	--
1,1,1-Trichloroethane	ND		ug/l	0.50	--
Bromodichloromethane	ND		ug/l	0.50	--
trans-1,3-Dichloropropene	ND		ug/l	0.50	--
cis-1,3-Dichloropropene	ND		ug/l	0.50	--
1,3-Dichloropropene, Total	ND		ug/l	0.50	--
1,1-Dichloropropene	ND		ug/l	2.5	--
Bromoform	ND		ug/l	2.0	--
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	--
Benzene	ND		ug/l	0.50	--
Toluene	ND		ug/l	0.75	--
Ethylbenzene	ND		ug/l	0.50	--
Chloromethane	ND		ug/l	2.5	--
Bromomethane	ND		ug/l	1.0	--
Vinyl chloride	ND		ug/l	1.0	--
Chloroethane	ND		ug/l	1.0	--
1,1-Dichloroethene	ND		ug/l	0.50	--
1,2-Dichloroethene, Total	ND		ug/l	0.50	--
Trichloroethene	ND		ug/l	0.50	--

Project Name: 59 QUEENSBURY ST.

Lab Number: L1637094

Project Number: 128982-002

Report Date: 11/21/16

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C

Analytical Date: 11/17/16 07:20

Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG953484-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	--
1,3-Dichlorobenzene	ND		ug/l	2.5	--
1,4-Dichlorobenzene	ND		ug/l	2.5	--
Methyl tert butyl ether	ND		ug/l	1.0	--
p/m-Xylene	ND		ug/l	1.0	--
o-Xylene	ND		ug/l	1.0	--
Xylenes, Total	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	0.50	--
Dibromomethane	ND		ug/l	5.0	--
1,4-Dichlorobutane	ND		ug/l	5.0	--
1,2,3-Trichloropropane	ND		ug/l	5.0	--
Styrene	ND		ug/l	1.0	--
Dichlorodifluoromethane	ND		ug/l	5.0	--
Acetone	ND		ug/l	5.0	--
Carbon disulfide	ND		ug/l	5.0	--
2-Butanone	ND		ug/l	5.0	--
Vinyl acetate	ND		ug/l	5.0	--
4-Methyl-2-pentanone	ND		ug/l	5.0	--
2-Hexanone	ND		ug/l	5.0	--
Ethyl methacrylate	ND		ug/l	5.0	--
Acrylonitrile	ND		ug/l	5.0	--
Bromochloromethane	ND		ug/l	2.5	--
Tetrahydrofuran	ND		ug/l	5.0	--
2,2-Dichloropropane	ND		ug/l	2.5	--
1,2-Dibromoethane	ND		ug/l	2.0	--
1,3-Dichloropropane	ND		ug/l	2.5	--
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	--
Bromobenzene	ND		ug/l	2.5	--
n-Butylbenzene	ND		ug/l	0.50	--

Project Name: 59 QUEENSBURY ST.

Lab Number: L1637094

Project Number: 128982-002

Report Date: 11/21/16

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C

Analytical Date: 11/17/16 07:20

Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG953484-5					
sec-Butylbenzene	ND		ug/l	0.50	--
tert-Butylbenzene	ND		ug/l	2.5	--
o-Chlorotoluene	ND		ug/l	2.5	--
p-Chlorotoluene	ND		ug/l	2.5	--
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	--
Hexachlorobutadiene	ND		ug/l	0.50	--
Isopropylbenzene	ND		ug/l	0.50	--
p-Isopropyltoluene	ND		ug/l	0.50	--
Naphthalene	ND		ug/l	2.5	--
n-Propylbenzene	ND		ug/l	0.50	--
1,2,3-Trichlorobenzene	ND		ug/l	2.5	--
1,2,4-Trichlorobenzene	ND		ug/l	2.5	--
1,3,5-Trimethylbenzene	ND		ug/l	2.5	--
1,2,4-Trimethylbenzene	ND		ug/l	2.5	--
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	--
Ethyl ether	ND		ug/l	2.5	--
Tert-Butyl Alcohol	ND		ug/l	10	--
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	106		70-130

Project Name: 59 QUEENSBURY ST.**Lab Number:** L1637094**Project Number:** 128982-002**Report Date:** 11/21/16**Method Blank Analysis**
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 11/18/16 18:00
Analyst: NS

Extraction Method: EPA 504.1
Extraction Date: 11/18/16 15:31

Parameter	Result	Qualifier	Units	RL	MDL
Microextractables by GC - Westborough Lab for sample(s): 01-02 Batch: WG953841-1					
1,2-Dibromoethane	ND		ug/l	0.010	-- A

Lab Control Sample Analysis**Batch Quality Control****Project Name:** 59 QUEENSBURY ST.**Project Number:** 128982-002**Lab Number:** L1637094**Report Date:** 11/21/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-02 Batch: WG953310-3 WG953310-4								
1,4-Dioxane	110		110		70-130	0		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: 59 QUEENSBURY ST.

Lab Number: L1637094

Project Number: 128982-002

Report Date: 11/21/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG953484-3 WG953484-4								
Methylene chloride	110		100		70-130	10		20
1,1-Dichloroethane	100		96		70-130	4		20
Chloroform	100		94		70-130	6		20
Carbon tetrachloride	97		88		63-132	10		20
1,2-Dichloropropane	99		87		70-130	13		20
Dibromochloromethane	92		84		63-130	9		20
1,1,2-Trichloroethane	94		82		70-130	14		20
Tetrachloroethene	97		90		70-130	7		20
Chlorobenzene	96		86		75-130	11		25
Trichlorofluoromethane	100		96		62-150	4		20
1,2-Dichloroethane	100		93		70-130	7		20
1,1,1-Trichloroethane	96		89		67-130	8		20
Bromodichloromethane	97		86		67-130	12		20
trans-1,3-Dichloropropene	84		76		70-130	10		20
cis-1,3-Dichloropropene	87		81		70-130	7		20
1,1-Dichloropropene	91		86		70-130	6		20
Bromoform	85		77		54-136	10		20
1,1,2,2-Tetrachloroethane	89		90		67-130	1		20
Benzene	100		91		70-130	9		25
Toluene	93		88		70-130	6		25
Ethylbenzene	92		84		70-130	9		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: 59 QUEENSBURY ST.

Project Number: 128982-002

Lab Number: L1637094

Report Date: 11/21/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG953484-3 WG953484-4								
Chloromethane	100		90		64-130	11		20
Bromomethane	120		110		39-139	9		20
Vinyl chloride	100		89		55-140	12		20
Chloroethane	110		99		55-138	11		20
1,1-Dichloroethene	110		95		61-145	15		25
trans-1,2-Dichloroethene	100		95		70-130	5		20
Trichloroethene	100		90		70-130	11		25
1,2-Dichlorobenzene	96		90		70-130	6		20
1,3-Dichlorobenzene	89		87		70-130	2		20
1,4-Dichlorobenzene	88		88		70-130	0		20
Methyl tert butyl ether	99		87		63-130	13		20
p/m-Xylene	95		85		70-130	11		20
o-Xylene	95		85		70-130	11		20
cis-1,2-Dichloroethene	110		98		70-130	12		20
Dibromomethane	98		96		70-130	2		20
1,4-Dichlorobutane	78		81		70-130	4		20
1,2,3-Trichloropropane	92		85		64-130	8		20
Styrene	95		85		70-130	11		20
Dichlorodifluoromethane	93		83		36-147	11		20
Acetone	91		77		58-148	17		20
Carbon disulfide	98		89		51-130	10		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: 59 QUEENSBURY ST.

Project Number: 128982-002

Lab Number: L1637094

Report Date: 11/21/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG953484-3 WG953484-4								
2-Butanone	89		83		63-138	7		20
Vinyl acetate	85		79		70-130	7		20
4-Methyl-2-pentanone	77		63		59-130	20		20
2-Hexanone	65		60		57-130	8		20
Ethyl methacrylate	81		74		70-130	9		20
Acrylonitrile	98		84		70-130	15		20
Bromochloromethane	100		95		70-130	5		20
Tetrahydrofuran	86		83		58-130	4		20
2,2-Dichloropropane	90		83		63-133	8		20
1,2-Dibromoethane	90		86		70-130	5		20
1,3-Dichloropropane	88		83		70-130	6		20
1,1,1,2-Tetrachloroethane	90		85		64-130	6		20
Bromobenzene	89		83		70-130	7		20
n-Butylbenzene	92		89		53-136	3		20
sec-Butylbenzene	85		80		70-130	6		20
tert-Butylbenzene	82		81		70-130	1		20
o-Chlorotoluene	86		83		70-130	4		20
p-Chlorotoluene	86		83		70-130	4		20
1,2-Dibromo-3-chloropropane	84		74		41-144	13		20
Hexachlorobutadiene	100		98		63-130	2		20
Isopropylbenzene	87		83		70-130	5		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: 59 QUEENSBURY ST.

Lab Number: L1637094

Project Number: 128982-002

Report Date: 11/21/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG953484-3 WG953484-4								
p-Isopropyltoluene	86		83		70-130	4		20
Naphthalene	83		82		70-130	1		20
n-Propylbenzene	87		82		69-130	6		20
1,2,3-Trichlorobenzene	85		85		70-130	0		20
1,2,4-Trichlorobenzene	88		86		70-130	2		20
1,3,5-Trimethylbenzene	88		84		64-130	5		20
1,2,4-Trimethylbenzene	89		86		70-130	3		20
trans-1,4-Dichloro-2-butene	41	Q	38	Q	70-130	8		20
Ethyl ether	100		95		59-134	5		20
Tert-Butyl Alcohol	88		82		70-130	7		20
Tertiary-Amyl Methyl Ether	87		81		66-130	7		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		94		70-130
Toluene-d8	95		93		70-130
4-Bromofluorobenzene	93		97		70-130
Dibromofluoromethane	108		106		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: 59 QUEENSBURY ST.

Project Number: 128982-002

Lab Number: L1637094

Report Date: 11/21/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01-02 Batch: WG953841-2 WG953841-3									
1,2-Dibromoethane	101		102		70-130	1		20	A
1,2-Dibromo-3-chloropropane	96		98		70-130	2		20	A

SEMIVOLATILES

Project Name: 59 QUEENSBURY ST.**Lab Number:** L1637094**Project Number:** 128982-002**Report Date:** 11/21/16**SAMPLE RESULTS**

Lab ID: L1637094-01
Client ID: HA16-4
Sample Location: BOSTON, MA
Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 11/19/16 21:56
Analyst: RC

Date Collected: 11/15/16 13:45
Date Received: 11/15/16
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 11/16/16 20:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Benzidine	ND		ug/l	20	--	1
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--	1
1,2-Dichlorobenzene	ND		ug/l	2.0	--	1
1,3-Dichlorobenzene	ND		ug/l	2.0	--	1
1,4-Dichlorobenzene	ND		ug/l	2.0	--	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--	1
2,4-Dinitrotoluene	ND		ug/l	5.0	--	1
2,6-Dinitrotoluene	ND		ug/l	5.0	--	1
Azobenzene	ND		ug/l	2.0	--	1
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	--	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--	1
Hexachlorocyclopentadiene	ND		ug/l	20	--	1
Isophorone	ND		ug/l	5.0	--	1
Nitrobenzene	ND		ug/l	2.0	--	1
NDPA/DPA	ND		ug/l	2.0	--	1
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	--	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--	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
Biphenyl	ND		ug/l	2.0	--	1
Aniline	ND		ug/l	2.0	--	1
4-Chloroaniline	ND		ug/l	5.0	--	1
2-Nitroaniline	ND		ug/l	5.0	--	1
3-Nitroaniline	ND		ug/l	5.0	--	1

Project Name: 59 QUEENSBURY ST.

Lab Number: L1637094

Project Number: 128982-002

Report Date: 11/21/16

SAMPLE RESULTS

Lab ID: L1637094-01

Date Collected: 11/15/16 13:45

Client ID: HA16-4

Date Received: 11/15/16

Sample Location: BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
4-Nitroaniline	ND		ug/l	5.0	--	1
Dibenzofuran	ND		ug/l	2.0	--	1
n-Nitrosodimethylamine	ND		ug/l	2.0	--	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	--	1
p-Chloro-m-cresol	ND		ug/l	2.0	--	1
2-Chlorophenol	ND		ug/l	2.0	--	1
2,4-Dichlorophenol	ND		ug/l	5.0	--	1
2,4-Dimethylphenol	ND		ug/l	5.0	--	1
2-Nitrophenol	ND		ug/l	10	--	1
4-Nitrophenol	ND		ug/l	10	--	1
2,4-Dinitrophenol	ND		ug/l	20	--	1
4,6-Dinitro-o-cresol	ND		ug/l	10	--	1
Phenol	ND		ug/l	5.0	--	1
2-Methylphenol	ND		ug/l	5.0	--	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	--	1
Benzoic Acid	ND		ug/l	50	--	1
Benzyl Alcohol	ND		ug/l	2.0	--	1
Carbazole	ND		ug/l	2.0	--	1
Pyridine	ND		ug/l	3.5	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	30		21-120
Phenol-d6	21		10-120
Nitrobenzene-d5	45		23-120
2-Fluorobiphenyl	44		15-120
2,4,6-Tribromophenol	51		10-120
4-Terphenyl-d14	48		41-149

Project Name: 59 QUEENSBURY ST.
Project Number: 128982-002

Lab Number: L1637094
Report Date: 11/21/16

SAMPLE RESULTS

Lab ID: L1637094-01
Client ID: HA16-4
Sample Location: BOSTON, MA
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 11/18/16 22:11
Analyst: KV

Date Collected: 11/15/16 13:45
Date Received: 11/15/16
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 11/16/16 20:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	0.83		ug/l	0.10	--	1
2-Chloronaphthalene	ND		ug/l	0.20	--	1
Fluoranthene	ND		ug/l	0.20	--	1
Hexachlorobutadiene	ND		ug/l	0.50	--	1
Naphthalene	ND		ug/l	0.20	--	1
Benzo(a)anthracene	ND		ug/l	0.20	--	1
Benzo(a)pyrene	ND		ug/l	0.20	--	1
Benzo(b)fluoranthene	ND		ug/l	0.20	--	1
Benzo(k)fluoranthene	ND		ug/l	0.20	--	1
Chrysene	ND		ug/l	0.20	--	1
Acenaphthylene	ND		ug/l	0.20	--	1
Anthracene	ND		ug/l	0.20	--	1
Benzo(ghi)perylene	ND		ug/l	0.20	--	1
Fluorene	0.46		ug/l	0.20	--	1
Phenanthrene	ND		ug/l	0.20	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.20	--	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.20	--	1
Pyrene	ND		ug/l	0.20	--	1
1-Methylnaphthalene	ND		ug/l	0.20	--	1
2-Methylnaphthalene	ND		ug/l	0.20	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1
Hexachlorobenzene	ND		ug/l	0.80	--	1
Hexachloroethane	ND		ug/l	0.80	--	1

Project Name: 59 QUEENSBURY ST.**Lab Number:** L1637094**Project Number:** 128982-002**Report Date:** 11/21/16**SAMPLE RESULTS**

Lab ID: L1637094-01

Date Collected: 11/15/16 13:45

Client ID: HA16-4

Date Received: 11/15/16

Sample Location: BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Semivolatile Organics by GC/MS-SIM - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	25		21-120
Phenol-d6	18		10-120
Nitrobenzene-d5	42		23-120
2-Fluorobiphenyl	52		15-120
2,4,6-Tribromophenol	55		10-120
4-Terphenyl-d14	52		41-149

Project Name: 59 QUEENSBURY ST.

Lab Number: L1637094

Project Number: 128982-002

Report Date: 11/21/16

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270D
 Analytical Date: 11/17/16 16:44
 Analyst: KR

Extraction Method: EPA 3510C
 Extraction Date: 11/16/16 20:23

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG953025-1					
Acenaphthene	ND		ug/l	2.0	--
Benzidine	ND		ug/l	20	--
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--
Hexachlorobenzene	ND		ug/l	2.0	--
Bis(2-chloroethyl)ether	ND		ug/l	2.0	--
2-Chloronaphthalene	ND		ug/l	2.0	--
1,2-Dichlorobenzene	ND		ug/l	2.0	--
1,3-Dichlorobenzene	ND		ug/l	2.0	--
1,4-Dichlorobenzene	ND		ug/l	2.0	--
3,3'-Dichlorobenzidine	ND		ug/l	5.0	--
2,4-Dinitrotoluene	ND		ug/l	5.0	--
2,6-Dinitrotoluene	ND		ug/l	5.0	--
Azobenzene	ND		ug/l	2.0	--
Fluoranthene	ND		ug/l	2.0	--
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	--
4-Bromophenyl phenyl ether	ND		ug/l	2.0	--
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	--
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	--
Hexachlorobutadiene	ND		ug/l	2.0	--
Hexachlorocyclopentadiene	ND		ug/l	20	--
Hexachloroethane	ND		ug/l	2.0	--
Isophorone	ND		ug/l	5.0	--
Naphthalene	ND		ug/l	2.0	--
Nitrobenzene	ND		ug/l	2.0	--
NDPA/DPA	ND		ug/l	2.0	--
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	--
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--
Butyl benzyl phthalate	ND		ug/l	5.0	--
Di-n-butylphthalate	ND		ug/l	5.0	--

Project Name: 59 QUEENSBURY ST.

Lab Number: L1637094

Project Number: 128982-002

Report Date: 11/21/16

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270D
 Analytical Date: 11/17/16 16:44
 Analyst: KR

Extraction Method: EPA 3510C
 Extraction Date: 11/16/16 20:23

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG953025-1					
Di-n-octylphthalate	ND		ug/l	5.0	--
Diethyl phthalate	ND		ug/l	5.0	--
Dimethyl phthalate	ND		ug/l	5.0	--
Benzo(a)anthracene	ND		ug/l	2.0	--
Benzo(a)pyrene	ND		ug/l	2.0	--
Benzo(b)fluoranthene	ND		ug/l	2.0	--
Benzo(k)fluoranthene	ND		ug/l	2.0	--
Chrysene	ND		ug/l	2.0	--
Acenaphthylene	ND		ug/l	2.0	--
Anthracene	ND		ug/l	2.0	--
Benzo(ghi)perylene	ND		ug/l	2.0	--
Fluorene	ND		ug/l	2.0	--
Phenanthrene	ND		ug/l	2.0	--
Dibenzo(a,h)anthracene	ND		ug/l	2.0	--
Indeno(1,2,3-cd)pyrene	ND		ug/l	2.0	--
Pyrene	ND		ug/l	2.0	--
Biphenyl	ND		ug/l	2.0	--
Aniline	ND		ug/l	2.0	--
4-Chloroaniline	ND		ug/l	5.0	--
1-Methylnaphthalene	ND		ug/l	2.0	--
2-Nitroaniline	ND		ug/l	5.0	--
3-Nitroaniline	ND		ug/l	5.0	--
4-Nitroaniline	ND		ug/l	5.0	--
Dibenzofuran	ND		ug/l	2.0	--
2-Methylnaphthalene	ND		ug/l	2.0	--
n-Nitrosodimethylamine	ND		ug/l	2.0	--
2,4,6-Trichlorophenol	ND		ug/l	5.0	--
p-Chloro-m-cresol	ND		ug/l	2.0	--
2-Chlorophenol	ND		ug/l	2.0	--

Project Name: 59 QUEENSBURY ST.

Lab Number: L1637094

Project Number: 128982-002

Report Date: 11/21/16

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270D
 Analytical Date: 11/17/16 16:44
 Analyst: KR

Extraction Method: EPA 3510C
 Extraction Date: 11/16/16 20:23

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG953025-1					
2,4-Dichlorophenol	ND		ug/l	5.0	--
2,4-Dimethylphenol	ND		ug/l	5.0	--
2-Nitrophenol	ND		ug/l	10	--
4-Nitrophenol	ND		ug/l	10	--
2,4-Dinitrophenol	ND		ug/l	20	--
4,6-Dinitro-o-cresol	ND		ug/l	10	--
Pentachlorophenol	ND		ug/l	10	--
Phenol	ND		ug/l	5.0	--
2-Methylphenol	ND		ug/l	5.0	--
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	--
2,4,5-Trichlorophenol	ND		ug/l	5.0	--
Benzoic Acid	ND		ug/l	50	--
Benzyl Alcohol	ND		ug/l	2.0	--
Carbazole	ND		ug/l	2.0	--
Pyridine	ND		ug/l	3.5	--

Tentatively Identified Compounds

Unknown	27.2	J	ug/l
Unknown	6.81	J	ug/l

Project Name: 59 QUEENSBURY ST.**Lab Number:** L1637094**Project Number:** 128982-002**Report Date:** 11/21/16**Method Blank Analysis
Batch Quality Control**

Analytical Method: 1,8270D
 Analytical Date: 11/17/16 16:44
 Analyst: KR

Extraction Method: EPA 3510C
 Extraction Date: 11/16/16 20:23

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG953025-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	40		21-120
Phenol-d6	27		10-120
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	63		15-120
2,4,6-Tribromophenol	66		10-120
4-Terphenyl-d14	68		41-149

Project Name: 59 QUEENSBURY ST.

Lab Number: L1637094

Project Number: 128982-002

Report Date: 11/21/16

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270D-SIM
 Analytical Date: 11/17/16 13:32
 Analyst: KV

Extraction Method: EPA 3510C
 Extraction Date: 11/16/16 20:28

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG953026-1					
Acenaphthene	ND		ug/l	0.10	--
2-Chloronaphthalene	ND		ug/l	0.20	--
Fluoranthene	ND		ug/l	0.20	--
Hexachlorobutadiene	ND		ug/l	0.50	--
Naphthalene	ND		ug/l	0.20	--
Benzo(a)anthracene	ND		ug/l	0.20	--
Benzo(a)pyrene	ND		ug/l	0.20	--
Benzo(b)fluoranthene	ND		ug/l	0.20	--
Benzo(k)fluoranthene	ND		ug/l	0.20	--
Chrysene	ND		ug/l	0.20	--
Acenaphthylene	ND		ug/l	0.20	--
Anthracene	ND		ug/l	0.20	--
Benzo(ghi)perylene	ND		ug/l	0.20	--
Fluorene	ND		ug/l	0.20	--
Phenanthrene	ND		ug/l	0.20	--
Dibenzo(a,h)anthracene	ND		ug/l	0.20	--
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.20	--
Pyrene	ND		ug/l	0.20	--
1-Methylnaphthalene	ND		ug/l	0.20	--
2-Methylnaphthalene	ND		ug/l	0.20	--
Pentachlorophenol	ND		ug/l	0.80	--
Hexachlorobenzene	ND		ug/l	0.80	--
Hexachloroethane	ND		ug/l	0.80	--

Project Name: 59 QUEENSBURY ST.

Lab Number: L1637094

Project Number: 128982-002

Report Date: 11/21/16

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270D-SIM
 Analytical Date: 11/17/16 13:32
 Analyst: KV

Extraction Method: EPA 3510C
 Extraction Date: 11/16/16 20:28

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG953026-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	41		21-120
Phenol-d6	29		10-120
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	66		15-120
2,4,6-Tribromophenol	69		10-120
4-Terphenyl-d14	85		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: 59 QUEENSBURY ST.

Project Number: 128982-002

Lab Number: L1637094

Report Date: 11/21/16

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: WG953025-2 WG953025-3								
Acenaphthene	51		59		37-111	15		30
Benzidine	0	Q	2	Q	10-75	NC		30
1,2,4-Trichlorobenzene	50		59		39-98	17		30
Hexachlorobenzene	66		78		40-140	17		30
Bis(2-chloroethyl)ether	54		62		40-140	14		30
2-Chloronaphthalene	56		66		40-140	16		30
1,2-Dichlorobenzene	48		56		40-140	15		30
1,3-Dichlorobenzene	44		55		40-140	22		30
1,4-Dichlorobenzene	45		55		36-97	20		30
3,3'-Dichlorobenzidine	61		66		40-140	8		30
2,4-Dinitrotoluene	69		80		48-143	15		30
2,6-Dinitrotoluene	73		85		40-140	15		30
Azobenzene	62		68		40-140	9		30
Fluoranthene	67		73		40-140	9		30
4-Chlorophenyl phenyl ether	60		69		40-140	14		30
4-Bromophenyl phenyl ether	67		74		40-140	10		30
Bis(2-chloroisopropyl)ether	52		60		40-140	14		30
Bis(2-chloroethoxy)methane	60		68		40-140	13		30
Hexachlorobutadiene	49		59		40-140	19		30
Hexachlorocyclopentadiene	55		66		40-140	18		30
Hexachloroethane	43		53		40-140	21		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: 59 QUEENSBURY ST.

Project Number: 128982-002

Lab Number: L1637094

Report Date: 11/21/16

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: WG953025-2 WG953025-3								
Isophorone	64		72		40-140	12		30
Naphthalene	51		62		40-140	19		30
Nitrobenzene	56		65		40-140	15		30
NDPA/DPA	62		71		40-140	14		30
n-Nitrosodi-n-propylamine	62		70		29-132	12		30
Bis(2-ethylhexyl)phthalate	72		83		40-140	14		30
Butyl benzyl phthalate	72		77		40-140	7		30
Di-n-butylphthalate	72		76		40-140	5		30
Di-n-octylphthalate	68		79		40-140	15		30
Diethyl phthalate	66		74		40-140	11		30
Dimethyl phthalate	70		76		40-140	8		30
Benzo(a)anthracene	64		72		40-140	12		30
Benzo(a)pyrene	68		80		40-140	16		30
Benzo(b)fluoranthene	65		78		40-140	18		30
Benzo(k)fluoranthene	70		77		40-140	10		30
Chrysene	61		72		40-140	17		30
Acenaphthylene	64		74		45-123	14		30
Anthracene	62		68		40-140	9		30
Benzo(ghi)perylene	68		75		40-140	10		30
Fluorene	60		68		40-140	13		30
Phenanthrene	61		66		40-140	8		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: 59 QUEENSBURY ST.

Project Number: 128982-002

Lab Number: L1637094

Report Date: 11/21/16

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: WG953025-2 WG953025-3								
Dibenzo(a,h)anthracene	66		76		40-140	14		30
Indeno(1,2,3-cd)pyrene	68		76		40-140	11		30
Pyrene	63		73		26-127	15		30
Biphenyl	66		80		40-140	19		30
Aniline	5	Q	17	Q	40-140	112	Q	30
4-Chloroaniline	45		39	Q	40-140	14		30
1-Methylnaphthalene	55		63		41-103	14		30
2-Nitroaniline	74		85		52-143	14		30
3-Nitroaniline	63		69		25-145	9		30
4-Nitroaniline	66		74		51-143	11		30
Dibenzofuran	58		66		40-140	13		30
2-Methylnaphthalene	55		67		40-140	20		30
1,2,4,5-Tetrachlorobenzene	62		75		2-134	19		30
Pentachloronitrobenzene	84		96		4-189	13		30
Acetophenone	68		75		39-129	10		30
n-Nitrosodimethylamine	36		43		22-74	18		30
2,4,6-Trichlorophenol	66		74		30-130	11		30
p-Chloro-m-cresol	67		77		23-97	14		30
2-Chlorophenol	57		67		27-123	16		30
2,4-Dichlorophenol	67		79		30-130	16		30
2,4-Dimethylphenol	58		76		30-130	27		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: 59 QUEENSBURY ST.

Project Number: 128982-002

Lab Number: L1637094

Report Date: 11/21/16

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: WG953025-2 WG953025-3								
2-Nitrophenol	63		74		30-130	16		30
4-Nitrophenol	36		42		10-80	15		30
2,4-Dinitrophenol	56		74		20-130	28		30
4,6-Dinitro-o-cresol	67		77		20-164	14		30
Pentachlorophenol	58		81		9-103	33	Q	30
Phenol	29		34		12-110	16		30
2-Methylphenol	53		61		30-130	14		30
3-Methylphenol/4-Methylphenol	51		58		30-130	13		30
2,4,5-Trichlorophenol	68		80		30-130	16		30
Benzoic Acid	27		49		10-164	58	Q	30
Benzyl Alcohol	55		64		26-116	15		30
Carbazole	64		69		55-144	8		30
Pyridine	0	Q	6	Q	10-66	NC		30
Parathion, ethyl	83		88		40-140	6		30
Atrazine	87		95		40-140	9		30
Benzaldehyde	60		68		40-140	13		30
Caprolactam	28		28		10-130	0		30
2,3,4,6-Tetrachlorophenol	66		78		40-140	17		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: 59 QUEENSBURY ST.

Lab Number: L1637094

Project Number: 128982-002

Report Date: 11/21/16

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: WG953025-2 WG953025-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	37		43		21-120
Phenol-d6	27		30		10-120
Nitrobenzene-d5	52		58		23-120
2-Fluorobiphenyl	60		65		15-120
2,4,6-Tribromophenol	64		74		10-120
4-Terphenyl-d14	59		62		41-149

Lab Control Sample Analysis **Batch Quality Control**

Project Name: 59 QUEENSBURY ST.

Project Number: 128982-002

Lab Number: L1637094

Report Date: 11/21/16

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: WG953026-2 WG953026-3								
Acenaphthene	79		74		37-111	7		40
2-Chloronaphthalene	82		74		40-140	10		40
Fluoranthene	84		84		40-140	0		40
Hexachlorobutadiene	74		64		40-140	14		40
Naphthalene	75		68		40-140	10		40
Benzo(a)anthracene	82		81		40-140	1		40
Benzo(a)pyrene	81		80		40-140	1		40
Benzo(b)fluoranthene	89		84		40-140	6		40
Benzo(k)fluoranthene	75		77		40-140	3		40
Chrysene	79		79		40-140	0		40
Acenaphthylene	86		80		40-140	7		40
Anthracene	82		81		40-140	1		40
Benzo(ghi)perylene	84		83		40-140	1		40
Fluorene	85		82		40-140	4		40
Phenanthrene	81		80		40-140	1		40
Dibenzo(a,h)anthracene	85		84		40-140	1		40
Indeno(1,2,3-cd)pyrene	83		82		40-140	1		40
Pyrene	85		85		26-127	0		40
1-Methylnaphthalene	80		73		40-140	9		40
2-Methylnaphthalene	81		74		40-140	9		40
Pentachlorophenol	90		90		9-103	0		40

Lab Control Sample Analysis

Batch Quality Control

Project Name: 59 QUEENSBURY ST.

Lab Number: L1637094

Project Number: 128982-002

Report Date: 11/21/16

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: WG953026-2 WG953026-3								
Hexachlorobenzene	86		83		40-140	4		40
Hexachloroethane	70		61		40-140	14		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	47		41		21-120
Phenol-d6	34		30		10-120
Nitrobenzene-d5	75		66		23-120
2-Fluorobiphenyl	75		68		15-120
2,4,6-Tribromophenol	79		77		10-120
4-Terphenyl-d14	83		81		41-149

PETROLEUM HYDROCARBONS

Project Name: 59 QUEENSBURY ST.**Lab Number:** L1637094**Project Number:** 128982-002**Report Date:** 11/21/16**SAMPLE RESULTS**

Lab ID: L1637094-01
 Client ID: HA16-4
 Sample Location: BOSTON, MA
 Matrix: Water
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 11/17/16 20:19
 Analyst: DV

Date Collected: 11/15/16 13:45
 Date Received: 11/15/16
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 11/16/16 14:42
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 11/17/16

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Sample Extraction method:	Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1
Naphthalene	ND		ug/l	10.0	--	1
2-Methylnaphthalene	ND		ug/l	10.0	--	1
Acenaphthylene	ND		ug/l	10.0	--	1
Acenaphthene	ND		ug/l	10.0	--	1
Fluorene	ND		ug/l	10.0	--	1
Phenanthrene	ND		ug/l	10.0	--	1
Anthracene	ND		ug/l	10.0	--	1
Fluoranthene	ND		ug/l	10.0	--	1
Pyrene	ND		ug/l	10.0	--	1
Benzo(a)anthracene	ND		ug/l	10.0	--	1
Chrysene	ND		ug/l	10.0	--	1
Benzo(b)fluoranthene	ND		ug/l	10.0	--	1
Benzo(k)fluoranthene	ND		ug/l	10.0	--	1
Benzo(a)pyrene	ND		ug/l	10.0	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/l	10.0	--	1
Dibenzo(a,h)anthracene	ND		ug/l	10.0	--	1
Benzo(ghi)perylene	ND		ug/l	10.0	--	1



Project Name: 59 QUEENSBURY ST.**Lab Number:** L1637094**Project Number:** 128982-002**Report Date:** 11/21/16**SAMPLE RESULTS**

Lab ID: L1637094-01

Date Collected: 11/15/16 13:45

Client ID: HA16-4

Date Received: 11/15/16

Sample Location: BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	61		40-140
o-Terphenyl	100		40-140
2-Fluorobiphenyl	76		40-140
2-Bromonaphthalene	76		40-140

Project Name: 59 QUEENSBURY ST.**Lab Number:** L1637094**Project Number:** 128982-002**Report Date:** 11/21/16**SAMPLE RESULTS**

Lab ID: L1637094-01 D

Client ID: HA16-4

Sample Location: BOSTON, MA

Matrix: Water

Analytical Method: 100, VPH-04-1.1

Analytical Date: 11/18/16 22:03

Analyst: JM

Date Collected: 11/15/16 13:45

Date Received: 11/15/16

Field Prep: Not Specified

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		ug/l	250	--	5
C9-C12 Aliphatics	ND		ug/l	250	--	5
C9-C10 Aromatics	ND		ug/l	250	--	5
C5-C8 Aliphatics, Adjusted	ND		ug/l	250	--	5
C9-C12 Aliphatics, Adjusted	ND		ug/l	250	--	5
Benzene	ND		ug/l	10.0	--	5
Toluene	ND		ug/l	10.0	--	5
Ethylbenzene	ND		ug/l	10.0	--	5
p/m-Xylene	ND		ug/l	10.0	--	5
o-Xylene	ND		ug/l	10.0	--	5
Methyl tert butyl ether	27.0		ug/l	15.0	--	5
Naphthalene	ND		ug/l	20.0	--	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	87		70-130
2,5-Dibromotoluene-FID	100		70-130



Project Name: 59 QUEENSBURY ST.

Lab Number: L1637094

Project Number: 128982-002

Report Date: 11/21/16

Method Blank Analysis Batch Quality Control

Analytical Method: 98,EPH-04-1.1

Extraction Method: EPA 3510C

Analytical Date: 11/17/16 09:40

Extraction Date: 11/16/16 14:42

Analyst: DV

Cleanup Method: EPH-04-1

Cleanup Date: 11/17/16

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 01 Batch: WG952939-1					
C9-C18 Aliphatics	ND		ug/l	100	--
C19-C36 Aliphatics	ND		ug/l	100	--
C11-C22 Aromatics	ND		ug/l	100	--
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--
Naphthalene	ND		ug/l	10.0	--
2-Methylnaphthalene	ND		ug/l	10.0	--
Acenaphthylene	ND		ug/l	10.0	--
Acenaphthene	ND		ug/l	10.0	--
Fluorene	ND		ug/l	10.0	--
Phenanthrene	ND		ug/l	10.0	--
Anthracene	ND		ug/l	10.0	--
Fluoranthene	ND		ug/l	10.0	--
Pyrene	ND		ug/l	10.0	--
Benzo(a)anthracene	ND		ug/l	10.0	--
Chrysene	ND		ug/l	10.0	--
Benzo(b)fluoranthene	ND		ug/l	10.0	--
Benzo(k)fluoranthene	ND		ug/l	10.0	--
Benzo(a)pyrene	ND		ug/l	10.0	--
Indeno(1,2,3-cd)Pyrene	ND		ug/l	10.0	--
Dibenzo(a,h)anthracene	ND		ug/l	10.0	--
Benzo(ghi)perylene	ND		ug/l	10.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	82		40-140
o-Terphenyl	106		40-140
2-Fluorobiphenyl	90		40-140
2-Bromonaphthalene	89		40-140



Project Name: 59 QUEENSBURY ST.

Lab Number: L1637094

Project Number: 128982-002

Report Date: 11/21/16

Method Blank Analysis Batch Quality Control

Analytical Method: 100, VPH-04-1.1

Analytical Date: 11/18/16 09:43

Analyst: JM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 01 Batch: WG953831-3					
C5-C8 Aliphatics	ND		ug/l	50.0	--
C9-C12 Aliphatics	ND		ug/l	50.0	--
C9-C10 Aromatics	ND		ug/l	50.0	--
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--
Benzene	ND		ug/l	2.00	--
Toluene	ND		ug/l	2.00	--
Ethylbenzene	ND		ug/l	2.00	--
p/m-Xylene	ND		ug/l	2.00	--
o-Xylene	ND		ug/l	2.00	--
Methyl tert butyl ether	ND		ug/l	3.00	--
Naphthalene	ND		ug/l	4.00	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	89		70-130
2,5-Dibromotoluene-FID	102		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: 59 QUEENSBURY ST.

Project Number: 128982-002

Lab Number: L1637094

Report Date: 11/21/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01 Batch: WG952939-2 WG952939-3								
C9-C18 Aliphatics	84		81		40-140	4		25
C19-C36 Aliphatics	96		94		40-140	2		25
C11-C22 Aromatics	92		79		40-140	15		25
Naphthalene	77		65		40-140	17		25
2-Methylnaphthalene	78		67		40-140	15		25
Acenaphthylene	81		69		40-140	16		25
Acenaphthene	81		70		40-140	15		25
Fluorene	86		75		40-140	14		25
Phenanthrene	88		77		40-140	13		25
Anthracene	88		76		40-140	15		25
Fluoranthene	91		78		40-140	15		25
Pyrene	91		79		40-140	14		25
Benzo(a)anthracene	88		77		40-140	13		25
Chrysene	91		79		40-140	14		25
Benzo(b)fluoranthene	90		78		40-140	14		25
Benzo(k)fluoranthene	89		78		40-140	13		25
Benzo(a)pyrene	86		74		40-140	15		25
Indeno(1,2,3-cd)Pyrene	86		76		40-140	12		25
Dibenzo(a,h)anthracene	91		80		40-140	13		25
Benzo(ghi)perylene	84		74		40-140	13		25
Nonane (C9)	62		60		30-140	3		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: 59 QUEENSBURY ST.

Lab Number: L1637094

Project Number: 128982-002

Report Date: 11/21/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01 Batch: WG952939-2 WG952939-3								
Decane (C10)	74		70		40-140	6		25
Dodecane (C12)	80		74		40-140	8		25
Tetradecane (C14)	85		79		40-140	7		25
Hexadecane (C16)	90		84		40-140	7		25
Octadecane (C18)	93		88		40-140	6		25
Nonadecane (C19)	92		87		40-140	6		25
Eicosane (C20)	93		88		40-140	6		25
Docosane (C22)	93		87		40-140	7		25
Tetracosane (C24)	90		85		40-140	6		25
Hexacosane (C26)	92		87		40-140	6		25
Octacosane (C28)	93		88		40-140	6		25
Triacontane (C30)	93		88		40-140	6		25
Hexatriacontane (C36)	91		86		40-140	6		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	71		64		40-140
o-Terphenyl	77		65		40-140
2-Fluorobiphenyl	74		63		40-140
2-Bromonaphthalene	76		64		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

Lab Control Sample Analysis

Batch Quality Control

Project Name: 59 QUEENSBURY ST.

Project Number: 128982-002

Lab Number: L1637094

Report Date: 11/21/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01 Batch: WG953831-1 WG953831-2								
C5-C8 Aliphatics	94		93		70-130	1		25
C9-C12 Aliphatics	89		87		70-130	3		25
C9-C10 Aromatics	88		87		70-130	1		25
Benzene	79		79		70-130	0		25
Toluene	82		83		70-130	0		25
Ethylbenzene	85		85		70-130	0		25
p/m-Xylene	87		87		70-130	0		25
o-Xylene	85		86		70-130	1		25
Methyl tert butyl ether	80		81		70-130	1		25
Naphthalene	91		91		70-130	0		25
1,2,4-Trimethylbenzene	88		87		70-130	1		25
Pentane	93		92		70-130	1		25
2-Methylpentane	95		94		70-130	1		25
2,2,4-Trimethylpentane	95		94		70-130	2		25
n-Nonane	94		91		30-130	4		25
n-Decane	90		88		70-130	3		25
n-Butylcyclohexane	95		91		70-130	4		25

Lab Control Sample Analysis**Batch Quality Control****Project Name:** 59 QUEENSBURY ST.**Project Number:** 128982-002**Lab Number:** L1637094**Report Date:** 11/21/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits

Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01 Batch: WG953831-1 WG953831-2

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	83		82		70-130
2,5-Dibromotoluene-FID	95		94		70-130

PCBS

Project Name: 59 QUEENSBURY ST.
Project Number: 128982-002

Lab Number: L1637094
Report Date: 11/21/16

SAMPLE RESULTS

Lab ID: L1637094-01
Client ID: HA16-4
Sample Location: BOSTON, MA
Matrix: Water
Analytical Method: 5,608
Analytical Date: 11/18/16 01:31
Analyst: JW

Date Collected: 11/15/16 13:45
Date Received: 11/15/16
Field Prep: Not Specified
Extraction Method: EPA 608
Extraction Date: 11/17/16 08:46
Cleanup Method: EPA 3665A
Cleanup Date: 11/17/16
Cleanup Method: EPA 3660B
Cleanup Date: 11/17/16

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	106		30-150	A
Decachlorobiphenyl	66		30-150	A

Project Name: 59 QUEENSBURY ST.

Lab Number: L1637094

Project Number: 128982-002

Report Date: 11/21/16

Method Blank Analysis Batch Quality Control

Analytical Method: 5,608
 Analytical Date: 11/18/16 02:18
 Analyst: HT

Extraction Method: EPA 608
 Extraction Date: 11/17/16 08:46
 Cleanup Method: EPA 3665A
 Cleanup Date: 11/17/16
 Cleanup Method: EPA 3660B
 Cleanup Date: 11/17/16

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01 Batch: WG953140-1						
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	98		30-150	A
Decachlorobiphenyl	61		30-150	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: 59 QUEENSBURY ST.

Lab Number: L1637094

Project Number: 128982-002

Report Date: 11/21/16

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: WG953140-2									
Aroclor 1016	89		-		40-140	-		50	A
Aroclor 1260	71		-		40-140	-		50	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	95				30-150	A
Decachlorobiphenyl	59				30-150	A

Matrix Spike Analysis

Batch Quality Control

Project Name: 59 QUEENSBURY ST.

Project Number: 128982-002

Lab Number: L1637094

Report Date: 11/21/16

<i>Parameter</i>	<i>Native Sample</i>	<i>MS Added</i>	<i>MS Found</i>	<i>MS %Recovery</i>	<i>Qual</i>	<i>MSD Found</i>	<i>MSD %Recovery</i>	<i>Qual</i>	<i>Recovery Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD Limits</i>	<i>Column</i>
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG953140-3 QC Sample: L1637046-01 Client ID: MS Sample													
Aroclor 1016	ND	1	1.05	105		-	-		40-140	-		50	A
Aroclor 1260	ND	1	0.623	62		-	-		40-140	-		50	A

<i>Surrogate</i>	<i>MS % Recovery</i>	<i>Qualifier</i>	<i>MSD % Recovery</i>	<i>Qualifier</i>	<i>Acceptance Criteria</i>	<i>Column</i>
2,4,5,6-Tetrachloro-m-xylene	106				30-150	A
Decachlorobiphenyl	49				30-150	A

Lab Duplicate Analysis

Batch Quality Control

Project Name: 59 QUEENSBURY ST.

Project Number: 128982-002

Lab Number: L1637094

Report Date: 11/21/16

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG953140-4 QC Sample: L1637046-02 Client ID: DUP Sample						
Aroclor 1016	ND	ND	ug/l	NC		50 A
Aroclor 1221	ND	ND	ug/l	NC		50 A
Aroclor 1232	ND	ND	ug/l	NC		50 A
Aroclor 1242	ND	ND	ug/l	NC		50 A
Aroclor 1248	ND	ND	ug/l	NC		50 A
Aroclor 1254	ND	ND	ug/l	NC		50 B
Aroclor 1260	ND	ND	ug/l	NC		50 B

METALS

Project Name: 59 QUEENSBURY ST.

Lab Number: L1637094

Project Number: 128982-002

Report Date: 11/21/16

SAMPLE RESULTS

Lab ID: L1637094-01

Date Collected: 11/15/16 13:45

Client ID: HA16-4

Date Received: 11/15/16

Sample Location: BOSTON, MA

Field Prep: Not Specified

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Antimony, Dissolved	ND		mg/l	0.00400	--	1	11/18/16 09:00	11/18/16 12:29	EPA 3005A	1,6020A	BV
Arsenic, Dissolved	0.00274		mg/l	0.00050	--	1	11/18/16 09:00	11/18/16 12:29	EPA 3005A	1,6020A	BV
Cadmium, Dissolved	ND		mg/l	0.00020	--	1	11/18/16 09:00	11/18/16 12:29	EPA 3005A	1,6020A	BV
Chromium, Dissolved	ND		mg/l	0.00100	--	1	11/18/16 09:00	11/18/16 12:29	EPA 3005A	1,6020A	BV
Copper, Dissolved	ND		mg/l	0.00100	--	1	11/18/16 09:00	11/18/16 12:29	EPA 3005A	1,6020A	BV
Iron, Dissolved	0.33		mg/l	0.05	--	1	11/18/16 09:00	11/21/16 13:35	EPA 3005A	19,200.7	JH
Lead, Dissolved	ND		mg/l	0.00050	--	1	11/18/16 09:00	11/18/16 12:29	EPA 3005A	1,6020A	BV
Mercury, Dissolved	ND		mg/l	0.00020	--	1	11/18/16 11:27	11/18/16 23:06	EPA 245.1	3,245.1	EA
Nickel, Dissolved	0.00241		mg/l	0.00200	--	1	11/18/16 09:00	11/18/16 12:29	EPA 3005A	1,6020A	BV
Selenium, Dissolved	ND		mg/l	0.00500	--	1	11/18/16 09:00	11/18/16 12:29	EPA 3005A	1,6020A	BV
Silver, Dissolved	ND		mg/l	0.00040	--	1	11/18/16 09:00	11/18/16 12:29	EPA 3005A	1,6020A	BV
Zinc, Dissolved	ND		mg/l	0.01000	--	1	11/18/16 09:00	11/18/16 12:29	EPA 3005A	1,6020A	BV



Project Name: 59 QUEENSBURY ST.

Lab Number: L1637094

Project Number: 128982-002

Report Date: 11/21/16

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: WG953680-1										
Antimony, Dissolved	ND		mg/l	0.00400	--	1	11/18/16 09:00	11/18/16 12:15	1,6020A	BV
Arsenic, Dissolved	ND		mg/l	0.00050	--	1	11/18/16 09:00	11/18/16 12:15	1,6020A	BV
Cadmium, Dissolved	ND		mg/l	0.00020	--	1	11/18/16 09:00	11/18/16 12:15	1,6020A	BV
Chromium, Dissolved	ND		mg/l	0.00100	--	1	11/18/16 09:00	11/18/16 12:15	1,6020A	BV
Copper, Dissolved	ND		mg/l	0.00100	--	1	11/18/16 09:00	11/18/16 12:15	1,6020A	BV
Lead, Dissolved	ND		mg/l	0.00050	--	1	11/18/16 09:00	11/18/16 12:15	1,6020A	BV
Nickel, Dissolved	ND		mg/l	0.00200	--	1	11/18/16 09:00	11/18/16 12:15	1,6020A	BV
Selenium, Dissolved	ND		mg/l	0.00500	--	1	11/18/16 09:00	11/18/16 12:15	1,6020A	BV
Silver, Dissolved	ND		mg/l	0.00040	--	1	11/18/16 09:00	11/18/16 12:15	1,6020A	BV
Zinc, Dissolved	ND		mg/l	0.01000	--	1	11/18/16 09:00	11/18/16 12:15	1,6020A	BV

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01 Batch: WG953682-1										
Iron, Dissolved	ND		mg/l	0.05	--	1	11/18/16 09:00	11/21/16 13:27	19,200.7	JH

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01 Batch: WG953776-1										
Mercury, Dissolved	ND		mg/l	0.00020	--	1	11/18/16 11:27	11/18/16 23:03	3,245.1	EA

Prep Information

Digestion Method: EPA 245.1



Lab Control Sample Analysis

Batch Quality Control

Project Name: 59 QUEENSBURY ST.

Project Number: 128982-002

Lab Number: L1637094

Report Date: 11/21/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG953680-2								
Antimony, Dissolved	98		-		80-120	-		
Arsenic, Dissolved	102		-		80-120	-		
Cadmium, Dissolved	104		-		80-120	-		
Chromium, Dissolved	98		-		80-120	-		
Copper, Dissolved	103		-		80-120	-		
Lead, Dissolved	104		-		80-120	-		
Nickel, Dissolved	103		-		80-120	-		
Selenium, Dissolved	105		-		80-120	-		
Silver, Dissolved	100		-		80-120	-		
Zinc, Dissolved	100		-		80-120	-		
Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG953682-2								
Iron, Dissolved	98		-		85-115	-		
Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG953776-2								
Mercury, Dissolved	106		-		85-115	-		

Matrix Spike Analysis **Batch Quality Control**

Project Name: 59 QUEENSBURY ST.

Lab Number: L1637094

Project Number: 128982-002

Report Date: 11/21/16

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: WG953680-3 QC Sample: L1637094-01 Client ID: HA16-4												
Antimony, Dissolved	ND	0.5	0.5276	106		-	-		75-125	-		20
Arsenic, Dissolved	0.00274	0.12	0.1288	105		-	-		75-125	-		20
Cadmium, Dissolved	ND	0.051	0.05196	102		-	-		75-125	-		20
Chromium, Dissolved	ND	0.2	0.1870	94		-	-		75-125	-		20
Copper, Dissolved	ND	0.25	0.2369	95		-	-		75-125	-		20
Lead, Dissolved	ND	0.51	0.5342	105		-	-		75-125	-		20
Nickel, Dissolved	0.00241	0.5	0.4744	94		-	-		75-125	-		20
Selenium, Dissolved	ND	0.12	0.128	107		-	-		75-125	-		20
Silver, Dissolved	ND	0.05	0.04763	95		-	-		75-125	-		20
Zinc, Dissolved	ND	0.5	0.4740	95		-	-		75-125	-		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG953682-3 QC Sample: L1637094-01 Client ID: HA16-4												
Iron, Dissolved	0.33	1	1.3	97		-	-		75-125	-		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG953776-3 QC Sample: L1637094-01 Client ID: HA16-4												
Mercury, Dissolved	ND	0.005	0.00530	106		-	-		75-125	-		20

Lab Duplicate Analysis Batch Quality Control

Project Name: 59 QUEENSBURY ST.

Project Number: 128982-002

Lab Number: L1637094

Report Date: 11/21/16

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG953680-4 QC Sample: L1637094-01 Client ID: HA16-4						
Antimony, Dissolved	ND	ND	mg/l	NC		20
Arsenic, Dissolved	0.00274	0.00286	mg/l	4		20
Cadmium, Dissolved	ND	ND	mg/l	NC		20
Chromium, Dissolved	ND	ND	mg/l	NC		20
Copper, Dissolved	ND	ND	mg/l	NC		20
Lead, Dissolved	ND	ND	mg/l	NC		20
Nickel, Dissolved	0.00241	0.00273	mg/l	12		20
Selenium, Dissolved	ND	ND	mg/l	NC		20
Silver, Dissolved	ND	ND	mg/l	NC		20
Zinc, Dissolved	ND	ND	mg/l	NC		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG953682-4 QC Sample: L1637094-01 Client ID: HA16-4						
Iron, Dissolved	0.33	0.33	mg/l	0		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG953776-4 QC Sample: L1637094-01 Client ID: HA16-4						
Mercury, Dissolved	ND	ND	mg/l	NC		20

INORGANICS & MISCELLANEOUS

Project Name: 59 QUEENSBURY ST.
Project Number: 128982-002

Lab Number: L1637094
Report Date: 11/21/16

SAMPLE RESULTS

Lab ID: L1637094-01
Client ID: HA16-4
Sample Location: BOSTON, MA
Matrix: Water

Date Collected: 11/15/16 13:45
Date Received: 11/15/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total Suspended	89.		mg/l	10	NA	2	-	11/16/16 16:20	121,2540D	SG
Cyanide, Total	ND		mg/l	0.005	--	1	11/16/16 09:45	11/16/16 13:35	121,4500CN-CE	JO
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	11/16/16 04:00	121,4500CL-D	MC
TPH, SGT-HEM	ND		mg/l	4.00	--	1	11/16/16 17:00	11/16/16 21:07	74,1664A	ML
Phenolics, Total	ND		mg/l	0.030	--	1	11/16/16 10:45	11/16/16 14:16	4,420.1	AW
Chromium, Hexavalent	ND		mg/l	0.010	--	1	11/16/16 00:12	11/16/16 00:18	121,3500CR-B	MC
Anions by Ion Chromatography - Westborough Lab										
Chloride	606.		mg/l	25.0	--	50	-	11/16/16 21:03	44,300.0	AU



Project Name: 59 QUEENSBURY ST.

Lab Number: L1637094

Project Number: 128982-002

Report Date: 11/21/16

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: WG952440-1										
Cyanide, Total	ND		mg/l	0.005	--	1	11/16/16 09:45	11/16/16 13:04	121,4500CN-CE	JO
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG952668-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	11/16/16 00:12	11/16/16 00:17	121,3500CR-B	MC
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG952706-1										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	11/16/16 04:00	121,4500CL-D	MC
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG952890-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	11/16/16 16:20	121,2540D	SG
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG952891-1										
Phenolics, Total	ND		mg/l	0.030	--	1	11/16/16 10:45	11/16/16 14:14	4,420.1	AW
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG952972-1										
TPH, SGT-HEM	ND		mg/l	4.00	--	1	11/16/16 17:00	11/16/16 21:07	74,1664A	ML
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG953477-1										
Chloride	ND		mg/l	0.500	--	1	-	11/16/16 18:39	44,300.0	AU

Lab Control Sample Analysis

Batch Quality Control

Project Name: 59 QUEENSBURY ST.

Project Number: 128982-002

Lab Number: L1637094

Report Date: 11/21/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG952440-2								
Cyanide, Total	98		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG952668-2								
Chromium, Hexavalent	99		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG952706-2								
Chlorine, Total Residual	97		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG952891-2								
Phenolics, Total	90		-		70-130	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG952972-2								
TPH	85		-		64-132	-		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG953477-2								
Chloride	99		-		90-110	-		

Matrix Spike Analysis

Batch Quality Control

Project Name: 59 QUEENSBURY ST.

Project Number: 128982-002

Lab Number: L1637094

Report Date: 11/21/16

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: WG952440-4 QC Sample: L1636885-02 Client ID: MS Sample												
Cyanide, Total	0.041	0.2	0.117	38	Q	-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG952668-4 QC Sample: L1637094-01 Client ID: HA16-4												
Chromium, Hexavalent	ND	0.1	0.106	106		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG952891-4 QC Sample: L1637094-01 Client ID: HA16-4												
Phenolics, Total	ND	0.4	0.40	100		-	-		70-130	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG952972-4 QC Sample: L1637016-01 Client ID: MS Sample												
TPH	ND	20	17.0	85		-	-		64-132	-		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG953477-3 QC Sample: L1637074-03 Client ID: MS Sample												
Chloride	2.42	4	6.65	106		-	-		40-151	-		18

Lab Duplicate Analysis Batch Quality Control

Project Name: 59 QUEENSBURY ST.

Project Number: 128982-002

Lab Number: L1637094

Report Date: 11/21/16

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG952440-3 QC Sample: L1636885-01 Client ID: DUP Sample						
Cyanide, Total	0.032	0.036	mg/l	10		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG952668-3 QC Sample: L1637094-01 Client ID: HA16-4						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG952706-3 QC Sample: L1637094-01 Client ID: HA16-4						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG952890-2 QC Sample: L1637047-01 Client ID: DUP Sample						
Solids, Total Suspended	84	97	mg/l	14		29
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG952891-3 QC Sample: L1637094-01 Client ID: HA16-4						
Phenolics, Total	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG952972-3 QC Sample: L1637016-01 Client ID: DUP Sample						
TPH	ND	ND	mg/l	NC		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG953477-4 QC Sample: L1637074-03 Client ID: DUP Sample						
Chloride	2.42	2.39	mg/l	1		18

Project Name: 59 QUEENSBURY ST.

Project Number: 128982-002

Lab Number: L1637094

Report Date: 11/21/16

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information Custody Seal

Cooler

C Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1637094-01A	Vial HCl preserved	C	N/A	2.7	Y	Absent	8260-SIM(14),8260(14)
L1637094-01B	Vial HCl preserved	C	N/A	2.7	Y	Absent	8260-SIM(14),8260(14)
L1637094-01C	Vial HCl preserved	C	N/A	2.7	Y	Absent	8260-SIM(14),8260(14)
L1637094-01D	Vial Na2S2O3 preserved	C	N/A	2.7	Y	Absent	504(14)
L1637094-01E	Vial Na2S2O3 preserved	C	N/A	2.7	Y	Absent	504(14)
L1637094-01F	Vial HCl preserved	C	N/A	2.7	Y	Absent	VPH-DELUX-10(14)
L1637094-01G	Vial HCl preserved	C	N/A	2.7	Y	Absent	VPH-DELUX-10(14)
L1637094-01H	Vial HCl preserved	C	N/A	2.7	Y	Absent	VPH-DELUX-10(14)
L1637094-01I	Plastic 250ml unpreserved split	C	7	2.7	Y	Absent	-
L1637094-01J	Plastic 250ml NaOH preserved	C	>12	2.7	Y	Absent	TCN-4500(14)
L1637094-01K	Plastic 950ml unpreserved	C	7	2.7	Y	Absent	TSS-2540(7)
L1637094-01L	Plastic 950ml unpreserved	C	7	2.7	Y	Absent	CL-300(28),HEXCR-3500(1),TRC-4500(1)
L1637094-01M	Amber 1000ml HCl preserved	C	N/A	2.7	Y	Absent	TPH-1664(28)
L1637094-01N	Amber 1000ml HCl preserved	C	N/A	2.7	Y	Absent	TPH-1664(28)
L1637094-01O	Plastic 250ml HNO3 preserved	C	<2	2.7	Y	Absent	HOLD-METAL(180)
L1637094-01O1	Plastic 250ml HNO3 preserved	C	<2	2.7	Y	Absent	HOLD-METAL(180)
L1637094-01P	Amber 950ml H2SO4 preserved	C	<2	2.7	Y	Absent	TPHENOL-420(28)
L1637094-01Q	Amber 1000ml unpreserved	C	7	2.7	Y	Absent	8270TCL(7),8270TCL-SIM(7)
L1637094-01R	Amber 1000ml unpreserved	C	7	2.7	Y	Absent	8270TCL(7),8270TCL-SIM(7)
L1637094-01S	Amber 1000ml Na2S2O3	C	7	2.7	Y	Absent	PCB-608(7)
L1637094-01T	Amber 1000ml Na2S2O3	C	7	2.7	Y	Absent	PCB-608(7)
L1637094-01U	Amber 1000ml HCl preserved	C	<2	2.7	Y	Absent	EPH-DELUX-10(14)
L1637094-01V	Amber 1000ml HCl preserved	C	<2	2.7	Y	Absent	EPH-DELUX-10(14)
L1637094-01X	Plastic 250ml HNO3 preserved Fil	C	<2	2.7	Y	Absent	CU-6020S(180),FE-RI(180),SE-6020S(180),ZN-6020S(180),CR-6020S(180),NI-6020S(180),PB-6020S(180),AG-6020S(180),AS-6020S(180),HG-R(28),SB-6020S(180),CD-6020S(180)
L1637094-02A	Vial HCl preserved	C	N/A	2.7	Y	Absent	8260-SIM(14),8260(14)
L1637094-02B	Vial HCl preserved	C	N/A	2.7	Y	Absent	8260-SIM(14),8260(14)

*Values in parentheses indicate holding time in days



Project Name: 59 QUEENSBURY ST.**Project Number:** 128982-002**Lab Number:** L1637094**Report Date:** 11/21/16**Container Information**

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1637094-02C	Vial Na2S2O3 preserved	C	N/A	2.7	Y	Absent	504(14)
L1637094-02D	Vial Na2S2O3 preserved	C	N/A	2.7	Y	Absent	504(14)

Container Comments

L1637094-01E L1637094-01D,02E VIAL BROKEN

L1637094-02D L1637094-02D, L1637094-01E

*Values in parentheses indicate holding time in days

Project Name: 59 QUEENSBURY ST.
Project Number: 128982-002

Lab Number: L1637094
Report Date: 11/21/16

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).
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.
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

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.

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.

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

Report Format: Data Usability Report



Project Name: 59 QUEENSBURY ST.**Lab Number:** L1637094**Project Number:** 128982-002**Report Date:** 11/21/16**Data Qualifiers**

- 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.

Project Name: 59 QUEENSBURY ST.
Project Number: 128982-002

Lab Number: L1637094
Report Date: 11/21/16

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.
- 5 Methods for the Organic Chemical Analysis of Municipal and Industrial Wastewater. Appendix A, Part 136, 40 CFR (Code of Federal Regulations).
- 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.
- 98 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, July 2010.
- 100 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, July 2010.
- 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: NPW and SCM: Perchlorate

EPA 9010: NPW and SCM: Amenable Cyanide Distillation

EPA 9012B: NPW: Total Cyanide

EPA 9050A: NPW: Specific Conductance

SM3500: NPW: Ferrous Iron

SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO₂, NO₃.

SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility

SM 2540D: TSS

EPA 3005A NPW

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: 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, EPA 350.1: Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **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, SM9222D-MF.**

Mansfield Facility:

Drinking Water

EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1 Hg.**

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.



ANALYTICAL REPORT

Lab Number:	L1637534
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Lee Vanzler
Phone:	(617) 886-7561
Project Name:	59 QUEENSBURY ST
Project Number:	128982-002
Report Date:	11/23/16

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), VA (460195), MD (348), IL (200077), NC (666), TX (T104704476), DOD (L2217), USDA (Permit #P-330-11-00240).

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



Project Name: 59 QUEENSBURY ST
Project Number: 128982-002

Lab Number: L1637534
Report Date: 11/23/16

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1637534-01	HA16-2(OW)	WATER	Not Specified	11/17/16 08:50	11/17/16
L1637534-02	HA16-3(OW)	WATER	Not Specified	11/17/16 10:30	11/17/16
L1637534-03	HA16-5(OW)	WATER	Not Specified	11/17/16 14:30	11/17/16

Project Name: 59 QUEENSBURY ST

Lab Number: L1637534

Project Number: 128982-002

Report Date: 11/23/16

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).	YES
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)?	NO
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	YES
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: 59 QUEENSBURY ST
Project Number: 128982-002

Lab Number: L1637534
Report Date: 11/23/16

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: 59 QUEENSBURY ST
Project Number: 128982-002

Lab Number: L1637534
Report Date: 11/23/16

Case Narrative (continued)

MCP Related Narratives

Volatile Organics

In reference to question H:

The initial calibration, associated with L1637534-02 (HA16-3(OW)), did not meet the method required minimum response factor on the lowest calibration standard for 2-butanone (0.080) and 1,4-dioxane (0.002), as well as the average response factor for 2-butanone, 4-methyl-2-pentanone and 1,4-dioxane. The initial calibration verification is outside acceptance criteria for acetone (137%), but within overall method criteria. The continuing calibration standard, associated with L1637534-02 (HA16-3(OW)), is outside the acceptance criteria for several compounds; however, it is within overall method allowances. A copy of the continuing calibration standard is included as an addendum to this report.

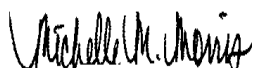
VPH

In reference to question G:

L1637534-01 (HA16-2(OW)) and -03 (HA16-5(OW)): The sample has elevated detection limits due to the dilution required by the sample matrix (foam). One or more of the target analytes did not achieve the requested CAM reporting limits.

