HALEY ALDRICH

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REPORT ON

NPDES RGP APPLICATION FOR TEMPORARY CONSTRUCTION DEWATERING
THE RESIDENCES AT ALEWIFE
201-203 CONCORD TURNPIKE
CAMBRIDGE, MASSACHUSETTS

by Haley & Aldrich, Inc.
Boston, Massachusetts

for Environmental Protection Agency (EPA) Region 1
Boston, Massachusetts

File No. 129876-012
January 2018

HALEY & ALDRICH, INC.
465 Medford St.
Suite 2200
Boston, MA 02129
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5 January 2018
File No. 129876-012

Environmental Protection Agency (EPA) Region 1
5 Post Office Square, Suite 100
Mail Code OEP06-4
Boston, Massachusetts 02129

Attention: Shelley Puleo

Subject: NPDES RGP Application for Temporary Construction Dewatering
The Residences at Alewife
201 and 203 Concord Turnpike
Cambridge, Massachusetts

Dear Ms. Puleo:

On behalf of our client, CPC-T Holdings, LLC (c/o Criterion Development Partners), 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 during construction activities at the planned Residences at Alewife Project, located on Concord Turnpike (Rt. 2) in Cambridge, Massachusetts (herein referred to as the "Work Area"). A copy of the Notice of Intent (NOI) is included in Appendix A.

A. GENERAL SITE INFORMATION

The Work Area is a the 3.81-acre development site currently occupied by two buildings and a parking lot in between. One building is a two-story masonry building with a footprint of 16,786 sq. ft., constructed in 1982, with no below grade space. This building was most recently used as a motel, the Cambridge Gateway Inn. The second building is a two-story masonry concrete block building with a footprint of 22,847 sq. ft., most recently used as a bowling alley, Lanes & Games, and includes a lounge/restaurant. The bowling alley building was constructed in 1943. A portion of the building contains partially below grade space occupied by a mechanical room and a crawl space.

Most of the remainder of the site is paved. Wetlands are located adjacent to the southwest of the Work Area. A 5-level residential development (the VOX) abuts the site to the west, for which Haley & Aldrich served as the geotechnical and environmental consultant. The Work Area is bounded to the east by the AC Marriott Hotel Boston Cambridge, to the south by a 6-level parking garage (surrounded on three sides by the Work Area) and the Acorn Park office park, to the west by the VOX residential development, and to the north by Concord Turnpike, beyond which is residential and undeveloped land.

Based on conceptual plans prepared by ICON Architecture dated 17 January 2017, the construction is planned to consist of two 5-story wood frame residential buildings over at-grade parking levels (concrete podium), along with landscaping and other site improvements. Flood storage will be provided in select areas beneath the structures.

Dewatering is anticipated to be required for construction of the building foundations, utilities, and drainage improvements. Groundwater has been encountered at the site at depths ranging from approximately 2.5 to 6.5 feet. Excavations for building foundations and utilities are expected to extend through fill and organic deposits and into marine sand and clay deposits, up to 12 feet below existing site grade, or approximately 5.5-9.5 feet below the groundwater table.

Additional water may also be generated from surface runoff from precipitation, groundwater seepage, and construction-generated water (e.g., wheel washes, dust control, decontamination activities, water utility testing, etc.). Temporary construction dewatering is anticipated to begin in January 2018 and is estimated to occur intermittently over a period of approximately 12 months.

A portion of the Site defined under a previous RTN (RTN 3-0783) has historically been used as a gasoline station, furniture stripping business, and an automobile body and repair shop. The Site achieved regulatory closure under the MCP in 1997 with the submittal of a Class A-3 Response Action Outcome (RAO) Statement for RTN 3-0783 associated with impacted groundwater and soil resulting from an underground storage tank (UST) release. The RAO relies on an Activity and Use Limitation to maintain a condition of "No Significant Risk". The AUL was Amended in 2001 based on an Audit conducted by MassDEP. The Amended AUL restricts residential use of the property. Using additional data collected at the Site since the 1997 RAO was filed, which are further discussed below, Haley & Aldrich has prepared a Focused Risk Characterization which considers future residential use of the entire Site including the portion of the Site subject to the AUL pursuant to 310 CMR 40.0442(3) and MassDEP Guidance including Policy #WSC-00-425. The FRC concludes that residential use will be consistent with No Significant Risk provided that contaminated soil will be removed from the site to the extent whereby the need for the existing AUL will be eliminated. In accordance with 310 CMR 40.1067(4)(d), following completion of RAM activities a Revised Permanent Solution Statement will be prepared and submitted to MassDEP together with (or prior to) submittal of the AUL Termination. Since the RAM Plan will be undertaken to amend or eliminate the AUL in accordance with 310 CMR 40.1067(4)(b)(3.), a separate LSP Opinion under 40.1080(1)(a) was also prepared.

Several subsurface exploration programs have been conducted at the Site between 2006 and 2016 by Haley & Aldrich and others. A recent soil and groundwater precharacterization program was conducted at the Site by Haley & Aldrich between April and June 2017 in preparation for the proposed Site development. Laboratory analytical results identified petroleum, lead, volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) in soil at the Site at concentrations exceeding applicable MCP RCS-1 Reportable Concentrations. One VOC compound was also detected in groundwater at the Site at a concentration exceeding the RCGW-2 criteria. The impacts are associated with a former petroleum release at the Site associated with RTN 3-0783 and urban fill material. Although a portion of the subject Site is a documented MassDEP Disposal Site (RTN 3-0783) for lead and petroleum hydrocarbons, new data collected at the subject Site identified higher concentrations than

previously reported and as such constituted a new reporting obligation to MassDEP. Accordingly, a BWSC103 Release Notification Form (RNF) was submitted by The Residences at Alewife Station, LLP on 18 August 2017 for the new development Site. MassDEP subsequently assigned RTN 3-34420 to the release.

A Release Abatement Measure (RAM) Plan was submitted to MassDEP on 11 September 2017 for management of excavated soils associated with the proposed mixed commercial and multi-family residential development in the Work Area under the two Site RTNs.

B. RECEIVING WATER INFORMATION

Receiving water quality data was collected in support of this NOI on 15 September 2017, the results of which are summarized in Table II. Receiving water temperature was obtained in the field at 17.7 °C, and is noted on the effluent limitations input calculation page in Appendix B. The sample was collected in the wetlands approximately 1,350 feet upstream from the proposed discharge area. The laboratory data report is provided in Appendix F.

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 28 September 2017. The StreamStats report, Dilution Factor calculations, and MassDEP confirmation of the 7Q10 and Dilution Factor are included in Appendix B.

Copies of the "EnterData" and "FreshwaterResults" tabs from the excel file provided as an additional resource by EPA are included in Appendix B and will be transmitted electronically with the NOI. The effluent limitations calculated are included for reference in Table I.

C. SOURCE WATER INFORMATION

To evaluate groundwater (source water) quality at the Work Area, three representative groundwater samples were obtained on 28 April and 21 June 2017 from three monitoring wells recently installed by Haley & Aldrich within the Work Area as part of a site characterization program. The three monitoring wells are identified as B-F4 (OW), B-I6 (OW), and G1 (OW), and the well locations are shown on Figure 2.

The three groundwater samples were sent to a MassDEP-certified laboratory, Alpha Analytical, for analysis of constituents consistent with requirements for a National Pollution Discharge Elimination System (NPDES) Remediation General Dewatering Permit (RGP). The groundwater samples were analyzed for one or more of the following parameters: TPH, VOCs, SVOCs, PCBs, Pesticides, Total and Dissolved Metals, and Waste Characteristics.

A summary of the groundwater chemical analytical data is provided as Table II. Copies of the laboratory data reports are provided in Appendix F. The analytical data results from the 2013 and 2016 investigations are also included in Table II.

The data are compared to 2014 MCP Method 1 GW-2/GW-3 criteria and the 2010 NPDES RGP Category III Fresh Water Effluent Limits concentrations. In summary, the 2017 sampling data exceed the NPDES RGP Category III criteria for several constituents, including VOCs (e.g. benzene, naphthalene, toluene, total xylenes, and others), total and dissolved metals (e.g. iron, lead, and others), and total suspended solids. The VOCs were detected in the B-F4 OW-20170428 and G1 OW-20170621 groundwater samples at concentrations which exceed the 2010 NPDES RGP Category III criteria. The pH detected for the three groundwater samples ranged from 6.4 to 6.5.

D. DISCHARGE INFORMATION

Construction dewatering will include piping and discharging to a sedimentation basin on-site that overflows to wetlands located southwest of the Work Area. The wetlands discharge to Little River (also known as Alewife Brook). The proposed discharge route is shown on Figure 2 and includes piping dewatering effluent discharge to a temporary sedimentation basin in the southwest section of the Work Area. Riprap and filter fabric will be constructed as a dissipater at the Work Area boundary adjacent to the wetlands to prevent sedimentation/erosion at the discharge area to the wetlands. We anticipate effluent discharge rates to be about 50 gallons per minute (gpm) or less, with occasional peak flows of about 150 gpm during significant precipitation events. The temporary dewatering will take place in excavations and will be conducted with sump pumps.

E. DEWATERING TREATMENT SYSTEM INFORMATION

An effluent treatment system 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 (5-micron bag filters are anticipated to be required by the DEP-approved NTWP) to remove suspended solids and undissolved chemical constituents, as shown on Figure 3. The treatment system is also expected to include granulated activated carbon (GAC), ion exchange, and pH adjustment, as required.

F. TREATMENT CHEMICALS AND ADDITIVES

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 C. Actual products used in the field may differ slightly. If different products are used, additional information will be provided to EPA. These systems may be mobilized if necessary to achieve necessary effluent limits. If required, pH adjustments will be conducted using sulfuric acid (70-100%), dosed to reduce 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 C. The sulfuric acid 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 C. The addition of sulfuric acid to reduce pH concentrations 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.

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 D. 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 Work Area, and discharges and discharge-related activities are not considered to have the potential to affect historic properties. The discharge is considered to meet Criterion A. Documentation is included in Appendix E.

I. SUPPLEMENTAL INFORMATION

Owner and operation information are provided below for reference:

Owner:
The Residences at Alewife Station, LLP
1601 Trapelo Road, Suite
Waltham, MA 02451
Attn: Al Ziedins

Operator:
Plumb House, Inc.
10 Industrial Road
Milford, MA 01757
Attn: Brett Bonina

The Residences at Alewife Station, LLP and Plumb House, Inc. 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.

Kimberly Scalise	Todd Butler, P.E.	Keith E. Johnson, P.E., LSP
Staff Geologist	Project Manager	Vice President

Enclosures:

- Table I – Summary of Source Water Quality Data
- Table II – Summary of Receiving Water Quality Data
- Figure 1 – Project Locus
- Figure 2 – Site and Subsurface Exploration Location Plan and Discharge Area
- Figure 3 – 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 – Laboratory Data Reports

c: Criterion Development Partners; Attn: Al Ziedins, Andrew Kaye
Plumb House, Inc.; Attn: Brett Bonina

TABLES

TABLE I
SUMMARY OF GROUNDWATER DATA
THE RESIDENCES AT ALEWIFE STATION
CAMBRIDGE, MASSACHUSETTS
FILE NO. 129876 -012

Precharacterization Grid	Action Level			G1	F4	I6
Location Name	2010 NPDES RGP Category III Fresh Water Effluent Limits	2017 NPDES RGP Site-Specific Criteria	2014 MCP Reportable Concentration RCGW-2	B-G1	B-F4(OW)	B-I6(OW)
Sample Name				G1 OW-20170621	B-F4 OW-20170428	B-I6 OW-20170428
Sample Date				6/21/2017	04/28/2017	04/28/2017
Lab Sample ID				L1721072-01	L1713693-02	L1713693-01
Volatile Organic Compounds (mg/L)						
1,2,4-Trimethylbenzene	NA	NA	100	0.016	0.25	ND (0.0025)
1,2-Dichloroethene (total)	NA	0.07	0.1	ND (0.0025)	0.023 J	ND (0.0005)
1,3,5-Trimethylbenzene	NA	NA	1	0.0058	0.085 J	ND (0.0025)
2-Phenylbutane (sec-Butylbenzene)	NA	NA	NA	0.01	0.016 J	ND (0.0005)
Acetone	NA	7.97	50	ND (0.012)	ND (0.25)	ND (0.005)
Benzene	0.1*	0.005	1	0.006	0.01 J	ND (0.0005)
cis-1,2-Dichloroethene	0.07	0.07	0.02	ND (0.0025)	**0.023 J**	ND (0.0005)
Cymene (p-Isopropyltoluene)	NA	NA	10	ND (0.005)	0.012 J	ND (0.0005)
Ethylbenzene	0.1*	0.1*	5	0.26	0.039	ND (0.0005)
Isopropylbenzene (Cumene)	NA	NA	100	0.064	0.027	ND (0.0005)
Methylene chloride	0.0046	0.0046	2	**ND (0.005)**	**ND (0.15)**	ND (0.003)
Naphthalene	0.02	0.02	0.7	0.013	**0.11 J**	ND (0.0025)
n-Butylbenzene	NA	NA	NA	0.012	ND (0.025)	ND (0.0005)
n-Propylbenzene	NA	NA	10	0.15	0.051	ND (0.0005)
Toluene	0.1*	0.1*	40	0.0036	**4.9**	ND (0.00075)
Vinyl chloride	0.002	0.002	0.002	**ND (0.0025)**	**ND (0.05)**	ND (0.001)
Xylene (total)	0.1*	0.1*	NA	0.017	**0.21**	ND (0.001)
SUM of Volatile Organic Compounds	NA	NA	NA	0.557	5.756	ND
Volatile Organic Compounds SIM (mg/L)						
1,4-Dioxane	NA	0.2	6	-	ND (0.15)	ND (0.003)
Semi-Volatile Organic Compounds (mg/L)						
1,2-Dichlorobenzene	0.6	0.6	2	-	0.0013 J	ND (0.002)
2,4-Dimethylphenol	NA	NA	40	-	0.0023 J	ND (0.005)
2-Methylphenol (o-Cresol)	NA	NA	50	-	0.0072	ND (0.005)
3-Methylphenol	NA	NA	50	-	0.014	ND (0.005)
Benzyl Alcohol	NA	NA	NA	-	0.00081 J	ND (0.002)
Biphenyl	NA	NA	0.2	-	0.0058	ND (0.002)
Dibenzofuran	NA	NA	10	-	0.0014 J	ND (0.002)
SUM of Semi-Volatile Organic Compounds	NA	NA	NA	-	0.03281	ND
Semi-Volatile Organic Compounds (SIM) (mg/L)						
1-Methylnaphthalene	NA	NA	NA	-	0.078	ND (0.0002)
2-Methylnaphthalene	NA	NA	2	-	0.14	ND (0.0002)
Acenaphthene	0.1	Group II PAHs	6	-	0.001	ND (0.0001)
Acenaphthylene	0.1	Group II PAHs	0.04	-	0.00038	ND (0.0002)
Anthracene	0.1	Group II PAHs	0.03	-	0.00012 J	ND (0.0002)
Benzo(a)anthracene	3.80E-06	0.001	1	-	**0.00004 J**	**ND (0.0002)**
Benzo(b)fluoranthene	3.80E-06	0.001	0.4	-	**0.00004 J**	**ND (0.0002)**
Fluoranthene	0.1	Group II PAHs	0.2	-	0.00011 J	ND (0.0002)
Fluorene	0.1	Group II PAHs	0.04	-	0.0012	ND (0.0002)
Naphthalene	0.02	0.02	0.7	-	**0.095**	ND (0.0002)
Pentachlorophenol	0.001	0.001	0.2	-	0.00081	ND (0.0008)
Phenanthrene	0.1	Group II PAHs	10	-	0.00034	ND (0.0002)
Pyrene	0.1	Group II PAHs	0.02	-	0.00009 J	ND (0.0002)
SUM of Group I PAHs	NA	0.001	NA	-	ND	ND
SUM of Group II PAHs	NA	0.1	NA	-	0.00324	ND
SUM of Semi-Volatile Organic Compounds (SIM)	NA	NA	NA	-	0.31713	ND
Total Petroleum Hydrocarbons (mg/L)						
Petroleum hydrocarbons	NA	5	5	-	ND (4)	ND (4)

TABLE I
SUMMARY OF GROUNDWATER DATA
THE RESIDENCES AT ALEWIFE STATION
CAMBRIDGE, MASSACHUSETTS
FILE NO. 129876 -012

Precharacterization Grid	Action Level			G1	F4	I6
Location Name	2010 NPDES RGP Category III Fresh Water Effluent Limits	2017 NPDES RGP Site-Specific Criteria	2014 MCP Reportable Concentration RCGW-2	B-G1	B-F4(OW)	B-I6(OW)
Sample Name				G1 OW-20170621	B-F4 OW-20170428	B-I6 OW-20170428
Sample Date				6/21/2017	04/28/2017	04/28/2017
Lab Sample ID				L1721072-01	L1713693-02	L1713693-01
Inorganic Compounds (mg/L)						
Antimony, Dissolved	NA	NA	8	-	0.0017 J	0.0008 J
Arsenic, Dissolved	NA	NA	0.9	-	0.0192	0.0031
Cadmium, Dissolved	NA	NA	0.004	-	ND (0.001)	0.0002 J
Chromium, Dissolved	NA	NA	0.3	-	0.0008 J	0.0026
Copper, Dissolved	NA	NA	100	-	ND (0.001)	0.0078
Iron, Dissolved	NA	NA	NA	-	3.24	1.9
Nickel, Dissolved	NA	NA	0.2	-	0.0013 J	0.0052
Zinc, Dissolved	NA	NA	0.9	-	ND (0.01)	0.0057 J
Antimony, Total	0.0056	0.206	8	-	0.00201 J	0.00173 J
Arsenic, Total	0.01	0.022	0.9	-	**0.0396**	0.0032
Cadmium, Total	0.0002	0.0102	0.004	-	0.00007 J	**0.00024 J**
Chromium, Total	NA	0.323	0.3	-	0.00179	0.00238
Chromium VI (Hexavalent), Total	0.0114	0.323	0.3	-	**ND (0.05)**	0.004 J
Copper, Total	0.0052	0.242	100	-	0.00046 J	**0.00571**
Cyanide, Total	0.0052	0.0126	0.03	-	**0.016**	0.004 J
Iron, Total	1	1.264	NA	-	**18.2**	**2.26**
Lead, Total	0.0013	0.16	0.01	-	ND (0.001)	ND (0.001)
Mercury, Total	0.0009	0.000739	0.02	-	ND (0.0002)	ND (0.0002)
Nickel, Total	0.029	1.45	0.2	-	0.00204	0.0047
Selenium, Total	0.005	0.2356	0.1	-	ND (0.005)	ND (0.005)
Silver, Total	0.0012	0.0351	0.007	-	ND (0.001)	ND (0.001)
Zinc, Total	0.0666	0.42	0.9	-	0.00435 J	0.00591 J
Pesticides (mg/L)						
1,2-Dibromo-3-chloropropane (DBCP)	NA	NA	NA	-	ND (0.00001)	ND (0.00001)
1,2-Dibromoethane (Ethylene Dibromide)	5.00E-05	5.00E-05	0.002	-	ND (0.00001)	ND (0.00001)
PCBs (mg/L)						
Aroclor-1016 (PCB-1016)	6.40E-08	6.40E-08	0.005	-	**ND (0.00025)**	**ND (0.00025)**
Aroclor-1221 (PCB-1221)	6.40E-08	6.40E-08	0.005	-	**ND (0.00025)**	**ND (0.00025)**
Aroclor-1232 (PCB-1232)	6.40E-08	6.40E-08	0.005	-	**ND (0.00025)**	**ND (0.00025)**
Aroclor-1242 (PCB-1242)	6.40E-08	6.40E-08	0.005	-	**ND (0.00025)**	**ND (0.00025)**
Aroclor-1248 (PCB-1248)	6.40E-08	6.40E-08	0.005	-	**ND (0.00025)**	**ND (0.00025)**
Aroclor-1254 (PCB-1254)	6.40E-08	6.40E-08	0.005	-	**ND (0.00025)**	**ND (0.00025)**
Aroclor-1260 (PCB-1260)	6.40E-08	6.40E-08	0.005	-	**ND (0.0002)**	**ND (0.0002)**
Other						
Ammonia, Total (mg/L)	NA	Report	NA	-	11	0.436
Chloride, Total (mg/L)	NA	Report	NA	-	1820	1200
Chlorine, residual, Total (mg/L)	0.011	0.027	NA	-	**ND (0.02)**	**ND (0.02)**
Chromium III (Trivalent), Total (mg/L)	0.0488	0.323	0.6	-	**ND (0.05)**	ND (0.01)
Hardness, Total (mg/L)	NA	NA	NA	-	609	345
Total phenols (mg/L)	0.3	NA	NA	-	0.026 J	ND (0.03)
Total Suspended Solids (TSS) (mg/L)	30	30	NA	-	**37**	10
pH (lab), Total (pH units)	NA	6.5 to 8.3	NA	-	6.4	6.5

ABBREVIATIONS:

- : Not analyzed
mg/L: milligram per liter
NA: Not Applicable
ND (2.5): Result not detected above reporting limit (shown in parentheses)

NOTES:

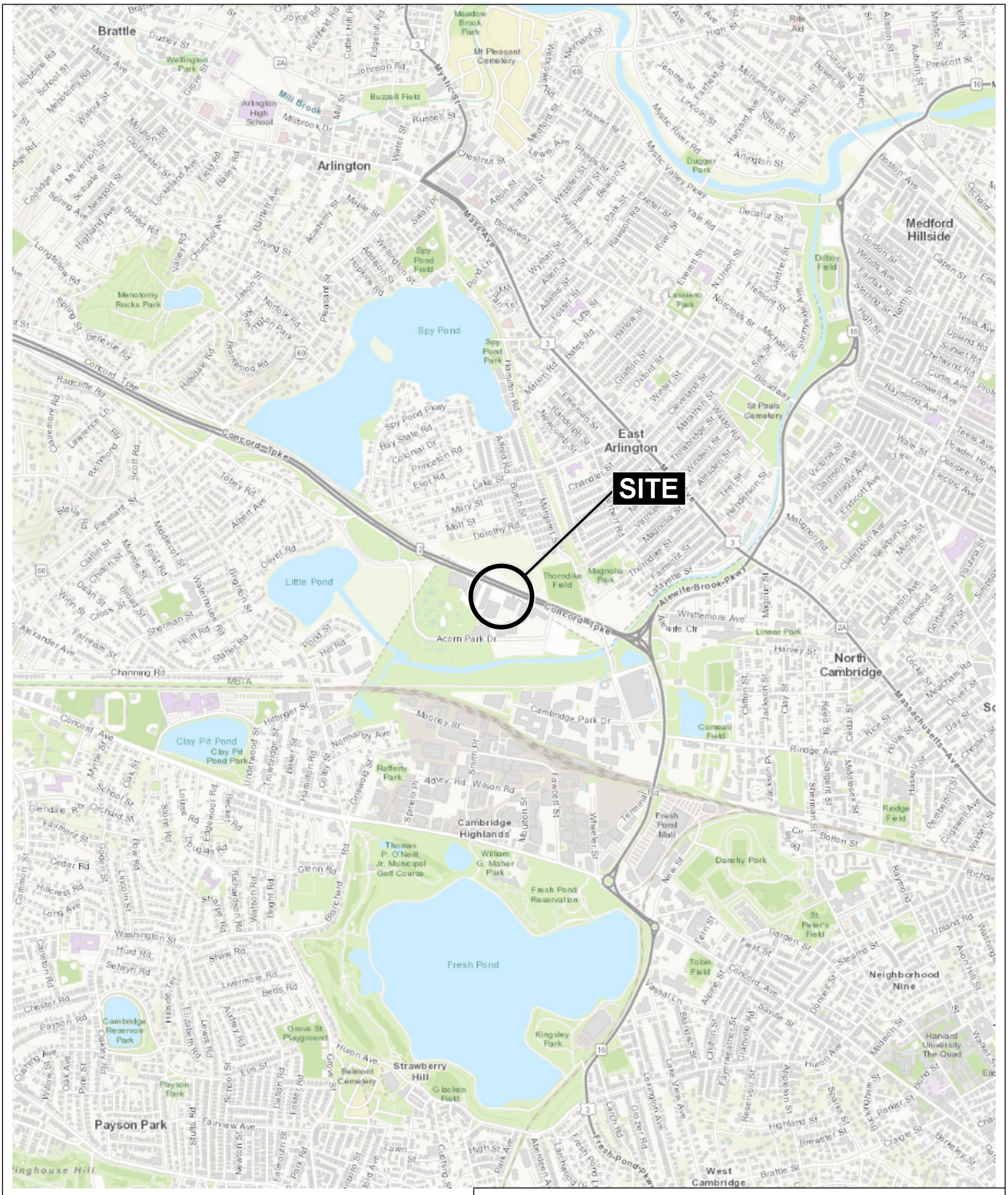
1. Analytes detected in at least one sample are reported herein. For a complete list of analytes see the laboratory data sheets.
2. **Bold** values indicate an exceedance of applicable 2014 RCGW-2 Concentrations.
3. **Red bold** values indicate an exceedance of applicable 2010 NPDES RGP Category III Freshwater Effluent Limit Concentrations.
4. Blue highlighted values indicate an exceedance of the applicable site-specific 2017 RGP Criteria.
4. Dilution Factor of 1.917 used to establish applicable discharge criteria.
3. *: Indicates effluent limit is limited as total BTEX of 0.1 mg/l.

TABLE II
SUMMARY OF RECEIVING WATER QUALITY DATA
THE RESIDENCES AT ALEWIFE STATION
CAMBRIDGE, MA
FILE NO. 129876-012

LOCATION	**RECEIVE 1**
SAMPLING DATE	**9/8/2017**
LAB SAMPLE ID	**L1731841-01**
Total Metals (mg/l)	
Antimony, Total	ND(0.004)
Arsenic, Total	0.00164
Cadmium, Total	ND(0.0002)
Chromium, Total	0.00358
Copper, Total	0.00732
Iron, Total	0.814
Lead, Total	0.003
Mercury, Total	ND(0.0002)
Nickel, Total	ND(0.002)
Selenium, Total	ND(0.005)
Silver, Total	ND(0.0004)
Zinc, Total	0.02006
General Chemistry	
Chromium, Hexavalent (mg/l)	ND(0.01)
Nitrogen, Ammonia (mg/l)	0.297
pH (H) (SU)	6.7
Total Hardness by SM 2340B (mg/l)	
Hardness	12.9

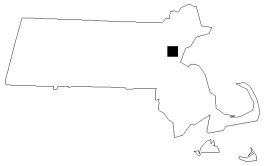
NOTES & ABBREVIATIONS
mg/l: milligrams per liter
ND (1.0): not detected, number in parentheses is the reporting limit

FIGURES



MAP SOURCE: ESRI

SITE COORDINATES: 42°23'58"N, 71°8'56"W



HALEY ALDRICH

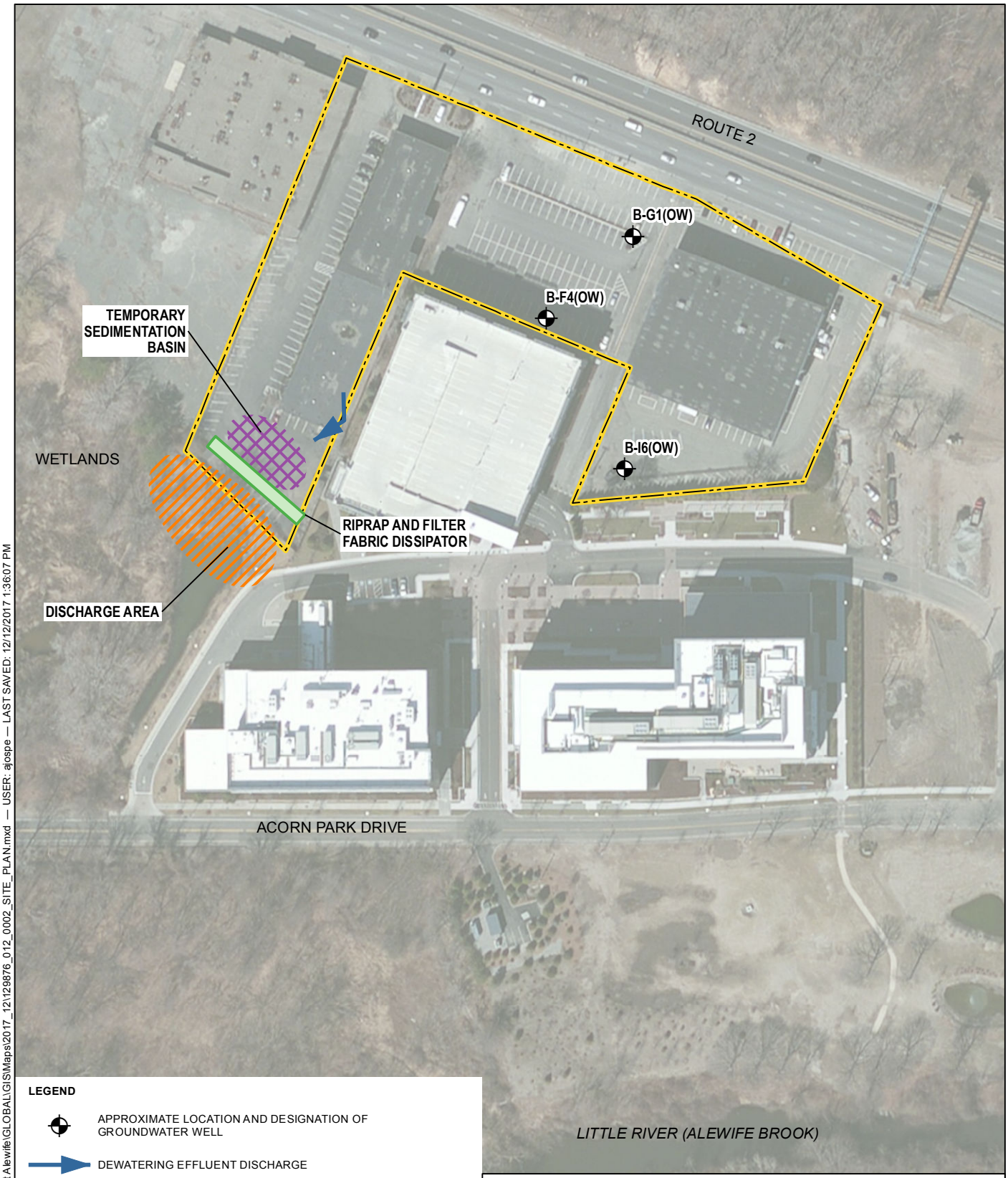
THE RESIDENCES AT ALEWIFE
201-203 CONCORD TURNPIKE
CAMBRIDGE, MASSACHUSETTS

PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
SEPTEMBER 2017

FIGURE 1

129876-008_1_LOCUS.PDF



LEGEND

- APPROXIMATE LOCATION AND DESIGNATION OF GROUNDWATER WELL
- DEWATERING EFFLUENT DISCHARGE
- DISCHARGE
- TEMPORARY SEDIMENTATION BASIN
- RIPRAP AND FILTER FABRIC DISSIPATOR
- APPROXIMATE LIMIT OF WORK AREA