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: 11/23/16

ORGANICS

VOLATILES

Project Name: 59 QUEENSBURY ST
Project Number: 128982-002

Lab Number: L1637534
Report Date: 11/23/16

SAMPLE RESULTS

Lab ID: L1637534-02
Client ID: HA16-3(OW)
Sample Location: Not Specified
Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 11/21/16 17:17
Analyst: PK

Date Collected: 11/17/16 10:30
Date Received: 11/17/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	1.0	--	1



Project Name: 59 QUEENSBURY ST

Lab Number: L1637534

Project Number: 128982-002

Report Date: 11/23/16

SAMPLE RESULTS

Lab ID: L1637534-02

Date Collected: 11/17/16 10:30

Client ID: HA16-3(OW)

Date Received: 11/17/16

Sample Location: Not Specified

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1
Methyl tert butyl ether	ND		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
Xylene (Total)	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethene (total)	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	6.3		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	2.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	ND		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1



Project Name: 59 QUEENSBURY ST
Project Number: 128982-002

Lab Number: L1637534
Report Date: 11/23/16

SAMPLE RESULTS

Lab ID: L1637534-02
Client ID: HA16-3(OW)
Sample Location: Not Specified

Date Collected: 11/17/16 10:30
Date Received: 11/17/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	110		70-130

Project Name: 59 QUEENSBURY ST

Lab Number: L1637534

Project Number: 128982-002

Report Date: 11/23/16

Method Blank Analysis Batch Quality Control

Analytical Method: 97,8260C
 Analytical Date: 11/21/16 15:11
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 02 Batch: WG954607-5					
Methylene chloride	ND		ug/l	2.0	--
1,1-Dichloroethane	ND		ug/l	1.0	--
Chloroform	ND		ug/l	1.0	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,2-Dichloropropane	ND		ug/l	1.0	--
Dibromochloromethane	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.0	--
Tetrachloroethene	ND		ug/l	1.0	--
Chlorobenzene	ND		ug/l	1.0	--
Trichlorofluoromethane	ND		ug/l	2.0	--
1,2-Dichloroethane	ND		ug/l	1.0	--
1,1,1-Trichloroethane	ND		ug/l	1.0	--
Bromodichloromethane	ND		ug/l	1.0	--
trans-1,3-Dichloropropene	ND		ug/l	0.50	--
cis-1,3-Dichloropropene	ND		ug/l	0.50	--
1,3-Dichloropropene, Total	ND		ug/l	0.50	--
1,1-Dichloropropene	ND		ug/l	2.0	--
Bromoform	ND		ug/l	2.0	--
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--
Benzene	ND		ug/l	0.50	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Chloromethane	ND		ug/l	2.0	--
Bromomethane	ND		ug/l	2.0	--
Vinyl chloride	ND		ug/l	1.0	--
Chloroethane	ND		ug/l	2.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
trans-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--

Project Name: 59 QUEENSBURY ST

Lab Number: L1637534

Project Number: 128982-002

Report Date: 11/23/16

Method Blank Analysis Batch Quality Control

Analytical Method: 97,8260C
 Analytical Date: 11/21/16 15:11
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 02 Batch: WG954607-5					
1,2-Dichlorobenzene	ND		ug/l	1.0	--
1,3-Dichlorobenzene	ND		ug/l	1.0	--
1,4-Dichlorobenzene	ND		ug/l	1.0	--
Methyl tert butyl ether	ND		ug/l	2.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-Xylene	ND		ug/l	1.0	--
Xylene (Total)	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
1,2-Dichloroethene (total)	ND		ug/l	1.0	--
Dibromomethane	ND		ug/l	2.0	--
1,2,3-Trichloropropane	ND		ug/l	2.0	--
Styrene	ND		ug/l	1.0	--
Dichlorodifluoromethane	ND		ug/l	2.0	--
Acetone	ND		ug/l	5.0	--
Carbon disulfide	ND		ug/l	2.0	--
2-Butanone	ND		ug/l	5.0	--
4-Methyl-2-pentanone	ND		ug/l	5.0	--
2-Hexanone	ND		ug/l	5.0	--
Bromochloromethane	ND		ug/l	2.0	--
Tetrahydrofuran	ND		ug/l	2.0	--
2,2-Dichloropropane	ND		ug/l	2.0	--
1,2-Dibromoethane	ND		ug/l	2.0	--
1,3-Dichloropropane	ND		ug/l	2.0	--
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--
Bromobenzene	ND		ug/l	2.0	--
n-Butylbenzene	ND		ug/l	2.0	--
sec-Butylbenzene	ND		ug/l	2.0	--
tert-Butylbenzene	ND		ug/l	2.0	--
o-Chlorotoluene	ND		ug/l	2.0	--

Project Name: 59 QUEENSBURY ST

Lab Number: L1637534

Project Number: 128982-002

Report Date: 11/23/16

Method Blank Analysis Batch Quality Control

Analytical Method: 97,8260C
 Analytical Date: 11/21/16 15:11
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 02 Batch: WG954607-5					
p-Chlorotoluene	ND		ug/l	2.0	--
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--
Hexachlorobutadiene	ND		ug/l	0.60	--
Isopropylbenzene	ND		ug/l	2.0	--
p-Isopropyltoluene	ND		ug/l	2.0	--
Naphthalene	ND		ug/l	2.0	--
n-Propylbenzene	ND		ug/l	2.0	--
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--
Ethyl ether	ND		ug/l	2.0	--
Isopropyl Ether	ND		ug/l	2.0	--
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--
1,4-Dioxane	ND		ug/l	250	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	107		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: 59 QUEENSBURY ST

Project Number: 128982-002

Lab Number: L1637534

Report Date: 11/23/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 02 Batch: WG954607-3 WG954607-4								
Methylene chloride	95		94		70-130	1		20
1,1-Dichloroethane	100		100		70-130	0		20
Chloroform	110		100		70-130	10		20
Carbon tetrachloride	100		96		70-130	4		20
1,2-Dichloropropane	100		98		70-130	2		20
Dibromochloromethane	110		100		70-130	10		20
1,1,2-Trichloroethane	110		110		70-130	0		20
Tetrachloroethene	110		100		70-130	10		20
Chlorobenzene	99		95		70-130	4		20
Trichlorofluoromethane	110		100		70-130	10		20
1,2-Dichloroethane	110		110		70-130	0		20
1,1,1-Trichloroethane	100		97		70-130	3		20
Bromodichloromethane	100		100		70-130	0		20
trans-1,3-Dichloropropene	100		100		70-130	0		20
cis-1,3-Dichloropropene	99		96		70-130	3		20
1,1-Dichloropropene	100		100		70-130	0		20
Bromoform	100		98		70-130	2		20
1,1,2,2-Tetrachloroethane	100		100		70-130	0		20
Benzene	100		100		70-130	0		20
Toluene	100		97		70-130	3		20
Ethylbenzene	96		92		70-130	4		20

Lab Control Sample Analysis Batch Quality Control

Project Name: 59 QUEENSBURY ST

Project Number: 128982-002

Lab Number: L1637534

Report Date: 11/23/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 02 Batch: WG954607-3 WG954607-4								
Chloromethane	86		80		70-130	7		20
Bromomethane	95		83		70-130	13		20
Vinyl chloride	100		96		70-130	4		20
Chloroethane	100		96		70-130	4		20
1,1-Dichloroethene	100		98		70-130	2		20
trans-1,2-Dichloroethene	110		100		70-130	10		20
Trichloroethene	100		96		70-130	4		20
1,2-Dichlorobenzene	100		97		70-130	3		20
1,3-Dichlorobenzene	99		93		70-130	6		20
1,4-Dichlorobenzene	100		95		70-130	5		20
Methyl tert butyl ether	110		110		70-130	0		20
p/m-Xylene	95		90		70-130	5		20
o-Xylene	95		90		70-130	5		20
cis-1,2-Dichloroethene	100		100		70-130	0		20
Dibromomethane	110		110		70-130	0		20
1,2,3-Trichloropropane	100		100		70-130	0		20
Styrene	95		90		70-130	5		20
Dichlorodifluoromethane	89		83		70-130	7		20
Acetone	92		95		70-130	3		20
Carbon disulfide	100		96		70-130	4		20
2-Butanone	110		110		70-130	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: 59 QUEENSBURY ST

Project Number: 128982-002

Lab Number: L1637534

Report Date: 11/23/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 02 Batch: WG954607-3 WG954607-4								
4-Methyl-2-pentanone	100		98		70-130	2		20
2-Hexanone	85		83		70-130	2		20
Bromochloromethane	110		100		70-130	10		20
Tetrahydrofuran	110		100		70-130	10		20
2,2-Dichloropropane	95		89		70-130	7		20
1,2-Dibromoethane	110		110		70-130	0		20
1,3-Dichloropropane	120		120		70-130	0		20
1,1,1,2-Tetrachloroethane	110		110		70-130	0		20
Bromobenzene	95		90		70-130	5		20
n-Butylbenzene	120		110		70-130	9		20
sec-Butylbenzene	88		81		70-130	8		20
tert-Butylbenzene	83		79		70-130	5		20
o-Chlorotoluene	94		89		70-130	5		20
p-Chlorotoluene	93		88		70-130	6		20
1,2-Dibromo-3-chloropropane	87		86		70-130	1		20
Hexachlorobutadiene	100		99		70-130	1		20
Isopropylbenzene	87		80		70-130	8		20
p-Isopropyltoluene	99		94		70-130	5		20
Naphthalene	120		120		70-130	0		20
n-Propylbenzene	90		84		70-130	7		20
1,2,3-Trichlorobenzene	140	Q	130		70-130	7		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: 59 QUEENSBURY ST

Project Number: 128982-002

Lab Number: L1637534

Report Date: 11/23/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 02 Batch: WG954607-3 WG954607-4								
1,2,4-Trichlorobenzene	150	Q	140	Q	70-130	7		20
1,3,5-Trimethylbenzene	120		110		70-130	9		20
1,2,4-Trimethylbenzene	120		120		70-130	0		20
Ethyl ether	110		110		70-130	0		20
Isopropyl Ether	110		100		70-130	10		20
Ethyl-Tert-Butyl-Ether	100		99		70-130	1		20
Tertiary-Amyl Methyl Ether	100		98		70-130	2		20
1,4-Dioxane	110		98		70-130	12		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	106		108		70-130
Toluene-d8	100		100		70-130
4-Bromofluorobenzene	93		93		70-130
Dibromofluoromethane	108		109		70-130

PETROLEUM HYDROCARBONS

Project Name: 59 QUEENSBURY ST**Lab Number:** L1637534**Project Number:** 128982-002**Report Date:** 11/23/16**SAMPLE RESULTS**

Lab ID: L1637534-01 D

Client ID: HA16-2(OW)

Sample Location:

Matrix: Water

Analytical Method: 100, VPH-04-1.1

Analytical Date: 11/23/16 02:10

Analyst: JM

Date Collected: 11/17/16 08:50

Date Received: 11/17/16

Field Prep: Not Specified

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		ug/l	250	--	5
C9-C12 Aliphatics	ND		ug/l	250	--	5
C9-C10 Aromatics	ND		ug/l	250	--	5
C5-C8 Aliphatics, Adjusted	ND		ug/l	250	--	5
C9-C12 Aliphatics, Adjusted	ND		ug/l	250	--	5
Benzene	ND		ug/l	10.0	--	5
Toluene	ND		ug/l	10.0	--	5
Ethylbenzene	ND		ug/l	10.0	--	5
p/m-Xylene	ND		ug/l	10.0	--	5
o-Xylene	ND		ug/l	10.0	--	5
Methyl tert butyl ether	ND		ug/l	15.0	--	5
Naphthalene	ND		ug/l	20.0	--	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	92		70-130
2,5-Dibromotoluene-FID	102		70-130



Project Name: 59 QUEENSBURY ST**Lab Number:** L1637534**Project Number:** 128982-002**Report Date:** 11/23/16**SAMPLE RESULTS**

Lab ID: L1637534-03 D

Client ID: HA16-5(OW)

Sample Location:

Matrix: Water

Analytical Method: 100, VPH-04-1.1

Analytical Date: 11/23/16 02:50

Analyst: JM

Date Collected: 11/17/16 14:30

Date Received: 11/17/16

Field Prep: Not Specified

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		ug/l	250	--	5
C9-C12 Aliphatics	ND		ug/l	250	--	5
C9-C10 Aromatics	ND		ug/l	250	--	5
C5-C8 Aliphatics, Adjusted	ND		ug/l	250	--	5
C9-C12 Aliphatics, Adjusted	ND		ug/l	250	--	5
Benzene	23.8		ug/l	10.0	--	5
Toluene	ND		ug/l	10.0	--	5
Ethylbenzene	ND		ug/l	10.0	--	5
p/m-Xylene	18.6		ug/l	10.0	--	5
o-Xylene	ND		ug/l	10.0	--	5
Methyl tert butyl ether	ND		ug/l	15.0	--	5
Naphthalene	ND		ug/l	20.0	--	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	93		70-130
2,5-Dibromotoluene-FID	103		70-130



Project Name: 59 QUEENSBURY ST

Lab Number: L1637534

Project Number: 128982-002

Report Date: 11/23/16

Method Blank Analysis Batch Quality Control

Analytical Method: 100, VPH-04-1.1

Analytical Date: 11/22/16 16:07

Analyst: JM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 01,03 Batch: WG955181-3					
C5-C8 Aliphatics	ND		ug/l	50.0	--
C9-C12 Aliphatics	ND		ug/l	50.0	--
C9-C10 Aromatics	ND		ug/l	50.0	--
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--
Benzene	ND		ug/l	2.00	--
Toluene	ND		ug/l	2.00	--
Ethylbenzene	ND		ug/l	2.00	--
p/m-Xylene	ND		ug/l	2.00	--
o-Xylene	ND		ug/l	2.00	--
Methyl tert butyl ether	ND		ug/l	3.00	--
Naphthalene	ND		ug/l	4.00	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	91		70-130
2,5-Dibromotoluene-FID	102		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: 59 QUEENSBURY ST

Project Number: 128982-002

Lab Number: L1637534

Report Date: 11/23/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01,03 Batch: WG955181-1 WG955181-2								
C5-C8 Aliphatics	93		93		70-130	0		25
C9-C12 Aliphatics	91		88		70-130	4		25
C9-C10 Aromatics	93		93		70-130	0		25
Benzene	83		83		70-130	0		25
Toluene	86		87		70-130	1		25
Ethylbenzene	89		90		70-130	1		25
p/m-Xylene	91		92		70-130	1		25
o-Xylene	90		91		70-130	1		25
Methyl tert butyl ether	86		87		70-130	1		25
Naphthalene	95		94		70-130	2		25
1,2,4-Trimethylbenzene	93		93		70-130	0		25
Pentane	92		92		70-130	1		25
2-Methylpentane	94		94		70-130	1		25
2,2,4-Trimethylpentane	95		94		70-130	1		25
n-Nonane	95		91		30-130	4		25
n-Decane	91		89		70-130	2		25
n-Butylcyclohexane	96		93		70-130	3		25

Lab Control Sample Analysis**Batch Quality Control****Project Name:** 59 QUEENSBURY ST**Project Number:** 128982-002**Lab Number:** L1637534**Report Date:** 11/23/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits

Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01,03 Batch: WG955181-1 WG955181-2

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	89		83		70-130
2,5-Dibromotoluene-FID	96		92		70-130

Project Name: 59 QUEENSBURY ST**Project Number:** 128982-002**Lab Number:** L1637534**Report Date:** 11/23/16**Sample Receipt and Container Information**

Were project specific reporting limits specified? YES

Cooler Information Custody Seal**Cooler**

A Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1637534-01A	Vial HCl preserved	A	N/A	3.7	Y	Absent	VPH-DELUX-10(14)
L1637534-01B	Vial HCl preserved	A	N/A	3.7	Y	Absent	VPH-DELUX-10(14)
L1637534-01C	Vial HCl preserved	A	N/A	3.7	Y	Absent	VPH-DELUX-10(14)
L1637534-02A	Vial HCl preserved	A	N/A	3.7	Y	Absent	MCP-8260-10(14)
L1637534-02B	Vial HCl preserved	A	N/A	3.7	Y	Absent	MCP-8260-10(14)
L1637534-02C	Vial HCl preserved	A	N/A	3.7	Y	Absent	MCP-8260-10(14)
L1637534-03A	Vial HCl preserved	A	N/A	3.7	Y	Absent	VPH-DELUX-10(14)
L1637534-03B	Vial HCl preserved	A	N/A	3.7	Y	Absent	VPH-DELUX-10(14)
L1637534-03C	Vial HCl preserved	A	N/A	3.7	Y	Absent	VPH-DELUX-10(14)

*Values in parentheses indicate holding time in days



Project Name: 59 QUEENSBURY ST
Project Number: 128982-002

Lab Number: L1637534
Report Date: 11/23/16

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).
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.
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

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.

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.

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

Report Format: Data Usability Report



Project Name: 59 QUEENSBURY ST
Project Number: 128982-002

Lab Number: L1637534
Report Date: 11/23/16

Data Qualifiers

- 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.

Project Name: 59 QUEENSBURY ST
Project Number: 128982-002

Lab Number: L1637534
Report Date: 11/23/16

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.
- 100 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, 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: NPW and SCM: Perchlorate

EPA 9010: NPW and SCM: Amenable Cyanide Distillation

EPA 9012B: NPW: Total Cyanide

EPA 9050A: NPW: Specific Conductance

SM3500: NPW: Ferrous Iron

SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO₂, NO₃.

SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility

SM 2540D: TSS

EPA 3005A NPW

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: 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, EPA 350.1: Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **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, SM9222D-MF.**

Mansfield Facility:

Drinking Water

EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1 Hg.**

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.



Haley & Aldrich, Inc.
465 Medford St.,
Suite 2200,
Boston, MA 02129-1402

CHAIN OF CUSTODY RECORD

Phone (617) 886-7400

Fax (617) 886-7600

Page 1 of 1

H&A FILE NO. 125982-002

PROJECT NAME 59 Queensbury St

H&A CONTACT S. Provencal

LABORATORY Alpha

ADDRESS Weymouth

CONTACT Gina

DELIVERY DATE 11/17/16

TURNAROUND TIME STA

PROJECT MANAGER L. Vanelier

Sample No.	Date	Time	Depth	Type	Analysis Requested													Number of Containers	Comments (special instructions, precautions, additional method numbers, etc.)
					VOA	ABN	PAH only	MCP Metals	Pesticides PCBs	VPH	Full Suite	TPH	Full Suite	Cyanide only	TPH (specify)	TCLP (specify)	Reactivity		
HA16-2(ow)	11/17/16	850	-	AQ							X							3	Laboratory to use applicable DEP CAM methods, unless otherwise directed. VPH + targets VOCs by 8260
HA16-3(ow)		1030	-		X													3	
HA16-5(ow)		1430	-								X							3	

Sampled and Relinquished by		Received by		LIQUID				Sampling Comments	
Sign <i>S. Provencal</i>	Sign <i>M. Aylsh</i>			X		X		VOA Vial	
Print S. Provencal	Print M. Aylsh							Amber Glass	
Firm H&A	Firm H&A							Plastic Bottle	
Date 11/17/16 Time	Date 11/17/16 Time 16:30							Preservative	
Relinquished by	Received by	SOLID						Volume	
Sign <i>M. Aylsh</i>	Sign <i>Ann Veillaz</i>							VOA Vial	
Print M. Aylsh	Print Ann Veillaz							Amber Glass	
Firm H&A	Firm Alpha							Clear Glass	
Date 11/17/16 Time 16:30	Date 11/17/16 Time 16:30							Preservative	
Relinquished by	Received by							Volume	
Sign <i>Ann Veillaz</i>	Sign <i>Craig Green</i>								
Print Ann Veillaz	Print Craig Green								
Firm Alpha	Firm AAC								
Date 11/17/16 Time 16:30	Date 11/17/16 Time 16:30								

Presumptive Certainty Data Package (Laboratory to use applicable DEP CAM methods)		Required Reporting Limits and Data Quality Objectives	
If Presumptive Certainty Data Package is needed, initial all sections: ☒ The required minimum field QC samples, as designated in BWSC CAM-VII have been or will be collected, as appropriate, to meet the requirements of Presumptive Certainty. ☒ Matrix Spike (MS) samples for MCP Metals and/or Cyanide are included and identified herein. ☒ This Chain of Custody Record (specify) _____ includes _____ does not include samples defined as Drinking Water Samples. If this Chain of Custody Record identifies samples defined as Drinking Water Samples, Trip Blanks and Field Duplicates are included and identified and analysis of TICs are required, as appropriate. Laboratory should (specify if applicable) _____ analyze		☐ RC-S1 ☐ S1 ☐ GW1 ☐ RC-S2 ☐ S2 ☐ GW2 ☐ RC-GW1 ☐ S3 ☐ GW3 ☐ RC-GW2	

Method Blank Summary Form 4

Client	: Haley & Aldrich, Inc.	Lab Number	: L1637534
Project Name	: 59 QUEENSBURY ST	Project Number	: 128982-002
Lab Sample ID	: WG954607-5	Lab File ID	: VQ161121B05
Instrument ID	: QUIMBY		
Matrix	: WATER	Analysis Date	: 11/21/16 15:11

Client Sample No.	Lab Sample ID	Analysis Date
WG954607-3LCS	WG954607-3	11/21/16 13:37
WG954607-4LCSD	WG954607-4	11/21/16 14:08
HA16-3(OW)	L1637534-02	11/21/16 17:17

Continuing Calibration Form 7

Client : Haley & Aldrich, Inc.
 Project Name : 59 QUEENSBURY ST
 Instrument ID : QUIMBY
 Lab File ID : VQ161121B02
 Sample No : WG954607-2
 Channel :

Lab Number : L1637534
 Project Number : 128982-002
 Calibration Date : 11/21/16 13:37
 Init. Calib. Date(s) : 08/29/16 08/29/16
 Init. Calib. Times : 09:05 12:46

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Fluorobenzene	1	1	-	0	20	78	0
Dichlorodifluoromethane	0.339	0.303	-	10.6	20	67	0
Chloromethane	0.535	0.458	-	14.4	20	66	0
Vinyl chloride	0.457	0.474	-	-3.7	20	81	0
Bromomethane	0.244	0.233	-	4.5	20	79	-.01
Chloroethane	0.29	0.292	-	-0.7	20	78	0
Trichlorofluoromethane	0.498	0.551	-	-10.6	20	85	0
Ethyl ether	0.149	0.17	-	-14.1	20	90	0
1,1-Dichloroethene	0.309	0.323	-	-4.5	20	79	0
Carbon disulfide	1.009	1.031	-	-2.2	20	82	0
Methylene chloride	0.397	0.379	-	4.5	20	79	0
Acetone	10	9.164	-	8.4	20	69	0
trans-1,2-Dichloroethene	0.351	0.374	-	-6.6	20	83	0
Methyl tert-butyl ether	0.686	0.738	-	-7.6	20	84	0
Diisopropyl ether	1.183	1.256	-	-6.2	20	82	0
1,1-Dichloroethane	0.694	0.727	-	-4.8	20	82	0
Ethyl tert-butyl ether	1.032	1.046	-	-1.4	20	80	0
cis-1,2-Dichloroethene	0.379	0.4	-	-5.5	20	84	0
2,2-Dichloropropane	0.6	0.57	-	5	20	74	0
Bromochloromethane	0.141	0.151	-	-7.1	20	85	0
Chloroform	0.625	0.682	-	-9.1	20	84	0
Carbon tetrachloride	0.484	0.492	-	-1.7	20	79	0
Tetrahydrofuran	10	10.758	-	-7.6	20	86	-.01
Dibromofluoromethane	0.191	0.206	-	-7.9	20	82	0
1,1,1-Trichloroethane	0.587	0.606	-	-3.2	20	81	0
2-Butanone	0.075	0.082*	-	-9.3	20	86	0
1,1-Dichloropropene	0.507	0.536	-	-5.7	20	82	0
Benzene	1.571	1.659	-	-5.6	20	81	0
tert-Amyl methyl ether	0.808	0.81	-	-0.2	20	80	0
1,2-Dichloroethane-d4	0.221	0.234	-	-5.9	20	81	0
1,2-Dichloroethane	0.433	0.482	-	-11.3	20	88	0
Trichloroethene	0.411	0.418	-	-1.7	20	79	0
Dibromomethane	0.164	0.179	-	-9.1	20	86	0
1,2-Dichloropropane	0.399	0.403	-	-1	20	80	0
Bromodichloromethane	0.464	0.479	-	-3.2	20	83	0
1,4-Dioxane	0.00163	0.00179*	-	-9.8	20	81	0
cis-1,3-Dichloropropene	0.573	0.568	-	0.9	20	80	0
Chlorobenzene-d5	1	1	-	0	20	72	0
Toluene-d8	1.38	1.378	-	0.1	20	71	0
Toluene	1.477	1.483	-	-0.4	20	72	0
4-Methyl-2-pentanone	0.099	0.1*	-	-1	20	74	0
Tetrachloroethene	0.519	0.579	-	-11.6	20	79	0
trans-1,3-Dichloropropene	0.592	0.622	-	-5.1	20	78	0
1,1,2-Trichloroethane	0.264	0.298	-	-12.9	20	83	0
Chlorodibromomethane	0.35	0.372	-	-6.3	20	80	0

* Value outside of QC limits.



Continuing Calibration Form 7

Client : Haley & Aldrich, Inc.
 Project Name : 59 QUEENSBURY ST
 Instrument ID : QUIMBY
 Lab File ID : VQ161121B02
 Sample No : WG954607-2
 Channel :

Lab Number : L1637534
 Project Number : 128982-002
 Calibration Date : 11/21/16 13:37
 Init. Calib. Date(s) : 08/29/16 08/29/16
 Init. Calib. Times : 09:05 12:46

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
1,3-Dichloropropane	0.565	0.659	-	-16.6	20	85	0
1,2-Dibromoethane	0.306	0.326	-	-6.5	20	80	0
2-Hexanone	0.183	0.155	-	15.3	20	64	0
Chlorobenzene	1.521	1.5	-	1.4	20	71	0
Ethylbenzene	2.643	2.552	-	3.4	20	69	0
1,1,1,2-Tetrachloroethane	0.46	0.494	-	-7.4	20	81	0
p/m Xylene	0.841	0.81	-	3.7	20	70	0
o Xylene	0.798	0.764	-	4.3	20	69	0
Styrene	1.333	1.269	-	4.8	20	69	0
1,4-Dichlorobenzene-d4	1	1	-	0	20	74	0
Bromoform	0.552	0.567	-	-2.7	20	89	0
Isopropylbenzene	7.026	6.118	-	12.9	20	67	0
4-Bromofluorobenzene	1.363	1.266	-	7.1	20	73	0
Bromobenzene	1.583	1.504	-	5	20	74	0
n-Propylbenzene	7.16	6.428	-	10.2	20	67	0
1,1,2,2-Tetrachloroethane	10	10.124	-	-1.2	20	75	0
2-Chlorotoluene	5.132	4.837	-	5.7	20	72	0
1,3,5-Trimethylbenzene	4.258	4.926	-	-15.7	20	84	0
1,2,3-Trichloropropane	10	10.505	-	-5.1	20	78	0
4-Chlorotoluene	4.45	4.121	-	7.4	20	71	0
tert-Butylbenzene	4.132	3.449	-	16.5	20	64	0
1,2,4-Trimethylbenzene	4.075	4.974	-	-22.1*	20	90	0
sec-Butylbenzene	5.871	5.151	-	12.3	20	66	0
p-Isopropyltoluene	4.513	4.477	-	0.8	20	73	0
1,3-Dichlorobenzene	2.566	2.538	-	1.1	20	75	0
1,4-Dichlorobenzene	2.395	2.393	-	0.1	20	77	0
n-Butylbenzene	4.537	5.336	-	-17.6	20	86	0
1,2-Dichlorobenzene	2.189	2.191	-	-0.1	20	75	0
1,2-Dibromo-3-chloropropan	10	8.663	-	13.4	20	65	0
Hexachlorobutadiene	0.518	0.537	-	-3.7	20	79	0
1,2,4-Trichlorobenzene	0.902	1.352	-	-49.9*	20	108	0
Naphthalene	1.655	2.004	-	-21.1*	20	87	0
1,2,3-Trichlorobenzene	0.738	1.045	-	-41.6*	20	101	0

* Value outside of QC limits.





ANALYTICAL REPORT

Lab Number:	L1637787
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Lee Vanzler
Phone:	(617) 886-7561
Project Name:	59 QUEENSBURY ST
Project Number:	128982-002
Report Date:	11/28/16

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Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), VA (460195), MD (348), IL (200077), NC (666), TX (T104704476), DOD (L2217), USDA (Permit #P-330-11-00240).

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



Project Name: 59 QUEENSBURY ST
Project Number: 128982-002

Lab Number: L1637787
Report Date: 11/28/16

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1637787-01	HA16-05 (OW)	WATER	Not Specified	11/18/16 07:15	11/18/16

Project Name: 59 QUEENSBURY ST

Lab Number: L1637787

Project Number: 128982-002

Report Date: 11/28/16

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).	YES
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?	NO
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	YES
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: 59 QUEENSBURY ST
Project Number: 128982-002

Lab Number: L1637787
Report Date: 11/28/16

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: 59 QUEENSBURY ST
Project Number: 128982-002

Lab Number: L1637787
Report Date: 11/28/16

Case Narrative (continued)

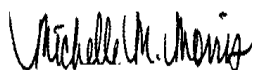
MCP Related Narratives

EPH

The initial calibration, associated with L1637787-01 (HA16-05 (OW)), utilized a quadratic fit for o-Terphenyl-MS.

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: 11/28/16

ORGANICS

PETROLEUM HYDROCARBONS

Project Name: 59 QUEENSBURY ST**Lab Number:** L1637787**Project Number:** 128982-002**Report Date:** 11/28/16**SAMPLE RESULTS**

Lab ID: L1637787-01

Client ID: HA16-05 (OW)

Sample Location:

Matrix: Water

Analytical Method: 98,EPH-04-1.1

Analytical Date: 11/22/16 17:58

Analyst: DV

M.S. Analytical Date: 11/26/16 05:28

M.S. Analyst: KV

Date Collected: 11/18/16 07:15

Date Received: 11/18/16

Field Prep: Not Specified

Extraction Method: EPA 3510C

Extraction Date: 11/20/16 12:46

Cleanup Method1: EPH-04-1

Cleanup Date1: 11/21/16

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved

Sample Temperature upon receipt:

Container

Sample Extraction method:

Received on Ice

Sample Temperature upon receipt:

Extracted Per the Method

Sample Extraction method:

Received on Ice

Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

EPH w/MS Targets - Westborough Lab

C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1
Naphthalene	ND		ug/l	0.400	--	1
2-Methylnaphthalene	ND		ug/l	0.400	--	1
Acenaphthylene	ND		ug/l	0.400	--	1
Acenaphthene	ND		ug/l	0.400	--	1
Fluorene	ND		ug/l	0.400	--	1
Phenanthrene	ND		ug/l	0.400	--	1
Anthracene	ND		ug/l	0.400	--	1
Fluoranthene	ND		ug/l	0.400	--	1
Pyrene	ND		ug/l	0.400	--	1
Benzo(a)anthracene	ND		ug/l	0.400	--	1
Chrysene	ND		ug/l	0.400	--	1
Benzo(b)fluoranthene	ND		ug/l	0.400	--	1
Benzo(k)fluoranthene	ND		ug/l	0.400	--	1
Benzo(a)pyrene	ND		ug/l	0.200	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.400	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.400	--	1
Benzo(ghi)perylene	ND		ug/l	0.400	--	1



Project Name: 59 QUEENSBURY ST**Lab Number:** L1637787**Project Number:** 128982-002**Report Date:** 11/28/16**SAMPLE RESULTS**

Lab ID: L1637787-01

Date Collected: 11/18/16 07:15

Client ID: HA16-05 (OW)

Date Received: 11/18/16

Sample Location:

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

EPH w/MS Targets - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	74		40-140
o-Terphenyl	92		40-140
2-Fluorobiphenyl	84		40-140
2-Bromonaphthalene	87		40-140
O-Terphenyl-MS	91		40-140

Project Name: 59 QUEENSBURY ST

Lab Number: L1637787

Project Number: 128982-002

Report Date: 11/28/16

Method Blank Analysis Batch Quality Control

Analytical Method: 98,EPH-04-1.1

Analytical Date: 11/22/16 11:01

Analyst: DV

M.S. Analytical Date: 11/25/16 21:22

M.S. Analyst: KV

Extraction Method: EPA 3510C

Extraction Date: 11/20/16 12:09

Cleanup Method: EPH-04-1

Cleanup Date: 11/21/16

Parameter	Result	Qualifier	Units	RL	MDL
EPH w/MS Targets - Westborough Lab for sample(s): 01 Batch: WG954199-1					
C9-C18 Aliphatics	ND		ug/l	100	--
C19-C36 Aliphatics	ND		ug/l	100	--
C11-C22 Aromatics	ND		ug/l	100	--
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--
Naphthalene	ND		ug/l	0.400	--
2-Methylnaphthalene	ND		ug/l	0.400	--
Acenaphthylene	ND		ug/l	0.400	--
Acenaphthene	ND		ug/l	0.400	--
Fluorene	ND		ug/l	0.400	--
Phenanthrene	ND		ug/l	0.400	--
Anthracene	ND		ug/l	0.400	--
Fluoranthene	ND		ug/l	0.400	--
Pyrene	ND		ug/l	0.400	--
Benzo(a)anthracene	ND		ug/l	0.400	--
Chrysene	ND		ug/l	0.400	--
Benzo(b)fluoranthene	ND		ug/l	0.400	--
Benzo(k)fluoranthene	ND		ug/l	0.400	--
Benzo(a)pyrene	ND		ug/l	0.200	--
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.400	--
Dibenzo(a,h)anthracene	ND		ug/l	0.400	--
Benzo(ghi)perylene	ND		ug/l	0.400	--

Project Name: 59 QUEENSBURY ST

Lab Number: L1637787

Project Number: 128982-002

Report Date: 11/28/16

Method Blank Analysis Batch Quality Control

Analytical Method: 98,EPH-04-1.1

Analytical Date: 11/22/16 11:01

Analyst: DV

11/25/16 21:22

KV

Extraction Method: EPA 3510C

Extraction Date: 11/20/16 12:09

Cleanup Method: EPH-04-1

Cleanup Date: 11/21/16

Parameter	Result	Qualifier	Units	RL	MDL
EPH w/MS Targets - Westborough Lab for sample(s): 01 Batch: WG954199-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	57		40-140
o-Terphenyl	89		40-140
2-Fluorobiphenyl	91		40-140
2-Bromonaphthalene	93		40-140
O-Terphenyl-MS	63		40-140

Lab Control Sample Analysis Batch Quality Control

Project Name: 59 QUEENSBURY ST

Project Number: 128982-002

Lab Number: L1637787

Report Date: 11/28/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
EPH w/MS Targets - Westborough Lab Associated sample(s): 01 Batch: WG954199-2 WG954199-3								
C9-C18 Aliphatics	80		57		40-140	34	Q	25
C19-C36 Aliphatics	89		75		40-140	17		25
C11-C22 Aromatics	96		79		40-140	19		25
Naphthalene	60		76		40-140	24		25
2-Methylnaphthalene	63		77		40-140	20		25
Acenaphthylene	64		77		40-140	18		25
Acenaphthene	70		91		40-140	26	Q	25
Fluorene	75		95		40-140	24		25
Phenanthrene	67		87		40-140	26	Q	25
Anthracene	67		89		40-140	28	Q	25
Fluoranthene	71		99		40-140	33	Q	25
Pyrene	76		99		40-140	26	Q	25
Benzo(a)anthracene	74		96		40-140	26	Q	25
Chrysene	78		102		40-140	27	Q	25
Benzo(b)fluoranthene	84		112		40-140	29	Q	25
Benzo(k)fluoranthene	76		98		40-140	25		25
Benzo(a)pyrene	66		90		40-140	31	Q	25
Indeno(1,2,3-cd)Pyrene	54		69		40-140	24		25
Dibenzo(a,h)anthracene	60		75		40-140	22		25
Benzo(ghi)perylene	43		53		40-140	21		25
Nonane (C9)	52		46		30-140	12		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: 59 QUEENSBURY ST

Project Number: 128982-002

Lab Number: L1637787

Report Date: 11/28/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
EPH w/MS Targets - Westborough Lab Associated sample(s): 01 Batch: WG954199-2 WG954199-3								
Decane (C10)	62		54		40-140	14		25
Dodecane (C12)	73		63		40-140	15		25
Tetradecane (C14)	80		67		40-140	18		25
Hexadecane (C16)	82		70		40-140	16		25
Octadecane (C18)	82		70		40-140	16		25
Nonadecane (C19)	82		70		40-140	16		25
Eicosane (C20)	80		69		40-140	15		25
Docosane (C22)	82		67		40-140	20		25
Tetracosane (C24)	77		66		40-140	15		25
Hexacosane (C26)	75		65		40-140	14		25
Octacosane (C28)	74		63		40-140	16		25
triacontane (C30)	76		65		40-140	16		25
Hexatriacontane (C36)	79		66		40-140	18		25

Lab Control Sample Analysis**Batch Quality Control****Project Name:** 59 QUEENSBURY ST**Lab Number:** L1637787**Project Number:** 128982-002**Report Date:** 11/28/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
EPH w/MS Targets - Westborough Lab Associated sample(s): 01 Batch: WG954199-2 WG954199-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	71		56		40-140
o-Terphenyl	94		75		40-140
2-Fluorobiphenyl	85		74		40-140
2-Bromonaphthalene	89		77		40-140
O-Terphenyl-MS	84		99		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

Project Name: 59 QUEENSBURY ST**Project Number:** 128982-002**Lab Number:** L1637787**Report Date:** 11/28/16**Sample Receipt and Container Information**

Were project specific reporting limits specified? YES

Cooler Information Custody Seal**Cooler**

C Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1637787-01A	Amber 1000ml HCl preserved	C	<2	4.5	Y	Absent	EPH-MS-10(14),EPHD-GC-10(14)
L1637787-01B	Amber 1000ml HCl preserved	C	<2	4.5	Y	Absent	EPH-MS-10(14),EPHD-GC-10(14)

*Values in parentheses indicate holding time in days



Project Name: 59 QUEENSBURY ST
Project Number: 128982-002

Lab Number: L1637787
Report Date: 11/28/16

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).
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.
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

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.

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.

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

Report Format: Data Usability Report



Project Name: 59 QUEENSBURY ST
Project Number: 128982-002

Lab Number: L1637787
Report Date: 11/28/16

Data Qualifiers

- 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.

Project Name: 59 QUEENSBURY ST
Project Number: 128982-002

Lab Number: L1637787
Report Date: 11/28/16

REFERENCES

- 98 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, 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.



Alpha Analytical, Inc.

ID No.:17873

Facility: **Company-wide**

Revision 7

Department: **Quality Assurance**

Published Date: 8/5/2016 11:25:56 AM

Title: **Certificate/Approval Program Summary**

Page 1 of 1

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:** NPW and SCM: Perchlorate**EPA 9010:** NPW and SCM: Amenable Cyanide Distillation**EPA 9012B:** NPW: Total Cyanide**EPA 9050A:** NPW: Specific Conductance**SM3500:** NPW: Ferrous Iron**SM4500:** NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO₂, NO₃.**SM5310C:** DW: Dissolved Organic Carbon**Mansfield Facility****SM 2540D:** TSS**EPA 3005A** NPW**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:** 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, EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **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, SM9222D-MF.****Mansfield Facility:****Drinking Water****EPA 200.7:** Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1** Hg.**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.



ANALYTICAL REPORT

Lab Number:	L1715230
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Beck Straley
Phone:	(617) 886-7442
Project Name:	CCF FENWAY
Project Number:	129198-007
Report Date:	05/16/17

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

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



Project Name: CCF FENWAY
Project Number: 129198-007

Lab Number: L1715230
Report Date: 05/16/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1715230-01	OW-3	WATER	KILMARNOCK STREET, BOSTON, MA	05/10/17 11:10	05/10/17
L1715230-02	OW-5	WATER	KILMARNOCK STREET, BOSTON, MA	05/10/17 12:35	05/10/17
L1715230-03	OW-6	WATER	KILMARNOCK STREET, BOSTON, MA	05/10/17 14:00	05/10/17

Project Name: CCF FENWAY

Lab Number: L1715230

Project Number: 129198-007

Report Date: 05/16/17

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).	YES
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)?	NO
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
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: CCF FENWAY
Project Number: 129198-007

Lab Number: L1715230
Report Date: 05/16/17

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: CCF FENWAY
Project Number: 129198-007

Lab Number: L1715230
Report Date: 05/16/17

Case Narrative (continued)

MCP Related Narratives

Volatile Organics

L1715230-01 (OW-3): The sample has elevated detection limits due to the dilution required by the sample matrix (foamy).

L1715230-02 (OW-5): The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

In reference to question G:

L1715230-01(OW-3) and -02 (OW-5): One or more of the target analytes did not achieve the requested CAM reporting limits.

In reference to question H:

The initial calibration, associated with L1715230-01(OW-3), -02 (OW-5) and -03 (OW-6), did not meet the method required minimum response factor on the lowest calibration standard for 2-butanone (0.973) and 1,4-dioxane (0.0023), as well as the average response factor for 2-butanone and 1,4-dioxane.

The continuing calibration standards, associated with L1715230-01(OW-3), -02 (OW-5) and -03 (OW-6), are outside the acceptance criteria for several compounds; however, they are within overall method allowances. A copy of the continuing calibration standards is included as an addendum to this report.

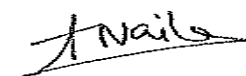
VPH

In reference to question I:

All samples were analyzed for a subset of MCP analytes per the Chain of Custody.

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:



Amita Naik

Title: Technical Director/Representative

Date: 05/16/17

ORGANICS

VOLATILES

Project Name: CCF FENWAY

Lab Number: L1715230

Project Number: 129198-007

Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1715230-01 D
 Client ID: OW-3
 Sample Location: KILMARNOCK STREET, BOSTON, MA

Date Collected: 05/10/17 11:10
 Date Received: 05/10/17
 Field Prep: Not Specified

Matrix: Water
 Analytical Method: 97,8260C
 Analytical Date: 05/15/17 10:32
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	4.0	--	2
1,1-Dichloroethane	ND		ug/l	2.0	--	2
Chloroform	ND		ug/l	2.0	--	2
Carbon tetrachloride	ND		ug/l	2.0	--	2
1,2-Dichloropropane	ND		ug/l	2.0	--	2
Dibromochloromethane	ND		ug/l	2.0	--	2
1,1,2-Trichloroethane	ND		ug/l	2.0	--	2
Tetrachloroethene	ND		ug/l	2.0	--	2
Chlorobenzene	ND		ug/l	2.0	--	2
Trichlorofluoromethane	ND		ug/l	4.0	--	2
1,2-Dichloroethane	ND		ug/l	2.0	--	2
1,1,1-Trichloroethane	ND		ug/l	2.0	--	2
Bromodichloromethane	ND		ug/l	2.0	--	2
trans-1,3-Dichloropropene	ND		ug/l	1.0	--	2
cis-1,3-Dichloropropene	ND		ug/l	1.0	--	2
1,3-Dichloropropene, Total	ND		ug/l	1.0	--	2
1,1-Dichloropropene	ND		ug/l	4.0	--	2
Bromoform	ND		ug/l	4.0	--	2
1,1,2,2-Tetrachloroethane	ND		ug/l	2.0	--	2
Benzene	1.3		ug/l	1.0	--	2
Toluene	ND		ug/l	2.0	--	2
Ethylbenzene	ND		ug/l	2.0	--	2
Chloromethane	ND		ug/l	4.0	--	2
Bromomethane	ND		ug/l	4.0	--	2
Vinyl chloride	ND		ug/l	2.0	--	2
Chloroethane	ND		ug/l	4.0	--	2
1,1-Dichloroethene	ND		ug/l	2.0	--	2
trans-1,2-Dichloroethene	ND		ug/l	2.0	--	2
Trichloroethene	ND		ug/l	2.0	--	2
1,2-Dichlorobenzene	ND		ug/l	2.0	--	2



Project Name: CCF FENWAY

Lab Number: L1715230

Project Number: 129198-007

Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1715230-01 D

Date Collected: 05/10/17 11:10

Client ID: OW-3

Date Received: 05/10/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.0	--	2
1,4-Dichlorobenzene	ND		ug/l	2.0	--	2
Methyl tert butyl ether	17		ug/l	4.0	--	2
p/m-Xylene	ND		ug/l	4.0	--	2
o-Xylene	ND		ug/l	2.0	--	2
Xylene (Total)	ND		ug/l	2.0	--	2
cis-1,2-Dichloroethene	ND		ug/l	2.0	--	2
1,2-Dichloroethene (total)	ND		ug/l	2.0	--	2
Dibromomethane	ND		ug/l	4.0	--	2
1,2,3-Trichloropropane	ND		ug/l	4.0	--	2
Styrene	ND		ug/l	2.0	--	2
Dichlorodifluoromethane	ND		ug/l	4.0	--	2
Acetone	ND		ug/l	10	--	2
Carbon disulfide	ND		ug/l	4.0	--	2
2-Butanone	ND		ug/l	10	--	2
4-Methyl-2-pentanone	ND		ug/l	10	--	2
2-Hexanone	ND		ug/l	10	--	2
Bromochloromethane	ND		ug/l	4.0	--	2
Tetrahydrofuran	ND		ug/l	4.0	--	2
2,2-Dichloropropane	ND		ug/l	4.0	--	2
1,2-Dibromoethane	ND		ug/l	4.0	--	2
1,3-Dichloropropane	ND		ug/l	4.0	--	2
1,1,1,2-Tetrachloroethane	ND		ug/l	2.0	--	2
Bromobenzene	ND		ug/l	4.0	--	2
n-Butylbenzene	ND		ug/l	4.0	--	2
sec-Butylbenzene	ND		ug/l	4.0	--	2
tert-Butylbenzene	ND		ug/l	4.0	--	2
o-Chlorotoluene	ND		ug/l	4.0	--	2
p-Chlorotoluene	ND		ug/l	4.0	--	2
1,2-Dibromo-3-chloropropane	ND		ug/l	4.0	--	2
Hexachlorobutadiene	ND		ug/l	1.2	--	2
Isopropylbenzene	ND		ug/l	4.0	--	2
p-Isopropyltoluene	ND		ug/l	4.0	--	2
Naphthalene	ND		ug/l	4.0	--	2
n-Propylbenzene	ND		ug/l	4.0	--	2
1,2,3-Trichlorobenzene	ND		ug/l	4.0	--	2
1,2,4-Trichlorobenzene	ND		ug/l	4.0	--	2
1,3,5-Trimethylbenzene	ND		ug/l	4.0	--	2
1,2,4-Trimethylbenzene	ND		ug/l	4.0	--	2



Project Name: CCF FENWAY**Lab Number:** L1715230**Project Number:** 129198-007**Report Date:** 05/16/17**SAMPLE RESULTS**

Lab ID: L1715230-01 D

Date Collected: 05/10/17 11:10

Client ID: OW-3

Date Received: 05/10/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Ethyl ether	ND		ug/l	4.0	--	2
Isopropyl Ether	ND		ug/l	4.0	--	2
Ethyl-Tert-Butyl-Ether	ND		ug/l	4.0	--	2
Tertiary-Amyl Methyl Ether	ND		ug/l	4.0	--	2
1,4-Dioxane	ND		ug/l	500	--	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	87		70-130

Project Name: CCF FENWAY

Lab Number: L1715230

Project Number: 129198-007

Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1715230-02 D
 Client ID: OW-5
 Sample Location: KILMARNOCK STREET, BOSTON, MA

Date Collected: 05/10/17 12:35
 Date Received: 05/10/17
 Field Prep: Not Specified

Matrix: Water
 Analytical Method: 97,8260C
 Analytical Date: 05/15/17 11:06
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	4.0	--	2
1,1-Dichloroethane	ND		ug/l	2.0	--	2
Chloroform	ND		ug/l	2.0	--	2
Carbon tetrachloride	ND		ug/l	2.0	--	2
1,2-Dichloropropane	ND		ug/l	2.0	--	2
Dibromochloromethane	ND		ug/l	2.0	--	2
1,1,2-Trichloroethane	ND		ug/l	2.0	--	2
Tetrachloroethene	ND		ug/l	2.0	--	2
Chlorobenzene	ND		ug/l	2.0	--	2
Trichlorofluoromethane	ND		ug/l	4.0	--	2
1,2-Dichloroethane	ND		ug/l	2.0	--	2
1,1,1-Trichloroethane	ND		ug/l	2.0	--	2
Bromodichloromethane	ND		ug/l	2.0	--	2
trans-1,3-Dichloropropene	ND		ug/l	1.0	--	2
cis-1,3-Dichloropropene	ND		ug/l	1.0	--	2
1,3-Dichloropropene, Total	ND		ug/l	1.0	--	2
1,1-Dichloropropene	ND		ug/l	4.0	--	2
Bromoform	ND		ug/l	4.0	--	2
1,1,2,2-Tetrachloroethane	ND		ug/l	2.0	--	2
Benzene	66		ug/l	1.0	--	2
Toluene	3.5		ug/l	2.0	--	2
Ethylbenzene	16		ug/l	2.0	--	2
Chloromethane	ND		ug/l	4.0	--	2
Bromomethane	ND		ug/l	4.0	--	2
Vinyl chloride	ND		ug/l	2.0	--	2
Chloroethane	ND		ug/l	4.0	--	2
1,1-Dichloroethene	ND		ug/l	2.0	--	2
trans-1,2-Dichloroethene	ND		ug/l	2.0	--	2
Trichloroethene	ND		ug/l	2.0	--	2
1,2-Dichlorobenzene	ND		ug/l	2.0	--	2



Project Name: CCF FENWAY

Lab Number: L1715230

Project Number: 129198-007

Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1715230-02 D

Date Collected: 05/10/17 12:35

Client ID: OW-5

Date Received: 05/10/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.0	--	2
1,4-Dichlorobenzene	ND		ug/l	2.0	--	2
Methyl tert butyl ether	27		ug/l	4.0	--	2
p/m-Xylene	8.6		ug/l	4.0	--	2
o-Xylene	2.9		ug/l	2.0	--	2
Xylene (Total)	12		ug/l	2.0	--	2
cis-1,2-Dichloroethene	ND		ug/l	2.0	--	2
1,2-Dichloroethene (total)	ND		ug/l	2.0	--	2
Dibromomethane	ND		ug/l	4.0	--	2
1,2,3-Trichloropropane	ND		ug/l	4.0	--	2
Styrene	ND		ug/l	2.0	--	2
Dichlorodifluoromethane	ND		ug/l	4.0	--	2
Acetone	ND		ug/l	10	--	2
Carbon disulfide	ND		ug/l	4.0	--	2
2-Butanone	ND		ug/l	10	--	2
4-Methyl-2-pentanone	ND		ug/l	10	--	2
2-Hexanone	ND		ug/l	10	--	2
Bromochloromethane	ND		ug/l	4.0	--	2
Tetrahydrofuran	ND		ug/l	4.0	--	2
2,2-Dichloropropane	ND		ug/l	4.0	--	2
1,2-Dibromoethane	ND		ug/l	4.0	--	2
1,3-Dichloropropane	ND		ug/l	4.0	--	2
1,1,1,2-Tetrachloroethane	ND		ug/l	2.0	--	2
Bromobenzene	ND		ug/l	4.0	--	2
n-Butylbenzene	6.9		ug/l	4.0	--	2
sec-Butylbenzene	4.7		ug/l	4.0	--	2
tert-Butylbenzene	ND		ug/l	4.0	--	2
o-Chlorotoluene	ND		ug/l	4.0	--	2
p-Chlorotoluene	ND		ug/l	4.0	--	2
1,2-Dibromo-3-chloropropane	ND		ug/l	4.0	--	2
Hexachlorobutadiene	ND		ug/l	1.2	--	2
Isopropylbenzene	23		ug/l	4.0	--	2
p-Isopropyltoluene	ND		ug/l	4.0	--	2
Naphthalene	ND		ug/l	4.0	--	2
n-Propylbenzene	58		ug/l	4.0	--	2
1,2,3-Trichlorobenzene	ND		ug/l	4.0	--	2
1,2,4-Trichlorobenzene	ND		ug/l	4.0	--	2
1,3,5-Trimethylbenzene	ND		ug/l	4.0	--	2
1,2,4-Trimethylbenzene	4.5		ug/l	4.0	--	2



Project Name: CCF FENWAY

Lab Number: L1715230

Project Number: 129198-007

Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1715230-02 D

Date Collected: 05/10/17 12:35

Client ID: OW-5

Date Received: 05/10/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Ethyl ether	ND		ug/l	4.0	--	2
Isopropyl Ether	ND		ug/l	4.0	--	2
Ethyl-Tert-Butyl-Ether	ND		ug/l	4.0	--	2
Tertiary-Amyl Methyl Ether	ND		ug/l	4.0	--	2
1,4-Dioxane	ND		ug/l	500	--	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	82		70-130

Project Name: CCF FENWAY

Lab Number: L1715230

Project Number: 129198-007

Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1715230-03
 Client ID: OW-6
 Sample Location: KILMARNOCK STREET, BOSTON, MA

Date Collected: 05/10/17 14:00
 Date Received: 05/10/17
 Field Prep: Not Specified

Matrix: Water
 Analytical Method: 97,8260C
 Analytical Date: 05/15/17 19:37
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	1.0	--	1



Project Name: CCF FENWAY

Lab Number: L1715230

Project Number: 129198-007

Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1715230-03

Date Collected: 05/10/17 14:00

Client ID: OW-6

Date Received: 05/10/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1
Methyl tert butyl ether	ND		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
Xylene (Total)	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethene (total)	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	2.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	ND		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1



Project Name: CCF FENWAY

Lab Number: L1715230

Project Number: 129198-007

Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1715230-03

Date Collected: 05/10/17 14:00

Client ID: OW-6

Date Received: 05/10/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	88		70-130

Project Name: CCF FENWAY

Lab Number: L1715230

Project Number: 129198-007

Report Date: 05/16/17

Method Blank Analysis Batch Quality Control

Analytical Method: 97,8260C
 Analytical Date: 05/15/17 04:56
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01-02 Batch: WG1003456-5					
Methylene chloride	ND		ug/l	2.0	--
1,1-Dichloroethane	ND		ug/l	1.0	--
Chloroform	ND		ug/l	1.0	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,2-Dichloropropane	ND		ug/l	1.0	--
Dibromochloromethane	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.0	--
Tetrachloroethene	ND		ug/l	1.0	--
Chlorobenzene	ND		ug/l	1.0	--
Trichlorofluoromethane	ND		ug/l	2.0	--
1,2-Dichloroethane	ND		ug/l	1.0	--
1,1,1-Trichloroethane	ND		ug/l	1.0	--
Bromodichloromethane	ND		ug/l	1.0	--
trans-1,3-Dichloropropene	ND		ug/l	0.50	--
cis-1,3-Dichloropropene	ND		ug/l	0.50	--
1,3-Dichloropropene, Total	ND		ug/l	0.50	--
1,1-Dichloropropene	ND		ug/l	2.0	--
Bromoform	ND		ug/l	2.0	--
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--
Benzene	ND		ug/l	0.50	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Chloromethane	ND		ug/l	2.0	--
Bromomethane	ND		ug/l	2.0	--
Vinyl chloride	ND		ug/l	1.0	--
Chloroethane	ND		ug/l	2.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
trans-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--

Project Name: CCF FENWAY

Lab Number: L1715230

Project Number: 129198-007

Report Date: 05/16/17

Method Blank Analysis Batch Quality Control

Analytical Method: 97,8260C
 Analytical Date: 05/15/17 04:56
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01-02 Batch: WG1003456-5					
1,2-Dichlorobenzene	ND		ug/l	1.0	--
1,3-Dichlorobenzene	ND		ug/l	1.0	--
1,4-Dichlorobenzene	ND		ug/l	1.0	--
Methyl tert butyl ether	ND		ug/l	2.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-Xylene	ND		ug/l	1.0	--
Xylene (Total)	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
1,2-Dichloroethene (total)	ND		ug/l	1.0	--
Dibromomethane	ND		ug/l	2.0	--
1,2,3-Trichloropropane	ND		ug/l	2.0	--
Styrene	ND		ug/l	1.0	--
Dichlorodifluoromethane	ND		ug/l	2.0	--
Acetone	ND		ug/l	5.0	--
Carbon disulfide	ND		ug/l	2.0	--
2-Butanone	ND		ug/l	5.0	--
4-Methyl-2-pentanone	ND		ug/l	5.0	--
2-Hexanone	ND		ug/l	5.0	--
Bromochloromethane	ND		ug/l	2.0	--
Tetrahydrofuran	ND		ug/l	2.0	--
2,2-Dichloropropane	ND		ug/l	2.0	--
1,2-Dibromoethane	ND		ug/l	2.0	--
1,3-Dichloropropane	ND		ug/l	2.0	--
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--
Bromobenzene	ND		ug/l	2.0	--
n-Butylbenzene	ND		ug/l	2.0	--
sec-Butylbenzene	ND		ug/l	2.0	--
tert-Butylbenzene	ND		ug/l	2.0	--
o-Chlorotoluene	ND		ug/l	2.0	--

Project Name: CCF FENWAY

Lab Number: L1715230

Project Number: 129198-007

Report Date: 05/16/17

Method Blank Analysis Batch Quality Control

Analytical Method: 97,8260C
 Analytical Date: 05/15/17 04:56
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01-02 Batch: WG1003456-5					
p-Chlorotoluene	ND		ug/l	2.0	--
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--
Hexachlorobutadiene	ND		ug/l	0.60	--
Isopropylbenzene	ND		ug/l	2.0	--
p-Isopropyltoluene	ND		ug/l	2.0	--
Naphthalene	ND		ug/l	2.0	--
n-Propylbenzene	ND		ug/l	2.0	--
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--
Ethyl ether	ND		ug/l	2.0	--
Isopropyl Ether	ND		ug/l	2.0	--
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--
1,4-Dioxane	ND		ug/l	250	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	91		70-130



Project Name: CCF FENWAY

Lab Number: L1715230

Project Number: 129198-007

Report Date: 05/16/17

Method Blank Analysis Batch Quality Control

Analytical Method: 97,8260C
 Analytical Date: 05/15/17 19:07
 Analyst: KD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 03 Batch: WG1003723-5					
Methylene chloride	ND		ug/l	2.0	--
1,1-Dichloroethane	ND		ug/l	1.0	--
Chloroform	ND		ug/l	1.0	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,2-Dichloropropane	ND		ug/l	1.0	--
Dibromochloromethane	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.0	--
Tetrachloroethene	ND		ug/l	1.0	--
Chlorobenzene	ND		ug/l	1.0	--
Trichlorofluoromethane	ND		ug/l	2.0	--
1,2-Dichloroethane	ND		ug/l	1.0	--
1,1,1-Trichloroethane	ND		ug/l	1.0	--
Bromodichloromethane	ND		ug/l	1.0	--
trans-1,3-Dichloropropene	ND		ug/l	0.50	--
cis-1,3-Dichloropropene	ND		ug/l	0.50	--
1,3-Dichloropropene, Total	ND		ug/l	0.50	--
1,1-Dichloropropene	ND		ug/l	2.0	--
Bromoform	ND		ug/l	2.0	--
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--
Benzene	ND		ug/l	0.50	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Chloromethane	ND		ug/l	2.0	--
Bromomethane	ND		ug/l	2.0	--
Vinyl chloride	ND		ug/l	1.0	--
Chloroethane	ND		ug/l	2.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
trans-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--

Project Name: CCF FENWAY

Lab Number: L1715230

Project Number: 129198-007

Report Date: 05/16/17

Method Blank Analysis Batch Quality Control

Analytical Method: 97,8260C
 Analytical Date: 05/15/17 19:07
 Analyst: KD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 03 Batch: WG1003723-5					
1,2-Dichlorobenzene	ND		ug/l	1.0	--
1,3-Dichlorobenzene	ND		ug/l	1.0	--
1,4-Dichlorobenzene	ND		ug/l	1.0	--
Methyl tert butyl ether	ND		ug/l	2.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-Xylene	ND		ug/l	1.0	--
Xylene (Total)	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
1,2-Dichloroethene (total)	ND		ug/l	1.0	--
Dibromomethane	ND		ug/l	2.0	--
1,2,3-Trichloropropane	ND		ug/l	2.0	--
Styrene	ND		ug/l	1.0	--
Dichlorodifluoromethane	ND		ug/l	2.0	--
Acetone	ND		ug/l	5.0	--
Carbon disulfide	ND		ug/l	2.0	--
2-Butanone	ND		ug/l	5.0	--
4-Methyl-2-pentanone	ND		ug/l	5.0	--
2-Hexanone	ND		ug/l	5.0	--
Bromochloromethane	ND		ug/l	2.0	--
Tetrahydrofuran	ND		ug/l	2.0	--
2,2-Dichloropropane	ND		ug/l	2.0	--
1,2-Dibromoethane	ND		ug/l	2.0	--
1,3-Dichloropropane	ND		ug/l	2.0	--
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--
Bromobenzene	ND		ug/l	2.0	--
n-Butylbenzene	ND		ug/l	2.0	--
sec-Butylbenzene	ND		ug/l	2.0	--
tert-Butylbenzene	ND		ug/l	2.0	--
o-Chlorotoluene	ND		ug/l	2.0	--

Project Name: CCF FENWAY

Lab Number: L1715230

Project Number: 129198-007

Report Date: 05/16/17

Method Blank Analysis Batch Quality Control

Analytical Method: 97,8260C
 Analytical Date: 05/15/17 19:07
 Analyst: KD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 03 Batch: WG1003723-5					
p-Chlorotoluene	ND		ug/l	2.0	--
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--
Hexachlorobutadiene	ND		ug/l	0.60	--
Isopropylbenzene	ND		ug/l	2.0	--
p-Isopropyltoluene	ND		ug/l	2.0	--
Naphthalene	ND		ug/l	2.0	--
n-Propylbenzene	ND		ug/l	2.0	--
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--
Ethyl ether	ND		ug/l	2.0	--
Isopropyl Ether	ND		ug/l	2.0	--
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--
1,4-Dioxane	ND		ug/l	250	--

Tentatively Identified Compounds

No Tentatively Identified Compounds ND ug/l

Project Name: CCF FENWAY**Lab Number:** L1715230**Project Number:** 129198-007**Report Date:** 05/16/17**Method Blank Analysis**
Batch Quality Control

Analytical Method: 97,8260C

Analytical Date: 05/15/17 19:07

Analyst: KD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 03 Batch: WG1003723-5					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	89		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY

Project Number: 129198-007

Lab Number: L1715230

Report Date: 05/16/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-02 Batch: WG1003456-3 WG1003456-4								
Methylene chloride	110		110		70-130	0		20
1,1-Dichloroethane	110		110		70-130	0		20
Chloroform	100		91		70-130	9		20
Carbon tetrachloride	79		72		70-130	9		20
1,2-Dichloropropane	120		99		70-130	19		20
Dibromochloromethane	92		94		70-130	2		20
1,1,2-Trichloroethane	120		120		70-130	0		20
Tetrachloroethene	100		100		70-130	0		20
Chlorobenzene	100		100		70-130	0		20
Trichlorofluoromethane	94		88		70-130	7		20
1,2-Dichloroethane	91		84		70-130	8		20
1,1,1-Trichloroethane	90		79		70-130	13		20
Bromodichloromethane	92		85		70-130	8		20
trans-1,3-Dichloropropene	120		110		70-130	9		20
cis-1,3-Dichloropropene	110		98		70-130	12		20
1,1-Dichloropropene	110		99		70-130	11		20
Bromoform	100		94		70-130	6		20
1,1,2,2-Tetrachloroethane	130		110		70-130	17		20
Benzene	120		100		70-130	18		20
Toluene	110		110		70-130	0		20
Ethylbenzene	110		110		70-130	0		20
Chloromethane	99		91		70-130	8		20
Bromomethane	98		100		70-130	2		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: CCF FENWAY

Project Number: 129198-007

Lab Number: L1715230

Report Date: 05/16/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-02 Batch: WG1003456-3 WG1003456-4								
Vinyl chloride	120		110		70-130	9		20
Chloroethane	130		110		70-130	17		20
1,1-Dichloroethene	110		100		70-130	10		20
trans-1,2-Dichloroethene	110		100		70-130	10		20
Trichloroethene	98		90		70-130	9		20
1,2-Dichlorobenzene	110		96		70-130	14		20
1,3-Dichlorobenzene	110		98		70-130	12		20
1,4-Dichlorobenzene	100		94		70-130	6		20
Methyl tert butyl ether	100		100		70-130	0		20
p/m-Xylene	105		105		70-130	0		20
o-Xylene	110		110		70-130	0		20
cis-1,2-Dichloroethene	100		100		70-130	0		20
Dibromomethane	100		95		70-130	5		20
1,2,3-Trichloropropane	120		110		70-130	9		20
Styrene	110		110		70-130	0		20
Dichlorodifluoromethane	98		86		70-130	13		20
Acetone	89		100		70-130	12		20
Carbon disulfide	110		100		70-130	10		20
2-Butanone	93		91		70-130	2		20
4-Methyl-2-pentanone	120		110		70-130	9		20
2-Hexanone	82		90		70-130	9		20
Bromochloromethane	93		88		70-130	6		20
Tetrahydrofuran	94		92		70-130	2		20

Lab Control Sample Analysis Batch Quality Control

Project Name: CCF FENWAY

Project Number: 129198-007

Lab Number: L1715230

Report Date: 05/16/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-02 Batch: WG1003456-3 WG1003456-4								
2,2-Dichloropropane	99		89		70-130	11		20
1,2-Dibromoethane	110		110		70-130	0		20
1,3-Dichloropropane	130		120		70-130	8		20
1,1,1,2-Tetrachloroethane	95		90		70-130	5		20
Bromobenzene	100		94		70-130	6		20
n-Butylbenzene	100		93		70-130	7		20
sec-Butylbenzene	100		96		70-130	4		20
tert-Butylbenzene	100		91		70-130	9		20
o-Chlorotoluene	120		100		70-130	18		20
p-Chlorotoluene	120		100		70-130	18		20
1,2-Dibromo-3-chloropropane	110		100		70-130	10		20
Hexachlorobutadiene	110		100		70-130	10		20
Isopropylbenzene	100		96		70-130	4		20
p-Isopropyltoluene	100		94		70-130	6		20
Naphthalene	100		92		70-130	8		20
n-Propylbenzene	120		110		70-130	9		20
1,2,3-Trichlorobenzene	110		100		70-130	10		20
1,2,4-Trichlorobenzene	100		96		70-130	4		20
1,3,5-Trimethylbenzene	110		97		70-130	13		20
1,2,4-Trimethylbenzene	110		100		70-130	10		20
Ethyl ether	130		120		70-130	8		20
Isopropyl Ether	87		80		70-130	8		20
Ethyl-Tert-Butyl-Ether	110		97		70-130	13		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY

Project Number: 129198-007

Lab Number: L1715230

Report Date: 05/16/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-02 Batch: WG1003456-3 WG1003456-4								
Tertiary-Amyl Methyl Ether	110		100		70-130	10		20
1,4-Dioxane	126		124		70-130	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		84		70-130
Toluene-d8	108		115		70-130
4-Bromofluorobenzene	109		115		70-130
Dibromofluoromethane	87		90		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: CCF FENWAY

Project Number: 129198-007

Lab Number: L1715230

Report Date: 05/16/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 03 Batch: WG1003723-3 WG1003723-4								
Methylene chloride	110		120		70-130	9		20
1,1-Dichloroethane	100		110		70-130	10		20
Chloroform	96		93		70-130	3		20
Carbon tetrachloride	78		78		70-130	0		20
1,2-Dichloropropane	100		100		70-130	0		20
Dibromochloromethane	85		94		70-130	10		20
1,1,2-Trichloroethane	110		110		70-130	0		20
Tetrachloroethene	96		100		70-130	4		20
Chlorobenzene	98		99		70-130	1		20
Trichlorofluoromethane	88		91		70-130	3		20
1,2-Dichloroethane	88		88		70-130	0		20
1,1,1-Trichloroethane	85		84		70-130	1		20
Bromodichloromethane	86		87		70-130	1		20
trans-1,3-Dichloropropene	110		110		70-130	0		20
cis-1,3-Dichloropropene	100		100		70-130	0		20
1,1-Dichloropropene	110		110		70-130	0		20
Bromoform	91		96		70-130	5		20
1,1,2,2-Tetrachloroethane	110		120		70-130	9		20
Benzene	110		110		70-130	0		20
Toluene	110		110		70-130	0		20
Ethylbenzene	110		110		70-130	0		20
Chloromethane	96		95		70-130	1		20
Bromomethane	140	Q	130		70-130	7		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY

Project Number: 129198-007

Lab Number: L1715230

Report Date: 05/16/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 03 Batch: WG1003723-3 WG1003723-4								
Vinyl chloride	110		120		70-130	9		20
Chloroethane	120		120		70-130	0		20
1,1-Dichloroethene	120		110		70-130	9		20
trans-1,2-Dichloroethene	100		110		70-130	10		20
Trichloroethene	94		96		70-130	2		20
1,2-Dichlorobenzene	96		99		70-130	3		20
1,3-Dichlorobenzene	97		100		70-130	3		20
1,4-Dichlorobenzene	95		99		70-130	4		20
Methyl tert butyl ether	96		100		70-130	4		20
p/m-Xylene	100		105		70-130	5		20
o-Xylene	100		100		70-130	0		20
cis-1,2-Dichloroethene	100		100		70-130	0		20
Dibromomethane	96		87		70-130	10		20
1,2,3-Trichloropropane	120		110		70-130	9		20
Styrene	105		105		70-130	0		20
Dichlorodifluoromethane	91		100		70-130	9		20
Acetone	85		86		70-130	1		20
Carbon disulfide	120		120		70-130	0		20
2-Butanone	82		91		70-130	10		20
4-Methyl-2-pentanone	110		110		70-130	0		20
2-Hexanone	76		78		70-130	3		20
Bromochloromethane	91		87		70-130	4		20
Tetrahydrofuran	77		72		70-130	7		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY

Project Number: 129198-007

Lab Number: L1715230

Report Date: 05/16/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 03 Batch: WG1003723-3 WG1003723-4								
2,2-Dichloropropane	96		94		70-130	2		20
1,2-Dibromoethane	98		100		70-130	2		20
1,3-Dichloropropane	110		120		70-130	9		20
1,1,1,2-Tetrachloroethane	88		91		70-130	3		20
Bromobenzene	94		100		70-130	6		20
n-Butylbenzene	120		120		70-130	0		20
sec-Butylbenzene	94		97		70-130	3		20
tert-Butylbenzene	93		92		70-130	1		20
o-Chlorotoluene	100		110		70-130	10		20
p-Chlorotoluene	110		110		70-130	0		20
1,2-Dibromo-3-chloropropane	110		96		70-130	14		20
Hexachlorobutadiene	100		100		70-130	0		20
Isopropylbenzene	96		100		70-130	4		20
p-Isopropyltoluene	93		93		70-130	0		20
Naphthalene	89		92		70-130	3		20
n-Propylbenzene	100		110		70-130	10		20
1,2,3-Trichlorobenzene	94		100		70-130	6		20
1,2,4-Trichlorobenzene	96		99		70-130	3		20
1,3,5-Trimethylbenzene	98		100		70-130	2		20
1,2,4-Trimethylbenzene	98		100		70-130	2		20
Ethyl ether	120		130		70-130	8		20
Isopropyl Ether	82		82		70-130	0		20
Ethyl-Tert-Butyl-Ether	95		98		70-130	3		20

Lab Control Sample Analysis Batch Quality Control

Project Name: CCF FENWAY

Project Number: 129198-007

Lab Number: L1715230

Report Date: 05/16/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 03 Batch: WG1003723-3 WG1003723-4								
Tertiary-Amyl Methyl Ether	100		100		70-130	0		20
1,4-Dioxane	104		106		70-130	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		87		70-130
Toluene-d8	109		109		70-130
4-Bromofluorobenzene	108		110		70-130
Dibromofluoromethane	83		90		70-130

PETROLEUM HYDROCARBONS

Project Name: CCF FENWAY

Lab Number: L1715230

Project Number: 129198-007

Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1715230-01

Date Collected: 05/10/17 11:10

Client ID: OW-3

Date Received: 05/10/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Matrix: Water

Analytical Method: 100, VPH-04-1.1

Analytical Date: 05/13/17 16:52

Analyst: JM

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Volatile Petroleum Hydrocarbons - Westborough Lab

C5-C8 Aliphatics	113		ug/l	50.0	--	1
C9-C12 Aliphatics	ND		ug/l	50.0	--	1
C9-C10 Aromatics	ND		ug/l	50.0	--	1
C5-C8 Aliphatics, Adjusted	93.0		ug/l	50.0	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	119		70-130
2,5-Dibromotoluene-FID	107		70-130

Project Name: CCF FENWAY**Lab Number:** L1715230**Project Number:** 129198-007**Report Date:** 05/16/17**SAMPLE RESULTS**

Lab ID: L1715230-01

Client ID: OW-3

Sample Location: KILMARNOCK STREET, BOSTON, MA

Matrix: Water

Analytical Method: 98,EPH-04-1.1

Analytical Date: 05/12/17 21:12

Analyst: EK

M.S. Analytical Date: 05/12/17 21:04

M.S. Analyst: KL

Date Collected: 05/10/17 11:10

Date Received: 05/10/17

Field Prep: Not Specified

Extraction Method: EPA 3510C

Extraction Date: 05/11/17 14:23

Cleanup Method1: EPH-04-1

Cleanup Date1: 05/12/17

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved

Sample Temperature upon receipt:

Container Received on Ice

Sample Extraction method:

Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
EPH w/MS Targets - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1
Naphthalene	ND		ug/l	0.400	--	1
2-Methylnaphthalene	ND		ug/l	0.400	--	1
Acenaphthylene	ND		ug/l	0.400	--	1
Acenaphthene	0.834		ug/l	0.400	--	1
Fluorene	0.414		ug/l	0.400	--	1
Phenanthrene	ND		ug/l	0.400	--	1
Anthracene	ND		ug/l	0.400	--	1
Fluoranthene	ND		ug/l	0.400	--	1
Pyrene	ND		ug/l	0.400	--	1
Benzo(a)anthracene	ND		ug/l	0.400	--	1
Chrysene	ND		ug/l	0.400	--	1
Benzo(b)fluoranthene	ND		ug/l	0.400	--	1
Benzo(k)fluoranthene	ND		ug/l	0.400	--	1
Benzo(a)pyrene	ND		ug/l	0.200	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.400	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.400	--	1
Benzo(ghi)perylene	ND		ug/l	0.400	--	1



Project Name: CCF FENWAY

Lab Number: L1715230

Project Number: 129198-007

Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1715230-01

Date Collected: 05/10/17 11:10

Client ID: OW-3

Date Received: 05/10/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

EPH w/MS Targets - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	64		40-140
o-Terphenyl	90		40-140
2-Fluorobiphenyl	89		40-140
2-Bromonaphthalene	91		40-140
O-Terphenyl-MS	96		40-140

Project Name: CCF FENWAY**Lab Number:** L1715230**Project Number:** 129198-007**Report Date:** 05/16/17**SAMPLE RESULTS**

Lab ID: L1715230-02

Date Collected: 05/10/17 12:35

Client ID: OW-5

Date Received: 05/10/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Matrix: Water

Analytical Method: 100, VPH-04-1.1

Analytical Date: 05/13/17 17:32

Analyst: JM

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Volatile Petroleum Hydrocarbons - Westborough Lab

C5-C8 Aliphatics	552		ug/l	50.0	--	1
C9-C12 Aliphatics	668		ug/l	50.0	--	1
C9-C10 Aromatics	614		ug/l	50.0	--	1
C5-C8 Aliphatics, Adjusted	446		ug/l	50.0	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	126		70-130
2,5-Dibromotoluene-FID	113		70-130

Project Name: CCF FENWAY**Lab Number:** L1715230**Project Number:** 129198-007**Report Date:** 05/16/17**SAMPLE RESULTS**

Lab ID: L1715230-02

Client ID: OW-5

Sample Location: KILMARNOCK STREET, BOSTON, MA

Matrix: Water

Analytical Method: 98,EPH-04-1.1

Analytical Date: 05/12/17 21:43

Analyst: EK

M.S. Analytical Date: 05/12/17 21:29

M.S. Analyst: KL

Date Collected: 05/10/17 12:35

Date Received: 05/10/17

Field Prep: Not Specified

Extraction Method: EPA 3510C

Extraction Date: 05/11/17 14:23

Cleanup Method1: EPH-04-1

Cleanup Date1: 05/12/17

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved

Sample Temperature upon receipt:

Container Received on Ice

Sample Extraction method:

Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
EPH w/MS Targets - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	154		ug/l	100	--	1
C11-C22 Aromatics	230		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	218		ug/l	100	--	1
Naphthalene	0.902		ug/l	0.400	--	1
2-Methylnaphthalene	ND		ug/l	0.400	--	1
Acenaphthylene	ND		ug/l	0.400	--	1
Acenaphthene	3.01		ug/l	0.400	--	1
Fluorene	2.29		ug/l	0.400	--	1
Phenanthrene	1.87		ug/l	0.400	--	1
Anthracene	0.634		ug/l	0.400	--	1
Fluoranthene	1.40		ug/l	0.400	--	1
Pyrene	1.32		ug/l	0.400	--	1
Benzo(a)anthracene	ND		ug/l	0.400	--	1
Chrysene	ND		ug/l	0.400	--	1
Benzo(b)fluoranthene	ND		ug/l	0.400	--	1
Benzo(k)fluoranthene	ND		ug/l	0.400	--	1
Benzo(a)pyrene	0.250		ug/l	0.200	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.400	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.400	--	1
Benzo(ghi)perylene	ND		ug/l	0.400	--	1



Project Name: CCF FENWAY

Lab Number: L1715230

Project Number: 129198-007

Report Date: 05/16/17

SAMPLE RESULTS

Lab ID: L1715230-02

Date Collected: 05/10/17 12:35

Client ID: OW-5

Date Received: 05/10/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

EPH w/MS Targets - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	53		40-140
o-Terphenyl	100		40-140
2-Fluorobiphenyl	96		40-140
2-Bromonaphthalene	101		40-140
O-Terphenyl-MS	98		40-140

Project Name: CCF FENWAY**Lab Number:** L1715230**Project Number:** 129198-007**Report Date:** 05/16/17**SAMPLE RESULTS**

Lab ID: L1715230-03

Date Collected: 05/10/17 14:00

Client ID: OW-6

Date Received: 05/10/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Matrix: Water

Analytical Method: 100, VPH-04-1.1

Analytical Date: 05/13/17 18:11

Analyst: JM

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Volatile Petroleum Hydrocarbons - Westborough Lab

C5-C8 Aliphatics	ND		ug/l	50.0	--	1
C9-C12 Aliphatics	ND		ug/l	50.0	--	1
C9-C10 Aromatics	ND		ug/l	50.0	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	112		70-130
2,5-Dibromotoluene-FID	99		70-130



Project Name: CCF FENWAY**Lab Number:** L1715230**Project Number:** 129198-007**Report Date:** 05/16/17**SAMPLE RESULTS**

Lab ID: L1715230-03

Client ID: OW-6

Sample Location: KILMARNOCK STREET, BOSTON, MA

Matrix: Water

Analytical Method: 98,EPH-04-1.1

Analytical Date: 05/12/17 22:15

Analyst: EK

M.S. Analytical Date: 05/12/17 21:53

M.S. Analyst: KL

Date Collected: 05/10/17 14:00

Date Received: 05/10/17

Field Prep: Not Specified

Extraction Method: EPA 3510C

Extraction Date: 05/11/17 14:23

Cleanup Method1: EPH-04-1

Cleanup Date1: 05/12/17

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved

Sample Temperature upon receipt:

Container Received on Ice

Sample Extraction method:

Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
EPH w/MS Targets - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	166		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	165		ug/l	100	--	1
Naphthalene	ND		ug/l	0.400	--	1
2-Methylnaphthalene	ND		ug/l	0.400	--	1
Acenaphthylene	ND		ug/l	0.400	--	1
Acenaphthene	ND		ug/l	0.400	--	1
Fluorene	ND		ug/l	0.400	--	1
Phenanthrene	ND		ug/l	0.400	--	1
Anthracene	ND		ug/l	0.400	--	1
Fluoranthene	0.458		ug/l	0.400	--	1
Pyrene	0.468		ug/l	0.400	--	1
Benzo(a)anthracene	ND		ug/l	0.400	--	1
Chrysene	ND		ug/l	0.400	--	1
Benzo(b)fluoranthene	ND		ug/l	0.400	--	1
Benzo(k)fluoranthene	ND		ug/l	0.400	--	1
Benzo(a)pyrene	ND		ug/l	0.200	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.400	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.400	--	1
Benzo(ghi)perylene	ND		ug/l	0.400	--	1



Project Name: CCF FENWAY**Lab Number:** L1715230**Project Number:** 129198-007**Report Date:** 05/16/17**SAMPLE RESULTS**

Lab ID: L1715230-03

Date Collected: 05/10/17 14:00

Client ID: OW-6

Date Received: 05/10/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

EPH w/MS Targets - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	63		40-140
o-Terphenyl	99		40-140
2-Fluorobiphenyl	92		40-140
2-Bromonaphthalene	97		40-140
O-Terphenyl-MS	102		40-140

Project Name: CCF FENWAY

Lab Number: L1715230

Project Number: 129198-007

Report Date: 05/16/17

Method Blank Analysis Batch Quality Control

Analytical Method: 98,EPH-04-1.1

Analytical Date: 05/12/17 14:52

Analyst: EK

M.S. Analytical Date: 05/12/17 16:07

M.S. Analyst: KL

Extraction Method: EPA 3510C

Extraction Date: 05/11/17 14:23

Cleanup Method: EPH-04-1

Cleanup Date: 05/12/17

Parameter	Result	Qualifier	Units	RL	MDL
EPH w/MS Targets - Westborough Lab for sample(s): 01-03 Batch: WG1002565-1					
C9-C18 Aliphatics	ND		ug/l	100	--
C19-C36 Aliphatics	ND		ug/l	100	--
C11-C22 Aromatics	ND		ug/l	100	--
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--
Naphthalene	ND		ug/l	0.400	--
2-Methylnaphthalene	ND		ug/l	0.400	--
Acenaphthylene	ND		ug/l	0.400	--
Acenaphthene	ND		ug/l	0.400	--
Fluorene	ND		ug/l	0.400	--
Phenanthrene	ND		ug/l	0.400	--
Anthracene	ND		ug/l	0.400	--
Fluoranthene	ND		ug/l	0.400	--
Pyrene	ND		ug/l	0.400	--
Benzo(a)anthracene	ND		ug/l	0.400	--
Chrysene	ND		ug/l	0.400	--
Benzo(b)fluoranthene	ND		ug/l	0.400	--
Benzo(k)fluoranthene	ND		ug/l	0.400	--
Benzo(a)pyrene	ND		ug/l	0.200	--
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.400	--
Dibenzo(a,h)anthracene	ND		ug/l	0.400	--
Benzo(ghi)perylene	ND		ug/l	0.400	--

Project Name: CCF FENWAY

Lab Number: L1715230

Project Number: 129198-007

Report Date: 05/16/17

Method Blank Analysis Batch Quality Control

Analytical Method: 98,EPH-04-1.1

Analytical Date: 05/12/17 14:52

Analyst: EK

05/12/17 16:07

KL

Extraction Method: EPA 3510C

Extraction Date: 05/11/17 14:23

Cleanup Method: EPH-04-1

Cleanup Date: 05/12/17

Parameter	Result	Qualifier	Units	RL	MDL
EPH w/MS Targets - Westborough Lab for sample(s): 01-03 Batch: WG1002565-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	71		40-140
o-Terphenyl	103		40-140
2-Fluorobiphenyl	98		40-140
2-Bromonaphthalene	101		40-140
O-Terphenyl-MS	95		40-140

Project Name: CCF FENWAY

Lab Number: L1715230

Project Number: 129198-007

Report Date: 05/16/17

Method Blank Analysis Batch Quality Control

Analytical Method: 100, VPH-04-1.1

Analytical Date: 05/13/17 11:19

Analyst: JM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-03 Batch: WG1003780-3					
C5-C8 Aliphatics	ND		ug/l	50.0	--
C9-C12 Aliphatics	ND		ug/l	50.0	--
C9-C10 Aromatics	ND		ug/l	50.0	--
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	111		70-130
2,5-Dibromotoluene-FID	102		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY

Project Number: 129198-007

Lab Number: L1715230

Report Date: 05/16/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
EPH w/MS Targets - Westborough Lab Associated sample(s): 01-03 Batch: WG1002565-2 WG1002565-3								
C9-C18 Aliphatics	80		74		40-140	8		25
C19-C36 Aliphatics	94		85		40-140	10		25
C11-C22 Aromatics	115		114		40-140	1		25
Naphthalene	101		93		40-140	8		25
2-Methylnaphthalene	105		99		40-140	6		25
Acenaphthylene	115		110		40-140	4		25
Acenaphthene	116		111		40-140	4		25
Fluorene	123		118		40-140	4		25
Phenanthrene	119		113		40-140	5		25
Anthracene	124		117		40-140	6		25
Fluoranthene	134		126		40-140	6		25
Pyrene	133		125		40-140	6		25
Benzo(a)anthracene	126		117		40-140	7		25
Chrysene	128		119		40-140	7		25
Benzo(b)fluoranthene	134		123		40-140	9		25
Benzo(k)fluoranthene	130		123		40-140	6		25
Benzo(a)pyrene	127		118		40-140	7		25
Indeno(1,2,3-cd)Pyrene	130		120		40-140	8		25
Dibenzo(a,h)anthracene	135		125		40-140	8		25
Benzo(ghi)perylene	122		112		40-140	9		25
Nonane (C9)	65		59		30-140	10		25
Decane (C10)	73		66		40-140	10		25
Dodecane (C12)	77		70		40-140	10		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY

Project Number: 129198-007

Lab Number: L1715230

Report Date: 05/16/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
EPH w/MS Targets - Westborough Lab Associated sample(s): 01-03 Batch: WG1002565-2 WG1002565-3								
Tetradecane (C14)	81		76		40-140	6		25
Hexadecane (C16)	86		80		40-140	7		25
Octadecane (C18)	91		83		40-140	9		25
Nonadecane (C19)	91		83		40-140	9		25
Eicosane (C20)	92		84		40-140	9		25
Docosane (C22)	93		84		40-140	10		25
Tetracosane (C24)	93		84		40-140	10		25
Hexacosane (C26)	93		84		40-140	10		25
Octacosane (C28)	93		84		40-140	10		25
triacontane (C30)	92		83		40-140	10		25
Hexatriacontane (C36)	87		79		40-140	10		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	75		67		40-140
o-Terphenyl	122		113		40-140
2-Fluorobiphenyl	98		95		40-140
2-Bromonaphthalene	102		100		40-140
O-Terphenyl-MS	129		110		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY

Project Number: 129198-007

Lab Number: L1715230

Report Date: 05/16/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-03 Batch: WG1003780-1 WG1003780-2								
C5-C8 Aliphatics	95		103		70-130	8		25
C9-C12 Aliphatics	100		108		70-130	8		25
C9-C10 Aromatics	112		120		70-130	7		25
Benzene	102		111		70-130	8		25
Toluene	103		112		70-130	8		25
Ethylbenzene	107		116		70-130	8		25
p/m-Xylene	107		116		70-130	8		25
o-Xylene	105		115		70-130	9		25
Methyl tert butyl ether	107		117		70-130	9		25
Naphthalene	115		126		70-130	9		25
1,2,4-Trimethylbenzene	112		120		70-130	7		25
Pentane	95		103		70-130	8		25
2-Methylpentane	95		103		70-130	8		25
2,2,4-Trimethylpentane	95		103		70-130	8		25
n-Nonane	100		108		30-130	8		25
n-Decane	101		109		70-130	8		25
n-Butylcyclohexane	101		109		70-130	8		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	108		114		70-130
2,5-Dibromotoluene-FID	97		104		70-130

Project Name: CCF FENWAY

Project Number: 129198-007

Lab Number: L1715230

Report Date: 05/16/17

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information Custody Seal

Cooler

A Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1715230-01A	Vial HCl preserved	A	N/A	4.3	Y	Absent	MCP-8260-10(14)
L1715230-01B	Vial HCl preserved	A	N/A	4.3	Y	Absent	MCP-8260-10(14)
L1715230-01C	Vial HCl preserved	A	N/A	4.3	Y	Absent	MCP-8260-10(14)
L1715230-01D	Vial HCl preserved	A	N/A	4.3	Y	Absent	VPH-10(14)
L1715230-01E	Vial HCl preserved	A	N/A	4.3	Y	Absent	VPH-10(14)
L1715230-01F	Vial HCl preserved	A	N/A	4.3	Y	Absent	VPH-10(14)
L1715230-01G	Amber 1000ml HCl preserved	A	<2	4.3	Y	Absent	EPH-MS-10(14),EPHD-GC-10(14)
L1715230-01H	Amber 1000ml HCl preserved	A	<2	4.3	Y	Absent	EPH-MS-10(14),EPHD-GC-10(14)
L1715230-02A	Vial HCl preserved	A	N/A	4.3	Y	Absent	MCP-8260-10(14)
L1715230-02B	Vial HCl preserved	A	N/A	4.3	Y	Absent	MCP-8260-10(14)
L1715230-02C	Vial HCl preserved	A	N/A	4.3	Y	Absent	MCP-8260-10(14)
L1715230-02D	Vial HCl preserved	A	N/A	4.3	Y	Absent	VPH-10(14)
L1715230-02E	Vial HCl preserved	A	N/A	4.3	Y	Absent	VPH-10(14)
L1715230-02F	Vial HCl preserved	A	N/A	4.3	Y	Absent	VPH-10(14)
L1715230-02G	Amber 1000ml HCl preserved	A	<2	4.3	Y	Absent	EPH-MS-10(14),EPHD-GC-10(14)
L1715230-02H	Amber 1000ml HCl preserved	A	<2	4.3	Y	Absent	EPH-MS-10(14),EPHD-GC-10(14)
L1715230-03A	Vial HCl preserved	A	N/A	4.3	Y	Absent	MCP-8260-10(14)
L1715230-03B	Vial HCl preserved	A	N/A	4.3	Y	Absent	MCP-8260-10(14)
L1715230-03C	Vial HCl preserved	A	N/A	4.3	Y	Absent	MCP-8260-10(14)
L1715230-03D	Vial HCl preserved	A	N/A	4.3	Y	Absent	VPH-10(14)
L1715230-03E	Vial HCl preserved	A	N/A	4.3	Y	Absent	VPH-10(14)
L1715230-03F	Vial HCl preserved	A	N/A	4.3	Y	Absent	VPH-10(14)
L1715230-03G	Amber 1000ml HCl preserved	A	<2	4.3	Y	Absent	EPH-MS-10(14),EPHD-GC-10(14)
L1715230-03H	Amber 1000ml HCl preserved	A	<2	4.3	Y	Absent	EPH-MS-10(14),EPHD-GC-10(14)

*Values in parentheses indicate holding time in days



Project Name: CCF FENWAY
Project Number: 129198-007

Lab Number: L1715230
Report Date: 05/16/17

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).
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.
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

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.

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.

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

Report Format: Data Usability Report



Project Name: CCF FENWAY
Project Number: 129198-007

Lab Number: L1715230
Report Date: 05/16/17

Data Qualifiers

- 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.

Project Name: CCF FENWAY
Project Number: 129198-007

Lab Number: L1715230
Report Date: 05/16/17

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.
- 98 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, July 2010.
- 100 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, 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.



Alpha Analytical, Inc.

ID No.:17873

Facility: **Company-wide**

Revision 10

Department: **Quality Assurance**

Published Date: 1/16/2017 11:00:05 AM

Title: **Certificate/Approval Program Summary**

Page 1 of 1

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:** NPW and SCM: Perchlorate**EPA 9010:** NPW and SCM: Amenable Cyanide Distillation**EPA 9012B:** NPW: Total Cyanide**EPA 9050A:** NPW: Specific Conductance**SM3500:** NPW: Ferrous Iron**SM4500:** NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO₂, NO₃.**SM5310C:** DW: Dissolved Organic Carbon**Mansfield Facility****SM 2540D:** TSS**EPA 3005A** NPW**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,

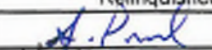
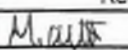
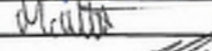
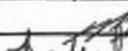
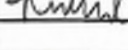
3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

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

Westborough Facility:**Drinking Water****EPA 300.0:** 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, EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **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.****Mansfield Facility:****Drinking Water****EPA 200.7:** Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1 Hg.****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		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 05/10/17		ALPHA Job # L1715230					
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		Project Information Project Name: CCF Fenway Project Location: Kilmarnock Street, Boston, MA Project #: 129198-007 (Use Project name as Project #) Project Manager: Beck Straley ALPHAQuote #: 2963 Turn-Around Time Standard Due Date: Rush (only if pre approved) # of Days: 5 Day		Deliverables Email: EQUIS (1 File) Fax: EQUIS (4 File) Other:		Billing Information Same as Client Info PO #					
H&A Information H&A Client: Cabot Cabot & Forbes H&A Address: 465 Medford Street Boston, MA 02129 H&A Phone: 617-886-7400 H&A Fax: H&A Email: bstraley@haleyaldrich.com		Regulatory Requirements (Program/Criteria) MA RCS-1 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: COC edits by Gina Hall AAL 5/11/17 EPH Deluxe VPH Ranges only Please specify Metals or TAL.		ANALYSIS					
ALPHA Lab ID (Lab Use Only)		Sample ID		Collection Date Time		Sample Matrix		Sampler's Initials		Sample Filtration Done Lab to do Preservation Lab to do (Please Specify below) Sample Specific Comments		TOTAL BOTTLES	
15230-01		OW-3		05/10/17 1110		GW		SRP		X X X		8	
02		OW-5		05/10/17 1235		GW		↓		X X X		8	
03		OW-6		05/10/17 1400		GW		↓		X X X		8	
				05/ /17		GW							
				05/ /17		GW							
				05/ /17		GW							
				05/ /17		GW							
Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O 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 V V A		Preservative B B B		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.			
Relinquished By:		Date/Time		Received By:		Date/Time							
		5/10/17				5/10/17 1640							
		5/10/17 1640				5/10/17 1650							
		5/10/17 1840				5/10/17 1840							

Method Blank Summary Form 4

Client : Haley & Aldrich, Inc.
Project Name : CCF FENWAY
Lab Sample ID : WG1003456-5
Instrument ID : JACK
Matrix : WATER

Lab Number : L1715230
Project Number : 129198-007
Lab File ID : VJ170515A07
Analysis Date : 05/15/17 04:56

Client Sample No.	Lab Sample ID	Analysis Date
WG1003456-3LCS	WG1003456-3	05/15/17 03:15
WG1003456-4LCSD	WG1003456-4	05/15/17 03:49
OW-3	L1715230-01D	05/15/17 10:32
OW-5	L1715230-02D	05/15/17 11:06

Method Blank Summary Form 4

Client : Haley & Aldrich, Inc.
Project Name : CCF FENWAY
Lab Sample ID : WG1003723-5
Instrument ID : JACK
Matrix : WATER

Lab Number : L1715230
Project Number : 129198-007
Lab File ID : VJ170515N05
Analysis Date : 05/15/17 19:07

Client Sample No.	Lab Sample ID	Analysis Date
WG1003723-3LCS	WG1003723-3	05/15/17 17:36
WG1003723-4LCSD	WG1003723-4	05/15/17 18:06
OW-6	L1715230-03	05/15/17 19:37

Continuing Calibration Form 7

Client : Haley & Aldrich, Inc.
 Project Name : CCF FENWAY
 Instrument ID : JACK
 Lab File ID : VJ170515A01
 Sample No : WG1003456-2
 Channel :

Lab Number : L1715230
 Project Number : 129198-007
 Calibration Date : 05/15/17 03:15
 Init. Calib. Date(s) : 04/25/17 04/25/17
 Init. Calib. Times : 04:05 07:58

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Fluorobenzene	10	10	-	0	20	72	0
Dichlorodifluoromethane	0.431	0.424	-	1.6	20	69	0
Chloromethane	0.412	0.408	-	1	20	73	0
Vinyl chloride	0.367	0.445	-	-21.3*	20	89	0
Bromomethane	10	9.799	-	2	20	83	0
Chloroethane	0.183	0.234	-	-27.9*	20	89	0
Trichlorofluoromethane	0.594	0.556	-	6.4	20	65	0
Ethyl ether	0.115	0.151	-	-31.3*	20	90	0
1,1-Dichloroethene	0.28	0.313	-	-11.8	20	79	0
Carbon disulfide	0.76	0.859	-	-13	20	84	0
Methylene chloride	0.284	0.323	-	-13.7	20	84	0
Acetone	10	8.935	-	10.6	20	64	0
trans-1,2-Dichloroethene	0.322	0.358	-	-11.2	20	80	0
Methyl tert-butyl ether	0.683	0.715	-	-4.7	20	75	0
Diisopropyl ether	1.01	0.88	-	12.9	20	66	0
1,1-Dichloroethane	0.555	0.629	-	-13.3	20	84	0
Ethyl tert-butyl ether	0.877	0.937	-	-6.8	20	79	0
cis-1,2-Dichloroethene	0.384	0.39	-	-1.6	20	77	0
2,2-Dichloropropane	0.589	0.582	-	1.2	20	74	0
Bromochloromethane	0.192	0.178	-	7.3	20	68	0
Chloroform	0.629	0.627	-	0.3	20	71	0
Carbon tetrachloride	0.628	0.496	-	21*	20	59	0
Tetrahydrofuran	0.074	0.07	-	5.4	20	72	0
Dibromofluoromethane	0.255	0.223	-	12.5	20	64	0
1,1,1-Trichloroethane	0.673	0.608	-	9.7	20	65	0
2-Butanone	0.088	0.082*	-	6.8	20	66	0
1,1-Dichloropropene	0.49	0.551	-	-12.4	20	83	0
Benzene	1.386	1.594	-	-15	20	87	0
tert-Amyl methyl ether	0.772	0.854	-	-10.6	20	83	0
1,2-Dichloroethane-d4	0.269	0.234	-	13	20	61	0
1,2-Dichloroethane	0.463	0.422	-	8.9	20	65	0
Trichloroethene	0.423	0.416	-	1.7	20	77	0
Dibromomethane	0.184	0.19	-	-3.3	20	75	0
1,2-Dichloropropane	0.316	0.374	-	-18.4	20	87	0
Bromodichloromethane	0.513	0.473	-	7.8	20	71	0
1,4-Dioxane	0.00215	0.0027*	-	-25.6*	20	88	0
cis-1,3-Dichloropropene	0.597	0.633	-	-6	20	79	0
Chlorobenzene-d5	1	1	-	0	20	67	0
Toluene-d8	1.05	1.133	-	-7.9	20	73	0
Toluene	1.033	1.186	-	-14.8	20	80	0
4-Methyl-2-pentanone	10	11.842	-	-18.4	20	76	0
Tetrachloroethene	0.591	0.613	-	-3.7	20	68	0
trans-1,3-Dichloropropene	0.478	0.552	-	-15.5	20	81	0
1,1,2-Trichloroethane	0.22	0.26	-	-18.2	20	85	0
Chlorodibromomethane	0.408	0.375	-	8.1	20	63	0

* Value outside of QC limits.



Continuing Calibration Form 7

Client : Haley & Aldrich, Inc.
 Project Name : CCF FENWAY
 Instrument ID : JACK
 Lab File ID : VJ170515A01
 Sample No : WG1003456-2
 Channel :

Lab Number : L1715230
 Project Number : 129198-007
 Calibration Date : 05/15/17 03:15
 Init. Calib. Date(s) : 04/25/17 04/25/17
 Init. Calib. Times : 04:05 07:58

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
1,3-Dichloropropane	0.421	0.537	-	-27.6*	20	85	0
1,2-Dibromoethane	0.295	0.315	-	-6.8	20	74	0
2-Hexanone	0.146	0.12	-	17.8	20	60	0
Chlorobenzene	1.362	1.413	-	-3.7	20	71	0
Ethylbenzene	2.165	2.429	-	-12.2	20	79	0
1,1,1,2-Tetrachloroethane	0.492	0.468	-	4.9	20	64	0
p/m Xylene	0.937	1.002	-	-6.9	20	74	0
o Xylene	0.896	0.977	-	-9	20	77	0
Styrene	1.461	1.64	-	-12.3	20	78	0
1,4-Dichlorobenzene-d4	1	1	-	0	20	64	0
Bromoform	0.412	0.436	-	-5.8	20	73	0
Isopropylbenzene	4.221	4.456	-	-5.6	20	72	-0.01
4-Bromofluorobenzene	0.715	0.78	-	-9.1	20	71	0
Bromobenzene	1.009	1.032	-	-2.3	20	67	0
n-Propylbenzene	4.363	5.045	-	-15.6	20	78	-0.01
1,1,2,2-Tetrachloroethane	10	13.148	-	-31.5*	20	89	0
2-Chlorotoluene	2.841	3.313	-	-16.6	20	80	0
1,3,5-Trimethylbenzene	3.26	3.566	-	-9.4	20	74	0
1,2,3-Trichloropropane	0.418	0.519	-	-24.2*	20	89	-0.01
4-Chlorotoluene	2.585	3.117	-	-20.6*	20	81	0
tert-Butylbenzene	3.021	3.035	-	-0.5	20	66	0
1,2,4-Trimethylbenzene	3.244	3.493	-	-7.7	20	71	0
sec-Butylbenzene	3.897	4.035	-	-3.5	20	69	0
p-Isopropyltoluene	3.488	3.549	-	-1.7	20	64	0
1,3-Dichlorobenzene	1.964	2.098	-	-6.8	20	69	0
1,4-Dichlorobenzene	1.965	2.057	-	-4.7	20	68	0
n-Butylbenzene	2.573	2.616	-	-1.7	20	72	0
1,2-Dichlorobenzene	1.782	1.921	-	-7.8	20	68	0
1,2-Dibromo-3-chloropropan	10	10.887	-	-8.9	20	73	-0.01
Hexachlorobutadiene	0.398	0.439	-	-10.3	20	67	-0.01
1,2,4-Trichlorobenzene	10	10.185	-	-1.9	20	70	-0.01
Naphthalene	10	9.958	-	0.4	20	72	-0.01
1,2,3-Trichlorobenzene	10	11.05	-	-10.5	20	75	-0.01

* Value outside of QC limits.



Continuing Calibration Form 7

Client : Haley & Aldrich, Inc.
 Project Name : CCF FENWAY
 Instrument ID : JACK
 Lab File ID : VJ170515N02
 Sample No : WG1003723-2
 Channel :

Lab Number : L1715230
 Project Number : 129198-007
 Calibration Date : 05/15/17 17:36
 Init. Calib. Date(s) : 04/25/17 04/25/17
 Init. Calib. Times : 04:05 07:58

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Fluorobenzene	10	10	-	0	20	73	0
Dichlorodifluoromethane	0.431	0.394	-	8.6	20	65	0
Chloromethane	0.412	0.395	-	4.1	20	72	0
Vinyl chloride	0.367	0.418	-	-13.9	20	85	0
Bromomethane	10	14.066	-	-40.7*	20	118	0
Chloroethane	0.183	0.217	-	-18.6	20	84	0
Trichlorofluoromethane	0.594	0.525	-	11.6	20	62	0
Ethyl ether	0.115	0.14	-	-21.7*	20	84	0
1,1-Dichloroethene	0.28	0.323	-	-15.4	20	83	0
Carbon disulfide	0.76	0.917	-	-20.7*	20	91	0
Methylene chloride	0.284	0.321	-	-13	20	84	0
Acetone	10	8.506	-	14.9	20	62	0
trans-1,2-Dichloroethene	0.322	0.325	-	-0.9	20	73	0
Methyl tert-butyl ether	0.683	0.656	-	4	20	70	0
Diisopropyl ether	1.01	0.831	-	17.7	20	63	0
1,1-Dichloroethane	0.555	0.575	-	-3.6	20	77	0
Ethyl tert-butyl ether	0.877	0.835	-	4.8	20	71	0
cis-1,2-Dichloroethene	0.384	0.394	-	-2.6	20	79	0
2,2-Dichloropropane	0.589	0.565	-	4.1	20	73	0
Bromochloromethane	0.192	0.174	-	9.4	20	67	0
Chloroform	0.629	0.602	-	4.3	20	69	0
Carbon tetrachloride	0.628	0.488	-	22.3*	20	59	0
Tetrahydrofuran	0.074	0.057	-	23*	20	59	0
Dibromofluoromethane	0.255	0.212	-	16.9	20	62	0
1,1,1-Trichloroethane	0.673	0.571	-	15.2	20	62	0
2-Butanone	0.088	0.072*	-	18.2	20	59	0
1,1-Dichloropropene	0.49	0.534	-	-9	20	81	0
Benzene	1.386	1.509	-	-8.9	20	84	0
tert-Amyl methyl ether	0.772	0.79	-	-2.3	20	78	0
1,2-Dichloroethane-d4	0.269	0.265	-	1.5	20	70	0
1,2-Dichloroethane	0.463	0.407	-	12.1	20	64	0
Trichloroethene	0.423	0.399	-	5.7	20	75	0
Dibromomethane	0.184	0.176	-	4.3	20	70	0
1,2-Dichloropropane	0.316	0.324	-	-2.5	20	77	0
Bromodichloromethane	0.513	0.444	-	13.5	20	68	0
1,4-Dioxane	0.00215	0.00226*	-	-5.1	20	74	0
cis-1,3-Dichloropropene	0.597	0.598	-	-0.2	20	76	0
Chlorobenzene-d5	1	1	-	0	20	69	0
Toluene-d8	1.05	1.146	-	-9.1	20	75	0
Toluene	1.033	1.151	-	-11.4	20	79	0
4-Methyl-2-pentanone	10	11.184	-	-11.8	20	73	0
Tetrachloroethene	0.591	0.57	-	3.6	20	65	0
trans-1,3-Dichloropropene	0.478	0.514	-	-7.5	20	77	0
1,1,2-Trichloroethane	0.22	0.238	-	-8.2	20	79	0
Chlorodibromomethane	0.408	0.347	-	15	20	60	0

* Value outside of QC limits.



Continuing Calibration Form 7

Client : Haley & Aldrich, Inc.
 Project Name : CCF FENWAY
 Instrument ID : JACK
 Lab File ID : VJ170515N02
 Sample No : WG1003723-2
 Channel :

Lab Number : L1715230
 Project Number : 129198-007
 Calibration Date : 05/15/17 17:36
 Init. Calib. Date(s) : 04/25/17 04/25/17
 Init. Calib. Times : 04:05 07:58

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
1,3-Dichloropropane	0.421	0.475	-	-12.8	20	76	0
1,2-Dibromoethane	0.295	0.288	-	2.4	20	69	-.01
2-Hexanone	0.146	0.111	-	24*	20	56	0
Chlorobenzene	1.362	1.328	-	2.5	20	68	0
Ethylbenzene	2.165	2.315	-	-6.9	20	77	0
1,1,1,2-Tetrachloroethane	0.492	0.435	-	11.6	20	61	-.01
p/m Xylene	0.937	0.964	-	-2.9	20	73	0
o Xylene	0.896	0.893	-	0.3	20	72	0
Styrene	1.461	1.539	-	-5.3	20	75	0
1,4-Dichlorobenzene-d4	1	1	-	0	20	67	0
Bromoform	0.412	0.375	-	9	20	65	0
Isopropylbenzene	4.221	4.062	-	3.8	20	69	-.01
4-Bromofluorobenzene	0.715	0.77	-	-7.7	20	74	0
Bromobenzene	1.009	0.949	-	5.9	20	64	0
n-Propylbenzene	4.363	4.551	-	-4.3	20	73	-.01
1,1,2,2-Tetrachloroethane	10	11.435	-	-14.4	20	81	-.01
2-Chlorotoluene	2.841	2.921	-	-2.8	20	74	-.02
1,3,5-Trimethylbenzene	3.26	3.206	-	1.7	20	69	0
1,2,3-Trichloropropane	0.418	0.487	-	-16.5	20	88	-.01
4-Chlorotoluene	2.585	2.757	-	-6.7	20	75	0
tert-Butylbenzene	3.021	2.822	-	6.6	20	64	0
1,2,4-Trimethylbenzene	3.244	3.19	-	1.7	20	68	0
sec-Butylbenzene	3.897	3.667	-	5.9	20	66	0
p-Isopropyltoluene	3.488	3.237	-	7.2	20	61	0
1,3-Dichlorobenzene	1.964	1.911	-	2.7	20	65	0
1,4-Dichlorobenzene	1.965	1.859	-	5.4	20	64	0
n-Butylbenzene	2.573	2.973	-	-15.5	20	85	0
1,2-Dichlorobenzene	1.782	1.721	-	3.4	20	64	0
1,2-Dibromo-3-chloropropan	10	10.668	-	-6.7	20	74	-.01
Hexachlorobutadiene	0.398	0.402	-	-1	20	64	-.01
1,2,4-Trichlorobenzene	10	9.58	-	4.2	20	69	-.01
Naphthalene	10	8.923	-	10.8	20	67	-.02
1,2,3-Trichlorobenzene	10	9.459	-	5.4	20	67	-.01

* Value outside of QC limits.





ANALYTICAL REPORT

Lab Number:	L1715467
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Beck Straley
Phone:	(617) 886-7442
Project Name:	CCF FENWAY
Project Number:	129198-007
Report Date:	05/17/17

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

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



Project Name: CCF FENWAY
Project Number: 129198-007

Lab Number: L1715467
Report Date: 05/17/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1715467-01	OW-2	WATER	KILMARNOCK STREET, BOSTON, MA	05/11/17 13:30	05/11/17
L1715467-02	OW-7	WATER	KILMARNOCK STREET, BOSTON, MA	05/11/17 10:30	05/11/17
L1715467-03	OW-8	WATER	KILMARNOCK STREET, BOSTON, MA	05/11/17 09:58	05/11/17
L1715467-04	OW-4	WATER	KILMARNOCK STREET, BOSTON, MA	05/11/17 12:30	05/11/17

Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

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).	YES
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)?	NO
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
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: CCF FENWAY
Project Number: 129198-007

Lab Number: L1715467
Report Date: 05/17/17

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: CCF FENWAY
Project Number: 129198-007

Lab Number: L1715467
Report Date: 05/17/17

Case Narrative (continued)

MCP Related Narratives

Volatile Organics

In reference to question G:

L1715467-03 (OW-8): One or more of the target analytes did not achieve the requested CAM reporting limits.

In reference to question H:

The initial calibration, associated with L1715467-01 through -04 (all submitted samples), did not meet the method required minimum response factor on the lowest calibration standard for 2-butanone (0.973) and 1,4-dioxane (0.0023), as well as the average response factor for 2-butanone and 1,4-dioxane.

The continuing calibration standard, associated with L1715467-01 through -04 (all submitted samples), is outside the acceptance criteria for several compounds; however, it is within overall method allowances. A copy of the continuing calibration standard is included as an addendum to this report.

VPH

In reference to question G:

L1715467-03 (OW-8): One or more of the target analytes did not achieve the requested CAM reporting limits.

In reference to question I:

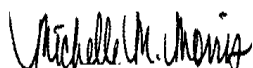
All samples were analyzed for a subset of MCP analytes per the Chain of Custody.

EPH

L1715467-03 (OW-8) has an elevated detection limit for the Napthalene due to the dilution required by the elevated concentration of this compound in the sample.

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: 05/17/17

ORGANICS

VOLATILES

Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

SAMPLE RESULTS

Lab ID: L1715467-01
 Client ID: OW-2
 Sample Location: KILMARNOCK STREET, BOSTON, MA

Date Collected: 05/11/17 13:30
 Date Received: 05/11/17
 Field Prep: Not Specified

Matrix: Water
 Analytical Method: 97,8260C
 Analytical Date: 05/17/17 09:05
 Analyst: BD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	1.0	--	1



Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

SAMPLE RESULTS

Lab ID: L1715467-01

Date Collected: 05/11/17 13:30

Client ID: OW-2

Date Received: 05/11/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1
Methyl tert butyl ether	ND		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
Xylene (Total)	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethene (total)	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	31		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	6.6		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	2.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	ND		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1



Project Name: CCF FENWAY**Lab Number:** L1715467**Project Number:** 129198-007**Report Date:** 05/17/17**SAMPLE RESULTS****Lab ID:** L1715467-01**Date Collected:** 05/11/17 13:30**Client ID:** OW-2**Date Received:** 05/11/17**Sample Location:** KILMARNOCK STREET, BOSTON, MA**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	91		70-130

Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

SAMPLE RESULTS

Lab ID: L1715467-02
 Client ID: OW-7
 Sample Location: KILMARNOCK STREET, BOSTON, MA

Date Collected: 05/11/17 10:30
 Date Received: 05/11/17
 Field Prep: Not Specified

Matrix: Water
 Analytical Method: 97,8260C
 Analytical Date: 05/17/17 09:40
 Analyst: BD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	85		ug/l	0.50	--	1
Toluene	5.1		ug/l	1.0	--	1
Ethylbenzene	8.8		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	1.0	--	1



Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

SAMPLE RESULTS

Lab ID: L1715467-02

Date Collected: 05/11/17 10:30

Client ID: OW-7

Date Received: 05/11/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1
Methyl tert butyl ether	4.9		ug/l	2.0	--	1
p/m-Xylene	10		ug/l	2.0	--	1
o-Xylene	3.9		ug/l	1.0	--	1
Xylene (Total)	14		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethene (total)	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	15		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	2.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	2.8		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	ND		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	2.2		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	2.4		ug/l	2.0	--	1



Project Name: CCF FENWAY**Lab Number:** L1715467**Project Number:** 129198-007**Report Date:** 05/17/17**SAMPLE RESULTS****Lab ID:** L1715467-02**Date Collected:** 05/11/17 10:30**Client ID:** OW-7**Date Received:** 05/11/17**Sample Location:** KILMARNOCK STREET, BOSTON, MA**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	92		70-130

Project Name: CCF FENWAY**Lab Number:** L1715467**Project Number:** 129198-007**Report Date:** 05/17/17**SAMPLE RESULTS**

Lab ID: L1715467-03 D
 Client ID: OW-8
 Sample Location: KILMARNOCK STREET, BOSTON, MA

Date Collected: 05/11/17 09:58
 Date Received: 05/11/17
 Field Prep: Not Specified

Matrix: Water
 Analytical Method: 97,8260C
 Analytical Date: 05/17/17 10:47
 Analyst: BD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	400	--	200
1,1-Dichloroethane	ND		ug/l	200	--	200
Chloroform	ND		ug/l	200	--	200
Carbon tetrachloride	ND		ug/l	200	--	200
1,2-Dichloropropane	ND		ug/l	200	--	200
Dibromochloromethane	ND		ug/l	200	--	200
1,1,2-Trichloroethane	ND		ug/l	200	--	200
Tetrachloroethene	ND		ug/l	200	--	200
Chlorobenzene	ND		ug/l	200	--	200
Trichlorofluoromethane	ND		ug/l	400	--	200
1,2-Dichloroethane	ND		ug/l	200	--	200
1,1,1-Trichloroethane	ND		ug/l	200	--	200
Bromodichloromethane	ND		ug/l	200	--	200
trans-1,3-Dichloropropene	ND		ug/l	100	--	200
cis-1,3-Dichloropropene	ND		ug/l	100	--	200
1,3-Dichloropropene, Total	ND		ug/l	100	--	200
1,1-Dichloropropene	ND		ug/l	400	--	200
Bromoform	ND		ug/l	400	--	200
1,1,2,2-Tetrachloroethane	ND		ug/l	200	--	200
Benzene	15000		ug/l	100	--	200
Toluene	ND		ug/l	200	--	200
Ethylbenzene	320		ug/l	200	--	200
Chloromethane	ND		ug/l	400	--	200
Bromomethane	ND		ug/l	400	--	200
Vinyl chloride	ND		ug/l	200	--	200
Chloroethane	ND		ug/l	400	--	200
1,1-Dichloroethene	ND		ug/l	200	--	200
trans-1,2-Dichloroethene	ND		ug/l	200	--	200
Trichloroethene	ND		ug/l	200	--	200
1,2-Dichlorobenzene	ND		ug/l	200	--	200



Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

SAMPLE RESULTS

Lab ID: L1715467-03 D

Date Collected: 05/11/17 09:58

Client ID: OW-8

Date Received: 05/11/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	200	--	200
1,4-Dichlorobenzene	ND		ug/l	200	--	200
Methyl tert butyl ether	ND		ug/l	400	--	200
p/m-Xylene	1200		ug/l	400	--	200
o-Xylene	ND		ug/l	200	--	200
Xylene (Total)	1200		ug/l	200	--	200
cis-1,2-Dichloroethene	ND		ug/l	200	--	200
1,2-Dichloroethene (total)	ND		ug/l	200	--	200
Dibromomethane	ND		ug/l	400	--	200
1,2,3-Trichloropropane	ND		ug/l	400	--	200
Styrene	ND		ug/l	200	--	200
Dichlorodifluoromethane	ND		ug/l	400	--	200
Acetone	ND		ug/l	1000	--	200
Carbon disulfide	ND		ug/l	400	--	200
2-Butanone	ND		ug/l	1000	--	200
4-Methyl-2-pentanone	ND		ug/l	1000	--	200
2-Hexanone	ND		ug/l	1000	--	200
Bromochloromethane	ND		ug/l	400	--	200
Tetrahydrofuran	ND		ug/l	400	--	200
2,2-Dichloropropane	ND		ug/l	400	--	200
1,2-Dibromoethane	ND		ug/l	400	--	200
1,3-Dichloropropane	ND		ug/l	400	--	200
1,1,1,2-Tetrachloroethane	ND		ug/l	200	--	200
Bromobenzene	ND		ug/l	400	--	200
n-Butylbenzene	ND		ug/l	400	--	200
sec-Butylbenzene	ND		ug/l	400	--	200
tert-Butylbenzene	ND		ug/l	400	--	200
o-Chlorotoluene	ND		ug/l	400	--	200
p-Chlorotoluene	ND		ug/l	400	--	200
1,2-Dibromo-3-chloropropane	ND		ug/l	400	--	200
Hexachlorobutadiene	ND		ug/l	120	--	200
Isopropylbenzene	ND		ug/l	400	--	200
p-Isopropyltoluene	ND		ug/l	400	--	200
Naphthalene	ND		ug/l	400	--	200
n-Propylbenzene	ND		ug/l	400	--	200
1,2,3-Trichlorobenzene	ND		ug/l	400	--	200
1,2,4-Trichlorobenzene	ND		ug/l	400	--	200
1,3,5-Trimethylbenzene	ND		ug/l	400	--	200
1,2,4-Trimethylbenzene	ND		ug/l	400	--	200



Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

SAMPLE RESULTS

Lab ID: L1715467-03 D

Date Collected: 05/11/17 09:58

Client ID: OW-8

Date Received: 05/11/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Ethyl ether	ND		ug/l	400	--	200
Isopropyl Ether	ND		ug/l	400	--	200
Ethyl-Tert-Butyl-Ether	ND		ug/l	400	--	200
Tertiary-Amyl Methyl Ether	ND		ug/l	400	--	200
1,4-Dioxane	ND		ug/l	50000	--	200

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	87		70-130

Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

SAMPLE RESULTS

Lab ID: L1715467-04
 Client ID: OW-4
 Sample Location: KILMARNOCK STREET, BOSTON, MA

Date Collected: 05/11/17 12:30
 Date Received: 05/11/17
 Field Prep: Not Specified

Matrix: Water
 Analytical Method: 97,8260C
 Analytical Date: 05/17/17 10:14
 Analyst: BD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	2.0	--	1
1,1-Dichloroethane	ND		ug/l	1.0	--	1
Chloroform	ND		ug/l	1.0	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,2-Dichloropropane	ND		ug/l	1.0	--	1
Dibromochloromethane	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.0	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
Chlorobenzene	ND		ug/l	1.0	--	1
Trichlorofluoromethane	ND		ug/l	2.0	--	1
1,2-Dichloroethane	ND		ug/l	1.0	--	1
1,1,1-Trichloroethane	ND		ug/l	1.0	--	1
Bromodichloromethane	ND		ug/l	1.0	--	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	--	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	--	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	--	1
1,1-Dichloropropene	ND		ug/l	2.0	--	1
Bromoform	ND		ug/l	2.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Chloromethane	ND		ug/l	2.0	--	1
Bromomethane	ND		ug/l	2.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
Chloroethane	ND		ug/l	2.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	1.0	--	1



Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

SAMPLE RESULTS

Lab ID: L1715467-04

Date Collected: 05/11/17 12:30

Client ID: OW-4

Date Received: 05/11/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	1.0	--	1
1,4-Dichlorobenzene	ND		ug/l	1.0	--	1
Methyl tert butyl ether	8.1		ug/l	2.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
Xylene (Total)	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethene (total)	ND		ug/l	1.0	--	1
Dibromomethane	ND		ug/l	2.0	--	1
1,2,3-Trichloropropane	ND		ug/l	2.0	--	1
Styrene	ND		ug/l	1.0	--	1
Dichlorodifluoromethane	ND		ug/l	2.0	--	1
Acetone	ND		ug/l	5.0	--	1
Carbon disulfide	ND		ug/l	2.0	--	1
2-Butanone	ND		ug/l	5.0	--	1
4-Methyl-2-pentanone	ND		ug/l	5.0	--	1
2-Hexanone	ND		ug/l	5.0	--	1
Bromochloromethane	ND		ug/l	2.0	--	1
Tetrahydrofuran	ND		ug/l	2.0	--	1
2,2-Dichloropropane	ND		ug/l	2.0	--	1
1,2-Dibromoethane	ND		ug/l	2.0	--	1
1,3-Dichloropropane	ND		ug/l	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--	1
Bromobenzene	ND		ug/l	2.0	--	1
n-Butylbenzene	ND		ug/l	2.0	--	1
sec-Butylbenzene	ND		ug/l	2.0	--	1
tert-Butylbenzene	ND		ug/l	2.0	--	1
o-Chlorotoluene	ND		ug/l	2.0	--	1
p-Chlorotoluene	ND		ug/l	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--	1
Hexachlorobutadiene	ND		ug/l	0.60	--	1
Isopropylbenzene	ND		ug/l	2.0	--	1
p-Isopropyltoluene	ND		ug/l	2.0	--	1
Naphthalene	ND		ug/l	2.0	--	1
n-Propylbenzene	ND		ug/l	2.0	--	1
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--	1



Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

SAMPLE RESULTS

Lab ID: L1715467-04

Date Collected: 05/11/17 12:30

Client ID: OW-4

Date Received: 05/11/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Ethyl ether	ND		ug/l	2.0	--	1
Isopropyl Ether	ND		ug/l	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1
1,4-Dioxane	ND		ug/l	250	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	93		70-130

Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

Method Blank Analysis Batch Quality Control

Analytical Method: 97,8260C
 Analytical Date: 05/17/17 07:58
 Analyst: BD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01-04 Batch: WG1004369-5					
Methylene chloride	ND		ug/l	2.0	--
1,1-Dichloroethane	ND		ug/l	1.0	--
Chloroform	ND		ug/l	1.0	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,2-Dichloropropane	ND		ug/l	1.0	--
Dibromochloromethane	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.0	--
Tetrachloroethene	ND		ug/l	1.0	--
Chlorobenzene	ND		ug/l	1.0	--
Trichlorofluoromethane	ND		ug/l	2.0	--
1,2-Dichloroethane	ND		ug/l	1.0	--
1,1,1-Trichloroethane	ND		ug/l	1.0	--
Bromodichloromethane	ND		ug/l	1.0	--
trans-1,3-Dichloropropene	ND		ug/l	0.50	--
cis-1,3-Dichloropropene	ND		ug/l	0.50	--
1,3-Dichloropropene, Total	ND		ug/l	0.50	--
1,1-Dichloropropene	ND		ug/l	2.0	--
Bromoform	ND		ug/l	2.0	--
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	--
Benzene	ND		ug/l	0.50	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Chloromethane	ND		ug/l	2.0	--
Bromomethane	ND		ug/l	2.0	--
Vinyl chloride	ND		ug/l	1.0	--
Chloroethane	ND		ug/l	2.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
trans-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--

Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

Method Blank Analysis Batch Quality Control

Analytical Method: 97,8260C
 Analytical Date: 05/17/17 07:58
 Analyst: BD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01-04 Batch: WG1004369-5					
1,2-Dichlorobenzene	ND		ug/l	1.0	--
1,3-Dichlorobenzene	ND		ug/l	1.0	--
1,4-Dichlorobenzene	ND		ug/l	1.0	--
Methyl tert butyl ether	ND		ug/l	2.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-Xylene	ND		ug/l	1.0	--
Xylene (Total)	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
1,2-Dichloroethene (total)	ND		ug/l	1.0	--
Dibromomethane	ND		ug/l	2.0	--
1,2,3-Trichloropropane	ND		ug/l	2.0	--
Styrene	ND		ug/l	1.0	--
Dichlorodifluoromethane	ND		ug/l	2.0	--
Acetone	ND		ug/l	5.0	--
Carbon disulfide	ND		ug/l	2.0	--
2-Butanone	ND		ug/l	5.0	--
4-Methyl-2-pentanone	ND		ug/l	5.0	--
2-Hexanone	ND		ug/l	5.0	--
Bromochloromethane	ND		ug/l	2.0	--
Tetrahydrofuran	ND		ug/l	2.0	--
2,2-Dichloropropane	ND		ug/l	2.0	--
1,2-Dibromoethane	ND		ug/l	2.0	--
1,3-Dichloropropane	ND		ug/l	2.0	--
1,1,1,2-Tetrachloroethane	ND		ug/l	1.0	--
Bromobenzene	ND		ug/l	2.0	--
n-Butylbenzene	ND		ug/l	2.0	--
sec-Butylbenzene	ND		ug/l	2.0	--
tert-Butylbenzene	ND		ug/l	2.0	--
o-Chlorotoluene	ND		ug/l	2.0	--

Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

Method Blank Analysis Batch Quality Control

Analytical Method: 97,8260C
 Analytical Date: 05/17/17 07:58
 Analyst: BD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01-04 Batch: WG1004369-5					
p-Chlorotoluene	ND		ug/l	2.0	--
1,2-Dibromo-3-chloropropane	ND		ug/l	2.0	--
Hexachlorobutadiene	ND		ug/l	0.60	--
Isopropylbenzene	ND		ug/l	2.0	--
p-Isopropyltoluene	ND		ug/l	2.0	--
Naphthalene	ND		ug/l	2.0	--
n-Propylbenzene	ND		ug/l	2.0	--
1,2,3-Trichlorobenzene	ND		ug/l	2.0	--
1,2,4-Trichlorobenzene	ND		ug/l	2.0	--
1,3,5-Trimethylbenzene	ND		ug/l	2.0	--
1,2,4-Trimethylbenzene	ND		ug/l	2.0	--
Ethyl ether	ND		ug/l	2.0	--
Isopropyl Ether	ND		ug/l	2.0	--
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--
1,4-Dioxane	ND		ug/l	250	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	89		70-130



Lab Control Sample Analysis **Batch Quality Control**

Project Name: CCF FENWAY

Project Number: 129198-007

Lab Number: L1715467

Report Date: 05/17/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-04 Batch: WG1004369-3 WG1004369-4								
Methylene chloride	110		100		70-130	10		20
1,1-Dichloroethane	100		99		70-130	1		20
Chloroform	85		91		70-130	7		20
Carbon tetrachloride	68	Q	70		70-130	3		20
1,2-Dichloropropane	93		97		70-130	4		20
Dibromochloromethane	78		85		70-130	9		20
1,1,2-Trichloroethane	99		110		70-130	11		20
Tetrachloroethene	88		94		70-130	7		20
Chlorobenzene	89		95		70-130	7		20
Trichlorofluoromethane	78		80		70-130	3		20
1,2-Dichloroethane	80		87		70-130	8		20
1,1,1-Trichloroethane	73		80		70-130	9		20
Bromodichloromethane	78		84		70-130	7		20
trans-1,3-Dichloropropene	94		100		70-130	6		20
cis-1,3-Dichloropropene	90		96		70-130	6		20
1,1-Dichloropropene	91		98		70-130	7		20
Bromoform	80		87		70-130	8		20
1,1,2,2-Tetrachloroethane	110		100		70-130	10		20
Benzene	97		100		70-130	3		20
Toluene	97		100		70-130	3		20
Ethylbenzene	94		100		70-130	6		20
Chloromethane	78		90		70-130	14		20
Bromomethane	96		98		70-130	2		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: CCF FENWAY

Project Number: 129198-007

Lab Number: L1715467

Report Date: 05/17/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-04 Batch: WG1004369-3 WG1004369-4								
Vinyl chloride	98		99		70-130	1		20
Chloroethane	100		110		70-130	10		20
1,1-Dichloroethene	99		100		70-130	1		20
trans-1,2-Dichloroethene	97		100		70-130	3		20
Trichloroethene	86		89		70-130	3		20
1,2-Dichlorobenzene	86		90		70-130	5		20
1,3-Dichlorobenzene	85		89		70-130	5		20
1,4-Dichlorobenzene	85		90		70-130	6		20
Methyl tert butyl ether	96		98		70-130	2		20
p/m-Xylene	95		100		70-130	5		20
o-Xylene	90		95		70-130	5		20
cis-1,2-Dichloroethene	94		94		70-130	0		20
Dibromomethane	88		93		70-130	6		20
1,2,3-Trichloropropane	92		100		70-130	8		20
Styrene	95		100		70-130	5		20
Dichlorodifluoromethane	73		84		70-130	14		20
Acetone	92		77		70-130	18		20
Carbon disulfide	98		100		70-130	2		20
2-Butanone	76		85		70-130	11		20
4-Methyl-2-pentanone	100		96		70-130	4		20
2-Hexanone	76		84		70-130	10		20
Bromochloromethane	84		89		70-130	6		20
Tetrahydrofuran	82		78		70-130	5		20

Lab Control Sample Analysis Batch Quality Control

Project Name: CCF FENWAY

Project Number: 129198-007

Lab Number: L1715467

Report Date: 05/17/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-04 Batch: WG1004369-3 WG1004369-4								
2,2-Dichloropropane	85		91		70-130	7		20
1,2-Dibromoethane	93		100		70-130	7		20
1,3-Dichloropropane	100		120		70-130	18		20
1,1,1,2-Tetrachloroethane	82		88		70-130	7		20
Bromobenzene	86		86		70-130	0		20
n-Butylbenzene	86		85		70-130	1		20
sec-Butylbenzene	83		82		70-130	1		20
tert-Butylbenzene	78		82		70-130	5		20
o-Chlorotoluene	93		93		70-130	0		20
p-Chlorotoluene	95		98		70-130	3		20
1,2-Dibromo-3-chloropropane	82		94		70-130	14		20
Hexachlorobutadiene	91		91		70-130	0		20
Isopropylbenzene	86		87		70-130	1		20
p-Isopropyltoluene	81		84		70-130	4		20
Naphthalene	86		87		70-130	1		20
n-Propylbenzene	93		94		70-130	1		20
1,2,3-Trichlorobenzene	87		88		70-130	1		20
1,2,4-Trichlorobenzene	89		88		70-130	1		20
1,3,5-Trimethylbenzene	86		87		70-130	1		20
1,2,4-Trimethylbenzene	88		89		70-130	1		20
Ethyl ether	110		120		70-130	9		20
Isopropyl Ether	75		80		70-130	6		20
Ethyl-Tert-Butyl-Ether	88		92		70-130	4		20

Lab Control Sample Analysis Batch Quality Control

Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01-04 Batch: WG1004369-3 WG1004369-4								
Tertiary-Amyl Methyl Ether	90		96		70-130	6		20
1,4-Dioxane	106		116		70-130	9		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	92		87		70-130
Toluene-d8	104		109		70-130
4-Bromofluorobenzene	112		111		70-130
Dibromofluoromethane	85		90		70-130

PETROLEUM HYDROCARBONS

Project Name: CCF FENWAY**Lab Number:** L1715467**Project Number:** 129198-007**Report Date:** 05/17/17**SAMPLE RESULTS**

Lab ID: L1715467-01

Date Collected: 05/11/17 13:30

Client ID: OW-2

Date Received: 05/11/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Matrix: Water

Analytical Method: 100, VPH-04-1.1

Analytical Date: 05/13/17 18:40

Analyst: JM

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Volatile Petroleum Hydrocarbons - Westborough Lab

C5-C8 Aliphatics	ND		ug/l	50.0	--	1
C9-C12 Aliphatics	ND		ug/l	50.0	--	1
C9-C10 Aromatics	ND		ug/l	50.0	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	80		70-130
2,5-Dibromotoluene-FID	91		70-130

Project Name: CCF FENWAY**Lab Number:** L1715467**Project Number:** 129198-007**Report Date:** 05/17/17**SAMPLE RESULTS**

Lab ID: L1715467-01

Client ID: OW-2

Sample Location: KILMARNOCK STREET, BOSTON, MA

Matrix: Water

Analytical Method: 98,EPH-04-1.1

Analytical Date: 05/13/17 18:30

Analyst: DG

M.S. Analytical Date: 05/14/17 20:45

M.S. Analyst: KV

Date Collected: 05/11/17 13:30

Date Received: 05/11/17

Field Prep: Not Specified

Extraction Method: EPA 3510C

Extraction Date: 05/11/17 23:25

Cleanup Method1: EPH-04-1

Cleanup Date1: 05/13/17

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved

Sample Temperature upon receipt:

Container Received on Ice

Sample Extraction method:

Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
EPH w/MS Targets - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1
Naphthalene	ND		ug/l	0.400	--	1
2-Methylnaphthalene	ND		ug/l	0.400	--	1
Acenaphthylene	ND		ug/l	0.400	--	1
Acenaphthene	ND		ug/l	0.400	--	1
Fluorene	ND		ug/l	0.400	--	1
Phenanthrene	ND		ug/l	0.400	--	1
Anthracene	ND		ug/l	0.400	--	1
Fluoranthene	ND		ug/l	0.400	--	1
Pyrene	ND		ug/l	0.400	--	1
Benzo(a)anthracene	ND		ug/l	0.400	--	1
Chrysene	ND		ug/l	0.400	--	1
Benzo(b)fluoranthene	ND		ug/l	0.400	--	1
Benzo(k)fluoranthene	ND		ug/l	0.400	--	1
Benzo(a)pyrene	ND		ug/l	0.200	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.400	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.400	--	1
Benzo(ghi)perylene	ND		ug/l	0.400	--	1



Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

SAMPLE RESULTS

Lab ID: L1715467-01

Date Collected: 05/11/17 13:30

Client ID: OW-2

Date Received: 05/11/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

EPH w/MS Targets - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	55		40-140
o-Terphenyl	91		40-140
2-Fluorobiphenyl	102		40-140
2-Bromonaphthalene	105		40-140
O-Terphenyl-MS	85		40-140

Project Name: CCF FENWAY**Lab Number:** L1715467**Project Number:** 129198-007**Report Date:** 05/17/17**SAMPLE RESULTS**

Lab ID: L1715467-02

Date Collected: 05/11/17 10:30

Client ID: OW-7

Date Received: 05/11/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Matrix: Water

Analytical Method: 100, VPH-04-1.1

Analytical Date: 05/13/17 18:50

Analyst: JM

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Volatile Petroleum Hydrocarbons - Westborough Lab

C5-C8 Aliphatics	185		ug/l	50.0	--	1
C9-C12 Aliphatics	91.6		ug/l	50.0	--	1
C9-C10 Aromatics	55.5		ug/l	50.0	--	1
C5-C8 Aliphatics, Adjusted	96.4		ug/l	50.0	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	117		70-130
2,5-Dibromotoluene-FID	106		70-130

Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

SAMPLE RESULTS

Lab ID: L1715467-02

Client ID: OW-7

Sample Location: KILMARNOCK STREET, BOSTON, MA

Matrix: Water

Analytical Method: 98,EPH-04-1.1

Analytical Date: 05/13/17 19:01

Analyst: DG

M.S. Analytical Date: 05/14/17 21:10

M.S. Analyst: KV

Date Collected: 05/11/17 10:30

Date Received: 05/11/17

Field Prep: Not Specified

Extraction Method: EPA 3510C

Extraction Date: 05/11/17 23:25

Cleanup Method1: EPH-04-1

Cleanup Date1: 05/13/17

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved

Sample Temperature upon receipt:

Container Received on Ice

Sample Extraction method:

Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
EPH w/MS Targets - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1
Naphthalene	ND		ug/l	0.400	--	1
2-Methylnaphthalene	ND		ug/l	0.400	--	1
Acenaphthylene	ND		ug/l	0.400	--	1
Acenaphthene	ND		ug/l	0.400	--	1
Fluorene	ND		ug/l	0.400	--	1
Phenanthrene	ND		ug/l	0.400	--	1
Anthracene	ND		ug/l	0.400	--	1
Fluoranthene	ND		ug/l	0.400	--	1
Pyrene	ND		ug/l	0.400	--	1
Benzo(a)anthracene	ND		ug/l	0.400	--	1
Chrysene	ND		ug/l	0.400	--	1
Benzo(b)fluoranthene	ND		ug/l	0.400	--	1
Benzo(k)fluoranthene	ND		ug/l	0.400	--	1
Benzo(a)pyrene	ND		ug/l	0.200	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.400	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.400	--	1
Benzo(ghi)perylene	ND		ug/l	0.400	--	1



Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

SAMPLE RESULTS

Lab ID: L1715467-02

Date Collected: 05/11/17 10:30

Client ID: OW-7

Date Received: 05/11/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

EPH w/MS Targets - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	50		40-140
o-Terphenyl	88		40-140
2-Fluorobiphenyl	98		40-140
2-Bromonaphthalene	102		40-140
O-Terphenyl-MS	83		40-140

Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

SAMPLE RESULTS

Lab ID: L1715467-03

Client ID: OW-8

Sample Location: KILMARNOCK STREET, BOSTON, MA

Matrix: Water

Analytical Method: 98,EPH-04-1.1

Analytical Date: 05/13/17 19:33

Analyst: DG

M.S. Analytical Date: 05/14/17 21:35

M.S. Analyst: KV

Date Collected: 05/11/17 09:58

Date Received: 05/11/17

Field Prep: Not Specified

Extraction Method: EPA 3510C

Extraction Date: 05/11/17 23:25

Cleanup Method1: EPH-04-1

Cleanup Date1: 05/13/17

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved

Sample Temperature upon receipt:

Container Received on Ice

Sample Extraction method:

Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
EPH w/MS Targets - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	190		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	108		ug/l	100	--	1
Naphthalene	72.0		ug/l	0.800	--	2
2-Methylnaphthalene	9.50		ug/l	0.400	--	1
Acenaphthylene	ND		ug/l	0.400	--	1
Acenaphthene	ND		ug/l	0.400	--	1
Fluorene	ND		ug/l	0.400	--	1
Phenanthrene	ND		ug/l	0.400	--	1
Anthracene	ND		ug/l	0.400	--	1
Fluoranthene	ND		ug/l	0.400	--	1
Pyrene	ND		ug/l	0.400	--	1
Benzo(a)anthracene	ND		ug/l	0.400	--	1
Chrysene	ND		ug/l	0.400	--	1
Benzo(b)fluoranthene	ND		ug/l	0.400	--	1
Benzo(k)fluoranthene	ND		ug/l	0.400	--	1
Benzo(a)pyrene	ND		ug/l	0.200	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.400	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.400	--	1
Benzo(ghi)perylene	ND		ug/l	0.400	--	1



Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

SAMPLE RESULTS

Lab ID: L1715467-03

Date Collected: 05/11/17 09:58

Client ID: OW-8

Date Received: 05/11/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

EPH w/MS Targets - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	48		40-140
o-Terphenyl	91		40-140
2-Fluorobiphenyl	93		40-140
2-Bromonaphthalene	97		40-140
O-Terphenyl-MS	87		40-140

Project Name: CCF FENWAY**Lab Number:** L1715467**Project Number:** 129198-007**Report Date:** 05/17/17**SAMPLE RESULTS**

Lab ID: L1715467-03 D

Date Collected: 05/11/17 09:58

Client ID: OW-8

Date Received: 05/11/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Matrix: Water

Analytical Method: 100, VPH-04-1.1

Analytical Date: 05/16/17 23:42

Analyst: JM

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	31200		ug/l	5000	--	100
C9-C12 Aliphatics	9780		ug/l	5000	--	100
C9-C10 Aromatics	ND		ug/l	5000	--	100
C5-C8 Aliphatics, Adjusted	15800		ug/l	5000	--	100
C9-C12 Aliphatics, Adjusted	7850		ug/l	5000	--	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	78		70-130
2,5-Dibromotoluene-FID	89		70-130



Project Name: CCF FENWAY**Lab Number:** L1715467**Project Number:** 129198-007**Report Date:** 05/17/17**SAMPLE RESULTS**

Lab ID: L1715467-04

Date Collected: 05/11/17 12:30

Client ID: OW-4

Date Received: 05/11/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Matrix: Water

Analytical Method: 100, VPH-04-1.1

Analytical Date: 05/13/17 19:20

Analyst: JM

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Volatile Petroleum Hydrocarbons - Westborough Lab

C5-C8 Aliphatics	ND		ug/l	50.0	--	1
C9-C12 Aliphatics	ND		ug/l	50.0	--	1
C9-C10 Aromatics	ND		ug/l	50.0	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	80		70-130
2,5-Dibromotoluene-FID	90		70-130



Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

SAMPLE RESULTS

Lab ID: L1715467-04

Client ID: OW-4

Sample Location: KILMARNOCK STREET, BOSTON, MA

Matrix: Water

Analytical Method: 98,EPH-04-1.1

Analytical Date: 05/13/17 20:04

Analyst: DG

M.S. Analytical Date: 05/14/17 21:59

M.S. Analyst: KV

Date Collected: 05/11/17 12:30

Date Received: 05/11/17

Field Prep: Not Specified

Extraction Method: EPA 3510C

Extraction Date: 05/11/17 23:25

Cleanup Method1: EPH-04-1

Cleanup Date1: 05/13/17

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved

Sample Temperature upon receipt:

Container Received on Ice

Sample Extraction method:

Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
EPH w/MS Targets - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1
Naphthalene	ND		ug/l	0.400	--	1
2-Methylnaphthalene	ND		ug/l	0.400	--	1
Acenaphthylene	ND		ug/l	0.400	--	1
Acenaphthene	ND		ug/l	0.400	--	1
Fluorene	ND		ug/l	0.400	--	1
Phenanthrene	ND		ug/l	0.400	--	1
Anthracene	ND		ug/l	0.400	--	1
Fluoranthene	ND		ug/l	0.400	--	1
Pyrene	ND		ug/l	0.400	--	1
Benzo(a)anthracene	ND		ug/l	0.400	--	1
Chrysene	ND		ug/l	0.400	--	1
Benzo(b)fluoranthene	ND		ug/l	0.400	--	1
Benzo(k)fluoranthene	ND		ug/l	0.400	--	1
Benzo(a)pyrene	ND		ug/l	0.200	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.400	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.400	--	1
Benzo(ghi)perylene	ND		ug/l	0.400	--	1



Project Name: CCF FENWAY**Lab Number:** L1715467**Project Number:** 129198-007**Report Date:** 05/17/17**SAMPLE RESULTS**

Lab ID: L1715467-04

Date Collected: 05/11/17 12:30

Client ID: OW-4

Date Received: 05/11/17

Sample Location: KILMARNOCK STREET, BOSTON, MA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

EPH w/MS Targets - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	53		40-140
o-Terphenyl	88		40-140
2-Fluorobiphenyl	101		40-140
2-Bromonaphthalene	104		40-140
O-Terphenyl-MS	87		40-140

Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

Method Blank Analysis Batch Quality Control

Analytical Method: 98,EPH-04-1.1

Analytical Date: 05/13/17 16:24

Analyst: DG

M.S. Analytical Date: 05/14/17 19:07

M.S. Analyst: KV

Extraction Method: EPA 3510C

Extraction Date: 05/11/17 23:25

Cleanup Method: EPH-04-1

Cleanup Date: 05/13/17

Parameter	Result	Qualifier	Units	RL	MDL
EPH w/MS Targets - Westborough Lab for sample(s): 01-04 Batch: WG1002701-1					
C9-C18 Aliphatics	ND		ug/l	100	--
C19-C36 Aliphatics	ND		ug/l	100	--
C11-C22 Aromatics	ND		ug/l	100	--
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--
Naphthalene	ND		ug/l	0.400	--
2-Methylnaphthalene	ND		ug/l	0.400	--
Acenaphthylene	ND		ug/l	0.400	--
Acenaphthene	ND		ug/l	0.400	--
Fluorene	ND		ug/l	0.400	--
Phenanthrene	ND		ug/l	0.400	--
Anthracene	ND		ug/l	0.400	--
Fluoranthene	ND		ug/l	0.400	--
Pyrene	ND		ug/l	0.400	--
Benzo(a)anthracene	ND		ug/l	0.400	--
Chrysene	ND		ug/l	0.400	--
Benzo(b)fluoranthene	ND		ug/l	0.400	--
Benzo(k)fluoranthene	ND		ug/l	0.400	--
Benzo(a)pyrene	ND		ug/l	0.200	--
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.400	--
Dibenzo(a,h)anthracene	ND		ug/l	0.400	--
Benzo(ghi)perylene	ND		ug/l	0.400	--

Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

Method Blank Analysis Batch Quality Control

Analytical Method: 98,EPH-04-1.1

Analytical Date: 05/13/17 16:24

Analyst: DG

05/14/17 19:07

KV

Extraction Method: EPA 3510C

Extraction Date: 05/11/17 23:25

Cleanup Method: EPH-04-1

Cleanup Date: 05/13/17

Parameter	Result	Qualifier	Units	RL	MDL
EPH w/MS Targets - Westborough Lab for sample(s): 01-04 Batch: WG1002701-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	73		40-140
o-Terphenyl	98		40-140
2-Fluorobiphenyl	100		40-140
2-Bromonaphthalene	104		40-140
O-Terphenyl-MS	78		40-140

Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

Method Blank Analysis Batch Quality Control

Analytical Method: 100, VPH-04-1.1

Analytical Date: 05/13/17 11:54

Analyst: JM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 01,04 Batch: WG1003297-3					
C5-C8 Aliphatics	ND		ug/l	50.0	--
C9-C12 Aliphatics	ND		ug/l	50.0	--
C9-C10 Aromatics	ND		ug/l	50.0	--
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	82		70-130
2,5-Dibromotoluene-FID	92		70-130

Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

Method Blank Analysis Batch Quality Control

Analytical Method: 100, VPH-04-1.1

Analytical Date: 05/13/17 11:19

Analyst: JM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 02 Batch: WG1003780-3					
C5-C8 Aliphatics	ND		ug/l	50.0	--
C9-C12 Aliphatics	ND		ug/l	50.0	--
C9-C10 Aromatics	ND		ug/l	50.0	--
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	111		70-130
2,5-Dibromotoluene-FID	102		70-130

Project Name: CCF FENWAY

Lab Number: L1715467

Project Number: 129198-007

Report Date: 05/17/17

Method Blank Analysis Batch Quality Control

Analytical Method: 100, VPH-04-1.1

Analytical Date: 05/16/17 10:41

Analyst: JM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 03 Batch: WG1004362-3					
C5-C8 Aliphatics	ND		ug/l	50.0	--
C9-C12 Aliphatics	ND		ug/l	50.0	--
C9-C10 Aromatics	ND		ug/l	50.0	--
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	79		70-130
2,5-Dibromotoluene-FID	90		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY

Project Number: 129198-007

Lab Number: L1715467

Report Date: 05/17/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
EPH w/MS Targets - Westborough Lab Associated sample(s): 01-04 Batch: WG1002701-2 WG1002701-3								
C9-C18 Aliphatics	60		91		40-140	41	Q	25
C19-C36 Aliphatics	77		111		40-140	36	Q	25
C11-C22 Aromatics	80		130		40-140	48	Q	25
Naphthalene	58		81		40-140	33	Q	25
2-Methylnaphthalene	60		86		40-140	36	Q	25
Acenaphthylene	70		97		40-140	32	Q	25
Acenaphthene	67		93		40-140	33	Q	25
Fluorene	71		99		40-140	33	Q	25
Phenanthrene	74		94		40-140	24		25
Anthracene	75		92		40-140	20		25
Fluoranthene	84		104		40-140	21		25
Pyrene	83		102		40-140	21		25
Benzo(a)anthracene	77		98		40-140	24		25
Chrysene	80		100		40-140	22		25
Benzo(b)fluoranthene	84		108		40-140	25		25
Benzo(k)fluoranthene	82		102		40-140	22		25
Benzo(a)pyrene	81		100		40-140	21		25
Indeno(1,2,3-cd)Pyrene	83		106		40-140	24		25
Dibenzo(a,h)anthracene	84		105		40-140	22		25
Benzo(ghi)perylene	80		101		40-140	23		25
Nonane (C9)	46		60		30-140	26	Q	25
Decane (C10)	52		78		40-140	40	Q	25
Dodecane (C12)	56		76		40-140	30	Q	25

Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY

Project Number: 129198-007

Lab Number: L1715467

Report Date: 05/17/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
EPH w/MS Targets - Westborough Lab Associated sample(s): 01-04 Batch: WG1002701-2 WG1002701-3								
Tetradecane (C14)	58		79		40-140	31	Q	25
Hexadecane (C16)	65		82		40-140	23		25
Octadecane (C18)	73		85		40-140	15		25
Nonadecane (C19)	72		85		40-140	17		25
Eicosane (C20)	74		86		40-140	15		25
Docosane (C22)	74		86		40-140	15		25
Tetracosane (C24)	74		86		40-140	15		25
Hexacosane (C26)	74		86		40-140	15		25
Octacosane (C28)	74		86		40-140	15		25
Triacontane (C30)	73		85		40-140	15		25
Hexatriacontane (C36)	70		81		40-140	15		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	68		71		40-140
o-Terphenyl	78		122		40-140
2-Fluorobiphenyl	75		106		40-140
2-Bromonaphthalene	77		114		40-140
O-Terphenyl-MS	81		101		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY

Project Number: 129198-007

Lab Number: L1715467

Report Date: 05/17/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01,04 Batch: WG1003297-1 WG1003297-2								
C5-C8 Aliphatics	105		108		70-130	3		25
C9-C12 Aliphatics	88		88		70-130	0		25
C9-C10 Aromatics	89		89		70-130	1		25
Benzene	89		91		70-130	2		25
Toluene	89		92		70-130	2		25
Ethylbenzene	88		90		70-130	2		25
p/m-Xylene	88		90		70-130	2		25
o-Xylene	87		89		70-130	2		25
Methyl tert butyl ether	92		92		70-130	0		25
Naphthalene	91		89		70-130	2		25
1,2,4-Trimethylbenzene	89		89		70-130	0		25
Pentane	104		107		70-130	3		25
2-Methylpentane	106		109		70-130	3		25
2,2,4-Trimethylpentane	107		107		70-130	0		25
n-Nonane	93		93		30-130	1		25
n-Decane	79		79		70-130	1		25
n-Butylcyclohexane	94		92		70-130	1		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	87		84		70-130
2,5-Dibromotoluene-FID	98		95		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY

Project Number: 129198-007

Lab Number: L1715467

Report Date: 05/17/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 02 Batch: WG1003780-1 WG1003780-2								
C5-C8 Aliphatics	95		103		70-130	8		25
C9-C12 Aliphatics	100		108		70-130	8		25
C9-C10 Aromatics	112		120		70-130	7		25
Benzene	102		111		70-130	8		25
Toluene	103		112		70-130	8		25
Ethylbenzene	107		116		70-130	8		25
p/m-Xylene	107		116		70-130	8		25
o-Xylene	105		115		70-130	9		25
Methyl tert butyl ether	107		117		70-130	9		25
Naphthalene	115		126		70-130	9		25
1,2,4-Trimethylbenzene	112		120		70-130	7		25
Pentane	95		103		70-130	8		25
2-Methylpentane	95		103		70-130	8		25
2,2,4-Trimethylpentane	95		103		70-130	8		25
n-Nonane	100		108		30-130	8		25
n-Decane	101		109		70-130	8		25
n-Butylcyclohexane	101		109		70-130	8		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	108		114		70-130
2,5-Dibromotoluene-FID	97		104		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY

Project Number: 129198-007

Lab Number: L1715467

Report Date: 05/17/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 03 Batch: WG1004362-1 WG1004362-2								
C5-C8 Aliphatics	108		106		70-130	2		25
C9-C12 Aliphatics	96		90		70-130	6		25
C9-C10 Aromatics	88		87		70-130	1		25
Benzene	88		89		70-130	0		25
Toluene	89		89		70-130	1		25
Ethylbenzene	87		88		70-130	1		25
p/m-Xylene	87		87		70-130	0		25
o-Xylene	86		87		70-130	0		25
Methyl tert butyl ether	90		90		70-130	0		25
Naphthalene	86		85		70-130	1		25
1,2,4-Trimethylbenzene	88		87		70-130	1		25
Pentane	104		102		70-130	2		25
2-Methylpentane	110		108		70-130	2		25
2,2,4-Trimethylpentane	111		108		70-130	3		25
n-Nonane	99		94		30-130	6		25
n-Decane	86		81		70-130	7		25
n-Butylcyclohexane	99		92		70-130	7		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	83		81		70-130
2,5-Dibromotoluene-FID	94		91		70-130

Project Name: CCF FENWAY

Project Number: 129198-007

Lab Number: L1715467

Report Date: 05/17/17

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information Custody Seal

Cooler

A Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1715467-01A	Vial HCl preserved	A	N/A	2.2	Y	Absent	MCP-8260-10(14)
L1715467-01B	Vial HCl preserved	A	N/A	2.2	Y	Absent	MCP-8260-10(14)
L1715467-01C	Vial HCl preserved	A	N/A	2.2	Y	Absent	MCP-8260-10(14)
L1715467-01D	Vial HCl preserved	A	N/A	2.2	Y	Absent	VPH-10(14)
L1715467-01E	Vial HCl preserved	A	N/A	2.2	Y	Absent	VPH-10(14)
L1715467-01F	Vial HCl preserved	A	N/A	2.2	Y	Absent	VPH-10(14)
L1715467-01G	Amber 1000ml HCl preserved	A	<2	2.2	Y	Absent	EPH-MS-10(14),EPHD-GC-10(14)
L1715467-01H	Amber 1000ml HCl preserved	A	<2	2.2	Y	Absent	EPH-MS-10(14),EPHD-GC-10(14)
L1715467-02A	Vial HCl preserved	A	N/A	2.2	Y	Absent	MCP-8260-10(14)
L1715467-02B	Vial HCl preserved	A	N/A	2.2	Y	Absent	MCP-8260-10(14)
L1715467-02C	Vial HCl preserved	A	N/A	2.2	Y	Absent	MCP-8260-10(14)
L1715467-02D	Vial HCl preserved	A	N/A	2.2	Y	Absent	VPH-10(14)
L1715467-02E	Vial HCl preserved	A	N/A	2.2	Y	Absent	VPH-10(14)
L1715467-02F	Vial HCl preserved	A	N/A	2.2	Y	Absent	VPH-10(14)
L1715467-02G	Amber 1000ml HCl preserved	A	<2	2.2	Y	Absent	EPH-MS-10(14),EPHD-GC-10(14)
L1715467-02H	Amber 1000ml HCl preserved	A	<2	2.2	Y	Absent	EPH-MS-10(14),EPHD-GC-10(14)
L1715467-03A	Vial HCl preserved	A	N/A	2.2	Y	Absent	MCP-8260-10(14)
L1715467-03B	Vial HCl preserved	A	N/A	2.2	Y	Absent	MCP-8260-10(14)
L1715467-03C	Vial HCl preserved	A	N/A	2.2	Y	Absent	MCP-8260-10(14)
L1715467-03D	Vial HCl preserved	A	N/A	2.2	Y	Absent	VPH-10(14)
L1715467-03E	Vial HCl preserved	A	N/A	2.2	Y	Absent	VPH-10(14)
L1715467-03F	Vial HCl preserved	A	N/A	2.2	Y	Absent	VPH-10(14)
L1715467-03G	Amber 1000ml HCl preserved	A	<2	2.2	Y	Absent	EPH-MS-10(14),EPHD-GC-10(14)
L1715467-03H	Amber 1000ml HCl preserved	A	<2	2.2	Y	Absent	EPH-MS-10(14),EPHD-GC-10(14)
L1715467-04A	Vial HCl preserved	A	N/A	2.2	Y	Absent	MCP-8260-10(14)
L1715467-04B	Vial HCl preserved	A	N/A	2.2	Y	Absent	MCP-8260-10(14)
L1715467-04C	Vial HCl preserved	A	N/A	2.2	Y	Absent	MCP-8260-10(14)

*Values in parentheses indicate holding time in days



Project Name: CCF FENWAY**Project Number:** 129198-007**Lab Number:** L1715467**Report Date:** 05/17/17**Container Information**

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1715467-04D	Vial HCl preserved	A	N/A	2.2	Y	Absent	VPH-10(14)
L1715467-04E	Vial HCl preserved	A	N/A	2.2	Y	Absent	VPH-10(14)
L1715467-04F	Vial HCl preserved	A	N/A	2.2	Y	Absent	VPH-10(14)
L1715467-04G	Amber 1000ml HCl preserved	A	<2	2.2	Y	Absent	EPH-MS-10(14),EPHD-GC-10(14)
L1715467-04H	Amber 1000ml HCl preserved	A	<2	2.2	Y	Absent	EPH-MS-10(14),EPHD-GC-10(14)

*Values in parentheses indicate holding time in days



Project Name: CCF FENWAY
Project Number: 129198-007

Lab Number: L1715467
Report Date: 05/17/17

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).
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.
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

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.

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.

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

Report Format: Data Usability Report



Project Name: CCF FENWAY
Project Number: 129198-007

Lab Number: L1715467
Report Date: 05/17/17

Data Qualifiers

- 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.

Project Name: CCF FENWAY
Project Number: 129198-007

Lab Number: L1715467
Report Date: 05/17/17

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.
- 98 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, July 2010.
- 100 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, 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.



Alpha Analytical, Inc.

ID No.:17873

Facility: **Company-wide**

Revision 10

Department: **Quality Assurance**

Published Date: 1/16/2017 11:00:05 AM

Title: **Certificate/Approval Program Summary**

Page 1 of 1

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:** NPW and SCM: Perchlorate**EPA 9010:** NPW and SCM: Amenable Cyanide Distillation**EPA 9012B:** NPW: Total Cyanide**EPA 9050A:** NPW: Specific Conductance**SM3500:** NPW: Ferrous Iron**SM4500:** NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO₂, NO₃.**SM5310C:** DW: Dissolved Organic Carbon**Mansfield Facility****SM 2540D:** TSS**EPA 3005A** NPW**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:** 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, EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **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.****Mansfield Facility:****Drinking Water****EPA 200.7:** Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1 Hg.****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.

Method Blank Summary Form 4

Client : Haley & Aldrich, Inc.
Project Name : CCF FENWAY
Lab Sample ID : WG1004369-5
Instrument ID : JACK
Matrix : WATER

Lab Number : L1715467
Project Number : 129198-007
Lab File ID : VJ170517A09
Analysis Date : 05/17/17 07:58

Client Sample No.	Lab Sample ID	Analysis Date
WG1004369-3LCS	WG1004369-3	05/17/17 05:43
WG1004369-4LCSD	WG1004369-4	05/17/17 06:17
OW-2	L1715467-01	05/17/17 09:05
OW-7	L1715467-02	05/17/17 09:40
OW-4	L1715467-04	05/17/17 10:14
OW-8	L1715467-03D	05/17/17 10:47

Continuing Calibration Form 7

Client : Haley & Aldrich, Inc.
 Project Name : CCF FENWAY
 Instrument ID : JACK
 Lab File ID : VJ170517A01
 Sample No : WG1004369-2
 Channel :

Lab Number : L1715467
 Project Number : 129198-007
 Calibration Date : 05/17/17 05:43
 Init. Calib. Date(s) : 04/25/17 04/25/17
 Init. Calib. Times : 04:05 07:58

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Fluorobenzene	10	10	-	0	20	75	0
Dichlorodifluoromethane	0.431	0.315	-	26.9*	20	54	0
Chloromethane	0.412	0.321	-	22.1*	20	60	0
Vinyl chloride	0.367	0.36	-	1.9	20	75	0
Bromomethane	10	9.551	-	4.5	20	84	0
Chloroethane	0.183	0.19	-	-3.8	20	75	0
Trichlorofluoromethane	0.594	0.466	-	21.5*	20	56	0
Ethyl ether	0.115	0.128	-	-11.3	20	79	0
1,1-Dichloroethene	0.28	0.277	-	1.1	20	73	0
Carbon disulfide	0.76	0.744	-	2.1	20	75	0
Methylene chloride	0.284	0.302	-	-6.3	20	81	0
Acetone	10	9.247	-	7.5	20	69	0
trans-1,2-Dichloroethene	0.322	0.312	-	3.1	20	72	0
Methyl tert-butyl ether	0.683	0.653	-	4.4	20	71	0
Diisopropyl ether	1.01	0.76	-	24.8*	20	59	0
1,1-Dichloroethane	0.555	0.557	-	-0.4	20	77	0
Ethyl tert-butyl ether	0.877	0.772	-	12	20	68	0
cis-1,2-Dichloroethene	0.384	0.36	-	6.3	20	74	0
2,2-Dichloropropane	0.589	0.5	-	15.1	20	66	0
Bromochloromethane	0.192	0.161	-	16.1	20	64	0
Chloroform	0.629	0.535	-	14.9	20	63	0
Carbon tetrachloride	0.628	0.426	-	32.2*	20	52	0
Tetrahydrofuran	0.074	0.061	-	17.6	20	65	0
Dibromofluoromethane	0.255	0.216	-	15.3	20	65	0
1,1,1-Trichloroethane	0.673	0.492	-	26.9*	20	55	0
2-Butanone	0.088	0.067*	-	23.9*	20	56	0
1,1-Dichloropropene	0.49	0.447	-	8.8	20	70	0
Benzene	1.386	1.348	-	2.7	20	77	0
tert-Amyl methyl ether	0.772	0.695	-	10	20	70	0
1,2-Dichloroethane-d4	0.269	0.247	-	8.2	20	67	0
1,2-Dichloroethane	0.463	0.372	-	19.7	20	60	0
Trichloroethene	0.423	0.362	-	14.4	20	70	0
Dibromomethane	0.184	0.161	-	12.5	20	66	0
1,2-Dichloropropane	0.316	0.294	-	7	20	71	0
Bromodichloromethane	0.513	0.401	-	21.8*	20	63	0
1,4-Dioxane	0.00215	0.00228*	-	-6	20	77	0
cis-1,3-Dichloropropene	0.597	0.539	-	9.7	20	70	0
Chlorobenzene-d5	1	1	-	0	20	71	0
Toluene-d8	1.05	1.088	-	-3.6	20	73	0
Toluene	1.033	0.998	-	3.4	20	71	0
4-Methyl-2-pentanone	10	10.095	-	-1	20	68	0
Tetrachloroethene	0.591	0.518	-	12.4	20	61	0
trans-1,3-Dichloropropene	0.478	0.449	-	6.1	20	69	0
1,1,2-Trichloroethane	0.22	0.218	-	0.9	20	75	0
Chlorodibromomethane	0.408	0.317	-	22.3*	20	56	0

* Value outside of QC limits.



Continuing Calibration Form 7

Client : Haley & Aldrich, Inc.
 Project Name : CCF FENWAY
 Instrument ID : JACK
 Lab File ID : VJ170517A01
 Sample No : WG1004369-2
 Channel :

Lab Number : L1715467
 Project Number : 129198-007
 Calibration Date : 05/17/17 05:43
 Init. Calib. Date(s) : 04/25/17 04/25/17
 Init. Calib. Times : 04:05 07:58

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
1,3-Dichloropropane	0.421	0.437	-	-3.8	20	73	0
1,2-Dibromoethane	0.295	0.274	-	7.1	20	68	-.01
2-Hexanone	0.146	0.111	-	24*	20	58	0
Chlorobenzene	1.362	1.214	-	10.9	20	65	0
Ethylbenzene	2.165	2.035	-	6	20	69	0
1,1,1,2-Tetrachloroethane	0.492	0.403	-	18.1	20	58	-.01
p/m Xylene	0.937	0.876	-	6.5	20	68	0
o Xylene	0.896	0.82	-	8.5	20	68	0
Styrene	1.461	1.41	-	3.5	20	71	0
1,4-Dichlorobenzene-d4	1	1	-	0	20	72	0
Bromoform	0.412	0.328	-	20.4*	20	61	0
Isopropylbenzene	4.221	3.627	-	14.1	20	66	-.01
4-Bromofluorobenzene	0.715	0.801	-	-12	20	82	0
Bromobenzene	1.009	0.871	-	13.7	20	63	0
n-Propylbenzene	4.363	4.063	-	6.9	20	70	-.01
1,1,2,2-Tetrachloroethane	10	10.612	-	-6.1	20	80	-.01
2-Chlorotoluene	2.841	2.655	-	6.5	20	72	-.02
1,3,5-Trimethylbenzene	3.26	2.802	-	14	20	65	0
1,2,3-Trichloropropane	0.418	0.386	-	7.7	20	74	-.01
4-Chlorotoluene	2.585	2.452	-	5.1	20	71	-.01
tert-Butylbenzene	3.021	2.372	-	21.5*	20	58	0
1,2,4-Trimethylbenzene	3.244	2.859	-	11.9	20	65	-.01
sec-Butylbenzene	3.897	3.229	-	17.1	20	62	0
p-Isopropyltoluene	3.488	2.838	-	18.6	20	57	0
1,3-Dichlorobenzene	1.964	1.673	-	14.8	20	61	0
1,4-Dichlorobenzene	1.965	1.668	-	15.1	20	61	0
n-Butylbenzene	2.573	2.221	-	13.7	20	68	0
1,2-Dichlorobenzene	1.782	1.534	-	13.9	20	61	0
1,2-Dibromo-3-chloropropan	10	8.247	-	17.5	20	61	-.01
Hexachlorobutadiene	0.398	0.363	-	8.8	20	62	-.01
1,2,4-Trichlorobenzene	10	8.868	-	11.3	20	68	-.01
Naphthalene	10	8.653	-	13.5	20	69	-.02
1,2,3-Trichlorobenzene	10	8.711	-	12.9	20	66	-.01

* Value outside of QC limits.





ANALYTICAL REPORT

Lab Number:	L1738260
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Beck Straley
Phone:	(617) 886-7442
Project Name:	CCF FENWAY
Project Number:	129198-009
Report Date:	10/25/17

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

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



Project Name: CCF FENWAY
Project Number: 129198-009

Lab Number: L1738260
Report Date: 10/25/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1738260-01	OW-8_2017-1020	WATER	BOSTON, MA	10/20/17 10:00	10/20/17
L1738260-02	OW-7_2017-1020	WATER	BOSTON, MA	10/20/17 11:30	10/20/17

Project Name: CCF FENWAY

Lab Number: L1738260

Project Number: 129198-009

Report Date: 10/25/17

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).	YES
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)?	NO
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)?	YES
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: CCF FENWAY
Project Number: 129198-009

Lab Number: L1738260
Report Date: 10/25/17

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: CCF FENWAY
Project Number: 129198-009

Lab Number: L1738260
Report Date: 10/25/17

Case Narrative (continued)

MCP Related Narratives

VPH

In reference to question G:

L1738260-01 (OW-8_2017-1020): One or more of the target analytes did not achieve the requested CAM reporting limits.

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:

 Cristin Walker

Title: Technical Director/Representative

Date: 10/25/17

ORGANICS

PETROLEUM HYDROCARBONS

Project Name: CCF FENWAY**Lab Number:** L1738260**Project Number:** 129198-009**Report Date:** 10/25/17**SAMPLE RESULTS**

Lab ID: L1738260-01 D
 Client ID: OW-8_2017-1020
 Sample Location: BOSTON, MA
 Matrix: Water
 Analytical Method: 100, VPH-04-1.1
 Analytical Date: 10/24/17 21:34
 Analyst: MZ

Date Collected: 10/20/17 10:00
 Date Received: 10/20/17
 Field Prep: Not Specified

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	29000		ug/l	6250	--	125
C9-C12 Aliphatics	ND		ug/l	6250	--	125
C9-C10 Aromatics	ND		ug/l	6250	--	125
C5-C8 Aliphatics, Adjusted	11900		ug/l	6250	--	125
C9-C12 Aliphatics, Adjusted	ND		ug/l	6250	--	125
Benzene	16700		ug/l	250	--	125
Toluene	408		ug/l	250	--	125
Ethylbenzene	378		ug/l	250	--	125
p/m-Xylene	931		ug/l	250	--	125
o-Xylene	ND		ug/l	250	--	125
Methyl tert butyl ether	ND		ug/l	375	--	125
Naphthalene	ND		ug/l	500	--	125

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	86		70-130
2,5-Dibromotoluene-FID	91		70-130

Project Name: CCF FENWAY**Lab Number:** L1738260**Project Number:** 129198-009**Report Date:** 10/25/17**SAMPLE RESULTS**

Lab ID: L1738260-02
Client ID: OW-7_2017-1020
Sample Location: BOSTON, MA
Matrix: Water
Analytical Method: 100, VPH-04-1.1
Analytical Date: 10/23/17 14:44
Analyst: MKS

Date Collected: 10/20/17 11:30
Date Received: 10/20/17
Field Prep: Not Specified

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	153		ug/l	50.0	--	1
C9-C12 Aliphatics	63.9		ug/l	50.0	--	1
C9-C10 Aromatics	ND		ug/l	50.0	--	1
C5-C8 Aliphatics, Adjusted	100		ug/l	50.0	--	1
C9-C12 Aliphatics, Adjusted	53.7		ug/l	50.0	--	1
Benzene	50.3		ug/l	2.00	--	1
Toluene	3.01		ug/l	2.00	--	1
Ethylbenzene	4.73		ug/l	2.00	--	1
p/m-Xylene	2.60		ug/l	2.00	--	1
o-Xylene	2.83		ug/l	2.00	--	1
Methyl tert butyl ether	ND		ug/l	3.00	--	1
Naphthalene	ND		ug/l	4.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	106		70-130
2,5-Dibromotoluene-FID	113		70-130



Project Name: CCF FENWAY

Lab Number: L1738260

Project Number: 129198-009

Report Date: 10/25/17

Method Blank Analysis Batch Quality Control

Analytical Method: 100, VPH-04-1.1

Analytical Date: 10/24/17 09:32

Analyst: MZ

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 01 Batch: WG1056043-4					
C5-C8 Aliphatics	ND		ug/l	50.0	--
C9-C12 Aliphatics	ND		ug/l	50.0	--
C9-C10 Aromatics	ND		ug/l	50.0	--
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--
Benzene	ND		ug/l	2.00	--
Toluene	ND		ug/l	2.00	--
Ethylbenzene	ND		ug/l	2.00	--
p/m-Xylene	ND		ug/l	2.00	--
o-Xylene	ND		ug/l	2.00	--
Methyl tert butyl ether	ND		ug/l	3.00	--
Naphthalene	ND		ug/l	4.00	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	94		70-130
2,5-Dibromotoluene-FID	101		70-130

Project Name: CCF FENWAY

Lab Number: L1738260

Project Number: 129198-009

Report Date: 10/25/17

Method Blank Analysis Batch Quality Control

Analytical Method: 100, VPH-04-1.1

Analytical Date: 10/23/17 12:06

Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 02 Batch: WG1056115-4					
C5-C8 Aliphatics	ND		ug/l	50.0	--
C9-C12 Aliphatics	ND		ug/l	50.0	--
C9-C10 Aromatics	ND		ug/l	50.0	--
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--
Benzene	ND		ug/l	2.00	--
Toluene	ND		ug/l	2.00	--
Ethylbenzene	ND		ug/l	2.00	--
p/m-Xylene	ND		ug/l	2.00	--
o-Xylene	ND		ug/l	2.00	--
Methyl tert butyl ether	ND		ug/l	3.00	--
Naphthalene	ND		ug/l	4.00	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	99		70-130
2,5-Dibromotoluene-FID	105		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY

Project Number: 129198-009

Lab Number: L1738260

Report Date: 10/25/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01 Batch: WG1056043-2 WG1056043-3								
C5-C8 Aliphatics	94		95		70-130	1		25
C9-C12 Aliphatics	108		108		70-130	0		25
C9-C10 Aromatics	95		95		70-130	0		25
Benzene	90		90		70-130	0		25
Toluene	91		91		70-130	1		25
Ethylbenzene	94		94		70-130	0		25
p/m-Xylene	92		92		70-130	0		25
o-Xylene	92		91		70-130	0		25
Methyl tert butyl ether	88		86		70-130	2		25
Naphthalene	95		92		70-130	3		25
1,2,4-Trimethylbenzene	95		95		70-130	0		25
Pentane	97		98		70-130	1		25
2-Methylpentane	97		98		70-130	2		25
2,2,4-Trimethylpentane	101		100		70-130	1		25
n-Nonane	105		104		30-130	1		25
n-Decane	109		109		70-130	0		25
n-Butylcyclohexane	109		110		70-130	1		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	94		92		70-130
2,5-Dibromotoluene-FID	99		98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY

Project Number: 129198-009

Lab Number: L1738260

Report Date: 10/25/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 02 Batch: WG1056115-2 WG1056115-3								
C5-C8 Aliphatics	104		107		70-130	3		25
C9-C12 Aliphatics	105		111		70-130	6		25
C9-C10 Aromatics	96		101		70-130	6		25
Benzene	96		103		70-130	7		25
Toluene	99		106		70-130	7		25
Ethylbenzene	100		107		70-130	7		25
p/m-Xylene	100		106		70-130	6		25
o-Xylene	99		105		70-130	6		25
Methyl tert butyl ether	80		90		70-130	11		25
Naphthalene	90		100		70-130	10		25
1,2,4-Trimethylbenzene	96		101		70-130	6		25
Pentane	105		110		70-130	5		25
2-Methylpentane	107		104		70-130	3		25
2,2,4-Trimethylpentane	109		115		70-130	5		25
n-Nonane	105		111		30-130	6		25
n-Decane	107		113		70-130	5		25
n-Butylcyclohexane	105		109		70-130	4		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	96		102		70-130
2,5-Dibromotoluene-FID	101		107		70-130

Project Name: CCF FENWAY**Lab Number:** L1738260**Project Number:** 129198-009**Report Date:** 10/25/17**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(*)
L1738260-01A	Vial HCl preserved	A	NA		2.7	Y	Absent		VPH-DELUX-10(14)
L1738260-01B	Vial HCl preserved	A	NA		2.7	Y	Absent		VPH-DELUX-10(14)
L1738260-01C	Vial HCl preserved	A	NA		2.7	Y	Absent		VPH-DELUX-10(14)
L1738260-02A	Vial HCl preserved	A	NA		2.7	Y	Absent		VPH-DELUX-10(14)
L1738260-02B	Vial HCl preserved	A	NA		2.7	Y	Absent		VPH-DELUX-10(14)
L1738260-02C	Vial HCl preserved	A	NA		2.7	Y	Absent		VPH-DELUX-10(14)

Project Name: CCF FENWAY
Project Number: 129198-009

Lab Number: L1738260
Report Date: 10/25/17

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).
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.
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.

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

Report Format: Data Usability Report



Project Name: CCF FENWAY
Project Number: 129198-009

Lab Number: L1738260
Report Date: 10/25/17

Data Qualifiers

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.

Project Name: CCF FENWAY
Project Number: 129198-009

Lab Number: L1738260
Report Date: 10/25/17

REFERENCES

- 100 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, 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.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 10

Published Date: 1/16/2017 11:00:05 AM

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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:** NPW and SCM: Perchlorate**EPA 9010:** NPW and SCM: Amenable Cyanide Distillation**EPA 9012B:** NPW: Total Cyanide**EPA 9050A:** NPW: Specific Conductance**SM3500:** NPW: Ferrous Iron**SM4500:** NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO₂, NO₃.**SM5310C:** DW: Dissolved Organic Carbon**Mansfield Facility****SM 2540D:** TSS**EPA 3005A** NPW**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:** 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, EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **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.****Mansfield Facility:****Drinking Water****EPA 200.7:** Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1 Hg.****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.



ANALYTICAL REPORT

Lab Number:	L1741042
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Beck Straley
Phone:	(617) 886-7442
Project Name:	CCF FENWAY
Project Number:	129198-009
Report Date:	11/14/17

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

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



Project Name: CCF FENWAY
Project Number: 129198-009

Lab Number: L1741042
Report Date: 11/14/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1741042-01	BGWT-1_2017-1107	WATER	BOSTON, MA	11/07/17 14:30	11/08/17

Project Name: CCF FENWAY

Lab Number: L1741042

Project Number: 129198-009

Report Date: 11/14/17

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).	YES
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)?	NO
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)?	YES
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: CCF FENWAY
Project Number: 129198-009

Lab Number: L1741042
Report Date: 11/14/17

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: CCF FENWAY
Project Number: 129198-009

Lab Number: L1741042
Report Date: 11/14/17

Case Narrative (continued)

MCP Related Narratives

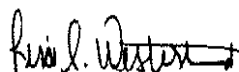
VPH

In reference to question G:

One or more of the target analytes did not achieve the requested CAM reporting limits.

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: 11/14/17

ORGANICS

PETROLEUM HYDROCARBONS

Project Name: CCF FENWAY**Lab Number:** L1741042**Project Number:** 129198-009**Report Date:** 11/14/17**SAMPLE RESULTS**

Lab ID: L1741042-01 D
 Client ID: BGWT-1_2017-1107
 Sample Location: BOSTON, MA
 Matrix: Water
 Analytical Method: 100,VPH-04-1.1
 Analytical Date: 11/14/17 11:39
 Analyst: MZ

Date Collected: 11/07/17 14:30
 Date Received: 11/08/17
 Field Prep: Not Specified

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	42300		ug/l	10000	--	200
C9-C12 Aliphatics	ND		ug/l	10000	--	200
C9-C10 Aromatics	ND		ug/l	10000	--	200
C5-C8 Aliphatics, Adjusted	11200		ug/l	10000	--	200
C9-C12 Aliphatics, Adjusted	ND		ug/l	10000	--	200
Benzene	31000		ug/l	400	--	200
Toluene	ND		ug/l	400	--	200
Ethylbenzene	ND		ug/l	400	--	200
p/m-Xylene	810		ug/l	400	--	200
o-Xylene	ND		ug/l	400	--	200
Methyl tert butyl ether	ND		ug/l	600	--	200
Naphthalene	ND		ug/l	800	--	200

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	94		70-130
2,5-Dibromotoluene-FID	86		70-130



Project Name: CCF FENWAY

Lab Number: L1741042

Project Number: 129198-009

Report Date: 11/14/17

Method Blank Analysis Batch Quality Control

Analytical Method: 100, VPH-04-1.1

Analytical Date: 11/14/17 10:59

Analyst: MZ

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 01 Batch: WG1062863-4					
C5-C8 Aliphatics	ND		ug/l	50.0	--
C9-C12 Aliphatics	ND		ug/l	50.0	--
C9-C10 Aromatics	ND		ug/l	50.0	--
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--
Benzene	ND		ug/l	2.00	--
Toluene	ND		ug/l	2.00	--
Ethylbenzene	ND		ug/l	2.00	--
p/m-Xylene	ND		ug/l	2.00	--
o-Xylene	ND		ug/l	2.00	--
Methyl tert butyl ether	ND		ug/l	3.00	--
Naphthalene	ND		ug/l	4.00	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	123		70-130
2,5-Dibromotoluene-FID	112		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY

Project Number: 129198-009

Lab Number: L1741042

Report Date: 11/14/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01 Batch: WG1062863-2 WG1062863-3								
C5-C8 Aliphatics	102		101		70-130	1		25
C9-C12 Aliphatics	108		105		70-130	3		25
C9-C10 Aromatics	111		111		70-130	0		25
Benzene	105		105		70-130	0		25
Toluene	106		106		70-130	0		25
Ethylbenzene	110		109		70-130	1		25
p/m-Xylene	109		108		70-130	1		25
o-Xylene	108		108		70-130	0		25
Methyl tert butyl ether	98		98		70-130	0		25
Naphthalene	111		112		70-130	1		25
1,2,4-Trimethylbenzene	111		111		70-130	0		25
Pentane	112		106		70-130	6		25
2-Methylpentane	106		104		70-130	2		25
2,2,4-Trimethylpentane	104		102		70-130	2		25
n-Nonane	106		103		30-130	3		25
n-Decane	108		106		70-130	2		25
n-Butylcyclohexane	110		107		70-130	3		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	112		111		70-130
2,5-Dibromotoluene-FID	103		100		70-130

Project Name: CCF FENWAY
Project Number: 129198-009

Serial_No:11141714:08
Lab Number: L1741042
Report Date: 11/14/17

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(*)
L1741042-01A	Vial HCl preserved	A	NA		4.8	Y	Absent		VPH-DELUX-10(14)
L1741042-01B	Vial HCl preserved	A	NA		4.8	Y	Absent		VPH-DELUX-10(14)
L1741042-01C	Vial HCl preserved	A	NA		4.8	Y	Absent		VPH-DELUX-10(14)

Project Name: CCF FENWAY
Project Number: 129198-009

Lab Number: L1741042
Report Date: 11/14/17

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).
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.
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.

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

Report Format: Data Usability Report



Project Name: CCF FENWAY
Project Number: 129198-009

Lab Number: L1741042
Report Date: 11/14/17

Data Qualifiers

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.

Project Name: CCF FENWAY
Project Number: 129198-009

Lab Number: L1741042
Report Date: 11/14/17

REFERENCES

- 100 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, 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.



Alpha Analytical, Inc.

ID No.:17873

Facility: **Company-wide**

Revision 10

Department: **Quality Assurance**

Published Date: 1/16/2017 11:00:05 AM

Title: **Certificate/Approval Program Summary**

Page 1 of 1

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:** NPW and SCM: Perchlorate**EPA 9010:** NPW and SCM: Amenable Cyanide Distillation**EPA 9012B:** NPW: Total Cyanide**EPA 9050A:** NPW: Specific Conductance**SM3500:** NPW: Ferrous Iron**SM4500:** NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO₂, NO₃.**SM5310C:** DW: Dissolved Organic Carbon**Mansfield Facility****SM 2540D:** TSS**EPA 3005A** NPW**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:** 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, EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **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.****Mansfield Facility:****Drinking Water****EPA 200.7:** Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1 Hg.****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.



ANALYTICAL REPORT

Lab Number:	L1744381
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Beck Straley
Phone:	(617) 886-7442
Project Name:	60 KILMARNOCK ST.
Project Number:	129198-009
Report Date:	12/07/17

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

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



Project Name: 60 KILMARNOCK ST.
Project Number: 129198-009

Lab Number: L1744381
Report Date: 12/07/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1744381-01	HA17-5(OW)	WATER	BOSTON, MA	12/04/17 13:55	12/04/17
L1744381-02	HA17-6(OW)	WATER	BOSTON, MA	12/04/17 14:10	12/04/17

Project Name: 60 KILMARNOCK ST.

Lab Number: L1744381

Project Number: 129198-009

Report Date: 12/07/17

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).	YES
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)?	YES
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: 60 KILMARNOCK ST.
Project Number: 129198-009

Lab Number: L1744381
Report Date: 12/07/17

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: 60 KILMARNOCK ST.
Project Number: 129198-009

Lab Number: L1744381
Report Date: 12/07/17

Case Narrative (continued)

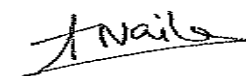
MCP Related Narratives

Report Submission

All MCP required questions were answered with affirmative responses; therefore, there are no relevant protocol-specific QC and/or performance standard non-conformances to report.

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:



Amita Naik

Title: Technical Director/Representative

Date: 12/07/17

ORGANICS

PETROLEUM HYDROCARBONS

Project Name: 60 KILMARNOCK ST.**Lab Number:** L1744381**Project Number:** 129198-009**Report Date:** 12/07/17**SAMPLE RESULTS**

Lab ID: L1744381-01
Client ID: HA17-5(OW)
Sample Location: BOSTON, MA
Matrix: Water
Analytical Method: 100, VPH-04-1.1
Analytical Date: 12/06/17 17:50
Analyst: MZ

Date Collected: 12/04/17 13:55
Date Received: 12/04/17
Field Prep: Not Specified

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous Preservative:	Laboratory Provided Preserved Container
Sample Temperature upon receipt:	Received on Ice
Were samples received in methanol?	Covering the Soil
Sample Temperature upon receipt:	Received on Ice
Methanol ratio:	1:1 +/- 25%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		ug/l	50.0	--	1
C9-C12 Aliphatics	ND		ug/l	50.0	--	1
C9-C10 Aromatics	ND		ug/l	50.0	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
Benzene	ND		ug/l	2.00	--	1
Toluene	ND		ug/l	2.00	--	1
Ethylbenzene	ND		ug/l	2.00	--	1
p/m-Xylene	ND		ug/l	2.00	--	1
o-Xylene	ND		ug/l	2.00	--	1
Methyl tert butyl ether	ND		ug/l	3.00	--	1
Naphthalene	ND		ug/l	4.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	96		70-130
2,5-Dibromotoluene-FID	88		70-130



Project Name: 60 KILMARNOCK ST.**Lab Number:** L1744381**Project Number:** 129198-009**Report Date:** 12/07/17**SAMPLE RESULTS**

Lab ID: L1744381-02
Client ID: HA17-6(OW)
Sample Location: BOSTON, MA
Matrix: Water
Analytical Method: 100, VPH-04-1.1
Analytical Date: 12/06/17 18:29
Analyst: MZ

Date Collected: 12/04/17 14:10
Date Received: 12/04/17
Field Prep: Not Specified

Quality Control Information

Condition of sample received:	Satisfactory
Sample Temperature upon receipt:	Received on Ice
Aqueous Preservative:	Laboratory Provided Preserved Container
Were samples received in methanol?	Covering the Soil
Sample Temperature upon receipt:	Received on Ice
Methanol ratio:	1:1 +/- 25%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		ug/l	50.0	--	1
C9-C12 Aliphatics	ND		ug/l	50.0	--	1
C9-C10 Aromatics	ND		ug/l	50.0	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
Benzene	ND		ug/l	2.00	--	1
Toluene	ND		ug/l	2.00	--	1
Ethylbenzene	ND		ug/l	2.00	--	1
p/m-Xylene	ND		ug/l	2.00	--	1
o-Xylene	ND		ug/l	2.00	--	1
Methyl tert butyl ether	ND		ug/l	3.00	--	1
Naphthalene	ND		ug/l	4.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	98		70-130
2,5-Dibromotoluene-FID	94		70-130



Project Name: 60 KILMARNOCK ST.

Lab Number: L1744381

Project Number: 129198-009

Report Date: 12/07/17

Method Blank Analysis Batch Quality Control

Analytical Method: 100, VPH-04-1.1

Analytical Date: 12/06/17 11:55

Analyst: MZ

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-02 Batch: WG1070053-4					
C5-C8 Aliphatics	ND		ug/l	50.0	--
C9-C12 Aliphatics	ND		ug/l	50.0	--
C9-C10 Aromatics	ND		ug/l	50.0	--
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--
Benzene	ND		ug/l	2.00	--
Toluene	ND		ug/l	2.00	--
Ethylbenzene	ND		ug/l	2.00	--
p/m-Xylene	ND		ug/l	2.00	--
o-Xylene	ND		ug/l	2.00	--
Methyl tert butyl ether	ND		ug/l	3.00	--
Naphthalene	ND		ug/l	4.00	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	90		70-130
2,5-Dibromotoluene-FID	84		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: 60 KILMARNOCK ST.

Project Number: 129198-009

Lab Number: L1744381

Report Date: 12/07/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-02 Batch: WG1070053-2 WG1070053-3								
C5-C8 Aliphatics	80		88		70-130	10		25
C9-C12 Aliphatics	94		105		70-130	11		25
C9-C10 Aromatics	97		109		70-130	12		25
Benzene	92		103		70-130	12		25
Toluene	95		107		70-130	12		25
Ethylbenzene	97		109		70-130	12		25
p/m-Xylene	98		110		70-130	12		25
o-Xylene	98		110		70-130	12		25
Methyl tert butyl ether	77		88		70-130	14		25
Naphthalene	86		98		70-130	14		25
1,2,4-Trimethylbenzene	97		110		70-130	13		25
Pentane	76		84		70-130	9		25
2-Methylpentane	75		84		70-130	11		25
2,2,4-Trimethylpentane	93		103		70-130	10		25
n-Nonane	92		104		30-130	12		25
n-Decane	95		106		70-130	11		25
n-Butylcyclohexane	96		107		70-130	11		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	87		99		70-130
2,5-Dibromotoluene-FID	82		91		70-130

Project Name: 60 KILMARNOCK ST.**Lab Number:** L1744381**Project Number:** 129198-009**Report Date:** 12/07/17**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(*)
L1744381-01A	Vial HCl preserved	A	NA		5.4	Y	Absent		VPH-DELUX-10(14)
L1744381-01B	Vial HCl preserved	A	NA		5.4	Y	Absent		VPH-DELUX-10(14)
L1744381-01C	Vial HCl preserved	A	NA		5.4	Y	Absent		VPH-DELUX-10(14)
L1744381-02A	Vial HCl preserved	A	NA		5.4	Y	Absent		VPH-DELUX-10(14)
L1744381-02B	Vial HCl preserved	A	NA		5.4	Y	Absent		VPH-DELUX-10(14)
L1744381-02C	Vial HCl preserved	A	NA		5.4	Y	Absent		VPH-DELUX-10(14)

Project Name: 60 KILMARNOCK ST.
Project Number: 129198-009

Lab Number: L1744381
Report Date: 12/07/17

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).
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.
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.

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

Report Format: Data Usability Report



Project Name: 60 KILMARNOCK ST.**Lab Number:** L1744381**Project Number:** 129198-009**Report Date:** 12/07/17**Data Qualifiers**

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.

Project Name: 60 KILMARNOCK ST.
Project Number: 129198-009

Lab Number: L1744381
Report Date: 12/07/17

REFERENCES

- 100 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, 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.



Alpha Analytical, Inc.

ID No.:17873

Facility: **Company-wide**

Revision 10

Department: **Quality Assurance**

Published Date: 1/16/2017 11:00:05 AM

Title: **Certificate/Approval Program Summary**

Page 1 of 1

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:** NPW and SCM: Perchlorate**EPA 9010:** NPW and SCM: Amenable Cyanide Distillation**EPA 9012B:** NPW: Total Cyanide**EPA 9050A:** NPW: Specific Conductance**SM3500:** NPW: Ferrous Iron**SM4500:** NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO₂, NO₃.**SM5310C:** DW: Dissolved Organic Carbon**Mansfield Facility****SM 2540D:** TSS**EPA 3005A** NPW**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:** 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, EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **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.****Mansfield Facility:****Drinking Water****EPA 200.7:** Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1 Hg.****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.



ANALYTICAL REPORT

Lab Number:	L1846917
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Beck Straley
Phone:	(617) 886-7442
Project Name:	CCF FENWAY
Project Number:	129198-009 SID 5.3
Report Date:	11/21/18

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

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: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1846917
Report Date: 11/21/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1846917-01	HA18-1_2018-1115	WATER	BOSTON, MA	11/15/18 11:15	11/15/18

Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1846917
Report Date: 11/21/18

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).	YES
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)?	YES
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: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1846917
Report Date: 11/21/18

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: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1846917
Report Date: 11/21/18

Case Narrative (continued)

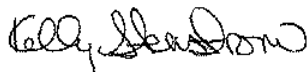
MCP Related Narratives

Report Submission

All MCP required questions were answered with affirmative responses; therefore, there are no relevant protocol-specific QC and/or performance standard non-conformances to report.

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: 11/21/18

ORGANICS

PETROLEUM HYDROCARBONS

Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1846917
Report Date: 11/21/18

SAMPLE RESULTS

Lab ID: L1846917-01
Client ID: HA18-1_2018-1115
Sample Location: BOSTON, MA

Date Collected: 11/15/18 11:15
Date Received: 11/15/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 131, VPH-18-2.1
Analytical Date: 11/20/18 10:47
Analyst: MZ

Trap: EST, Carboxen B/Carboxen 1000&1001

Analytical Column: Restek, RTX-502.2,
105m, 0.53ID, 3um

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		ug/l	50.0	--	1
C9-C12 Aliphatics	ND		ug/l	50.0	--	1
C9-C10 Aromatics	ND		ug/l	50.0	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
Benzene	ND		ug/l	2.00	--	1
Toluene	ND		ug/l	2.00	--	1
Ethylbenzene	ND		ug/l	2.00	--	1
p/m-Xylene	ND		ug/l	2.00	--	1
o-Xylene	ND		ug/l	2.00	--	1
Methyl tert butyl ether	ND		ug/l	3.00	--	1
Naphthalene	ND		ug/l	4.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	104		70-130
2,5-Dibromotoluene-FID	102		70-130



Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1846917
Report Date: 11/21/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 131, VPH-18-2.1
Analytical Date: 11/20/18 10:06
Analyst: MZ

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 01 Batch: WG1181761-4					
C5-C8 Aliphatics	ND		ug/l	50.0	--
C9-C12 Aliphatics	ND		ug/l	50.0	--
C9-C10 Aromatics	ND		ug/l	50.0	--
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--
Benzene	ND		ug/l	2.00	--
Toluene	ND		ug/l	2.00	--
Ethylbenzene	ND		ug/l	2.00	--
p/m-Xylene	ND		ug/l	2.00	--
o-Xylene	ND		ug/l	2.00	--
Methyl tert butyl ether	ND		ug/l	3.00	--
Naphthalene	ND		ug/l	4.00	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	102		70-130
2,5-Dibromotoluene-FID	101		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1846917
Report Date: 11/21/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01 Batch: WG1181761-2 WG1181761-3								
C5-C8 Aliphatics	103		107		70-130	4		25
C9-C12 Aliphatics	101		105		70-130	4		25
C9-C10 Aromatics	102		105		70-130	3		25
Benzene	102		105		70-130	3		25
Toluene	90		93		70-130	3		25
Ethylbenzene	104		108		70-130	4		25
p/m-Xylene	103		107		70-130	4		25
o-Xylene	102		106		70-130	4		25
Methyl tert butyl ether	101		104		70-130	3		25
Naphthalene	99		104		70-130	5		25
1,2,4-Trimethylbenzene	102		105		70-130	3		25
Pentane	106		110		70-130	4		25
2-Methylpentane	104		108		70-130	4		25
2,2,4-Trimethylpentane	105		109		70-130	4		25
n-Nonane	99		102		30-130	3		25
n-Decane	105		109		70-130	4		25
n-Butylcyclohexane	100		103		70-130	3		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	106		110		70-130
2,5-Dibromotoluene-FID	104		109		70-130

Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Serial_No:11211817:59
Lab Number: L1846917
Report Date: 11/21/18

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(*)
L1846917-01A	Vial HCl preserved	A	NA		3.3	Y	Absent		VPH-DELUX-18(14)
L1846917-01B	Vial HCl preserved	A	NA		3.3	Y	Absent		VPH-DELUX-18(14)
L1846917-01C	Vial HCl preserved	A	NA		3.3	Y	Absent		VPH-DELUX-18(14)

Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1846917
Report Date: 11/21/18

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: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1846917
Report Date: 11/21/18

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.

Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1846917
Report Date: 11/21/18

REFERENCES

- 131 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, February 2018, Revision 2.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, June 1, 2018.

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.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 12

Published Date: 10/9/2018 4:58:19 PM

Page 1 of 1

Certification Information

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

Westborough Facility**EPA 624/624.1:** 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 6860:** SCM: Perchlorate**SM4500:** NPW: Amenable Cyanide; 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, **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 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** 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 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, 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, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1 Hg.****SM2340B**

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

 CHAIN OF CUSTODY		Service Centers Brewer, MA 04412 Portsmouth, NH 03801 Mahwah, NJ 07430 Albany, NY 12205 Tonawanda, NY 14150 Holmes, PA 19043		Page / of /		Date Rec'd in Lab <u>11/15/18</u>		ALPHA Job # <u>L1846917</u>					
Westborough, MA 01581 Mansfield, MA 02048 8 Walkup Dr. 500 Forbes Blvd TEL: 508-898-9220 TEL: 508-822-9300 FAX: 508-898-9192		Project Information Project Name: <u>CCF Farway</u> Project Location: <u>Boston, MA</u> Project # <u>129198-009 SID 5.3</u> (Use Project name as Project #) ☐				Deliverables ☒ Email ☐ Fax ☐ EQUS (1 File) ☐ EQUS (4 File) ☐ Other:		Billing Information ☐ Same as Client Info PO #					
H&A Information H&A Client: <u>Cabot Cabot & Forbes</u> H&A Address: <u>465 Medford Ave, Suite 2200</u> <u>Boston, MA 02129</u> H&A Phone: <u>617-895-7442</u> H&A Fax: <u>ghoward@haleyaldrich.com</u> H&A Email: <u>bsralley@haleyaldrich.com</u>		Regulatory Requirements (Program/Criteria) <u>MA MCP</u> 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:		ANALYSIS				Sample Filtration ☐ Lab to do ☐ Reservation ☐ Lab to do (Please Specify below) Sample Specific Comments							
Please specify Metals or TAL.		ALPHA Lab ID (Lab Use Only) <u>1116/18</u>		Sample ID		Collection Date Time		Sample Matrix		Sampler's Initials		VPH	
<u>46917-01</u>		<u>HA18-1</u>		<u>2018-11/5</u>		<u>11/15/18</u>		<u>11:11</u>		<u>GW</u>		<u>LN</u>	
Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O ₃		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: MA035 Mansfield: Certification No: MA015		Container Type <u>V</u>		Preservative <u>B</u>		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.			
Relinquished By: <u>T. H. H.</u>		Date/Time: <u>11-15-18 / 12:35</u>		Received By: <u>T. H. H.</u>		Date/Time: <u>11/15/18 12:35</u>							
Document ID: 20455 Rev 1 (3/28/2015)													



ANALYTICAL REPORT

Lab Number:	L1847502
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Beck Straley
Phone:	(617) 886-7442
Project Name:	CCF FENWAY
Project Number:	129198-009 SID 5.3
Report Date:	11/27/18

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

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: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1847502
Report Date: 11/27/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1847502-01	OW-8_2018-1119	WATER	BOSTON, MA	11/19/18 15:00	11/19/18
L1847502-02	HA17-6_2018-1119	WATER	BOSTON, MA	11/19/18 11:45	11/19/18

Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1847502
Report Date: 11/27/18

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).	YES
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)?	NO
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)?	YES
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: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1847502
Report Date: 11/27/18

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: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1847502
Report Date: 11/27/18

Case Narrative (continued)

MCP Related Narratives

VPH

In reference to question G:

L1847502-01 (OW-8_2018-1119): One or more of the target analytes did not achieve the requested CAM reporting limits.