N

0 70 140

SCALE IN FEET

NOTE

1. AERIAL IMAGERY SOURCE: ESRI

HALEY ALDRICH

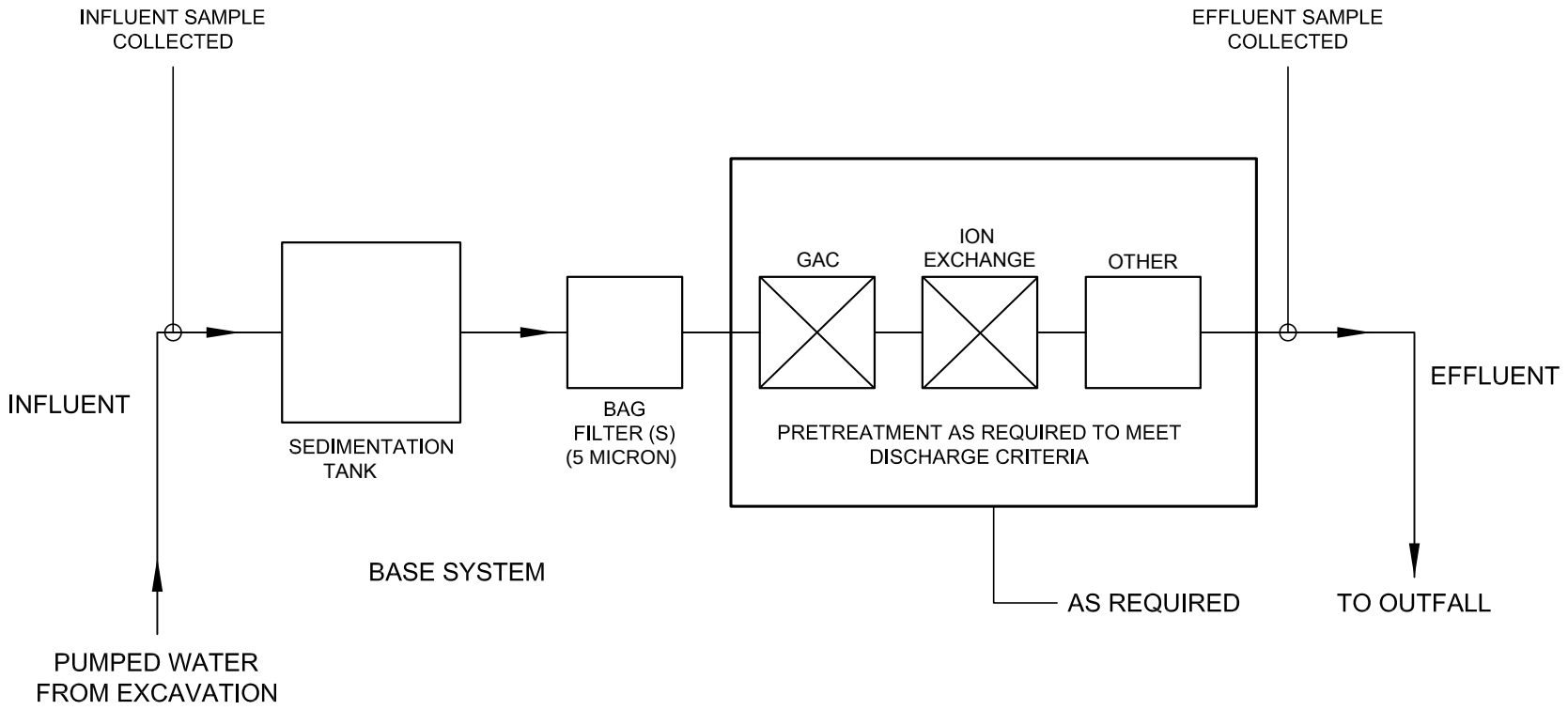
THE RESIDENCES AT ALEWIFE PROJECT
201-203 CONCORD TURNPIKE
CAMBRIDGE, MASSACHUSETTS

WORK AREA AND DISCHARGE ROUTE

DECEMBER 2017

FIGURE 2

GIS FILE PATH: G:\129876 - Residences at Alewife\GLOBAL\GIS\Maps\2017_12\129876_012_0002_SITE_PLAN.mxd — USER: ajospe — LAST SAVED: 12/12/2017 1:36:07 PM



LEGEND:

→ DIRECTION OF FLOW

☒ INDICATES TECHNOLOGY EXPECTED TO BE USED ON THIS PROJECT

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

THE RESIDENCES AT ALEWIFE PROJECT
201-203 CONCORD TURNPIKE
CAMBRIDGE, MASSACHUSETTS

PROPOSED TREATMENT SYSTEM SCHEMATIC

SCALE: NONE
OCTOBER 2017

FIGURE 3

APPENDIX A

Notice of Intent

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

A. General site information:

<table>
<tr><td rowspan="2">1. Name of site:
The Residences at Alewife Station</td><td colspan="3">Site address: 201-203 Concord Turnpike
Street:</td></tr>
<tr><td>City: Cambridge</td><td>State: MA</td><td>Zip: 02140</td></tr>
<tr><td rowspan="4">2. Site owner
The Residences at Alewife Station, LLP

Owner is (check one): ☐ Federal ☐ State/Tribal ■ Private
☐ Other; if so, specify:</td><td colspan="3">Contact Person: Andrew Kaye</td></tr>
<tr><td colspan="2">Telephone: 781-890-5600</td><td>Email: akaye@criteriondp.com</td></tr>
<tr><td colspan="3">Mailing address: 1601 Trapelo Road
Street:</td></tr>
<tr><td>City: Waltham</td><td>State: MA</td><td>Zip: 02451</td></tr>
<tr><td rowspan="4">3. Site operator, if different than owner
Plumb House, Inc.</td><td colspan="3">Contact Person: Brett Bonina</td></tr>
<tr><td colspan="2">Telephone: (508) 482-1971</td><td>Email: bbonina@plumbhouse.com</td></tr>
<tr><td colspan="3">Mailing address:
Street: 10 Industrial Road</td></tr>
<tr><td>City: Milford</td><td>State: MA</td><td>Zip: 01757</td></tr>
<tr><td colspan="2">4. NPDES permit number assigned by EPA:
not applicable

NPDES permit is (check all that apply: ■ RGP ☐ DGP ☐ CGP
☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:</td><td colspan="2">5. Other regulatory program(s) that apply to the site (check all that apply):
■ MA Chapter 21e; list RTN(s):
3-34420, 3-0783
☐ NH Groundwater Management Permit or Groundwater Release Detection Permit:
☐ CERCLA
☐ UIC Program
☐ POTW Pretreatment
☐ CWA Section 404</td></tr>
</table>

B. Receiving water information:

1. Name of receiving water(s):	Waterbody identification of receiving water(s):	Classification of receiving water(s):
Unnamed wetlands to Little River (Alewife Brook)	MA71-04	Class B

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

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

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

3. Indicate if the receiving water(s) is listed in the State's Integrated List of Waters (i.e., CWA Section 303(d)). Include which designated uses are impaired, and any pollutants indicated. Also, indicate if a final TMDL is available for any of the indicated pollutants. For more information, contact the appropriate State as noted in Part 4.6 of the RGP. Indicated pollutants include: debris/floatables/trash, copper, E Coli, foam/flocks/scum/oil slick, lead, dissolved oxygen, PCB in fish tissue, total

4. Indicate the seven day-ten-year low flow (7Q10) of the receiving water determined in accordance with the instructions in Appendix V for sites located in Massachusetts and Appendix VI for sites located in New Hampshire.	0.307 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.	1.917

6. Has the operator received confirmation from the appropriate State for the 7Q10and dilution factor indicated? (check one): ■ Yes ☐ No
If yes, indicate date confirmation received: 28 September 2017

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

C. Source water information:

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

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

2. Source water contaminants: VOCs (cis-1,2-Dichloroethene>RCGW-2), naphthalene, metals (As,Cu,Fe), cyanide, total ammonia, total chloride, total suspen	
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): Direct discharge to wetlands	Outfall location(s): (Latitude, Longitude) 42.4, -71.15
Discharges enter the receiving water(s) via (check any that apply): ☐ Direct discharge to the receiving water ■ Indirect discharge, if so, specify: Discharge to wetlands, leading to receiving water ☐ 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: 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): 1/2018 through 1/2019 Indicate if the discharge is expected to occur over a duration of: ■ less than 12 months ☐ 12 months or more ☐ is an emergency discharge	
Has the operator attached a site plan in accordance with the instructions in D, above? (check one): ■ Yes ☐ No	

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

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

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

4. Influent and Effluent Characteristics

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
A. Inorganics									
Ammonia		✔	2	4500NH3	22	11000	5718	Report mg/L	---
Chloride		✔	2	300.0	8390	1820000	1510000	Report µg/l	---
Total Residual Chlorine	✔		2	4500CL-D	20	<20	<20	0.2 mg/L	27 µg/L
Total Suspended Solids		✔	2	2540D	5000	37000	23500	30 mg/L	---
Antimony		✔	2	200.8	0.42	2.01	1.87	206 µg/L	1550 µg/L
Arsenic		✔	2	200.8	0.16	39.6	21.4	104 µg/L	22 µg/L
Cadmium		✔	2	200.8	0.05	0.24	0.155	10.2 µg/L	0.5479 µg/L
Chromium III	✔		2	200.8	50	<50	<50	323 µg/L	450 µg/L
Chromium VI		✔	2	7196A	15	15	9.5	323 µg/L	27.7 µg/L
Copper		✔	2	200.8	0.38	5.71	3.085	242 µg/L	40.5 µg/L
Iron		✔	2	200.7	9	18200	10230	5,000 µg/L	1264 µg/L
Lead	✔		2	200.8	0.34	<0.34	<0.34	160 µg/L	21.62 µg/L
Mercury	✔		2	245.1	0.06	<0.06	<0.06	0.739 µg/L	2.19 µg/L
Nickel		✔	2	200.8	0.55	4.7	3.37	1,450 µg/L	282.6 µg/L
Selenium	✔		2	200.8	1.73	<1.73	<1.73	235.8 µg/L	12.1 µg/L
Silver	✔		2	200.8	0.26	<0.26	<0.26	35.1 µg/L	47.1 µg/L
Zinc		✔	2	200.8	3.41	5.91	5.13	420 µg/L	621.4 µg/L
Cyanide		✔	2	4500CN	1	16	10	178 mg/L	12.6 µg/L
B. Non-Halogenated VOCs									
Total BTEX		✔	3	8260C	NA	5159	1815.5	100 µg/L	---
Benzene		✔	3	8260C	0.16	10	5.38	5.0 µg/L	---
1,4 Dioxane	✔		2	8260CSIM	0.76	<38	<38	200 µg/L	---
Acetone	✔		3	8260C	250	<250	<250	7.97 mg/L	---
Phenol	✔		2	8270D	1.9	<1.9	<1.9	1,080 µg/L	726 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	✔		3	8260C	6.7	<6.7	<3.11	4.4 µg/L	3.9 ug/L
1,2 Dichlorobenzene	✔		3	8260C	9.2	<9.2	<3.69	600 µg/L	---
1,3 Dichlorobenzene	✔		3	8260C	120	<120	<41.7	320 µg/L	---
1,4 Dichlorobenzene	✔		3	8260C	120	<120	<41.7	5.0 µg/L	---
Total dichlorobenzene	✔							763 µg/L in NH	---
1,1 Dichloroethane	✔		3	8260C	38	<38	<13.75	70 µg/L	---
1,2 Dichloroethane	✔		3	8260C	25	<25	<9.33	5.0 µg/L	---
1,1 Dichloroethylene	✔		3	8260C	25	<25	<9.33	3.2 µg/L	---
Ethylene Dibromide	✔		3	8260C	250	250	<86.67	0.05 µg/L	---
Methylene Chloride	✔		3	8260C	150	150	<31.6	4.6 µg/L	---
1,1,1 Trichloroethane	✔		3	8260C	25	<25	<9.33	200 µg/L	---
1,1,2 Trichloroethane	✔		3	8260C	38	<38	<13.75	5.0 µg/L	---
Trichloroethylene	✔		3	8260C	25	<25	<9.33	5.0 µg/L	---
Tetrachloroethylene	✔		3	8260C	25	<25	<9.33	5.0 µg/L	8.0 ug/L
cis-1,2 Dichloroethylene		✔	3	8260C	9.4	23	<8.67	70 µg/L	---
Vinyl Chloride	✔		3	8260C	50	<50	<17.83	2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates	✔		2	8270D	NA	0	0	190 µg/L	--
Diethylhexyl phthalate	✔		2	8270D	5	<5	<5	101 µg/L	5.3 ug/L
Total Group I PAHs	✔			8270DSIM	0.2	<0.2	<0.2	1.0 µg/L	---
Benzo(a)anthracene		✔	2	8270DSIM	0.2	<0.2	<0.12	As Total PAHs	0.0092 ug/L
Benzo(a)pyrene	✔		2	8270DSIM	0.2	<0.2	<0.2		0.0092 ug/L
Benzo(b)fluoranthene		✔	2	8270DSIM	0.2	<0.2	<0.12		0.0092 ug/L
Benzo(k)fluoranthene	✔		2	8270DSIM	0.2	<0.2	<0.2		0.0092 ug/L
Chrysene	✔		2	8270DSIM	0.2	<0.2	<0.2		0.0092 ug/L
Dibenzo(a,h)anthracene	✔		2	8270DSIM	0.2	<0.2	<0.2		0.0092 ug/L
Indeno(1,2,3-cd)pyrene	✔		2	8270DSIM	0.2	<0.2	<0.2		0.0092 ug/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
Total Group II PAHs	✔		2	8270DSIM	0.2	75	<37.6	100 µg/L	---
Naphthalene		✔	2	8270DSIM	0.2	95	<47.6	20 µg/L	---
E. Halogenated SVOCs									
Total PCBs	✔		2	608	0.250	<0.25	<0.25	0.000064 µg/L	---
Pentachlorophenol	✔		2	8270DSIM	0.80	0.81	<0.81	1.0 µg/L	---
F. Fuels Parameters									
Total Petroleum Hydrocarbons	✔		2	1664A	4000	<4000	<4000	5.0 mg/L	---
Ethanol	✔			8260C	NA	NA	NA	Report mg/L	---
Methyl-tert-Butyl Ether	✔		3	8260C	50	<50	<18.67	70 µg/L	48 µg/L
tert-Butyl Alcohol	✔		2	8260C	500	<500	<255	120 µg/L in MA 40 µg/L in NH	---
tert-Amyl Methyl Ether	✔		3	8260C	100	<100	<35.67	90 µg/L in MA 140 µg/L in NH	---
Other (i.e., pH, temperature, hardness, salinity, LC_{50}, additional pollutants present); if so, specify:									
pH		✔	2	4500H+	NA	6.5	6.45		
Hardness		✔	1	2340B	660000	609000	609000		
Iron, dissolved		✔	2	6020A	50 ug/L	3240	2570		
1,2,4-trimethylbenzene		✔	3	8260C	0.19	250	89.5		
1,3,5-trimethylbenzene		✔	3	8260C	0.17	85	31.1		
2-phenylbutane		✔	3	8260C	0.18	250	8.8		
cymene		✔	3	8260C	0.19	12	5.8		
isopropylbenzene		✔	3	8260C	0.19	64	30.5		
n-butylbenzene		✔	3	8260C	0.19	25	12.5		
n-propylbenzene		✔	3	8260C	0.17	150	67.2		
2,4-dimethylphenol		✔	2	8270D	1.6	5	3.65		
2-methylphenol		✔	2	8270D	1.0	7.2	6.1		
3-methylphenol		✔	2	8270D	1.1	14	9.5		
Benzyl Alcohol		√	2	8270D	0.72	0.002	0.0014		
Biphenyl		√	2	8270D	0.76	0.0058	0.0039		
Dibenzofuran		√	2	8270D	0.66	0.002	0.0017		
1-Methylnaphthalene		√	2	8270D-SIM	0.2	0.078	0.0391		
2-Methylnaphthalene		√	2	8270D-SIM	0.22	0.14	0.0701		

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:

Applied as necessary 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 (5-micron bag filter are required by the NTWP) to remove suspended solids and undissolved chemical constituents. Additional treatment may include granulated activated carbon (GAC), ion exchange, and/or pH adjustment, as needed to meet necessary effluent limits. After treatment, constituent concentrations in effluent expected to range from non-detectable to less than MCP RCGW-2 criteria. If authorized under the RGP, parameters to be monitored include one or more VOCs, SVOCs, metals/inorganics, pH, and other compounds known or believed present in the source water.

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

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

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

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

☐ Chlorination ☐ De-chlorination

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

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

F. Chemical and additive information

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

☐ Algaecides/biocides ☐ Antifoams ☐ Coagulants ☐ Corrosion/scale inhibitors ☐ Disinfectants ☐ Flocculants ☐ Neutralizing agents ☐ Oxidants ☐ Oxygen ☐ scavengers ☐ pH conditioners ☐ Bioremedial agents, including microbes ☐ Chlorine or chemicals containing chlorine ■ Other; if so, specify:
pH conditioners 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
a. Product name, chemical formula, and manufacturer of the chemical/additive;
b. Purpose or use of the chemical/additive or remedial agent;
c. Material Safety Data Sheet (MSDS) and Chemical Abstracts Service (CAS) Registry number for each chemical/additive;
d. The frequency (hourly, daily, etc.), duration (hours, days), quantity (maximum and average), and method of application for the chemical/additive;
e. Any material compatibility risks for storage and/or use including the control measures used to minimize such risks; and
f. If available, the vendor's reported aquatic toxicity (NOAEL and/or LC50 in percent for aquatic organism(s)).

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

G. Endangered Species Act eligibility determination

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

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

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

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

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

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

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

H. National Historic Preservation Act eligibility determination

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

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

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

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

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

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

I. Supplemental information

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

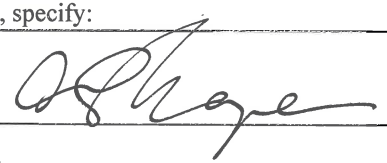
Refer to attached Haley & Aldrich, Inc. letter

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

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

J. Certification requirement

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

BMPP certification statement: A BMPP meeting the requirements of this general permit will be implemented at the site. Refer to the Site SWPPP.	
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: 1/5/18
Print Name and Title: Andrew Kaye Executive Vice President	(The Residences at Alewife Station, LLP)

J. Certification requirement

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

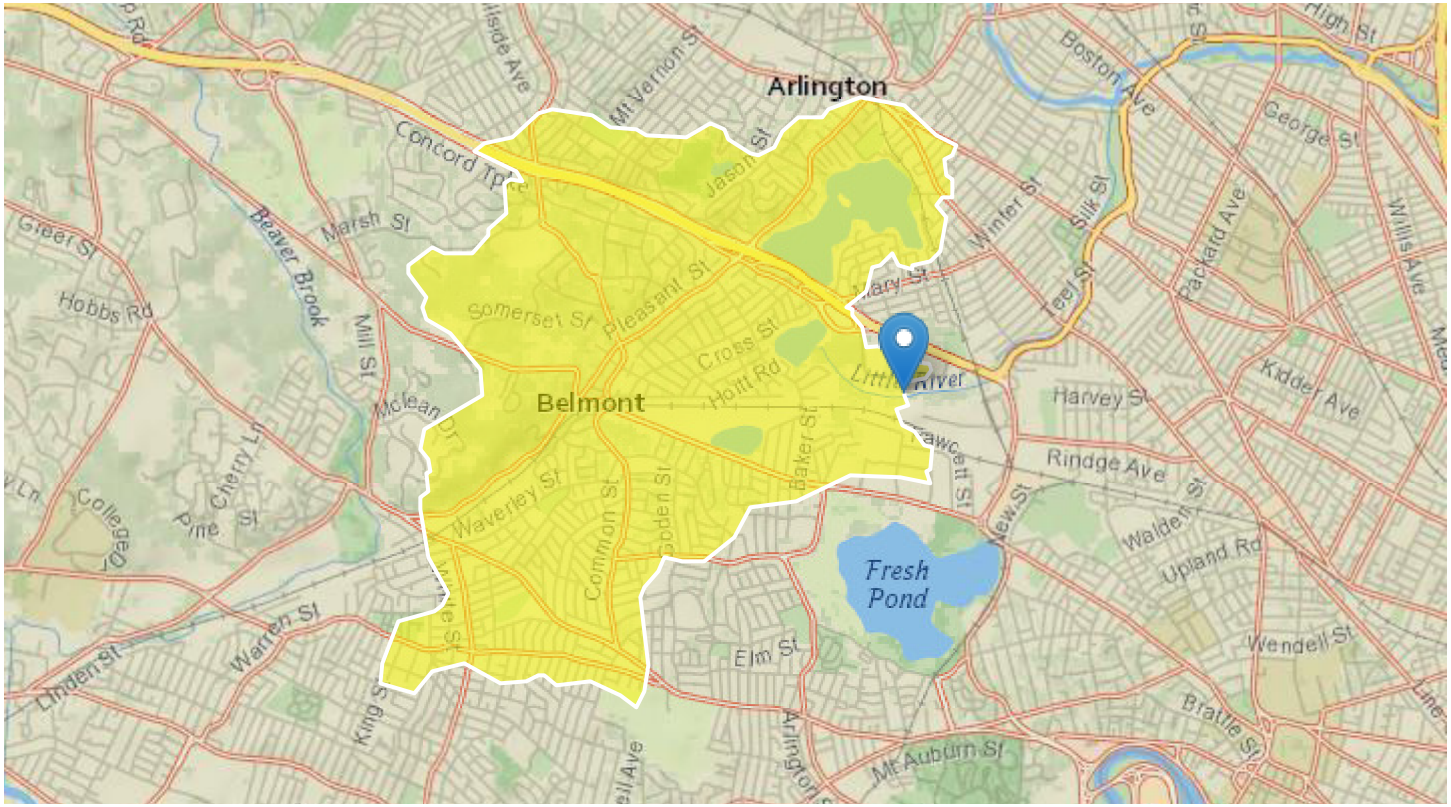
BMPP certification statement: A BMPP meeting the requirements of this general permit will be implemented at the site. Refer to the Site SWPPP.	
Notification provided to the appropriate State, including a copy of this NOI, if required.	Check one: Yes ☐ No ■
Notification provided to the municipality in 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: 12/14/17
Print Name and Title: Brett Bonina, Project Manager	(Plumb House, Inc.)

APPENDIX B

Effluent Limitations Documentation

StreamStats Report - Concord Turnpike, Cambridge, MA

Region ID: MA
Workspace ID: MA20170905133706097000
Clicked Point (Latitude, Longitude): 42.39675, -71.15010
Time: 2017-09-05 13:38:31 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	4.16	square miles
BSLDEM250	Mean basin slope computed from 1:250K DEM	2.613	percent

Parameter Code	Parameter Description	Value	Unit
DRFTPERSTR	Area of stratified drift per unit of stream length	0.4	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	4.16	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	2.613	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0.4	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

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

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	PIu	SE	SEe	SEp
7 Day 2 Year Low Flow	0.621	ft^3/s	0.182	2.04	49.5	47.3	49.5
7 Day 10 Year Low Flow	0.307	ft^3/s	0.0721	1.22	70.8	67.7	70.8

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/)

HALEY & ALDRICH, INC.		**CALCULATIONS**	**FILE NO.**	**129876-012**	
			SHEET	**1** **of** **1**	
CLIENT	**THE RESIDENCES AT ALEWIFE STATION, LLP**		**DATE**	**20-Sep-17**	
PROJECT	**THE RESIDENCES AT ALEWIFE STATION**		**COMPUTED BY**	**KCS**	
SUBJECT	**DILUTION FACTOR CALCULATIONS**		**CHECKED BY**		

PURPOSE: Calculate Dilution Factor (DF) for project based on 7 Day 10 Year (7Q10) Low Flow values.

APPROACH: Calculate DF based on EPA formula $(Q_S + Q_D)/Q_D$, where Q_S is 7Q10 in million gallons per day (MGD) and Q_D is discharge flow in MGD.

ASSUMPTIONS:
1. 7Q10 is 0.307 cfs (from StreamStats 4.0)
2. A conversion of 7.48 is used to convert cubic feet to gallons
3. A discharge flowrate of 150 gpm is assumed

CALCULATIONS:

7Q10 Low Flow Value (Q_S)

$$Q_S = \frac{0.307\ ft^3}{sec} \times \frac{7.48\ gallons}{ft^3} \times \frac{86{,}400\ sec}{day} \times \frac{1\ MG}{1{,}000{,}000\ gallons}$$

Q_S = 0.198 MGD

Discharge Flowrate (Q_D)

$$Q_D = \frac{150\ gallons}{min} \times \frac{1{,}440\ min}{day} \times \frac{1\ MG}{1{,}000{,}000\ gallons}$$

Q_D = 0.216 MGD

Dilution Factor (DF)

$$DF = \frac{Q_S + Q_D}{QD} = \frac{0.198\ MGD + 0.216\ MGD}{0.216\ MGD} = 1.917$$

CONCLUSION The dilution factor for this project is calculated to be 1.917 based on the provided 7Q10 low flow value and discharge flowrate.

Enter number values in green boxes below

Enter values in the units specified

↓

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

Enter a dilution factor, if other than zero

↓

1.917

Enter values in the units specified

↓

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

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

↓

6.7	pH in **Standard Units**
17.7	Temperature in **°C**
0.297	Ammonia in **mg/L**
12.9	Hardness in **mg/L** $CaCO_3$
0	Salinity in **ppt**
0	Antimony in **µg/L**
1.64	Arsenic in **µg/L**
0	Cadmium in **µg/L**
3.58	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
7.32	Copper in **µg/L**
814	Iron in **µg/L**
3	Lead in **µg/L**
0	Mercury in **µg/L**
0	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
20.06	Zinc in **µg/L**

Enter **influent** concentrations in the units specified

↓

0	TRC in **µg/L**
11	Ammonia in **mg/L**
2.01	Antimony in **µg/L**
39.6	Arsenic in **µg/L**
0.24	Cadmium in **µg/L**
2.38	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
0.57	Copper in **µg/L**
18200	Iron in **µg/L**
0	Lead in **µg/L**
0	Mercury in **µg/L**
4.7	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
5.91	Zinc in **µg/L**
16	Cyanide in **µg/L**
0	Phenol in **µg/L**
0	Carbon Tetrachloride in **µg/L**
0	Tetrachloroethylene in **µg/L**
0	Total Phthalates in **µg/L**
0	Diethylhexylphthalate in **µg/L**
0	Benzo(a)anthracene in **µg/L**
0	Benzo(a)pyrene in **µg/L**
0	Benzo(b)fluoranthene in **µg/L**
0	Benzo(k)fluoranthene in **µg/L**
0	Chrysene in **µg/L**
0	Dibenzo(a,h)anthracene in **µg/L**
0	Indeno(1,2,3-cd)pyrene in **µg/L**
0	Methyl-tert butyl ether in **µg/L**

Notes:

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

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

Freshwater only

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

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

Dilution Factor	2.4					
A. Inorganics	TBEL applies if bolded		WQBEL applies if bolded		Compliance Level applies if shown	
Ammonia	**Report**	mg/L	---			
Chloride	**Report**	µg/L	---			
Total Residual Chlorine	0.2	mg/L	**27**	µg/L	50	µg/L
Total Suspended Solids	**30**	mg/L	---			
Antimony	**206**	µg/L	1550	µg/L		
Arsenic	104	µg/L	**22**	µg/L		
Cadmium	**10.2**	µg/L	0.5479	µg/L		
Chromium III	**323**	µg/L	450.0	µg/L		
Chromium VI	**323**	µg/L	27.7	µg/L		
Copper	**242**	µg/L	40.5	µg/L		
Iron	5000	µg/L	**1264**	µg/L		
Lead	**160**	µg/L	21.62	µg/L		
Mercury	**0.739**	µg/L	2.19	µg/L		
Nickel	**1450**	µg/L	282.6	µg/L		
Selenium	**235.8**	µg/L	12.1	µg/L		
Silver	**35.1**	µg/L	47.1	µg/L		
Zinc	**420**	µg/L	621.4	µg/L		
Cyanide	178	mg/L	**12.6**	µg/L	---	µg/L
B. Non-Halogenated VOCs						
Total BTEX	**100**	µg/L	---			
Benzene	**5.0**	µg/L	---			
1,4 Dioxane	**200**	µg/L	---			
Acetone	**7970**	µg/L	---			
Phenol	**1,080**	µg/L	726	µg/L		
C. Halogenated VOCs						
Carbon Tetrachloride	**4.4**	µg/L	3.9	µg/L		
1,2 Dichlorobenzene	**600**	µg/L	---			
1,3 Dichlorobenzene	**320**	µg/L	---			
1,4 Dichlorobenzene	**5.0**	µg/L	---			
Total dichlorobenzene	**---**	µg/L	---			
1,1 Dichloroethane	**70**	µg/L	---			
1,2 Dichloroethane	**5.0**	µg/L	---			
1,1 Dichloroethylene	**3.2**	µg/L	---			
Ethylene Dibromide	**0.05**	µg/L	---			
Methylene Chloride	**4.6**	µg/L	---			
1,1,1 Trichloroethane	**200**	µg/L	---			
1,1,2 Trichloroethane	**5.0**	µg/L	---			
Trichloroethylene	**5.0**	µg/L	---			
Tetrachloroethylene	**5.0**	µg/L	8.0	µg/L		
cis-1,2 Dichloroethylene	**70**	µg/L	---			
Vinyl Chloride	**2.0**	µg/L	---			
D. Non-Halogenated SVOCs						
Total Phthalates	**190**	µg/L	---	µg/L		
Diethylhexyl phthalate	**101**	µg/L	5.3	µg/L		
Total Group I Polycyclic Aromatic Hydrocarbons	**1.0**	µg/L	---			
Benzo(a)anthracene	**1.0**	µg/L	0.0092	µg/L	---	µg/L
Benzo(a)pyrene	**1.0**	µg/L	0.0092	µg/L	---	µg/L
Benzo(b)fluoranthene	**1.0**	µg/L	0.0092	µg/L	---	µg/L
Benzo(k)fluoranthene	**1.0**	µg/L	0.0092	µg/L	---	µg/L
Chrysene	**1.0**	µg/L	0.0092	µg/L	---	µg/L
Dibenzo(a,h)anthracene	**1.0**	µg/L	0.0092	µg/L	---	µg/L
Indeno(1,2,3-cd)pyrene	**1.0**	µg/L	0.0092	µg/L	---	µg/L
Total Group II Polycyclic Aromatic Hydrocarbons	**100**	µg/L	---			
Naphthalene	**20**	µg/L	---			
E. Halogenated SVOCs						
Total Polychlorinated Biphenyls	**0.000064**	µg/L	---		0.5	µg/L
Pentachlorophenol	**1.0**	µg/L	---			
F. Fuels Parameters						
Total Petroleum Hydrocarbons	**5.0**	mg/L	---			
Ethanol	**Report**	mg/L	---			
Methyl-tert-Butyl Ether	**70**	µg/L	48	µg/L		
tert-Butyl Alcohol	**120**	µg/L	---			
tert-Amyl Methyl Ether	**90**	µg/L	---			

Scalise, Kimberly

From: Ruan, Xiaodan (DEP) <Xiaodan.Ruan@MassMail.State.MA.US>
Sent: Thursday, September 28, 2017 5:10 PM
To: Vakalopoulos, Catherine (DEP); Scalise, Kimberly
Subject: RE: NPDES RGP Application - 7Q10 + DF Confirmation - Res@Alewife Project

Hello Kim,

I can confirm that the 7Q10 of 0.198 MGD (for Alewife Brook) and using a design flow of 0.216 MGD, the dilution factor is 1.917 are correct.

Please either attach this email to the NOI or add today's date where you indicate that you have consulted with MassDEP on the NOI. This will be helpful when EPA reviews the NOI. Since the Alewife Brook (Class B, Warm Water with discharge of CSO) is not listed as an Outstanding Resource Water, you are all set from MassDEP.

Thanks,
Xiaodan

From: Vakalopoulos, Catherine (DEP)
Sent: Thursday, September 28, 2017 3:57 PM
To: Ruan, Xiaodan (DEP); KScalise@haleyaldrich.com
Subject: Fw: NPDES RGP Application - 7Q10 + DF Confirmation - Res@Alewife Project

Hi Kimberly,
I'm forwarding this to Xiaodan who will be able to help you.
Cathy

Cathy Vakalopoulos, Massachusetts Department of Environmental Protection
1 Winter St., Boston, MA 02108, 617-348-4026

From: Scalise, Kimberly <KScalise@haleyaldrich.com>
Sent: Thursday, September 28, 2017 1:48 PM
To: Vakalopoulos, Catherine (DEP)
Subject: NPDES RGP Application - 7Q10 + DF Confirmation - Res@Alewife Project

Hi Cathy,

As required in Appendix V of the 2017 RGP, I have attached to this email our StreamStats report detailing the 7 Day 10 Year (7Q10) low flow value for our project (listed below) along with the dilution factor calculations for your review and confirmation.

Project:
The Residences at Alewife Project
201-203 Concord Turnpike,
Cambridge, MA

7 Day 10 Year Low Flow value (from attached StreamStats Report) = 0.307 cfs or 0.198 MGD

Dilution Factor (from attached calculations) = 1.917

The maximum design flow of the system is 150 GPM, however we expect closer to 50 GPM for the typical daily flow.

Can you please confirm these values are appropriate for use for our project?

Thank you,

Kim

Kimberly Scalise
Staff Geologist

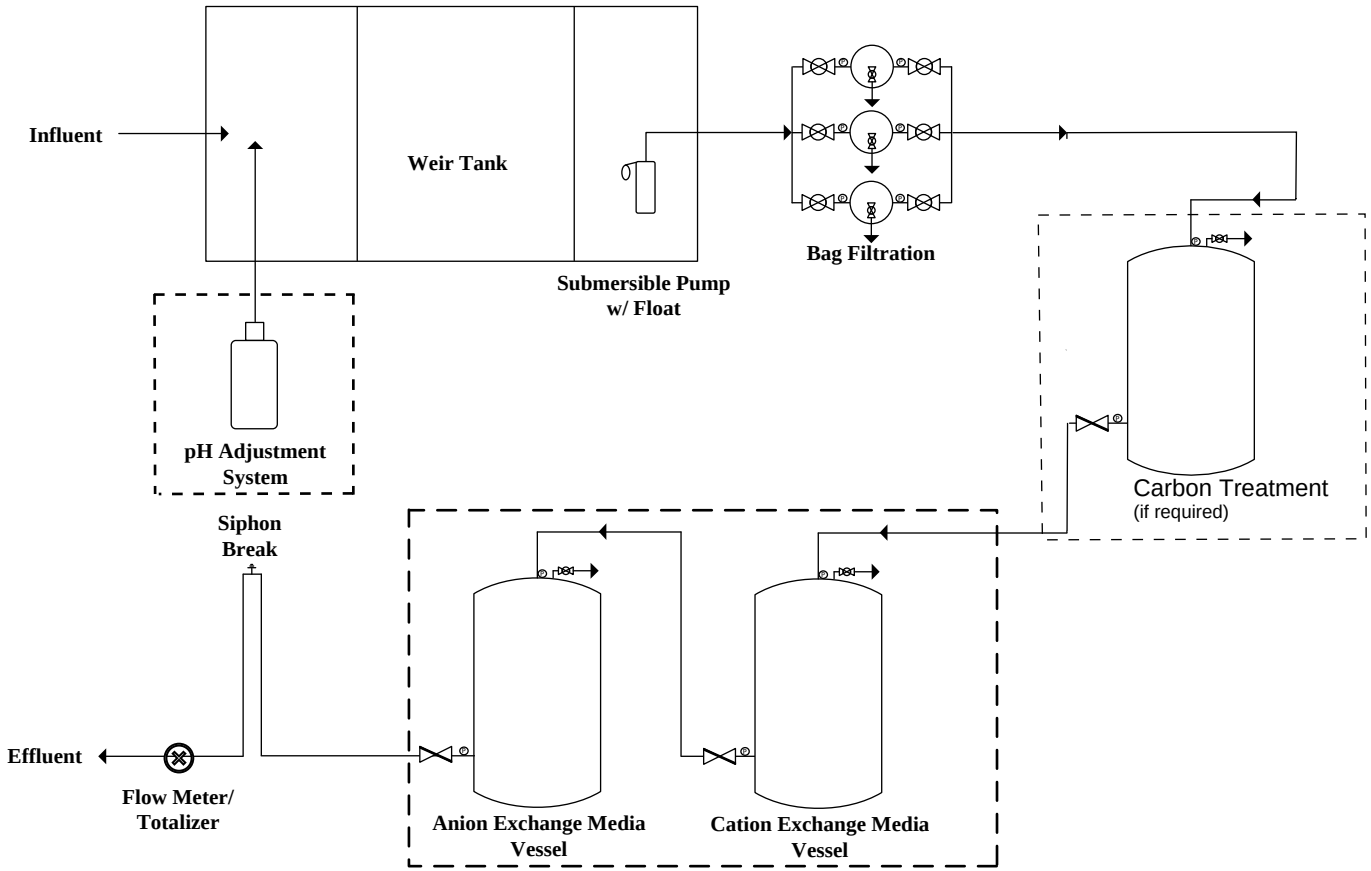
Haley & Aldrich, Inc.
465 Medford Street | Suite 2200
Boston, Massachusetts 02129

T: 617.886.7416
C: 716.445.1385
www.haleyaldrich.com

APPENDIX C

Chemicals and Additives Information

ADDITIONAL TREATMENT SYSTEMS SCHEMATIC LAYOUT



Notes:

1.) Figure is not to scale
2.) System is rated for 100 gallons per minute.
3.) Sampling ports located on all treatment system components

Key:
Piping/Hose
Contingency

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

DESIGNED BY: LRT **DRAWN BY:** B. Watkins

CHECKED BY: **DATE:**

Figure 4 - Water Treatment System Schematic

PROJECT No. 2-1494

FIGURE No. 4

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 contaminates allowing them to pass through the system to drain.

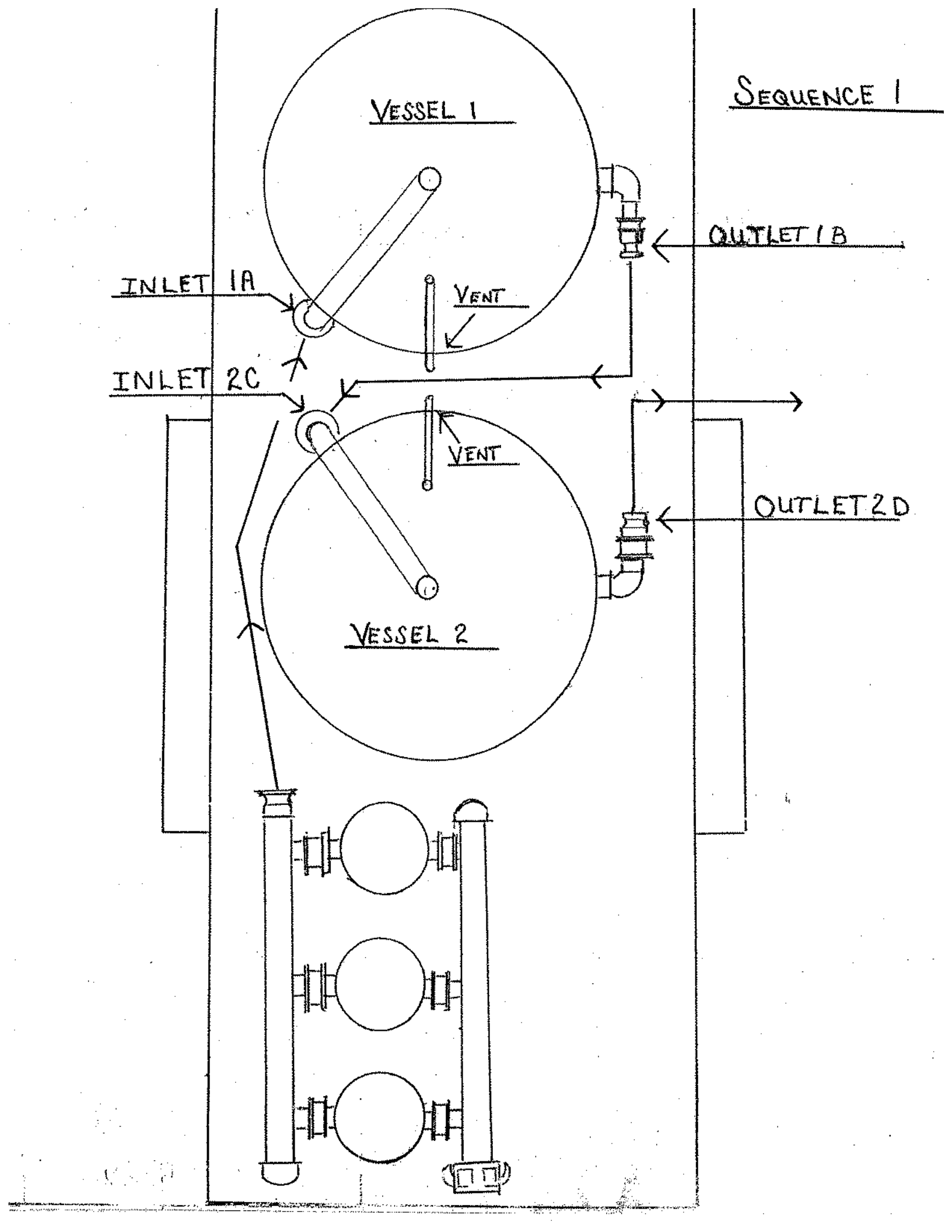
The system is mounted on a 12,230lb GVWR / 9600lb LC equipment hauler manufactured by Superior Trailers of Georgia. The main frame is 7" channel with two (2) 6000lb brake axles. There are four (4) 12000lb drop leg jackets with one mounted in each corner of the trailer. The combined dry weight of the two (2) 3000lb carbon adsorbers fully loaded with 3000lbs of granular carbon per vessel and the Tri-plex bag filter system is approximately 9,7750lbs. 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
VESSEL 1
OUTLET 1B
INLET 1A
VENT
INLET 2C
VENT
OUTLET 2D
VESSEL 2

TIGG® corporation

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

CONTENTS PAGE

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.

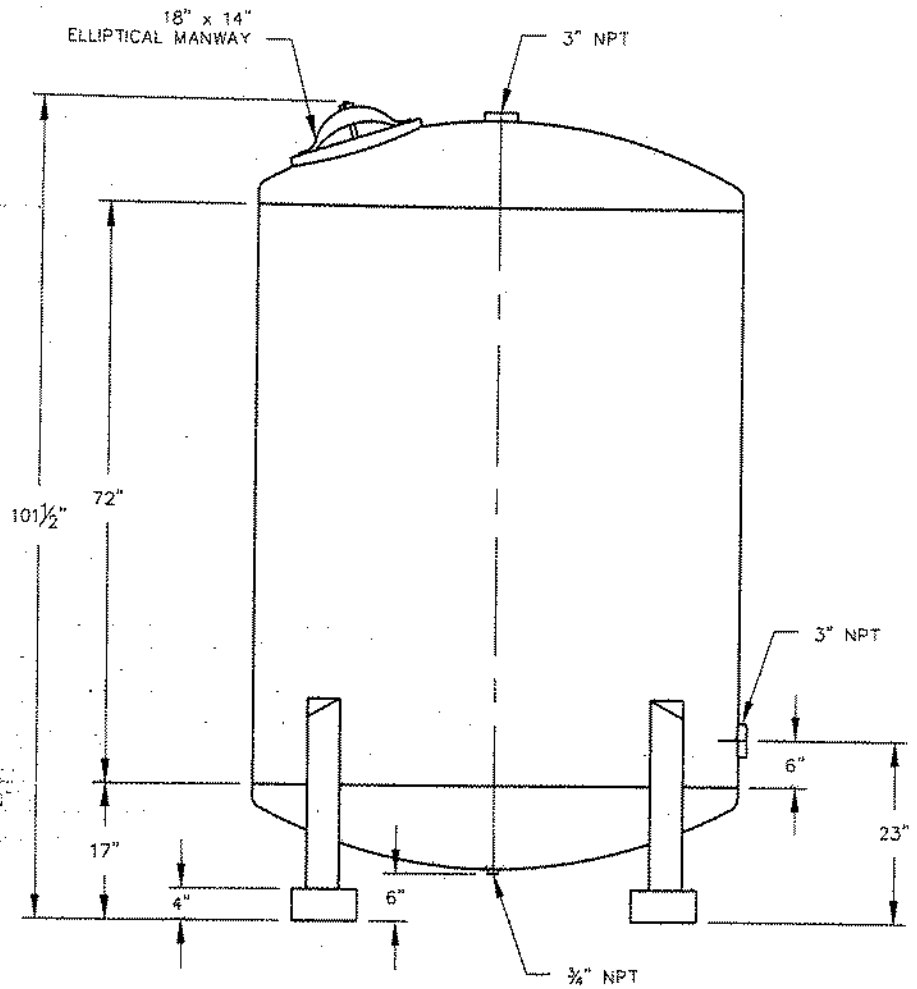
1) Superior Trailers 12,232lb GVWR trailer equipped with two (2) 6000lb AXIS Products brake axles.

4) Legend Mfg. 3" Butterfly valves model T-335AB with EPBM seat, Aluminum/Bronze construction

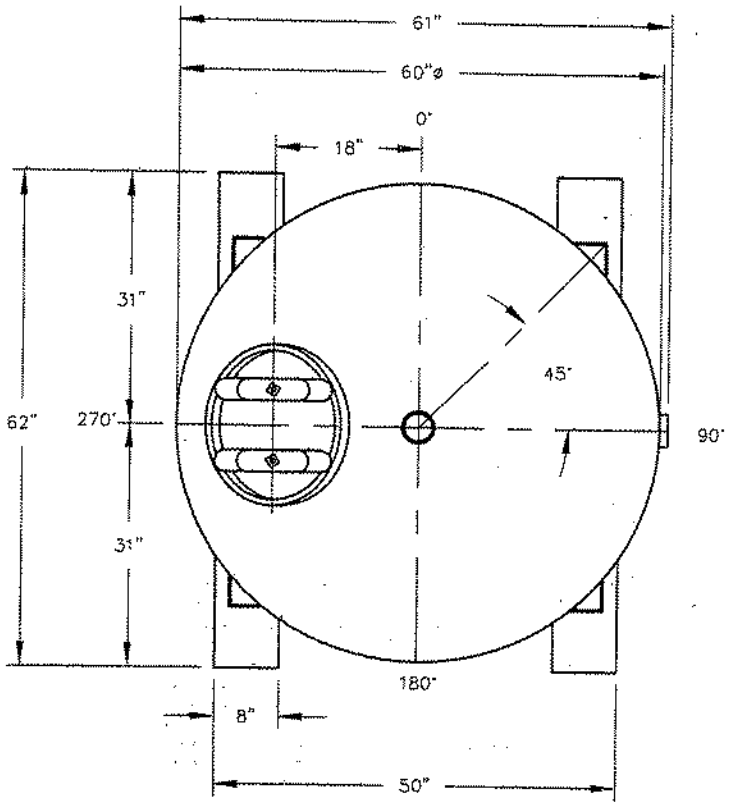
6) Legend Mfg. 2" Butterfly valves model T-335AB with EPDM seat, Aluminum/Bronze construction.

10) 0 – 60 psi, 2.5" pressure gauges

3) 3" x 12' EPDM rubber water hose with camlock fittings.



ELEVATION



PLAN

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
INTERNALS : PVC	MAX. OPERATING PRESSURE : 75 PSI
ADSORBENT OUTLET ASSEMBLY : 18" x 14" ELL. MANWAY	MAX. OPERATING TEMP. : 125°F

NO.	REVISION	BY	DATE

PROJECT

PROJ. NO.	E07-045-AM
P.O. NO.	
DRAWN BY	JB
DESIGN BY	BB
CHKD. BY	BB
DATE	8/9/07
SCALE	NTS

TIGG corporation

3000#
PLAN & ELEVATION

DWG. NO C07-1113

REV 0

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 low the bed of 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:

	GPM	
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 exits the vent or the inlet nozzle. This step removes the air that is in the adsorber and it is now ready to be placed into service.

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 doesn't, repeat the backwash procedure at a higher rate. Have someone observe the backwash 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 until it can be determined what the carbon usage rate is. Usually the sampling frequency can usually be reduced [illegible]

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 4.0 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 after proper wetting procedure has been followed, check for a 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/ft^2 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

INSTALLATION, OPERATION AND MAINTENANCE MANUAL

ROSEDALE PRODUCTS, INC.

MODEL NCO-8

150 PSIG RATED FILTER UNIT

Table of Contents

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 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.

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$^{foot\text{-}lbs}$. 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.

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.

⚠ WARNING

CONTENTS UNDER PRESSURE
Relieve Pressure in accordance with Manufacturer's instructions before opening Filter Vessel.
FAILURE TO DO SO MAY RESULT IN SERIOUS BODILY INJURY.

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. Replace if necessary. Clean basket seal groove and replace

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$^{\text{foot-lbs}}$. 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

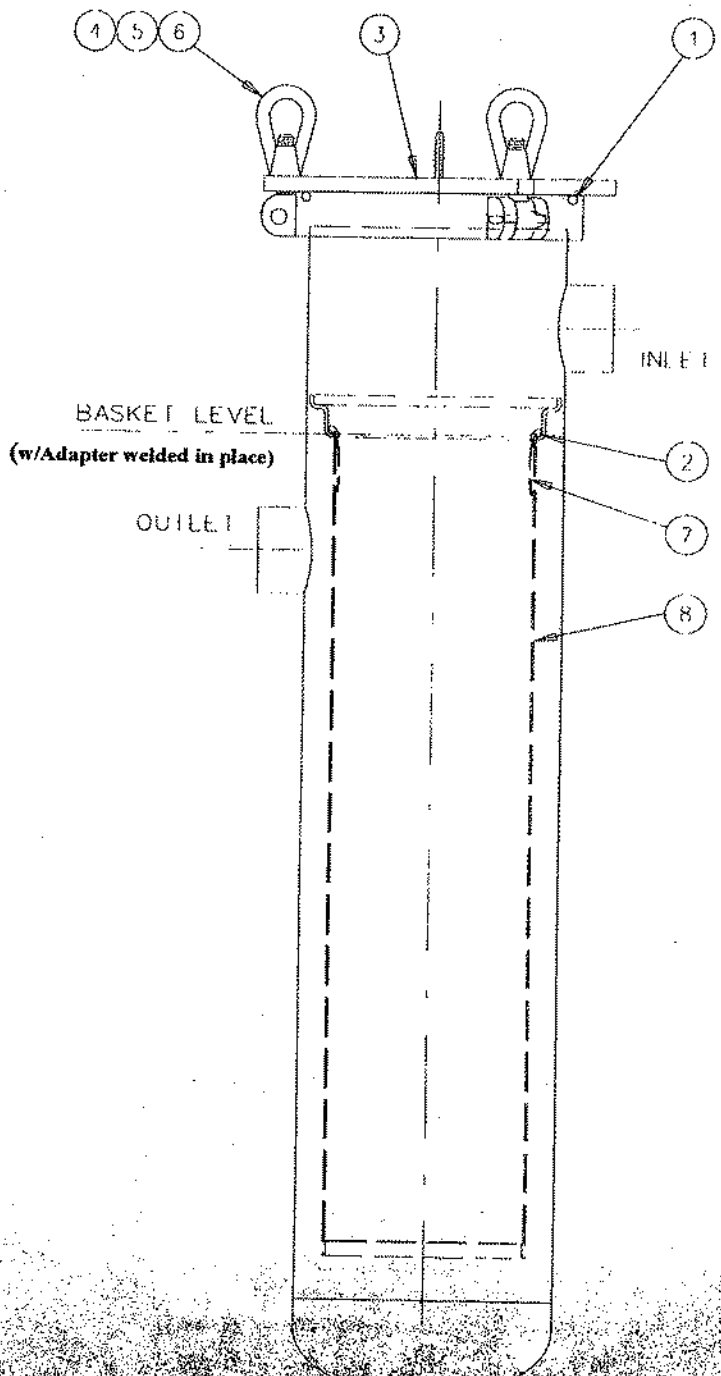
Your Rosedale Model NCO-8 Filter unit will give you many years of reliable service provided periodic inspections are made of various components and replacement of worn parts are made promptly. The following is meant to be a recommended spare parts list, these parts are illustrated on the following page.

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

IV. Spare Parts Diagram



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

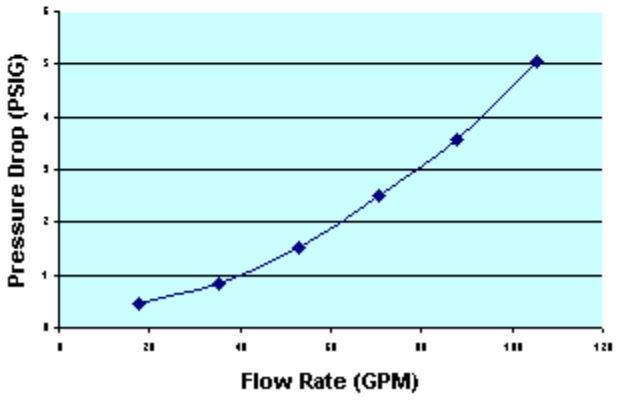
HPAF SERIES FILTERS
MODEL HPAF-2000

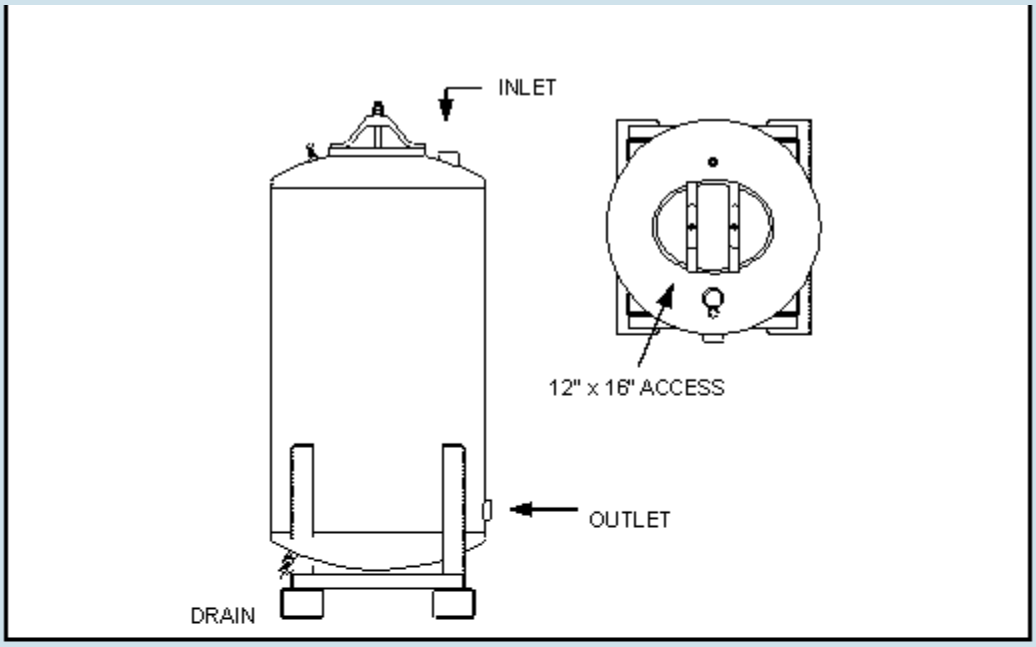
The HPAF-2000 filter is a media filter vessel designed to treat liquid streams. While the typical design application is a activated carbon adsorbtion unit, the filter can easily accommodate many medias. Some applications include:

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

PRESSURE DROP GRAPH

*(As Filled - 8*30 GAC)*





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

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

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

D2B 

B6 

NFPA/HMIS

NFPA SCALE (0-4)

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

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 eyeware, 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.

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

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/m³ 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

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

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

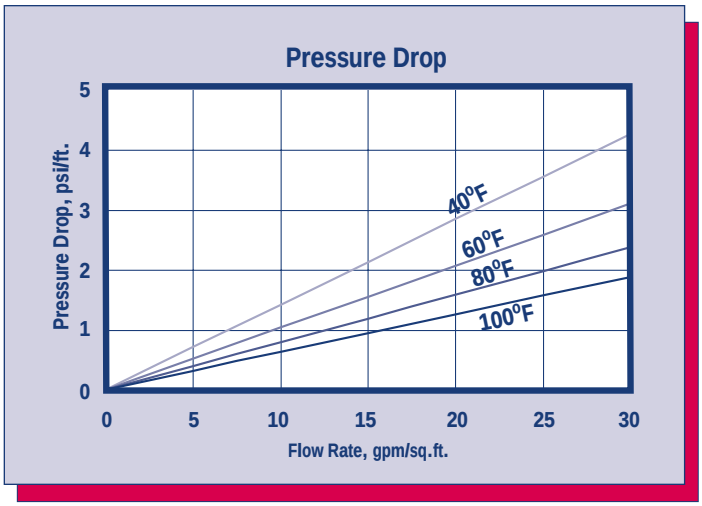
RESINTECH CGS is a high purity, light colored, high capacity, gel type sulfonated polystyrene cation resin supplied in the sodium form as moist, tough uniform spherical beads. *ResinTech CGS* specifically is intended for use in all water softening applications,including beverages, potable water and water used for food processing. It's 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.)

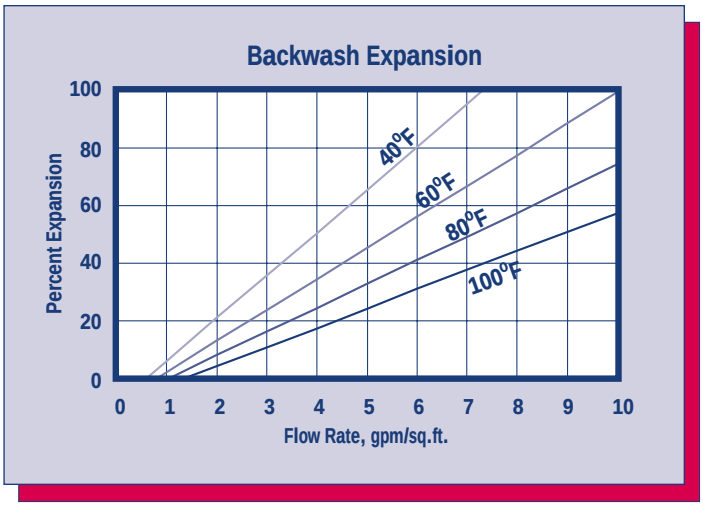
FEATURES & BENEFITS

- **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 - 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 CGS* in the sodium form.

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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 $CaCO_3$, 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 $CaCO_3$, 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.

CGSver010603

SBG1

ANION EXCHANGE RESIN TYPE ONE GEL Cl OR OH FORM

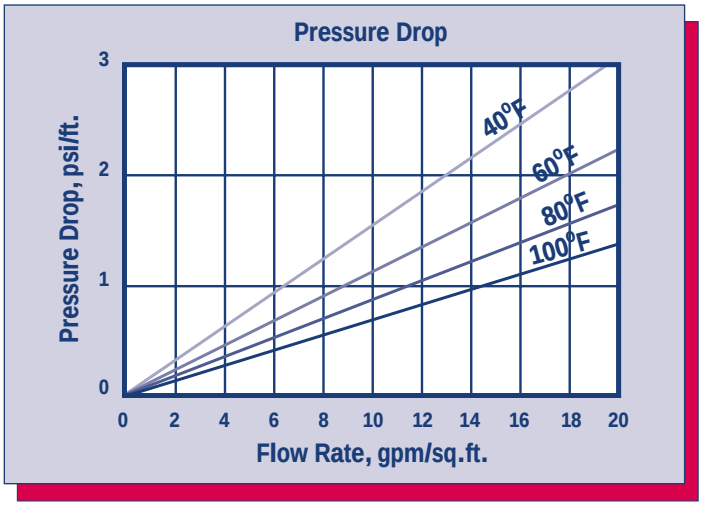
RESINTECH SBG1 is a high capacity, shock resistant, gelular, Type 1, strongly basic anion exchange resin supplied in the chloride or hydroxide form as moist, tough, uniform, spherical beads. *RESINTECH SBG1* is intended for use in all types of deionization systems and chemical processing applications.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

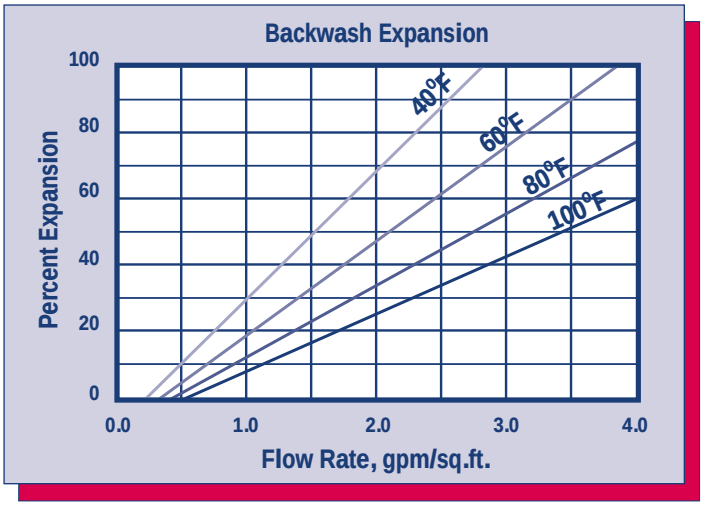
FEATURES & BENEFITS

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

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

HYDRAULIC PROPERTIES





PRESSURE DROP

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

BACKWASH

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

RESINTECH® SBG1

PHYSICAL PROPERTIES

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

SUGGESTED OPERATING CONDITIONS

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

OPERATING CAPACITY

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

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

APPLICATIONS

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

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

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

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

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

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

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 Email	856-768-9600 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 Chloromethlyated 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 230º C. Auto ignition can occur above 500º 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 (0º to 45º 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 50º 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 500º 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 500º C
Evaporation rate	Does not evaporate
Partition Coefficient (n-octonol/water)	Not applicable
Auto-ignition temperature	Approx 500º C
Decomposition temperature	Above 230º 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.

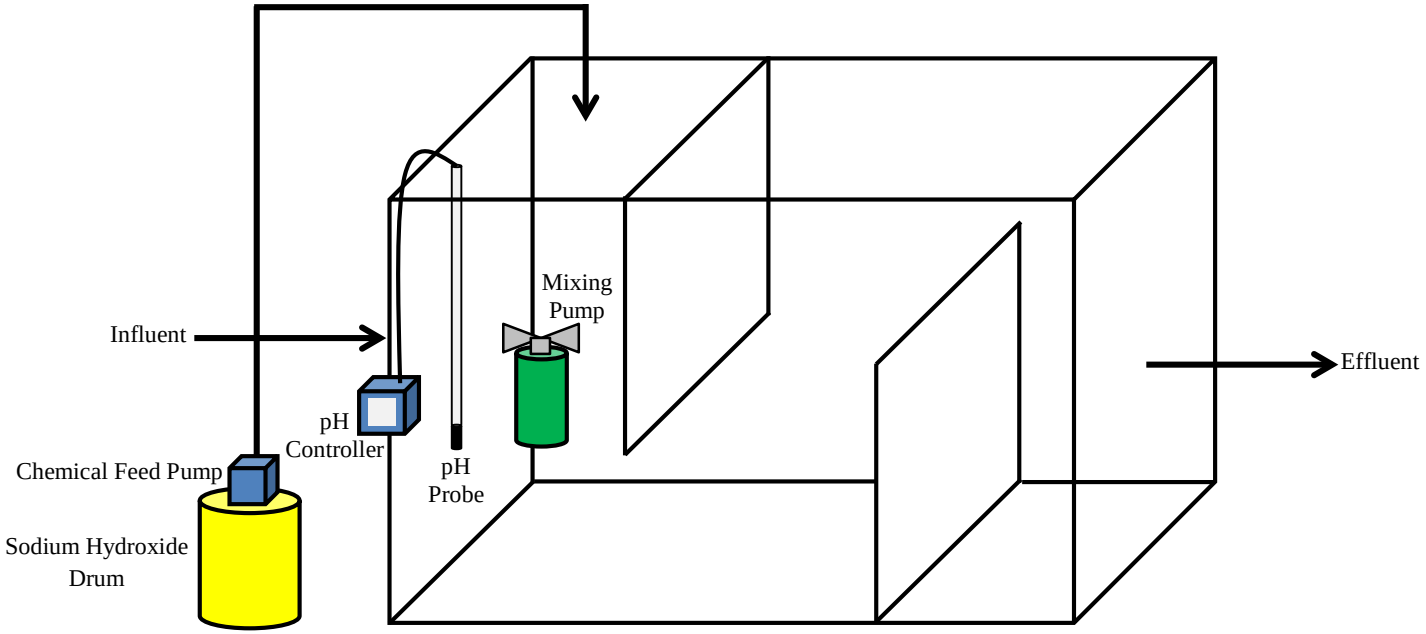
Section 15: Regulatory Information

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	Not a controlled product
	TDG	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

Lockwood Remediation Technologies, LLC

One Controller for the Broadest Range of Sensors.