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:

 Cristin Walker

Title: Technical Director/Representative

Date: 11/27/18

ORGANICS

PETROLEUM HYDROCARBONS

Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1847502
Report Date: 11/27/18

SAMPLE RESULTS

Lab ID: L1847502-01 D
Client ID: OW-8_2018-1119
Sample Location: BOSTON, MA

Date Collected: 11/19/18 15:00
Date Received: 11/19/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 131, VPH-18-2.1
Analytical Date: 11/21/18 13:33
Analyst: MZ

Trap: EST, Carboxen B/Carboxen 1000&1001

Analytical Column: Restek, RTX-502.2,
105m, 0.53ID, 3um

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	30300		ug/l	5000	--	100
C9-C12 Aliphatics	ND		ug/l	5000	--	100
C9-C10 Aromatics	ND		ug/l	5000	--	100
C5-C8 Aliphatics, Adjusted	10300		ug/l	5000	--	100
C9-C12 Aliphatics, Adjusted	ND		ug/l	5000	--	100
Benzene	19700		ug/l	200	--	100
Toluene	269		ug/l	200	--	100
Ethylbenzene	291		ug/l	200	--	100
p/m-Xylene	496		ug/l	200	--	100
o-Xylene	234		ug/l	200	--	100
Methyl tert butyl ether	ND		ug/l	300	--	100
Naphthalene	ND		ug/l	400	--	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	102		70-130
2,5-Dibromotoluene-FID	103		70-130



Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1847502
Report Date: 11/27/18

SAMPLE RESULTS

Lab ID: L1847502-02
Client ID: HA17-6_2018-1119
Sample Location: BOSTON, MA

Date Collected: 11/19/18 11:45
Date Received: 11/19/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 131, VPH-18-2.1
Analytical Date: 11/21/18 10:52
Analyst: MZ

Trap: EST, Carboxen 1000&1001

Analytical Column: Restek, RTX-502.2,
105m, 0.53ID, 3um

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		ug/l	50.0	--	1
C9-C12 Aliphatics	ND		ug/l	50.0	--	1
C9-C10 Aromatics	ND		ug/l	50.0	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
Benzene	ND		ug/l	2.00	--	1
Toluene	ND		ug/l	2.00	--	1
Ethylbenzene	ND		ug/l	2.00	--	1
p/m-Xylene	ND		ug/l	2.00	--	1
o-Xylene	ND		ug/l	2.00	--	1
Methyl tert butyl ether	ND		ug/l	3.00	--	1
Naphthalene	ND		ug/l	4.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	113		70-130
2,5-Dibromotoluene-FID	111		70-130



Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1847502
Report Date: 11/27/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 131, VPH-18-2.1
Analytical Date: 11/21/18 10:11
Analyst: MZ

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-02 Batch: WG1182191-4					
C5-C8 Aliphatics	ND		ug/l	50.0	--
C9-C12 Aliphatics	ND		ug/l	50.0	--
C9-C10 Aromatics	ND		ug/l	50.0	--
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--
Benzene	ND		ug/l	2.00	--
Toluene	ND		ug/l	2.00	--
Ethylbenzene	ND		ug/l	2.00	--
p/m-Xylene	ND		ug/l	2.00	--
o-Xylene	ND		ug/l	2.00	--
Methyl tert butyl ether	ND		ug/l	3.00	--
Naphthalene	ND		ug/l	4.00	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	109		70-130
2,5-Dibromotoluene-FID	108		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1847502
Report Date: 11/27/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-02 Batch: WG1182191-2 WG1182191-3								
C5-C8 Aliphatics	109		107		70-130	2		25
C9-C12 Aliphatics	107		105		70-130	2		25
C9-C10 Aromatics	108		105		70-130	3		25
Benzene	108		105		70-130	3		25
Toluene	96		93		70-130	3		25
Ethylbenzene	111		108		70-130	3		25
p/m-Xylene	110		107		70-130	3		25
o-Xylene	109		106		70-130	3		25
Methyl tert butyl ether	105		103		70-130	2		25
Naphthalene	108		105		70-130	3		25
1,2,4-Trimethylbenzene	108		105		70-130	3		25
Pentane	110		109		70-130	1		25
2-Methylpentane	110		107		70-130	3		25
2,2,4-Trimethylpentane	111		109		70-130	2		25
n-Nonane	104		102		30-130	2		25
n-Decane	111		109		70-130	2		25
n-Butylcyclohexane	105		103		70-130	2		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	116		111		70-130
2,5-Dibromotoluene-FID	113		108		70-130

Project Name: CCF FENWAY**Lab Number:** L1847502**Project Number:** 129198-009 SID 5.3**Report Date:** 11/27/18**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(*)
L1847502-01A	Vial HCl preserved	A	NA		3.9	Y	Absent		VPH-DELUX-18(14)
L1847502-01B	Vial HCl preserved	A	NA		3.9	Y	Absent		VPH-DELUX-18(14)
L1847502-01C	Vial HCl preserved	A	NA		3.9	Y	Absent		VPH-DELUX-18(14)
L1847502-02A	Vial HCl preserved	A	NA		3.9	Y	Absent		VPH-DELUX-18(14)
L1847502-02B	Vial HCl preserved	A	NA		3.9	Y	Absent		VPH-DELUX-18(14)
L1847502-02C	Vial HCl preserved	A	NA		3.9	Y	Absent		VPH-DELUX-18(14)

Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1847502
Report Date: 11/27/18

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: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1847502
Report Date: 11/27/18

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.

Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1847502
Report Date: 11/27/18

REFERENCES

- 131 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, February 2018, Revision 2.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, June 1, 2018.

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.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 12

Published Date: 10/9/2018 4:58:19 PM

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Certification Information

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

Westborough Facility**EPA 624/624.1:** 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 6860:** SCM: Perchlorate**SM4500:** NPW: Amenable Cyanide; 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, **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 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** 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 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, 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, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1 Hg.****SM2340B**

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



ANALYTICAL REPORT

Lab Number:	L1847993
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Beck Straley
Phone:	(617) 886-7442
Project Name:	CCF FENWAY
Project Number:	129198-009 SID 5.3
Report Date:	11/28/18

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

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: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1847993
Report Date: 11/28/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1847993-01	OW-7_2018-1121	WATER	BOSTON, MA	11/21/18 12:10	11/21/18
L1847993-02	HA17-5_2018-1121	WATER	BOSTON, MA	11/21/18 11:45	11/21/18

Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1847993
Report Date: 11/28/18

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).	YES
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)?	YES
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: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1847993
Report Date: 11/28/18

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: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1847993
Report Date: 11/28/18

Case Narrative (continued)

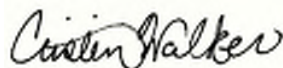
MCP Related Narratives

Report Submission

All MCP required questions were answered with affirmative responses; therefore, there are no relevant protocol-specific QC and/or performance standard non-conformances to report.

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:

 Cristin Walker

Title: Technical Director/Representative

Date: 11/28/18

ORGANICS

PETROLEUM HYDROCARBONS

Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1847993
Report Date: 11/28/18

SAMPLE RESULTS

Lab ID: L1847993-01
Client ID: OW-7_2018-1121
Sample Location: BOSTON, MA

Date Collected: 11/21/18 12:10
Date Received: 11/21/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 131, VPH-18-2.1
Analytical Date: 11/27/18 14:26
Analyst: MZ

Trap: EST, Carboxen B/Carboxen 1000&1001

Analytical Column: Restek, RTX-502.2,
105m, 0.53ID, 3um

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	210		ug/l	50.0	--	1
C9-C12 Aliphatics	145		ug/l	50.0	--	1
C9-C10 Aromatics	88.1		ug/l	50.0	--	1
C5-C8 Aliphatics, Adjusted	137		ug/l	50.0	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
Benzene	65.1		ug/l	2.00	--	1
Toluene	7.61		ug/l	2.00	--	1
Ethylbenzene	6.19		ug/l	2.00	--	1
p/m-Xylene	18.2		ug/l	2.00	--	1
o-Xylene	9.14		ug/l	2.00	--	1
Methyl tert butyl ether	ND		ug/l	3.00	--	1
Naphthalene	ND		ug/l	4.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	106		70-130
2,5-Dibromotoluene-FID	107		70-130



Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1847993
Report Date: 11/28/18

SAMPLE RESULTS

Lab ID: L1847993-02
Client ID: HA17-5_2018-1121
Sample Location: BOSTON, MA

Date Collected: 11/21/18 11:45
Date Received: 11/21/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 131, VPH-18-2.1
Analytical Date: 11/27/18 15:06
Analyst: MZ

Trap: EST, Carboxen 1000&1001

Analytical Column: Restek, RTX-502.2,
105m, 0.53ID, 3um

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		ug/l	50.0	--	1
C9-C12 Aliphatics	ND		ug/l	50.0	--	1
C9-C10 Aromatics	ND		ug/l	50.0	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
Benzene	ND		ug/l	2.00	--	1
Toluene	ND		ug/l	2.00	--	1
Ethylbenzene	ND		ug/l	2.00	--	1
p/m-Xylene	ND		ug/l	2.00	--	1
o-Xylene	ND		ug/l	2.00	--	1
Methyl tert butyl ether	ND		ug/l	3.00	--	1
Naphthalene	ND		ug/l	4.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	108		70-130
2,5-Dibromotoluene-FID	110		70-130



Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1847993
Report Date: 11/28/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 131, VPH-18-2.1
Analytical Date: 11/27/18 09:43
Analyst: MZ

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-02 Batch: WG1183362-4					
C5-C8 Aliphatics	ND		ug/l	50.0	--
C9-C12 Aliphatics	ND		ug/l	50.0	--
C9-C10 Aromatics	ND		ug/l	50.0	--
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--
Benzene	ND		ug/l	2.00	--
Toluene	ND		ug/l	2.00	--
Ethylbenzene	ND		ug/l	2.00	--
p/m-Xylene	ND		ug/l	2.00	--
o-Xylene	ND		ug/l	2.00	--
Methyl tert butyl ether	ND		ug/l	3.00	--
Naphthalene	ND		ug/l	4.00	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	105		70-130
2,5-Dibromotoluene-FID	107		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1847993
Report Date: 11/28/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-02 Batch: WG1183362-2 WG1183362-3								
C5-C8 Aliphatics	110		108		70-130	2		25
C9-C12 Aliphatics	107		105		70-130	2		25
C9-C10 Aromatics	105		103		70-130	2		25
Benzene	107		104		70-130	3		25
Toluene	95		92		70-130	2		25
Ethylbenzene	109		107		70-130	2		25
p/m-Xylene	108		106		70-130	2		25
o-Xylene	107		105		70-130	2		25
Methyl tert butyl ether	103		102		70-130	1		25
Naphthalene	104		104		70-130	0		25
1,2,4-Trimethylbenzene	105		103		70-130	2		25
Pentane	110		106		70-130	4		25
2-Methylpentane	112		108		70-130	4		25
2,2,4-Trimethylpentane	112		109		70-130	3		25
n-Nonane	105		102		30-130	3		25
n-Decane	111		109		70-130	2		25
n-Butylcyclohexane	106		103		70-130	3		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	111		109		70-130
2,5-Dibromotoluene-FID	111		110		70-130

Project Name: CCF FENWAY**Lab Number:** L1847993**Project Number:** 129198-009 SID 5.3**Report Date:** 11/28/18**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(*)
L1847993-01A	Vial HCl preserved	A	NA		4.0	Y	Absent		VPH-DELUX-18(14)
L1847993-01B	Vial HCl preserved	A	NA		4.0	Y	Absent		VPH-DELUX-18(14)
L1847993-01C	Vial HCl preserved	A	NA		4.0	Y	Absent		VPH-DELUX-18(14)
L1847993-02A	Vial HCl preserved	A	NA		4.0	Y	Absent		VPH-DELUX-18(14)
L1847993-02B	Vial HCl preserved	A	NA		4.0	Y	Absent		VPH-DELUX-18(14)
L1847993-02C	Vial HCl preserved	A	NA		4.0	Y	Absent		VPH-DELUX-18(14)

Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1847993
Report Date: 11/28/18

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: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1847993
Report Date: 11/28/18

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.

Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L1847993
Report Date: 11/28/18

REFERENCES

- 131 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, February 2018, Revision 2.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, June 1, 2018.

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.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**Revision **12**

Published Date: 10/9/2018 4:58:19 PM

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Certification Information

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

Westborough Facility**EPA 624/624.1:** 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 6860:** SCM: Perchlorate**SM4500:** NPW: Amenable Cyanide; 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, **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 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** 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 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, 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, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1 Hg.****SM2340B**

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



ANALYTICAL REPORT

Lab Number:	L1939576
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Beck Straley
Phone:	(617) 886-7442
Project Name:	CCF FENWAY
Project Number:	129198-009 SID 12
Report Date:	09/05/19

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

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: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939576
Report Date: 09/05/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1939576-01	HA18-1_82919	WATER	60 KILMARNOCK STREET, BOSTON, MA	08/29/19 13:05	08/29/19
L1939576-02	HA17-6_82919	WATER	60 KILMARNOCK STREET, BOSTON, MA	08/29/19 11:45	08/29/19

Project Name: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939576
Report Date: 09/05/19

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).	YES
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)?	YES
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: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939576
Report Date: 09/05/19

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. 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 Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data 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.

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 Alpha Project Manager 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 Project Management at 800-624-9220 with any questions.

Project Name: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939576
Report Date: 09/05/19

Case Narrative (continued)

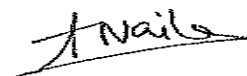
MCP Related Narratives

Report Submission

All MCP required questions were answered with affirmative responses; therefore, there are no relevant protocol-specific QC and/or performance standard non-conformances to report.

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:



Amita Naik

Title: Technical Director/Representative

Date: 09/05/19

QC OUTLIER SUMMARY REPORT

Project Name: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939576
Report Date: 09/05/19

Method	Client ID (Native ID)	Lab ID	Parameter	QC Type	Recovery/RPD (%)	QC Limits (%)	Associated Samples	Data Quality Assessment

There are no QC Outliers associated with this report.

ORGANICS

PETROLEUM HYDROCARBONS

Project Name: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939576
Report Date: 09/05/19

SAMPLE RESULTS

Lab ID: L1939576-01
Client ID: HA18-1_82919
Sample Location: 60 KILMARNOCK STREET, BOSTON, MA

Date Collected: 08/29/19 13:05
Date Received: 08/29/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 131, VPH-18-2.1
Analytical Date: 08/31/19 18:53
Analyst: MKS

Trap: EST, Carboxen B/Carboxen 1000&1001

Analytical Column: Restek, RTX-502.2,
105m, 0.53ID, 3um

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		ug/l	100	--	1
C9-C12 Aliphatics	ND		ug/l	100	--	1
C9-C10 Aromatics	ND		ug/l	100	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/l	100	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	100	--	1
Benzene	ND		ug/l	2.00	--	1
Toluene	ND		ug/l	2.00	--	1
Ethylbenzene	ND		ug/l	2.00	--	1
p/m-Xylene	ND		ug/l	2.00	--	1
o-Xylene	ND		ug/l	2.00	--	1
Methyl tert butyl ether	ND		ug/l	3.00	--	1
Naphthalene	ND		ug/l	4.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	98		70-130
2,5-Dibromotoluene-FID	97		70-130



Project Name: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939576
Report Date: 09/05/19

SAMPLE RESULTS

Lab ID: L1939576-02
Client ID: HA17-6_82919
Sample Location: 60 KILMARNOCK STREET, BOSTON, MA

Date Collected: 08/29/19 11:45
Date Received: 08/29/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 131, VPH-18-2.1
Analytical Date: 08/31/19 19:23
Analyst: MKS

Trap: EST, Carboxen 1000&1001

Analytical Column: Restek, RTX-502.2,
105m, 0.53ID, 3um

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		ug/l	100	--	1
C9-C12 Aliphatics	ND		ug/l	100	--	1
C9-C10 Aromatics	ND		ug/l	100	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/l	100	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	100	--	1
Benzene	ND		ug/l	2.00	--	1
Toluene	ND		ug/l	2.00	--	1
Ethylbenzene	ND		ug/l	2.00	--	1
p/m-Xylene	ND		ug/l	2.00	--	1
o-Xylene	ND		ug/l	2.00	--	1
Methyl tert butyl ether	ND		ug/l	3.00	--	1
Naphthalene	ND		ug/l	4.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	85		70-130
2,5-Dibromotoluene-FID	84		70-130



Project Name: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939576
Report Date: 09/05/19

Method Blank Analysis Batch Quality Control

Analytical Method: 131, VPH-18-2.1
Analytical Date: 08/31/19 12:53
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-02 Batch: WG1280594-4					
C5-C8 Aliphatics	ND		ug/l	100	--
C9-C12 Aliphatics	ND		ug/l	100	--
C9-C10 Aromatics	ND		ug/l	100	--
C5-C8 Aliphatics, Adjusted	ND		ug/l	100	--
C9-C12 Aliphatics, Adjusted	ND		ug/l	100	--
Benzene	ND		ug/l	2.00	--
Toluene	ND		ug/l	2.00	--
Ethylbenzene	ND		ug/l	2.00	--
p/m-Xylene	ND		ug/l	2.00	--
o-Xylene	ND		ug/l	2.00	--
Methyl tert butyl ether	ND		ug/l	3.00	--
Naphthalene	ND		ug/l	4.00	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	89		70-130
2,5-Dibromotoluene-FID	88		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939576
Report Date: 09/05/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-02 Batch: WG1280594-2 WG1280594-3								
C5-C8 Aliphatics	100		112		70-130	11		25
C9-C12 Aliphatics	100		111		70-130	10		25
C9-C10 Aromatics	87		97		70-130	11		25
Benzene	94		105		70-130	11		25
Toluene	94		105		70-130	11		25
Ethylbenzene	92		103		70-130	11		25
p/m-Xylene	93		104		70-130	11		25
o-Xylene	94		105		70-130	11		25
Methyl tert butyl ether	100		113		70-130	12		25
Naphthalene	91		102		70-130	12		25
1,2,4-Trimethylbenzene	86		96		70-130	11		25
Pentane	98		110		70-130	12		25
2-Methylpentane	101		113		70-130	11		25
2,2,4-Trimethylpentane	100		113		70-130	12		25
n-Nonane	103		115		30-130	11		25
n-Decane	92		102		70-130	10		25
n-Butylcyclohexane	105		117		70-130	11		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	92		100		70-130
2,5-Dibromotoluene-FID	90		97		70-130

Project Name: CCF FENWAY**Lab Number:** L1939576**Project Number:** 129198-009 SID 12**Report Date:** 09/05/19**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(*)
L1939576-01A	Vial HCl preserved	A	NA		3.6	Y	Absent		VPH-DELUX-18(14)
L1939576-01B	Vial HCl preserved	A	NA		3.6	Y	Absent		VPH-DELUX-18(14)
L1939576-01C	Vial HCl preserved	A	NA		3.6	Y	Absent		VPH-DELUX-18(14)
L1939576-02A	Vial HCl preserved	A	NA		3.6	Y	Absent		VPH-DELUX-18(14)
L1939576-02B	Vial HCl preserved	A	NA		3.6	Y	Absent		VPH-DELUX-18(14)
L1939576-02C	Vial HCl preserved	A	NA		3.6	Y	Absent		VPH-DELUX-18(14)

Project Name: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939576
Report Date: 09/05/19

GLOSSARY

Acronyms

DL	- 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 limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
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.
LCS D	- 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.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
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. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
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

Report Format: Data Usability Report



Project Name: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939576
Report Date: 09/05/19

- 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.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

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.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

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.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- 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.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the reporting limit (RL) for the sample.
- 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.

Report Format: Data Usability Report



Project Name: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939576
Report Date: 09/05/19

REFERENCES

- 131 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, February 2018, Revision 2.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, June 1, 2018.

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.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 15

Published Date: 8/15/2019 9:53:42 AM

Page 1 of 1

Certification Information

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

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; 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, SM4500NO2-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, **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 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** 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 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, 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, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

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

 CHAIN OF CUSTODY		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 8/29/19		ALPHA Job # L1939576																																																																																																																																																																																																																																																													
Westborough, MA 01581 6 Walkup Dr. TEL: 508-898-9320 FAX: 508-898-9193		Mansfield, MA 02048 300 Forbes Blvd TEL: 508-822-9300 FAX: 508-822-3288		Project Information Project Name: CCF Ferway Project Location: 60 Kilmackock Street, Boston, MA Project #: 129198-009 SID 12 (Use Project name as Project #) ☐		Deliverables ☒ Email ☐ Fax ☐ EQulS (1 File) ☐ EQulS (4 File) ☐ Other:		Billing Information ☐ Same as Client Info PO #																																																																																																																																																																																																																																																													
H&A Information H&A Client: 60 Kilmackock (Boston) Owner, H&A Address: 465 Medford Ave, Suite 2200 Boston, MA 02129 H&A Phone: 617-886-7442 H&A Fax: bstraley@haleyaldrich.com H&A Email: kdilawad@haleyaldrich.com		Project Manager: Beck Straley ALPHAQuote #: Turn-Around Time Standard ☒ Due Date: Rush (only if pre approved) ☐ # of Days:		Regulatory Requirements (Program/Criteria) MA RCS-1 Note: Select State from menu & identify criteria.		Disposal Site Information Please identify below location of applicable disposal facilities. Disposal Facility: ☐ NJ ☐ NY ☐ Other:																																																																																																																																																																																																																																																															
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Please specify Metals or TAL.		<table border="1"> <thead> <tr> <th rowspan="2">ALPHA Lab ID (Lab Use Only)</th> <th rowspan="2">Sample ID</th> <th colspan="2">Collection</th> <th rowspan="2">Sample Matrix</th> <th rowspan="2">Sampler Initials</th> <th rowspan="2">Depth</th> <th rowspan="2">VPH Fractions and Target</th> <th rowspan="2"></th> <th rowspan="2"></th> <th rowspan="2"></th> <th rowspan="2"></th> <th rowspan="2"></th> <th rowspan="2"></th> <th rowspan="2"></th> <th rowspan="2"></th> <th rowspan="2"></th> <th rowspan="2"></th> <th rowspan="2"></th> <th rowspan="2"></th> </tr> <tr> <th>Date</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td rowspan="5">39576 - 01</td> <td>HA1B-1_82919</td> <td>8/29/19</td> <td>1305</td> <td>GW</td> <td>AF</td> <td>-</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>HA17-5</td> <td></td> <td></td> <td>GW</td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>HA17-6_82919</td> <td>8/29/19</td> <td>1145</td> <td>GW</td> <td>AF</td> <td>-</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>GW-7</td> <td></td> <td></td> <td>GW</td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>GW-8_829</td> <td></td> <td></td> <td>GW</td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="20"> Preservative Code: A = None B = HCl C = HNO₃ D = H₂SO₄ E = NaOH F = MeOH G = NaH₂PO₄ H = Na₂S₂O₅ I/E = Zn Ac/NaOH O = Other </td> </tr> <tr> <td colspan="20"> Container Code: P = Plastic A = Amber Glass V = Vial G = Glass B = Beaker Cup C = Cube O = Other E = Envelope D = BOD Bottle </td> </tr> <tr> <td colspan="20"> Westboro: Certification No: MA905 Mansfield: Certification No: MA915 </td> </tr> <tr> <td colspan="20"> Container Type: V Preservative: B </td> </tr> <tr> <td colspan="20"> Relinquished By: CLP Date/Time: 8/29/19 16:30 M. J. [Signature] Date/Time: 8/29/19 16:30 [Signature] Date/Time: 8/29/19 18:50 </td> </tr> <tr> <td colspan="20"> Received By: M. J. [Signature] Date/Time: 8/29/19 16:30 [Signature] Date/Time: 8/29/19 16:30 CA Date/Time: 8/29/19 18:50 </td> </tr> <tr> <td colspan="20"> 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# 2019-22-Alpha Analytical by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and Alpha Analytical. </td> </tr> </tbody></table>		ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler Initials	Depth	VPH Fractions and Target													Date	Time	39576 - 01	HA1B-1_82919	8/29/19	1305	GW	AF	-	X													HA17-5			GW			X													HA17-6_82919	8/29/19	1145	GW	AF	-	X													GW-7			GW			X													GW-8_829			GW			X													Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaH ₂ PO ₄ H = Na ₂ S ₂ O ₅ I/E = Zn Ac/NaOH O = Other																				Container Code: P = Plastic A = Amber Glass V = Vial G = Glass B = Beaker Cup C = Cube O = Other E = Envelope D = BOD Bottle																				Westboro: Certification No: MA905 Mansfield: Certification No: MA915																				Container Type: V Preservative: B																				Relinquished By: CLP Date/Time: 8/29/19 16:30 M. J. [Signature] Date/Time: 8/29/19 16:30 [Signature] Date/Time: 8/29/19 18:50																				Received By: M. J. [Signature] Date/Time: 8/29/19 16:30 [Signature] Date/Time: 8/29/19 16:30 CA Date/Time: 8/29/19 18:50																				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# 2019-22-Alpha Analytical by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and Alpha Analytical.																			
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ANALYTICAL REPORT

Lab Number:	L1939824
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Beck Straley
Phone:	(617) 886-7442
Project Name:	CCF FENWAY
Project Number:	129198-009 SID 12
Report Date:	09/07/19

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

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: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939824
Report Date: 09/07/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1939824-01	HA17-5_83019	WATER	60 KILMAMOCK STREET, BOSTON, MA	08/30/19 10:25	08/30/19
L1939824-02	OW-7_83019	WATER	60 KILMAMOCK STREET, BOSTON, MA	08/30/19 12:40	08/30/19
L1939824-03	OW-8_83019	WATER	60 KILMAMOCK STREET, BOSTON, MA	08/30/19 11:50	08/30/19

Project Name: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939824
Report Date: 09/07/19

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).	YES
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)?	NO
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)?	YES
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: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939824
Report Date: 09/07/19

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. 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 Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data 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.

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 Alpha Project Manager 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 Project Management at 800-624-9220 with any questions.

Project Name: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939824
Report Date: 09/07/19

Case Narrative (continued)

MCP Related Narratives

VPH

L1939824-02 (OW-7_83019) and -03 (OW-8_83019): The pH of the sample was greater than two.

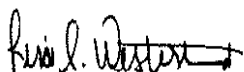
L1939824-02 (OW-7_83019): The sample has elevated detection limits due to the dilution required by the sample matrix (foam).

In reference to question G:

L1939824-02 (OW-7_83019) and -03 (OW-8_83019): One or more of the target analytes did not achieve the requested CAM reporting limits.

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: 09/07/19

QC OUTLIER SUMMARY REPORT

Project Name: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939824
Report Date: 09/07/19

Method	Client ID (Native ID)	Lab ID	Parameter	QC Type	Recovery/RPD (%)	QC Limits (%)	Associated Samples	Data Quality Assessment

There are no QC Outliers associated with this report.

ORGANICS

PETROLEUM HYDROCARBONS

Project Name: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939824
Report Date: 09/07/19

SAMPLE RESULTS

Lab ID: L1939824-01
Client ID: HA17-5_83019
Sample Location: 60 KILMAMOCK STREET, BOSTON, MA

Date Collected: 08/30/19 10:25
Date Received: 08/30/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 131, VPH-18-2.1
Analytical Date: 09/04/19 21:58
Analyst: BAD

Trap: EST, Carboxen 1000&1001

Analytical Column: Restek, RTX-502.2,
105m, 0.53ID, 3um

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		ug/l	100	--	1
C9-C12 Aliphatics	ND		ug/l	100	--	1
C9-C10 Aromatics	ND		ug/l	100	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/l	100	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	100	--	1
Benzene	ND		ug/l	2.00	--	1
Toluene	ND		ug/l	2.00	--	1
Ethylbenzene	ND		ug/l	2.00	--	1
p/m-Xylene	ND		ug/l	2.00	--	1
o-Xylene	ND		ug/l	2.00	--	1
Methyl tert butyl ether	ND		ug/l	3.00	--	1
Naphthalene	ND		ug/l	4.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	96		70-130
2,5-Dibromotoluene-FID	98		70-130



Project Name: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939824
Report Date: 09/07/19

SAMPLE RESULTS

Lab ID: L1939824-02 D
Client ID: OW-7_83019
Sample Location: 60 KILMAMOCK STREET, BOSTON, MA

Date Collected: 08/30/19 12:40
Date Received: 08/30/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 131, VPH-18-2.1
Analytical Date: 09/04/19 22:28
Analyst: BAD

Trap: EST, Carboxen B/Carboxen 1000&1001

Analytical Column: Restek, RTX-502.2,
105m, 0.53ID, 3um

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		ug/l	500	--	5
C9-C12 Aliphatics	ND		ug/l	500	--	5
C9-C10 Aromatics	ND		ug/l	500	--	5
C5-C8 Aliphatics, Adjusted	ND		ug/l	500	--	5
C9-C12 Aliphatics, Adjusted	ND		ug/l	500	--	5
Benzene	103		ug/l	10.0	--	5
Toluene	ND		ug/l	10.0	--	5
Ethylbenzene	ND		ug/l	10.0	--	5
p/m-Xylene	27.3		ug/l	10.0	--	5
o-Xylene	ND		ug/l	10.0	--	5
Methyl tert butyl ether	ND		ug/l	15.0	--	5
Naphthalene	ND		ug/l	20.0	--	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	94		70-130
2,5-Dibromotoluene-FID	96		70-130



Project Name: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939824
Report Date: 09/07/19

SAMPLE RESULTS

Lab ID: L1939824-03 D
Client ID: OW-8_83019
Sample Location: 60 KILMAMOCK STREET, BOSTON, MA

Date Collected: 08/30/19 11:50
Date Received: 08/30/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 131, VPH-18-2.1
Analytical Date: 09/04/19 22:58
Analyst: BAD

Trap: EST, Carboxen B/Carboxen 1000&1001

Analytical Column: Restek, RTX-502.2,
105m, 0.53ID, 3um

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	29500		ug/l	10000	--	100
C9-C12 Aliphatics	ND		ug/l	10000	--	100
C9-C10 Aromatics	ND		ug/l	10000	--	100
C5-C8 Aliphatics, Adjusted	11400		ug/l	10000	--	100
C9-C12 Aliphatics, Adjusted	ND		ug/l	10000	--	100
Benzene	17800		ug/l	200	--	100
Toluene	378		ug/l	200	--	100
Ethylbenzene	ND		ug/l	200	--	100
p/m-Xylene	470		ug/l	200	--	100
o-Xylene	ND		ug/l	200	--	100
Methyl tert butyl ether	ND		ug/l	300	--	100
Naphthalene	ND		ug/l	400	--	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	92		70-130
2,5-Dibromotoluene-FID	95		70-130



Project Name: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939824
Report Date: 09/07/19

Method Blank Analysis Batch Quality Control

Analytical Method: 131, VPH-18-2.1
Analytical Date: 09/04/19 09:27
Analyst: BAD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-03 Batch: WG1280651-4					
C5-C8 Aliphatics	ND		ug/l	100	--
C9-C12 Aliphatics	ND		ug/l	100	--
C9-C10 Aromatics	ND		ug/l	100	--
C5-C8 Aliphatics, Adjusted	ND		ug/l	100	--
C9-C12 Aliphatics, Adjusted	ND		ug/l	100	--
Benzene	ND		ug/l	2.00	--
Toluene	ND		ug/l	2.00	--
Ethylbenzene	ND		ug/l	2.00	--
p/m-Xylene	ND		ug/l	2.00	--
o-Xylene	ND		ug/l	2.00	--
Methyl tert butyl ether	ND		ug/l	3.00	--
Naphthalene	ND		ug/l	4.00	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	86		70-130
2,5-Dibromotoluene-FID	88		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939824
Report Date: 09/07/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-03 Batch: WG1280651-2 WG1280651-3								
C5-C8 Aliphatics	101		116		70-130	14		25
C9-C12 Aliphatics	103		116		70-130	12		25
C9-C10 Aromatics	86		96		70-130	12		25
Benzene	92		104		70-130	13		25
Toluene	91		104		70-130	13		25
Ethylbenzene	90		102		70-130	12		25
p/m-Xylene	92		104		70-130	13		25
o-Xylene	91		103		70-130	12		25
Methyl tert butyl ether	96		109		70-130	12		25
Naphthalene	87		98		70-130	12		25
1,2,4-Trimethylbenzene	84		95		70-130	12		25
Pentane	100		114		70-130	13		25
2-Methylpentane	103		117		70-130	13		25
2,2,4-Trimethylpentane	102		116		70-130	13		25
n-Nonane	106		120		30-130	12		25
n-Decane	96		108		70-130	12		25
n-Butylcyclohexane	107		121		70-130	12		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	90		101		70-130
2,5-Dibromotoluene-FID	96		102		70-130

Project Name: CCF FENWAY**Lab Number:** L1939824**Project Number:** 129198-009 SID 12**Report Date:** 09/07/19**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(*)
L1939824-01A	Vial HCl preserved	A	NA		3.2	Y	Absent		VPH-DELUX-18(14)
L1939824-01B	Vial HCl preserved	A	NA		3.2	Y	Absent		VPH-DELUX-18(14)
L1939824-01C	Vial HCl preserved	A	NA		3.2	Y	Absent		VPH-DELUX-18(14)
L1939824-02A	Vial HCl preserved	A	NA		3.2	Y	Absent		VPH-DELUX-18(14)
L1939824-02B	Vial HCl preserved	A	NA		3.2	Y	Absent		VPH-DELUX-18(14)
L1939824-02C	Vial HCl preserved	A	NA		3.2	Y	Absent		VPH-DELUX-18(14)
L1939824-03A	Vial HCl preserved	A	NA		3.2	Y	Absent		VPH-DELUX-18(14)
L1939824-03B	Vial HCl preserved	A	NA		3.2	Y	Absent		VPH-DELUX-18(14)
L1939824-03C	Vial HCl preserved	A	NA		3.2	Y	Absent		VPH-DELUX-18(14)

Project Name: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939824
Report Date: 09/07/19

GLOSSARY

Acronyms

DL	- 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 limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
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.
LCS D	- 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.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
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. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
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

Report Format: Data Usability Report



Project Name: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939824
Report Date: 09/07/19

- 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.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

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.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

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.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- 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.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the reporting limit (RL) for the sample.
- 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.

Report Format: Data Usability Report



Project Name: CCF FENWAY
Project Number: 129198-009 SID 12

Lab Number: L1939824
Report Date: 09/07/19

REFERENCES

- 131 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, February 2018, Revision 2.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, June 1, 2018.

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.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 15

Published Date: 8/15/2019 9:53:42 AM

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Certification Information

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

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; 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, SM4500NO2-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, **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 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** 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 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, 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, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1 Hg.****SM2340B**

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



ANALYTICAL REPORT

Lab Number:	L2018518
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Beck Straley
Phone:	(617) 886-7442
Project Name:	CCF FENWAY
Project Number:	129198-009 SID 10
Report Date:	05/14/20

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

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: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2018518-01	OW-3-NPDES_05052020	WATER	60 KILMARNOCK ST., BOSTON, MA	05/05/20 12:00	05/05/20
L2018518-02	CHARLES-SDO- 042_05052020	WATER	60 KILMARNOCK ST., BOSTON, MA	05/05/20 13:00	05/05/20

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

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. 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 Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data 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.

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 Alpha Project Manager 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 Project Management at 800-624-9220 with any questions.

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

Case Narrative (continued)

Report Submission

May 14, 2020: This final report includes the results of all requested analyses.

May 11, 2020: This is a preliminary report.

The analysis of Ethanol was subcontracted. A copy of the laboratory report is included as an addendum.
Please note: This data is only available in PDF format and is not available on Data Merger.

Sample Receipt

The analyses performed were specified by the client.

L2018518-01 (OW-3-NPDES_05052020): The sample was received below the appropriate pH for the Total Cyanide - SM 4500 analysis. The laboratory added additional NaOH to a pH >12.

Microextractables

The WG1367896-2 LCS recovery for 1,2-dibromoethane (124%), associated with L2018518-01 (OW-3-NPDES_05052020), is outside Alpha's acceptance criteria, but within the acceptance criteria specified in the method.

TPH, SGT-HEM

The WG1368654-4 MS recovery, performed on L2018518-01 (OW-3-NPDES_05052020), is outside the acceptance criteria for TPH (60%); 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:

Tiffani Morrissey - Tiffani Morrissey

Title: Technical Director/Representative

Date: 05/14/20

ORGANICS

VOLATILES

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

SAMPLE RESULTS

Lab ID: L2018518-01
Client ID: OW-3-NPDES_05052020
Sample Location: 60 KILMARNOCK ST., BOSTON, MA

Date Collected: 05/05/20 12:00
Date Received: 05/05/20
Field Prep: Refer to COC

Sample Depth:

Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 05/06/20 10:41
Analyst: GT

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	1.0	--	1
1,2-Dichloroethane	ND		ug/l	1.5	--	1
1,1,1-Trichloroethane	ND		ug/l	2.0	--	1
Benzene	28		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	ND		ug/l	10	--	1
Methyl tert butyl ether	12		ug/l	10	--	1
Tert-Butyl Alcohol	250		ug/l	100	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--	1

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

SAMPLE RESULTS

Lab ID: L2018518-01
Client ID: OW-3-NPDES_05052020
Sample Location: 60 KILMARNOCK ST., BOSTON, MA

Date Collected: 05/05/20 12:00
Date Received: 05/05/20
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	86		60-140
Fluorobenzene	103		60-140
4-Bromofluorobenzene	90		60-140

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

SAMPLE RESULTS

Lab ID: L2018518-01
Client ID: OW-3-NPDES_05052020
Sample Location: 60 KILMARNOCK ST., BOSTON, MA

Date Collected: 05/05/20 12:00
Date Received: 05/05/20
Field Prep: Refer to COC

Sample Depth:

Matrix: Water
Analytical Method: 128,624.1-SIM
Analytical Date: 05/06/20 10:41
Analyst: AD

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	98		60-140
4-Bromofluorobenzene	84		60-140

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

SAMPLE RESULTS

Lab ID: L2018518-01
Client ID: OW-3-NPDES_05052020
Sample Location: 60 KILMARNOCK ST., BOSTON, MA

Date Collected: 05/05/20 12:00
Date Received: 05/05/20
Field Prep: Refer to COC

Sample Depth:

Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 05/06/20 13:49
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 05/06/20 12:26

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

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 05/06/20 13:18
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 05/06/20 12:26

Parameter	Result	Qualifier	Units	RL	MDL
Microextractables by GC - Westborough Lab for sample(s): 01 Batch: WG1367896-1					
1,2-Dibromoethane	ND		ug/l	0.010	-- A

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
 Analytical Date: 05/06/20 10:07
 Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1368385-4					
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	1.0	--
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	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: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 05/06/20 10:07
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1368385-4					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	91		60-140
Fluorobenzene	91		60-140
4-Bromofluorobenzene	98		60-140

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1-SIM
 Analytical Date: 05/06/20 10:07
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1368394-4					
1,4-Dioxane	ND		ug/l	50	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	86		60-140
4-Bromofluorobenzene	113		60-140

Lab Control Sample Analysis Batch Quality Control

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01 Batch: WG1367896-2									
1,2-Dibromoethane	124	Q	-		80-120	-			A

Lab Control Sample Analysis Batch Quality Control

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

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: WG1368385-3								
Methylene chloride	105		-		60-140	-		28
1,1-Dichloroethane	95		-		50-150	-		49
Carbon tetrachloride	95		-		70-130	-		41
1,1,2-Trichloroethane	100		-		70-130	-		45
Tetrachloroethene	105		-		70-130	-		39
1,2-Dichloroethane	100		-		70-130	-		49
1,1,1-Trichloroethane	105		-		70-130	-		36
Benzene	105		-		65-135	-		61
Toluene	105		-		70-130	-		41
Ethylbenzene	110		-		60-140	-		63
Vinyl chloride	90		-		5-195	-		66
1,1-Dichloroethene	100		-		50-150	-		32
cis-1,2-Dichloroethene	105		-		60-140	-		30
Trichloroethene	105		-		65-135	-		48
1,2-Dichlorobenzene	115		-		65-135	-		57
1,3-Dichlorobenzene	95		-		70-130	-		43
1,4-Dichlorobenzene	100		-		65-135	-		57
p/m-Xylene	112		-		60-140	-		30
o-xylene	105		-		60-140	-		30
Acetone	88		-		40-160	-		30
Methyl tert butyl ether	95		-		60-140	-		30
Tert-Butyl Alcohol	100		-		60-140	-		30
Tertiary-Amyl Methyl Ether	100		-		60-140	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

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: WG1368385-3

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Pentafluorobenzene	92				60-140
Fluorobenzene	106				60-140
4-Bromofluorobenzene	100				60-140

Lab Control Sample Analysis**Batch Quality Control**

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

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: WG1368394-3								
1,4-Dioxane	100		-		60-140	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Fluorobenzene	100				60-140
4-Bromofluorobenzene	87				60-140

Matrix Spike Analysis

Batch Quality Control

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

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: WG1367896-3 QC Sample: L2017614-02 Client ID: MS Sample													
1,2-Dibromoethane	ND	0.247	0.259	105		-	-		80-120	-		20	A
1,2-Dibromo-3-chloropropane	ND	0.247	0.268	108		-	-		80-120	-		20	A
1,2,3-Trichloropropane	ND	0.247	0.247	100		-	-		80-120	-		20	A

SEMIVOLATILES

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

SAMPLE RESULTS

Lab ID: L2018518-01
Client ID: OW-3-NPDES_05052020
Sample Location: 60 KILMARNOCK ST., BOSTON, MA

Date Collected: 05/05/20 12:00
Date Received: 05/05/20
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 05/07/20 17:17
Analyst: JG

Extraction Method: EPA 625.1
Extraction Date: 05/06/20 00:43

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.20	--	1
Butyl benzyl phthalate	ND		ug/l	5.00	--	1
Di-n-butylphthalate	ND		ug/l	5.00	--	1
Di-n-octylphthalate	ND		ug/l	5.00	--	1
Diethyl phthalate	ND		ug/l	5.00	--	1
Dimethyl phthalate	ND		ug/l	5.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	91		42-122
2-Fluorobiphenyl	99		46-121
4-Terphenyl-d14	106		47-138

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

SAMPLE RESULTS

Lab ID: L2018518-01
Client ID: OW-3-NPDES_05052020
Sample Location: 60 KILMARNOCK ST., BOSTON, MA

Date Collected: 05/05/20 12:00
Date Received: 05/05/20
Field Prep: Refer to COC

Sample Depth:

Matrix: Water
Analytical Method: 129,625.1-SIM
Analytical Date: 05/07/20 16:59
Analyst: CB

Extraction Method: EPA 625.1
Extraction Date: 05/06/20 00:49

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	0.917		ug/l	0.100	--	1
Fluoranthene	0.242		ug/l	0.100	--	1
Naphthalene	0.134		ug/l	0.100	--	1
Benzo(a)anthracene	0.301		ug/l	0.100	--	1
Benzo(a)pyrene	0.250		ug/l	0.100	--	1
Benzo(b)fluoranthene	0.276		ug/l	0.100	--	1
Benzo(k)fluoranthene	0.246		ug/l	0.100	--	1
Chrysene	0.242		ug/l	0.100	--	1
Acenaphthylene	0.101		ug/l	0.100	--	1
Anthracene	0.259		ug/l	0.100	--	1
Benzo(ghi)perylene	0.232		ug/l	0.100	--	1
Fluorene	0.572		ug/l	0.100	--	1
Phenanthrene	0.177		ug/l	0.100	--	1
Dibenzo(a,h)anthracene	0.234		ug/l	0.100	--	1
Indeno(1,2,3-cd)pyrene	0.252		ug/l	0.100	--	1
Pyrene	0.222		ug/l	0.100	--	1
Pentachlorophenol	ND		ug/l	1.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	67		25-87
Phenol-d6	52		16-65
Nitrobenzene-d5	103		42-122
2-Fluorobiphenyl	98		46-121
2,4,6-Tribromophenol	112		45-128
4-Terphenyl-d14	106		47-138



Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
 Analytical Date: 05/07/20 15:43
 Analyst: JG

Extraction Method: EPA 625.1
 Extraction Date: 05/06/20 00:43

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1367626-1					
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.20	--
Butyl benzyl phthalate	ND		ug/l	5.00	--
Di-n-butylphthalate	ND		ug/l	5.00	--
Di-n-octylphthalate	ND		ug/l	5.00	--
Diethyl phthalate	ND		ug/l	5.00	--
Dimethyl phthalate	ND		ug/l	5.00	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	75		42-122
2-Fluorobiphenyl	80		46-121
4-Terphenyl-d14	87		47-138

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

Method Blank Analysis Batch Quality Control

Analytical Method: 129,625.1-SIM
Analytical Date: 05/07/20 15:52
Analyst: CB

Extraction Method: EPA 625.1
Extraction Date: 05/06/20 00:49

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1367627-1					
Acenaphthene	ND		ug/l	0.100	--
Fluoranthene	ND		ug/l	0.100	--
Naphthalene	ND		ug/l	0.100	--
Benzo(a)anthracene	ND		ug/l	0.100	--
Benzo(a)pyrene	ND		ug/l	0.100	--
Benzo(b)fluoranthene	ND		ug/l	0.100	--
Benzo(k)fluoranthene	ND		ug/l	0.100	--
Chrysene	ND		ug/l	0.100	--
Acenaphthylene	ND		ug/l	0.100	--
Anthracene	ND		ug/l	0.100	--
Benzo(ghi)perylene	ND		ug/l	0.100	--
Fluorene	ND		ug/l	0.100	--
Phenanthrene	ND		ug/l	0.100	--
Dibenzo(a,h)anthracene	ND		ug/l	0.100	--
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.100	--
Pyrene	ND		ug/l	0.100	--
Pentachlorophenol	ND		ug/l	1.00	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	50		25-87
Phenol-d6	35		16-65
Nitrobenzene-d5	77		42-122
2-Fluorobiphenyl	75		46-121
2,4,6-Tribromophenol	78		45-128
4-Terphenyl-d14	81		47-138



Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

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: WG1367626-2								
Bis(2-ethylhexyl)phthalate	115		-		29-137	-		82
Butyl benzyl phthalate	118		-		1-140	-		60
Di-n-butylphthalate	112		-		8-120	-		47
Di-n-octylphthalate	114		-		19-132	-		69
Diethyl phthalate	105		-		1-120	-		100
Dimethyl phthalate	106		-		1-120	-		183

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	93				42-122
2-Fluorobiphenyl	97				46-121
4-Terphenyl-d14	108				47-138

Lab Control Sample Analysis Batch Quality Control

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

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: WG1367627-2								
Acenaphthene	91		-		60-132	-		30
Fluoranthene	95		-		43-121	-		30
Naphthalene	91		-		36-120	-		30
Benzo(a)anthracene	100		-		42-133	-		30
Benzo(a)pyrene	96		-		32-148	-		30
Benzo(b)fluoranthene	105		-		42-140	-		30
Benzo(k)fluoranthene	89		-		25-146	-		30
Chrysene	92		-		44-140	-		30
Acenaphthylene	97		-		54-126	-		30
Anthracene	95		-		43-120	-		30
Benzo(ghi)perylene	92		-		1-195	-		30
Fluorene	95		-		70-120	-		30
Phenanthrene	94		-		65-120	-		30
Dibenzo(a,h)anthracene	99		-		1-200	-		30
Indeno(1,2,3-cd)pyrene	99		-		1-151	-		30
Pyrene	94		-		70-120	-		30
Pentachlorophenol	128		-		38-152	-		30

Lab Control Sample Analysis Batch Quality Control

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

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: WG1367627-2

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	68				25-87
Phenol-d6	52				16-65
Nitrobenzene-d5	97				42-122
2-Fluorobiphenyl	92				46-121
2,4,6-Tribromophenol	100				45-128
4-Terphenyl-d14	101				47-138

PCBS

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

SAMPLE RESULTS

Lab ID: L2018518-01
Client ID: OW-3-NPDES_05052020
Sample Location: 60 KILMARNOCK ST., BOSTON, MA

Date Collected: 05/05/20 12:00
Date Received: 05/05/20
Field Prep: Refer to COC

Sample Depth:

Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 05/07/20 12:01
Analyst: KB

Extraction Method: EPA 608.3
Extraction Date: 05/06/20 23:34
Cleanup Method: EPA 3665A
Cleanup Date: 05/07/20
Cleanup Method: EPA 3660B
Cleanup Date: 05/07/20

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	80		37-123	B
Decachlorobiphenyl	51		38-114	B
2,4,5,6-Tetrachloro-m-xylene	83		37-123	A
Decachlorobiphenyl	59		38-114	A

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 127,608.3
 Analytical Date: 05/07/20 12:13
 Analyst: KB

Extraction Method: EPA 608.3
 Extraction Date: 05/06/20 23:34
 Cleanup Method: EPA 3665A
 Cleanup Date: 05/07/20
 Cleanup Method: EPA 3660B
 Cleanup Date: 05/07/20

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01 Batch: WG1368055-1						
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	77		37-123	B
Decachlorobiphenyl	69		38-114	B
2,4,5,6-Tetrachloro-m-xylene	80		37-123	A
Decachlorobiphenyl	81		38-114	A

Lab Control Sample Analysis Batch Quality Control

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

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: WG1368055-2									
Aroclor 1016	82		-		50-140	-		36	A
Aroclor 1260	64		-		8-140	-		38	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	81				37-123	B
Decachlorobiphenyl	47				38-114	B
2,4,5,6-Tetrachloro-m-xylene	83				37-123	A
Decachlorobiphenyl	57				38-114	A

METALS

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

SAMPLE RESULTS

Lab ID: L2018518-01
Client ID: OW-3-NPDES_05052020
Sample Location: 60 KILMARNOCK ST., BOSTON, MA

Date Collected: 05/05/20 12:00
Date Received: 05/05/20
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	ND		mg/l	0.00400	--	1	05/07/20 08:00	05/07/20 16:57	EPA 3005A	3,200.8	AM
Arsenic, Total	0.00303		mg/l	0.00100	--	1	05/07/20 08:00	05/07/20 16:57	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	05/07/20 08:00	05/07/20 16:57	EPA 3005A	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	05/07/20 08:00	05/07/20 16:57	EPA 3005A	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	05/07/20 08:00	05/07/20 16:57	EPA 3005A	3,200.8	AM
Iron, Total	23.1		mg/l	0.050	--	1	05/07/20 08:00	05/08/20 15:20	EPA 3005A	19,200.7	BV
Lead, Total	ND		mg/l	0.00100	--	1	05/07/20 08:00	05/07/20 16:57	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	05/07/20 10:50	05/07/20 16:03	EPA 245.1	3,245.1	AL
Nickel, Total	0.00365		mg/l	0.00200	--	1	05/07/20 08:00	05/07/20 16:57	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	05/07/20 08:00	05/07/20 16:57	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	05/07/20 08:00	05/07/20 16:57	EPA 3005A	3,200.8	AM
Zinc, Total	0.01215		mg/l	0.01000	--	1	05/07/20 08:00	05/07/20 16:57	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	743		mg/l	0.660	NA	1	05/07/20 08:00	05/08/20 15:20	EPA 3005A	19,200.7	BV

General Chemistry - Mansfield Lab

Chromium, Trivalent	ND		mg/l	0.010	--	1	05/07/20 16:57	NA	107,-



Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

SAMPLE RESULTS

Lab ID: L2018518-02
Client ID: CHARLES-SDO-042_05052020
Sample Location: 60 KILMARNOCK ST., BOSTON, MA

Date Collected: 05/05/20 13:00
Date Received: 05/05/20
Field Prep: None

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	ND		mg/l	0.00400	--	1	05/07/20 08:00	05/07/20 17:02	EPA 3005A	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	05/07/20 08:00	05/07/20 17:02	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	05/07/20 08:00	05/07/20 17:02	EPA 3005A	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	05/07/20 08:00	05/07/20 17:02	EPA 3005A	3,200.8	AM
Copper, Total	0.00242		mg/l	0.00100	--	1	05/07/20 08:00	05/07/20 17:02	EPA 3005A	3,200.8	AM
Iron, Total	0.420		mg/l	0.050	--	1	05/07/20 08:00	05/08/20 15:24	EPA 3005A	19,200.7	BV
Lead, Total	0.00169		mg/l	0.00100	--	1	05/07/20 08:00	05/07/20 17:02	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	05/07/20 10:50	05/07/20 16:05	EPA 245.1	3,245.1	AL
Nickel, Total	ND		mg/l	0.00200	--	1	05/07/20 08:00	05/07/20 17:02	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	05/07/20 08:00	05/07/20 17:02	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	05/07/20 08:00	05/07/20 17:02	EPA 3005A	3,200.8	AM
Zinc, Total	0.01215		mg/l	0.01000	--	1	05/07/20 08:00	05/07/20 17:02	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	51.6		mg/l	0.660	NA	1	05/07/20 08:00	05/08/20 15:24	EPA 3005A	19,200.7	BV

General Chemistry - Mansfield Lab

Chromium, Trivalent	ND		mg/l	0.010	--	1	05/07/20 17:02	NA	107,-



Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

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): 01-02 Batch: WG1367821-1										
Iron, Total	ND		mg/l	0.050	--	1	05/07/20 08:00	05/07/20 17:14	19,200.7	BV

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 01-02 Batch: WG1367821-1										
Hardness	ND		mg/l	0.660	NA	1	05/07/20 08:00	05/07/20 17:14	19,200.7	BV

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): 01-02 Batch: WG1367825-1										
Antimony, Total	ND		mg/l	0.00400	--	1	05/07/20 08:00	05/07/20 15:37	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	05/07/20 08:00	05/07/20 15:37	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	05/07/20 08:00	05/07/20 15:37	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	05/07/20 08:00	05/07/20 15:37	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	05/07/20 08:00	05/07/20 15:37	3,200.8	AM
Lead, Total	ND		mg/l	0.00100	--	1	05/07/20 08:00	05/07/20 15:37	3,200.8	AM
Nickel, Total	ND		mg/l	0.00200	--	1	05/07/20 08:00	05/07/20 15:37	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	05/07/20 08:00	05/07/20 15:37	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	05/07/20 08:00	05/07/20 15:37	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	05/07/20 08:00	05/07/20 15:37	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A



Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

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): 01-02 Batch: WG1367827-1										
Mercury, Total	ND		mg/l	0.00020	--	1	05/07/20 10:50	05/07/20 15:50	3,245.1	AL

Prep Information

Digestion Method: EPA 245.1



Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1367821-2								
Iron, Total	98		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-02 Batch: WG1367821-2								
Hardness	100		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1367825-2								
Antimony, Total	93		-		85-115	-		
Arsenic, Total	103		-		85-115	-		
Cadmium, Total	99		-		85-115	-		
Chromium, Total	113		-		85-115	-		
Copper, Total	105		-		85-115	-		
Lead, Total	102		-		85-115	-		
Nickel, Total	109		-		85-115	-		
Selenium, Total	96		-		85-115	-		
Silver, Total	93		-		85-115	-		
Zinc, Total	105		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1367827-2								
Mercury, Total	97		-		85-115	-		

Matrix Spike Analysis **Batch Quality Control**

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

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): 01-02 QC Batch ID: WG1367821-3 QC Sample: L2018402-07 Client ID: MS Sample												
Iron, Total	1.08	1	1.98	90		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1367821-3 QC Sample: L2018402-07 Client ID: MS Sample												
Hardness	35.6	66.2	101	99		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1367821-7 WG1367821-8 QC Sample: L2018402-08 Client ID: MS Sample												
Iron, Total	0.930	1	1.83	90		1.90	97		75-125	4		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1367821-7 WG1367821-8 QC Sample: L2018402-08 Client ID: MS Sample												
Hardness	36.1	66.2	103	101		105	104		75-125	2		20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1367825-3 WG1367825-4 QC Sample: L2018402-08 Client ID: MS Sample												
Antimony, Total	ND	0.5	0.4369	87		0.4900	98		70-130	11		20
Arsenic, Total	ND	0.12	0.1207	100		0.1270	106		70-130	5		20
Cadmium, Total	ND	0.051	0.05450	107		0.05516	108		70-130	1		20
Chromium, Total	ND	0.2	0.2135	107		0.2185	109		70-130	2		20
Copper, Total	0.0019	0.25	0.2686	107		0.2743	109		70-130	2		20
Lead, Total	0.0012	0.51	0.5787	113		0.6019	118		70-130	4		20
Nickel, Total	ND	0.5	0.5532	111		0.5644	113		70-130	2		20
Selenium, Total	ND	0.12	0.1167	97		0.1263	105		70-130	8		20
Silver, Total	ND	0.05	0.05374	107		0.05492	110		70-130	2		20
Zinc, Total	ND	0.5	0.5291	106		0.5410	108		70-130	2		20

Matrix Spike Analysis Batch Quality Control

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02			QC Batch ID: WG1367827-3		QC Sample: L2018589-01		Client ID: MS Sample		
Mercury, Total	ND	0.005	0.00468	94	-	-	70-130	-	20

Lab Duplicate Analysis *Batch Quality Control*

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1367821-4 QC Sample: L2018402-07 Client ID: DUP Sample						
Iron, Total	1.08	1.12	mg/l	4		20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1367827-4 QC Sample: L2018589-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20

INORGANICS & MISCELLANEOUS

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

SAMPLE RESULTS

Lab ID: L2018518-01
Client ID: OW-3-NPDES_05052020
Sample Location: 60 KILMARNOCK ST., BOSTON, MA

Date Collected: 05/05/20 12:00
Date Received: 05/05/20
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total Suspended	8.9		mg/l	5.0	NA	1	-	05/06/20 08:45	121,2540D	EM
Cyanide, Total	ND		mg/l	0.005	--	1	05/07/20 14:20	05/07/20 16:29	121,4500CN-CE	LH
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	05/06/20 06:45	121,4500CL-D	MA
Nitrogen, Ammonia	4.62		mg/l	0.075	--	1	05/06/20 14:45	05/06/20 20:20	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	4.00	--	1	05/08/20 13:08	05/08/20 13:20	74,1664A	DR
Phenolics, Total	ND		mg/l	0.030	--	1	05/06/20 04:45	05/07/20 05:31	4,420.1	MV
Chromium, Hexavalent	ND		mg/l	0.010	--	1	05/06/20 07:30	05/06/20 08:33	1,7196A	MA
Anions by Ion Chromatography - Westborough Lab										
Chloride	1110		mg/l	50.0	--	100	-	05/06/20 18:51	44,300.0	AT



Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

SAMPLE RESULTS

Lab ID: L2018518-02
Client ID: CHARLES-SDO-042_05052020
Sample Location: 60 KILMARNOCK ST., BOSTON, MA

Date Collected: 05/05/20 13:00
Date Received: 05/05/20
Field Prep: None

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Nitrogen, Ammonia	0.101		mg/l	0.075	--	1	05/06/20 14:45	05/06/20 20:21	121,4500NH3-BH	AT
Chromium, Hexavalent	ND		mg/l	0.010	--	1	05/06/20 07:30	05/06/20 08:34	1,7196A	MA



Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

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: WG1367675-1										
Phenolics, Total	ND		mg/l	0.030	--	1	05/06/20 04:45	05/07/20 05:26	4,420.1	MV
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1367708-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	05/06/20 08:45	121,2540D	EM
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1367737-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	05/06/20 14:45	05/06/20 20:15	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1367743-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	05/06/20 07:30	05/06/20 08:26	1,7196A	MA
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1367764-1										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	05/06/20 06:45	121,4500CL-D	MA
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1368356-1										
Cyanide, Total	ND		mg/l	0.005	--	1	05/07/20 14:20	05/07/20 16:47	121,4500CN-CE	LH
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1368424-1										
Chloride	ND		mg/l	0.500	--	1	-	05/06/20 18:29	44,300.0	AT
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1368654-1										
TPH, SGT-HEM	ND		mg/l	4.00	--	1	05/08/20 13:08	05/08/20 13:20	74,1664A	DR



Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1367675-2								
Phenolics, Total	95		-		70-130	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1367708-2								
Solids, Total Suspended	91		-		80-120	-		
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1367737-2								
Nitrogen, Ammonia	94		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1367743-2								
Chromium, Hexavalent	101		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1367764-2								
Chlorine, Total Residual	96		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1368356-2								
Cyanide, Total	98		-		90-110	-		
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG1368424-2								
Chloride	93		-		90-110	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1368654-2					
TPH	80	-	64-132	-	34

Matrix Spike Analysis **Batch Quality Control**

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

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: WG1367675-4 QC Sample: L2018518-01 Client ID: OW-3-NPDES_05052020												
Phenolics, Total	ND	0.4	0.38	94		-	-		70-130	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1367737-4 QC Sample: L2018490-06 Client ID: MS Sample												
Nitrogen, Ammonia	1.52	4	5.32	95		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1367743-4 QC Sample: L2018518-02 Client ID: CHARLES-SDO-042_05052020												
Chromium, Hexavalent	ND	0.1	0.101	101		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1367764-4 QC Sample: L2018518-01 Client ID: OW-3-NPDES_05052020												
Chlorine, Total Residual	ND	0.25	0.23	92		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1368356-4 QC Sample: L2018635-02 Client ID: MS Sample												
Cyanide, Total	ND	0.2	0.202	101		-	-		90-110	-		30
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1368424-3 QC Sample: L2017971-08 Client ID: MS Sample												
Chloride	46.6	40	84.5	95		-	-		90-110	-		18
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1368654-4 QC Sample: L2018518-01 Client ID: OW-3-NPDES_05052020												
TPH	ND	20	12.0	60	Q	-	-		64-132	-		34

Lab Duplicate Analysis *Batch Quality Control*

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Lab Number: L2018518
Report Date: 05/14/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1367675-3 QC Sample: L2018518-01 Client ID: OW-3-NPDES_05052020						
Phenolics, Total	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1367708-3 QC Sample: L2018289-01 Client ID: DUP Sample						
Solids, Total Suspended	83	87	mg/l	5		29
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1367737-3 QC Sample: L2018490-06 Client ID: DUP Sample						
Nitrogen, Ammonia	1.52	1.50	mg/l	1		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1367743-3 QC Sample: L2018518-02 Client ID: CHARLES-SDO-042_05052020						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1367764-3 QC Sample: L2018518-01 Client ID: OW-3-NPDES_05052020						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1368356-3 QC Sample: L2018635-01 Client ID: DUP Sample						
Cyanide, Total	ND	ND	mg/l	NC		30
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1368424-4 QC Sample: L2017971-08 Client ID: DUP Sample						
Chloride	46.6	48.2	mg/l	3		18
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1368654-3 QC Sample: L2018296-01 Client ID: DUP Sample						
TPH	ND	ND	mg/l	NC		34

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Serial_No:05142016:32
Lab Number: L2018518
Report Date: 05/14/20

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(*)
L2018518-01A	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2018518-01A1	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2018518-01B	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2018518-01B1	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2018518-01C	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2018518-01D	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		504(14)
L2018518-01E	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		504(14)
L2018518-01F	Vial Na2S2O3 preserved	A	NA		4.5	Y	Absent		504(14)
L2018518-01G	Vial unpreserved	A	NA		4.5	Y	Absent		SUB-ETHANOL(14)
L2018518-01H	Vial unpreserved	A	NA		4.5	Y	Absent		SUB-ETHANOL(14)
L2018518-01I	Vial unpreserved	A	NA		4.5	Y	Absent		SUB-ETHANOL(14)
L2018518-01J	Plastic 250ml HNO3 preserved	A	<2	<2	4.5	Y	Absent		HOLD-METAL-DISSOLVED(180)
L2018518-01K	Plastic 250ml HNO3 preserved	A	<2	<2	4.5	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),HARDU(180),AS-2008T(180),HG-U(28),SE-2008T(180),AG-2008T(180),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L2018518-01L	Plastic 500ml NaOH preserved	A	8	>12	4.5	N	Absent		TCN-4500(14)
L2018518-01M	Plastic 500ml H2SO4 preserved	A	<2	<2	4.5	Y	Absent		NH3-4500(28)
L2018518-01N	Plastic 950ml unpreserved	A	6	6	4.5	Y	Absent		CL-300(28),HOLD-WETCHEM(),HEXCR-7196(1),TRC-4500(1)
L2018518-01O	Plastic 950ml unpreserved	A	6	6	4.5	Y	Absent		TSS-2540(7)
L2018518-01P	Amber 1000ml HCl preserved	A	NA		4.5	Y	Absent		TPH-1664(28)
L2018518-01Q	Amber 1000ml HCl preserved	A	NA		4.5	Y	Absent		TPH-1664(28)
L2018518-01R	Amber 950ml H2SO4 preserved	A	<2	<2	4.5	Y	Absent		TPHENOL-420(28)
L2018518-01S	Amber 1000ml Na2S2O3	A	6	6	4.5	Y	Absent		PCB-608.3(7)

Project Name: CCF FENWAY
Project Number: 129198-009 SID 10

Serial_No:05142016:32
Lab Number: L2018518
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Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2018518-01T	Amber 1000ml Na2S2O3	A	6	6	4.5	Y	Absent		PCB-608.3(7)
L2018518-01U	Amber 1000ml Na2S2O3	A	6	6	4.5	Y	Absent		PCB-608.3(7)
L2018518-01V	Amber 1000ml Na2S2O3	A	6	6	4.5	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L2018518-01W	Amber 1000ml Na2S2O3	A	6	6	4.5	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L2018518-01X	Amber 1000ml Na2S2O3	A	6	6	4.5	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L2018518-02A	Plastic 250ml unpreserved	A	7	7	4.5	Y	Absent		HEXCR-7196(1)
L2018518-02B	Plastic 250ml HNO3 preserved	A	<2	<2	4.5	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),HARDU(180),CU-2008T(180),FE-UI(180),HG-U(28),SE-2008T(180),AS-2008T(180),AG-2008T(180),PB-2008T(180),CR-2008T(180),SB-2008T(180)
L2018518-02C	Plastic 500ml H2SO4 preserved	A	<2	<2	4.5	Y	Absent		NH3-4500(28)

Project Name: CCF FENWAY
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GLOSSARY

Acronyms

DL	- 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 limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
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.
LCS D	- 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.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
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. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
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

Report Format: Data Usability Report



Project Name: CCF FENWAY
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- 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.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

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.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

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.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- 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.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the reporting limit (RL) for the sample.
- 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

Report Format: Data Usability Report



Project Name: CCF FENWAY
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Report Date: 05/14/20

Data Qualifiers

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.

Project Name: CCF FENWAY
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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.



Alpha Analytical, Inc.

ID No.:17873

Facility: **Company-wide**

Revision 17

Department: **Quality Assurance**

Published Date: 4/28/2020 9:42:21 AM

Title: **Certificate/Approval Program Summary**

Page 1 of 1

Certification Information

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

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene, Naphthalene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; 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.