Choose from 30 digital and analog sensor families for up to 17 di:erent 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 o:ers 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 sc100™ Controller	Previous Models GLI53 Controller	sc200™ Controller	Benefits
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

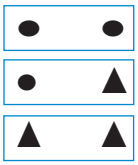
Choose from Hach's Broad Range of Digital and Analog Sensors

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	▲

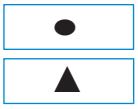
● = Digital ▲ = Analog

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



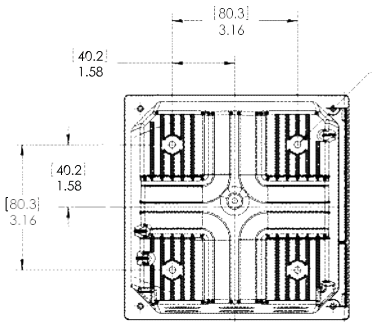
Specifications*

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 Operational Mode: measurement or calculated value
Analog Output Functional Mode	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.*

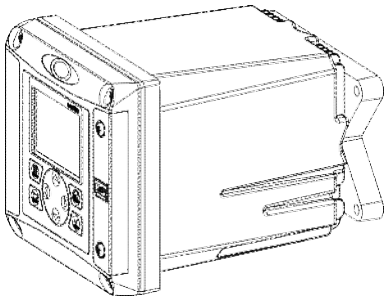
Dimensions

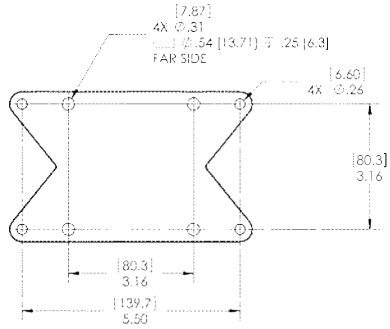
Surface Mounting Dimensions



Mounting Dimensions
(Rear View)

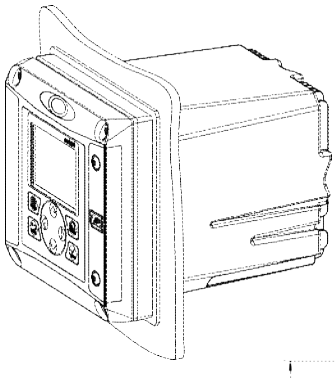
OR

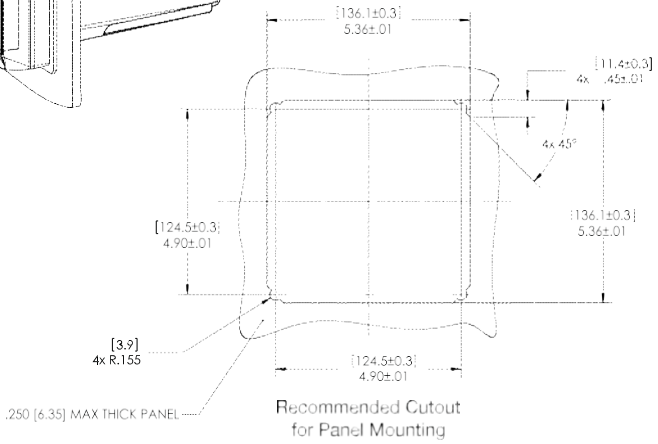




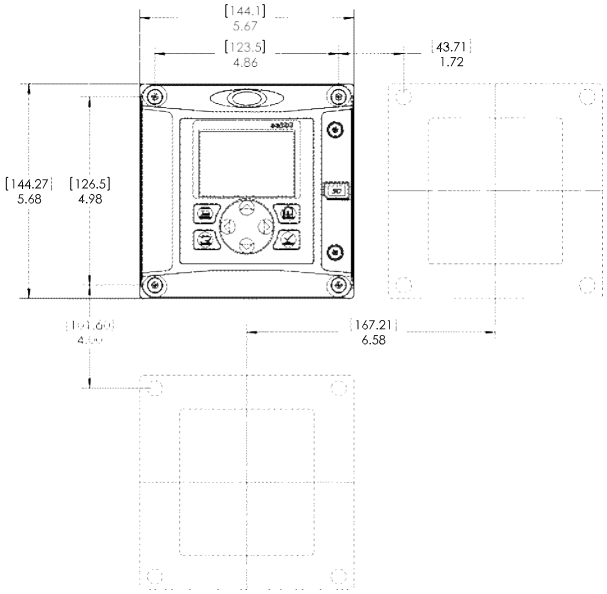
Bracket (supplied) for Surface Mounting
(Not compatible with Weather and Sun Shield
p/n 9220600 when surface mounting.)

Panel Mounting Dimensions



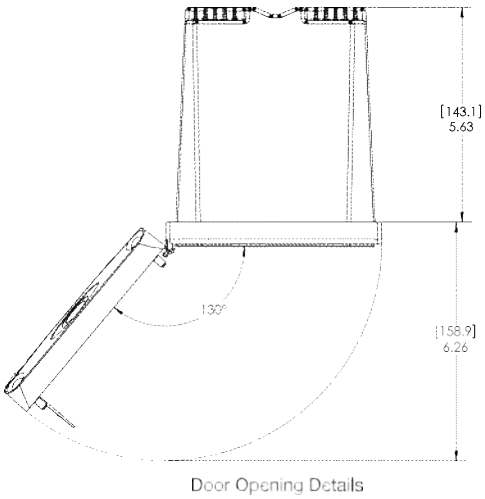


Recommended Cutout
for Panel Mounting

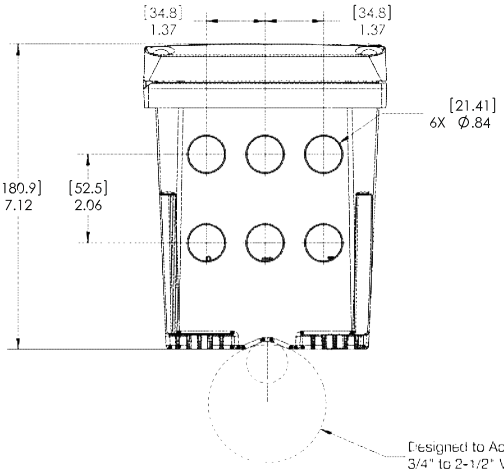


Minimum Spacing Dimensions
for Group Mounting

Top and Bottom Views

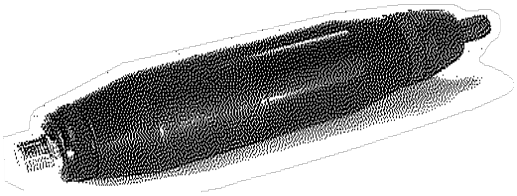


Door Opening Details

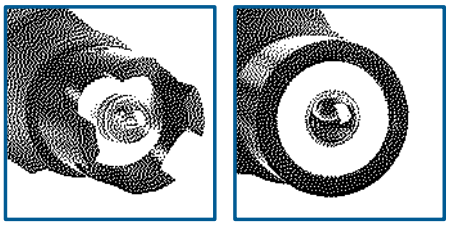


Designed to Accommodate
3/4" to 2-1/2" Vertical or Horizontal Pipe

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.

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 105ºC 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 105ºC (32 to 221ºF)

Flow Rate
0 to 2 m/s (0 to 6.6 ft./s); non-abrasive

Pressure Range
0 to 6.9 bar at 100ºC (0 to 100 psig at 212ºF)

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 105ºC (32 to 221ºF)

Flow Rate
0 to 2 m/s (0 to 6.6 ft./s); non-abrasive

Pressure Range
0 to 6.9 bar at 100ºC (0 to 100 psig at 212ºF)

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.*

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.

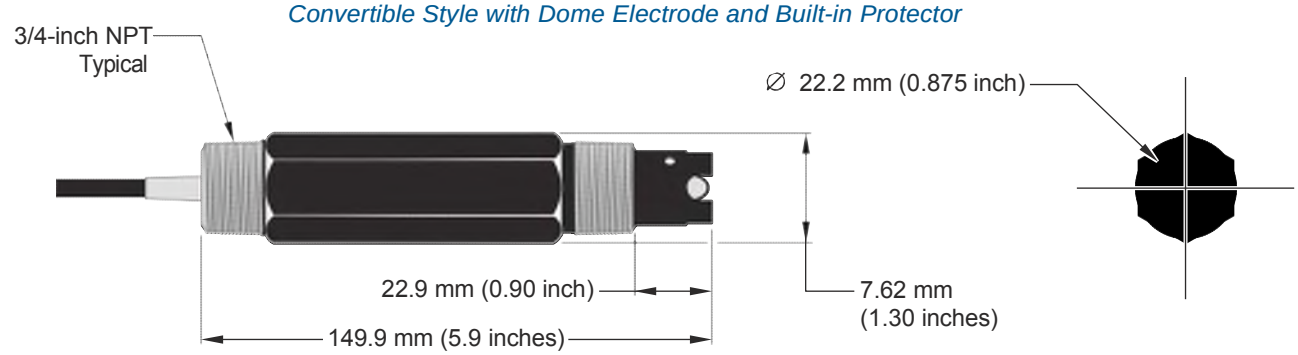
Insertion Style Sensor

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.

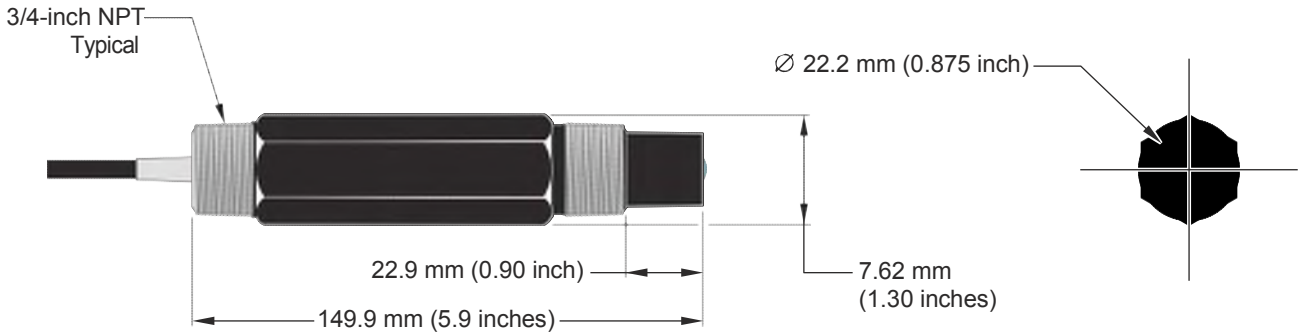
Sanitary Style Sensor

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 Dome Electrode and Built-in Protector



Convertible Style with Flat Electrode



Lockwood Remediation Technologies, LLC

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 ± 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
External Pace w/ Stop (125 SPM only)	--	Auto / Manual Selection [2]
Manual Stroke Rate	10:1 Ratio	100:1 Raio
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

Lockwood Remediation Technologies, LLC

Series A Plus

Specifications and Model Selection

MODEL			LBC2	LB02	LBC3	LB03	LB04	LB64	LBC4	LBS2	LBS3	LBS4
Capacity nominal (max.)		GPH	0.25	0.25	0.42	0.50	1.00	1.25	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) wITFE Seats)	PSIG (Bar)	250 (17)	150 (10)	250 (17)	150 (10)	100 (7)	100 (7)	50 (3.3)	250 (17)	150 (10)	100 (7)
	PVC (V code) Viton or CSPE Seats IDegas Liquid End		150 (10)							150 (10)		
Connections:		Tubina	1 14' ID X 3 8' OD						3 8' D X 1 2' OD	1 4' D X 3 8' OD		
		Pioina	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:	GFPPL
	PVC
	PVDF
	316 SS
Diaphragm:	PTFE-faced CSPE-backed
Check Valves Materials Available:	
Seats/0-Rings:	PTFE
	CSPE
	Viton
Balls:	Ceramic
	PTFE
	316 SS
	Alloy C
Fittings Materials Available:	GFPPL
	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 - GFPPL=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 hput Power:	130 Watts
Average Input Power @ Max SPM:	50 Watts

Custom Engineered Designs - Pre-Engineered Systems

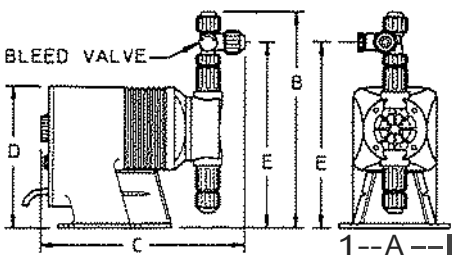
Pre-Engineered Systems

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
LB0[illegible]4	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 2.54 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."

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

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 CO_2, 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	Flammability	Instability	Physical hazards
3	0	2	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.

Personal Protective Equipment

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	H2SO4
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/m³ (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)

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 D

Endangered Species Act Assessment

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

IPaC resource list

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

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

Location

Middlesex County, Massachusetts

Local office

New England Ecological Services Field Office

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

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

http://www.fws.gov/newengland

Endangered species

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

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

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

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

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

Listed species[1] are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service.

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

The following species are potentially affected by activities in this location:

Mammals

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

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

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

Any activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service[3]. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php

- Conservation measures for birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Year-round bird occurrence data http://www.birdscanada.org/birdmon/default/datasummaries.jsp

The migratory birds species listed below are species of particular conservation concern (e.g. Birds of Conservation Concern) that may be potentially affected by activities in this location. It is not a list of every bird species you may find in this location, nor a guarantee that all of the bird species on this list will be found on or near this location. Although it is important to try to avoid and minimize impacts to all birds, special attention should be made to avoid and minimize impacts to birds of priority concern. To view available data on other bird species that may occur in your project area, please visit the AKN Histogram Tools and Other Bird Data Resources. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

NAME	SEASON(S)
American Bittern Botaurus lentiginosus https://ecos.fws.gov/ecp/species/6582	On Land: Breeding
American Oystercatcher Haematopus palliatus https://ecos.fws.gov/ecp/species/8935	On Land: Breeding
Bald Eagle Haliaeetus leucocephalus https://ecos.fws.gov/ecp/species/1626	On Land: Year-round
Black-billed Cuckoo Coccyzus erythropthalmus https://ecos.fws.gov/ecp/species/9399	On Land: Breeding
Blue-winged Warbler Vermivora pinus	On Land: Breeding
Canada Warbler Wilsonia canadensis	On Land: Breeding
Hudsonian Godwit Limosa haemastica	At Sea: Migrating
Least Bittern Ixobrychus exilis https://ecos.fws.gov/ecp/species/6175	On Land: Breeding
Olive-sided Flycatcher Contopus cooperi https://ecos.fws.gov/ecp/species/3914	On Land: Breeding
Peregrine Falcon Falco peregrinus https://ecos.fws.gov/ecp/species/8831	On Land: Breeding
Pied-billed Grebe Podilymbus podiceps	On Land: Breeding
Prairie Warbler Dendroica discolor	On Land: Breeding
Purple Sandpiper Calidris maritima	On Land: Wintering
Seaside Sparrow Ammodramus maritimus	On Land: Breeding
Short-eared Owl Asio flammeus https://ecos.fws.gov/ecp/species/9295	On Land: Wintering
Snowy Egret Egretta thula	On Land: Breeding
Upland Sandpiper Bartramia longicauda https://ecos.fws.gov/ecp/species/9294	On Land: Breeding
Willow Flycatcher Empidonax traillii https://ecos.fws.gov/ecp/species/3482	On Land: Breeding
Wood Thrush Hylocichla mustelina	On Land: Breeding
Worm Eating Warbler Helmitheros vermivorum	On Land: Breeding

What does IPaC use to generate the list of migratory bird species potentially occurring in my specified location?

Landbirds:

Migratory birds that are displayed on the IPaC species list are based on ranges in the latest edition of the National Geographic Guide, Birds of North America (6th Edition, 2011 by Jon L. Dunn, and Jonathan Alderfer). Although these ranges are coarse in nature, a number of U.S. Fish and Wildlife Service migratory bird biologists agree that these maps are some of the best range maps to date. These ranges were clipped to a specific Bird Conservation Region (BCR) or USFWS Region/Regions, if it was indicated in the 2008 list of Birds of Conservation Concern (BCC) that a species was a BCC species only in a particular Region/Regions. Additional modifications have been made to some ranges based on more local or refined range information and/or information provided by U.S. Fish and Wildlife Service biologists with species expertise. All migratory birds that show in areas on land in IPaC are those that appear in the 2008 Birds of Conservation Concern report.

Atlantic Seabirds:

Ranges in IPaC for birds off the Atlantic coast are derived from species distribution models developed by the National Oceanic and Atmospheric Association (NOAA) National Centers for Coastal Ocean Science (NCCOS) using the best available seabird survey data for the offshore Atlantic Coastal region to date. NOAANCCOS assisted USFWS in developing seasonal species ranges from their models for specific use in IPaC. Some of these birds are not BCC species but were of interest for inclusion because they may occur in high abundance off the coast at different times throughout the year, which potentially makes them more susceptible to certain types of development and activities taking place in that area. For more refined details about the abundance and richness of bird species within your project area off the Atlantic Coast, see the Northeast Ocean Data Portal. The Portal also offers data and information about other types of taxa that may be helpful in your project review.

About the NOAANCCOS models: the models were developed as part of the NOAANCCOS project: Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf. The models resulting from this project are being used in a number of decision-support/mapping products in order to help guide decision-making on activities off the Atlantic Coast with the goal of reducing impacts to migratory birds. One such product is the Northeast Ocean Data Portal, which can be used to explore details about the relative occurrence and abundance of bird species in a particular area off the Atlantic Coast.

All migratory bird range maps within IPaC are continuously being updated as new and better information becomes available.

Can I get additional information about the levels of occurrence in my project area of specific birds or groups of birds listed in IPaC?

Landbirds:

The Avian Knowledge Network (AKN) provides a tool currently called the "Histogram Tool", which draws from the data within the AKN (latest,survey, point count, citizen science datasets) to create a view of relative abundance of species within a particular location over the course of the year. The results of the tool depict the frequency of detection of a species in survey events, averaged between multiple datasets within AKN in a particular week of the year. You may access the histogram tools through the Migratory Bird Programs AKN Histogram Tools webpage.

The tool is currently available for 4 regions (California, Northeast U.S., Southeast U.S. and Midwest), which encompasses the following 32 states: Alabama, Arkansas, California, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, New Jersey, New York, North, Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin.

In the near future, there are plans to expand this tool nationwide within the AKN, and allow the graphs produced to appear with the list of trust resources generated by IPaC, providing you with an additional level of detail about the level of occurrence of the species of particular concern potentially occurring in your project area throughout the course of the year.

Atlantic Seabirds:

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

Facilities

Wildlife refuges

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

THERE ARE NO REFUGES AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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

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

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND
- PEM1E
- PEM1C

FRESHWATER FORESTED/SHRUB WETLAND
- PFO1E

RIVERINE
- R2UBHx

A full description for each wetland code can be found at the National Wetlands Inventory website: https://ecos.fws.gov/ipac/wetlands/decoder

Data limitations

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

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

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

Data exclusions

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

Data precautions

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

APPENDIX E

National Historic Preservation Act Review

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. …

Contact Us (https://www.nps.gov/contacts.htm)

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

Search Criteria: Town(s): Cambridge; Street Name: Concord Tpk; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year
CAM.9012	Alewife Brook Parkway - Northern Segment	Alewife Brook Pkwy	Cambridge	1908

APPENDIX F

Laboratory Data Reports

JOB: L1713693 REPORT STYLE: Data Usability Report
0010: Alpha Analytical Report Cover Page - OK
0015: Sample Cross Reference Summary - OK
0060: Case Narrative - OK
0100: Volatiles Cover Page - OK
0110: Volatiles Sample Results - OK
0120: Volatiles Method Blank Report - OK
0130: Volatiles LCS Report - OK
0150: Volatiles Matrix SpikeReport - OK
0180: Semivolatiles Cover Page - OK
0190: Semivolatiles Sample Results - OK
0200: Semivolatiles Method Blank Report - OK
0210: Semivolatiles LCS Report - OK
0700: PCBs Cover Page - OK
0710: PCBs Sample Results - OK
0720: PCBs Method Blank Report - OK
0730: PCBs LCS Report - OK
0750: PCBs Matrix Spike Report - OK
0760: PCBs Duplicate Report - OK
1005: Metals Sample Results - OK
1010: Metals Method Blank Report - OK
1020: Metals LCS Report - OK
1040: Metals Matrix Spike Report - OK
1050: Metals Duplicate Report - OK
1180: Inorganics Cover Page - OK
1200: Wet Chemistry Sample Results - OK
1210: Wet Chemistry Method Blank Report - OK
1220: Wet Chemistry LCS Report - OK
1240: Wet Chemistry Matrix Spike Report - OK
1250: Wet Chemistry Duplicate Report - OK
5100: Sample Receipt & Container Information Report - OK
5200: Glossary - OK
5400: References - OK

ANALYTICAL REPORT

Lab Number:	L1713693
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Todd Butler
Phone:	(617) 886-7424
Project Name:	THE RESIDENCES AT ALEWIFE
Project Number:	129876-003
Report Date:	05/05/17

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: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1713693-01	B-I6 OW	WATER	CAMBRIDGE, MA	04/28/17 12:00	04/28/17
L1713693-02	B-F4 OW	WATER	CAMBRIDGE, MA	04/28/17 13:35	04/28/17
L1713693-03	TRIP BLANKS	WATER	CAMBRIDGE, MA	04/28/17 00:00	04/28/17

Project Name:	THE RESIDENCES AT ALEWIFE	**Lab Number:**	L1713693
Project Number:	129876-003	**Report Date:**	05/05/17

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: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693
Project Number: 129876-003 **Report Date:** 05/05/17

Case Narrative (continued)

Report Submission

This is a partial report. A final report will be issued as soon as the results of all requested analyses become available.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics by SIM

L1713693-02 (B-F4 OW): The sample has an elevated detection limit due to the dilution required by the elevated concentrations of non-target compounds in the sample.

Semivolatile Organics

The WG998723-2/-3 LCS/LCSD recoveries, associated with L1713693-01 and -02 (B-I6 OW and B-F4 OW), are below the acceptance criteria for benzidine (0%/0%) and pyridine (8%/4%); however, they have been identified as "difficult" analytes. The results of the associated samples are reported.

Chromium, Hexavalent

L1713693-02 (B-F4 OW): The sample has an elevated detection limit due to the dilution required by the sample matrix.

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: 05/05/17

ORGANICS

VOLATILES

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-01
Client ID: B-I6 OW
Sample Location: CAMBRIDGE, MA
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 05/04/17 02:07
Analyst: BD

Date Collected: 04/28/17 12:00
Date Received: 04/28/17
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	0.68	1
1,1-Dichloroethane	ND		ug/l	0.75	0.21	1
Chloroform	ND		ug/l	0.75	0.16	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.8	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	0.75	0.14	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	0.50	0.18	1
Trichlorofluoromethane	ND		ug/l	2.5	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	0.50	0.16	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.17	1
Bromoform	ND		ug/l	2.0	0.25	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.16	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Chloromethane	ND		ug/l	2.5	0.18	1
Bromomethane	ND		ug/l	1.0	0.26	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	1.0	0.13	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
1,2-Dichloroethene, Total	ND		ug/l	0.50	0.16	1
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.18	1

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-01 Date Collected: 04/28/17 12:00

Client ID: B-I6 OW Date Received: 04/28/17

Sample Location: CAMBRIDGE, 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	0.19	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.19	1
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.33	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
cis-1,2-Dichloroethene	ND		ug/l	0.50	0.19	1
Dibromomethane	ND		ug/l	5.0	0.36	1
1,4-Dichlorobutane	ND		ug/l	5.0	0.46	1
1,2,3-Trichloropropane	ND		ug/l	5.0	0.18	1
Styrene	ND		ug/l	1.0	0.36	1
Dichlorodifluoromethane	ND		ug/l	5.0	0.24	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	0.30	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	0.31	1
4-Methyl-2-pentanone	ND		ug/l	5.0	0.42	1
2-Hexanone	ND		ug/l	5.0	0.52	1
Ethyl methacrylate	ND		ug/l	5.0	0.61	1
Acrylonitrile	ND		ug/l	5.0	0.43	1
Bromochloromethane	ND		ug/l	2.5	0.15	1
Tetrahydrofuran	ND		ug/l	5.0	0.83	1
2,2-Dichloropropane	ND		ug/l	2.5	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
1,3-Dichloropropane	ND		ug/l	2.5	0.21	1
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.16	1
Bromobenzene	ND		ug/l	2.5	0.15	1
n-Butylbenzene	ND		ug/l	0.50	0.19	1
sec-Butylbenzene	ND		ug/l	0.50	0.18	1
tert-Butylbenzene	ND		ug/l	2.5	0.18	1
o-Chlorotoluene	ND		ug/l	2.5	0.17	1
p-Chlorotoluene	ND		ug/l	2.5	0.18	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.35	1
Hexachlorobutadiene	ND		ug/l	0.50	0.22	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
p-Isopropyltoluene	ND		ug/l	0.50	0.19	1
Naphthalene	ND		ug/l	2.5	0.22	1
n-Propylbenzene	ND		ug/l	0.50	0.17	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.23	1

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-01 Date Collected: 04/28/17 12:00

Client ID: B-I6 OW Date Received: 04/28/17

Sample Location: CAMBRIDGE, 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	0.22	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.17	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.18	1
Ethyl ether	ND		ug/l	2.5	0.16	1
Tert-Butyl Alcohol	ND		ug/l	10	1.4	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	0.28	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	95		70-130

Project Name: THE RESIDENCES AT ALEWIFE
Lab Number: L1713693
Project Number: 129876-003
Report Date: 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-01
Client ID: B-I6 OW
Sample Location: CAMBRIDGE, MA
Matrix: Water
Analytical Method: 1,8260C-SIM(M)
Analytical Date: 05/05/17 09:08
Analyst: MM

Date Collected: 04/28/17 12:00
Date Received: 04/28/17
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	0.76	1

Project Name: THE RESIDENCES AT ALEWIFE
Lab Number: L1713693
Project Number: 129876-003
Report Date: 05/05/17

SAMPLE RESULTS

Lab ID:	L1713693-01	Date Collected:	04/28/17 12:00
Client ID:	B-I6 OW	Date Received:	04/28/17
Sample Location:	CAMBRIDGE, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 504.1
Analytical Method:	14,504.1	Extraction Date:	05/01/17 11:45
Analytical Date:	05/01/17 17:31		
Analyst:	NS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.004	1	A
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	0.005	1	A

Project Name: THE RESIDENCES AT ALEWIFE
Lab Number: L1713693
Project Number: 129876-003
Report Date: 05/05/17

SAMPLE RESULTS

Lab ID:	L1713693-02	Date Collected:	04/28/17 13:35
Client ID:	B-F4 OW	Date Received:	04/28/17
Sample Location:	CAMBRIDGE, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 504.1
Analytical Method:	14,504.1	Extraction Date:	05/01/17 11:45
Analytical Date:	05/01/17 17:46		
Analyst:	NS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.004	1	A
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	0.005	1	A

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-02 D
Client ID: B-F4 OW
Sample Location: CAMBRIDGE, MA
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 05/04/17 02:35
Analyst: BD

Date Collected: 04/28/17 13:35
Date Received: 04/28/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	150	34.	50
1,1-Dichloroethane	ND		ug/l	38	10.	50
Chloroform	ND		ug/l	38	8.1	50
Carbon tetrachloride	ND		ug/l	25	6.7	50
1,2-Dichloropropane	ND		ug/l	88	6.8	50
Dibromochloromethane	ND		ug/l	25	7.4	50
1,1,2-Trichloroethane	ND		ug/l	38	7.2	50
Tetrachloroethene	ND		ug/l	25	9.0	50
Chlorobenzene	ND		ug/l	25	8.9	50
Trichlorofluoromethane	ND		ug/l	120	8.0	50
1,2-Dichloroethane	ND		ug/l	25	6.6	50
1,1,1-Trichloroethane	ND		ug/l	25	7.9	50
Bromodichloromethane	ND		ug/l	25	9.6	50
trans-1,3-Dichloropropene	ND		ug/l	25	8.2	50
cis-1,3-Dichloropropene	ND		ug/l	25	7.2	50
1,3-Dichloropropene, Total	ND		ug/l	25	7.2	50
1,1-Dichloropropene	ND		ug/l	120	8.6	50
Bromoform	ND		ug/l	100	12.	50
1,1,2,2-Tetrachloroethane	ND		ug/l	25	8.4	50
Benzene	10	J	ug/l	25	8.0	50
Toluene	4900		ug/l	38	8.0	50
Ethylbenzene	39		ug/l	25	8.4	50
Chloromethane	ND		ug/l	120	8.8	50
Bromomethane	ND		ug/l	50	13.	50
Vinyl chloride	ND		ug/l	50	3.6	50
Chloroethane	ND		ug/l	50	6.7	50
1,1-Dichloroethene	ND		ug/l	25	8.4	50
1,2-Dichloroethene, Total	23	J	ug/l	25	8.2	50
Trichloroethene	ND		ug/l	25	8.8	50
1,2-Dichlorobenzene	ND		ug/l	120	9.2	50

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-02 D Date Collected: 04/28/17 13:35

Client ID: B-F4 OW Date Received: 04/28/17

Sample Location: CAMBRIDGE, 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	120	9.3	50
1,4-Dichlorobenzene	ND		ug/l	120	9.4	50
Methyl tert butyl ether	ND		ug/l	50	8.3	50
p/m-Xylene	120		ug/l	50	17.	50
o-Xylene	93		ug/l	50	16.	50
Xylenes, Total	210		ug/l	50	16.	50
cis-1,2-Dichloroethene	23	J	ug/l	25	9.4	50
Dibromomethane	ND		ug/l	250	18.	50
1,4-Dichlorobutane	ND		ug/l	250	23.	50
1,2,3-Trichloropropane	ND		ug/l	250	8.8	50
Styrene	ND		ug/l	50	18.	50
Dichlorodifluoromethane	ND		ug/l	250	12.	50
Acetone	ND		ug/l	250	73.	50
Carbon disulfide	ND		ug/l	250	15.	50
2-Butanone	ND		ug/l	250	97.	50
Vinyl acetate	ND		ug/l	250	16.	50
4-Methyl-2-pentanone	ND		ug/l	250	21.	50
2-Hexanone	ND		ug/l	250	26.	50
Ethyl methacrylate	ND		ug/l	250	30.	50
Acrylonitrile	ND		ug/l	250	22.	50
Bromochloromethane	ND		ug/l	120	7.6	50
Tetrahydrofuran	ND		ug/l	250	42.	50
2,2-Dichloropropane	ND		ug/l	120	10.	50
1,2-Dibromoethane	ND		ug/l	100	9.6	50
1,3-Dichloropropane	ND		ug/l	120	11.	50
1,1,1,2-Tetrachloroethane	ND		ug/l	25	8.2	50
Bromobenzene	ND		ug/l	120	7.6	50
n-Butylbenzene	ND		ug/l	25	9.6	50
sec-Butylbenzene	16	J	ug/l	25	9.0	50
tert-Butylbenzene	ND		ug/l	120	9.2	50
o-Chlorotoluene	ND		ug/l	120	8.5	50
p-Chlorotoluene	ND		ug/l	120	9.2	50
1,2-Dibromo-3-chloropropane	ND		ug/l	120	18.	50
Hexachlorobutadiene	ND		ug/l	25	11.	50
Isopropylbenzene	27		ug/l	25	9.4	50
p-Isopropyltoluene	12	J	ug/l	25	9.4	50
Naphthalene	110	J	ug/l	120	11.	50
n-Propylbenzene	51		ug/l	25	8.6	50
1,2,3-Trichlorobenzene	ND		ug/l	120	12.	50

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-02 D Date Collected: 04/28/17 13:35

Client ID: B-F4 OW Date Received: 04/28/17

Sample Location: CAMBRIDGE, 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	120	11.	50
1,3,5-Trimethylbenzene	85	J	ug/l	120	8.7	50
1,2,4-Trimethylbenzene	250		ug/l	120	9.6	50
trans-1,4-Dichloro-2-butene	ND		ug/l	120	8.8	50
Ethyl ether	ND		ug/l	120	8.2	50
Tert-Butyl Alcohol	ND		ug/l	500	70.	50
Tertiary-Amyl Methyl Ether	ND		ug/l	100	14.	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	96		70-130

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

SAMPLE RESULTS

Lab ID:	L1713693-02	D	Date Collected:	04/28/17 13:35
Client ID:	B-F4 OW		Date Received:	04/28/17
Sample Location:	CAMBRIDGE, MA		Field Prep:	Not Specified
Matrix:	Water			
Analytical Method:	1,8260C-SIM(M)			
Analytical Date:	05/05/17 09:33			
Analyst:	MM			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS-SIM - Westborough Lab						
1,4-Dioxane	ND		ug/l	150	38.	50

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-03
Client ID: TRIP BLANKS
Sample Location: CAMBRIDGE, MA
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 05/03/17 15:29
Analyst: MM

Date Collected: 04/28/17 00:00
Date Received: 04/28/17
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	0.68	1
1,1-Dichloroethane	ND		ug/l	0.75	0.21	1
Chloroform	ND		ug/l	0.75	0.16	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.8	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	0.75	0.14	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	0.50	0.18	1
Trichlorofluoromethane	ND		ug/l	2.5	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	0.50	0.16	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.17	1
Bromoform	ND		ug/l	2.0	0.25	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.16	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Chloromethane	ND		ug/l	2.5	0.18	1
Bromomethane	ND		ug/l	1.0	0.26	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	1.0	0.13	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
1,2-Dichloroethene, Total	ND		ug/l	0.50	0.16	1
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.18	1

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-03 Date Collected: 04/28/17 00:00

Client ID: TRIP BLANKS Date Received: 04/28/17

Sample Location: CAMBRIDGE, 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	0.19	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.19	1
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.33	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
cis-1,2-Dichloroethene	ND		ug/l	0.50	0.19	1
Dibromomethane	ND		ug/l	5.0	0.36	1
1,4-Dichlorobutane	ND		ug/l	5.0	0.46	1
1,2,3-Trichloropropane	ND		ug/l	5.0	0.18	1
Styrene	ND		ug/l	1.0	0.36	1
Dichlorodifluoromethane	ND		ug/l	5.0	0.24	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	0.30	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	0.31	1
4-Methyl-2-pentanone	ND		ug/l	5.0	0.42	1
2-Hexanone	ND		ug/l	5.0	0.52	1
Ethyl methacrylate	ND		ug/l	5.0	0.61	1
Acrylonitrile	ND		ug/l	5.0	0.43	1
Bromochloromethane	ND		ug/l	2.5	0.15	1
Tetrahydrofuran	ND		ug/l	5.0	0.83	1
2,2-Dichloropropane	ND		ug/l	2.5	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
1,3-Dichloropropane	ND		ug/l	2.5	0.21	1
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.16	1
Bromobenzene	ND		ug/l	2.5	0.15	1
n-Butylbenzene	ND		ug/l	0.50	0.19	1
sec-Butylbenzene	ND		ug/l	0.50	0.18	1
tert-Butylbenzene	ND		ug/l	2.5	0.18	1
o-Chlorotoluene	ND		ug/l	2.5	0.17	1
p-Chlorotoluene	ND		ug/l	2.5	0.18	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.35	1
Hexachlorobutadiene	ND		ug/l	0.50	0.22	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
p-Isopropyltoluene	ND		ug/l	0.50	0.19	1
Naphthalene	ND		ug/l	2.5	0.22	1
n-Propylbenzene	ND		ug/l	0.50	0.17	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.23	1

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-03 Date Collected: 04/28/17 00:00

Client ID: TRIP BLANKS Date Received: 04/28/17

Sample Location: CAMBRIDGE, 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	0.22	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.17	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.18	1
Ethyl ether	ND		ug/l	2.5	0.16	1
Tert-Butyl Alcohol	ND		ug/l	10	1.4	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	0.28	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	102		70-130

Project Name: THE RESIDENCES AT ALEWIFE
Lab Number: L1713693
Project Number: 129876-003
Report Date: 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-03
Client ID: TRIP BLANKS
Sample Location: CAMBRIDGE, MA
Matrix: Water
Analytical Method: 1,8260C-SIM(M)
Analytical Date: 05/03/17 15:29
Analyst: MM

Date Collected: 04/28/17 00:00
Date Received: 04/28/17
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	0.76	1

Project Name: THE RESIDENCES AT ALEWIFE
Lab Number: L1713693
Project Number: 129876-003
Report Date: 05/05/17

SAMPLE RESULTS

Lab ID:	L1713693-03	Date Collected:	04/28/17 00:00
Client ID:	TRIP BLANKS	Date Received:	04/28/17
Sample Location:	CAMBRIDGE, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 504.1
Analytical Method:	14,504.1	Extraction Date:	05/01/17 11:45
Analytical Date:	05/01/17 18:02		
Analyst:	NS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.004	1	A
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	0.005	1	A

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003
Lab Number: L1713693
Report Date: 05/05/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C-SIM(M)
Analytical Date: 05/03/17 05:26
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 03 Batch: WG1000119-5					
1,4-Dioxane	ND		ug/l	3.0	0.76

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 05/03/17 05:26
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03 Batch: WG1000135-5					
Methylene chloride	ND		ug/l	3.0	0.68
1,1-Dichloroethane	ND		ug/l	0.75	0.21
Chloroform	ND		ug/l	0.75	0.16
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.8	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	0.75	0.14
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	0.50	0.18
Trichlorofluoromethane	ND		ug/l	2.5	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	0.50	0.16
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.17
Bromoform	ND		ug/l	2.0	0.25
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.16
Ethylbenzene	ND		ug/l	0.50	0.17
Chloromethane	ND		ug/l	2.5	0.18
Bromomethane	ND		ug/l	1.0	0.26
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	1.0	0.13
1,1-Dichloroethene	ND		ug/l	0.50	0.17
1,2-Dichloroethene, Total	ND		ug/l	0.50	0.16
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003
Lab Number: L1713693
Report Date: 05/05/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 05/03/17 05:26
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03 Batch: WG1000135-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.18
1,3-Dichlorobenzene	ND		ug/l	2.5	0.19
1,4-Dichlorobenzene	ND		ug/l	2.5	0.19
Methyl tert butyl ether	ND		ug/l	1.0	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.33
Xylenes, Total	ND		ug/l	1.0	0.33
cis-1,2-Dichloroethene	ND		ug/l	0.50	0.19
Dibromomethane	ND		ug/l	5.0	0.36
1,4-Dichlorobutane	ND		ug/l	5.0	0.46
1,2,3-Trichloropropane	ND		ug/l	5.0	0.18
Styrene	ND		ug/l	1.0	0.36
Dichlorodifluoromethane	ND		ug/l	5.0	0.24
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	0.30
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	0.31
4-Methyl-2-pentanone	ND		ug/l	5.0	0.42
2-Hexanone	ND		ug/l	5.0	0.52
Ethyl methacrylate	ND		ug/l	5.0	0.61
Acrylonitrile	ND		ug/l	5.0	0.43
Bromochloromethane	ND		ug/l	2.5	0.15
Tetrahydrofuran	ND		ug/l	5.0	0.83
2,2-Dichloropropane	ND		ug/l	2.5	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
1,3-Dichloropropane	ND		ug/l	2.5	0.21
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.16
Bromobenzene	ND		ug/l	2.5	0.15
n-Butylbenzene	ND		ug/l	0.50	0.19

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 05/03/17 05:26
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03 Batch: WG1000135-5					
sec-Butylbenzene	ND		ug/l	0.50	0.18
tert-Butylbenzene	ND		ug/l	2.5	0.18
o-Chlorotoluene	ND		ug/l	2.5	0.17
p-Chlorotoluene	ND		ug/l	2.5	0.18
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.35
Hexachlorobutadiene	ND		ug/l	0.50	0.22
Isopropylbenzene	ND		ug/l	0.50	0.19
p-Isopropyltoluene	ND		ug/l	0.50	0.19
Naphthalene	ND		ug/l	2.5	0.22
n-Propylbenzene	ND		ug/l	0.50	0.17
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.23
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.22
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.17
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.18
Ethyl ether	ND		ug/l	2.5	0.16
Tert-Butyl Alcohol	ND		ug/l	10	1.4
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	0.28

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	106		70-130

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 05/03/17 20:59
Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1000316-5					
Methylene chloride	ND		ug/l	3.0	0.68
1,1-Dichloroethane	ND		ug/l	0.75	0.21
Chloroform	ND		ug/l	0.75	0.16
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.8	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	0.75	0.14
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	0.50	0.18
Trichlorofluoromethane	ND		ug/l	2.5	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	0.50	0.16
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.17
Bromoform	ND		ug/l	2.0	0.25
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.16
Ethylbenzene	ND		ug/l	0.50	0.17
Chloromethane	ND		ug/l	2.5	0.18
Bromomethane	ND		ug/l	1.0	0.26
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	1.0	0.13
1,1-Dichloroethene	ND		ug/l	0.50	0.17
1,2-Dichloroethene, Total	ND		ug/l	0.50	0.16
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003
Lab Number: L1713693
Report Date: 05/05/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 05/03/17 20:59
Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1000316-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.18
1,3-Dichlorobenzene	ND		ug/l	2.5	0.19
1,4-Dichlorobenzene	ND		ug/l	2.5	0.19
Methyl tert butyl ether	ND		ug/l	1.0	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.33
Xylenes, Total	ND		ug/l	1.0	0.33
cis-1,2-Dichloroethene	ND		ug/l	0.50	0.19
Dibromomethane	ND		ug/l	5.0	0.36
1,4-Dichlorobutane	ND		ug/l	5.0	0.46
1,2,3-Trichloropropane	ND		ug/l	5.0	0.18
Styrene	ND		ug/l	1.0	0.36
Dichlorodifluoromethane	ND		ug/l	5.0	0.24
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	0.30
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	0.31
4-Methyl-2-pentanone	ND		ug/l	5.0	0.42
2-Hexanone	ND		ug/l	5.0	0.52
Ethyl methacrylate	ND		ug/l	5.0	0.61
Acrylonitrile	ND		ug/l	5.0	0.43
Bromochloromethane	ND		ug/l	2.5	0.15
Tetrahydrofuran	ND		ug/l	5.0	0.83
2,2-Dichloropropane	ND		ug/l	2.5	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
1,3-Dichloropropane	ND		ug/l	2.5	0.21
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.16
Bromobenzene	ND		ug/l	2.5	0.15
n-Butylbenzene	ND		ug/l	0.50	0.19

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003
Lab Number: L1713693
Report Date: 05/05/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 05/03/17 20:59
Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1000316-5					
sec-Butylbenzene	ND		ug/l	0.50	0.18
tert-Butylbenzene	ND		ug/l	2.5	0.18
o-Chlorotoluene	ND		ug/l	2.5	0.17
p-Chlorotoluene	ND		ug/l	2.5	0.18
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.35
Hexachlorobutadiene	0.40	J	ug/l	0.50	0.22
Isopropylbenzene	ND		ug/l	0.50	0.19
p-Isopropyltoluene	ND		ug/l	0.50	0.19
Naphthalene	0.24	J	ug/l	2.5	0.22
n-Propylbenzene	ND		ug/l	0.50	0.17
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.23
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.22
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.17
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.18
Ethyl ether	ND		ug/l	2.5	0.16
Tert-Butyl Alcohol	ND		ug/l	10	1.4
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	0.28

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	97		70-130

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003
Lab Number: L1713693
Report Date: 05/05/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C-SIM(M)
Analytical Date: 05/05/17 07:28
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-02 Batch: WG1000689-5					
1,4-Dioxane	ND		ug/l	3.0	0.76

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003
Lab Number: L1713693
Report Date: 05/05/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 05/01/17 14:59
Analyst: NS

Extraction Method: EPA 504.1
Extraction Date: 05/01/17 11:45

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 01-03 Batch: WG999177-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.004	A
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	0.005	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE

Project Number: 129876-003

Lab Number: L1713693

Report Date: 05/05/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 03 Batch: WG1000119-3 WG1000119-4								
1,4-Dioxane	110		130		70-130	17		25

Lab Control Sample Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 Batch: WG1000135-3 WG1000135-4								
Methylene chloride	100		100		70-130	0		20
1,1-Dichloroethane	100		100		70-130	0		20
Chloroform	100		95		70-130	5		20
Carbon tetrachloride	94		89		63-132	5		20
1,2-Dichloropropane	100		96		70-130	4		20
Dibromochloromethane	91		94		63-130	3		20
1,1,2-Trichloroethane	89		90		70-130	1		20
Tetrachloroethene	100		95		70-130	5		20
Chlorobenzene	95		95		75-130	0		25
Trichlorofluoromethane	98		94		62-150	4		20
1,2-Dichloroethane	98		95		70-130	3		20
1,1,1-Trichloroethane	97		98		67-130	1		20
Bromodichloromethane	89		90		67-130	1		20
trans-1,3-Dichloropropene	93		95		70-130	2		20
cis-1,3-Dichloropropene	91		93		70-130	2		20
1,1-Dichloropropene	95		97		70-130	2		20
Bromoform	87		95		54-136	9		20
1,1,2,2-Tetrachloroethane	91		94		67-130	3		20
Benzene	98		95		70-130	3		25
Toluene	96		95		70-130	1		25
Ethylbenzene	99		97		70-130	2		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 Batch: WG1000135-3 WG1000135-4								
Chloromethane	85		77		64-130	10		20
Bromomethane	120		110		39-139	9		20
Vinyl chloride	94		92		55-140	2		20
Chloroethane	99		96		55-138	3		20
1,1-Dichloroethene	100		110		61-145	10		25
Trichloroethene	95		96		70-130	1		25
1,2-Dichlorobenzene	100		100		70-130	0		20
1,3-Dichlorobenzene	99		98		70-130	1		20
1,4-Dichlorobenzene	99		98		70-130	1		20
Methyl tert butyl ether	96		100		63-130	4		20
p/m-Xylene	95		100		70-130	5		20
o-Xylene	100		95		70-130	5		20
cis-1,2-Dichloroethene	93		93		70-130	0		20
Dibromomethane	97		96		70-130	1		20
1,4-Dichlorobutane	93		92		70-130	1		20
1,2,3-Trichloropropane	94		89		64-130	5		20
Styrene	100		95		70-130	5		20
Dichlorodifluoromethane	57		56		36-147	2		20
Acetone	120		100		58-148	18		20
Carbon disulfide	96		100		51-130	4		20
2-Butanone	91		94		63-138	3		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 Batch: WG1000135-3 WG1000135-4								
Vinyl acetate	94		94		70-130	0		20
4-Methyl-2-pentanone	100		97		59-130	3		20
2-Hexanone	89		90		57-130	1		20
Ethyl methacrylate	92		98		70-130	6		20
Acrylonitrile	97		90		70-130	7		20
Bromochloromethane	97		100		70-130	3		20
Tetrahydrofuran	95		79		58-130	18		20
2,2-Dichloropropane	100		96		63-133	4		20
1,2-Dibromoethane	92		94		70-130	2		20
1,3-Dichloropropane	100		98		70-130	2		20
1,1,1,2-Tetrachloroethane	98		98		64-130	0		20
Bromobenzene	94		98		70-130	4		20
n-Butylbenzene	98		98		53-136	0		20
sec-Butylbenzene	100		97		70-130	3		20
tert-Butylbenzene	100		100		70-130	0		20
o-Chlorotoluene	100		96		70-130	4		20
p-Chlorotoluene	100		96		70-130	4		20
1,2-Dibromo-3-chloropropane	94		140		41-144	**39**	Q	20
Hexachlorobutadiene	120		130		63-130	8		20
Isopropylbenzene	99		96		70-130	3		20
p-Isopropyltoluene	100		100		70-130	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE

Project Number: 129876-003

Lab Number: L1713693

Report Date: 05/05/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 Batch: WG1000135-3 WG1000135-4								
Naphthalene	85		95		70-130	11		20
n-Propylbenzene	100		98		69-130	2		20
1,2,3-Trichlorobenzene	97		100		70-130	3		20
1,2,4-Trichlorobenzene	97		100		70-130	3		20
1,3,5-Trimethylbenzene	100		99		64-130	1		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20
trans-1,4-Dichloro-2-butene	88		97		70-130	10		20
Ethyl ether	110		110		59-134	0		20
Tert-Butyl Alcohol	108		116		70-130	7		20
Tertiary-Amyl Methyl Ether	93		90		66-130	3		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		97		70-130
Toluene-d8	98		102		70-130
4-Bromofluorobenzene	103		102		70-130
Dibromofluoromethane	97		101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

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: WG1000316-3 WG1000316-4								
Methylene chloride	100		100		70-130	0		20
1,1-Dichloroethane	100		100		70-130	0		20
Chloroform	100		100		70-130	0		20
Carbon tetrachloride	93		91		63-132	2		20
1,2-Dichloropropane	100		98		70-130	2		20
Dibromochloromethane	94		88		63-130	7		20
1,1,2-Trichloroethane	110		110		70-130	0		20
Tetrachloroethene	95		97		70-130	2		20
Chlorobenzene	110		100		75-130	10		25
Trichlorofluoromethane	96		96		62-150	0		20
1,2-Dichloroethane	97		92		70-130	5		20
1,1,1-Trichloroethane	97		98		67-130	1		20
Bromodichloromethane	100		98		67-130	2		20
trans-1,3-Dichloropropene	97		92		70-130	5		20
cis-1,3-Dichloropropene	99		92		70-130	7		20
1,1-Dichloropropene	100		100		70-130	0		20
Bromoform	85		82		54-136	4		20
1,1,2,2-Tetrachloroethane	110		100		67-130	10		20
Benzene	100		100		70-130	0		25
Toluene	110		110		70-130	0		25
Ethylbenzene	110		110		70-130	0		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

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: WG1000316-3 WG1000316-4								
Chloromethane	85		83		64-130	2		20
Bromomethane	69		75		39-139	8		20
Vinyl chloride	100		100		55-140	0		20
Chloroethane	110		110		55-138	0		20
1,1-Dichloroethene	98		100		61-145	2		25
Trichloroethene	100		100		70-130	0		25
1,2-Dichlorobenzene	95		93		70-130	2		20
1,3-Dichlorobenzene	96		96		70-130	0		20
1,4-Dichlorobenzene	94		94		70-130	0		20
Methyl tert butyl ether	99		91		63-130	8		20
p/m-Xylene	105		105		70-130	0		20
o-Xylene	105		105		70-130	0		20
cis-1,2-Dichloroethene	100		100		70-130	0		20
Dibromomethane	100		96		70-130	4		20
1,4-Dichlorobutane	100		96		70-130	4		20
1,2,3-Trichloropropane	100		98		64-130	2		20
Styrene	105		100		70-130	5		20
Dichlorodifluoromethane	88		89		36-147	1		20
Acetone	100		80		58-148	**22**	Q	20
Carbon disulfide	89		89		51-130	0		20
2-Butanone	89		79		63-138	12		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

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: WG1000316-3 WG1000316-4								
Vinyl acetate	100		87		70-130	14		20
4-Methyl-2-pentanone	93		83		59-130	11		20
2-Hexanone	97		85		57-130	13		20
Ethyl methacrylate	100		96		70-130	4		20
Acrylonitrile	86		83		70-130	4		20
Bromochloromethane	96		92		70-130	4		20
Tetrahydrofuran	100		93		58-130	7		20
2,2-Dichloropropane	100		97		63-133	3		20
1,2-Dibromoethane	97		92		70-130	5		20
1,3-Dichloropropane	110		100		70-130	10		20
1,1,1,2-Tetrachloroethane	97		94		64-130	3		20
Bromobenzene	98		97		70-130	1		20
n-Butylbenzene	110		110		53-136	0		20
sec-Butylbenzene	100		110		70-130	10		20
tert-Butylbenzene	100		100		70-130	0		20
o-Chlorotoluene	91		93		70-130	2		20
p-Chlorotoluene	110		110		70-130	0		20
1,2-Dibromo-3-chloropropane	76		71		41-144	7		20
Hexachlorobutadiene	94		100		63-130	6		20
Isopropylbenzene	100		110		70-130	10		20
p-Isopropyltoluene	100		100		70-130	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE

Project Number: 129876-003

Lab Number: L1713693

Report Date: 05/05/17

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: WG1000316-3 WG1000316-4								
Naphthalene	80		75		70-130	6		20
n-Propylbenzene	110		110		69-130	0		20
1,2,3-Trichlorobenzene	72		**68**	Q	70-130	6		20
1,2,4-Trichlorobenzene	85		81		70-130	5		20
1,3,5-Trimethylbenzene	100		110		64-130	10		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20
trans-1,4-Dichloro-2-butene	**53**	Q	**58**	Q	70-130	9		20
Ethyl ether	100		93		59-134	7		20
Tert-Butyl Alcohol	100		84		70-130	17		20
Tertiary-Amyl Methyl Ether	99		89		66-130	11		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	92		87		70-130
Toluene-d8	106		108		70-130
4-Bromofluorobenzene	104		105		70-130
Dibromofluoromethane	95		93		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE

Project Number: 129876-003

Lab Number: L1713693

Report Date: 05/05/17

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: WG1000689-3 WG1000689-4								
1,4-Dioxane	110		120		70-130	9		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE

Project Number: 129876-003

Lab Number: L1713693

Report Date: 05/05/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab	Associated sample(s): 01-03 Batch: WG999177-2								
1,2-Dibromoethane	94		-		70-130	-			A
1,2-Dibromo-3-chloropropane	97		-		70-130	-			A

Matrix Spike Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

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): 01-03 QC Batch ID: WG999177-3 QC Sample: L1713728-01 Client ID: MS Sample													
1,2-Dibromoethane	ND	0.264	0.263	100		-	-		65-135	-		20	A
1,2-Dibromo-3-chloropropane	ND	0.264	0.271	103		-	-		65-135	-		20	A

SEMIVOLATILES

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-01
Client ID: B-I6 OW
Sample Location: CAMBRIDGE, MA
Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 05/03/17 13:37
Analyst: PS

Date Collected: 04/28/17 12:00
Date Received: 04/28/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 04/29/17 02:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Benzidine	ND		ug/l	20	8.1	1
1,2,4-Trichlorobenzene	ND		ug/l	5.0	0.66	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.67	1
1,2-Dichlorobenzene	ND		ug/l	2.0	0.73	1
1,3-Dichlorobenzene	ND		ug/l	2.0	0.69	1
1,4-Dichlorobenzene	ND		ug/l	2.0	0.71	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	1.4	1
2,4-Dinitrotoluene	ND		ug/l	5.0	0.84	1
2,6-Dinitrotoluene	ND		ug/l	5.0	1.1	1
Azobenzene	ND		ug/l	2.0	0.75	1
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.62	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	0.73	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.70	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.63	1
Hexachlorocyclopentadiene	ND		ug/l	20	7.8	1
Isophorone	ND		ug/l	5.0	0.60	1
Nitrobenzene	ND		ug/l	2.0	0.75	1
NDPA/DPA	ND		ug/l	2.0	0.64	1
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.70	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	0.91	1
Butyl benzyl phthalate	ND		ug/l	5.0	1.3	1
Di-n-butylphthalate	ND		ug/l	5.0	0.69	1
Di-n-octylphthalate	ND		ug/l	5.0	1.1	1
Diethyl phthalate	ND		ug/l	5.0	0.63	1
Dimethyl phthalate	ND		ug/l	5.0	0.65	1
Biphenyl	ND		ug/l	2.0	0.76	1
Aniline	ND		ug/l	2.0	0.65	1
4-Chloroaniline	ND		ug/l	5.0	0.63	1
2-Nitroaniline	ND		ug/l	5.0	1.1	1
3-Nitroaniline	ND		ug/l	5.0	1.2	1

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-01 Date Collected: 04/28/17 12:00

Client ID: B-I6 OW Date Received: 04/28/17

Sample Location: CAMBRIDGE, 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	1.3	1
Dibenzofuran	ND		ug/l	2.0	0.66	1
n-Nitrosodimethylamine	ND		ug/l	2.0	0.67	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.68	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.62	1
2-Chlorophenol	ND		ug/l	2.0	0.63	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.77	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.6	1
2-Nitrophenol	ND		ug/l	10	1.5	1
4-Nitrophenol	ND		ug/l	10	1.8	1
2,4-Dinitrophenol	ND		ug/l	20	5.5	1
4,6-Dinitro-o-cresol	ND		ug/l	10	2.1	1
Phenol	ND		ug/l	5.0	1.9	1
2-Methylphenol	ND		ug/l	5.0	1.0	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	1.1	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.72	1
Benzoic Acid	ND		ug/l	50	13.	1
Benzyl Alcohol	ND		ug/l	2.0	0.72	1
Carbazole	ND		ug/l	2.0	0.63	1
Pyridine	ND		ug/l	3.5	1.9	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	48		21-120
Phenol-d6	39		10-120
Nitrobenzene-d5	81		23-120
2-Fluorobiphenyl	75		15-120
2,4,6-Tribromophenol	71		10-120
4-Terphenyl-d14	76		41-149

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-01
Client ID: B-I6 OW
Sample Location: CAMBRIDGE, MA
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 05/01/17 16:51
Analyst: KL

Date Collected: 04/28/17 12:00
Date Received: 04/28/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 04/29/17 02:19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.10	0.04	1
2-Chloronaphthalene	ND		ug/l	0.20	0.04	1
Fluoranthene	ND		ug/l	0.20	0.04	1
Hexachlorobutadiene	ND		ug/l	0.50	0.04	1
Naphthalene	ND		ug/l	0.20	0.04	1
Benzo(a)anthracene	ND		ug/l	0.20	0.02	1
Benzo(a)pyrene	ND		ug/l	0.20	0.04	1
Benzo(b)fluoranthene	ND		ug/l	0.20	0.02	1
Benzo(k)fluoranthene	ND		ug/l	0.20	0.04	1
Chrysene	ND		ug/l	0.20	0.04	1
Acenaphthylene	ND		ug/l	0.20	0.04	1
Anthracene	ND		ug/l	0.20	0.04	1
Benzo(ghi)perylene	ND		ug/l	0.20	0.04	1
Fluorene	ND		ug/l	0.20	0.04	1
Phenanthrene	ND		ug/l	0.20	0.02	1
Dibenzo(a,h)anthracene	ND		ug/l	0.20	0.04	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.20	0.04	1
Pyrene	ND		ug/l	0.20	0.04	1
1-Methylnaphthalene	ND		ug/l	0.20	0.04	1
2-Methylnaphthalene	ND		ug/l	0.20	0.05	1
Pentachlorophenol	ND		ug/l	0.80	0.22	1
Hexachlorobenzene	ND		ug/l	0.80	0.03	1
Hexachloroethane	ND		ug/l	0.80	0.03	1

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-01 Date Collected: 04/28/17 12:00

Client ID: B-I6 OW Date Received: 04/28/17

Sample Location: CAMBRIDGE, 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	66		21-120
Phenol-d6	53		10-120
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	92		15-120
2,4,6-Tribromophenol	93		10-120
4-Terphenyl-d14	88		41-149

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-02
Client ID: B-F4 OW
Sample Location: CAMBRIDGE, MA
Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 05/03/17 14:02
Analyst: PS

Date Collected: 04/28/17 13:35
Date Received: 04/28/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 04/29/17 02:21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Benzidine	ND		ug/l	20	8.1	1
1,2,4-Trichlorobenzene	ND		ug/l	5.0	0.66	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.67	1
1,2-Dichlorobenzene	1.3	J	ug/l	2.0	0.73	1
1,3-Dichlorobenzene	ND		ug/l	2.0	0.69	1
1,4-Dichlorobenzene	ND		ug/l	2.0	0.71	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	1.4	1
2,4-Dinitrotoluene	ND		ug/l	5.0	0.84	1
2,6-Dinitrotoluene	ND		ug/l	5.0	1.1	1
Azobenzene	ND		ug/l	2.0	0.75	1
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.62	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	0.73	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.70	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.63	1
Hexachlorocyclopentadiene	ND		ug/l	20	7.8	1
Isophorone	ND		ug/l	5.0	0.60	1
Nitrobenzene	ND		ug/l	2.0	0.75	1
NDPA/DPA	ND		ug/l	2.0	0.64	1
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.70	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	0.91	1
Butyl benzyl phthalate	ND		ug/l	5.0	1.3	1
Di-n-butylphthalate	ND		ug/l	5.0	0.69	1
Di-n-octylphthalate	ND		ug/l	5.0	1.1	1
Diethyl phthalate	ND		ug/l	5.0	0.63	1
Dimethyl phthalate	ND		ug/l	5.0	0.65	1
Biphenyl	5.8		ug/l	2.0	0.76	1
Aniline	ND		ug/l	2.0	0.65	1
4-Chloroaniline	ND		ug/l	5.0	0.63	1
2-Nitroaniline	ND		ug/l	5.0	1.1	1
3-Nitroaniline	ND		ug/l	5.0	1.2	1

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-02 Date Collected: 04/28/17 13:35

Client ID: B-F4 OW Date Received: 04/28/17

Sample Location: CAMBRIDGE, 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	1.3	1
Dibenzofuran	1.4	J	ug/l	2.0	0.66	1
n-Nitrosodimethylamine	ND		ug/l	2.0	0.67	1
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.68	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.62	1
2-Chlorophenol	ND		ug/l	2.0	0.63	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.77	1
2,4-Dimethylphenol	2.3	J	ug/l	5.0	1.6	1
2-Nitrophenol	ND		ug/l	10	1.5	1
4-Nitrophenol	ND		ug/l	10	1.8	1
2,4-Dinitrophenol	ND		ug/l	20	5.5	1
4,6-Dinitro-o-cresol	ND		ug/l	10	2.1	1
Phenol	ND		ug/l	5.0	1.9	1
2-Methylphenol	7.2		ug/l	5.0	1.0	1
3-Methylphenol/4-Methylphenol	14.		ug/l	5.0	1.1	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.72	1
Benzoic Acid	ND		ug/l	50	13.	1
Benzyl Alcohol	0.81	J	ug/l	2.0	0.72	1
Carbazole	ND		ug/l	2.0	0.63	1
Pyridine	ND		ug/l	3.5	1.9	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	51		21-120
Phenol-d6	39		10-120
Nitrobenzene-d5	73		23-120
2-Fluorobiphenyl	74		15-120
2,4,6-Tribromophenol	83		10-120
4-Terphenyl-d14	70		41-149

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-02
Client ID: B-F4 OW
Sample Location: CAMBRIDGE, MA
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 05/01/17 17:20
Analyst: KL

Date Collected: 04/28/17 13:35
Date Received: 04/28/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 04/29/17 02:19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	1.0		ug/l	0.10	0.04	1
2-Chloronaphthalene	ND		ug/l	0.20	0.04	1
Fluoranthene	0.11	J	ug/l	0.20	0.04	1
Hexachlorobutadiene	ND		ug/l	0.50	0.04	1
Naphthalene	75	E	ug/l	0.20	0.04	1
Benzo(a)anthracene	0.04	J	ug/l	0.20	0.02	1
Benzo(a)pyrene	ND		ug/l	0.20	0.04	1
Benzo(b)fluoranthene	0.04	J	ug/l	0.20	0.02	1
Benzo(k)fluoranthene	ND		ug/l	0.20	0.04	1
Chrysene	ND		ug/l	0.20	0.04	1
Acenaphthylene	0.38		ug/l	0.20	0.04	1
Anthracene	0.12	J	ug/l	0.20	0.04	1
Benzo(ghi)perylene	ND		ug/l	0.20	0.04	1
Fluorene	1.2		ug/l	0.20	0.04	1
Phenanthrene	0.34		ug/l	0.20	0.02	1
Dibenzo(a,h)anthracene	ND		ug/l	0.20	0.04	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.20	0.04	1
Pyrene	0.09	J	ug/l	0.20	0.04	1
1-Methylnaphthalene	64	E	ug/l	0.20	0.04	1
2-Methylnaphthalene	110	E	ug/l	0.20	0.05	1
Pentachlorophenol	0.81		ug/l	0.80	0.22	1
Hexachlorobenzene	ND		ug/l	0.80	0.03	1
Hexachloroethane	ND		ug/l	0.80	0.03	1

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-02 Date Collected: 04/28/17 13:35

Client ID: B-F4 OW Date Received: 04/28/17

Sample Location: CAMBRIDGE, 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	66		21-120
Phenol-d6	54		10-120
Nitrobenzene-d5	96		23-120
2-Fluorobiphenyl	90		15-120
2,4,6-Tribromophenol	97		10-120
4-Terphenyl-d14	95		41-149

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

SAMPLE RESULTS

Lab ID:	L1713693-02	D	Date Collected:	04/28/17 13:35
Client ID:	B-F4 OW		Date Received:	04/28/17
Sample Location:	CAMBRIDGE, MA		Field Prep:	Not Specified
Matrix:	Water		Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM		Extraction Date:	04/29/17 02:19
Analytical Date:	05/03/17 19:29			
Analyst:	KL			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	95		ug/l	1.0	0.22	5
1-Methylnaphthalene	78		ug/l	1.0	0.20	5
2-Methylnaphthalene	140		ug/l	1.0	0.22	5

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003
Lab Number: L1713693
Report Date: 05/05/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 05/03/17 14:28
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/29/17 02:21

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG998723-1					
Acenaphthene	ND		ug/l	2.0	0.59
Benzidine	ND		ug/l	20	8.1
1,2,4-Trichlorobenzene	ND		ug/l	5.0	0.66
Hexachlorobenzene	ND		ug/l	2.0	0.58
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.67
2-Chloronaphthalene	ND		ug/l	2.0	0.64
1,2-Dichlorobenzene	ND		ug/l	2.0	0.73
1,3-Dichlorobenzene	ND		ug/l	2.0	0.69
1,4-Dichlorobenzene	ND		ug/l	2.0	0.71
3,3'-Dichlorobenzidine	ND		ug/l	5.0	1.4
2,4-Dinitrotoluene	ND		ug/l	5.0	0.84
2,6-Dinitrotoluene	ND		ug/l	5.0	1.1
Azobenzene	ND		ug/l	2.0	0.75
Fluoranthene	ND		ug/l	2.0	0.57
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.62
4-Bromophenyl phenyl ether	ND		ug/l	2.0	0.73
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.70
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.63
Hexachlorobutadiene	ND		ug/l	2.0	0.72
Hexachlorocyclopentadiene	ND		ug/l	20	7.8
Hexachloroethane	ND		ug/l	2.0	0.68
Isophorone	ND		ug/l	5.0	0.60
Naphthalene	ND		ug/l	2.0	0.68
Nitrobenzene	ND		ug/l	2.0	0.75
NDPA/DPA	ND		ug/l	2.0	0.64
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.70
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	0.91
Butyl benzyl phthalate	ND		ug/l	5.0	1.3
Di-n-butylphthalate	ND		ug/l	5.0	0.69

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003
Lab Number: L1713693
Report Date: 05/05/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 05/03/17 14:28
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/29/17 02:21

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG998723-1					
Di-n-octylphthalate	ND		ug/l	5.0	1.1
Diethyl phthalate	ND		ug/l	5.0	0.63
Dimethyl phthalate	ND		ug/l	5.0	0.65
Benzo(a)anthracene	ND		ug/l	2.0	0.61
Benzo(a)pyrene	ND		ug/l	2.0	0.54
Benzo(b)fluoranthene	ND		ug/l	2.0	0.64
Benzo(k)fluoranthene	ND		ug/l	2.0	0.60
Chrysene	ND		ug/l	2.0	0.54
Acenaphthylene	ND		ug/l	2.0	0.66
Anthracene	ND		ug/l	2.0	0.64
Benzo(ghi)perylene	ND		ug/l	2.0	0.61
Fluorene	ND		ug/l	2.0	0.62
Phenanthrene	ND		ug/l	2.0	0.61
Dibenzo(a,h)anthracene	ND		ug/l	2.0	0.55
Indeno(1,2,3-cd)pyrene	ND		ug/l	2.0	0.71
Pyrene	ND		ug/l	2.0	0.57
Biphenyl	ND		ug/l	2.0	0.76
Aniline	ND		ug/l	2.0	0.65
4-Chloroaniline	ND		ug/l	5.0	0.63
1-Methylnaphthalene	ND		ug/l	2.0	0.67
2-Nitroaniline	ND		ug/l	5.0	1.1
3-Nitroaniline	ND		ug/l	5.0	1.2
4-Nitroaniline	ND		ug/l	5.0	1.3
Dibenzofuran	ND		ug/l	2.0	0.66
2-Methylnaphthalene	ND		ug/l	2.0	0.72
n-Nitrosodimethylamine	ND		ug/l	2.0	0.67
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.68
p-Chloro-m-cresol	ND		ug/l	2.0	0.62
2-Chlorophenol	ND		ug/l	2.0	0.63