EPA TO-12 Non-methane organics**EPA 3C** Fixed gases**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, SM4500NO2-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, **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 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** 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 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, 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, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

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

 CHAIN OF CUSTODY		Service Center Boston, MA 02101 Portland, ME 04101 Worcester, MA 01601 1000 1000 1000 1000 1000 1000		Page	Date Rec'd in Lab	ALPHA Job #
Northborough, MA 01501 1000 1000 1000		1000 1000		all	5/5/20	12018518
Project Information Project Name: CCF Fenway Project Location: 80 Kilnamock St, Boston, MA Project # 129156-000 SID 10 (Use Project name as Project #) Project Manager: Beck Stratley Turnaround Time: Standard ☒ Due Date: (only if pre-approved) ☐ # of Days: These samples have been previously analyzed by Alpha ☐ Other project specific requirements/comments: 1. HOLD FROM & AOM 11. Dissolved Metals ON HOLD (Field Filtered) Please sample per EPA Approved 2017 RGP Permit methods Please specify Metals or TAL:		Deliverables ☒ Email ☐ Fax ☒ EQUS (1 File) ☐ EQUS (4 File) ☐ Other Regulatory Requirements (Program/Criteria) Note: Select State from menu & identify criteria.		Siting Information ID Same as Client Info AD # Disposal Site Information Please identify below location of applicable disposal facilities. Disposal Facility: ☐ NJ ☐ NY ☐ Other:		
ANALYSIS 1. TOC - 2940 2. TPC-4500 3. TOC-4500 HOLD FROM & AOM 4. 304 5. 8200 & 8200 SIM for Chlorine 6. HACHD-3000 & Trivalent Chromium 7. TPC-4500/420 8. 84111 (including Dithionite-soluble) 9. 8200/CL-SM 10. CL-300 11. Total Metals - Ag, As, Cd, Cr, Cu, Hg, Pb, Se, Zn, Fe, mg 12. Ammonia 13. Total Hardness 14. AZAC CFCOL (standard) 15. TPC-4500 16. PCB-400		Sample Filtration ☒ Done ☐ Lab to do ☐ Preservation ☐ Lab to do (Please Specify below) Sample Specific Comments:				
ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Time	Sample Matrix	Sampler's Initials	1
18518-01	OW-3-NPCDS_05052020	5/5/20	1200	AO	SP	2
18518-02	Charles-300-642_05052020	5/5/20	1300	AO	SP	3
Preservation Code: A = None, B = HCl, C = HNO ₃ , D = H ₂ SO ₄ , E = NaOH, F = NaOH, G = H ₂ SO ₄ , H = Na ₂ SO ₄ , I = ZnAc ₂ /NaOH, J = Other Container Code: P = Plastic, A = Amber Glass, V = Vial, G = Glass, B = Bacteria Cup, C = Cube, O = Other, E = Encone, S = 800-Buttle Westboro: Certification No: MA555 Mansfield: Certification No: MA215 Container Type: P P P A V P A A A P P P V A A Preservative:						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 Inc and between Inley & Altrich, Inc., its subsidiaries and affiliates and Alpha Analytical.
Relinquished By: <i>A. Paul</i>		Date/Time: 5/5/20 1500		Received By: <i>[Signature]</i>		Date/Time: 5/5/20 1535
Relinquished By: <i>[Signature]</i>		Date/Time: 5/5/20 1719		Received By: <i>[Signature]</i>		Date/Time: 5/5/20 1719

		Subcontract Chain of Custody Tek Lab, Inc. 5445 Horseshoe Lake Road Collinsville, IL 62234-7425		Alpha Job Number L2018518	
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: Deliverables:		State/Federal Program: Regulatory Criteria:	
Project Specific Requirements and/or Report Requirements					
Reference following Alpha Job Number on final report/deliverables: L2018518				Report to include Method Blank, LCS1, CS0:	
Additional Comments: Send all results/reports to subreports@alphalab.com					
Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	DWR-3-NPDES_06062020	05-05-20 12:00	WATER	Ethanol by EPA 1631 Revision A	
Relinquished By: <i>C. Tebeau AAL</i>		Date/Time:		Received By:	Date/Time:
		<i>5/6/20</i>			
Form No: AL_subcoc					



May 13, 2020

Melissa Gulli
Alpha Analytical
145 Flanders Road
Westborough, MA 01581
TEL: (603) 319-5010
FAX:



RE: L2018518

WorkOrder: 20050410

Dear Melissa Gulli:

TEKLAB, INC received 1 sample on 5/7/2020 9:36:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

A handwritten signature in black ink that reads "Marvin L. Darling II". The signature is written in a cursive, flowing style.

Marvin L. Darling
Project Manager
(618)344-1004 ex 41
mdarling@teklabinc.com



Report Contents

<http://www.teklabinc.com/>

Client: Alpha Analytical

Work Order: 20050410

Client Project: L2018518

Report Date: 13-May-2020

This reporting package includes the following:

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Chain of Custody	Appended



Definitions

<http://www.teklabinc.com/>

Client: Alpha Analytical

Work Order: 20050410

Client Project: L2018518

Report Date: 13-May-2020

Abbr Definition

* Analytes on report marked with an asterisk are not NELAP accredited

CCV Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.

CRQL A Client Requested Quantitation Limit is a reporting limit that varies according to customer request. The CRQL may not be less than the MDL.

DF Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilution factors.

DNI Did not ignite

DUP Laboratory duplicate is a replicate aliquot prepared under the same laboratory conditions and independently analyzed to obtain a measure of precision.

ICV Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.

IDPH IL Dept. of Public Health

LCS Laboratory control sample is a sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes and analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.

LCSD Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MBLK Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.

MDL "The method detection limit is defined as the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results."

MS Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).

MSD Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MW Molecular weight

ND Not Detected at the Reporting Limit

NELAP NELAP Accredited

PQL Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions.

RL The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.

RPD Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).

SPK The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.

Surr Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.

TIC Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"

TNTC Too numerous to count (> 200 CFU)

Qualifiers

- Unknown hydrocarbon

C - RL shown is a Client Requested Quantitation Limit

H - Holding times exceeded

J - Analyte detected below quantitation limits

ND - Not Detected at the Reporting Limit

S - Spike Recovery outside recovery limits

X - Value exceeds Maximum Contaminant Level

B - Analyte detected in associated Method Blank

E - Value above quantitation range

I - Associated internal standard was outside method criteria

M - Manual Integration used to determine area response

R - RPD outside accepted recovery limits

T - TIC(Tentatively identified compound)



Case Narrative

<http://www.teklabinc.com/>

Client: Alpha Analytical

Work Order: 20050410

Client Project: L2018518

Report Date: 13-May-2020

Cooler Receipt Temp: 3.2 °C

Locations

Collinsville

Address 5445 Horseshoe Lake Road
Collinsville, IL 62234-7425

Phone (618) 344-1004

Fax (618) 344-1005

Email jhriley@teklabinc.com

Collinsville Air

Address 5445 Horseshoe Lake Road
Collinsville, IL 62234-7425

Phone (618) 344-1004

Fax (618) 344-1005

Email EHurley@teklabinc.com

Springfield

Address 3920 Pintail Dr
Springfield, IL 62711-9415

Phone (217) 698-1004

Fax (217) 698-1005

Email KKlostermann@teklabinc.com

Chicago

Address 1319 Butterfield Rd.
Downers Grove, IL 60515

Phone (630) 324-6855

Fax

Email arenner@teklabinc.com

Kansas City

Address 8421 Nieman Road
Lenexa, KS 66214

Phone (913) 541-1998

Fax (913) 541-1998

Email jhriley@teklabinc.com



Accreditations

<http://www.teklabinc.com/>
Client: Alpha Analytical

Work Order: 20050410

Client Project: L2018518

Report Date: 13-May-2020

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2021	Collinsville
Kansas	KDHE	E-10374	NELAP	4/30/2021	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2020	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2020	Collinsville
Oklahoma	ODEQ	9978	NELAP	8/31/2020	Collinsville
Arkansas	ADEQ	88-0966		3/14/2021	Collinsville
Illinois	IDPH	17584		5/31/2021	Collinsville
Kentucky	UST	0073		1/31/2021	Collinsville
Missouri	MDNR	00930		5/31/2021	Collinsville
Missouri	MDNR	930		1/31/2022	Collinsville



Laboratory Results

<http://www.teklabinc.com/>

Client: Alpha Analytical

Work Order: 20050410

Client Project: L2018518

Report Date: 13-May-2020

Lab ID: 20050410-001

Client Sample ID: OW-3-NPDES_05052020

Matrix: AQUEOUS

Collection Date: 05/05/2020 12:00

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 1671A, PHARMACEUTICAL MANUFACTURING INDUSTRY NON-PURGEABLE VOLATILE ORGANICS								
Ethanol	*	20		ND	mg/L	1	05/12/2020 18:41	R276583



Quality Control Results

<http://www.teklabinc.com/>

Client: Alpha Analytical

Work Order: 20050410

Client Project: L2018518

Report Date: 13-May-2020

EPA 600 1671A, PHARMACEUTICAL MANUFACTURING INDUSTRY NON-PURGEABLE VOLATILE ORG

Batch R276583		SampType: MBLK		Units mg/L							Date Analyzed
SampID: MBLK-051220											
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit			Date Analyzed
Ethanol	20		ND								05/12/2020

Batch R276583		SampType: LCS		Units mg/L							Date Analyzed
SampID: LCS-051220											
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit			Date Analyzed
Ethanol	20		260	250.0	0	103.0	70	132			05/12/2020

Batch R276583		SampType: MS		Units mg/L							Date Analyzed
SampID: 20050658-003AMS											
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit			Date Analyzed
Ethanol	20		230	250.0	0	90.3	70	132			05/12/2020

Batch R276583		SampType: MSD		Units mg/L		RPD Limit 30					Date Analyzed
SampID: 20050658-003AMSD											
Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD			Date Analyzed
Ethanol	20		250	250.0	0	99.7	225.9	9.85			05/12/2020



Receiving Check List

<http://www.teklabinc.com/>

Client: Alpha Analytical

Work Order: 20050410

Client Project: L2018518

Report Date: 13-May-2020

Carrier: UPS

Received By: KMT

Completed by:

Reviewed by:

On:

On:

07-May-2020

07-May-2020

Amanda R. Ham

Elizabeth A. Hurley

Pages to follow:

Chain of custody

1

Extra pages included

0

Shipping container/cooler in good condition?

Yes ☒No ☐Not Present ☐

Temp °C 3.2

Type of thermal preservation?

None ☐Ice ☒Blue Ice ☐Dry Ice ☐

Chain of custody present?

Yes ☒No ☐

Chain of custody signed when relinquished and received?

Yes ☒No ☐

Chain of custody agrees with sample labels?

Yes ☒No ☐

Samples in proper container/bottle?

Yes ☒No ☐

Sample containers intact?

Yes ☒No ☐

Sufficient sample volume for indicated test?

Yes ☒No ☐

All samples received within holding time?

Yes ☒No ☐

Reported field parameters measured:

Field ☐Lab ☐NA ☒

Container/Temp Blank temperature in compliance?

Yes ☒No ☐

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?

Yes ☒No ☐No VOA vials ☐

Water - TOX containers have zero headspace?

Yes ☐No ☐No TOX containers ☒

Water - pH acceptable upon receipt?

Yes ☒No ☐NA ☐

NPDES/CWA TCN interferences checked/treated in the field?

Yes ☐No ☐NA ☒

Any No responses must be detailed below or on the COC.



ANALYTICAL REPORT

Lab Number:	L2018710
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Beck Straley
Phone:	(617) 886-7442
Project Name:	CCF FENWAY
Project Number:	129198-009 SID 5.3
Report Date:	05/11/20

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

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: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L2018710
Report Date: 05/11/20

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2018710-01	HA18-1_05062020	WATER	60 KILMARNOCK ST., BOSTON, MA	05/06/20 11:05	05/06/20
L2018710-02	HA17-5_05062020	WATER	60 KILMARNOCK ST., BOSTON, MA	05/06/20 10:00	05/06/20
L2018710-03	HA17-6_05062020	WATER	60 KILMARNOCK ST., BOSTON, MA	05/06/20 13:45	05/06/20
L2018710-04	OW-7_05052020	WATER	60 KILMARNOCK ST., BOSTON, MA	05/05/20 10:00	05/06/20
L2018710-05	OW-8_05062020	WATER	60 KILMARNOCK ST., BOSTON, MA	05/06/20 12:30	05/06/20

Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L2018710
Report Date: 05/11/20

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).	YES
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)?	NO
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)?	YES
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: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L2018710
Report Date: 05/11/20

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. 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 Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data 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.

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 Alpha Project Manager 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 Project Management at 800-624-9220 with any questions.

Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L2018710
Report Date: 05/11/20

Case Narrative (continued)

MCP Related Narratives

VPH

L2018710-04 (OW-7_05052020): The pH of the sample was greater than two.

In reference to question G:

L2018710-05 (OW-8_05062020): One or more of the target analytes did not achieve the requested CAM reporting limits.

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:



Jennifer L. Clements

Title: Technical Director/Representative

Date: 05/11/20

QC OUTLIER SUMMARY REPORT

Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L2018710
Report Date: 05/11/20

Method	Client ID (Native ID)	Lab ID	Parameter	QC Type	Recovery/RPD (%)	QC Limits (%)	Associated Samples	Data Quality Assessment

There are no QC Outliers associated with this report.

ORGANICS

PETROLEUM HYDROCARBONS

Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L2018710
Report Date: 05/11/20

SAMPLE RESULTS

Lab ID: L2018710-01
Client ID: HA18-1_05062020
Sample Location: 60 KILMARNOCK ST., BOSTON, MA

Date Collected: 05/06/20 11:05
Date Received: 05/06/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 131, VPH-18-2.1
Analytical Date: 05/08/20 17:19
Analyst: BAD

Trap: EST, Carboxen 1000&1001

Analytical Column: Restek, RTX-502.2,
105m, 0.53ID, 3um

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		ug/l	100	--	1
C9-C12 Aliphatics	ND		ug/l	100	--	1
C9-C10 Aromatics	ND		ug/l	100	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/l	100	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	100	--	1
Benzene	ND		ug/l	2.00	--	1
Toluene	ND		ug/l	2.00	--	1
Ethylbenzene	ND		ug/l	2.00	--	1
p/m-Xylene	ND		ug/l	2.00	--	1
o-Xylene	ND		ug/l	2.00	--	1
Methyl tert butyl ether	ND		ug/l	3.00	--	1
Naphthalene	ND		ug/l	4.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	88		70-130
2,5-Dibromotoluene-FID	96		70-130



Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L2018710
Report Date: 05/11/20

SAMPLE RESULTS

Lab ID: L2018710-02
Client ID: HA17-5_05062020
Sample Location: 60 KILMARNOCK ST., BOSTON, MA

Date Collected: 05/06/20 10:00
Date Received: 05/06/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 131, VPH-18-2.1
Analytical Date: 05/08/20 17:50
Analyst: BAD

Trap: EST, Carboxen 1000&1001

Analytical Column: Restek, RTX-502.2,
105m, 0.53ID, 3um

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		ug/l	100	--	1
C9-C12 Aliphatics	ND		ug/l	100	--	1
C9-C10 Aromatics	ND		ug/l	100	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/l	100	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	100	--	1
Benzene	ND		ug/l	2.00	--	1
Toluene	ND		ug/l	2.00	--	1
Ethylbenzene	ND		ug/l	2.00	--	1
p/m-Xylene	ND		ug/l	2.00	--	1
o-Xylene	ND		ug/l	2.00	--	1
Methyl tert butyl ether	ND		ug/l	3.00	--	1
Naphthalene	ND		ug/l	4.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	95		70-130
2,5-Dibromotoluene-FID	103		70-130



Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L2018710
Report Date: 05/11/20

SAMPLE RESULTS

Lab ID: L2018710-03
Client ID: HA17-6_05062020
Sample Location: 60 KILMARNOCK ST., BOSTON, MA

Date Collected: 05/06/20 13:45
Date Received: 05/06/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 131, VPH-18-2.1
Analytical Date: 05/08/20 18:20
Analyst: BAD

Trap: EST, Carboxen B/Carboxen 1000&1001

Analytical Column: Restek, RTX-502.2,
105m, 0.53ID, 3um

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		ug/l	100	--	1
C9-C12 Aliphatics	ND		ug/l	100	--	1
C9-C10 Aromatics	ND		ug/l	100	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/l	100	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	100	--	1
Benzene	ND		ug/l	2.00	--	1
Toluene	ND		ug/l	2.00	--	1
Ethylbenzene	ND		ug/l	2.00	--	1
p/m-Xylene	ND		ug/l	2.00	--	1
o-Xylene	ND		ug/l	2.00	--	1
Methyl tert butyl ether	ND		ug/l	3.00	--	1
Naphthalene	ND		ug/l	4.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	95		70-130
2,5-Dibromotoluene-FID	102		70-130



Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L2018710
Report Date: 05/11/20

SAMPLE RESULTS

Lab ID: L2018710-04
Client ID: OW-7_05052020
Sample Location: 60 KILMARNOCK ST., BOSTON, MA

Date Collected: 05/05/20 10:00
Date Received: 05/06/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 131, VPH-18-2.1
Analytical Date: 05/08/20 18:51
Analyst: BAD

Trap: EST, Carboxen B/Carboxen 1000&1001

Analytical Column: Restek, RTX-502.2,
105m, 0.53ID, 3um

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	262		ug/l	100	--	1
C9-C12 Aliphatics	137		ug/l	100	--	1
C9-C10 Aromatics	ND		ug/l	100	--	1
C5-C8 Aliphatics, Adjusted	153		ug/l	100	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	100	--	1
Benzene	91.6		ug/l	2.00	--	1
Toluene	11.3		ug/l	2.00	--	1
Ethylbenzene	6.33		ug/l	2.00	--	1
p/m-Xylene	28.3		ug/l	2.00	--	1
o-Xylene	11.7		ug/l	2.00	--	1
Methyl tert butyl ether	5.74		ug/l	3.00	--	1
Naphthalene	ND		ug/l	4.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	87		70-130
2,5-Dibromotoluene-FID	94		70-130



Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L2018710
Report Date: 05/11/20

SAMPLE RESULTS

Lab ID: L2018710-05 D
Client ID: OW-8_05062020
Sample Location: 60 KILMARNOCK ST., BOSTON, MA

Date Collected: 05/06/20 12:30
Date Received: 05/06/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 131, VPH-18-2.1
Analytical Date: 05/08/20 19:22
Analyst: BAD

Trap: EST, Carboxen B/Carboxen 1000&1001

Analytical Column: Restek, RTX-502.2,
105m, 0.53ID, 3um

Quality Control Information

Condition of sample received:

Satisfactory

Aqueous Preservative:

Laboratory Provided Preserved
Container

Sample Temperature upon receipt:

Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	24000		ug/l	10000	--	100
C9-C12 Aliphatics	ND		ug/l	10000	--	100
C9-C10 Aromatics	ND		ug/l	10000	--	100
C5-C8 Aliphatics, Adjusted	ND		ug/l	10000	--	100
C9-C12 Aliphatics, Adjusted	ND		ug/l	10000	--	100
Benzene	14100		ug/l	200	--	100
Toluene	416		ug/l	200	--	100
Ethylbenzene	270		ug/l	200	--	100
p/m-Xylene	637		ug/l	200	--	100
o-Xylene	278		ug/l	200	--	100
Methyl tert butyl ether	ND		ug/l	300	--	100
Naphthalene	ND		ug/l	400	--	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	86		70-130
2,5-Dibromotoluene-FID	95		70-130



Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L2018710
Report Date: 05/11/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 131, VPH-18-2.1
Analytical Date: 05/08/20 12:11
Analyst: BAD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-05 Batch: WG1368810-4					
C5-C8 Aliphatics	ND		ug/l	100	--
C9-C12 Aliphatics	ND		ug/l	100	--
C9-C10 Aromatics	ND		ug/l	100	--
C5-C8 Aliphatics, Adjusted	ND		ug/l	100	--
C9-C12 Aliphatics, Adjusted	ND		ug/l	100	--
Benzene	ND		ug/l	2.00	--
Toluene	ND		ug/l	2.00	--
Ethylbenzene	ND		ug/l	2.00	--
p/m-Xylene	ND		ug/l	2.00	--
o-Xylene	ND		ug/l	2.00	--
Methyl tert butyl ether	ND		ug/l	3.00	--
Naphthalene	ND		ug/l	4.00	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	77		70-130
2,5-Dibromotoluene-FID	83		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L2018710
Report Date: 05/11/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-05 Batch: WG1368810-2 WG1368810-3								
C5-C8 Aliphatics	115		113		70-130	2		25
C9-C12 Aliphatics	109		111		70-130	2		25
C9-C10 Aromatics	93		94		70-130	1		25
Benzene	100		98		70-130	2		25
Toluene	100		98		70-130	1		25
Ethylbenzene	100		100		70-130	0		25
p/m-Xylene	99		99		70-130	0		25
o-Xylene	98		97		70-130	1		25
Methyl tert butyl ether	105		102		70-130	3		25
Naphthalene	93		95		70-130	1		25
1,2,4-Trimethylbenzene	93		94		70-130	1		25
Pentane	112		110		70-130	2		25
2-Methylpentane	115		113		70-130	2		25
2,2,4-Trimethylpentane	116		114		70-130	2		25
n-Nonane	111		112		30-130	1		25
n-Decane	105		108		70-130	3		25
n-Butylcyclohexane	109		111		70-130	2		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	92		94		70-130
2,5-Dibromotoluene-FID	98		101		70-130

Project Name: CCF FENWAY
Project Number: 129198-009 SID 5.3

Lab Number: L2018710

Report Date: 05/11/20

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(*)
L2018710-01A	Vial HCl preserved	A	NA		3.7	Y	Absent		VPH-DELUX-18(14)
L2018710-01B	Vial HCl preserved	A	NA		3.7	Y	Absent		VPH-DELUX-18(14)
L2018710-01C	Vial HCl preserved	A	NA		3.7	Y	Absent		VPH-DELUX-18(14)
L2018710-02A	Vial HCl preserved	A	NA		3.7	Y	Absent		VPH-DELUX-18(14)
L2018710-02B	Vial HCl preserved	A	NA		3.7	Y	Absent		VPH-DELUX-18(14)
L2018710-02C	Vial HCl preserved	A	NA		3.7	Y	Absent		VPH-DELUX-18(14)
L2018710-03A	Vial HCl preserved	A	NA		3.7	Y	Absent		VPH-DELUX-18(14)
L2018710-03B	Vial HCl preserved	A	NA		3.7	Y	Absent		VPH-DELUX-18(14)
L2018710-03C	Vial HCl preserved	A	NA		3.7	Y	Absent		VPH-DELUX-18(14)
L2018710-04A	Vial HCl preserved	A	NA		3.7	Y	Absent		VPH-DELUX-18(14)
L2018710-04B	Vial HCl preserved	A	NA		3.7	Y	Absent		VPH-DELUX-18(14)
L2018710-04C	Vial HCl preserved	A	NA		3.7	Y	Absent		VPH-DELUX-18(14)
L2018710-05A	Vial HCl preserved	A	NA		3.7	Y	Absent		VPH-DELUX-18(14)
L2018710-05B	Vial HCl preserved	A	NA		3.7	Y	Absent		VPH-DELUX-18(14)
L2018710-05C	Vial HCl preserved	A	NA		3.7	Y	Absent		VPH-DELUX-18(14)

Project Name: CCF FENWAY
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GLOSSARY

Acronyms

DL	- 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 limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
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.
LCS D	- 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.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
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. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
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

Report Format: Data Usability Report



Project Name: CCF FENWAY
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- 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.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

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.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

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.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- 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.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the reporting limit (RL) for the sample.
- 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

Report Format: Data Usability Report



Project Name: CCF FENWAY
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Data Qualifiers

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.

Project Name: CCF FENWAY
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REFERENCES

- 131 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, February 2018, Revision 2.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, June 1, 2018.

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.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

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Certification Information

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

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene, Naphthalene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; 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.

EPA TO-12 Non-methane organics**EPA 3C** Fixed gases**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, SM4500NO2-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, **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 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** 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 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, 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, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

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

 CHAIN OF CUSTODY		Service Centers Brewster, ME 04412 Portsmouth, NH 03801 Mahwah, NJ 07430 Albany, NY 12215 Tonawanda, NY 14150 Hubers, PA 19043		Page 1 of 1		Date Rec'd in Lab 5/6/20		ALPHA Job # L2018710			
Westborough, MA 01581 8 Wallop Dr. TEL: 508-896-9230 FAX: 508-896-9193		Mansfield, MA 01948 329 Forbes Blvd TEL: 508-822-8300 FAX: 508-822-3286		Project Information Project Name: OCIF Fenway Project Location: 60 Kilmarnock Street, Boston, MA Project #: 129196-009 SID 5.3 (Use Project name as Project #) ☐		Deliverables ☒ Email ☐ Fax ☐ EQulS (1 File) ☐ EQulS (4 File) ☐ Other:		Billing Information ☐ Same as Client Info PO #			
H&A Information H&A Client: 60 Kilmarnock (Boston) Owner H&A Address: 495 Medford Ave, Suite 2200 Boston, MA 02129 H&A Phone: 617-886-7442 H&A Fax: howard@haleyaldrich.com H&A Email: kdlawar@haleyaldrich.com		Project Manager: Beck Straley ALPHAQuote #: Turn-Around Time: Standard ☒ Due Date: Rush (only if pre approved) ☐ # of Days:		Regulatory Requirements (Program/Criteria) MA RCS-1 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:		ANALYSIS VPH - Fractions & Targets		Sample Filtration ☐ Done ☐ Lab to do ☐ Lab to do (Please Specify below) Sample Specific Comments							
ALPHA Lab ID (Lab Use Only)		Sample ID		Collection Date Time		Sample Matrix		Sampler Initials		Depth	
19716 - 01		HA18-1 05062020		5/6 1105		GW		SRP		AG	
- 02		HA17-5 05062020		↓ 1000		GW		↓		↓	
- 03		HA17-6 05062020		↓ 1345		GW		↓		↓	
- 04		OW-7 05062020		5/5 1000		GW		↓		↓	
- 05		OW-8 05062020		5/6 1230		GW		↓		↓	
Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O ₈ 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: MA915		Container Type V		Preservative B		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 Agreements 2019-22-Alpha Analytical by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and Alpha Analytical.	
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APPENDIX D

Chemicals and Additives Information

Carbon Treatment System

Operating Pressures

When clean the bag filter houses will typically start with a 1 - 2psig differential pressure across them. When the differential pressure reaches 10psig between the inlet and outlet the bag is dirty and should be changed to prevent reduced flow. The bag filters are set up with isolation valves so that it is not necessary to stop operation while changing one bag at time.

The carbon vessels are equipped with inlet and outlet pressure gauges so that the condition of the carbon bed can be determined to be free of unwanted dirt and clogging. Typical pressure drop across a clean bed of carbon should be in the 3 – 5 psig range. If the inlet pressure goes up significantly the carbon bed has become fouled. It is possible to backflush with CLEAN water to get this dirt out, but if dirty water is used the problem will only be compounded.

O & M Contents

In the following pages there are diagrams of the piping arrangement for “SEQUENCE 1” and “SEQUENCE 2” operation. This is followed by a manual and parts list for the Rosedale bag filter, and AXIS Products trailer axles. An operation and maintenance manual from TIGG has been provided on similar type vessels to those found on the CFS 6150 Mobile Filtration unit. This is provided to further round out the many nuances of proper carbon vessel operation and maintenance.

CARBON FILTRATION SYSTEMS, Inc.

Model 6150 Mobile Treatment System

The Mobile Treatment System model 6150 is designed to for sustained flows of 150 gpm. Optimum contact time between influent and carbon media is obtained at this 150 gpm flow rate. Operation at higher flow rates will reduce effectiveness of carbon to remove contaminants allowing them to pass through the system to drain.

The system is mounted on a 12,230lb GVWR / 9600lb LC equipment hauler manufactured by Superior Trailers of Georgia. The main frame is 7" channel with two (2) 6000lb brake axles. There are four (4) 12000lb drop leg jackets with one mounted in each corner of the trailer. The combined dry weight of the two (2) 3000lb carbon adsorbers fully loaded with 3000lbs of granular carbon per vessel and the Tri-plex bag filter system is approximately 9,775lbs. When fully loaded and saturated with water the combined loaded weight is nearly 21,100lbs. For this reason all four 12000lb drop leg jacks must be in the fully down position when systems is in operation to prevent main frame damage. In addition it is recommended that the system be fully drained before attempting to move trailer to a new location. Failing to do so could result in damage to the axles, as well as, other structural components.

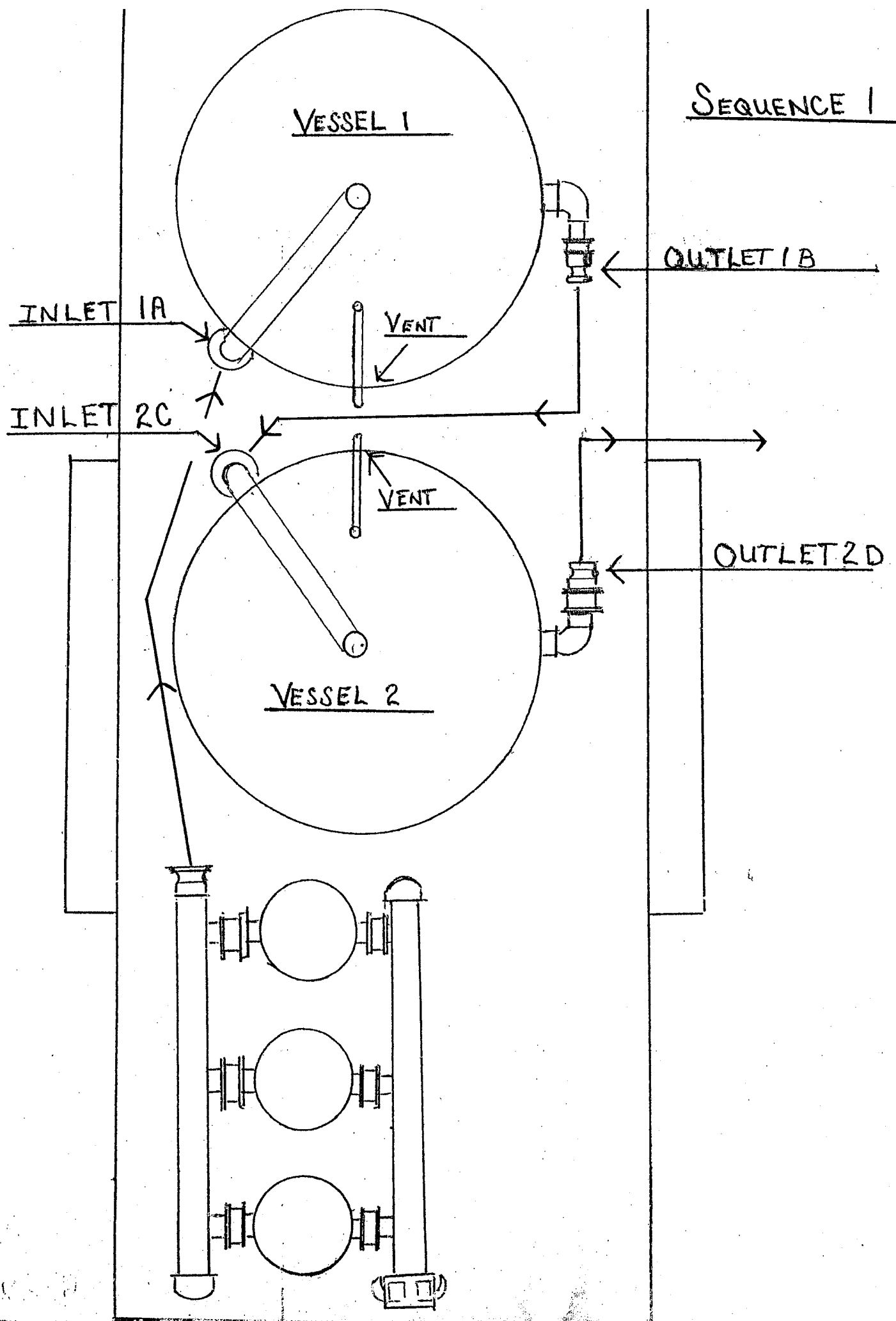
Deaerating

Prior to start up of system the carbon vessels must be filled with "clean" water. Since hydrant water is not always available the cleanest water available will generally do. This step is necessary to allow the activated carbon to de-gas and become thoroughly wetted. The escaping gas must be vented off through the ¾" vent pipe coming off the top and running down between the two carbon vessels. The recommended time period for this is a full 24 hours to ensure all of the minute pores have been evacuated of air and the carbon completely wetted. This is often hard to do under actual field conditions, but the longer it is allowed to stand before start up the better the result will be.

Vessel SEQUENCE

The carbon vessels are set up in series in a lead / lag sequence. This allows the maximum time exposure to the carbon bed and when breakthrough does occur the second vessel in series will afford protection against dumping raw VOCs into the drain. Each vessel is set up with sample ports top and bottom allowing for influent samples to be drawn before and between the vessels, as well as, downstream of the second vessel. When break through does occur after the first vessel it is necessary to schedule a change out of spent media and replenish it with new. The sequence of the vessels is changed from "sequence 1" to "sequence 2" by moving the inlet hose from the first vessel (inlet 1A) to the inlet of the second vessel (inlet 2C). The corresponding outlet hose off the first vessel must also be moved from outlet 1B to outlet 2D. Vessel 2 now becomes the "lead" vessel. An additional piece of 3" x 12' hose has been provided to allow a smooth transition from the final outlet to a layflat hose that typically is used for longer hose runs to drains and other distant outfall locations.

SEQUENCE 1





800 Old Pond Road, Suite 706
Bridgeville, PA 15017
(412)257-9580 ~ (412)257-8520 fax
www.tigg.com

Operation and Maintenance Manual **for CANSORB and Econosorb-L** **Liquid Phase Units**

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1.0 GENERAL

The liquid flow through the CANSORB adsorbers is downflow. Aqueous and non-aqueous liquids can be treated using granular activated carbon. For most efficient utilization of the carbon two vessels should be used in series operation.

If media other than carbon is to be used, contact a TIGG representative for any procedural changes.

2.0 INSTALLING THE CANSORB AND ECONOSORB-L UNITS

2.1 Unloading

Following are the empty and loaded weights of the CANSORB units. This information will dictate what equipment should be used to lift and place the vessel.

UNIT	Empty Wt.	Filled Wt.
C35	750	1410
C50	1040	2040
C75	1470	3470
C100	1790	4750
C200	2440	8440
C500	6500	14500
EL-500	900	1400
EL-1000	1250	2250
EL-2000	1600	3600
EL-3000	2490	5490

If a forklift is used the fork tubes on the unit should be used. If a crane is used it is advisable to use a properly sized spreader beam and lifting cables. **Do not use the lifting lugs to lift a vessel containing wet carbon.** They are not designed for that weight.

2.2 Setup

The CANSORB unit should be placed on a level concrete pad or other support. Connect the piping or hoses to the inlet and outlet flanges or nozzles. Install any gages or other appurtenances that were shipped with the system.

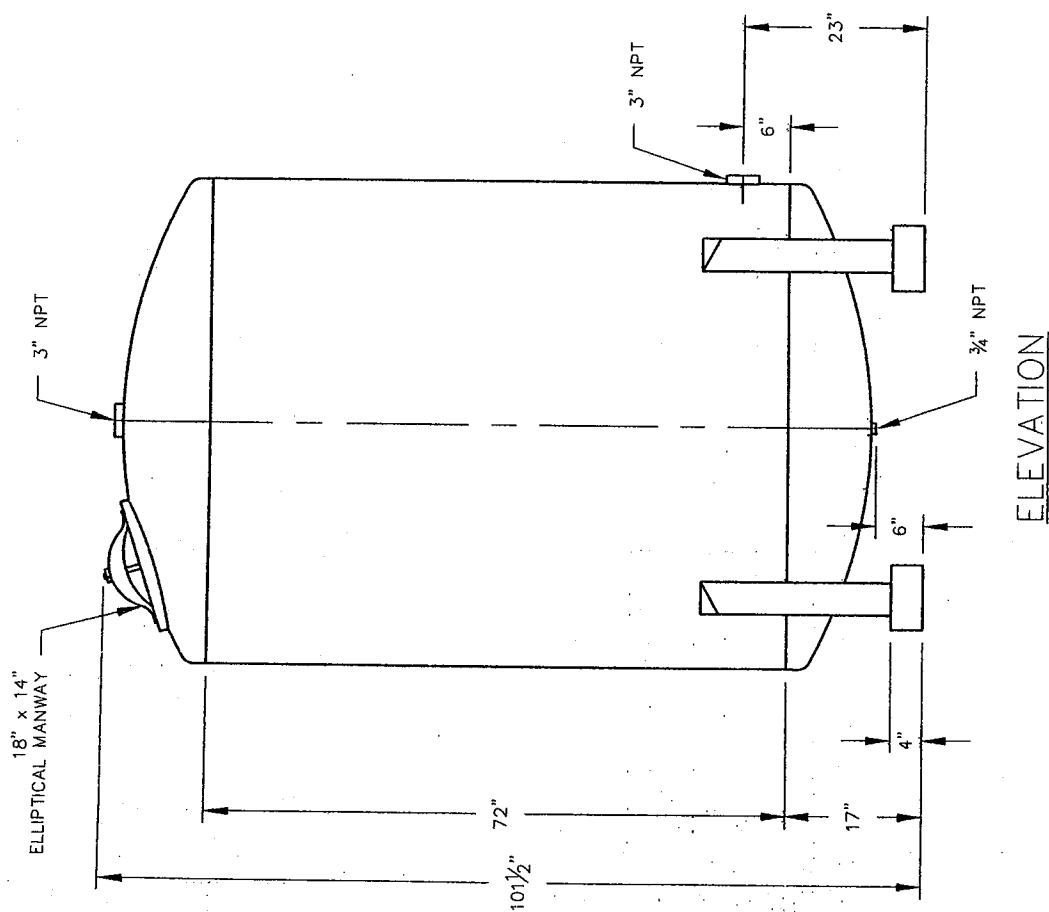
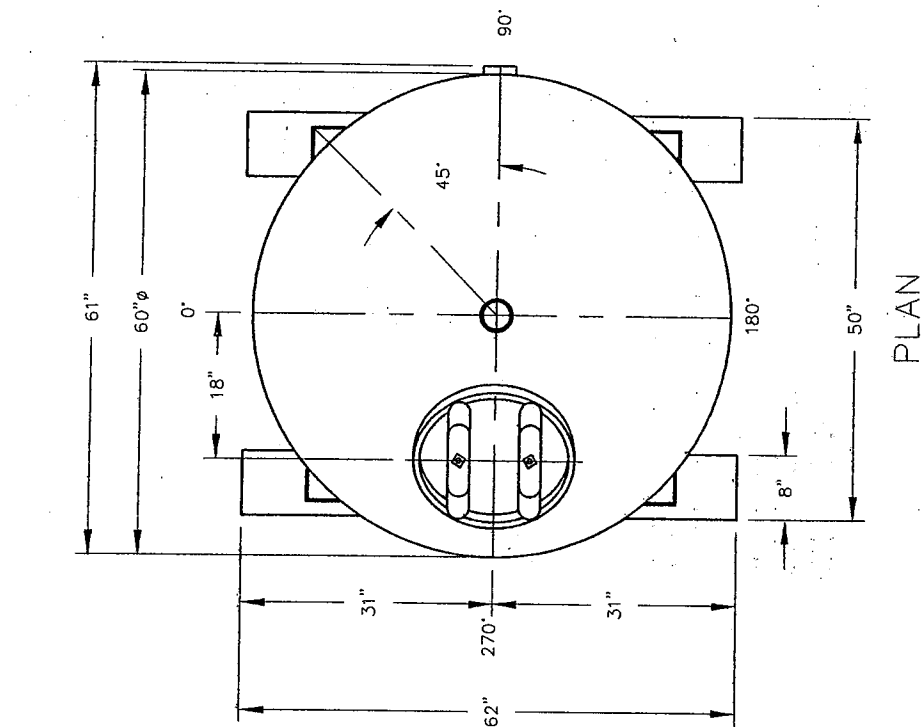
See Sections 4.3 & 4.4 relating to the effluent piping.

3.0 STARTUP PROCEDURES

After the CANSORB unit (s) have been set in place and the piping is installed (See Section 4.0) they are ready to be filled with the media unless they were shipped with the media in place.

Filtration Trailer Equipment List

- 3) Rosedale simplex bag filter units Model # NCO8-30-2P-*-150-C-B-PB
- 2) TIGG 3000lb medium pressure carbon adsorbers.
- 1) Superior Trailers 12,232lb GVWR trailer equipped with two (2) 6000lb AXIS Products brake axles.
- 4) Legend Mfg. 3" Butterfly valves model T-335AB with EPBM seat, Aluminum/Bronze construction
- 6) Legend Mfg. 2" Butterfly valves model T-335AB with EPDM seat, Aluminum/Bronze construction.
- 10) 0 – 60 psi, 2.5" pressure gauges
- 3) 3" x 12' EPDM rubber water hose with camlock fittings.



VESSEL STANDARDS

VESSEL MATERIALS :	A-36 CARBON STEEL	LIQUID DRAIN ASSEMBLY :	3/4" NPT
LINING :	EPOXY	VOLUME OF VESSEL :	109.1 FT ³
EXTERIOR PAINT :	ENAMEL	STANDARD CARBON FILL :	3000 LBS
HEAD THICKNESS :	1/4"	SHIP WT. STD.FILL :	4700 LBS
SHELL THICKNESS :	1/4"	CARBON TYPE :	N/A
INTERALS :	PVC	MAX. OPERATING PRESSURE :	75 PSI
ADSORBENT OUTLET ASSEMBLY :	18" x 14" ELL. MANWAY	MAX. OPERATING TEMP. :	125F

[illegible]

3.1 Filling the vessel with carbon

In order to protect the liquid underdrain (collector) system, **uncontaminated water (liquid) must be added to the vessel prior to adding the carbon.**

A sufficient amount of water should be added so that the water level is at least 2 feet above the underdrain.

The water can be added via the process piping or through the top manway or (handhole on the inlet in PHD models. When filling, the vent, manway or handhole must be open and the inlet on drum units must be open.

Fresh carbon generally will arrive in (1000-1100 pound) super sacks or (55 pound) bags. Each vessel may be filled by emptying the carbon container through the manway on top of the vessel. Drum units usually have the carbon prefilled at TIGG's production facilities.

After all of the carbon is in the vessel, fill the vessel with uncontaminated liquid. This can be done through the process piping (inlet or outlet) or through the manway. Filling from the bottom up is the preferred method. In the event uncontaminated water is not available, fill with contaminated water from the top down at a slow rate so that a depression is not made in the top of the carbon bed. If the process lines are used, the vent or manway should be open.

3.2 Wetting and Deaerating

For peak adsorption performance, as much air as possible should be removed before the adsorber is put onstream.

A bed of carbon consists of the following:

Void volume	-	40%
Pore volume	-	40%
Carbon skeleton	-	20%

Since 80% of the carbon bed volume is air, with 40% being in the pores of the carbon, **special prewetting steps must be taken.** If proper prewetting is not done, channeling will occur and high-pressure drop and/or premature breakthrough of the contaminant(s) will occur.

A relatively long time is required for water to enter the pores and displace the air since the pores in dry carbon are filled with air and some adsorbed oxygen.

Approximately 90% of the pores in dry carbon are filled with water after 24 hours at ambient temperature (70 degrees F) and any liquid having the same viscosity. With more viscous liquids the time to wet will be longer. After 16 hours check the liquid level. If it is below the top of the carbon, add more liquid until it is above the carbon.

3.2.1 Backwashable System

If there is inadequate prefiltration, and/or there are suspended solids present, backwashing will be required. In this case the carbon must be backwashed for 30-45 minutes prior to treating contaminated water.

This is necessary so that the particles will be segregated (classified) and thereby subsequent backwashing operations won't change the relative position of the particles and destroy the mass transfer zone.

This backwash operation will also remove the air and carbon fines from the bed. If this procedure is not followed the carbon usage rate will be higher, there could be very early breakthrough and the pressure drop will be higher than desired.

The following backwash rates should be used for the various vessels:

Unit	CANSORB	ECONOSORB L
C25PHD	50-60	-----
C50 PHD	100-115	-----
C35 & EL 500	80-110	80-100
C50 & EL 1000	115-140	115-125
C75 & EL 2000	180-210	90-100
C100 & EL 3000	250-300	200-220
C200	400-475	-----
C500	500-600	-----

If the initial time for prewetting is less than 2 days, backwash the adsorber two days after startup.

3.2.2 Non-backwashable System

Option 1 - When time is available

After the vessel has been filled with the water as described in Section 2.2 use the following procedures to remove air from the carbon and vessel:

1. Allow the adsorber to stand filled with the water for three or more days. The longer the better. If the time can only be two days or less see Option 2.
2. Remove the water from the vessel. This can be done by (1) draining (make sure the adsorber is vented), (2) using air pressure to pressure the liquid out the outlet nozzle, **don't exceed the adsorber design pressure** or (3) siphoning out the outlet (inlet or vent must be open to the atmosphere).
3. When all of the water is out of the adsorber, the adsorber must be refilled with uncontaminated water. During this filling operation the adsorber must be vented. The water addition should continue until water starts the vent or the inlet nozzle. This step removes the air that is in the adsorber and it is now ready to be placed on stream.

Option 2 – When time is limited to less than two days

When time is not available to prewet the carbon for 2 days, do the following:

1. Add uncontaminated water to the adsorber as described in Section 2.1.
2. After the time that can be allowed to wet the carbon, follow the steps described in items 2 & 3 in Option 1.
3. At this point, there is still air in the carbon pores. Therefore, after days 2 and 3 repeat steps described in items 2 & 3 in Option 1.

In a process system where water cannot be tolerated follow the same filling and draining procedures. However, add the liquid into the top of the adsorber.

4.0 OPERATION

Operational flow rates, and thus contact time for a given volume of adsorbent, are a function of:

1. The liquid being treated
2. Temperature
3. Nature and concentration of the contaminants
4. Other system conditions
5. Removal (effluent) requirements

If conditions dictate a longer contact time than is possible in one unit, CANSORB units can be operated in parallel or series. Either one of these options will usually result in a lower adsorbent usage rate.

4.1 Post startup deaeration

After several days of operation it is advantageous, in many cases, to drain and refill the adsorber in order to get rid of air that may not have been removed in the pre-startup deaeration operation.

4.2 Backwashing

If there are suspended solids in the influent, these may be filtered by the carbon bed. If this occurs, they will usually collect on top of the bed and the pressure drop across the bed will increase. When the differential pressure drop across the bed is 8-10 psi greater than it was when the vessel was initially put onstream, the vessel should be backwashed. Use the flow rates listed in Section 3.2.1. For drum units the maximum pressure should not be exceeded.

This operation should remove the solids and the differential pressure should return to normal. If it does not repeat the backwash procedure at a higher rate. Have someone observe the back wash water effluent to make

sure carbon isn't being removed and to know when the water is clear.

If the backwashing operation doesn't result in lowering the differential pressure, the top few inches of the adsorbent may be loosened by raking and/or removed and discarded per an environmentally acceptable procedure.

4.3 Maintaining a liquid level in the carbon bed

Since the pressure drop through a carbon bed is very low during operation at normal flow rates, it is possible to have the water level reach an equilibrium point low in the bed when the discharge is at a point lower than the top of the carbon bed. This is especially true for the Econosorb L units. Therefore, the discharge piping should be elevated so that there is a section above the top of the carbon bed or a backpressure control valve should be installed in the discharge line.

4.4 Prevention of siphoning

When the flow to the CANSORB vessel is stopped, there is the potential for siphoning to occur, unless provisions are made in the discharge piping to prevent it. This is especially the case when the liquid is being discharged at an elevation lower than the top of the carbon bed.

The siphoning can be prevented by installing (1) an anti-siphon device or a short vertical section of pipe, in a Tee in the effluent pipe open to the atmosphere above the top of the CANSORB unit or (2) discharging into a tank at a level higher than the top of the CANSORB unit.

4.5 Prevention of over pressuring

In addition to the filtering of suspended solids causing a pressure buildup across the carbon such things as bacteria growth, introduction of air into the bed via a pumping operation, and precipitation of metals, can cause the pressure across the carbon bed to increase.

If there is the possibility of any of these occurring and the design pressure of the vessel could be exceeded, a properly sized relief valve or rupture disc should be installed.

4.6 Effluent sampling / Changeout determination

The frequency for sampling will depend on whether the influent concentration of the contaminants is relatively constant or variable.

Sampling should be done on a routine basis and it can be determined what the carbon usage rate is. Then the sampling frequency can usually be reduced.

If there is only one CANSORB unit onstream the time to affect a carbon changeout will depend on the effluent criteria set by the discharge permit.

If there are two CANSORB units operating in series, it is normally possible to allow the concentration of the contaminants in the effluent from the lead vessel to equal that of the influent. This is an indication that the carbon is saturated and thus the carbon usage is the minimum

When this occurs the lead vessel is removed from the system, the spent carbon is removed and the vessel is filled with fresh carbon. This vessel is then put in the secondary (lag) position.

Since the change out, refilling and wetting of the carbon will take 2-3 days, the system will be sized so that during this time, breakthrough will not occur in the lag vessel.

4.7 Removing spent carbon

4.7.1 CANSORB units C35 - C500

Spent carbon can be removed either by vacuuming or in slurry form.

If vacuum is selected, a vac-truck or drum vacuum can be used. The CANSORB unit must be drained and the top manway removed. The carbon is subsequently removed via a non-metallic pipe or hose through the manway. **Extreme care must be exercised to avoid damaging the internals and/or lining.**

If the carbon is to be removed in the slurry form, it can be pressured, using air or water, out the bottom 2-inch outlet. The slurry line should be connected to a vented receiving container prior to carbon removal. The receiving container should have a drain for removing excess water from the carbon, prior to transportation.

The required pressure to move the slurry is generally less than 10 psig. This depends on the length of the slurry line and the elevation of the final point of discharge.

Note: After completing the slurry transfer, there is the possibility of a portion of spent carbon remaining in the bottom head. Therefore, open the manway to inspect the vessel. Depending on the quantity and location of the carbon, it may be necessary to use a hose to flush it into the bottom of the head and/or backwash to level carbon and then repressure the vessel.

When the vessel is empty it is ready to be refilled. The procedures outlined in Section 3.0 should be followed.

4.7.2 Econosorb-L - 500,1000, 2000 & 3000

The spent carbon is removed from these units via vacuum only since there is no slurry outlet connection.

4.7.3 Open head CANSORB Drum units

In order to remove the spent carbon from the C5 and C15 drums, the bolt/ring closure is removed and the top is lifted or pivoted to one side.

Removing the top requires loosening the male adapter inside the top, immediately below the outlet bung.

For the C20 drum, a flex hose section of the outlet riser below the outlet bung is disconnected or used as a pivot.

The spent carbon is then dumped out and fresh carbon is put in.

The fresh carbon must be prewetted. After the carbon is wetted, the water can be removed by introducing air pressure through the inlet or siphoning through the outlet. **Do not exceed the drum operating pressure!**

5.0 MAINTENANCE

5.1 Regular maintenance

The CANSORB units are designed to require minimal maintenance. The following items should be inspected with regard to the carbon vessels, piping and gages:

1. Internal inspection of the vessel should be performed each time carbon is removed. This would include the lining and the collectors (underdrain).
2. Pressure gages should be checked periodically to insure proper operation
3. Piping and valving should be periodically inspected for signs of wear and/or leakage.

5.2 Short-term shutdown

The adsorption system is designed to operate continuously. A short-term shutdown is expected to last less than 72 hours. It is most likely to occur during a weekend shutdown or routine maintenance of the system. During a short-term shutdown, the adsorber may remain filled with water unless work is being performed on the adsorber itself. It may be necessary to close the inlet and outlet valves to prevent siphoning or drainage from the system.

5.3 Long-term shutdown

A long-term shutdown is most likely to occur during spent carbon change-out, changes in the system configuration, major maintenance, etc. During a long-term shutdown the adsorber should be completely drained to minimize the potential for biological growth and bed septicity.

6.0 SAFETY CONSIDERATIONS

The normal safety procedures that are practiced at the site should be followed.

Read the MSDS sheet for the carbon (media).

Understand the potential hazards of the stream being treated by the system. The media may contain higher concentrations of the contaminants being adsorbed than is in the influent stream. Also the media might be considered hazardous material and may require specific handling precautions.

In order to protect the vessel, a relief device such as a rupture disc or safety valve should be installed.

WARNING: Wet drained activated carbon preferentially removes oxygen from air. In closed or partially closed containers, the oxygen concentration can reach dangerously low levels. Therefore, OSHA procedures related to entering confined low-oxygen spaces should be followed by workers who must enter a vessel containing wet carbon.

7.0 TROUBLESHOOTING

There are a varied number of things that can cause poor performance of an activated carbon system. These are discussed below.

7.1 High pressure drop

Following are possible causes for having a high-pressure drop through the carbon. They are:

1. Air in the bed. This is the most frequent cause of high-pressure drop. This is mainly caused when the carbon is not properly prewetted. The other causes are incoming air due to a vortex in the tank feeding the pump and release of dissolved gases within the carbon bed.

Solution: Check for air by slowly closing a valve in the discharge line. Watch the pressure gage in the inlet line. If the pressure increases slowly there is air in the vessel. Drain/remove the liquid and refill the vessel while venting the air out the vent or inlet. If the problem occurs and the proper wetting procedure has been followed, check for

vortex in the feed tank and/or determine if there is the possibility for degassing.

2. Excessive fines in the carbon. This is not a frequent cause for a high-pressure drop.

Solution: Backwash the carbon, if possible, at a rate of 8-10 gpm/ft² until the water exiting the vessel is clear. If the vessel cannot be backwashed and the pressure is too high to maintain the desired flow it may be necessary to remove the carbon, partially fill the vessel with water and slowly reinstall the carbon so that the fines can float on the top of the water. Then overflow the water to remove the fines.

3. Solids in the influent

Suspended solids or sediment in the influent will be filtered out by the carbon.

Solution: Open the manway or remove the top lid in the case of drums and inspect the top of the carbon bed. If the vessel can be backwashed this should solve the problem unless the solids have created a mud like cake on top of the bed. In this case manually remove the cake. If the layer to be removed is more than several inches, it may be necessary to replace with equivalent fresh carbon or if it is expected that the carbon is near exhaustion then replace the entire bed of carbon.

If it is anticipated that the solids will always be in the feed, a filter should be installed in the influent line.

7.2 Carbon loss

In most carbon systems that treat water and wastewater, carbon losses are not usually excessive. They usually result from excessive backwash rates, broken underdrains or physical degradation of the carbon by strong oxidants such as chlorine.

Solution: Lower the backwash rate. It may be too high due to the viscosity being higher than the design value. A seasonal decrease in water temperature is usually the cause for losing carbon during backwash.

Check the effluent liquid for the presence of carbon. If granules are present then the underdrain is damaged or the piping of the inlet and outlet is reversed. Remove the carbon and repair the underdrain or repipe the inlet and outlet.

Chlorine reacts with the carbon skeleton. With prolonged contact the effluent will turn brown. The carbon must be replaced when this occurs.

7.3 Premature breakthrough of organics

This will occur for the following reasons:

1. Channeling in the carbon due to presence of air in the bed.
2. Insufficient contact time in the carbon bed.
3. A change in the influent concentrations of the contaminants.
4. Incomplete removal of spent carbon prior to refilling.

Solution: Check for air by slowly closing a valve in the discharge line. Watch the pressure gage in the inlet line. If the pressure increases slowly there is air in the vessel. Drain/remove the liquid and refill the vessel while venting the air out the vent or inlet.

Add more carbon, if possible. Otherwise reduce the flow rate or consider adding another vessel.

Remove carbon completely and refill vessel.

7.4 Effluent concentration of an organic higher than influent concentration

This is due to a phenomenon termed rollover. This occurs when components that are more strongly adsorbed displace compounds that are less strongly adsorbed.

Solution: If the contaminant is not one of the regulated organics continue to operate the system. If the eluting organic is part of the discharge permit and it is exceeding the permitted level then the carbon needs to be replaced. In order to better utilize carbon it may be desirable to add another vessel downstream so that the lead adsorber can become saturated prior to having to be removed.

For reorders, replacement adsorbents or further technical information please contact TIGG Corporation, 1-800-925-0011

ENGINEERING STANDARDS

Rosedale Products, Inc.
3730 West Liberty Road
Ann Arbor, MI 48103

IOM
NCO8.WPD
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Issue Date: 18JUL05
Revision: A
Revision Date: 15Mar2006

Specification No.
7.4.33
PAGE: 1 of 6

INSTALLATION, OPERATION, & MAINTENANCE MANUAL

INSTALLATION, OPERATION AND MAINTENANCE MANUAL

ROSEDALE PRODUCTS, INC.



MODEL NCO-8

150 PSIG RATED FILTER UNIT

Table of Contents

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ENGINEERING STANDARDS

Rosedale Products, Inc.
3730 West Liberty Road
Ann Arbor, MI 48103

IOM
NCO8.WPD
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Issue Date: 18JUL05
Revision: A
Revision Date: 15Mar2006

Specification No.
7.4.33
PAGE: 2 of 6

INSTALLATION, OPERATION, & MAINTENANCE MANUAL

I. Installation

Please remove all shipping and crating materials carefully. Be sure to remove the plugs from the inlet and outlet openings. Dispose of all crating materials safely.

The Model NCO-8 Filter unit is capable of having several different piping variations based upon the outlet style of your unit. The inlet service line should be connected to the inlet flange or NPT coupling located near the top of the unit (above the basket level).

The outlet service line should be connected to the outlet flange or coupling, located near the middle or bottom of the unit depending upon the style of your unit (below basket level).

There are two 1/4" NPT ports on the shell and one 1/4" NPT port on the cover of the Model NCO-8 Filter unit. These ports can remain plugged or used for pressure gauges or special fittings as your application requires.

Some installations require electrical grounding of all equipment, be sure to provide adequate grounding where necessary.

After completing installation be sure to double check connections for integrity. Your Model NCO-8 Filter unit has been factory pressure tested leak free, therefore, any seepage problems usually occur from improper installation connections.

You are now ready to install the filter basket and bag. Remove cover by loosening the cover eye nuts. The eye nuts in the slotted corners should be loosened sufficiently to swing free. Loosen the third eye nut sufficiently to allow the top cover and closure assembly to swing away from the top of the unit.

If your application requires a basket seal, insert the basket seal into the basket collar groove. Refer to Figure 1 or Figure 2 in the Spare Parts Diagram for installation position of your seal.

Place the basket into the filter housing, make sure the basket flange is firmly seated into the adapter.

Insert bag into the bag basket making sure filter bag ring is firmly seated on top of the basket flange. For best results, be sure filter bag is installed fully extended to the bottom of the basket.

Before replacing cover assembly, inspect cover seal gasket (replacing as necessary). Close cover and alternately tighten the three clamp assemblies evenly to ensure a leak proof seal between the cover and housing body. Torque closure assemblies to a maximum of 60-90^{foot-lbs}. Each installation may have different closure bolting torque requirements to effectively seal the filter vessel cover. Many installations require significantly lower closure bolting torque due to the variables explained below. The suggested torque values are for reference only. They are to be used as a guideline by maintenance personnel. These values are meant as a guideline for safe operation of the filter system at its maximum rated pressure. Many variables affect the torque required to operate the filter vessel without leaks. These variables include the diameter of the bolt, type and number of threads, material type and grade, condition of the nut bearing surface and lubrication of bolt threads and nut bearing surfaces. Other factors such as the condition of the o-ring, o-ring material, viscosity of the fluid being filtered, operating pressures, temperature, and the closure assembly tightening procedure must also be considered.

Your Rosedale Model NCO-8 is now ready for operation.

ENGINEERING STANDARDS

Rosedale Products, Inc.
3730 West Liberty Road
Ann Arbor, MI 48103

IOM
NCO8.WPD
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Issue Date: 18JUL05
Revision: A
Revision Date: 15Mar2006

Specification No.
7.4.33
PAGE: 3 of 6

INSTALLATION, OPERATION, & MAINTENANCE MANUAL

II. Operation

Filter System Start-Up Procedure:

Prior to turning on the flow to the inlet service, please make the following checks:

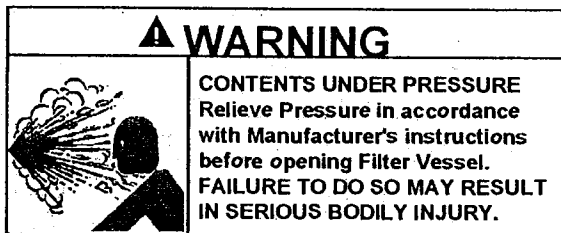
1. Check inside filter unit to be sure basket and filter bag (if applicable) are in housing and do not require cleaning or replacement. If necessary install a clean filter basket and bag (if applicable).
2. Check that filter unit cover is securely fastened to housing. You are now ready to open the flow to the inlet service line. Slowly open the inlet service line approximately 25% of normal operational flow (open slowly as not to displace filter bag inside the housing). After filter unit is pressurized and vented, slowly open outlet service line unit valve until completely open. Complete opening of inlet service line until desired flow rate is reached.

Once the desired service flow has been established, the filter will operate efficiently until dirty. However, under no circumstances should more than *15 PSI Differential Pressure* through the filter be obtained. Operating the filter unit with a high differential may cause filter bags to rupture and/or cause damage to filter system and downstream equipment.

To prevent excessive drop through the filter unit, regular inspection of the filter media is required. Monitoring of differential pressure through the housing can be utilized as a means of determining whether or not the filter media needs cleaning or replacement.

When it becomes necessary to clean or replace filter media, follow the procedure outlined below:

1. First close the flow from the inlet service line.
2. Close the flow to the outlet service line. (In some applications closing flow to outlet is not required.)
3. Relieve the pressure from the filter unit.



4. Drain housing sufficiently to access filter basket.
5. Remove cover by loosening the cover eyenuts. The eyenuts in the slotted corners should be loosened sufficiently to swing free. Loosen the third-eyenut sufficiently to allow the top cover and closure assembly to swing away from the top of the unit.
6. Remove filter basket and clean thoroughly. remove the filter bag (if applicable) and throw away. (Cleaning and reusing the filter bag is not recommended.)
7. Remove debris and sludge from inside the inlet portion of housing to avoid interference with cover seal or flow of fluid being filtered.
8. Remove basket seal and inspect for damage if necessary. Clean basket seal groove and replace

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- basket seal (see spare parts diagram for location of basket seal).
9. Install clean filter basket and filter bag (if applicable). Place the basket into the filter housing, make sure the basket flange is firmly seated into the adaptor. If applicable, insert bag on top of the bag basket flange making sure filter bag ring is firmly seated inside the adaptor. For best results, be sure filter bag is installed fully extended to the bottom of the basket
 10. Inspect cover gasket for cuts or other signs of failure and make sure it is properly seated.
 11. Move cover back into position, and alternately tighten the three clamp assemblies evenly to ensure a leak proof seal between cover and housing body. Torque closure assemblies to a maximum of 60-90^{foot-lbs}. Many installations require significantly lower closure bolting torque due to the variables previously explained in Section I.

Your Rosedale Model NCO-8 Filter unit is now ready for operation. Refer to filter system start-up procedure.

III. Spare Parts List

Your Rosedale Model NCO-8 Filter unit will give you many years of reliable service provided periodic inspections are made of various components and replacement of worn parts are made promptly. The following is meant to be a recommended spare parts list, these parts are illustrated on the following page.

SPARE PARTS LIST			
Balloon	Description	Part Number	Time-Frame
1	Cover Seal	8150CG-*	as needed
2	Basket Seal	9BG-*	as needed
3	Cover	RCO8	as needed
4	Eye Nut	4ENNI	as needed
5	Rod End	4RENI	as needed
6	Clevis Pin Assembly	4CPNI	as needed
7	Filter Bag	(See Order)	as needed
8	Filter Basket	(See Order)	as needed
9	Tripod Legs	8T22*S	as needed

* Select Material Designation:

C=Carbon Steel
S=304 Stainless Steel
S316=316 Stainless Steel

B=Buna N
E=Ethylene Propylene
V=Viton
TEV=Teflon Encapsulated Viton
TSW=Teflon Solid White

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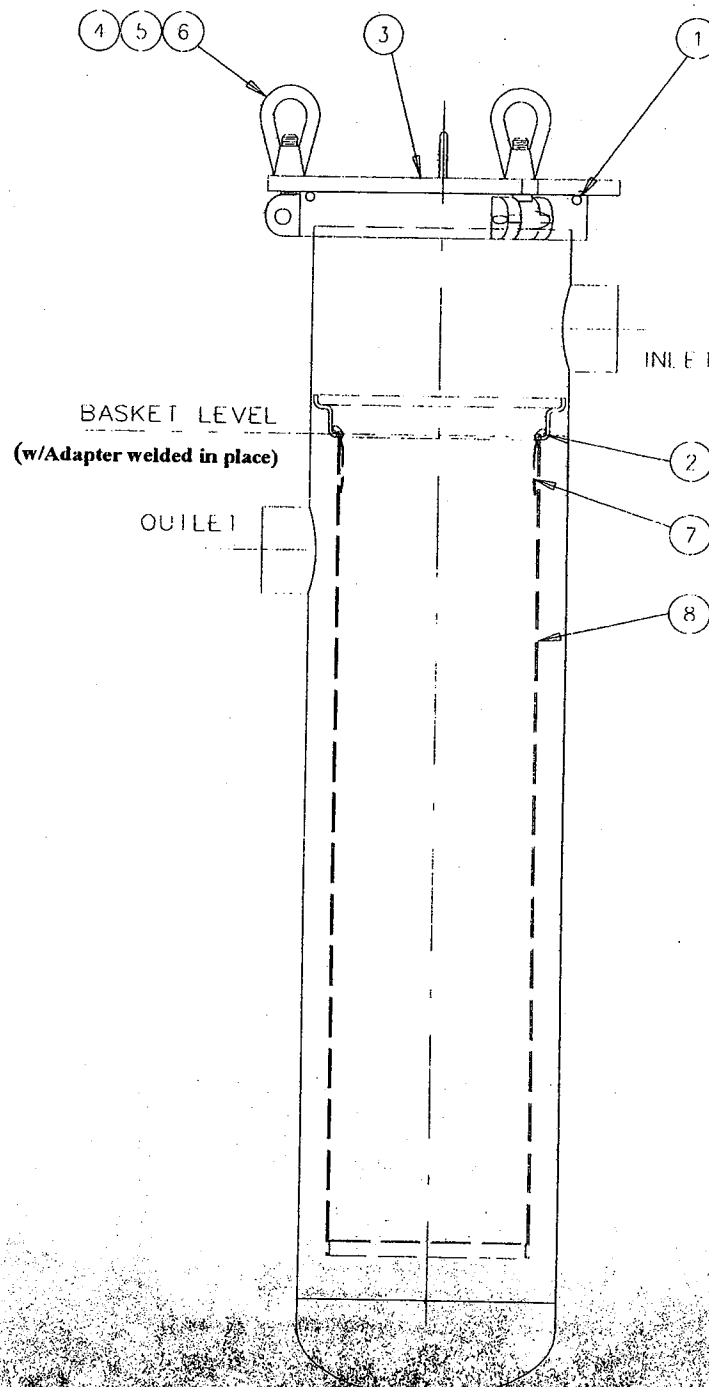


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IV. Spare Parts Diagram



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INSTALLATION, OPERATION, & MAINTENANCE MANUAL

Important Notice

Warranty: In the event any Rosedale Products, Inc. filtration product is found to be defective in material, workmanship, or not in conformance with any express warranty for a specific purpose, Rosedale's only obligation and your exclusive remedy, shall be to repair, replace or refund the purchase price of such parts or products upon timely notification thereof and substantiation that the product has been stored, maintained and used in accordance with Rosedale's written instructions.