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003
Lab Number: L1713693
Report Date: 05/05/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 05/03/17 14:28
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/29/17 02:21

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG998723-1					
2,4-Dichlorophenol	ND		ug/l	5.0	0.77
2,4-Dimethylphenol	ND		ug/l	5.0	1.6
2-Nitrophenol	ND		ug/l	10	1.5
4-Nitrophenol	ND		ug/l	10	1.8
2,4-Dinitrophenol	ND		ug/l	20	5.5
4,6-Dinitro-o-cresol	ND		ug/l	10	2.1
Pentachlorophenol	ND		ug/l	10	3.4
Phenol	ND		ug/l	5.0	1.9
2-Methylphenol	ND		ug/l	5.0	1.0
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	1.1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.72
Benzoic Acid	ND		ug/l	50	13.
Benzyl Alcohol	ND		ug/l	2.0	0.72
Carbazole	ND		ug/l	2.0	0.63
Pyridine	ND		ug/l	3.5	1.9

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	52		21-120
Phenol-d6	39		10-120
Nitrobenzene-d5	82		23-120
2-Fluorobiphenyl	79		15-120
2,4,6-Tribromophenol	78		10-120
4-Terphenyl-d14	85		41-149

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003
Lab Number: L1713693
Report Date: 05/05/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 05/01/17 15:26
Analyst: KL

Extraction Method: EPA 3510C
Extraction Date: 04/29/17 02:19

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-02 Batch: WG998724-1					
Acenaphthene	ND		ug/l	0.10	0.04
2-Chloronaphthalene	ND		ug/l	0.20	0.04
Fluoranthene	ND		ug/l	0.20	0.04
Hexachlorobutadiene	ND		ug/l	0.50	0.04
Naphthalene	ND		ug/l	0.20	0.04
Benzo(a)anthracene	ND		ug/l	0.20	0.02
Benzo(a)pyrene	ND		ug/l	0.20	0.04
Benzo(b)fluoranthene	ND		ug/l	0.20	0.02
Benzo(k)fluoranthene	ND		ug/l	0.20	0.04
Chrysene	ND		ug/l	0.20	0.04
Acenaphthylene	ND		ug/l	0.20	0.04
Anthracene	ND		ug/l	0.20	0.04
Benzo(ghi)perylene	ND		ug/l	0.20	0.04
Fluorene	ND		ug/l	0.20	0.04
Phenanthrene	ND		ug/l	0.20	0.02
Dibenzo(a,h)anthracene	ND		ug/l	0.20	0.04
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.20	0.04
Pyrene	ND		ug/l	0.20	0.04
1-Methylnaphthalene	ND		ug/l	0.20	0.04
2-Methylnaphthalene	ND		ug/l	0.20	0.05
Pentachlorophenol	ND		ug/l	0.80	0.22
Hexachlorobenzene	ND		ug/l	0.80	0.03
Hexachloroethane	ND		ug/l	0.80	0.03

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003
Lab Number: L1713693
Report Date: 05/05/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 05/01/17 15:26
Analyst: KL

Extraction Method: EPA 3510C
Extraction Date: 04/29/17 02:19

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-02 Batch: WG998724-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	64		21-120
Phenol-d6	50		10-120
Nitrobenzene-d5	92		23-120
2-Fluorobiphenyl	89		15-120
2,4,6-Tribromophenol	99		10-120
4-Terphenyl-d14	93		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG998723-2 WG998723-3								
Acenaphthene	78		77		37-111	1		30
Benzidine	**0**	Q	**0**	Q	10-75	NC		30
1,2,4-Trichlorobenzene	72		72		39-98	0		30
Hexachlorobenzene	89		88		40-140	1		30
Bis(2-chloroethyl)ether	74		72		40-140	3		30
2-Chloronaphthalene	83		81		40-140	2		30
1,2-Dichlorobenzene	65		64		40-140	2		30
1,3-Dichlorobenzene	63		61		40-140	3		30
1,4-Dichlorobenzene	63		62		36-97	2		30
3,3'-Dichlorobenzidine	60		46		40-140	26		30
2,4-Dinitrotoluene	92		92		48-143	0		30
2,6-Dinitrotoluene	89		90		40-140	1		30
Azobenzene	76		74		40-140	3		30
Fluoranthene	86		86		40-140	0		30
4-Chlorophenyl phenyl ether	84		82		40-140	2		30
4-Bromophenyl phenyl ether	88		87		40-140	1		30
Bis(2-chloroisopropyl)ether	63		61		40-140	3		30
Bis(2-chloroethoxy)methane	80		78		40-140	3		30
Hexachlorobutadiene	64		65		40-140	2		30
Hexachlorocyclopentadiene	67		68		40-140	1		30
Hexachloroethane	64		63		40-140	2		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG998723-2 WG998723-3								
Isophorone	83		82		40-140	1		30
Naphthalene	72		70		40-140	3		30
Nitrobenzene	81		80		40-140	1		30
NDPA/DPA	83		76		40-140	9		30
n-Nitrosodi-n-propylamine	82		80		29-132	2		30
Bis(2-ethylhexyl)phthalate	98		97		40-140	1		30
Butyl benzyl phthalate	90		92		40-140	2		30
Di-n-butylphthalate	94		93		40-140	1		30
Di-n-octylphthalate	90		88		40-140	2		30
Diethyl phthalate	88		87		40-140	1		30
Dimethyl phthalate	88		87		40-140	1		30
Benzo(a)anthracene	85		84		40-140	1		30
Benzo(a)pyrene	82		79		40-140	4		30
Benzo(b)fluoranthene	84		83		40-140	1		30
Benzo(k)fluoranthene	82		80		40-140	2		30
Chrysene	82		80		40-140	2		30
Acenaphthylene	86		86		45-123	0		30
Anthracene	81		80		40-140	1		30
Benzo(ghi)perylene	86		86		40-140	0		30
Fluorene	86		84		40-140	2		30
Phenanthrene	78		77		40-140	1		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG998723-2 WG998723-3								
Dibenzo(a,h)anthracene	86		85		40-140	1		30
Indeno(1,2,3-cd)pyrene	91		89		40-140	2		30
Pyrene	83		85		26-127	2		30
Biphenyl	85		85		40-140	0		30
Aniline	**27**	Q	**17**	Q	40-140	**45**	Q	30
4-Chloroaniline	52		41		40-140	24		30
1-Methylnaphthalene	78		78		41-103	0		30
2-Nitroaniline	98		98		52-143	0		30
3-Nitroaniline	75		72		25-145	4		30
4-Nitroaniline	75		73		51-143	3		30
Dibenzofuran	82		80		40-140	2		30
2-Methylnaphthalene	79		77		40-140	3		30
n-Nitrosodimethylamine	44		43		22-74	2		30
2,4,6-Trichlorophenol	90		86		30-130	5		30
p-Chloro-m-cresol	94		90		23-97	4		30
2-Chlorophenol	80		77		27-123	4		30
2,4-Dichlorophenol	88		87		30-130	1		30
2,4-Dimethylphenol	**23**	Q	**11**	Q	30-130	**71**	Q	30
2-Nitrophenol	97		94		30-130	3		30
4-Nitrophenol	64		63		10-80	2		30
2,4-Dinitrophenol	106		104		20-130	2		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG998723-2 WG998723-3								
4,6-Dinitro-o-cresol	97		97		20-164	0		30
Pentachlorophenol	88		89		9-103	1		30
Phenol	44		42		12-110	5		30
2-Methylphenol	64		57		30-130	12		30
3-Methylphenol/4-Methylphenol	66		63		30-130	5		30
2,4,5-Trichlorophenol	98		98		30-130	0		30
Benzoic Acid	56		59		10-164	5		30
Benzyl Alcohol	77		75		26-116	3		30
Carbazole	83		83		55-144	0		30
Pyridine	**8**	Q	**4**	Q	10-66	**75**	Q	30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	57		56		21-120
Phenol-d6	46		46		10-120
Nitrobenzene-d5	90		86		23-120
2-Fluorobiphenyl	84		85		15-120
2,4,6-Tribromophenol	84		81		10-120
4-Terphenyl-d14	85		86		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-02 Batch: WG998724-2 WG998724-3								
Acenaphthene	88		85		37-111	3		40
2-Chloronaphthalene	90		88		40-140	2		40
Fluoranthene	95		90		40-140	5		40
Hexachlorobutadiene	76		75		40-140	1		40
Naphthalene	84		84		40-140	0		40
Benzo(a)anthracene	86		82		40-140	5		40
Benzo(a)pyrene	97		88		40-140	10		40
Benzo(b)fluoranthene	93		90		40-140	3		40
Benzo(k)fluoranthene	100		96		40-140	4		40
Chrysene	91		90		40-140	1		40
Acenaphthylene	99		96		40-140	3		40
Anthracene	96		91		40-140	5		40
Benzo(ghi)perylene	102		99		40-140	3		40
Fluorene	92		88		40-140	4		40
Phenanthrene	85		81		40-140	5		40
Dibenzo(a,h)anthracene	99		94		40-140	5		40
Indeno(1,2,3-cd)pyrene	101		97		40-140	4		40
Pyrene	94		90		26-127	4		40
1-Methylnaphthalene	88		86		40-140	2		40
2-Methylnaphthalene	87		85		40-140	2		40
Pentachlorophenol	97		92		9-103	5		40

Lab Control Sample Analysis

Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE

Project Number: 129876-003

Lab Number: L1713693

Report Date: 05/05/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-02 Batch: WG998724-2 WG998724-3								
Hexachlorobenzene	89		85		40-140	5		40
Hexachloroethane	80		78		40-140	3		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	68		67		21-120
Phenol-d6	54		52		10-120
Nitrobenzene-d5	96		93		23-120
2-Fluorobiphenyl	87		84		15-120
2,4,6-Tribromophenol	103		97		10-120
4-Terphenyl-d14	92		87		41-149

PCBS

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

SAMPLE RESULTS

Lab ID:	L1713693-01	Date Collected:	04/28/17 12:00
Client ID:	B-I6 OW	Date Received:	04/28/17
Sample Location:	CAMBRIDGE, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 608
Analytical Method:	5,608	Extraction Date:	04/28/17 23:17
Analytical Date:	05/01/17 18:39	Cleanup Method:	EPA 3665A
Analyst:	JW	Cleanup Date:	04/29/17
		Cleanup Method:	EPA 3660B
		Cleanup Date:	04/29/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	0.042	1	A
Aroclor 1221	ND		ug/l	0.250	0.056	1	A
Aroclor 1232	ND		ug/l	0.250	0.024	1	A
Aroclor 1242	ND		ug/l	0.250	0.028	1	A
Aroclor 1248	ND		ug/l	0.250	0.028	1	A
Aroclor 1254	ND		ug/l	0.250	0.043	1	A
Aroclor 1260	ND		ug/l	0.200	0.045	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	93		30-150	A
Decachlorobiphenyl	66		30-150	A

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

SAMPLE RESULTS

Lab ID:	L1713693-02	Date Collected:	04/28/17 13:35
Client ID:	B-F4 OW	Date Received:	04/28/17
Sample Location:	CAMBRIDGE, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 608
Analytical Method:	5,608	Extraction Date:	04/28/17 23:17
Analytical Date:	05/01/17 18:52	Cleanup Method:	EPA 3665A
Analyst:	HT	Cleanup Date:	04/29/17
		Cleanup Method:	EPA 3660B
		Cleanup Date:	04/29/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	0.042	1	A
Aroclor 1221	ND		ug/l	0.250	0.056	1	A
Aroclor 1232	ND		ug/l	0.250	0.024	1	A
Aroclor 1242	ND		ug/l	0.250	0.028	1	A
Aroclor 1248	ND		ug/l	0.250	0.028	1	A
Aroclor 1254	ND		ug/l	0.250	0.043	1	A
Aroclor 1260	ND		ug/l	0.200	0.045	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	114		30-150	A
Decachlorobiphenyl	69		30-150	A

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003
Lab Number: L1713693
Report Date: 05/05/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 5,608
Analytical Date: 05/01/17 19:16
Analyst: JW

Extraction Method: EPA 608
Extraction Date: 04/28/17 23:17
Cleanup Method: EPA 3665A
Cleanup Date: 04/29/17
Cleanup Method: EPA 3660B
Cleanup Date: 04/29/17

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01-02 Batch: WG998710-1						
Aroclor 1016	ND		ug/l	0.250	0.042	A
Aroclor 1221	ND		ug/l	0.250	0.056	A
Aroclor 1232	ND		ug/l	0.250	0.024	A
Aroclor 1242	ND		ug/l	0.250	0.028	A
Aroclor 1248	ND		ug/l	0.250	0.028	A
Aroclor 1254	ND		ug/l	0.250	0.043	A
Aroclor 1260	ND		ug/l	0.200	0.045	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	87		30-150	A
Decachlorobiphenyl	74		30-150	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE

Project Number: 129876-003

Lab Number: L1713693

Report Date: 05/05/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01-02 Batch: WG998710-2									
Aroclor 1016	93		-		40-140	-		50	A
Aroclor 1260	91		-		40-140	-		50	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	92				30-150	A
Decachlorobiphenyl	83				30-150	A

Matrix Spike Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab	Associated sample(s): 01-02	QC Batch ID: WG998710-3	QC Sample: L1713496-06	Client ID: MS Sample									
Aroclor 1016	ND	3.68	3.29	90		-	-		40-140	-		50	A
Aroclor 1260	ND	3.68	3.20	87		-	-		40-140	-		50	A

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	87				30-150	A
Decachlorobiphenyl	77				30-150	A

Lab Duplicate Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits	
Polychlorinated Biphenyls by GC - Westborough Lab OW	Associated sample(s): 01-02	QC Batch ID: WG998710-4		QC Sample: L1713693-01		Client ID: B-I6	
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	A
Aroclor 1260	ND	ND	ug/l	NC		50	A

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	93		95		30-150	A
Decachlorobiphenyl	66		66		30-150	A

METALS

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-01 Date Collected: 04/28/17 12:00
Client ID: B-I6 OW Date Received: 04/28/17
Sample Location: CAMBRIDGE, MA Field Prep: Not Specified
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.00173	J	mg/l	0.00400	0.00042	1	05/01/17 12:00	05/04/17 09:22	EPA 3005A	3,200.8	AM
Arsenic, Total	0.00320		mg/l	0.00100	0.00016	1	05/01/17 12:00	05/04/17 09:22	EPA 3005A	3,200.8	AM
Cadmium, Total	0.00024	J	mg/l	0.00100	0.00005	1	05/01/17 12:00	05/04/17 09:22	EPA 3005A	3,200.8	AM
Chromium, Total	0.00238		mg/l	0.00100	0.00017	1	05/01/17 12:00	05/04/17 09:22	EPA 3005A	3,200.8	AM
Copper, Total	0.00571		mg/l	0.00100	0.00038	1	05/01/17 12:00	05/04/17 09:22	EPA 3005A	3,200.8	AM
Iron, Total	2.26		mg/l	0.050	0.009	1	05/01/17 12:00	05/02/17 12:34	EPA 3005A	19,200.7	PS
Lead, Total	ND		mg/l	0.00100	0.00034	1	05/01/17 12:00	05/04/17 09:22	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	0.00006	1	05/01/17 13:48	05/01/17 18:00	EPA 245.1	3,245.1	EA
Nickel, Total	0.00470		mg/l	0.00200	0.00055	1	05/01/17 12:00	05/04/17 09:22	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/01/17 12:00	05/04/17 09:22	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00100	0.00026	1	05/01/17 12:00	05/04/17 09:22	EPA 3005A	3,200.8	AM
Zinc, Total	0.00591	J	mg/l	0.0100	0.00341	1	05/01/17 12:00	05/04/17 09:22	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	345		mg/l	0.660	NA	1	05/01/17 12:00	05/02/17 12:34	EPA 3005A	19,200.7	PS
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	0.010	1		05/04/17 09:22	NA	107,-	
Dissolved Metals - Mansfield Lab											
Antimony, Dissolved	0.0008	J	mg/l	0.0040	0.0004	1	05/03/17 08:30	05/04/17 10:10	EPA 3005A	3,200.8	AM
Arsenic, Dissolved	0.0031		mg/l	0.0010	0.0002	1	05/03/17 08:30	05/04/17 10:10	EPA 3005A	3,200.8	AM
Cadmium, Dissolved	0.0002	J	mg/l	0.0010	0.0001	1	05/03/17 08:30	05/04/17 10:10	EPA 3005A	3,200.8	AM
Chromium, Dissolved	0.0026		mg/l	0.0010	0.0002	1	05/03/17 08:30	05/04/17 10:10	EPA 3005A	3,200.8	AM
Copper, Dissolved	0.0078		mg/l	0.0010	0.0004	1	05/03/17 08:30	05/04/17 10:10	EPA 3005A	3,200.8	AM
Iron, Dissolved	1.90		mg/l	0.050	0.009	1	05/03/17 08:30	05/04/17 13:40	EPA 3005A	19,200.7	PS
Lead, Dissolved	ND		mg/l	0.0005	0.0003	1	05/03/17 08:30	05/04/17 10:10	EPA 3005A	3,200.8	AM
Mercury, Dissolved	ND		mg/l	0.00020	0.00006	1	05/02/17 13:38	05/02/17 20:52	EPA 245.1	3,245.1	EA
Nickel, Dissolved	0.0052		mg/l	0.0020	0.0006	1	05/03/17 08:30	05/04/17 10:10	EPA 3005A	3,200.8	AM

Project Name: THE RESIDENCES AT ALEWIFE
Lab Number: L1713693
Project Number: 129876-003
Report Date: 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-01
Client ID: B-I6 OW
Sample Location: CAMBRIDGE, MA
Matrix: Water
Date Collected: 04/28/17 12:00
Date Received: 04/28/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Selenium, Dissolved	ND		mg/l	0.0050	0.0017	1	05/03/17 08:30	05/04/17 10:10	EPA 3005A	3,200.8	AM
Silver, Dissolved	ND		mg/l	0.0010	0.0003	1	05/03/17 08:30	05/04/17 10:10	EPA 3005A	3,200.8	AM
Zinc, Dissolved	0.0057	J	mg/l	0.0100	0.0034	1	05/03/17 08:30	05/04/17 10:10	EPA 3005A	3,200.8	AM

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-02 Date Collected: 04/28/17 13:35

Client ID: B-F4 OW Date Received: 04/28/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.00201	J	mg/l	0.00400	0.00042	1	05/01/17 12:00	05/04/17 09:28	EPA 3005A	3,200.8	AM
Arsenic, Total	0.0396		mg/l	0.00100	0.00016	1	05/01/17 12:00	05/04/17 09:28	EPA 3005A	3,200.8	AM
Cadmium, Total	0.00007	J	mg/l	0.00100	0.00005	1	05/01/17 12:00	05/04/17 09:28	EPA 3005A	3,200.8	AM
Chromium, Total	0.00179		mg/l	0.00100	0.00017	1	05/01/17 12:00	05/04/17 09:28	EPA 3005A	3,200.8	AM
Copper, Total	0.00046	J	mg/l	0.00100	0.00038	1	05/01/17 12:00	05/04/17 09:28	EPA 3005A	3,200.8	AM
Iron, Total	18.2		mg/l	0.050	0.009	1	05/01/17 12:00	05/03/17 11:02	EPA 3005A	19,200.7	PS
Lead, Total	ND		mg/l	0.00100	0.00034	1	05/01/17 12:00	05/04/17 09:28	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	0.00006	1	05/01/17 13:48	05/01/17 18:02	EPA 245.1	3,245.1	EA
Nickel, Total	0.00204		mg/l	0.00200	0.00055	1	05/01/17 12:00	05/04/17 09:28	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/01/17 12:00	05/04/17 09:28	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00100	0.00026	1	05/01/17 12:00	05/04/17 09:28	EPA 3005A	3,200.8	AM
Zinc, Total	0.00435	J	mg/l	0.0100	0.00341	1	05/01/17 12:00	05/04/17 09:28	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	609		mg/l	0.660	NA	1	05/01/17 12:00	05/03/17 11:02	EPA 3005A	19,200.7	PS
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.050	0.050	1		05/04/17 09:28	NA	107,-	
Dissolved Metals - Mansfield Lab											
Antimony, Dissolved	0.0017	J	mg/l	0.0040	0.0004	1	05/03/17 08:30	05/04/17 10:13	EPA 3005A	3,200.8	AM
Arsenic, Dissolved	0.0192		mg/l	0.0010	0.0002	1	05/03/17 08:30	05/04/17 10:13	EPA 3005A	3,200.8	AM
Cadmium, Dissolved	ND		mg/l	0.0010	0.0001	1	05/03/17 08:30	05/04/17 10:13	EPA 3005A	3,200.8	AM
Chromium, Dissolved	0.0008	J	mg/l	0.0010	0.0002	1	05/03/17 08:30	05/04/17 10:13	EPA 3005A	3,200.8	AM
Copper, Dissolved	ND		mg/l	0.0010	0.0004	1	05/03/17 08:30	05/04/17 10:13	EPA 3005A	3,200.8	AM
Iron, Dissolved	3.24		mg/l	0.050	0.009	1	05/03/17 08:30	05/04/17 14:00	EPA 3005A	19,200.7	PS
Lead, Dissolved	ND		mg/l	0.0005	0.0003	1	05/03/17 08:30	05/04/17 10:13	EPA 3005A	3,200.8	AM
Mercury, Dissolved	ND		mg/l	0.00020	0.00006	1	05/02/17 13:38	05/02/17 20:57	EPA 245.1	3,245.1	EA
Nickel, Dissolved	0.0013	J	mg/l	0.0020	0.0006	1	05/03/17 08:30	05/04/17 10:13	EPA 3005A	3,200.8	AM

Project Name: THE RESIDENCES AT ALEWIFE
Lab Number: L1713693
Project Number: 129876-003
Report Date: 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-02
Client ID: B-F4 OW
Sample Location: CAMBRIDGE, MA
Matrix: Water

Date Collected: 04/28/17 13:35
Date Received: 04/28/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Selenium, Dissolved	ND		mg/l	0.0050	0.0017	1	05/03/17 08:30	05/04/17 10:13	EPA 3005A	3,200.8	AM
Silver, Dissolved	ND		mg/l	0.0010	0.0003	1	05/03/17 08:30	05/04/17 10:13	EPA 3005A	3,200.8	AM
Zinc, Dissolved	ND		mg/l	0.0100	0.0034	1	05/03/17 08:30	05/04/17 10:13	EPA 3005A	3,200.8	AM

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

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): 01-02 Batch: WG1000323-1										
Iron, Dissolved	ND		mg/l	0.050	0.009	1	05/03/17 08:30	05/04/17 13:31	19,200.7	PS

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): 01-02 Batch: WG1000340-1										
Mercury, Dissolved	ND		mg/l	0.00020	0.00006	1	05/02/17 13:38	05/02/17 20:44	3,245.1	EA

Prep Information

Digestion Method: EPA 245.1

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: WG999112-1										
Iron, Total	ND		mg/l	0.050	0.009	1	05/01/17 12:00	05/02/17 12:26	19,200.7	PS

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: WG999112-1										
Hardness	ND		mg/l	0.660	NA	1	05/01/17 12:00	05/02/17 12:26	19,200.7	PS

Prep Information

Digestion Method: EPA 3005A

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

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: WG999118-1										
Antimony, Total	0.00102	J	mg/l	0.00400	0.00042	1	05/01/17 12:00	05/04/17 09:01	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	0.00016	1	05/01/17 12:00	05/04/17 09:01	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00100	0.00005	1	05/01/17 12:00	05/04/17 09:01	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	0.00017	1	05/01/17 12:00	05/04/17 09:01	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	0.00038	1	05/01/17 12:00	05/04/17 09:01	3,200.8	AM
Lead, Total	ND		mg/l	0.00050	0.00034	1	05/01/17 12:00	05/04/17 09:01	3,200.8	AM
Nickel, Total	ND		mg/l	0.00200	0.00055	1	05/01/17 12:00	05/04/17 09:01	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/01/17 12:00	05/04/17 09:01	3,200.8	AM
Silver, Total	ND		mg/l	0.00100	0.00026	1	05/01/17 12:00	05/04/17 09:01	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	0.00341	1	05/01/17 12:00	05/04/17 09:01	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-02 Batch: WG999173-1										
Mercury, Total	ND		mg/l	0.00020	0.00006	1	05/01/17 13:48	05/01/17 17:36	3,245.1	EA

Prep Information

Digestion Method: EPA 245.1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01-02 Batch: WG999793-1										
Antimony, Dissolved	0.0010	J	mg/l	0.0040	0.0004	1	05/03/17 08:30	05/04/17 09:05	3,200.8	AM
Arsenic, Dissolved	ND		mg/l	0.0010	0.0002	1	05/03/17 08:30	05/04/17 09:05	3,200.8	AM
Cadmium, Dissolved	ND		mg/l	0.0010	0.0001	1	05/03/17 08:30	05/04/17 09:05	3,200.8	AM
Chromium, Dissolved	0.0002	J	mg/l	0.0010	0.0002	1	05/03/17 08:30	05/04/17 09:05	3,200.8	AM
Copper, Dissolved	ND		mg/l	0.0010	0.0004	1	05/03/17 08:30	05/04/17 09:05	3,200.8	AM
Lead, Dissolved	ND		mg/l	0.0005	0.0003	1	05/03/17 08:30	05/04/17 09:05	3,200.8	AM
Nickel, Dissolved	ND		mg/l	0.0020	0.0006	1	05/03/17 08:30	05/04/17 09:05	3,200.8	AM

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

Method Blank Analysis
Batch Quality Control

Selenium, Dissolved	ND	mg/l	0.0050	0.0017	1	05/03/17 08:30	05/04/17 09:05	3,200.8	AM
Silver, Dissolved	ND	mg/l	0.0010	0.0003	1	05/03/17 08:30	05/04/17 09:05	3,200.8	AM
Zinc, Dissolved	ND	mg/l	0.0100	0.0034	1	05/03/17 08:30	05/04/17 09:05	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE

Project Number: 129876-003

Lab Number: L1713693

Report Date: 05/05/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1000323-2								
Iron, Dissolved	103		-		85-115	-		
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1000340-2								
Mercury, Dissolved	100		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG999112-2								
Iron, Total	109		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-02 Batch: WG999112-2								
Hardness	105		-		85-115	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE

Project Number: 129876-003

Lab Number: L1713693

Report Date: 05/05/17

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG999118-2					
Antimony, Total	100	-	85-115	-	
Arsenic, Total	103	-	85-115	-	
Cadmium, Total	109	-	85-115	-	
Chromium, Total	99	-	85-115	-	
Copper, Total	99	-	85-115	-	
Lead, Total	105	-	85-115	-	
Nickel, Total	96	-	85-115	-	
Selenium, Total	104	-	85-115	-	
Silver, Total	97	-	85-115	-	
Zinc, Total	99	-	85-115	-	
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG999173-2					
Mercury, Total	99	-	85-115	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE

Project Number: 129876-003

Lab Number: L1713693

Report Date: 05/05/17

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG999793-2					
Antimony, Dissolved	89	-	85-115	-	
Arsenic, Dissolved	99	-	85-115	-	
Cadmium, Dissolved	103	-	85-115	-	
Chromium, Dissolved	100	-	85-115	-	
Copper, Dissolved	98	-	85-115	-	
Lead, Dissolved	100	-	85-115	-	
Nickel, Dissolved	94	-	85-115	-	
Selenium, Dissolved	100	-	85-115	-	
Silver, Dissolved	94	-	85-115	-	
Zinc, Dissolved	97	-	85-115	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

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): 01-02 QC Batch ID: WG1000323-3 QC Sample: L1713693-01 Client ID: B-I6 OW												
Iron, Dissolved	1.90	1	2.94	104		-	-		75-125	-		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1000340-3 QC Sample: L1713693-01 Client ID: B-I6 OW												
Mercury, Dissolved	ND	0.005	0.00483	97		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG999112-3 QC Sample: L1713693-01 Client ID: B-I6 OW												
Iron, Total	2.26	1	3.36	110		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG999112-3 QC Sample: L1713693-01 Client ID: B-I6 OW												
Hardness	345.	66.2	414	104		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG999112-7 QC Sample: L1713593-01 Client ID: MS Sample												
Iron, Total	0.079	1	1.13	105		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG999112-7 QC Sample: L1713593-01 Client ID: MS Sample												
Hardness	902.	66.2	952	76		-	-		75-125	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

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: WG999118-3 QC Sample: L1713693-01 Client ID: B-I6 OW									
Antimony, Total	0.00173J	0.5	0.5778	116	-	-	70-130	-	20
Arsenic, Total	0.00320	0.12	0.1266	103	-	-	70-130	-	20
Cadmium, Total	0.00024J	0.051	0.05672	111	-	-	70-130	-	20
Chromium, Total	0.00238	0.2	0.2016	100	-	-	70-130	-	20
Copper, Total	0.00571	0.25	0.2567	100	-	-	70-130	-	20
Lead, Total	ND	0.51	0.5402	106	-	-	70-130	-	20
Nickel, Total	0.00470	0.5	0.4937	98	-	-	70-130	-	20
Selenium, Total	ND	0.12	0.1242	104	-	-	70-130	-	20
Silver, Total	ND	0.05	0.04939	99	-	-	70-130	-	20
Zinc, Total	0.00591J	0.5	0.5087	102	-	-	70-130	-	20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG999173-3 QC Sample: L1713614-01 Client ID: MS Sample									
Mercury, Total	ND	0.005	0.00506	101	-	-	70-130	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG999793-3 QC Sample: L1713693-01 Client ID: B-I6 OW									
Antimony, Dissolved	0.0008J	0.5	0.4888	98	-	-	70-130	-	20
Arsenic, Dissolved	0.0031	0.12	0.1306	106	-	-	70-130	-	20
Cadmium, Dissolved	0.0002J	0.051	0.0564	110	-	-	70-130	-	20
Chromium, Dissolved	0.0026	0.2	0.2115	104	-	-	70-130	-	20
Copper, Dissolved	0.0078	0.25	0.2603	101	-	-	70-130	-	20
Lead, Dissolved	ND	0.51	0.5411	106	-	-	70-130	-	20
Nickel, Dissolved	0.0052	0.5	0.5057	100	-	-	70-130	-	20
Selenium, Dissolved	ND	0.12	0.1211	101	-	-	70-130	-	20
Silver, Dissolved	ND	0.05	0.0473	94	-	-	70-130	-	20
Zinc, Dissolved	0.0057J	0.5	0.5154	103	-	-	70-130	-	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1000323-4 QC Sample: L1713693-01 Client ID: B-I6 OW						
Iron, Dissolved	1.90	1.98	mg/l	4		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1000340-4 QC Sample: L1713693-01 Client ID: B-I6 OW						
Mercury, Dissolved	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG999112-4 QC Sample: L1713693-01 Client ID: B-I6 OW						
Iron, Total	2.26	2.24	mg/l	1		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG999112-4 QC Sample: L1713693-01 Client ID: B-I6 OW						
Hardness	345.	341	mg/l	1		20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG999112-8 QC Sample: L1713593-01 Client ID: DUP Sample						
Iron, Total	0.079	0.075	mg/l	5		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG999118-4 QC Sample: L1713693-01 Client ID: B-I6 OW					
Antimony, Total	0.00173J	0.00317J	mg/l	NC	20
Arsenic, Total	0.00320	0.00328	mg/l	2	20
Cadmium, Total	0.00024J	0.00021J	mg/l	NC	20
Chromium, Total	0.00238	0.00229	mg/l	4	20
Copper, Total	0.00571	0.00541	mg/l	5	20
Lead, Total	ND	ND	mg/l	NC	20
Nickel, Total	0.00470	0.00491	mg/l	4	20
Selenium, Total	ND	ND	mg/l	NC	20
Silver, Total	ND	ND	mg/l	NC	20
Zinc, Total	0.00591J	0.00592J	mg/l	NC	20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG999173-4 QC Sample: L1713614-01 Client ID: DUP Sample					
Mercury, Total	ND	ND	mg/l	NC	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG999793-4 QC Sample: L1713693-01 Client ID: B-I6 OW					
Antimony, Dissolved	0.0008J	0.0009J	mg/l	NC	20
Arsenic, Dissolved	0.0031	0.0032	mg/l	1	20
Cadmium, Dissolved	0.0002J	0.0003J	mg/l	NC	20
Chromium, Dissolved	0.0026	0.0025	mg/l	5	20
Copper, Dissolved	0.0078	0.0076	mg/l	3	20
Lead, Dissolved	ND	ND	mg/l	NC	20
Nickel, Dissolved	0.0052	0.0047	mg/l	10	20
Selenium, Dissolved	ND	ND	mg/l	NC	20
Silver, Dissolved	ND	ND	mg/l	NC	20
Zinc, Dissolved	0.0057J	0.0061J	mg/l	NC	20