EXCLUSIONS TO WARRANTY: THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHER WARRANTY OF QUALITY, EXCEPT OF TITLE AND AGAINST PATENT INFRINGEMENT.

LIMITATION OF LIABILITY: Except as provided above, Rosedale shall not be liable or responsible for any loss or damage, whether direct, indirect, incidental, special or consequential, arising out of sale, use or misuse of Rosedale filtration products, or the user's inability to use such products.

THE REMEDIES SET FORTH HEREIN ARE EXCLUSIVE.

Rosedale Products, Inc.
3730 West Liberty Road
Ann Arbor, MI 48103 USA
734-665-8201
800-821-5373
Fax: 734-665-2214
filters@rosedaleproducts.com
<http://www.rosedaleproducts.com>



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

HPAF SERIES FILTERS MODEL HPAF-2000

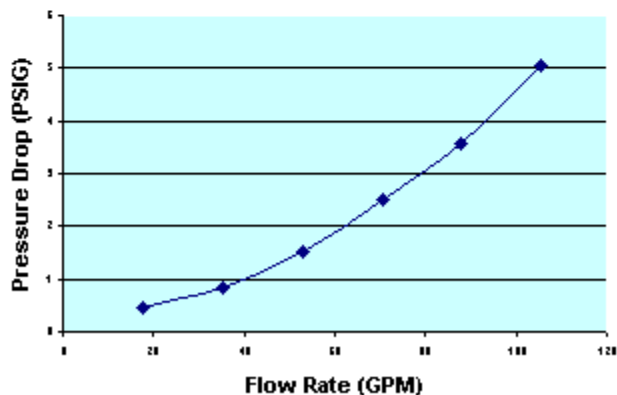
The HPAF-2000 filter is a media filter vessel designed to treat liquid streams. While the typical design application is a activated carbon adsorption unit, the filter can easily accommodate many medias. Some applications include:

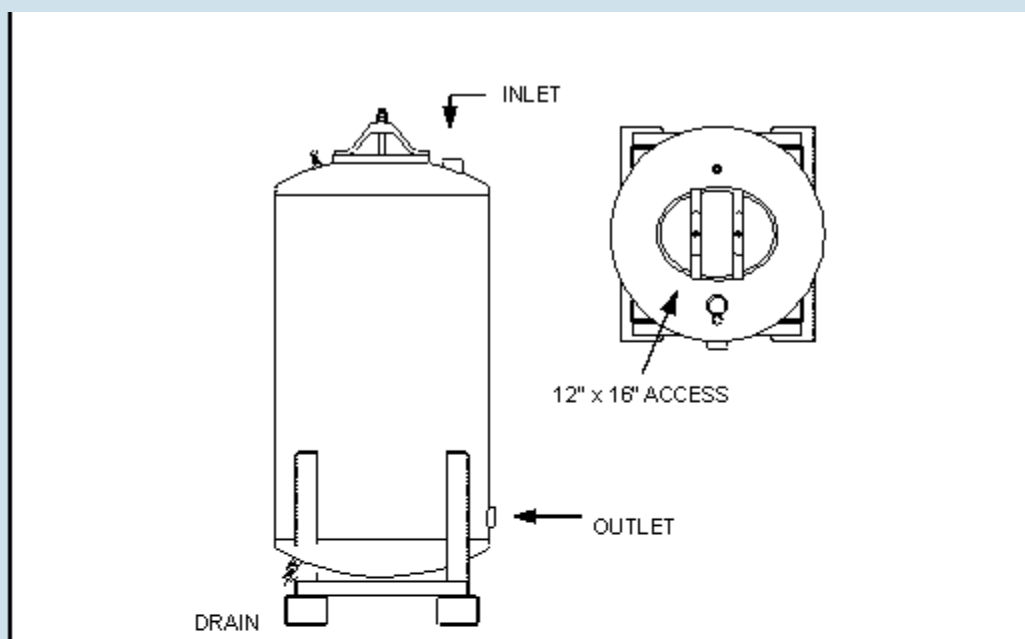
- Dissolved Organic Removal (Activated Carbon)
- Suspended Solids Removal (Sand Filter)
- Dissolved Minerals (Softener Resin)
- Oil and Grease Removal (Organo-Clays)
- Dissolved and Precipitated Metals Removal
- Special Organics (Resin/Carbon Blend)
- Catalytic Reactor (Chlorine and Peroxide Removal)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

Picture
Not
Available

PRESSURE DROP GRAPH

(As Filled - 8"30 GAC)





HPAF-2000 SPECIFICATIONS			
Overall Height	8'6"	Vessel/Internal Piping Materials	CS (SA-36) / SCH 40 PVC
Diameter	48"	Internal Coating	Polyamide Epoxy Resin
Inlet / Outlet (FNPT)	3"	External Coating	Epoxy Mastic
Drain / Vent (FNPT)	3/4" / 1/2"	Maximum Pressure / Temp	75 PSIG / 140° F
GAC Fill (lbs)	2,000	Cross Sectional Bed Area	12.5 FT ²
Shipping / Operational Weight (lbs)	3,020/6,775	Bed Depth/Volume	5.5 FT / 68.7 FT ³



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

FILTRATION MEDIA :

8x30 RE-ACTIVATED CARBON

4x10 RE-ACTIVATED CARBON

GENERAL DESCRIPTION

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

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

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

Safety Data Sheet

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Charcoal, Activated Carbon

SECTION 1 : Identification of the substance/mixture and of the supplier

Product name : Charcoal, Activated Carbon

Manufacturer/Supplier Trade name:

Manufacturer/Supplier Article number: S25246

Recommended uses of the product and uses restrictions on use:

Manufacturer Details:

AquaPhoenix Scientific
9 Barnhart Drive, Hanover, PA 17331

Supplier Details:

Fisher Science Education
15 Jet View Drive, Rochester, NY 14624

Emergency telephone number:

Fisher Science Education Emergency Telephone No.: 800-535-5053

SECTION 2 : Hazards identification

Classification of the substance or mixture:



Irritant

Eye irritation, category 2A
Specific target organ toxicity following single exposure, category 3



Flammable

Flammable solids, category 1

Eye Irrit. 2

STOT SE 3

Hazards Not Otherwise Classified - Combustible Dust

Flam. Sol. 2

Signal word : Danger

Hazard statements:

Flammable solid

Causes serious eye irritation

May cause respiratory irritation

Precautionary statements:

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

Keep out of reach of children

Read label before use

Keep away from heat/sparks/open flames/hot surfaces. No smoking

Ground/bond container and receiving equipment

Use explosion-proof electrical/ventilating/light/equipment

Avoid breathing dust/fume/gas/mist/vapours/spray

Wash skin thoroughly after handling

Use only outdoors or in a well-ventilated area

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Charcoal, Activated Carbon

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

Do not eat, drink or smoke when using this product

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

In case of fire: Use agents recommended in section 5 for extinction

If eye irritation persists get medical advice/attention

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

Continue rinsing

Store locked up

Store in a well ventilated place. Keep container tightly closed

Dispose of contents and container to an approved waste disposal plant

Combustible Dust Hazard: :

May form combustible dust concentrations in air (during processing).

Other Non-GHS Classification:

WHMIS



NFPA/HMIS



NFPA SCALE (0-4)

Health	1
Flammability	2
Physical Hazard	0
Personal Protection	X

HMIS RATINGS (0-4)

SECTION 3 : Composition/information on ingredients

Ingredients:		
CAS 7440-44-0	Carbon	100 %
Percentages are by weight		

SECTION 4 : First aid measures

Description of first aid measures

After inhalation: Loosen clothing as necessary and position individual in a comfortable position. Move exposed to fresh air. Give artificial respiration if necessary. If breathing is difficult give oxygen. Get medical assistance if cough or other symptoms appear.

After skin contact: Rinse/flush exposed skin gently using soap and water for 15-20 minutes. Seek medical advice if discomfort or irritation persists.

After eye contact: Protect unexposed eye. Rinse/flush exposed eye(s) gently using water for 15-20 minutes. Remove contact lens(es) if able to do so during rinsing. Seek medical attention if irritation persists or if

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Charcoal, Activated Carbon

concerned.

After swallowing: Rinse mouth thoroughly. Do not induce vomiting. Have exposed individual drink sips of water. Seek medical attention if irritation, discomfort or vomiting persists.

Most important symptoms and effects, both acute and delayed:

Irritation, Nausea, Headache, Shortness of breath,;

Indication of any immediate medical attention and special treatment needed:

If seeking medical attention, provide SDS document to physician. Physician should treat symptomatically.

SECTION 5 : Firefighting measures

Extinguishing media

Suitable extinguishing agents: Use appropriate fire suppression agents for adjacent combustible materials or sources of ignition. Use water, dry chemical, chemical foam, carbon dioxide, or alcohol-resistant foam.

For safety reasons unsuitable extinguishing agents: None identified.

Special hazards arising from the substance or mixture:

Combustion products may include carbon oxides or other toxic vapors. Thermal decomposition can lead to release of irritating gases and vapors.

Advice for firefighters:

Protective equipment: Use NIOSH-approved respiratory protection/breathing apparatus.

Additional information (precautions): Move product containers away from fire or keep cool with water spray as a protective measure, where feasible. Use spark-proof tools and explosion-proof equipment. Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Avoid inhaling gases, fumes, dust, mist, vapor, and aerosols. Avoid contact with skin, eyes, and clothing.

SECTION 6 : Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Wear protective equipment. Use spark-proof tools and explosion-proof equipment. Ensure that air-handling systems are operational. Ensure adequate ventilation.

Environmental precautions:

Prevent from reaching drains, sewer or waterway. Collect contaminated soil for characterization per Section 13. Should not be released into environment.

Methods and material for containment and cleaning up:

Keep in suitable closed containers for disposal. Wear protective eyewear, gloves, and clothing. Refer to Section 8. Always obey local regulations. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Collect solids in powder form using vacuum with (HEPA filter). Evacuate personnel to safe areas.

Reference to other sections:

SECTION 7 : Handling and storage

Precautions for safe handling:

Minimize dust generation and accumulation. Follow good hygiene procedures when handling chemical materials. Refer to Section 8. Do not eat, drink, smoke, or use personal products when handling chemical substances. Avoid contact with eyes, skin, and clothing.

Conditions for safe storage, including any incompatibilities:

Store away from incompatible materials. Protect from freezing and physical damage. Keep away from food and beverages. Provide ventilation for containers. Avoid storage near extreme heat, ignition sources or open flame.

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Charcoal, Activated Carbon

Store in cool, dry conditions in well sealed containers. Store with like hazards

SECTION 8 : Exposure controls/personal protection



Control Parameters:

, , OSHA PEL TWA (Total Dust) 15 mg/m³ (50 mppcf*)
, , ACGIH TLV TWA (inhalable particles) 10 mg/m³

Appropriate Engineering controls:

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use/handling. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor or dusts (total/respirable) below the applicable workplace exposure limits (Occupational Exposure Limits-OELs) indicated above. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment).

Respiratory protection:

When necessary use NIOSH approved breathing equipment.

Protection of skin:

Select glove material impermeable and resistant to the substance. Select glove material based on rates of diffusion and degradation. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wear protective clothing.

Eye protection:

Wear equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses or goggles are appropriate eye protection.

General hygienic measures:

Perform routine housekeeping. Wash hands before breaks and at the end of work. Avoid contact with skin, eyes, and clothing. Before wearing wash contaminated clothing.

SECTION 9 : Physical and chemical properties

Appearance (physical state,color):	Black solid	Explosion limit lower: Explosion limit upper:	Not Determined Not Determined
Odor:	Odorless	Vapor pressure:	1 mm Hg @ 3586C
Odor threshold:	Not Determined	Vapor density:	Not Determined
pH-value:	6.0 – 9.0	Relative density:	1.8 - 2.1
Melting/Freezing point:	3652 - 3697°C / 6606 - 6687°F	Solubilities:	Insoluble in water.
Boiling point/Boiling range:	Decomposes	Partition coefficient (n-octanol/water):	Not Determined
Flash point (closed cup):	Not Determined	Auto/Self-ignition temperature:	Not Determined
Evaporation rate:	Not Determined	Decomposition temperature:	1 mm Hg @ 3586C

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Charcoal, Activated Carbon

Flammability (solid,gaseous):	Not Determined	Viscosity:	a. Kinematic:Not Determined b. Dynamic: Not Determined
Density: Not Determined			

SECTION 10 : Stability and reactivity

Reactivity:Nonreactive under normal conditions.

Chemical stability:Stable under normal conditions.

Possible hazardous reactions:None under normal processing

Conditions to avoid:Incompatible Materials.Ignition sources, dust generation, moisture, excess heat.

Incompatible materials:May react vigorously or violently when mixed with strong oxidizing agents such as chlorates, bromates and nitrates, especially when heated. Incompatible with chlorinated paraffins, Lead oxide, manganese oxide, iron oxide, liquid oxygen, oils, and moisture.

Hazardous decomposition products:Oxides of carbon.

SECTION 11 : Toxicological information

Acute Toxicity:		
Oral:	Effect level > 8000 mg/kg bw	LD50 rat
Inhalation:	Effect level > 4.6 mg/m ³ air Exp. duration 4 h	rat
Chronic Toxicity: No additional information.		
Corrosion Irritation: No additional information.		
Sensitization:	No additional information.	
Single Target Organ (STOT):	No additional information.	
Numerical Measures:	No additional information.	
Carcinogenicity:	No additional information.	
Mutagenicity:	No additional information.	
Reproductive Toxicity:	No additional information.	

SECTION 12 : Ecological information

Ecotoxicity

Brachydanio rerio (new name: Danio rerio) Duration 96 h Endpoint LC0 : Effect conc. 1000 mg/L

Daphnia magna 24 h Endpoint EC100: Effect conc. 10000 mg/L

Persistence and degradability:

Bioaccumulative potential:

Mobility in soil:

Other adverse effects:

SECTION 13 : Disposal considerations

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Charcoal, Activated Carbon

Waste disposal recommendations:

Contact a licensed professional waste disposal service to dispose of this material. Dispose of empty containers as unused product. Product or containers must not be disposed with household garbage. It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities (US 40CFR262.11). Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations. Ensure complete and accurate classification.

SECTION 14 : Transport information

UN-Number

1362

UN proper shipping name

Carbon Activated

Transport hazard class(es)



Class:

4.2 Substances liable to spontaneous combustion

Packing group:III

Environmental hazard:

Transport in bulk:

Special precautions for user:

SECTION 15 : Regulatory information

United States (USA)

SARA Section 311/312 (Specific toxic chemical listings):

Fire

SARA Section 313 (Specific toxic chemical listings):

None of the ingredients is listed

RCRA (hazardous waste code):

None of the ingredients is listed

TSCA (Toxic Substances Control Act):

All ingredients are listed.

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):

None of the ingredients is listed

Proposition 65 (California):

Chemicals known to cause cancer:

None of the ingredients is listed

Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed

Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed

Chemicals known to cause developmental toxicity:

None of the ingredients is listed

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Charcoal, Activated Carbon

Canada

Canadian Domestic Substances List (DSL):

All ingredients are listed.

Canadian NPRI Ingredient Disclosure list (limit 0.1%):

None of the ingredients is listed

Canadian NPRI Ingredient Disclosure list (limit 1%):

None of the ingredients is listed

SECTION 16 : Other information

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations. Note: The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material.

GHS Full Text Phrases:

Abbreviations and acronyms:

IMDG: International Maritime Code for Dangerous Goods

PNEC: Predicted No-Effect Concentration (REACH)

CFR: Code of Federal Regulations (USA)

SARA: Superfund Amendments and Reauthorization Act (USA)

RCRA: Resource Conservation and Recovery Act (USA)

TSCA: Toxic Substances Control Act (USA)

NPRI: National Pollutant Release Inventory (Canada)

DOT: US Department of Transportation

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

ACGIH: American Conference of Governmental Industrial Hygienists

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

DNEL: Derived No-Effect Level (REACH)

Effective date : 03.02.2015

Last updated : 03.19.2015



CGS

**CATION EXCHANGE RESIN
SOFTENING GRADE
Na FORM**

RESINTECH CGS is a high purity, light colored, high capacity, gel type sulfonated polystyrene cation resin supplied in the sodium form as moist, tough uniform spherical beads. *ResinTech CGS* specifically is intended for use in all water softening applications, including beverages, potable water and water used for food processing. Its high capacity and high DVB content provide long life and good chlorine resistance in all potable water applications. (It is also available as a dark colored product *RESINTECH CGS-BL* with identical properties.)

FEATURES & BENEFITS

- **COMPLIES WITH FDA REGULATIONS FOR POTABLE WATER APPLICATIONS**

Conforms to paragraph 21CFR173.25 of the Food Additives Regulations of the F.D.A. *

- **EXCELLENT REGENERATION EFFICIENCY**

Virtually the same operating capacity as premium grade *ResinTech CG8-BL*.

- **NSF/ANSI-61 VALIDATED**



- **UNIFORM PARTICLE SIZE**

16 to plus 50 mesh range; gives a LOWER PRESSURE DROP while maintaining SUPERIOR KINETICS.

- **SUPERIOR PHYSICAL STABILITY**

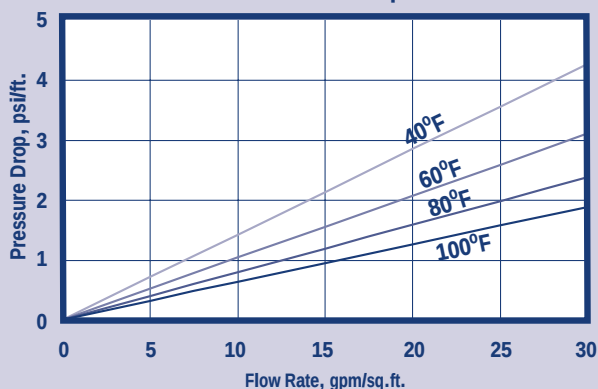
90% plus sphericity and high crush strengths together with a very uniform particle size provide greater resistance to bead breakage while maintaining low pressure drops.

- **LOW COLOR THROW**

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

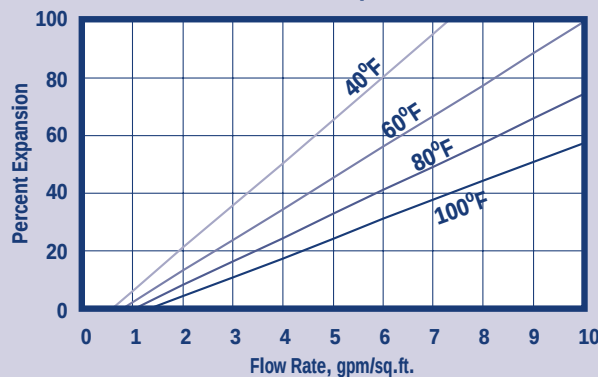
HYDRAULIC PROPERTIES

Pressure Drop



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

Backwash Expansion



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

RESINTECH® CGS

PHYSICAL PROPERTIES

Polymer Structure	Styrene Crosslinked with DVB
Functional Group	$R-(SO_3)^-M^+$
Ionic Form, as shipped	Sodium
Physical Form	Tough, Spherical Beads
Screen Size Distribution	16 to 50
+16 mesh (U.S. Std)	< 5 percent
-50 mesh (U.S. Std)	< 1 percent
pH Range	0 to 14
Sphericity	90+ percent
Uniformity Coefficient	Approx. 1.6
Water Retention	
Sodium Form	48 to 54 percent
Solubility	Insoluble
Shipping Weight	
Sodium Form	48 lbs./cu.ft.
Total Capacity	
Sodium Form	1.8 meq/ml min

SUGGESTED OPERATING CONDITIONS

Maximum Temperature	
Sodium Form	250 ⁰ F
Minimum Bed Depth	24 inches
Backwash Rate	50 to 75% Bed Expansion
Regenerant (NaCl or KCl)	
Concentration	10 to 15 percent
Flow Rate	0.5 to 1.5 gpm/cu.ft.
Contact Time	> 20 minutes
Level	4 to 15 pounds/cu.ft.
Displacement Rate	Same as Regen Flow Rate
Volume	10 to 15 gallons/cu.ft.
Fast Rinse Rate	Same as Service Flow Rate
Volume	35 to 60 gallons/cu.ft.
Service Flow Rate	2 to 10 gpm/cu.ft.

OPERATING CAPACITY

Sodium Chloride (NaCl) Regeneration

The sodium cycle operating capacity of *RESINTECH* CGS for hardness removal at various regeneration levels with an influent calcium/magnesium ratio of 2/1 and a hardness level of 500 ppm, as CaCO₃, is shown in the following table:

Pounds NaOH/cu.ft.	Capacity Kilograins/cu.ft.
5	20.0
7.5	25.4
10	29.0
15	33.0

Potassium Chloride (KCl) Regeneration

The potassium cycle operating capacity of *RESINTECH* CGS for hardness removal at various regeneration levels with an influent calcium/magnesium ratio of 2/1 and a hardness level of 500 ppm, as CaCO₃, is shown in the following table:

Pounds NaOH/cu.ft.	Capacity Kilograins/cu.ft.
5	16.6
7.5	21.8
10	26.6
15	31.2

APPLICATIONS

Softening

RESINTECH CGS is ideally suited for industrial, commercial, or residential softening applications where free chlorine is not present because of its high capacity, uniform particle size and good physical stability.

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

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

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CGSver010603



SBG1

ANION EXCHANGE RESIN
TYPE ONE GEL
CI OR OH FORM

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

FEATURES & BENEFITS

- **COMPLIES WITH FDA REGULATIONS FOR POTABLE WATER APPLICATIONS.**

Conforms to paragraph 21CFR173.125 of the Food Additives Regulations of the F.D.A.*

- **HIGH TOTAL CAPACITY**

Provides longer run lengths in single use applications or where high levels of regeneration are used such as in mixed bed polishers, cartridge demineralizers.

- **UNIFORM PARTICLE SIZE**

16 to plus 50 mesh range; gives a LOWER PRESSURE DROP while maintaining SUPERIOR KINETICS.

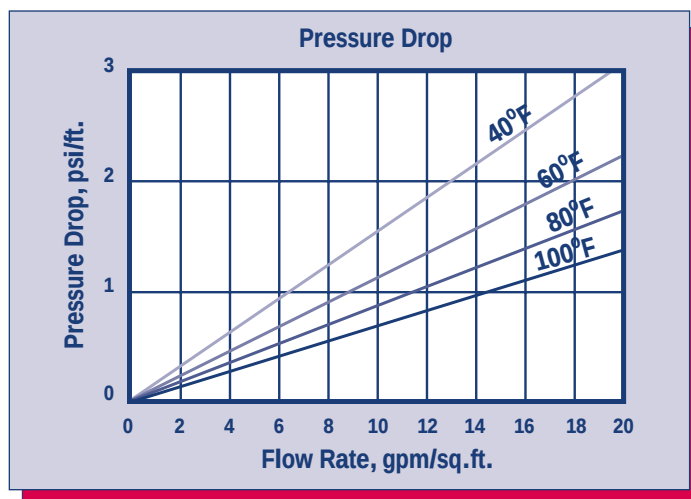
- **SUPERIOR PHYSICAL STABILITY**

- **LOWER TOC LEACH RATE**

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

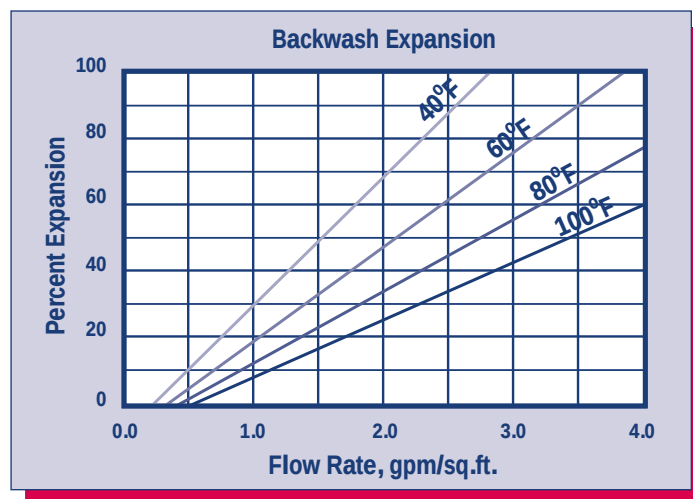
*For potable water applications, the resin must be properly pre-treated, usually by multiple exhaustion and regeneration cycles, to ensure compliance with extractable levels.

HYDRAULIC PROPERTIES



PRESSURE DROP

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



BACKWASH

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

RESINTECH® SBG1

PHYSICAL PROPERTIES

Polymer Structure	Styrene Crosslinked with DVB
Functional Group	R-N-(CH ₃) ₃ ⁺ Cl ⁻
Ionic Form, as shipped	Chloride or Hydroxide
Physical Form	Tough, Spherical Beads
Screen Size Distribution	16 to 50
+16 mesh (U.S. Std)	< 5 percent
-50 mesh (U.S. Std)	< 1 percent
pH Range	0 to 14
Sphericity	> 93 percent
Uniformity Coefficient	Approx. 1.6
Water Retention	
Chloride Form	43 to 50 percent
Hydroxide Form	Approx. 53 to 60 percent
Solubility	Insoluble
Approximate Shipping Weight	
Cl Form	44 lbs/cu.ft.
OH Form	41 lbs/cu.ft.
Swelling Cl- to OH-	18 to 25 percent
Total Capacity	
Cl Form	1.45 meq/ml min
OH Form	1.15 meq/ml min

SUGGESTED OPERATING CONDITIONS

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

OPERATING CAPACITY

The operating capacity of *RESINTECH SBG1* for a variety of acids at various regeneration levels when treating an influent with a concentration 500 ppm, expressed as CaCO₃ is shown in the following table:

Pounds NaOH/ft ³	Capacity Kilograms per cubic foot			
	HCl	H ₂ SO ₄	H ₂ SiO ₃	H ₂ CO ₃
4	11.3	14.0	14.7	18.6
6	12.8	16.3	17.3	19.8
8	14.3	13.3	19.5	21.6
10	15.5	20.0	22.2	22.2

APPLICATIONS

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

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

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

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

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

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

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SBG1serv050102



Safety Data Sheet

Product Names: SBG1, SBG1-HP, SBG1-UPS, SBG1-C, SBG1-F, SBMP1, SBMP1-UPS, GP-SBA, SBG1P, SBG1P-UPS

(Type I Strong Base Anion Exchange Resin Chloride Form)

Effective date 31 March 2015

Section 1: Identification

1a	Product Names	ResinTech SBG1, SBG1-HP, SBG1-UPS, SBG1-C, SBG1-F, SBMP1, SBMP1-UPS, GP-SBA, SBG1P, SBG1P-UPS
1b	Common Name	Type I Strong base anion resin in the chloride form.
1c	Intended use	All general purpose anion exchanges for general use including salt form and demineralization.
1d	Manufacturer Address	ResinTech, Inc. 160 Cooper Road, West Berlin, NJ 08091 USA
	Phone	856-768-9600
	Email	ixresin@resintech.com

Section 2: Hazard Identification

2a	Hazard classification	Not hazardous or dangerous

Product Hazard Rating	Scale
Health = 0	0 = Negligible
Fire = 1	1 = Slight
Reactivity = 0	2 = Moderate
Special – N/A	3 = High
	4 = Extreme

2b	Product description	White, yellow, or orange colored solid beads approximately 0.6 mm diameter with little or no odor.
2c	Precautions for use	Safety glasses and gloves recommended. Slipping hazard if spilled.
2c	Potential health effects	Will cause eye irritation. Will cause skin skin irritation. Ingestion is not likely to pose a health risk.
2d	Environmental effects	This product may alter the pH of any water that contacts it.

Section 2A: Hazard classification UN OSHA globally harmonized system



WARNING

(contains ion exchange resin)

H320: Causes eye irritation

Precautionary Statements

P264: Wash hands thoroughly after handling.

P280: Wear protective gloves/protective clothing/eye protection/face protection

P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.

P333+313: If skin irritation or a rash occurs: Get medical advice/attention.

P337+313: If eye irritation persists get medical advice/attention.

P403+233: Store in a well-ventilated place. Keep container tightly closed.

P411: Store at temperatures not exceeding 50 °C/ 122 °F.

Please refer to the safety data sheet for additional information regarding this product

ResinTech, Inc.
160 Cooper Road
West Berlin, NJ 08091-9234
856 768-9600
Ixresin@resintech.com

Section 3: Composition/ Information on Ingredients

3a	Chemical name	Trimethylamine functionalized chloromethylated copolymer of polystyrene in the chloride form.
3b	Ingredients	
	Trimethylamine functionalized Chloromethylated copolymer of Styrene and divinylbenzene in the Chloride form	CAS# 60177-39-1 (35 - 65%)
	Water	CAS# 7732-18-5 (35 – 65%)

Section 4: First Aid Measures

4a	Inhalation	No adverse effects expected- normal use of product does not produce odors or vapors.
4b	Skin	Wash with soap and water- seek medical attention if a rash develops.
4c	Eye contact	Wash immediately with water- seek attention if discomfort continues.
4d	Ingestion	No adverse effects expected for small amounts, larger amounts can cause stomach irritation. Seek medical attention if discomfort occurs.

Section 5: Fire Fighting Measures

5a	Flammability	NFPA Fire rating = 1
5b	Extinguishing media	Water, CO2, foam, dry powder.
5c	Fire fighting Procedures	Follow general fire fighting procedures indicated in the work place. Seek medical attention if discomfort continues.
5d	Protective Equipment	MSHA/NIOSH approved self-contained breathing gear, full protective clothing.
5e	Combustion Products	Carbon oxides and other toxic gasses and vapors.
5f	Unusual Hazards	Product is not combustible until moisture is removed. Resin begins to burn at approximately 230° C. Auto ignition can occur above 500° C.

Section 6: Accidental Release Measures

6a	Personal Precautions	Keep people away, spilled resin can be a slipping hazard, wear gloves and safety glasses to minimize skin or eye contact.
6b	Incompatible Chemicals	Strong oxidants can create risk of combustion products similar to burning, exposure to strong bases can cause a rapid temperature increase.
6c	Environmental Precautions	Keep out of public sewers and waterways.
6d	Containment Materials	Use plastic or paper containers, unlined metal containers not recommended.
6e	Methods of Clean-up	Sweep up material and transfer to containers.

Section 7: Handling and Storage

7a	Handling	Avoid prolonged skin contact. Keep resin moist and avoid allowing resin to completely dry.
7b	Storage	Store in a cool dry place (0° to 45° C) in the original shipping container. This product is thermally sensitive and will have reduced shelf life if subjected to extended periods of time at temperatures exceeding 50° C. Although freezing does not usually damage ion exchange resins, avoid repeated freeze thaw cycles.
7c	TSCA considerations	Ion exchange resins should be listed on the TSCA Inventory in compliance with State and Federal Regulations.

Section 8: Exposure Controls/Personal Protection

8a	OSHA exposure limits	None noted.
8b	Engineering Controls	Provide adequate ventilation.
8c	Personal Protection Measures	
	Eye Protection	Safety glasses or goggles.
	Respiratory Protection	Not required for normal use.
	Protective Gloves	Not required for limited exposure but recommended for extended contact.

Section 9: Physical and Chemical Properties

Appearance	Amber, yellow, or red beads approx. 0.6 mm diameter.
Flammability or explosive limits	Flammable above 500° C
Odor	Little or no odor
Physical State	Solid
Vapor pressure	Not available
Odor threshold	Not available
Vapor density	Not available
pH	Near neutral (6 to 8 typical)
Relative density	Approx 710 grams/Liter
Melting point/freezing point	Does not melt, freezes at approx. 0 C
Solubility	Insoluble in water and most solvents
Boiling point	Does not boil
Flash point	Approx 500° C
Evaporation rate	Does not evaporate
Partition Coefficient (n-octanol/water)	Not applicable
Auto-ignition temperature	Approx 500° C
Decomposition temperature	Above 230° C
Viscosity	Not applicable

Section 10: Stability and Reactivity

10a Stability	Stable under normal conditions.
10b Conditions to Avoid	Heat, exposure to strong oxidants.
10c Hazardous by-products	Trimethylamine, charred polystyrene, aromatic acids and hydrocarbons, organic amines, nitrogen oxides, carbon oxides, chlorinated hydrocarbons.
10d Incompatible materials	Strong oxidizing agents, e.g. nitric acid (such as HNO ₃)
10e Hazardous Polymerization	Does not occur

Section 11: Toxicological Information

11a	Likely Routes of Exposure	Oral, skin or eye contact.
11b	Effects of exposure	
	Delayed	None known.
	Immediate (acute)	None known.
	Chronic	None known.
11c	Toxicity Measures	
	Skin Adsorption	Unlikely, some transfer of acidity is possible.
	Ingestion	Oral toxicity believed to be low but no LD50 has been established.
	Inhalation	Unknown, vapors are very unlikely due to physical properties (insoluble solid).
11d	Toxicity Symptoms	
	Skin Adsorption	Mild Rash.
	Ingestion	Indigestion or general malaise.
	Inhalation	Unknown.
11e	Carcinogenicity	None known

Section 12: Ecological information

12a	Eco toxicity	Not acutely harmful to plant or animal life.
12b	Mobility	Insoluble, acidity or causticity may escape if wet.
12c	Biodegradability	Not biodegradable.
12d	Bioaccumulation	Insignificant.
12e	Other adverse effects	Not Harmful to the environment.

Section 13: Disposal Considerations

13a	General considerations	Material is non-hazardous. However, unused material can cause a pH change when wetted.
13b	Disposal Containers	Most plastic and paper containers are suitable. Avoid use of unlined metal containers.
13c	Disposal methods	No specific method necessary.
13d	Sewage Disposal	Not recommended.

13e Precautions for incineration	May release trimethylamine and toxic vapors when burned.
13f Precautions for landfills	Resins used to remove hazardous materials may then become hazardous mixtures

Section 14: Transportation Information

14a Transportation Class	Not classified as a dangerous good for transport by land, sea, or air.
14b TDG	Not regulated.
14c IATA	Not regulated.
14d DOT (49 CFR 172.101)	Not Regulated.

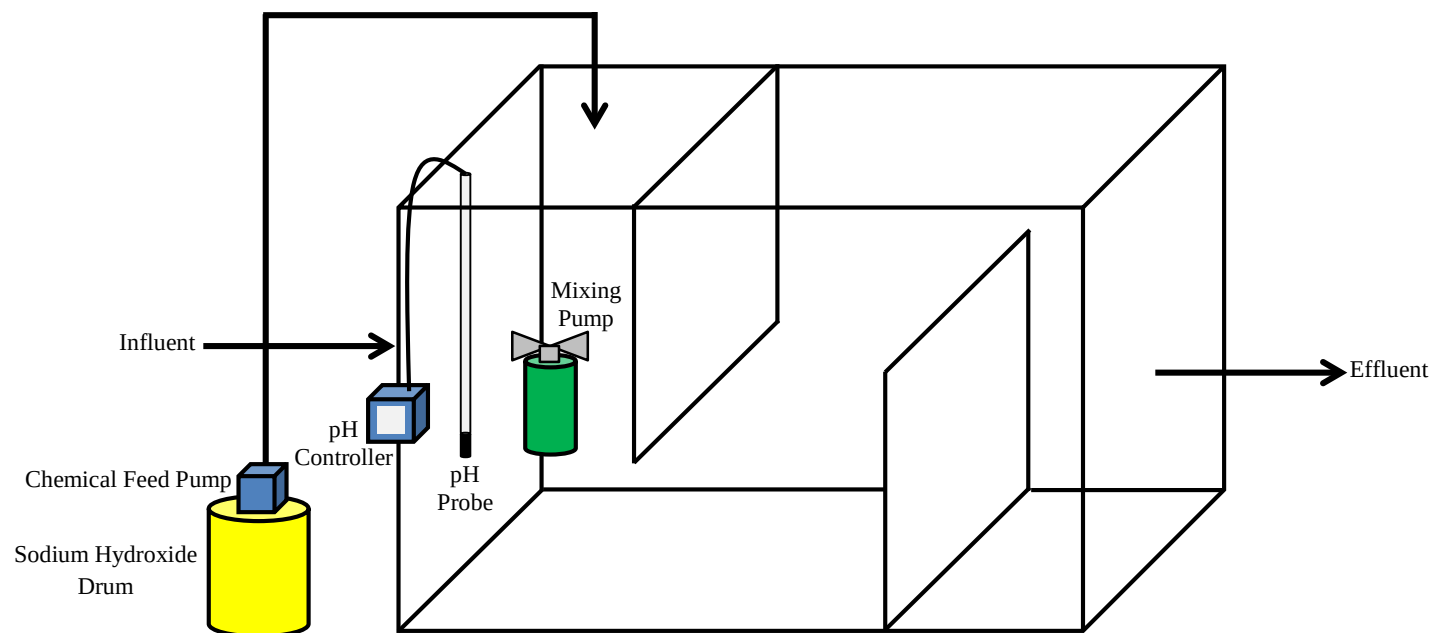
Section 15: Regulatory Information

15a CERCLA	Not regulated
15b SARA Title III	Not regulated
15c Clean Air act	Not regulated
15d Clean Water Act	Not regulated
15e TSCA	Not regulated
15f Canadian Regulations WHMIS TDG	Not a controlled product Not regulated
15g Mexican Regulations	Not Dangerous

Section 16: Other Information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features. Regulatory requirements are subject to change and may differ from one location to another. It is the buyer's responsibility to ensure that their activities comply with federal, state, and local laws.

16a Date of Revision	31 March 2015



Notes:

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



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

Configuration of pH Adjustment System



One Controller for the Broadest Range of Sensors.

Choose from 30 digital and analog sensor families for up to 17 different parameters.

Maximum Versatility

The sc200 controller allows the use of digital and analog sensors, either alone or in combination, to provide compatibility with Hach's broad range of sensors, eliminating the need for dedicated, parameter-specific controllers.

Ease of Use and Confidence in Results

Large, high-resolution, transreflective display provides optimal viewing resolution in any lighting condition. Guided calibration procedures in 19 languages minimize complexity and reduce operator error. Password-protected SD card reader offers a simple solution for data download and transfer. Visual warning system provides critical alerts.

Wide Variety of Communication Options

Utilize two to five analog outputs to transmit primary and secondary values for each sensor, or integrate Hach sensors and analyzers into MODBUS RS232/RS485, Profibus® DP, and HART networks.



Password protected SD card reader offers a simple solution for data download and transfer, and sc200 and digital sensor configuration file duplication and backup.

Controller Comparison



Features	Previous Models		sc200™ Controller	Benefits
	sc100™ Controller	GLI53 Controller		
Display	64 x 128 pixels 33 x 66 mm (1.3 x 2.6 in.)	64 x 128 pixels 33 x 66 mm (1.3 x 2.6 in.)	160 x 240 pixels 48 x 68 mm (1.89 x 2.67 in.) Transreflective	- Improved user interface—50% bigger - Easier to read in daylight and sunlight
Data Management	irDA Port/PDA Service Cable	N/A	SD Card Service Cable	- Simplifies data transfer - Standardized accessories/ max compatibility
Sensor Inputs	2 Max Direct Digital Analog via External Gateway	2 Max Analog Depending on Parameter	2 Max Digital and/or Analog with Sensor Card	- Simplifies analog sensor connections - Works with analog and digital sensors
Analog Inputs	N/A	N/A	1 Analog Input Signal Analog 4-20mA Card	- Enables non-sc analyzer monitoring - Accepts mA signals from other analyzers for local display - Consolidates analog mA signals to a digital output
4-20 mA Outputs	2 Standard	2 Standard	2 Standard Optional 3 Additional	Total of five (5) 4-20 mA outputs allows multiple mA outputs per sensor input
Digital Communication	MODBUS RS232/RS485 Profibus DP V1.0	HART	MODBUS RS232/RS485 Profibus DP V1.0 HART 7.2	Unprecedented combination of sensor breadth and digital communication options

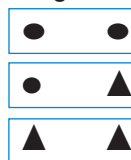
Choose from Hach's Broad Range of Digital and Analog Sensors

Parameter	Sensor	Digital or Analog
Ammonia	AMTAX™ sc, NH4D sc, AISE sc, AN-ISE sc	●
Chlorine	CLF10 sc, CLT10 sc, 9184 sc	●
Chlorine Dioxide	9185 sc	●
Conductivity	GLI 3400 Contacting, GLI 3700 Inductive	▲
Dissolved Oxygen	LDO® Model 2, 5740 sc	●
Dissolved Oxygen	5500	▲
Flow	U53, F53 Sensors	▲
Nitrate	NITRATAX™ sc, NO3D sc, NISE sc, AN-ISE sc	●
Oil in Water	FP360 sc	●
Organics	UVAS sc	●
Ozone	9187 sc	●
pH/ORP	pHD	●
pH/ORP	pHD, pH Combination, LCP	▲
Phosphate	PHOSPHAX™ sc	●
Sludge Level	SONATAX™ sc	●
Suspended Solids	SOLITAX™ sc, TSS sc	●
Turbidity	1720E, FT660 sc, SS7 sc, ULTRATURB sc, SOLITAX sc, TSS sc	●
Ultra Pure Conductivity	8310, 8311, 8312, 8315, 8316, 8317 Contacting	▲
Ultra Pure pH/ORP	8362	▲

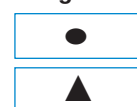
● = Digital ▲ = Analog

Connect up to two of any of the sensors listed above, in any combination, to meet your application needs. The diagrams below demonstrate the potential configurations. Operation of analog sensors requires the controller to be equipped with the appropriate sensor module. Contact Hach Technical Support for help with selecting the appropriate module.

2 Channel Configurations



1 Channel Configurations



Specifications*

Dimensions (H x W x D)	5.7 in x 5.7 in x 7.1 in (144 mm x 144 mm x 181 mm)
Display	Graphic dot matrix LCD with LED backlighting, transreflective
Display Size	1.9 x 2.7 in. (48 mm x 68 mm)
Display Resolution	240 x 160 pixels
Weight	3.75 lbs. (1.70 kg)
Power Requirements (Voltage)	100 - 240 V AC, 24 V DC
Power Requirements (Hz)	50/60 Hz
Operating Temperature Range	-20 to 60 °C , 0 to 95% RH non-condensing
Analog Outputs	Two (Five with optional expansion module) to isolated current outputs, max 550 Ω , Accuracy: ± 0.1% of FS (20mA) at 25 °C, ± 0.5% of FS over -20 °C to 60 °C range
Analog Output Functional Mode	Operational Mode: measurement or calculated value Linear, Logarithmic, Bi-linear, PID
Security Levels	2 password-protected levels
Mounting Configurations	Wall, pole, and panel mounting
Enclosure Rating	NEMA 4X/IP66
Conduit Openings	1/2 in NPT Conduit
Relay: Operational Mode	Primary or secondary measurement, calculated value (dual channel only) or timer

Relay Functions	Scheduler (Timer), Alarm, Feeder Control, Event Control, Pulse Width Modulation, Frequency Control, and Warning
Relays	Four electromechanical SPDT (Form C) contacts, 1200 W, 5 A
Communication	MODBUS RS232/RS485, PROFIBUS DPV1, or HART 7.2 optional
Memory Backup	Flash memory
Electrical Certifications	EMC CE compliant for conducted and radiated emissions: - CISPR 11 (Class A limits) - EMC Immunity EN 61326-1 (Industrial limits) Safety cETLus safety mark for: - General Locations per ANSI/UL 61010-1 & CAN/CSA C22.2. No. 61010-1 - Hazardous Location Class I, Division 2, Groups A,B,C & D (Zone 2, Group IIC) per FM 3600 / FM 3611 & CSA C22.2 No. 213 M1987 with approved options and appropriately rated Class I, Division 2 or Zone 2 sensors cULus safety mark - General Locations per UL 61010-1 & CAN/CSA C22.2. No. 61010-1

**Subject to change without notice.*



3/4-inch Combination pH and ORP Sensor Kits

pH/ORP



Use the Digital Gateway to make any Hach analog combination pH or ORP sensor compatible with the Hach sc1000 Controller.

Digital combination pH and ORP sensors are available in convertible, insertion, and sanitary mounting styles. Choose from rugged dome electrodes or "easy-to-clean" flat glass electrodes.

DW

WW

PW

IW

Features and Benefits

Low Price—High Performance

These combination sensors are designed for specialty applications for immersion or in-line mounting. The reference cell features a double-junction design for extended service life, and a built-in solution ground. The body is molded from chemically-resistant Ryton® or PVDF, and the reference junction is coaxial porous Teflon®. All sensors are rated 0 to 105°C up to 100 psig, and have integral 4.5 m (15 ft.) cables with tinned leads. The PC-series (for pH) and RC-series (for ORP) combination sensors are ideal for measuring mild and aggressive media.

Special Electrode Configurations

Sensors with rugged dome electrodes, "easy-to-clean" flat glass electrodes, and even HF (hydrofluoric acid) resistant glass electrodes are available for a wide variety of process solutions.

Temperature Compensation Element Option

The PC-series combination pH sensors are available with or without a Pt 1000 ohm RTD temperature element. The RC-series combination ORP sensors are supplied without a temperature element.

Versatile Mounting Styles

Sensors are available in three mounting styles—convertible, insertion, and sanitary. Please turn to page 3 for more information.

Full-Featured "Plug and Play"

Hach sc Digital Controllers

There are no complicated wiring or set up procedures with any Hach sc controller. Just plug in any combination of Hach digital sensors and it's ready to use—it's "plug and play."

One or multiple sensors—The sc controller family allows you to receive data from up to eight Hach digital sensors in any combination using a single controller.

Communications—Multiple alarm/control schemes are available using the relays and PID control outputs. Available communications include analog 4-20 mA, digital MODBUS® (RS485 and RS232) or Profibus DP protocols. (Other digital protocols are available. Contact your Hach representative for details.)

Data logger—A built-in data logger collects measurement data, calibration, verification points, and alarm history.

Specifications*

Most pH applications fall in the 2.5-12.5 pH range. General purpose pH glass electrodes perform well in this range. Some industrial applications require accurate measurements and control at pH values below 2 or above 12. Consult Hach Technical Support for details on these applications.

Combination pH Sensors

Measuring Range

0 to 14 pH

Accuracy

Less than 0.1 pH under reference conditions

Temperature Range

0 to 105°C (32 to 221°F)

Flow Rate

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

Pressure Range

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

Signal Transmission Distance

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

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

Sensor Cable

Integral coaxial cable (plus two conductors for temperature compensator option); 4.5 m (15 ft.) long

Wetted Materials

Convertible style: Ryton® body (glass filled)

Insertion style: PVDF body (Kynar®)

Sanitary style: 316 stainless steel sleeved PVDF body

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

Warranty

90 days

Combination ORP Sensors

Measuring Range

-2000 to +2000 millivolts

Accuracy

Limited to calibration solution accuracy (± 20 mV)

Temperature Range

0 to 105°C (32 to 221°F)

Flow Rate

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

Pressure Range

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

Signal Transmission Distance

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

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

Sensor Cable

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

Wetted Materials

Convertible style: Ryton® body (glass filled)

Insertion style: PVDF body (Kynar®)

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

Warranty

90 days

**Specifications subject to change without notice.*

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

Engineering Specifications

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

Dimensions

Convertible Style Sensor

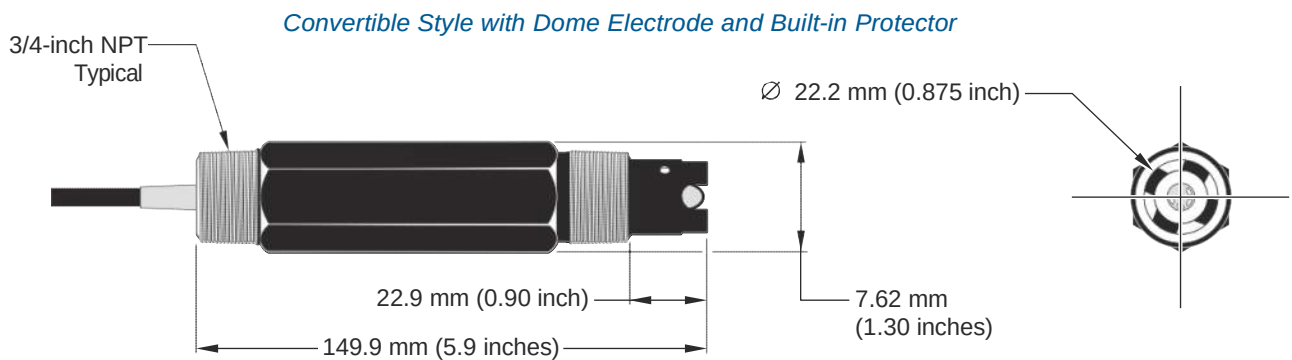
The convertible style sensor has a Ryton® body that features 3/4-inch NPT threads on both ends. The sensor can be directly mounted into a standard 3/4-inch pipe tee for flow-through mounting or fastened onto the end of a pipe for immersion mounting. The convertible style sensor enables inventory consolidation,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

Insertion Style Sensor

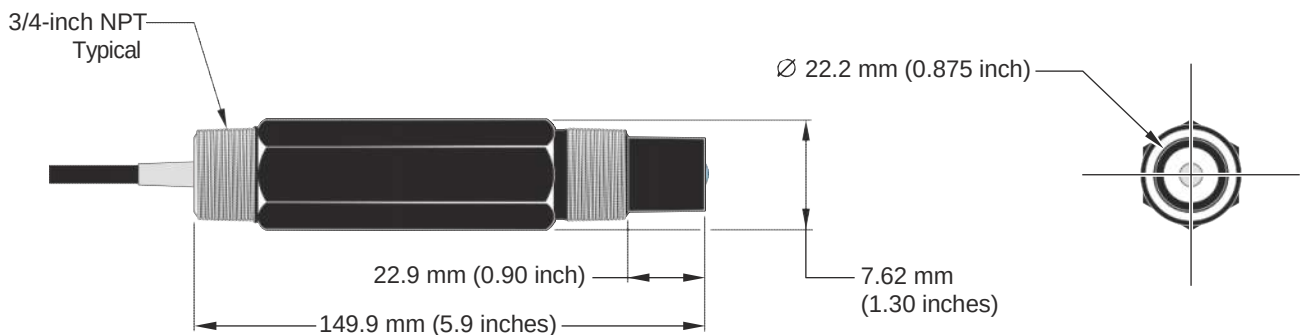
Insertion style sensors feature a longer, non-threaded PVDF body with two Viton® O-rings, providing a seal when used with the optional Hach insertion mount hardware assembly. This ball valve hardware enables sensor insertion and retraction from a pipe or vessel without having to stop the process flow.

Sanitary Style Sensor

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



Convertible Style with Flat Electrode





The Pulsatron Series A Plus offers manual function controls over stroke length and stroke rate as standard with the option to select external pace for automatic control.

Ten distinct models are available, having pressure capabilities to 250 PSIG (17 BAR) @ 12 GPO (1.9 lph), and flow capacities to 58 GPO (9.1 lph) @ 100 PSIG (7.0 BAR), with a standard turndown ratio of 100:1, and optional ratio of 1000:1. Metering performance is reproducible to within $\pm 3\%$ of maximum capacity.

Features

- Manual Control by on-line adjustable stroke rate and stroke length.
- Highly Reliable timing circuit.
- Circuit Protection against voltage and current upsets.
- Solenoid Protection by thermal overload with auto-reset.
- Water Resistant, for outdoor and indoor applications.
- Internally Dampened To Reduce Noise.
- Guided Ball Check Valve Systems, to reduce back flow and enhance outstanding priming characteristics.
- Few Moving Parts and Wall Mountable.
- Safe & Easy Priming with durable leak-free bleed valve assembly (standard).
- Optional Control: External pace with auto/manual selection.

Controls



Manual Stroke Rate

Manual Stroke Length

External Pacing-Optional

External Pace With Stop-Optional (125 SPM only)

Controls Options

Feature	Standard Configuration	Optional Configuration ¹
External Pacing	--	Auto / Manual Selection ¹
External Pace w/ Stop (125SPM only)	--	Auto / Manual Selection ²
Manual Stroke Rate	10:1 Ratio	100:1 Ratio
Manual Stroke Length	10:1 Ratio	10:1 Ratio
Total Turndown Ratio	100:1 Ratio	1000:1 Ratio

Note 1: On S2, S3 & S4 sizes only.

Note 2: Not available on 1000:1 turndown pumps.

Operating Benefits

- Reliable metering performance.
- Rated "hot" for continuous duty.
- High viscosity capability.
- Leak-free, sealless, liquid end.



Aftermarket

- KOPkits
- Gauges
- Dampeners
- Pressure Relief Valves
- Tanks
- Pre-Engineered Systems
- Process Controllers (PULSAblue, MicroVision)



Series A Plus Electronic Metering Pumps



Series A Plus Specifications and Model Selection

MODEL			LBC2	LB02	LBC3	LB03	LB04	LB64	LBC4	LBS2	LBS3	LBS4
Capacity nominal (max.)		GPH	025	025	0.42	0.50	1.00	125	2.00	0.50	1.38	2.42
		GPO	6	6	10	12	24	30	48	12	33	58
		LPH	0.9	0.9	1.6	1.9	3.8	4.7	7.6	1.9	5.2	9.14
Pressure ³ (max.)	GFPP, PVDF, 316SS or PVC <N code> w/TFE Seats)	PSIG (Bar)	250 (17)	150 (10)	250 (17)	150 (10)	100 (7)	100 (7)	50 (33)	250 (17)	150 (10)	100 (7)
	PVC (V code) Viton or CSPE Seats IDegas Liquid End		150 (10)							150 (10)		
Connections:		Tubing	1 1/4" ID X 3/8" OD						3/8" ID X 1/2" OD	1 1/4" ID X 3/8" OD		
		Piping							1 1/4" FNPT			
Strokes/Minute		SPM	125							250		

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

Engineering Data

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

Diaphragm:

Check Valves Materials Available:

Seats/O-Rings:

PTFE

CSPE

Viton

Balls:

Ceramic

PTFE

316 SS

Alloy C

Fittings Materials Available:

GFPP

PVC

PVDF

Bleed Valve:

Same as fitting and check valve selected, except 316SS

Injection Valve & Foot Valve Assy:

Same as fitting and check valve selected

Tubing:

Clear PVC

White PE

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

Engineering Data

Reproducibility: +/- 3% at maximum capacity
Viscosity Max CPS: 1000 CPS
Stroke Frequency Max SPM: 125 / 250 by Model
Stroke Frequency Turn-Down Ratio: 10:1/100:1 by Model
Stroke Length Turn-Down Ratio: 10:1
Power Input: 115 VAC/50-60 HZ/1 ph
230 VAC/50-60 HZ/1 ph

Average Current Draw:

@ 115 VAC; Amps:

0.6 Amps

@ 230 VAC; Amps:

0.3 Amps

Peak Input Power:

130 Watts

Average Input Power @ Max SPM:

50 Watts

Custom Engineered Designs- Pre-Engineered Systems



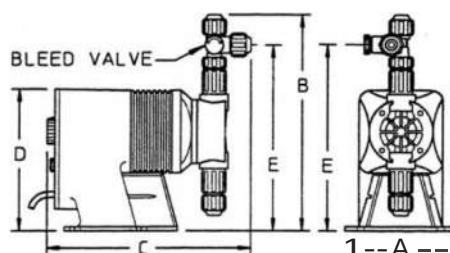
Pre-Engineered Systems

Pulsafeeder's Pre-Engineered Systems are designed to provide complete chemical feed solutions for all electronic metering applications. From stand alone simplex pH control applications to full-featured, redundant sodium hypochlorite disinfection metering, these rugged fabricated assemblies offer turn-key simplicity and industrial-grade durability. The UV-stabilized, high-grade HOPE frame offers maximum chemical compatibility and structural rigidity. Each system is factory assembled and hydrostatically tested prior to shipment.

Dimensions

Series A PLUS Dimensions (inches)						
Model No.	A	B	C	D	E	Shipping Weight
LB02 IS2	5.0	9.6	9.5	6.5	8.2	10
LBC2	5.0	9.9	9.5	6.5	8.5	10
LBC3	5.0	9.9	9.5	6.5	8.5	10
LB03 IS3	5.0	9.9	9.5	6.5	8.5	10
LB04	5.0	9.9	9.5	6.5	8.5	10
LB64	5.0	9.9	9.5	6.5	8.5	10
LBC4	5.0	9.9	9.5	6.5	8.5	10

NOTE: inches X 25.4 cm





95-Gallon OverPack - 32" dia x 41.5", 1 each/package



Stock a SpillTech® OverPack with sorbents for emergency spill response, or use it as a salvage drum to ship damaged containers or hazardous waste.

- DOT-Approved for Salvage: All SpillTech® OverPacks are DOT-approved and X-rated for use as salvage drums. Helps companies conform to federal regulations when shipping damaged or leaking containers of hazardous materials, or absorbents contaminated with hazardous substances.
- Perfect for Spill Kits: Stores sorbent products (not included) for easy access as needed for spill control. Saves time when quick response is necessary.
- Sturdy Construction: 100% polyethylene OverPack resists chemicals, rust and corrosion for years of use. Integrated handles make them easy to lift, move or carry with standard material handling equipment. Twist-on, double-wall lid with closed-cell gasket provides sealed, secure closure to prevent leaks and protect contents from moisture, dirt and damage. Durable to withstand rough handling.
- Customized for You: We can customize a Spill Kit to your exact specifications, including the container, its contents and accessories, with no upcharge! Contact your local Distributor for details.

A95OVER Specifications

Dimensions:	ext. dia. 32" x 41.5" H
Shipping Dimensions:	31.75" W x 41.5" L x 31.75" H
Sold as:	1 per package
Color:	Yellow
Composition:	Polyethylene
# per Pallet:	3
Incinerable:	No
Ship Class:	250

Metric Equivalent Specifications

Dimensions:	ext. dia. 81.3cm x 105.4cm H
Shipping Dimensions:	80.6cm W x 105.4cm L x 80.6cm H





A95OVER Technical Information

Warnings & Restrictions:

There are no known warnings and restrictions for this product.

Regulations and Compliance:

49 CFR 173.3(c)(1) - If a container of hazardous waste is damaged or leaking, it can be placed in a compatible salvage drum that meets UN criteria for shipping

49 CFR 173.12(b)(2)(iv) - When labpacking, "Inner packagings...must be surrounded by a chemically compatible absorbent material in sufficient quantity to absorb the total liquid contents."

49 CFR 173.12(b) - A container used for labpacking must be "a UN 1A2 or UN 1B2 metal drum, a UN 1D plywood drum, a UN 1G fiber drum or a UN 1H2 plastic drum tested and marked at least for the Packing Group III performance level for liquids or solids."





Revision date 2019-15-4

SAFETY DATA SHEET

Revision number 1

SECTION 1) CHEMICAL PRODUCT AND SUPPLIER'S IDENTIFICATION

Product ID: Redux-823
Product Name: Processing aid for industrial applications

Revision Date: Apr 15, 2019
Supersedes Date: Jan 25, 2018

Manufacturer's Name: Azure Water Services
Address: 280 Callegari Drive West Haven, CT, US, 06516
Emergency Phone: Chemtrec 800-424-9300, in US and Canada only

SECTION 2) HAZARDS IDENTIFICATION

Classification of the substance or mixture

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

Hazards Not Otherwise Classified (HNOC)

None.

SECTION 3) COMPOSITION / INFORMATION ON INGREDIENTS

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

SECTION 4) FIRST-AID MEASURES

Inhalation

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

Eye Contact

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

Skin Contact

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

Ingestion

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

Most Important Symptoms and Effects, Both acute and Delayed

No data available.

Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available.

SECTION 5) FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

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

Use extinguishing agent suitable for type of surrounding fire.

Unsuitable Extinguishing Media

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

Specific Hazards in Case of Fire

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

Fire-Fighting Procedures

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

Special Protective Actions

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

SECTION 6) ACCIDENTAL RELEASE MEASURES

Emergency Procedure

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

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

Do not touch or walk through spilled material.

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

Recommended Equipment

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

Personal Precautions

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

Environmental Precautions

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

Methods and Materials for Containment and Cleaning Up

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

SECTION 7) HANDLING AND STORAGE

General

Wash hands after use.

Do not get in eyes, on skin or on clothing.

Do not breathe vapors or mists.

Use good personal hygiene practices.

Eating, drinking and smoking in work areas is prohibited.

Remove contaminated clothing and protective equipment before entering eating areas.

Eyewash stations and showers should be available in areas where this material is used and stored.

Ventilation Requirements

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

Storage Room Requirements

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

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

SECTION 8) EXPOSURE CONTROLS, PERSONAL PROTECTION

Eye Protection

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

Skin Protection

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

Respiratory Protection

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

Appropriate Engineering Controls

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

SECTION 9) PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

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

SECTION 10) STABILITY AND REACTIVITY

Stability

Stable under normal storage and handling conditions.

Conditions To Avoid

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

Hazardous Reactions/Polymerization

Hazardous polymerization will not occur.

Incompatible Materials

Strong bases, acids, oxidizing and reducing agents.

Hazardous Decomposition Products

May produce carbon monoxide, carbon dioxide.

SECTION 11) TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

No Data Available

Acute Toxicity

Inhalation, Testing: Not expected to be toxic by inhalation.

Ingestion, Testing: LD50, Rat > 5,00 mg/kg

Dermal, Testing: LD50, Rat > 5,000 mg/kg

Respiratory/Skin Sensitization

No Data Available

Serious Eye Damage/Irritation

No Data Available

Skin Corrosion/Irritation

No Data Available

Specific Target Organ Toxicity - Repeated Exposure

No Data Available

Specific Target Organ Toxicity - Single Exposure

No Data Available

SECTION 12) ECOLOGICAL INFORMATION

Acute Ecotoxicity

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

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

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

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

Mobility in Soil

No data available.

Bio-accumulative Potential

Not bioaccumulating.

Persistence and Degradability

Not readily biodegradable.

Other Adverse Effect

No data available.

SECTION 13) DISPOSAL CONSIDERATIONS

Waste Disposal

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

SECTION 14) TRANSPORT INFORMATION

U.S. DOT Information

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

DOT Shipping Designation:

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

SECTION 15) REGULATORY INFORMATION

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

SECTION 16) OTHER INFORMATION

Glossary

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

Additional Information

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

Version 1.0:

Revision Date: Jan 25, 2018
First Edition.

DISCLAIMER

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



Revision date 2019-15-4

SAFETY DATA SHEET

Revision number 1

SECTION 1) CHEMICAL PRODUCT AND SUPPLIER'S IDENTIFICATION

Product Name: Redux E50
Product Use: Water and Wastewater Treatment Coagulant/Flocculant

Revision Date: Apr 15, 2019
Supersedes Date: Mar 5, 2015

Manufacturer's Name: Azure Water Services
Address: 280 Callegari Dr. West Haven CT, 06516
Emergency Phone: Chemtrec, (1) 800-424-9300, in US and Canada only

SECTION 2) HAZARDS IDENTIFICATION

Classification

Corrosive to metals - Category 1
Eye Irritation - Category 2
Skin Irritation - Category 2

Pictograms



Signal Word

Warning

Hazardous Statements - Health

Causes serious eye irritation
Causes skin irritation

Hazardous Statements - Physical

May be corrosive to metals

Precautionary Statements - General

If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.

Precautionary Statements - Prevention

Keep only in original packaging.
Wash thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary Statements - Response

Absorb spillage to prevent material damage.

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

If eye irritation persists: Get medical advice/attention.

IF ON SKIN: Wash with plenty of water.

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

If skin irritation occurs: Get medical advice/attention.

Take off contaminated clothing. And wash it before reuse.

Precautionary Statements - Storage

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

Precautionary Statements - Disposal

No precautionary statement available.

Hazards Not Otherwise Classified (HNOC)

None.

SECTION 3) COMPOSITION / INFORMATION ON INGREDIENTS

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

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

SECTION 4) FIRST-AID MEASURES

Inhalation

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

Eye Contact

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

Skin Contact

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

Ingestion

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

Most Important Symptoms and Effects, Both acute and Delayed

No data available.

Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available.

SECTION 5) FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

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

Use extinguishing agent suitable for type of surrounding fire.

Unsuitable Extinguishing Media

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

Specific Hazards in Case of Fire

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

Fire-Fighting Procedures

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

Special Protective Actions

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

SECTION 6) ACCIDENTAL RELEASE MEASURES

Emergency Procedure

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

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

Do not touch or walk through spilled material.

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

Recommended Equipment

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

Personal Precautions

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

Environmental Precautions

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

Methods and Materials for Containment and Cleaning Up

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

SECTION 7) HANDLING AND STORAGE

General

Wash hands after use.

Do not get in eyes, on skin or on clothing.

Do not breathe vapors or mists.

Use good personal hygiene practices.

Eating, drinking and smoking in work areas is prohibited.

Remove contaminated clothing and protective equipment before entering eating areas.

Eyewash stations and showers should be available in areas where this material is used and stored.

Ventilation Requirements

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

Storage Room Requirements

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

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

SECTION 8) EXPOSURE CONTROLS, PERSONAL PROTECTION

Eye Protection

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

Skin Protection

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

Respiratory Protection

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

Appropriate Engineering Controls

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

SECTION 9) PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

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

SECTION 10) STABILITY AND REACTIVITY

Stability

Stable under normal storage and handling conditions.

Conditions To Avoid

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

Hazardous Reactions/Polymerization

Hazardous polymerization will not occur.

Incompatible Materials

Strong bases, acids, oxidizing and reducing agents.

Hazardous Decomposition Products

May produce carbon monoxide, carbon dioxide.