INORGANICS
&
MISCELLANEOUS

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003
Lab Number: L1713693
Report Date: 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-01
Client ID: B-I6 OW
Sample Location: CAMBRIDGE, MA
Matrix: Water

Date Collected: 04/28/17 12:00
Date Received: 04/28/17
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	10.		mg/l	5.0	NA	1	-	04/30/17 18:50	121,2540D	RP
Cyanide, Total	0.004	J	mg/l	0.005	0.001	1	05/01/17 15:25	05/02/17 11:43	121,4500CN-CE	DE
Chlorine, Total Residual	ND		mg/l	0.02	0.01	1	-	04/28/17 22:25	121,4500CL-D	AS
pH (H)	6.5		SU	-	NA	1	-	04/28/17 20:52	121,4500H+-B	AS
Nitrogen, Ammonia	0.436		mg/l	0.075	0.022	1	05/01/17 23:30	05/02/17 21:00	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	4.00	1.24	1	04/29/17 08:15	04/29/17 09:15	74,1664A	KZ
Phenolics, Total	ND		mg/l	0.030	0.010	1	05/01/17 10:36	05/01/17 13:33	4,420.1	AW
Chromium, Hexavalent	0.004	J	mg/l	0.010	0.003	1	04/29/17 03:15	04/29/17 03:41	1,7196A	VB
Anions by Ion Chromatography - Westborough Lab										
Chloride	1200		mg/l	50.0	8.39	100	-	05/01/17 01:04	44,300.0	JC

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003
Lab Number: L1713693
Report Date: 05/05/17

SAMPLE RESULTS

Lab ID: L1713693-02
Client ID: B-F4 OW
Sample Location: CAMBRIDGE, MA
Matrix: Water

Date Collected: 04/28/17 13:35
Date Received: 04/28/17
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	37.		mg/l	5.0	NA	1	-	04/30/17 18:50	121,2540D	RP
Cyanide, Total	0.016		mg/l	0.005	0.001	1	05/01/17 15:25	05/02/17 11:39	121,4500CN-CE	DE
Chlorine, Total Residual	ND		mg/l	0.02	0.01	1	-	04/28/17 22:25	121,4500CL-D	AS
pH (H)	6.4		SU	-	NA	1	-	04/28/17 20:52	121,4500H+-B	AS
Nitrogen, Ammonia	11.0		mg/l	0.075	0.022	1	05/01/17 23:30	05/02/17 21:01	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	4.00	1.24	1	04/29/17 08:15	04/29/17 09:15	74,1664A	KZ
Phenolics, Total	0.026	J	mg/l	0.030	0.010	1	05/01/17 10:36	05/01/17 14:21	4,420.1	AW
Chromium, Hexavalent	ND		mg/l	0.050	0.015	5	04/29/17 03:15	04/29/17 03:42	1,7196A	VB
Anions by Ion Chromatography - Westborough Lab										
Chloride	1820		mg/l	50.0	8.39	100	-	05/01/17 01:16	44,300.0	JC

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1713693

Project Number: 129876-003 **Report Date:** 05/05/17

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): 01-02 Batch: WG998690-1										
Chlorine, Total Residual	ND		mg/l	0.02	0.01	1	-	04/28/17 22:25	121,4500CL-D	AS
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG998736-1										
Chromium, Hexavalent	ND		mg/l	0.010	0.003	1	04/29/17 03:15	04/29/17 03:40	1,7196A	VB
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG998793-1										
TPH, SGT-HEM	ND		mg/l	4.00	1.24	1	04/29/17 08:15	04/29/17 09:15	74,1664A	KZ
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG998982-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	04/30/17 18:50	121,2540D	RP
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG999109-1										
Phenolics, Total	ND		mg/l	0.030	0.010	1	05/01/17 10:36	05/01/17 14:19	4,420.1	AW
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG999184-1										
Cyanide, Total	ND		mg/l	0.005	0.001	1	05/01/17 15:25	05/02/17 11:21	121,4500CN-CE	DE
Anions by Ion Chromatography - Westborough Lab for sample(s): 01-02 Batch: WG999223-1										
Chloride	ND		mg/l	0.500	0.083	1	-	04/30/17 13:39	44,300.0	JC
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG999291-1										
Nitrogen, Ammonia	ND		mg/l	0.075	0.022	1	05/01/17 23:30	05/02/17 20:56	121,4500NH3-BH	AT

Lab Control Sample Analysis

Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG998690-2								
Chlorine, Total Residual	109		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG998694-1								
pH	100		-		99-101	-		5
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG998736-2								
Chromium, Hexavalent	100		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG998793-2								
TPH	90		-		64-132	-		34
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG999109-2								
Phenolics, Total	102		-		70-130	-		
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG999184-2								
Cyanide, Total	100		-		90-110	-		
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-02 Batch: WG999223-2								
Chloride	106		-		90-110	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE

Project Number: 129876-003

Lab Number: L1713693

Report Date: 05/05/17

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG999291-2					
Nitrogen, Ammonia	95	-	80-120	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003
Lab Number: L1713693
Report Date: 05/05/17

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): 01-02 QC Batch ID: WG998690-4 QC Sample: L1713693-02 Client ID: B-F4 OW												
Chlorine, Total Residual	ND	0.248	0.23	93		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG998736-4 QC Sample: L1713693-02 Client ID: B-F4 OW												
Chromium, Hexavalent	ND	0.5	0.518	104		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG998793-4 QC Sample: L1713496-06 Client ID: MS Sample												
TPH	ND	21.1	11.4	**54**	Q	-	-		64-132	-		34
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG999109-4 QC Sample: L1713693-02 Client ID: B-F4 OW												
Phenolics, Total	0.026J	0.4	0.49	122		-	-		70-130	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG999184-5 QC Sample: L1713496-02 Client ID: MS Sample												
Cyanide, Total	0.003J	0.2	0.213	106		-	-		90-110	-		30
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG999223-3 QC Sample: L1713496-03 Client ID: MS Sample												
Chloride	3.32	4	7.49	104		-	-		90-110	-		18
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG999291-4 QC Sample: L1713670-02 Client ID: MS Sample												
Nitrogen, Ammonia	0.036J	4	3.71	93		-	-		80-120	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG998690-3 QC Sample: L1713693-01 Client ID: B-I6 OW						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG998694-2 QC Sample: L1713581-01 Client ID: DUP Sample						
pH	7.4	7.4	SU	0		5
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG998736-3 QC Sample: L1713693-01 Client ID: B-I6 OW						
Chromium, Hexavalent	0.004J	0.004J	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG998793-3 QC Sample: L1713693-02 Client ID: B-F4 OW						
TPH, SGT-HEM	ND	ND	mg/l	NC		34
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG998982-2 QC Sample: L1713586-01 Client ID: DUP Sample						
Solids, Total Suspended	320	340	mg/l	6		29
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG999109-3 QC Sample: L1713693-02 Client ID: B-F4 OW						
Phenolics, Total	0.026J	0.031	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG999184-4 QC Sample: L1713496-01 Client ID: DUP Sample						
Cyanide, Total	0.002J	0.002J	mg/l	NC		30
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG999223-4 QC Sample: L1713496-03 Client ID: DUP Sample						
Chloride	3.32	3.33	mg/l	0		18
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG999291-3 QC Sample: L1713670-02 Client ID: DUP Sample						
Nitrogen, Ammonia	0.036J	ND	mg/l	NC		20

Project Name: THE RESIDENCES AT ALEWIFE
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Lab Number: L1713693
Report Date: 05/05/17

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information Custody Seal

Cooler	
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1713693-01A	Vial HCl preserved	B	N/A	5.0	Y	Absent	SUB-1671(14)
L1713693-01B	Vial HCl preserved	A	N/A	4.5	Y	Absent	SUB-1671(14)
L1713693-01C	Vial HCl preserved	A	N/A	4.5	Y	Absent	SUB-1671(14)
L1713693-01D	Vial Na2S2O3 preserved	A	N/A	4.5	Y	Absent	8260-SIM(7),8260(7)
L1713693-01E	Vial Na2S2O3 preserved	A	N/A	4.5	Y	Absent	8260-SIM(7),8260(7)
L1713693-01F	Vial Na2S2O3 preserved	A	N/A	4.5	Y	Absent	8260-SIM(7),8260(7)
L1713693-01G	Vial Na2S2O3 preserved	A	N/A	4.5	Y	Absent	504(14)
L1713693-01H	Vial Na2S2O3 preserved	A	N/A	4.5	Y	Absent	504(14)
L1713693-01J	Plastic 250ml NaOH preserved	A	>12	4.5	Y	Absent	TCN-4500(14)
L1713693-01K	Plastic 250ml HNO3 preserved	A	<2	4.5	Y	Absent	CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),HARDU(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),TRICR-CALC(1),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L1713693-01L	Plastic 500ml H2SO4 preserved	A	<2	4.5	Y	Absent	NH3-4500(28)
L1713693-01M	Plastic 950ml unpreserved	A	7	4.5	Y	Absent	CL-300(28),HEXCR-7196(1),TRC-4500(1),PH-4500(.01)
L1713693-01N	Plastic 950ml unpreserved	A	7	4.5	Y	Absent	TSS-2540(7)
L1713693-01P	Amber 950ml H2SO4 preserved	A	<2	4.5	Y	Absent	TPHENOL-420(28)
L1713693-01Q	Amber 1000ml HCl preserved	A	N/A	4.5	Y	Absent	TPH-1664(28)
L1713693-01R	Amber 1000ml HCl preserved	A	N/A	4.5	Y	Absent	TPH-1664(28)
L1713693-01S	Amber 1000ml unpreserved	A	7	4.5	Y	Absent	8270TCL(7)
L1713693-01T	Amber 1000ml unpreserved	A	7	4.5	Y	Absent	8270TCL-SIM(7)
L1713693-01U	Amber 1000ml Na2S2O3	A	7	4.5	Y	Absent	PCB-608(7)
L1713693-01V	Amber 1000ml Na2S2O3	A	7	4.5	Y	Absent	PCB-608(7)

*Values in parentheses indicate holding time in days

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1713693-01X	Amber 1000ml Na2S2O3	A	7	4.5	Y	Absent	AG-2008S(180),CR-2008S(180),AS-2008S(180),HOLD-CONTINGENCY(7),PB-2008S(180),NI-2008S(180),SE-2008S(180),CD-2008S(180),CU-2008S(180),SB-2008S(180)
L1713693-01X1	Plastic 250ml unpreserved split	A	7	4.5	Y	Absent	-
L1713693-01X2	Plastic 250ml HNO3 preserved Fil	A	<2	4.5	Y	Absent	AG-2008S(180),CR-2008S(180),FE-RI(180),AS-2008S(180),PB-2008S(180),ZN-2008S(180),NI-2008S(180),SE-2008S(180),CD-2008S(180),CU-2008S(180),SB-2008S(180),HG-R(28)
L1713693-01Y	Amber 1000ml Na2S2O3	A	7	4.5	Y	Absent	HOLD-CONTINGENCY(7)
L1713693-01Z	Vial unpreserved	A	N/A	4.5	Y	Absent	HOLD-CONTINGENCY(7)
L1713693-02A	Vial HCl preserved	B	N/A	5.0	Y	Absent	SUB-1671(14)
L1713693-02B	Vial HCl preserved	B	N/A	5.0	Y	Absent	SUB-1671(14)
L1713693-02C	Vial HCl preserved	B	N/A	5.0	Y	Absent	SUB-1671(14)
L1713693-02D	Vial Na2S2O3 preserved	B	N/A	5.0	Y	Absent	8260-SIM(7),8260(7)
L1713693-02E	Vial Na2S2O3 preserved	B	N/A	5.0	Y	Absent	8260-SIM(7),8260(7)
L1713693-02F	Vial Na2S2O3 preserved	B	N/A	5.0	Y	Absent	8260-SIM(7),8260(7)
L1713693-02G	Vial Na2S2O3 preserved	B	N/A	5.0	Y	Absent	504(14)
L1713693-02H	Vial Na2S2O3 preserved	B	N/A	5.0	Y	Absent	504(14)
L1713693-02J	Plastic 250ml NaOH preserved	B	>12	5.0	Y	Absent	TCN-4500(14)
L1713693-02K	Plastic 250ml HNO3 preserved	B	<2	5.0	Y	Absent	CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),HARDU(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),TRICR-CALC(1),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L1713693-02L	Plastic 500ml H2SO4 preserved	B	<2	5.0	Y	Absent	NH3-4500(28)
L1713693-02M	Plastic 950ml unpreserved	B	7	5.0	Y	Absent	CL-300(28),HEXCR-7196(1),TRC-4500(1),PH-4500(.01)
L1713693-02N	Plastic 950ml unpreserved	B	7	5.0	Y	Absent	TSS-2540(7)
L1713693-02P	Amber 950ml H2SO4 preserved	B	<2	5.0	Y	Absent	TPHENOL-420(28)
L1713693-02Q	Amber 1000ml HCl preserved	B	N/A	5.0	Y	Absent	TPH-1664(28)
L1713693-02R	Amber 1000ml HCl preserved	B	N/A	5.0	Y	Absent	TPH-1664(28)
L1713693-02S	Amber 1000ml unpreserved	B	7	5.0	Y	Absent	8270TCL(7)
L1713693-02T	Amber 1000ml unpreserved	B	7	5.0	Y	Absent	8270TCL-SIM(7)
L1713693-02U	Amber 1000ml Na2S2O3	B	7	5.0	Y	Absent	PCB-608(7)

*Values in parentheses indicate holding time in days

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1713693
Report Date: 05/05/17

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1713693-02V	Amber 1000ml Na2S2O3	B	7	5.0	Y	Absent	PCB-608(7)
L1713693-02X	Amber 1000ml Na2S2O3	B	7	5.0	Y	Absent	AG-2008S(180),CR-2008S(180),AS-2008S(180),HOLD-CONTINGENCY(7),PB-2008S(180),NI-2008S(180),SE-2008S(180),CD-2008S(180),CU-2008S(180),SB-2008S(180)
L1713693-02X1	Plastic 250ml unpreserved split	B	7	5.0	Y	Absent	-
L1713693-02X2	Plastic 250ml HNO3 preserved Fil	B	<2	5.0	Y	Absent	AG-2008S(180),CR-2008S(180),FE-RI(180),AS-2008S(180),PB-2008S(180),ZN-2008S(180),NI-2008S(180),SE-2008S(180),CD-2008S(180),CU-2008S(180),SB-2008S(180),HG-R(28)
L1713693-02Y	Amber 1000ml Na2S2O3	B	7	5.0	Y	Absent	HOLD-CONTINGENCY(7)
L1713693-02Z	Vial unpreserved	B	N/A	5.0	Y	Absent	HOLD-CONTINGENCY(7)
L1713693-03A	Vial HCl preserved	B	N/A	5.0	Y	Absent	8260-SIM(14),8260(14)
L1713693-03B	Vial HCl preserved	B	N/A	5.0	Y	Absent	8260-SIM(14),8260(14)
L1713693-03C	Vial Na2S2O3 preserved	B	N/A	5.0	Y	Absent	HOLD-624(3)
L1713693-03D	Vial Na2S2O3 preserved	B	N/A	5.0	Y	Absent	HOLD-624(3)
L1713693-03G	Vial Na2S2O3 preserved	B	N/A	5.0	Y	Absent	504(14)
L1713693-03H	Vial Na2S2O3 preserved	B	N/A	5.0	Y	Absent	504(14)

*Values in parentheses indicate holding time in days

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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: DU Report with 'J' Qualifiers

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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. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

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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.

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.

107 Alpha Analytical - In-house calculation method.

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, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH, **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

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

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

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

Page 1 of 1

Date Rec'd in Lab: 04/28/17

ALPHA Job #: L1713693

H&A Information
- H&A Client: CPC-T Holdings, LLC c/o
- H&A Address: Criterion Development Partners
- H&A Address: 465 Medford St. Charlestown
- H&A Phone: 617.886.7424
- H&A Fax:
- H&A Email: tbutler@haleyaldrich.com

Project Information
- Project Name: The Residences at Alewife
- Project Location: Cambridge, MA
- Project #: 129876-003
- (Use Project name as Project #) ☐
- Project Manager: Todd Butler
- ALPHAQuote #: 2370

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

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

Billing Information
- ☑ Same as Client Info
- PO # PO10002479

Regulatory Requirements (Program/Criteria)
S-1 MCP | 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:

PO 10002497

Please specify Metals or TAL.

ANALYSIS

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

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	Depth	See Note #1	Alcohols by EPA 8015D	See Note#2	See Note#3	TRIP BLANKS				Total Bottles
13693-01	B-I6 OW	4-28-17	1200	AQ	DRW	GW	x	x	x	x					23
-02	B-F4 OW	"	1335	AQ	DRW	GW	x	x	x	x					23
-03	TRIP BLANKS	"									x				6

52 TOTAL

Sample Specific Comments:
- #1: NPDES RGP Parameters
- Plus CL-300
- #2: Ammonia Nitrogen - SM 4500
- #3: Disolved Metals Fe.Zn. Se.Sb.Pb.Ni.Cu.Cr.Cd.As.Ag .Hg

Container Type
Preservative

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

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

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

Relinquished By:	Date/Time	Received By:	Date/Time
	4-28-17 1520		4/28/17 1520
	4/28/17 1730		4/28/17 1730

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

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

SUB UPS: Eurofins, PA

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab:

ALPHA Job #: L1713693

Client Information

Client: Alpha Analytical Lab
Address: 8 Walkup Drive
Westborough, Ma 01581
Phone: 508-898-9220
Fax:
Email: subreports@alphalab.com

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name:
Project Location: MA
Project #:
Project Manager: Gina Hall
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

MCP PRESUMPTIVE CERTAINTY-CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
Please reference Alpha Job #L1713693 on this report.

ANALYSIS

Ethanol by Method 1671

SAMPLE HANDLING
Filtration
☐ Done
☐ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Sample Specific Comments

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Ethanol by Method 1671	TOTAL # BOTTLES
	B-I6 OW	4/28/17	12:00	Water		x	3
	B-F4 OW	4/28/17	13:35	Water		x	2

Container Type	V		-	-	-	-	-	-	-	-	-	-
Preservative	HCL		-	-	-	-	-	-	-	-	-	-

PLEASE ANSWER QUESTIONS ABOVE!

S YOUR PROJECT MA MCP *or* CT RCP?

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

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I)
(rev. 30-JUL-07)

ANALYTICAL REPORT

Lab Number:	L1721072
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Todd Butler
Phone:	(617) 886-7424
Project Name:	THE RESIDENCES AT ALEWIFE
Project Number:	129876-003
Report Date:	06/27/17

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: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1721072
Report Date: 06/27/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1721072-01	G1 OW	WATER	CAMBRIDGE, MA	06/21/17 14:00	06/21/17
L1721072-02	06-2017 TRIP BLANK	WATER	CAMBRIDGE, MA	06/21/17 00:00	06/21/17

Project Name:	THE RESIDENCES AT ALEWIFE	**Lab Number:**	L1721072
Project Number:	129876-003	**Report Date:**	06/27/17

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:	THE RESIDENCES AT ALEWIFE	**Lab Number:**	L1721072
Project Number:	129876-003	**Report Date:**	06/27/17

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:	THE RESIDENCES AT ALEWIFE	**Lab Number:**	L1721072
Project Number:	129876-003	**Report Date:**	06/27/17

Case Narrative (continued)

MCP Related Narratives

Volatile Organics

In reference to question G:

L1721072-01 (G1 OW): One or more of the target analytes did not achieve the requested CAM reporting limits.

n reference to question H:

The initial calibration, associated with L1721072-01 (G1 OW), did not meet the method required minimum response factor on the lowest calibration standard for acetone (0.0567), trichloroethene (0.1876), 4-methyl-2-pentanone (0.0540), 1,4-dioxane (0.0013) and 2-butanone (0.0903), as well as the average response factor for acetone, 1,4-dioxane, 4-methyl-2-pentanone and 2-butanone. In addition, a quadratic fit was utilized for bromomethane.

The continuing calibration standard, associated with L1721072-01 (G1 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.

EPH

In reference to question I:

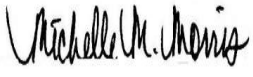
All samples were analyzed for a subset of MCP analytes per the Chain of Custody.

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:  Michelle M. Morris

Title: Technical Director/Representative Date: 06/27/17

ORGANICS

VOLATILES

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1721072

Project Number: 129876-003 **Report Date:** 06/27/17

SAMPLE RESULTS

Lab ID: L1721072-01 D
Client ID: G1 OW
Sample Location: CAMBRIDGE, MA

Date Collected: 06/21/17 14:00
Date Received: 06/21/17
Field Prep: Not Specified

Matrix: Water
Analytical Method: 97,8260C
Analytical Date: 06/26/17 23:09
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Methylene chloride	ND		ug/l	5.0	--	2.5
1,1-Dichloroethane	ND		ug/l	2.5	--	2.5
Chloroform	ND		ug/l	2.5	--	2.5
Carbon tetrachloride	ND		ug/l	2.5	--	2.5
1,2-Dichloropropane	ND		ug/l	2.5	--	2.5
Dibromochloromethane	ND		ug/l	2.5	--	2.5
1,1,2-Trichloroethane	ND		ug/l	2.5	--	2.5
Tetrachloroethene	ND		ug/l	2.5	--	2.5
Chlorobenzene	ND		ug/l	2.5	--	2.5
Trichlorofluoromethane	ND		ug/l	5.0	--	2.5
1,2-Dichloroethane	ND		ug/l	2.5	--	2.5
1,1,1-Trichloroethane	ND		ug/l	2.5	--	2.5
Bromodichloromethane	ND		ug/l	2.5	--	2.5
trans-1,3-Dichloropropene	ND		ug/l	1.2	--	2.5
cis-1,3-Dichloropropene	ND		ug/l	1.2	--	2.5
1,3-Dichloropropene, Total	ND		ug/l	1.2	--	2.5
1,1-Dichloropropene	ND		ug/l	5.0	--	2.5
Bromoform	ND		ug/l	5.0	--	2.5
1,1,2,2-Tetrachloroethane	ND		ug/l	2.5	--	2.5
Benzene	6.0		ug/l	1.2	--	2.5
Toluene	3.6		ug/l	2.5	--	2.5
Ethylbenzene	260		ug/l	2.5	--	2.5
Chloromethane	ND		ug/l	5.0	--	2.5
Bromomethane	ND		ug/l	5.0	--	2.5
Vinyl chloride	ND		ug/l	2.5	--	2.5
Chloroethane	ND		ug/l	5.0	--	2.5
1,1-Dichloroethene	ND		ug/l	2.5	--	2.5
trans-1,2-Dichloroethene	ND		ug/l	2.5	--	2.5
Trichloroethene	ND		ug/l	2.5	--	2.5
1,2-Dichlorobenzene	ND		ug/l	2.5	--	2.5

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1721072

Project Number: 129876-003 **Report Date:** 06/27/17

SAMPLE RESULTS

Lab ID: L1721072-01 D Date Collected: 06/21/17 14:00
Client ID: G1 OW Date Received: 06/21/17
Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.5	--	2.5
1,4-Dichlorobenzene	ND		ug/l	2.5	--	2.5
Methyl tert butyl ether	ND		ug/l	5.0	--	2.5
p/m-Xylene	13		ug/l	5.0	--	2.5
o-Xylene	3.8		ug/l	2.5	--	2.5
Xylene (Total)	17		ug/l	2.5	--	2.5
cis-1,2-Dichloroethene	ND		ug/l	2.5	--	2.5
1,2-Dichloroethene (total)	ND		ug/l	2.5	--	2.5
Dibromomethane	ND		ug/l	5.0	--	2.5
1,2,3-Trichloropropane	ND		ug/l	5.0	--	2.5
Styrene	ND		ug/l	2.5	--	2.5
Dichlorodifluoromethane	ND		ug/l	5.0	--	2.5
Acetone	ND		ug/l	12	--	2.5
Carbon disulfide	ND		ug/l	5.0	--	2.5
2-Butanone	ND		ug/l	12	--	2.5
4-Methyl-2-pentanone	ND		ug/l	12	--	2.5
2-Hexanone	ND		ug/l	12	--	2.5
Bromochloromethane	ND		ug/l	5.0	--	2.5
Tetrahydrofuran	ND		ug/l	5.0	--	2.5
2,2-Dichloropropane	ND		ug/l	5.0	--	2.5
1,2-Dibromoethane	ND		ug/l	5.0	--	2.5
1,3-Dichloropropane	ND		ug/l	5.0	--	2.5
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	--	2.5
Bromobenzene	ND		ug/l	5.0	--	2.5
n-Butylbenzene	12		ug/l	5.0	--	2.5
sec-Butylbenzene	10		ug/l	5.0	--	2.5
tert-Butylbenzene	ND		ug/l	5.0	--	2.5
o-Chlorotoluene	ND		ug/l	5.0	--	2.5
p-Chlorotoluene	ND		ug/l	5.0	--	2.5
1,2-Dibromo-3-chloropropane	ND		ug/l	5.0	--	2.5
Hexachlorobutadiene	ND		ug/l	1.5	--	2.5
Isopropylbenzene	64		ug/l	5.0	--	2.5
p-Isopropyltoluene	ND		ug/l	5.0	--	2.5
Naphthalene	13		ug/l	5.0	--	2.5
n-Propylbenzene	150		ug/l	5.0	--	2.5
1,2,3-Trichlorobenzene	ND		ug/l	5.0	--	2.5
1,2,4-Trichlorobenzene	ND		ug/l	5.0	--	2.5
1,3,5-Trimethylbenzene	5.8		ug/l	5.0	--	2.5
1,2,4-Trimethylbenzene	16		ug/l	5.0	--	2.5

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1721072

Project Number: 129876-003 **Report Date:** 06/27/17

SAMPLE RESULTS

Lab ID: L1721072-01 D Date Collected: 06/21/17 14:00

Client ID: G1 OW Date Received: 06/21/17

Sample Location: CAMBRIDGE, MA Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics - Westborough Lab						
Ethyl ether	ND		ug/l	5.0	--	2.5
Isopropyl Ether	ND		ug/l	5.0	--	2.5
Ethyl-Tert-Butyl-Ether	ND		ug/l	5.0	--	2.5
Tertiary-Amyl Methyl Ether	ND		ug/l	5.0	--	2.5
1,4-Dioxane	ND		ug/l	620	--	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	98		70-130

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1721072

Project Number: 129876-003 **Report Date:** 06/27/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 06/26/17 14:40
Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01 Batch: WG1017113-5					
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: THE RESIDENCES AT ALEWIFE **Lab Number:** L1721072

Project Number: 129876-003 **Report Date:** 06/27/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 06/26/17 14:40
Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01 Batch: WG1017113-5					
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: THE RESIDENCES AT ALEWIFE **Lab Number:** L1721072

Project Number: 129876-003 **Report Date:** 06/27/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 06/26/17 14:40
Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01 Batch: WG1017113-5					
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	--
Ethyl Acetate	ND		ug/l	10	--
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		ug/l	2.0	--
Iodomethane	ND		ug/l	10	--
tert-Butyl Alcohol	ND		ug/l	10	--
Vinyl acetate	ND		ug/l	2.5	--
Acrolein	ND		ug/l	10	--
2-Chloroethylvinyl ether	ND		ug/l	10	--
Ethyl methacrylate	ND		ug/l	5.0	--
Methyl cyclohexane	ND		ug/l	10	--
Cyclohexane	ND		ug/l	10	--
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	--
1,4-Diethylbenzene	ND		ug/l	2.0	--
4-Ethyltoluene	ND		ug/l	2.0	--

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003
Lab Number: L1721072
Report Date: 06/27/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 06/26/17 14:40
Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics - Westborough Lab for sample(s): 01 Batch: WG1017113-5					
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	--
1,4-Dichlorobutane	ND		ug/l	5.0	--
Acrylonitrile	ND		ug/l	5.0	--
Halothane	ND		ug/l	2.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	103		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1721072
Report Date: 06/27/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01 Batch: WG1017113-3 WG1017113-4								
Methylene chloride	100		96		70-130	4		20
1,1-Dichloroethane	100		97		70-130	3		20
Chloroform	100		99		70-130	1		20
Carbon tetrachloride	100		100		70-130	0		20
1,2-Dichloropropane	95		92		70-130	3		20
Dibromochloromethane	99		95		70-130	4		20
1,1,2-Trichloroethane	99		91		70-130	8		20
Tetrachloroethene	110		110		70-130	0		20
Chlorobenzene	95		90		70-130	5		20
Trichlorofluoromethane	100		100		70-130	0		20
1,2-Dichloroethane	100		98		70-130	2		20
1,1,1-Trichloroethane	100		100		70-130	0		20
Bromodichloromethane	100		100		70-130	0		20
trans-1,3-Dichloropropene	100		92		70-130	8		20
cis-1,3-Dichloropropene	99		96		70-130	3		20
1,1-Dichloropropene	100		98		70-130	2		20
Bromoform	94		87		70-130	8		20
1,1,2,2-Tetrachloroethane	92		84		70-130	9		20
Benzene	100		98		70-130	2		20
Toluene	100		98		70-130	2		20
Ethylbenzene	100		98		70-130	2		20
Chloromethane	99		94		70-130	5		20
Bromomethane	97		100		70-130	3		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1721072
Report Date: 06/27/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01 Batch: WG1017113-3 WG1017113-4								
Vinyl chloride	97		93		70-130	4		20
Chloroethane	100		98		70-130	2		20
1,1-Dichloroethene	100		90		70-130	11		20
trans-1,2-Dichloroethene	100		98		70-130	2		20
Trichloroethene	110		100		70-130	10		20
1,2-Dichlorobenzene	99		94		70-130	5		20
1,3-Dichlorobenzene	100		99		70-130	1		20
1,4-Dichlorobenzene	100		96		70-130	4		20
Methyl tert butyl ether	89		85		70-130	5		20
p/m-Xylene	105		100		70-130	5		20
o-Xylene	105		100		70-130	5		20
cis-1,2-Dichloroethene	100		100		70-130	0		20
Dibromomethane	98		96		70-130	2		20
1,2,3-Trichloropropane	96		86		70-130	11		20
Styrene	110		100		70-130	10		20
Dichlorodifluoromethane	92		88		70-130	4		20
Acetone	99		90		70-130	10		20
Carbon disulfide	110		93		70-130	17		20
2-Butanone	83		74		70-130	11		20
4-Methyl-2-pentanone	86		73		70-130	16		20
2-Hexanone	79		**69**	Q	70-130	14		20
Bromochloromethane	110		110		70-130	0		20
Tetrahydrofuran	89		78		70-130	13		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1721072
Report Date: 06/27/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01 Batch: WG1017113-3 WG1017113-4								
2,2-Dichloropropane	99		95		70-130	4		20
1,2-Dibromoethane	98		92		70-130	6		20
1,3-Dichloropropane	97		90		70-130	7		20
1,1,1,2-Tetrachloroethane	100		100		70-130	0		20
Bromobenzene	100		96		70-130	4		20
n-Butylbenzene	100		100		70-130	0		20
sec-Butylbenzene	110		100		70-130	10		20
tert-Butylbenzene	100		98		70-130	2		20
o-Chlorotoluene	100		100		70-130	0		20
p-Chlorotoluene	100		98		70-130	2		20
1,2-Dibromo-3-chloropropane	87		77		70-130	12		20
Hexachlorobutadiene	100		100		70-130	0		20
Isopropylbenzene	100		98		70-130	2		20
p-Isopropyltoluene	100		99		70-130	1		20
Naphthalene	82		79		70-130	4		20
n-Propylbenzene	100		98		70-130	2		20
1,2,3-Trichlorobenzene	95		89		70-130	7		20
1,2,4-Trichlorobenzene	95		92		70-130	3		20
1,3,5-Trimethylbenzene	110		100		70-130	10		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20
Ethyl ether	98		94		70-130	4		20
Isopropyl Ether	93		90		70-130	3		20
Ethyl-Tert-Butyl-Ether	92		89		70-130	3		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1721072
Report Date: 06/27/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01 Batch: WG1017113-3 WG1017113-4								
Tertiary-Amyl Methyl Ether	94		95		70-130	1		20
1,4-Dioxane	90		76		70-130	17		20
Ethyl Acetate	86		80		70-130	7		20
1,1,2-Trichloro-1,2,2-Trifluoroethane	100		100		70-130	0		20
Iodomethane	**64**	Q	**65**	Q	70-130	2		20
tert-Butyl Alcohol	82		76		70-130	8		20
Vinyl acetate	84		80		70-130	5		20
Acrolein	89		80		70-130	11		20
2-Chloroethylvinyl ether	**35**	Q	**40**	Q	70-130	13		20
Ethyl methacrylate	79		72		70-130	9		20
Methyl cyclohexane	98		98		70-130	0		20
Cyclohexane	100		98		70-130	2		20
trans-1,4-Dichloro-2-butene	80		79		70-130	1		20
1,4-Diethylbenzene	100		97		70-130	3		20
4-Ethyltoluene	100		100		70-130	0		20
1,2,4,5-Tetramethylbenzene	97		90		70-130	7		20
1,4-Dichlorobutane	94		88		70-130	7		20
Acrylonitrile	88		91		70-130	3		20
Halothane	110		100		70-130	10		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE

Project Number: 129876-003

Lab Number: L1721072

Report Date: 06/27/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics - Westborough Lab Associated sample(s): 01 Batch: WG1017113-3 WG1017113-4								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		100		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	107		98		70-130
Dibromofluoromethane	100		100		70-130

PETROLEUM HYDROCARBONS

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003
Lab Number: L1721072
Report Date: 06/27/17

SAMPLE RESULTS

Lab ID:	L1721072-01	Date Collected:	06/21/17 14:00
Client ID:	G1 OW	Date Received:	06/21/17
Sample Location:	CAMBRIDGE, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	98,EPH-04-1.1	Extraction Date:	06/22/17 14:28
Analytical Date:	06/23/17 02:01	Cleanup Method1:	EPH-04-1
Analyst:	DG	Cleanup Date1:	06/22/17

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	135		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	233		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	202		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	54		40-140
o-Terphenyl	83		40-140
2-Fluorobiphenyl	82		40-140
2-Bromonaphthalene	81		40-140

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1721072

Project Number: 129876-003 **Report Date:** 06/27/17

SAMPLE RESULTS

Lab ID:	L1721072-01 D	Date Collected:	06/21/17 14:00
Client ID:	G1 OW	Date Received:	06/21/17
Sample Location:	CAMBRIDGE, MA	Field Prep:	Not Specified
Matrix:	Water		
Analytical Method:	100,VPH-04-1.1		
Analytical Date:	06/25/17 01:09		
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	579		ug/l	100	--	2
C9-C12 Aliphatics	1400		ug/l	100	--	2
C9-C10 Aromatics	852		ug/l	100	--	2
C5-C8 Aliphatics, Adjusted	568		ug/l	100	--	2
C9-C12 Aliphatics, Adjusted	280		ug/l	100	--	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	100		70-130
2,5-Dibromotoluene-FID	98		70-130

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003
Lab Number: L1721072
Report Date: 06/27/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 06/23/17 00:25
Analyst: SR

Extraction Method: EPA 3510C
Extraction Date: 06/22/17 14:28
Cleanup Method: EPH-04-1
Cleanup Date: 06/22/17

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 01 Batch: WG1015928-1					
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	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	57		40-140
o-Terphenyl	76		40-140
2-Fluorobiphenyl	77		40-140
2-Bromonaphthalene	72		40-140

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003
Lab Number: L1721072
Report Date: 06/27/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 100,VPH-04-1.1
Analytical Date: 06/24/17 10:49
Analyst: JM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 01 Batch: WG1016755-3					
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	101		70-130
2,5-Dibromotoluene-FID	104		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1721072
Report Date: 06/27/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01 Batch: WG1015928-2 WG1015928-3								
C9-C18 Aliphatics	68		73		40-140	7		25
C19-C36 Aliphatics	74		78		40-140	5		25
C11-C22 Aromatics	70		78		40-140	11		25
Naphthalene	58		67		40-140	14		25
2-Methylnaphthalene	59		68		40-140	14		25
Acenaphthylene	63		72		40-140	13		25
Acenaphthene	63		71		40-140	12		25
Fluorene	65		73		40-140	12		25
Phenanthrene	67		75		40-140	11		25
Anthracene	69		77		40-140	11		25
Fluoranthene	70		78		40-140	11		25
Pyrene	71		79		40-140	11		25
Benzo(a)anthracene	71		78		40-140	9		25
Chrysene	72		79		40-140	9		25
Benzo(b)fluoranthene	73		79		40-140	8		25
Benzo(k)fluoranthene	72		77		40-140	7		25
Benzo(a)pyrene	71		76		40-140	7		25
Indeno(1,2,3-cd)Pyrene	73		76		40-140	4		25
Dibenzo(a,h)anthracene	71		75		40-140	5		25
Benzo(ghi)perylene	68		70		40-140	3		25
Nonane (C9)	61		65		30-140	6		25
Decane (C10)	66		70		40-140	6		25
Dodecane (C12)	66		72		40-140	9		25

Lab Control Sample Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1721072
Report Date: 06/27/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01 Batch: WG1015928-2 WG1015928-3								
Tetradecane (C14)	66		72		40-140	9		25
Hexadecane (C16)	69		74		40-140	7		25
Octadecane (C18)	72		77		40-140	7		25
Nonadecane (C19)	71		76		40-140	7		25
Eicosane (C20)	72		77		40-140	7		25
Docosane (C22)	72		78		40-140	8		25
Tetracosane (C24)	72		78		40-140	8		25
Hexacosane (C26)	72		77		40-140	7		25
Octacosane (C28)	72		77		40-140	7		25
Triacontane (C30)	72		77		40-140	7		25
Hexatriacontane (C36)	74		76		40-140	3		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	59		57		40-140
o-Terphenyl	73		81		40-140
2-Fluorobiphenyl	71		79		40-140
2-Bromonaphthalene	69		78		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

Lab Control Sample Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1721072
Report Date: 06/27/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01 Batch: WG1016755-1 WG1016755-2								
C5-C8 Aliphatics	107		104		70-130	3		25
C9-C12 Aliphatics	114		110		70-130	4		25
C9-C10 Aromatics	113		109		70-130	4		25
Benzene	102		99		70-130	3		25
Toluene	104		100		70-130	4		25
Ethylbenzene	107		103		70-130	4		25
p/m-Xylene	108		104		70-130	4		25
o-Xylene	106		102		70-130	4		25
Methyl tert butyl ether	101		99		70-130	2		25
Naphthalene	107		108		70-130	1		25
1,2,4-Trimethylbenzene	113		109		70-130	4		25
Pentane	107		104		70-130	3		25
2-Methylpentane	107		104		70-130	3		25
2,2,4-Trimethylpentane	107		104		70-130	3		25
n-Nonane	113		110		30-130	3		25
n-Decane	115		111		70-130	4		25
n-Butylcyclohexane	115		111		70-130	4		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	101		101		70-130
2,5-Dibromotoluene-FID	103		104		70-130

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-003

Lab Number: L1721072
Report Date: 06/27/17

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(*)
L1721072-01A	Vial HCl preserved	A	NA		3.0	Y	Absent		MCP-8260-10(14)
L1721072-01B	Vial HCl preserved	A	NA		3.0	Y	Absent		MCP-8260-10(14)
L1721072-01C	Vial HCl preserved	A	NA		3.0	Y	Absent		MCP-8260-10(14)
L1721072-01D	Vial HCl preserved	A	NA		3.0	Y	Absent		VPH-10(14)
L1721072-01E	Vial HCl preserved	A	NA		3.0	Y	Absent		VPH-10(14)
L1721072-01F	Vial HCl preserved	A	NA		3.0	Y	Absent		VPH-10(14)
L1721072-01G	Amber 1000ml HCl preserved	A	<2	<2	3.0	Y	Absent		EPH-10(14)
L1721072-01H	Amber 1000ml HCl preserved	A	<2	<2	3.0	Y	Absent		EPH-10(14)
L1721072-02A	Vial HCl preserved	A	NA		3.0	Y	Absent		HOLD-8260(14)
L1721072-02B	Vial HCl preserved	A	NA		3.0	Y	Absent		HOLD-8260(14)

*Values in parentheses indicate holding time in days

Project Name:	THE RESIDENCES AT ALEWIFE	**Lab Number:**	L1721072
Project Number:	129876-003	**Report Date:**	06/27/17

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:	THE RESIDENCES AT ALEWIFE	**Lab Number:**	L1721072
Project Number:	129876-003	**Report Date:**	06/27/17

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.

Report Format: Data Usability Report

Project Name:	THE RESIDENCES AT ALEWIFE	**Lab Number:**	L1721072
Project Number:	129876-003	**Report Date:**	06/27/17

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.

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, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH, **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

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

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

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: 6/21/17

ALPHA Job #: L1721072

H&A Information
- H&A Client: CPC-T Holidings, LLC c/o
- H&A Address: Criterion Development Partners 465 Medford Street, Boston, MA
- H&A Phone: 617-886-7424
- H&A Fax:
- H&A Email: tbutler@haleyaldrich.com

Project Information
- Project Name: The Residences at Alewife
- Project Location: Cambridge, MA
- Project #: 129876-003
- (Use Project name as Project #) ☐
- Project Manager: Todd Butler
- ALPHAQuote #: 2370

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

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

Billing Information
- ☑ Same as Client Info
- PO # PO10002479

Regulatory Requirements (Program/Criteria)

Note: Select State from menu & identify criteria.

Disposal Site Information

Please identify below location of applicable disposal facilities.

Disposal Facility:
☐ NJ ☐ NY
☐ Other:

☐ These samples have been previously analyzed by Alpha

Other project specific requirements/comments:

EPH and VPH are ranges only

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do

Preservation
☐ Lab to do

(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	Depth	Total VOCs	EPH	VPH	Sample Specific Comments	Total Bottles
21072 - 01	G1 OW	6/21/17	1400	AQ	SRP	-	X	X	X		8
02	06-2017 TRIP BLANK	6/21/17	HOLD TRIPBLANK								

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$

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	A	V								
Preservative	B	B	B								

Relinquished By:	Date/Time	Received By:	Date/Time
A-P	6/21/17	M.C.	6/21/17 1615
M.C.	6/21/17 1615	AAL	6/21/17 1628
AAL	6/21/17 1849		6/21/17 1849

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

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

CHAIN OF CUSTODY

ALPHA ANALYTICAL — Eight Close Quarters

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

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

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: 6/21/17

ALPHA Job #: L1721072

H&A Information

H&A Client: CPC-T Holidings, LLC c/o
H&A Address: Criterion Development Partners
465 Medford Street, Boston, MA
H&A Phone: 617-886-7424
H&A Fax:
H&A Email: tbutler@haleyaldrich.com

Project Information

Project Name: The Residences at Alewife
Project Location: Cambridge, MA
Project #: 129876-003
(Use Project name as Project #) ☐
Project Manager: Todd Butler
ALPHAQuote #: 2370

Turn-Around Time

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

Deliverables

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

Billing Information

☑ Same as Client Info
PO # PO10002479

Regulatory Requirements (Program/Criteria)

Note: Select State from menu & identify criteria.

Disposal Site Information

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

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	Depth	Total VOCs	EPH	VPH	Total Bottles
21072 - 01	G1 OW	6/21/17	1400	AQ	SRP	–	X	X	X	8
-02	06-2017 TRIP BLANK									

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

Sample Specific Comments

Container Type	V	A	V
Preservative	B	B	B

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$

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

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

Relinquished By:	Date/Time	Received By:	Date/Time
A-Pad	6/21/17	MCAT	6/21/17 1630
MCAT	6/21/17 1630	AAL	6/21/17 1628
AAL	6/21/17 1849		6/21/17 1849

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

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

Method Blank Summary
Form 4

Client	: Haley & Aldrich, Inc.	**Lab Number**	: L1721072
Project Name	: THE RESIDENCES AT ALEWIFE	**Project Number**	: 129876-003
Lab Sample ID	: WG1017113-5	**Lab File ID**	: V16170626A05
Instrument ID	: VOA116		
Matrix	: WATER	**Analysis Date**	: 06/26/17 14:40

Client Sample No.	Lab Sample ID	Analysis Date
WG1017113-3LCS	WG1017113-3	06/26/17 12:59
WG1017113-4LCSD	WG1017113-4	06/26/17 13:24
G1 OW	L1721072-01D	06/26/17 23:09

Continuing Calibration
Form 7

Client	: Haley & Aldrich, Inc.	**Lab Number**	: L1721072	
Project Name	: THE RESIDENCES AT ALEWIFE	**Project Number**	: 129876-003	
Instrument ID	: VOA116	**Calibration Date**	: 06/26/17 12:59	
Lab File ID	: V16170626A01	**Init. Calib. Date(s)**	: 06/25/17	06/26/17
Sample No	: WG1017113-2	**Init. Calib. Times**	: 22:48	02:35
Channel	:			

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Fluorobenzene	1	1	-	0	20	96	0
Dichlorodifluoromethane	0.313	0.286	-	8.6	20	85	0
Chloromethane	0.303	0.302	-	0.3	20	92	0
Vinyl chloride	0.286	0.278	-	2.8	20	90	.01
Bromomethane	10	9.731	-	2.7	20	114	.01
Chloroethane	0.162	0.168	-	-3.7	20	95	0
Trichlorofluoromethane	0.449	0.454	-	-1.1	20	93	0
Ethyl ether	0.113	0.111	-	1.8	20	95	0
1,1-Dichloroethene	0.227	0.228	-	-0.4	20	92	0
Carbon disulfide	0.698	0.799	-	-14.5	20	108	.01
Freon-113	0.218	0.22	-	-0.9	20	89	0
Iodomethane	10	6.44	-	35.6*	20	74	0
Acrolein	0.034	0.03*	-	11.8	20	86	0
Methylene chloride	0.27	0.272	-	-0.7	20	93	0
Acetone	10	9.915	-	0.9	20	90	0
trans-1,2-Dichloroethene	0.257	0.264	-	-2.7	20	96	0
Methyl acetate	0.127	0.113	-	11	20	82	0
Methyl tert-butyl ether	0.667	0.593	-	11.1	20	88	0
tert-Butyl alcohol	50	41.405	-	17.2	20	83	0
Diisopropyl ether	0.83	0.775	-	6.6	20	89	0
1,1-Dichloroethane	0.54	0.537	-	0.6	20	91	0
Halothane	0.184	0.197	-	-7.1	20	96	0
Acrylonitrile	10	8.785	-	12.1	20	82	0
Ethyl tert-butyl ether	0.746	0.688	-	7.8	20	89	0
Vinyl acetate	0.56	0.471	-	15.9	20	79	0
cis-1,2-Dichloroethene	0.268	0.28	-	-4.5	20	94	0
2,2-Dichloropropane	0.439	0.434	-	1.1	20	89	0
Bromochloromethane	0.112	0.126	-	-12.5	20	97	0
Cyclohexane	0.444	0.443	-	0.2	20	90	0
Chloroform	0.508	0.522	-	-2.8	20	94	0
Ethyl acetate	0.175	0.151	-	13.7	20	81	0
Carbon tetrachloride	0.414	0.438	-	-5.8	20	94	0
Tetrahydrofuran	0.067	0.059	-	11.9	20	88	.01
Dibromofluoromethane	0.28	0.281	-	-0.4	20	98	0
1,1,1-Trichloroethane	0.477	0.492	-	-3.1	20	96	0
2-Butanone	0.082	0.068*	-	17.1	20	79	0
1,1-Dichloropropene	0.38	0.383	-	-0.8	20	94	0
Benzene	1.069	1.09	-	-2	20	93	0
tert-Amyl methyl ether	0.627	0.588	-	6.2	20	88	0
1,2-Dichloroethane-d4	0.377	0.373	-	1.1	20	93	0
1,2-Dichloroethane	0.425	0.431	-	-1.4	20	93	0
Methyl cyclohexane	0.412	0.404	-	1.9	20	91	0
Trichloroethene	0.27	0.29	-	-7.4	20	95	0
Dibromomethane	0.145	0.142	-	2.1	20	89	0
1,2-Dichloropropane	0.282	0.269	-	4.6	20	91	0

* Value outside of QC limits.

Continuing Calibration
Form 7

Client	: Haley & Aldrich, Inc.	**Lab Number**	: L1721072	
Project Name	: THE RESIDENCES AT ALEWIFE	**Project Number**	: 129876-003	
Instrument ID	: VOA116	**Calibration Date**	: 06/26/17 12:59	
Lab File ID	: V16170626A01	**Init. Calib. Date(s)**	: 06/25/17	06/26/17
Sample No	: WG1017113-2	**Init. Calib. Times**	: 22:48	02:35
Channel	:			

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
2-Chloroethyl vinyl ether	0.137	0.048*	-	65*	20	40	0
Bromodichloromethane	0.416	0.434	-	-4.3	20	93	0
1,4-Dioxane	0.00146	0.00132*	-	9.6	20	90	0
cis-1,3-Dichloropropene	0.463	0.461	-	0.4	20	89	0
Chlorobenzene-d5	1	1	-	0	20	95	0
Toluene-d8	1.299	1.302	-	-0.2	20	95	0
Toluene	0.858	0.88	-	-2.6	20	95	0
4-Methyl-2-pentanone	0.077	0.067*	-	13	20	89	0
Tetrachloroethene	0.355	0.402	-	-13.2	20	97	0
trans-1,3-Dichloropropene	0.491	0.49	-	0.2	20	92	0
Ethyl methacrylate	10	7.869	-	21.3*	20	86	0
1,1,2-Trichloroethane	0.226	0.222	-	1.8	20	88	0
Chlorodibromomethane	0.333	0.33	-	0.9	20	92	0
1,3-Dichloropropane	0.475	0.46	-	3.2	20	89	0
1,2-Dibromoethane	0.244	0.238	-	2.5	20	89	0
2-Hexanone	0.15	0.119	-	20.7*	20	82	0
Chlorobenzene	1.016	0.967	-	4.8	20	96	0
Ethylbenzene	1.992	2.058	-	-3.3	20	96	0
1,1,1,2-Tetrachloroethane	0.26	0.261	-	-0.4	20	88	0
p/m Xylene	0.611	0.647	-	-5.9	20	96	0
o Xylene	0.55	0.58	-	-5.5	20	95	0
Styrene	0.938	1.014	-	-8.1	20	96	0
1,4-Dichlorobenzene-d4	1	1	-	0	20	97	0
Bromoform	0.401	0.378	-	5.7	20	91	.01
Isopropylbenzene	3.035	3.133	-	-3.2	20	96	.01
4-Bromofluorobenzene	0.94	1.008	-	-7.2	20	105	0
Bromobenzene	0.691	0.7	-	-1.3	20	98	0
n-Propylbenzene	3.777	3.969	-	-5.1	20	97	0
1,4-Dichlorobutane	0.924	0.874	-	5.4	20	88	0
1,1,2,2-Tetrachloroethane	0.577	0.529	-	8.3	20	85	.01
4-Ethyltoluene	2.884	3.013	-	-4.5	20	96	0
2-Chlorotoluene	2.553	2.672	-	-4.7	20	96	0
1,3,5-Trimethylbenzene	2.51	2.682	-	-6.9	20	97	.01
1,2,3-Trichloropropane	0.493	0.474	-	3.9	20	90	.01
trans-1,4-Dichloro-2-buten	0.19	0.151	-	20.5*	20	79	0
4-Chlorotoluene	2.242	2.303	-	-2.7	20	94	.01
tert-Butylbenzene	2.127	2.224	-	-4.6	20	97	.01
1,2,4-Trimethylbenzene	2.497	2.616	-	-4.8	20	95	0
sec-Butylbenzene	3.73	4.02	-	-7.8	20	97	0
p-Isopropyltoluene	2.593	2.717	-	-4.8	20	97	0
1,3-Dichlorobenzene	1.39	1.438	-	-3.5	20	97	0
1,4-Dichlorobenzene	1.395	1.413	-	-1.3	20	97	0
p-Diethylbenzene	1.481	1.506	-	-1.7	20	97	0
n-Butylbenzene	2.464	2.594	-	-5.3	20	95	0
1,2-Dichlorobenzene	1.255	1.244	-	0.9	20	95	0

* Value outside of QC limits.

Continuing Calibration
Form 7

Client	: Haley & Aldrich, Inc.	**Lab Number**	: L1721072	
Project Name	: THE RESIDENCES AT ALEWIFE	**Project Number**	: 129876-003	
Instrument ID	: VOA116	**Calibration Date**	: 06/26/17 12:59	
Lab File ID	: V16170626A01	**Init. Calib. Date(s)**	: 06/25/17	06/26/17
Sample No	: WG1017113-2	**Init. Calib. Times**	: 22:48	02:35
Channel	:			

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
1,2,4,5-Tetramethylbenzene	2.133	2.065	-	3.2	20	98	0
1,2-Dibromo-3-chloropropan	0.084	0.073	-	13.1	20	87	0
1,3,5-Trichlorobenzene	0.913	0.929	-	-1.8	20	99	0
Hexachlorobutadiene	0.32	0.337	-	-5.3	20	98	0
1,2,4-Trichlorobenzene	0.775	0.734	-	5.3	20	94	0
Naphthalene	1.566	1.293	-	17.4	20	83	0
1,2,3-Trichlorobenzene	0.693	0.659	-	4.9	20	94	0

*** Value outside of QC limits.**

ANALYTICAL REPORT

Lab Number:	L1731841
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Todd Butler
Phone:	(617) 886-7424
Project Name:	THE RESIDENCES AT ALEWIFE
Project Number:	129876-012
Report Date:	09/14/17

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: THE RESIDENCES AT ALEWIFE
Project Number: 129876-012

Lab Number: L1731841
Report Date: 09/14/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1731841-01	RECEIVE 1	WATER	CAMBRIDGE, MA	09/08/17 12:00	09/08/17

Project Name:	THE RESIDENCES AT ALEWIFE	**Lab Number:**	L1731841
Project Number:	129876-012	**Report Date:**	09/14/17

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:	THE RESIDENCES AT ALEWIFE	**Lab Number:**	L1731841
Project Number:	129876-012	**Report Date:**	09/14/17

Case Narrative (continued)

Total Metals

The WG1040794-2 LCS recovery, associated with L1731841-01 (RECEIVE 1), is above the acceptance criteria for cadmium (117%); however, the associated sample is non-detect to the RL for this target analyte. The results of the original analysis are reported.

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: 09/14/17

METALS

Project Name: THE RESIDENCES AT ALEWIFE
Lab Number: L1731841
Project Number: 129876-012
Report Date: 09/14/17

SAMPLE RESULTS

Lab ID: L1731841-01
Client ID: RECEIVE 1
Sample Location: CAMBRIDGE, MA
Matrix: Water

Date Collected: 09/08/17 12:00
Date Received: 09/08/17
Field Prep: Not Specified

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	09/12/17 15:15	09/13/17 15:01	EPA 3005A	3,200.8	AM
Arsenic, Total	0.00164		mg/l	0.00100	--	1	09/12/17 15:15	09/13/17 15:01	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	09/12/17 15:15	09/13/17 15:01	EPA 3005A	3,200.8	AM
Chromium, Total	0.00358		mg/l	0.00100	--	1	09/12/17 15:15	09/13/17 15:01	EPA 3005A	3,200.8	AM
Copper, Total	0.00732		mg/l	0.00100	--	1	09/12/17 15:15	09/13/17 15:01	EPA 3005A	3,200.8	AM
Iron, Total	0.814		mg/l	0.050	--	1	09/12/17 15:15	09/14/17 00:58	EPA 3005A	19,200.7	AB
Lead, Total	0.00300		mg/l	0.00050	--	1	09/12/17 15:15	09/13/17 15:01	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	09/13/17 11:13	09/13/17 19:43	EPA 245.1	3,245.1	EA
Nickel, Total	ND		mg/l	0.00200	--	1	09/12/17 15:15	09/13/17 15:01	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	09/12/17 15:15	09/13/17 15:01	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	09/12/17 15:15	09/13/17 15:01	EPA 3005A	3,200.8	AM
Zinc, Total	0.02006		mg/l	0.01000	--	1	09/12/17 15:15	09/13/17 15:01	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	12.9		mg/l	0.660	NA	1	09/12/17 15:15	09/14/17 00:58	EPA 3005A	19,200.7	AB

Project Name: THE RESIDENCES AT ALEWIFE **Lab Number:** L1731841

Project Number: 129876-012 **Report Date:** 09/14/17

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1040794-1										
Antimony, Total	ND		mg/l	0.00400	--	1	09/12/17 15:15	09/13/17 14:12	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	09/12/17 15:15	09/13/17 14:12	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	09/12/17 15:15	09/13/17 14:12	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	09/12/17 15:15	09/13/17 14:12	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	09/12/17 15:15	09/13/17 14:12	3,200.8	AM
Lead, Total	ND		mg/l	0.00050	--	1	09/12/17 15:15	09/13/17 14:12	3,200.8	AM
Nickel, Total	ND		mg/l	0.00200	--	1	09/12/17 15:15	09/13/17 14:12	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	09/12/17 15:15	09/13/17 14:12	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	09/12/17 15:15	09/13/17 14:12	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	09/12/17 15:15	09/13/17 14:12	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1040797-1										
Iron, Total	ND		mg/l	0.050	--	1	09/12/17 15:15	09/14/17 00:21	19,200.7	AB

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 01 Batch: WG1040797-1										
Hardness	ND		mg/l	0.660	NA	1	09/12/17 15:15	09/14/17 00:21	19,200.7	AB

Prep Information

Digestion Method: EPA 3005A

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-012
Lab Number: L1731841
Report Date: 09/14/17

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1041189-1										
Mercury, Total	ND		mg/l	0.0002	--	1	09/13/17 11:13	09/13/17 19:00	3,245.1	EA

Prep Information

Digestion Method: EPA 245.1

Lab Control Sample Analysis

Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE

Project Number: 129876-012

Lab Number: L1731841

Report Date: 09/14/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1040794-2								
Antimony, Total	104		-		85-115	-		
Arsenic, Total	106		-		85-115	-		
Cadmium, Total	**117**	Q	-		85-115	-		
Chromium, Total	104		-		85-115	-		
Copper, Total	106		-		85-115	-		
Lead, Total	110		-		85-115	-		
Nickel, Total	104		-		85-115	-		
Selenium, Total	110		-		85-115	-		
Silver, Total	105		-		85-115	-		
Zinc, Total	108		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1040797-2								
Iron, Total	105		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 Batch: WG1040797-2								
Hardness	108		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1041189-2								
Mercury, Total	104		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-012
Lab Number: L1731841
Report Date: 09/14/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1040794-3 QC Sample: L1731841-01 Client ID: RECEIVE 1												
Antimony, Total	ND	0.5	0.5390	108		-	-		70-130	-		20
Arsenic, Total	0.00164	0.12	0.1331	110		-	-		70-130	-		20
Cadmium, Total	ND	0.051	0.06128	120		-	-		70-130	-		20
Chromium, Total	0.00358	0.2	0.2157	106		-	-		70-130	-		20
Copper, Total	0.00732	0.25	0.2766	108		-	-		70-130	-		20
Lead, Total	0.00300	0.51	0.5827	114		-	-		70-130	-		20
Nickel, Total	ND	0.5	0.5516	110		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1311	109		-	-		70-130	-		20
Silver, Total	ND	0.05	0.05278	106		-	-		70-130	-		20
Zinc, Total	0.02006	0.5	0.5815	112		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1040797-3 QC Sample: L1731841-01 Client ID: RECEIVE 1												
Iron, Total	0.814	1	1.87	106		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1040797-3 QC Sample: L1731841-01 Client ID: RECEIVE 1												
Hardness	12.9	66.2	85.5	110		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1041189-3 WG1041189-4 QC Sample: L1731784-02 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.0050	100		0.005	100		70-130	0		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1041189-5 QC Sample: L1731803-01 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.0044	87		-	-		70-130	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-012

Lab Number: L1731841
Report Date: 09/14/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1040794-4 QC Sample: L1731841-01 Client ID: RECEIVE 1						
Antimony, Total	ND	ND	mg/l	NC		20
Arsenic, Total	0.00164	0.00153	mg/l	6		20
Cadmium, Total	ND	ND	mg/l	NC		20
Chromium, Total	0.00358	0.00341	mg/l	5		20
Copper, Total	0.00732	0.00721	mg/l	2		20
Lead, Total	0.00300	0.00277	mg/l	8		20
Nickel, Total	ND	ND	mg/l	NC		20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	0.02006	0.01981	mg/l	1		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1040797-4 QC Sample: L1731841-01 Client ID: RECEIVE 1						
Iron, Total	0.814	0.799	mg/l	2		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1040797-4 QC Sample: L1731841-01 Client ID: RECEIVE 1						
Hardness	12.9	12.7	mg/l	2		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1041189-6 QC Sample: L1731803-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20

INORGANICS
&
MISCELLANEOUS

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-012
Lab Number: L1731841
Report Date: 09/14/17

SAMPLE RESULTS

Lab ID: L1731841-01
Client ID: RECEIVE 1
Sample Location: CAMBRIDGE, MA
Matrix: Water
Date Collected: 09/08/17 12:00
Date Received: 09/08/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	6.7		SU	-	NA	1	-	09/08/17 23:35	121,4500H+-B	AS
Nitrogen, Ammonia	0.297		mg/l	0.075	--	1	09/09/17 14:55	09/12/17 22:32	121,4500NH3-BH	AT
Chromium, Hexavalent	ND		mg/l	0.010	--	1	09/09/17 00:05	09/09/17 00:27	1,7196A	JC

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-012
Lab Number: L1731841
Report Date: 09/14/17

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: WG1039943-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	09/09/17 00:05	09/09/17 00:25	1,7196A	JC
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1040023-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	09/09/17 14:55	09/12/17 22:12	121,4500NH3-BH	AT

Lab Control Sample Analysis

Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE

Project Number: 129876-012

Lab Number: L1731841

Report Date: 09/14/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1039935-1								
pH	101		-		99-101	-		5
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1039943-2								
Chromium, Hexavalent	99		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1040023-2								
Nitrogen, Ammonia	94		-		80-120	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-012

Lab Number: L1731841
Report Date: 09/14/17

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: WG1039943-3 QC Sample: L1731841-01 Client ID: RECEIVE 1												
Chromium, Hexavalent	ND	0.1	0.092	92		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1040023-4 QC Sample: L1731583-01 Client ID: MS Sample												
Nitrogen, Ammonia	ND	4	3.92	98		-	-		80-120	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-012

Lab Number: L1731841
Report Date: 09/14/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1039935-2 QC Sample: L1731841-01 Client ID: RECEIVE 1						
pH (H)	6.7	6.6	SU	2		5
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1039943-4 QC Sample: L1731841-01 Client ID: RECEIVE 1						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1040023-3 QC Sample: L1731583-01 Client ID: DUP Sample						
Nitrogen, Ammonia	ND	ND	mg/l	NC		20

Project Name: THE RESIDENCES AT ALEWIFE
Project Number: 129876-012

Lab Number: L1731841
Report Date: 09/14/17

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(*)*
L1731841-01A	Plastic 250ml unpreserved	A	7	7	4.8	Y	Absent		HEXCR-7196(1),PH-4500(.01)
L1731841-01B	Plastic 250ml HNO3 preserved	A	<2	<2	4.8	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),HARDU(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L1731841-01C	Plastic 500ml H2SO4 preserved	A	<2	<2	4.8	Y	Absent		NH3-4500(28)

*Values in parentheses indicate holding time in days

Project Name:	THE RESIDENCES AT ALEWIFE	**Lab Number:**	L1731841
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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:	THE RESIDENCES AT ALEWIFE	**Lab Number:**	L1731841
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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.

Report Format: Data Usability Report

Project Name:	THE RESIDENCES AT ALEWIFE	**Lab Number:**	L1731841
Project Number:	129876-012	**Report Date:**	09/14/17

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.

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.

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, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH, **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

ALPHA ANALYTICAL
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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: 9/8/17

ALPHA Job #: L1731841

H&A Information
H&A Client: CPCT Holdings
H&A Address: 465 Medford Street
Boston, MA 02129
H&A Phone: 617-886-7400
H&A Fax:
H&A Email: kscalise, tbutler

Project Information
Project Name: The Residences at Alewife
Project Location: Cambridge, MA
Project # 129876-~~008~~ -012
(Use Project name as Project #) ☐
Project Manager: Todd Butler
ALPHAQuote #:

Turn-Around Time
Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days: 5 Day

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

Regulatory Requirements (Program/Criteria)
MA NPDES 2017 RGP

Note: Select State from menu & identify criteria.

Billing Information
☐ Same as Client Info
PO #

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

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	1. Total NPDES Metals	2. Total Hardness	3. NH3	4. Total Chromium VI	5. pH	Sample Filtration	Total Bottles
31841 -01	RECEIVE 1	9/8/2017	12:00	AQ	KA	X	X	X	X	X	☐ Done ☐ Lab to do	3
											Preservation ☐ Lab to do	
											(Please Specify below)	

Sample Specific Comments: Temperature: 63.8°F 17.7°C

Container Type: P P P P P
Preservative: C D

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

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

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

Relinquished By:	Date/Time	Received By:	Date/Time
	9/8/17 1300		9/8/17 1613
	9/8/17 1613		9/8/17 1630
	9/8/17 1820		9/8/17 1820

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

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