SECTION 11) TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

Inhalation LC50 : Not Available

Oral LD50 : Not Available

Dermal LD50 : Not Available

Acute Toxicity

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

Aspiration Hazard

No Data Available

Respiratory/Skin Sensitization

No Data Available

Serious Eye Damage/Irritation

Causes serious eye irritation

Skin Corrosion/Irritation

Causes skin irritation

Specific Target Organ Toxicity - Repeated Exposure

No Data Available

Specific Target Organ Toxicity - Single Exposure

No Data Available

SECTION 12) ECOLOGICAL INFORMATION

Ecotoxicity

Acute aquatic toxicity - Product Information

Fish	LC 50 (96 hour, static) 776.4 mg/L <i>Pimephales promelas</i> (Fathead Minnow) ¹ EC 50 (96 hour, static) 265.5 mg/L <i>Pimephales promelas</i> (Fathead Minnow) ¹
Crustacea	LC 50 (48 hour, static) 803.8 mg/L <i>Ceriodaphnia dubia</i> (Water Flea) ¹ EC 50 (48 hour, static) 33.2 mg/L <i>Ceriodaphnia dubia</i> (Water Flea) ¹
Algae/aquatic plants	No information available

Acute aquatic toxicity - Component Information

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

Mobility in Soil

No data available.

Bio-accumulative Potential

No data available.

Persistence and Degradability

No data available.

Other Adverse Effect

No data available.

SECTION 13) DISPOSAL CONSIDERATIONS

Waste Disposal

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

SECTION 14) TRANSPORT INFORMATION

U.S. DOT Information

NOT REGULATED FOR TRANSPORTATION

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

SECTION 15) REGULATORY INFORMATION

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

SECTION 16) OTHER INFORMATION

Glossary

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

Additional Information

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

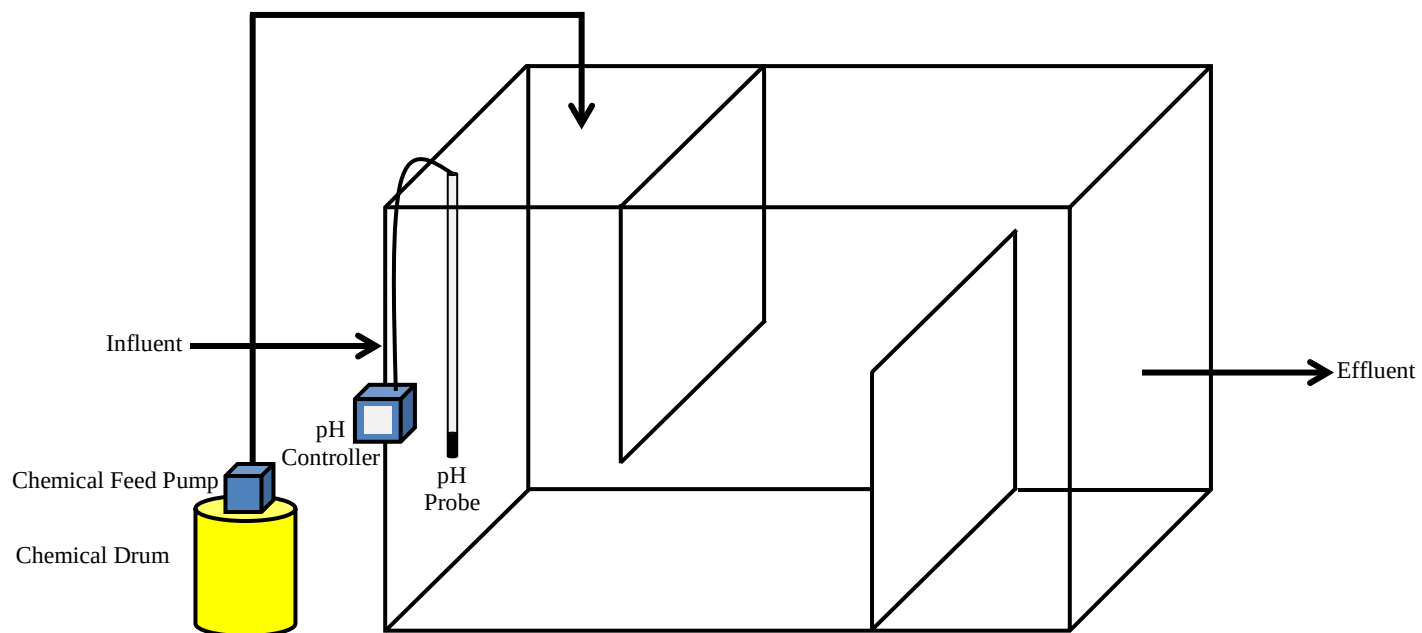
Version 1.0:

Revision Date: Apr 15,2019

First Edition.

DISCLAIMER

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



Notes:

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

Configuration of pH Adjustment System



One Controller for the Broadest Range of Sensors.

Choose from 30 digital and analog sensor families for up to 17 different parameters.

Maximum Versatility

The sc200 controller allows the use of digital and analog sensors, either alone or in combination, to provide compatibility with Hach's broad range of sensors, eliminating the need for dedicated, parameter-specific controllers.

Ease of Use and Confidence in Results

Large, high-resolution, transreflective display provides optimal viewing resolution in any lighting condition. Guided calibration procedures in 19 languages minimize complexity and reduce operator error. Password-protected SD card reader offers a simple solution for data download and transfer. Visual warning system provides critical alerts.

Wide Variety of Communication Options

Utilize two to five analog outputs to transmit primary and secondary values for each sensor, or integrate Hach sensors and analyzers into MODBUS RS232/RS485, Profibus® DP, and HART networks.



Password protected SD card reader offers a simple solution for data download and transfer, and sc200 and digital sensor configuration file duplication and backup.

Controller Comparison



Features	Previous Models		sc200™ Controller	Benefits
	sc100™ Controller	GLI53 Controller		
Display	64 x 128 pixels 33 x 66 mm (1.3 x 2.6 in.)	64 x 128 pixels 33 x 66 mm (1.3 x 2.6 in.)	160 x 240 pixels 48 x 68 mm (1.89 x 2.67 in.) Transreflective	- Improved user interface—50% bigger - Easier to read in daylight and sunlight
Data Management	irDA Port/PDA Service Cable	N/A	SD Card Service Cable	- Simplifies data transfer - Standardized accessories/ max compatibility
Sensor Inputs	2 Max Direct Digital Analog via External Gateway	2 Max Analog Depending on Parameter	2 Max Digital and/or Analog with Sensor Card	- Simplifies analog sensor connections - Works with analog and digital sensors
Analog Inputs	N/A	N/A	1 Analog Input Signal Analog 4-20mA Card	- Enables non-sc analyzer monitoring - Accepts mA signals from other analyzers for local display - Consolidates analog mA signals to a digital output
4-20 mA Outputs	2 Standard	2 Standard	2 Standard Optional 3 Additional	Total of five (5) 4-20 mA outputs allows multiple mA outputs per sensor input
Digital Communication	MODBUS RS232/RS485 Profibus DP V1.0	HART	MODBUS RS232/RS485 Profibus DP V1.0 HART 7.2	Unprecedented combination of sensor breadth and digital communication options

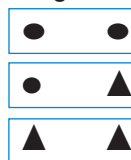
Choose from Hach's Broad Range of Digital and Analog Sensors

Parameter	Sensor	Digital or Analog
Ammonia	AMTAX™ sc, NH4D sc, AISE sc, AN-ISE sc	●
Chlorine	CLF10 sc, CLT10 sc, 9184 sc	●
Chlorine Dioxide	9185 sc	●
Conductivity	GLI 3400 Contacting, GLI 3700 Inductive	▲
Dissolved Oxygen	LDO® Model 2, 5740 sc	●
Dissolved Oxygen	5500	▲
Flow	U53, F53 Sensors	▲
Nitrate	NITRATAX™ sc, NO3D sc, NISE sc, AN-ISE sc	●
Oil in Water	FP360 sc	●
Organics	UVAS sc	●
Ozone	9187 sc	●
pH/ORP	pHD	●
pH/ORP	pHD, pH Combination, LCP	▲
Phosphate	PHOSPHAX™ sc	●
Sludge Level	SONATAX™ sc	●
Suspended Solids	SOLITAX™ sc, TSS sc	●
Turbidity	1720E, FT660 sc, SS7 sc, ULTRATURB sc, SOLITAX sc, TSS sc	●
Ultra Pure Conductivity	8310, 8311, 8312, 8315, 8316, 8317 Contacting	▲
Ultra Pure pH/ORP	8362	▲

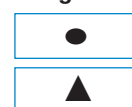
● = Digital ▲ = Analog

Connect up to two of any of the sensors listed above, in any combination, to meet your application needs. The diagrams below demonstrate the potential configurations. Operation of analog sensors requires the controller to be equipped with the appropriate sensor module. Contact Hach Technical Support for help with selecting the appropriate module.

2 Channel Configurations



1 Channel Configurations



Specifications*

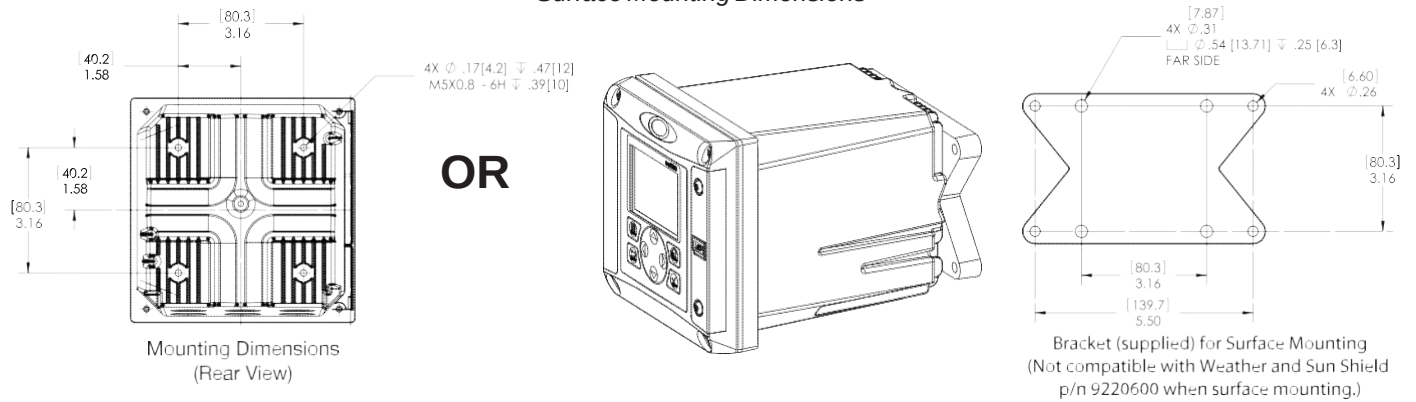
Dimensions (H x W x D)	5.7 in x 5.7 in x 7.1 in (144 mm x 144 mm x 181 mm)
Display	Graphic dot matrix LCD with LED backlighting, transreflective
Display Size	1.9 x 2.7 in. (48 mm x 68 mm)
Display Resolution	240 x 160 pixels
Weight	3.75 lbs. (1.70 kg)
Power Requirements (Voltage)	100 - 240 V AC, 24 V DC
Power Requirements (Hz)	50/60 Hz
Operating Temperature Range	-20 to 60 °C , 0 to 95% RH non-condensing
Analog Outputs	Two (Five with optional expansion module) to isolated current outputs, max 550 Ω , Accuracy: ± 0.1% of FS (20mA) at 25 °C, ± 0.5% of FS over -20 °C to 60 °C range
Analog Output Functional Mode	Operational Mode: measurement or calculated value Linear, Logarithmic, Bi-linear, PID
Security Levels	2 password-protected levels
Mounting Configurations	Wall, pole, and panel mounting
Enclosure Rating	NEMA 4X/IP66
Conduit Openings	1/2 in NPT Conduit
Relay: Operational Mode	Primary or secondary measurement, calculated value (dual channel only) or timer

Relay Functions	Scheduler (Timer), Alarm, Feeder Control, Event Control, Pulse Width Modulation, Frequency Control, and Warning
Relays	Four electromechanical SPDT (Form C) contacts, 1200 W, 5 A
Communication	MODBUS RS232/RS485, PROFIBUS DPV1, or HART 7.2 optional
Memory Backup	Flash memory
Electrical Certifications	EMC CE compliant for conducted and radiated emissions: - CISPR 11 (Class A limits) - EMC Immunity EN 61326-1 (Industrial limits) Safety cETLus safety mark for: - General Locations per ANSI/UL 61010-1 & CAN/CSA C22.2. No. 61010-1 - Hazardous Location Class I, Division 2, Groups A,B,C & D (Zone 2, Group IIC) per FM 3600 / FM 3611 & CSA C22.2 No. 213 M1987 with approved options and appropriately rated Class I, Division 2 or Zone 2 sensors cULus safety mark - General Locations per UL 61010-1 & CAN/CSA C22.2. No. 61010-1

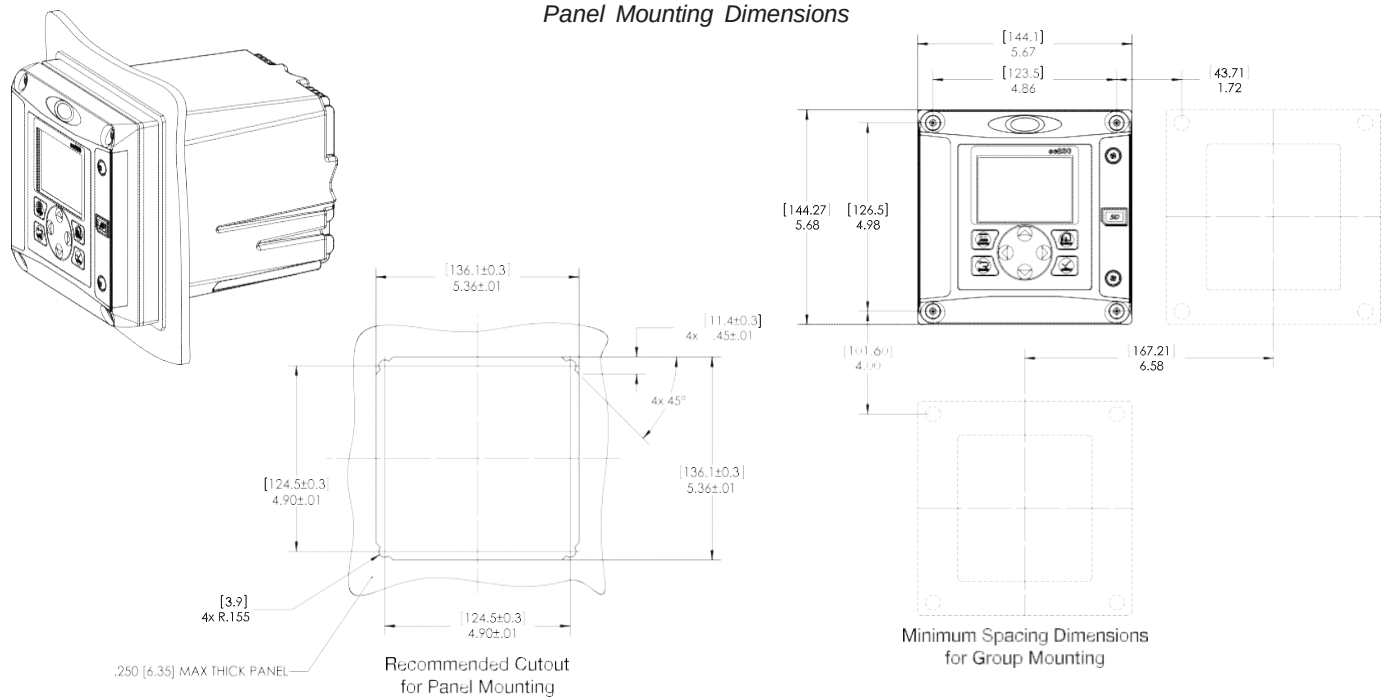
**Subject to change without notice.*

Dimensions

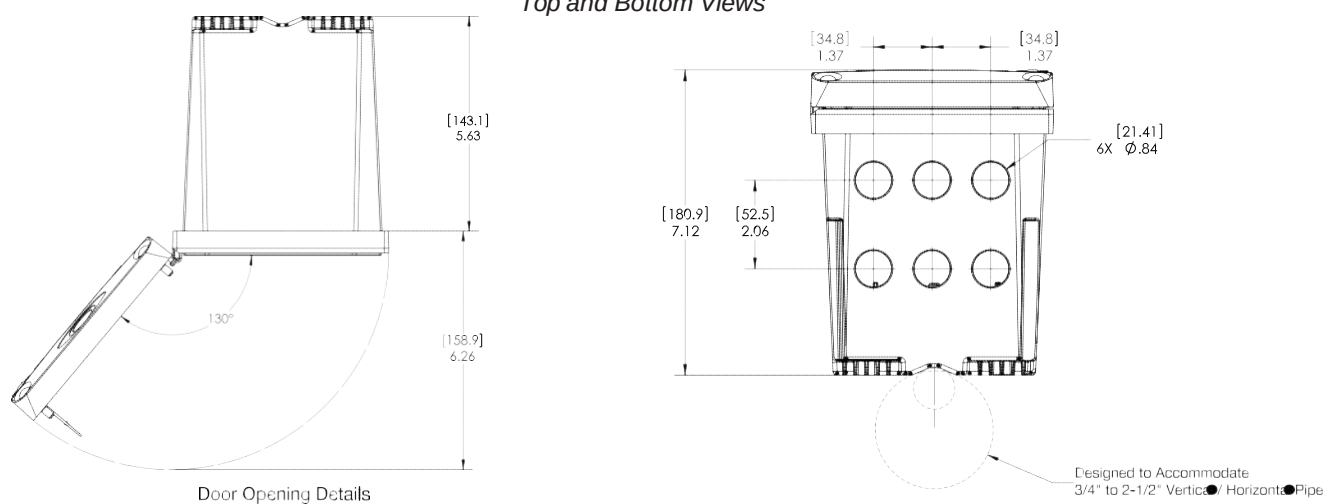
Surface Mounting Dimensions



Panel Mounting Dimensions



Top and Bottom Views



3/4-inch Combination pH and ORP Sensor Kits



Use the Digital Gateway to make any Hach analog combination pH or ORP sensor compatible with the Hach sc1000 Controller.

Digital combination pH and ORP sensors are available in convertible, insertion, and sanitary mounting styles. Choose from rugged dome electrodes or "easy-to-clean" flat glass electrodes.

DW

WW

PW

IW

Features and Benefits

Low Price—High Performance

These combination sensors are designed for specialty applications for immersion or in-line mounting. The reference cell features a double-junction design for extended service life, and a built-in solution ground. The body is molded from chemically-resistant Ryton® or PVDF, and the reference junction is coaxial porous Teflon®. All sensors are rated 0 to 105°C up to 100 psig, and have integral 4.5 m (15 ft.) cables with tinned leads. The PC-series (for pH) and RC-series (for ORP) combination sensors are ideal for measuring mild and aggressive media.

Special Electrode Configurations

Sensors with rugged dome electrodes, "easy-to-clean" flat glass electrodes, and even HF (hydrofluoric acid) resistant glass electrodes are available for a wide variety of process solutions.

Temperature Compensation Element Option

The PC-series combination pH sensors are available with or without a Pt 1000 ohm RTD temperature element. The RC-series combination ORP sensors are supplied without a temperature element.

Versatile Mounting Styles

Sensors are available in three mounting styles—convertible, insertion, and sanitary. Please turn to page 3 for more information.

Full-Featured "Plug and Play"

Hach sc Digital Controllers

There are no complicated wiring or set up procedures with any Hach sc controller. Just plug in any combination of Hach digital sensors and it's ready to use—it's "plug and play."

One or multiple sensors—The sc controller family allows you to receive data from up to eight Hach digital sensors in any combination using a single controller.

Communications—Multiple alarm/control schemes are available using the relays and PID control outputs. Available communications include analog 4-20 mA, digital MODBUS® (RS485 and RS232) or Profibus DP protocols. (Other digital protocols are available. Contact your Hach representative for details.)

Data logger—A built-in data logger collects measurement data, calibration, verification points, and alarm history.

Specifications*

Most pH applications fall in the 2.5-12.5 pH range. General purpose pH glass electrodes perform well in this range. Some industrial applications require accurate measurements and control at pH values below 2 or above 12. Consult Hach Technical Support for details on these applications.

Combination pH Sensors

Measuring Range

0 to 14 pH

Accuracy

Less than 0.1 pH under reference conditions

Temperature Range

0 to 105°C (32 to 221°F)

Flow Rate

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

Pressure Range

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

Signal Transmission Distance

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

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

Sensor Cable

Integral coaxial cable (plus two conductors for temperature compensator option); 4.5 m (15 ft.) long

Wetted Materials

Convertible style: Ryton® body (glass filled)

Insertion style: PVDF body (Kynar®)

Sanitary style: 316 stainless steel sleeved PVDF body

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

Warranty

90 days

Combination ORP Sensors

Measuring Range

-2000 to +2000 millivolts

Accuracy

Limited to calibration solution accuracy (± 20 mV)

Temperature Range

0 to 105°C (32 to 221°F)

Flow Rate

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

Pressure Range

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

Signal Transmission Distance

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

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

Sensor Cable

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

Wetted Materials

Convertible style: Ryton® body (glass filled)

Insertion style: PVDF body (Kynar®)

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

Warranty

90 days

**Specifications subject to change without notice.*

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

Engineering Specifications

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

Dimensions

Convertible Style Sensor

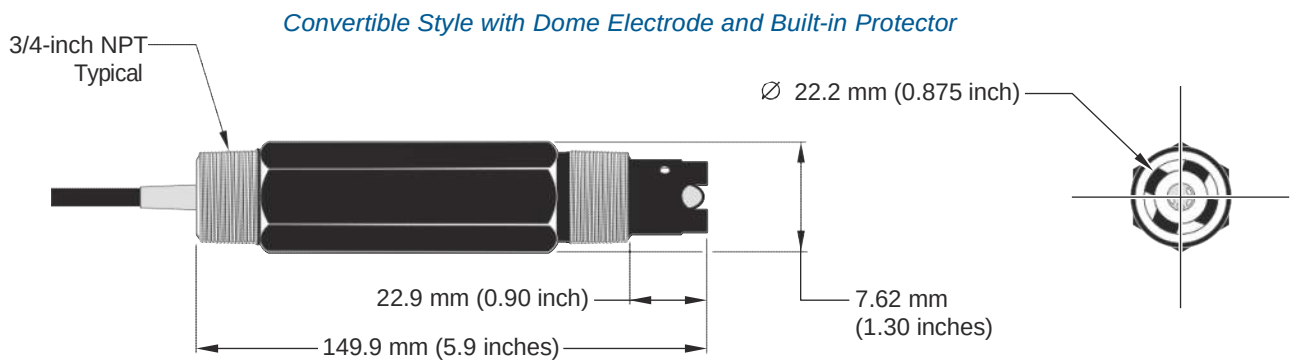
The convertible style sensor has a Ryton® body that features 3/4-inch NPT threads on both ends. The sensor can be directly mounted into a standard 3/4-inch pipe tee for flow-through mounting or fastened onto the end of a pipe for immersion mounting. The convertible style sensor enables inventory consolidation,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

Insertion Style Sensor

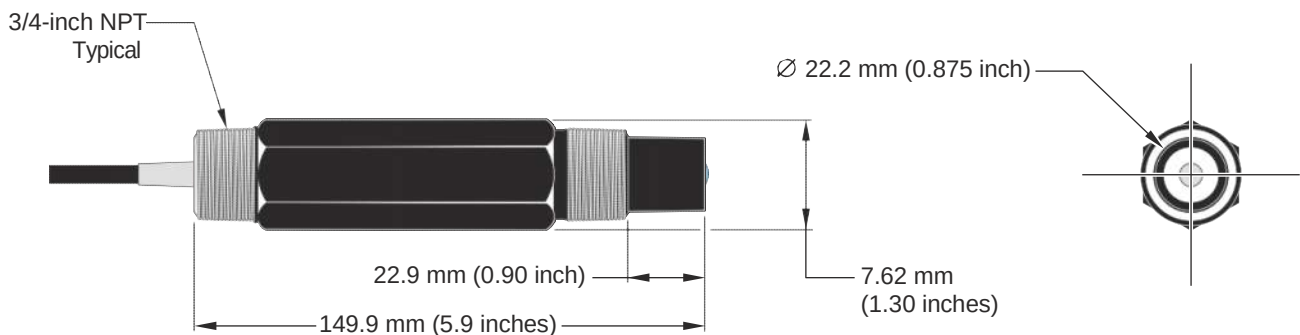
Insertion style sensors feature a longer, non-threaded PVDF body with two Viton® O-rings, providing a seal when used with the optional Hach insertion mount hardware assembly. This ball valve hardware enables sensor insertion and retraction from a pipe or vessel without having to stop the process flow.

Sanitary Style Sensor

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



Convertible Style with Flat Electrode



The Pulsatron Series A Plus offers manual function controls over stroke length and stroke rate as standard with the option to select external pace for automatic control.

Ten distinct models are available, having pressure capabilities to 250 PSIG (17 BAR) @ 12 GPO (1.9 lph), and flow capacities to 58 GPO (9.1 lph) @ 100 PSIG (7.0 BAR), with a standard turndown ratio of 100:1, and optional ratio of 1000:1. Metering performance is reproducible to within $\pm 3\%$ of maximum capacity.

Features

- Manual Control by on-line adjustable stroke rate and stroke length.
- Highly Reliable timing circuit.
- Circuit Protection against voltage and current upsets.
- Solenoid Protection by thermal overload with auto-reset.
- Water Resistant, for outdoor and indoor applications.
- Internally Dampened To Reduce Noise.
- Guided Ball Check Valve Systems, to reduce back flow and enhance outstanding priming characteristics.
- Few Moving Parts and Wall Mountable.
- Safe & Easy Priming with durable leak-free bleed valve assembly (standard).
- Optional Control: External pace with auto/manual selection.

Controls



Manual Stroke Rate

Manual Stroke Length

External Pacing-Optional

External Pace With Stop-Optional (125 SPM only)

Controls Options		
Feature	Standard Configuration	Optional Configuration ¹
External Pacing	--	Auto / Manual Selection ¹
External Pace w/ Stop (125SPM only)	--	Auto / Manual Selection ²
Manual Stroke Rate	10:1 Ratio	100:1 Ratio
Manual Stroke Length	10:1 Ratio	10:1 Ratio
Total Turndown Ratio	100:1 Ratio	1000:1 Ratio

Note 1: On S2, S3 & S4 sizes only.

Note 2: Not available on 1000:1 turndown pumps.

Operating Benefits

- Reliable metering performance.
- Rated "hot" for continuous duty.
- High viscosity capability.
- Leak-free, sealless, liquid end.



Aftermarket

- KOPkits
- Gauges
- Dampeners
- Pressure Relief Valves
- Tanks
- Pre-Engineered Systems
- Process Controllers (PULSAblue, MicroVision)



Series A Plus
Electronic Metering Pumps

Series A Plus

Specifications and Model Selection

MODEL			LBC2	LB02	LBC3	LB03	LB04	LB64	LBC4	LBS2	LBS3	LBS4
Capacity nominal (max.)		GPH	025	025	0.42	0.50	1.00	125	2.00	0.50	1.38	2.42
		GPO	6	6	10	12	24	30	48	12	33	58
		LPH	0.9	0.9	1.6	1.9	3.8	4.7	7.6	1.9	5.2	9.14
Pressure ³ (max.)	GFPP,PVDF,316SS or PVC <;N/code) w/TFE Seats)	PSIG (Bar)	250 (17)	150 (10)	250 (17)	150 (10)	100 (7)	100 (7)	50 (33)	250 (17)	150 (10)	100 (7)
	PVC (V code) Viton or CSPE Seats IDegas Liquid End		150 (10)									
Connections:		Tubing	1 1/4" ID X 3/8" OD						3/8" ID X 1/2" OD	1 1/4" ID X 3/8" OD		
		Piping	1 1/4" FNPT									
Strokes/Minute		SPM	125							250		

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

Engineering Data

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

Diaphragm: PTFE-faced CSPE-backed

Check Valves Materials Available: Seats/O-Rings: PTFE, CSPE, Viton

Balls: Ceramic, PTFE, 316 SS, Alloy C

Fittings Materials Available: GFPP, PVC, PVDF

Bleed Valve: Same as fitting and check valve selected, except 316SS

Injection Valve & Foot Valve Assy: Same as fitting and check valve selected

Tubing: Clear PVC, White PE

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

Engineering Data

Reproducibility: +/- 3% at maximum capacity

Viscosity Max CPS: 1000 CPS

Stroke Frequency Max SPM: 125 / 250 by Model

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

Stroke Length Turn-Down Ratio: 10:1

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

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

Peak Input Power: 130 Watts

Average Input Power @ Max SPM: 50 Watts

Custom Engineered Designs- Pre-Engineered Systems



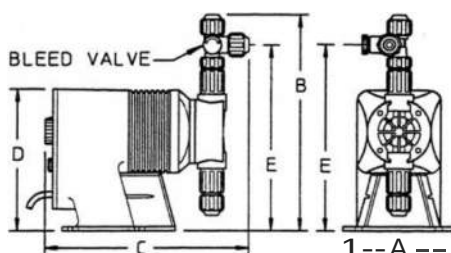
Pre-Engineered Systems

Pulsafeeder's Pre-Engineered Systems are designed to provide complete chemical feed solutions for all electronic metering applications. From stand alone simplex pH control applications to full-featured, redundant sodium hypochlorite disinfection metering, these rugged fabricated assemblies offer turn-key simplicity and industrial-grade durability. The UV-stabilized, high-grade HOPE frame offers maximum chemical compatibility and structural rigidity. Each system is factory assembled and hydrostatically tested prior to shipment.

Dimensions

Series A PLUS Dimensions (inches)						
Model No.	A	B	C	D	E	Shipping Weight
LB02 IS2	5.0	9.6	9.5	6.5	8.2	10
LBC2	5.0	9.9	9.5	6.5	8.5	10
LBC3	5.0	9.9	9.5	6.5	8.5	10
LB03 IS3	5.0	9.9	9.5	6.5	8.5	10
LB04	5.0	9.9	9.5	6.5	8.5	10
LB64	5.0	9.9	9.5	6.5	8.5	10
LBC4	5.0	9.9	9.5	6.5	8.5	10

NOTE: inches X 25.4 cm



95-Gallon OverPack - 32" dia x 41.5", 1 each/package



Stock a SpillTech® OverPack with sorbents for emergency spill response, or use it as a salvage drum to ship damaged containers or hazardous waste.

- DOT-Approved for Salvage: All SpillTech® OverPacks are DOT-approved and X-rated for use as salvage drums. Helps companies conform to federal regulations when shipping damaged or leaking containers of hazardous materials, or absorbents contaminated with hazardous substances.
- Perfect for Spill Kits: Stores sorbent products (not included) for easy access as needed for spill control. Saves time when quick response is necessary.
- Sturdy Construction: 100% polyethylene OverPack resists chemicals, rust and corrosion for years of use. Integrated handles make them easy to lift, move or carry with standard material handling equipment. Twist-on, double-wall lid with closed-cell gasket provides sealed, secure closure to prevent leaks and protect contents from moisture, dirt and damage. Durable to withstand rough handling.
- Customized for You: We can customize a Spill Kit to your exact specifications, including the container, its contents and accessories, with no upcharge! Contact your local Distributor for details.

A95OVER Specifications

Dimensions:	ext. dia. 32" x 41.5" H
Shipping Dimensions:	31.75" W x 41.5" L x 31.75" H
Sold as:	1 per package
Color:	Yellow
Composition:	Polyethylene
# per Pallet:	3
Incinerable:	No
Ship Class:	250

Metric Equivalent Specifications

Dimensions:	ext. dia. 81.3cm x 105.4cm H
Shipping Dimensions:	80.6cm W x 105.4cm L x 80.6cm H

A95OVER Technical Information

Warnings & Restrictions:

There are no known warnings and restrictions for this product.

Regulations and Compliance:

49 CFR 173.3(c)(1) - If a container of hazardous waste is damaged or leaking, it can be placed in a compatible salvage drum that meets UN criteria for shipping

49 CFR 173.12(b)(2)(iv) - When labpacking, "Inner packagings...must be surrounded by a chemically compatible absorbent material in sufficient quantity to absorb the total liquid contents."

49 CFR 173.12(b) - A container used for labpacking must be "a UN 1A2 or UN 1B2 metal drum, a UN 1D plywood drum, a UN 1G fiber drum or a UN 1H2 plastic drum tested and marked at least for the Packing Group III performance level for liquids or solids."

Sulfuric Acid, 70-100%

Safety Data Sheet

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

Regulations Revision Date: 05/15/15

Version: 1.0

SECTION 1: IDENTIFICATION

Product Identifier

Product Name: Sulfuric Acid, 70-100%

Formula: H₂-O₄-S

Intended Use of the Product

Use of the Substance/Mixture: Industrial use.

Name, Address, and Telephone of the Responsible Party

Manufacturer

Emergency Telephone Number

Emergency number :

CHEMTREC 1-800-424-9300

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

SECTION 2: HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

Classification (GHS-US)

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

Skin Corr. 1A H314

Eye Dam. 1 H318

Carc. 1A H350

Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US)



Signal Word (GHS-US) : Danger

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

H318 - Causes serious eye damage

H330 - Fatal if inhaled

H350 - May cause cancer

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

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

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

P264 - Wash hands and forearms thoroughly after handling

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

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

P284 - Wear respiratory protection

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

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

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

P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

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

Other Hazards

Other Hazards Not Contributing to the Classification: Not available

Unknown Acute Toxicity (GHS-US) Not available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substances

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

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

Description of First Aid Measures

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

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

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

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

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

Most Important Symptoms and Effects Both Acute and Delayed

General: Corrosive. Causes burns.

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

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

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

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

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

Indication of Any Immediate Medical Attention and Special Treatment Needed

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

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

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

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

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Special Hazards Arising From the Substance or Mixture

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

Explosion Hazard: Product is not explosive.

Reactivity: Reacts with water.

Advice for Firefighters

Precautionary Measures Fire: Not available

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

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

Hazardous Combustion Products: Sulphur oxides.

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

Reference to Other Sections

Refer to section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Do not breathe vapour or mist.

For Non-Emergency Personnel

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

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

For Emergency Personnel

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

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

Environmental Precautions

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

Methods and Material for Containment and Cleaning Up

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

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

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

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

Conditions for Safe Storage, Including Any Incompatibilities

Storage Conditions: Detached outside storage is preferable.

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

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

Specific End Use(s) Not available

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

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

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

Exposure Controls

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

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

Materials for Protective Clothing: Acid-resistant clothing.

Hand Protection: Impermeable protective gloves.

Eye Protection: Face shield.

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

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

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

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

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

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

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Reacts with water.

Chemical Stability: Stable at standard temperature and pressure.

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

Conditions to Avoid: Protect from moisture.

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

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

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects - Product

Acute Toxicity: Fatal if inhaled.

LD50 and LC50 Data:

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

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

pH: 0.3

Serious Eye Damage/Irritation: Causes serious eye damage.

pH: 0.3

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Teratogenicity: Not available

Carcinogenicity: May cause cancer.

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

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

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

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

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

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

Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

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

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

SECTION 12: ECOLOGICAL INFORMATION

Toxicity Not classified

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

Persistence and Degradability

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

Bioaccumulative Potential

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

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

Mobility in Soil Not available

Other Adverse Effects Not available

SECTION 13: DISPOSAL CONSIDERATIONS

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

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

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

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



14.2 In Accordance with IMDG

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



14.3 In Accordance with IATA

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



14.4 In Accordance with TDG

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



Sulfuric Acid, 70-100%

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Label Codes : 8

SECTION 15: REGULATORY INFORMATION

US Federal Regulations

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

US State Regulations

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

Canadian Regulations

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

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

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

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

GHS Full Text Phrases:

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

Sulfuric Acid, 70-100%

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

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



Job Safety Analysis

pH/Chem Feed System

Date: 5/10/2016

Completed By: Tammie Hagie

Approved By: Mike Deso

Required PPE: Hard Hat, Safety Toe Boots, Reflective Vest, Safety Glasses, Chemical Resistant Gloves

TASK	POTENTIAL RISK/HAZARD	CONTROLS
Transporting acid/chemical drum	Splash, spill, heavy lifting ☐	Inspect condition of drum prior to transportation. Use material handling devices when possible to move equipment (lift gates, pallet jacks, hand trucks, etc.). If necessary, use a ramp for loading/unloading wheeled devices, ensuring the ramp is properly supported prior to use. Lift with your knees and use drum dolly. Make sure drum is secure in vehicle prior to transportation. Review SDS on acid/chemical. Wear proper PPE and dispose of materials after clean up in a sealed container. Immediately use the eye wash station if acid or chemical comes in contact with your eye.
Opening acid drum	Splash, spill	Review MSDS on acid/chemical. Wear proper PPE and dispose of materials after clean up in a sealed container. Immediately use the eye wash station if acid or chemical comes in contact with your eye. Use bung wrench to open the drum properly.
Set up chemical feed pump	Splash, spill, leak	Wear proper PPE and dispose of materials after clean up in a sealed container. Immediately use the eye wash station if acid or chemical comes in contact with your eye. Monitor chem feed pump to assure its working and not leaking. Use chemical resistant tubing to transport liquid from the pump.
Notes:		

Note any changes/deviations to this JSA

Creation Date 16-Jun-2009

Revision Date 07-Aug-2015

Revision Number 8

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identification

Product Description:	Sodium hydroxide
Cat No. :	SP/1238/25
Synonyms	Caustic soda
CAS-No	1310-73-2
EC-No.	215-185-5
Molecular Formula	H Na O
Reach Registration Number	01-2119457892-27

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use	Laboratory chemicals.
Sector of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
Product category	PC21 - Laboratory chemicals
Process categories	PROC15 - Use as a laboratory reagent
Environmental release category	ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
Uses advised against	No Information available

1.3. Details of the supplier of the safety data sheet

Company	Fisher Scientific UK Bishop Meadow Road, Loughborough, Leicestershire LE11 5RG, United Kingdom
E-mail address	begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

Tel: 01509 231166
Chemtrec US: (800) 424-9300
Chemtrec EU: 001 (202) 483-7616

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards

Substances/mixtures corrosive to metal

Category 1

Health hazards

Skin Corrosion/irritation

Category 1 A

Serious Eye Damage/Eye Irritation

Category 1

Environmental hazards

Based on available data, the classification criteria are not met

2.2. Label elements

SAFETY DATA SHEET

Sodium hydroxide

Revision Date 07-Aug-2015



Signal Word

Danger

Hazard Statements

H290 - May be corrosive to metals

H314 - Causes severe skin burns and eye damage

Precautionary Statements

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

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P310 - Immediately call a POISON CENTER or doctor/ physician

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

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

2.3. Other hazards

No information available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Component	CAS-No	EC-No.	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Sodium hydroxide	1310-73-2	EEC No. 215-185-5	100	Skin Corr. 1A (H314) Eye Dam. 1 (H318) Met. Corr. 1 (H290)

Reach Registration Number	01-2119457892-27

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice

Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required. Keep eye wide open while rinsing.

Skin Contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Call a physician immediately.

Ingestion

Do not induce vomiting. Immediate medical attention is required. Never give anything by mouth to an unconscious person. Drink plenty of water.

Inhalation

Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Call a physician or Poison Control Center immediately.

SAFETY DATA SHEET

Sodium hydroxide

Revision Date 07-Aug-2015

Protection of First-aiders

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

4.2. Most important symptoms and effects, both acute and delayed

Causes burns by all exposure routes. . Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician

Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

CO₂, dry chemical, dry sand, alcohol-resistant foam.

Extinguishing media which must not be used for safety reasons

No information available.

5.2. Special hazards arising from the substance or mixture

The product causes burns of eyes, skin and mucous membranes.

Hazardous Combustion Products

Sodium oxides, Hydrogen.

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Evacuate personnel to safe areas. Avoid contact with skin, eyes and clothing.

6.2. Environmental precautions

Do not allow material to contaminate ground water system. Should not be released into the environment. Do not flush into surface water or sanitary sewer system. See Section 12 for additional ecological information.

6.3. Methods and material for containment and cleaning up

Avoid dust formation. Sweep up or vacuum up spillage and collect in suitable container for disposal.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Wear personal protective equipment. Use only under a chemical fume hood. Do not get in eyes, on skin, or on clothing. Do not breathe dust. Do not ingest.

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7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area.

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

List source(s): **UK** - EH40/2005 Containing the workplace exposure limits (WELs) for use with the Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended). Updated by September 2006 official press release and October 2007 Supplement. **IRE** - 2010 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001. Published by the Health and Safety Authority.

Component	European Union	The United Kingdom	France	Belgium	Spain
Sodium hydroxide		2 mg/m ³ STEL	TWA / VME: 2 mg/m ³ (8 heures).	2 mg/m ³ VLE	STEL / VLA-EC: 2 mg/m ³ (15 minutos).

Component	Italy	Germany	Portugal	The Netherlands	Finland
Sodium hydroxide		2 mg/m ³ TWA (inhalable fraction)	Ceiling: 2 mg/m ³		STEL: 2 mg/m ³ 15 minuutteina Ceiling: 2 mg/m ³

Component	Austria	Denmark	Switzerland	Poland	Norway
Sodium hydroxide	MAK-KZW: 4 mg/m ³ 15 Minuten MAK-TMW: 2 mg/m ³ 8 Stunden	Ceiling: 2 mg/m ³	STEL: 2 mg/m ³ 15 Minuten TWA: 2 mg/m ³ 8 Stunden	STEL: 1 mg/m ³ 15 minutach TWA: 0.5 mg/m ³ 8 godzinach	Ceiling: 2 mg/m ³

Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
Sodium hydroxide	TWA: 2.0 mg/m ³	STEL-KGVI: 2 mg/m ³ 15 minutama.	STEL: 2 mg/m ³ 15 min		TWA: 1 mg/m ³ 8 hodinách. Ceiling: 2 mg/m ³

Component	Estonia	Gibraltar	Greece	Hungary	Iceland
Sodium hydroxide	TWA: 1 mg/m ³ 8 tundides. Ceiling: 2 mg/m ³		STEL: 2 mg/m ³ TWA: 2 mg/m ³	STEL: 2 mg/m ³ 15 percekben. CK TWA: 2 mg/m ³ 8 órában. AK	STEL: 2 mg/m ³

Component	Latvia	Lithuania	Luxembourg	Malta	Romania
Sodium hydroxide	TWA: 0.5 mg/m ³	Ceiling: 2 mg/m ³			

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
Sodium hydroxide		TWA: 2 mg/m ³	TWA: 2 mg/m ³ 8 urah inhalable fraction STEL: 2 mg/m ³ 15 minutah inhalable fraction	LLV: 1 mg/m ³ 8 timmar. inhalable dust CLV: 2 mg/m ³	

Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of

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exposure to chemical and biological agents.

MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

Derived No Effect Level (DNEL) See table for values

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral Dermal Inhalation	1 mg/m ³			

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Engineering Measures

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection Goggles (European standard - EN 166)
Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Neoprene	> 480 minutes	0.45 mm	Level 6	As tested under EN374-3 Determination of
Butyl rubber	> 480 minutes	0.35 mm	EN 374	Resistance to Permeation by Chemicals
Viton (R)	> 480 minutes	0.30 mm		

Skin and body protection Long sleeved clothing

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves.

(Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Large scale/emergency use

Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

Recommended Filter type: Particulates filter conforming to EN 143

Small scale/Laboratory use

Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141

When RPE is used a face piece Fit Test should be conducted

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls Prevent product from entering drains.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance White
Physical State Solid

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Odor	Odorless	
Odor Threshold	No data available	
pH	14	(5 %)
Melting Point/Range	318 °C / 604.4 °F	
Softening Point	No data available	
Boiling Point/Range	1390 °C / 2534 °F	@ 760 mmHg
Flash Point	No information available	Method - No information available
Evaporation Rate	Not applicable	Solid
Flammability (solid,gas)	Not flammable	
Explosion Limits	No data available	
Vapor Pressure	1 mbar @ 700 °C	
Vapor Density	Not applicable	Solid
Specific Gravity / Density	No data available	
Bulk Density	2.13 g/cm3	
Water Solubility	Completely soluble	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Autoignition Temperature		
Decomposition Temperature	No data available	
Viscosity	Not applicable	Solid
Explosive Properties	Not explosive	
Oxidizing Properties	No information available	

9.2. Other information

Molecular Formula	H Na O
Molecular Weight	40

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Yes
Contact with metals may evolve flammable hydrogen gas

10.2. Chemical stability

Stable under normal conditions

10.3. Possibility of hazardous reactions

Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

10.4. Conditions to avoid

Incompatible products. Excess heat.

10.5. Incompatible materials

Strong oxidizing agents. Acids. Metals. Water. . Alcohols.

10.6. Hazardous decomposition products

Sodium oxides. Hydrogen.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Product Information	No acute toxicity information is available for this product
(a) acute toxicity;	
Oral	Based on available data, the classification criteria are not met
Dermal	Based on available data, the classification criteria are not met
Inhalation	Based on available data, the classification criteria are not met

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Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sodium hydroxide		1350 mg/kg (Rabbit)	

(b) skin corrosion/irritation;	Category 1 A
(c) serious eye damage/irritation;	Category 1
(d) respiratory or skin sensitization;	
Respiratory	Based on available data, the classification criteria are not met
Skin	Based on available data, the classification criteria are not met
(e) germ cell mutagenicity;	Based on available data, the classification criteria are not met
(f) carcinogenicity;	Mutagenic effects have occurred in experimental animals Based on available data, the classification criteria are not met There are no known carcinogenic chemicals in this product
(g) reproductive toxicity;	Based on available data, the classification criteria are not met
(h) STOT-single exposure;	Based on available data, the classification criteria are not met
(i) STOT-repeated exposure;	Based on available data, the classification criteria are not met
Target Organs	Eyes, Skin, Respiratory system, Gastrointestinal tract (GI).
(j) aspiration hazard;	Not applicable Solid
Other Adverse Effects	See actual entry in RTECS for complete information
Symptoms / effects, both acute and delayed	Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects

Do not empty into drains. Contains a substance which is: Harmful to aquatic organisms. The product contains following substances which are hazardous for the environment.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Sodium hydroxide	45.4 mg/L LC50 96 h			

12.2. Persistence and degradability

Persistence Degradability Degradation in sewage treatment plant

Soluble in water, Persistence is unlikely, based on information available.
Not relevant for inorganic substances.
Neutralization is normally necessary before waste water is discharged into water treatment plants. Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

12.3. Bioaccumulative potential

Does not bioaccumulate; Bioaccumulation is unlikely

12.4. Mobility in soil

The product is water soluble, and may spread in water systems Will likely be mobile in the environment due to its water solubility. Highly mobile in soils

12.5. Results of PBT and vPvB assessment

No data available for assessment.

12.6. Other adverse effects

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Endocrine Disruptor Information	This product does not contain any known or suspected endocrine disruptors
Persistent Organic Pollutant	This product does not contain any known or suspected substance
Ozone Depletion Potential	This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues / Unused Products	Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.
Contaminated Packaging	Dispose of this container to hazardous or special waste collection point.
European Waste Catalogue (EWC)	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.
Other Information	Do not dispose of waste into sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms. Solutions with high pH-value must be neutralized before discharge.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number	UN1823
14.2. UN proper shipping name	Sodium hydroxide, solid
14.3. Transport hazard class(es)	8
14.4. Packing group	II

ADR

14.1. UN number	UN1823
14.2. UN proper shipping name	Sodium hydroxide, solid
14.3. Transport hazard class(es)	8
14.4. Packing group	II

IATA

14.1. UN number	UN1823
14.2. UN proper shipping name	Sodium hydroxide, solid
14.3. Transport hazard class(es)	8
14.4. Packing group	II

14.5. Environmental hazards	No hazards identified
14.6. Special precautions for user	No special precautions required
14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

International Inventories

X = listed

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	IECSC	AICS	KECL
Sodium hydroxide	215-185-5	-		X	X	-	X	X	X	X	X

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National Regulations

Component	Germany - Water Classification (VwVwS)	Germany - TA-Luft Class
Sodium hydroxide	WGK 1	

Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment.

Take note of Dir 94/33/EC on the protection of young people at work

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has been conducted by the manufacturer/importer

SECTION 16: OTHER INFORMATION

Full Text of H-/EUH-Statements Referred to Under Section 3

H290 - May be corrosive to metals

H314 - Causes severe skin burns and eye damage

H318 - Causes serious eye damage

Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

DNEL - Derived No Effect Level

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration

PBT - Persistent, Bioaccumulative, Toxic

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

PNEC - Predicted No Effect Concentration

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC - Volatile Organic Compounds

Key literature references and sources for data

Suppliers safety data sheet, Chemadviser - LOLI, Merck index, RTECS

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Chemical incident response training.

Creation Date 16-Jun-2009

Revision Date 07-Aug-2015

Revision Summary Update to Format.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information

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relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of Safety Data Sheet

SAFETY DATA SHEET

Creation Date 12-Nov-2010

Revision Date 24-May-2017

Revision Number 5

1. Identification

Product Name Sulfuric Acid (Certified ACS Plus)

Cat No. : A300-212; A300-225LB; A300-500; A300-612GAL; A300-700LB;
A300C212; A300C212EA; A300P500; A300S212; A300S212EA;
A300S500; A300SI212

Synonyms Hydrogen sulfate; Vitriol brown oil; Oil of vitriol

Recommended Use Laboratory chemicals.

Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company

Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number

CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Corrosion/irritation	Category 1 A
Serious Eye Damage/Eye Irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	

Label Elements

Signal Word

Danger

Hazard Statements

Causes severe skin burns and eye damage
May cause respiratory irritation



Precautionary Statements**Prevention**

Do not breathe dust/fume/gas/mist/vapors/spray
Wear protective gloves/protective clothing/eye protection/face protection
Wash face, hands and any exposed skin thoroughly after handling
Use only outdoors or in a well-ventilated area

Response

Immediately call a POISON CENTER or doctor/physician

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Skin

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse

Eyes

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

Ingestion

IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

Storage

Store locked up
Store in a well-ventilated place. Keep container tightly closed

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

WARNING! This product contains a chemical known in the State of California to cause cancer.

Unknown Acute Toxicity

3. Composition / information on ingredients

Component	CAS-No	Weight %
Sulfuric acid	7664-93-9	90 - 98
Water	7732-18-5	2 - 10

4. First-aid measures

General Advice

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing before re-use. Call a physician immediately.

Inhalation

If not breathing, give artificial respiration. Remove from exposure, lie down. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician immediately.

Ingestion

Do not induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately.

Most important symptoms/effects

Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media CO₂, dry chemical, dry sand, alcohol-resistant foam.

Unsuitable Extinguishing Media DO NOT USE WATER

Flash Point Not applicable
Method - No information available

Autoignition Temperature No information available

Explosion Limits

Upper No data available

Lower No data available

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes.

Hazardous Combustion Products

Sulfur oxides Hydrogen

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health
3

Flammability
0

Instability
2

Physical hazards
W

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Environmental Precautions Should not be released into the environment.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe vapors or spray mist. Do not ingest.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from water. Corrosives area.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Sulfuric acid	TWA: 0.2 mg/m ³	(Vacated) TWA: 1 mg/m ³ TWA: 1 mg/m ³	IDLH: 15 mg/m ³ TWA: 1 mg/m ³	TWA: 1 mg/m ³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures	Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.
<u>Personal Protective Equipment</u>	
Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection	Long sleeved clothing.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Clear, Colorless to brown
Odor	Odorless
Odor Threshold	No information available
pH	0.3 (1N)
Melting Point/Range	10 °C / 50 °F
Boiling Point/Range	290 - 338 °C / 554 - 640.4 °F
Flash Point	Not applicable
Evaporation Rate	Slower than ether
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	< 0.001 mmHg @ 20 °C
Vapor Density	3.38 (Air = 1.0)
Specific Gravity	1.84
Solubility	Soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	340°C
Viscosity	No information available
Molecular Formula	H ₂ SO ₄
Molecular Weight	98.08

10. Stability and reactivity

Reactive Hazard	Yes
Stability	Reacts violently with water. Hygroscopic.
Conditions to Avoid	Incompatible products. Excess heat. Exposure to moist air or water.
Incompatible Materials	Water, Organic materials, Strong acids, Strong bases, Metals, Alcohols, Cyanides, Sulfides
Hazardous Decomposition Products	Sulfur oxides, Hydrogen
Hazardous Polymerization	Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Oral LD50

Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

Dermal LD50

Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

Vapor LC50

Based on ATE data, the classification criteria are not met. ATE > 20 mg/l.

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sulfuric acid	2140 mg/kg (Rat)	Not listed	LC50 = 510 mg/m ³ (Rat) 2 h
Water	-	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Causes severe burns by all exposure routes

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen. Exposure to strong inorganic mists containing sulfuric acid may cause cancer by inhalation.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Sulfuric acid	7664-93-9	Group 1	Known	A2	X	A2
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed	Not listed

IARC: (International Agency for Research on Cancer)

IARC: (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

Group 2A - Probably Carcinogenic to Humans

Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)

Known - Known Carcinogen

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

A1 - Known Human Carcinogen

A2 - Suspected Human Carcinogen

A3 - Animal Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

Mexico - Occupational Exposure Limits - Carcinogens

Mexico - Occupational Exposure Limits - Carcinogens

A1 - Confirmed Human Carcinogen

A2 - Suspected Human Carcinogen

A3 - Confirmed Animal Carcinogen

A4 - Not Classifiable as a Human Carcinogen

A5 - Not Suspected as a Human Carcinogen

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects, both acute and delayed Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

This product contains the following substance(s) which are hazardous for the environment. .

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Sulfuric acid	-	LC50: > 500 mg/L, 96h static (Brachydanio rerio)	-	EC50: 29 mg/L/24h

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility No information available.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN1830
 Proper Shipping Name Sulfuric acid
 Hazard Class 8
 Packing Group II

TDG

UN-No UN1830
 Proper Shipping Name SULFURIC ACID
 Hazard Class 8
 Packing Group II

IATA

UN-No UN1830
 Proper Shipping Name SULFURIC ACID
 Hazard Class 8
 Packing Group II

IMDG/IMO

UN-No UN1830
 Proper Shipping Name SULFURIC ACID
 Hazard Class 8
 Packing Group II

15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Sulfuric acid	X	X	-	231-639-5	-		X	X	X	X	X
Water	X	X	-	231-791-2	-		X	-	X	X	X

Legend:

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Sulfuric acid	7664-93-9	90 - 98	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	Yes

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Sulfuric acid	X	1000 lb	-	-

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Sulfuric acid	1000 lb	1000 lb

California Proposition 65 This product contains the following proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Sulfuric acid	7664-93-9	Carcinogen	-	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Sulfuric acid	X	X	X	X	X
Water	-	-	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 12-Nov-2010
Revision Date 24-May-2017
Print Date 24-May-2017
Revision Summary SDS sections updated. 2.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

APPENDIX E

Endangered Species Act (ESA) Assessment



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:

April 20, 2021

Consultation Code: 05E1NE00-2021-SLI-2568

Event Code: 05E1NE00-2021-E-07981

Project Name: 60 Kilmarnock Street

Subject: List of threatened and endangered species that may occur in your proposed project location 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

www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

[http://](http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html)

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

New England Ecological Services Field Office

70 Commercial Street, Suite 300

Concord, NH 03301-5094

(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2021-SLI-2568

Event Code: 05E1NE00-2021-E-07981

Project Name: 60 Kilbuck Street

Project Type: DEVELOPMENT

Project Description: The site is located at 60 Kilbuck Street in Boston, and consists of four parcels totaling approximately 1.7 acres. The proposed development consists of two, 8-story residential buildings which will occupy the majority of the site footprint. The buildings are planned to have one basement level, and construction is expected to last for approximately two years.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@42.34269385,-71.09852905683593,14z>



Counties: Suffolk County, Massachusetts

Endangered Species Act Species

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

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

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

Critical habitats

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

APPENDIX F

National Historical Preservation Act Review



Map Legends



MHC Inventory Areas

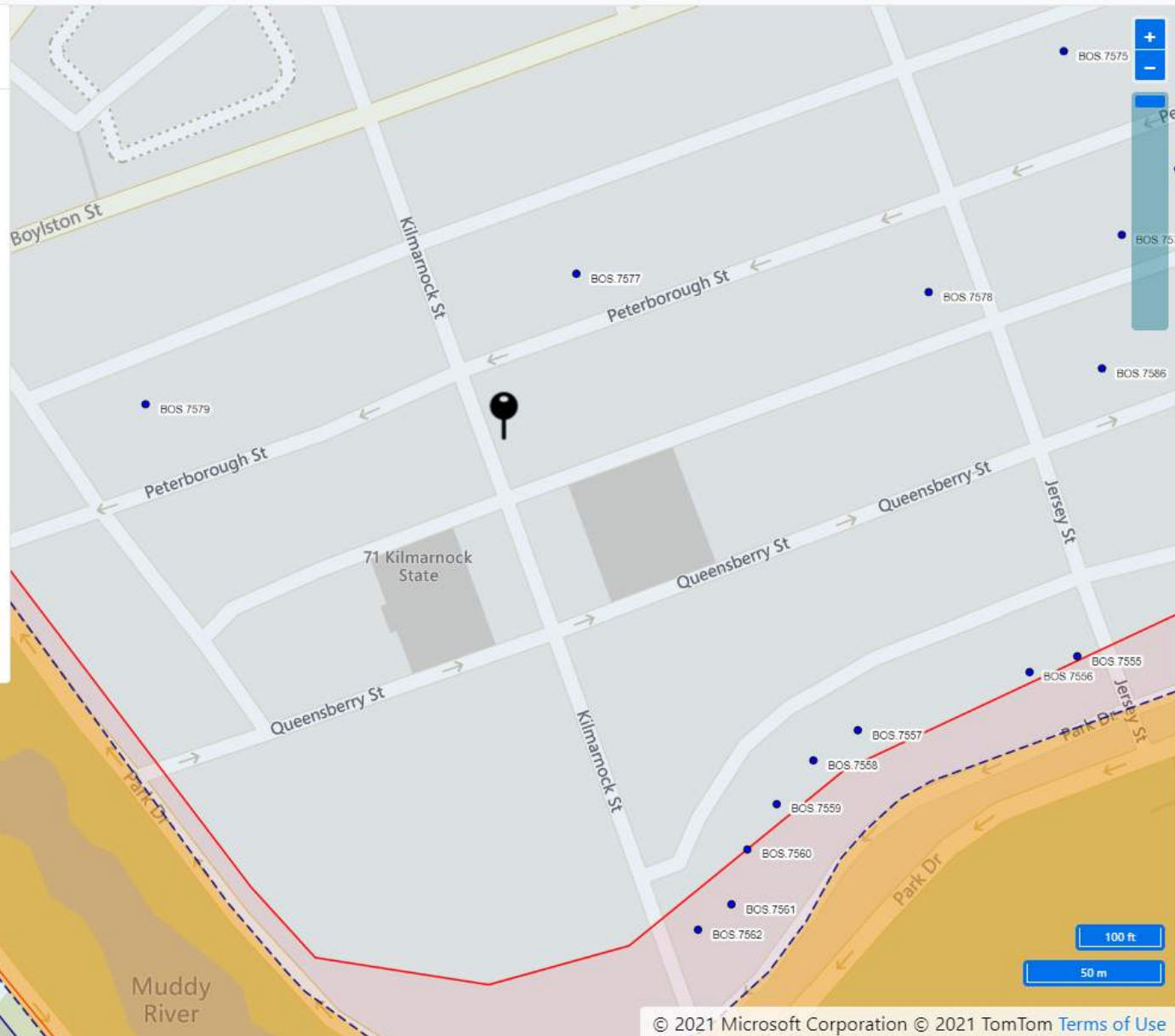
- National Register Historic Places
- Preservation Restriction
- Local Historic District
- National Register Historic Places & Local Historic District
- Massachusetts Historic Landmark
- Inventoried Area

MHC Inventory Points

- National Register Historic Places
- Preservation Restriction
- Local Historic District
- National Register Historic Places & Local Historic District
- Massachusetts Historic Landmark
- Inventoried Property

MHC Update Status

- Updates Pending
- Completed



Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

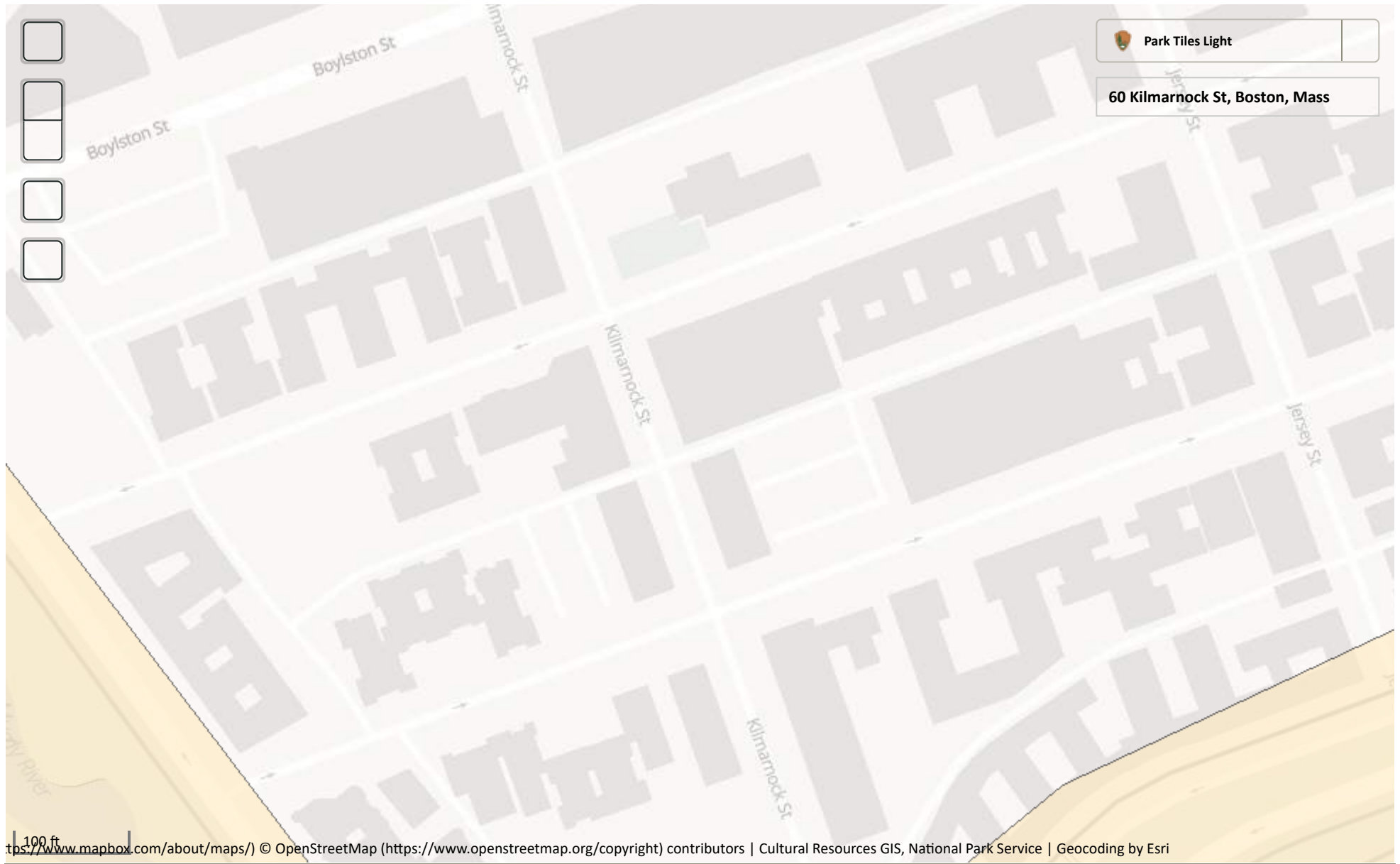
Search Criteria: Town(s): Boston; Street No: 60; Street Name: Kilmarnock; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year

National Register of Historic Places

National Park Service
U.S. Department of the Interior

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



<https://www.mapbox.com/about/maps/> | © OpenStreetMap (<https://www.openstreetmap.org/copyright>) contributors | Cultural Resources GIS, National Park Service | Geocoding by Esri

APPENDIX G

Copies of Construction Dewatering Permit Applications



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

4 May 2021
File No. 129198-009

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

Attention: Jodi Dobay

Subject: Request for Approval of Temporary Construction Dewatering
60 Kilbarnock Street
Boston, Massachusetts

Dear Ms. Dobay:

On behalf of our client, 60 Kilbarnock (Boston) Owner, LLC, this letter submits the Dewatering Discharge Permit Application in support of the proposed 60 Kilbarnock Street project, located in Boston, Massachusetts.

Dewatering is necessary to enable construction excavations in-the-dry and is anticipated to begin in August 2021 and continue for up to 24 months. Prior to discharge, collected water will be routed through a sedimentation tank and bag filter at minimum to remove suspended solids and un-dissolved chemical constituents. The proposed dewatering discharge route and BWSC outfall locations are shown on Figure 1.

A submittal was provided to USEPA for discharge of the dewatering effluent under the Remediation General Permit (RGP). A copy of the submitted RGP application is attached. If you have any questions, please feel free to contact the undersigned at 617-886-7400.

Sincerely yours,
HALEY & ALDRICH, INC.

A handwritten signature in blue ink that reads 'Beck Straley'.

Beck Straley, LSP (MA)
Senior Project Manager

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



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

DEWATERING DISCHARGE PERMIT APPLICATION

OWNER / AUTHORIZED APPLICANT PROVIDE INFORMATION HERE:

Company Name: 60 Kilmarnock (Boston) Owner, LLC Address: 185 Dartmouth Street, Boston MA 02216

Phone Number: 617-603-4006 Fax number: _____

Contact person name: John Sullivan Title: Executive Vice President

Cell number: 617-997-5483 Email address: jsullivan@ccfne.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: 60 Kilmarnock Street Neighborhood Fenway Boston

Discharge is to a: ☐ Sanitary Sewer ☐ Combined Sewer ☒ Storm Drain ☐ Other (specify): _____
Sedimentation Tank, Bag Filter, and any other components as necessary

Describe Proposed Pre-Treatment System(s): (refer to attached RGP Application)

BWSC Outfall No. SDO042 Receiving Waters Charles River

Temporary Discharges (Provide Anticipated Dates of Discharge): From August 2021 To August 2023

☐ 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: 4/29/21