August 15, 2019

US Environmental Protection Agency
Office of Ecosystem Protection
EPA/OEP RGP Applications Coordinator
5 Post Office Square – Suite 100 (OEP06-01)
Boston, Massachusetts 02109-3912
Attn: Ms. Shelley Puleo

RE: Notice of Intent (NOI)
Foundation Drain Discharge of Potentially Impacted Groundwater
303 Third Street
Cambridge, MA 02142
VERTEX Project No. 56813

Dear Ms. Puleo:

On behalf of our client, 303 Third SPE, LLC (the "Owner"), and in accordance with the National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) for Dewatering Activities – Massachusetts General Permit, MAG910000, included herewith are the Notice of Intent (NOI) and applicable documentation as required by the US Environmental Protection Agency (USEPA) and Massachusetts Department of Environmental Protection (MassDEP) for discharge of groundwater from a foundation drain under the Remediation General Permit. In accordance with the NPDES RGP, this activity is considered Activity Category IIIG "Contaminated Site Dewatering."

Discharge is occurring from a foundation drain at the property located at 303 Third Street in Cambridge, Massachusetts (the "site"), as shown on the attached Figure 1 adopted from the United States Geological Survey (USGS) 2018 Boston South topographic quadrangle. We anticipate the discharge will continue for the life of the building and that the discharge will be treated as necessary to comply with NPDES discharge limits. Discharge is currently being treated and meets current technology-based effluent limits (TBELs).

SITE DESCRIPTION

The site is located at 303 Third Street in Cambridge, Massachusetts and according to the City of Cambridge Assessor's Department, it is identified as Map/Lot 29-34-R/O. The site is located on 3.3 acres in an urban part of Cambridge and occupies approximately one block bounded by Third Street to the east, Linksy Way to the north, Fifth Street to the west, and Potter Street to the

south. The site is improved with a seven-story residential building with two below-grade levels of parking.

The site was part of a larger tract of land formerly occupied by gas holders associated with a nearby off-site manufactured gas plant (MGP). On November 16, 1999, Commonwealth Gas Company (part of the NSTAR Companies) filed a Release Notification Form (RNF) with the MassDEP for a release of coal tar residuals and petroleum hydrocarbons identified in soil and groundwater. MassDEP assigned Release Tracking Number (RTN) 3-18975 to the release condition. The source of the contamination was attributed to the historic operation of the MGP.

In April 2002, Intell Cambridge, LLC (now Extell Cambridge, LLC), purchased the site from NSTAR, and assumed responsibility for Massachusetts Contingency Plan (MCP) compliance for RTN 3-18975. Remediation conducted as part of the development of the 303 Third Street property included excavation and off-site disposal of contaminated soil. On June 30, 2008, Extell submitted a Phase IV Completion Report and Class A2 Partial-Response Action Outcome (P-RAO) Statement to the MassDEP indicating that a Permanent Solution was achieved, a condition of No Significant Risk exists, and no further MCP response actions were required. After the Response Action Outcome (RAO) was filed, 303 Third SPE, LLC purchased the 303 Third Street property from Extell.

SITE INVESTIGATION & ANALYTICAL TESTING

The results of historical subsurface investigations indicated that prior to building construction the site was underlain by a 7 to 10 foot thick layer of urban fill. The fill material typically consisted of very loose to dense, brown to dark gray and black, sand and gravel with varying amounts of silt, and contained concrete, brick, asphalt, clay, wood, ash and cinders. The fill was reported to be underlain by relatively low permeability native silt with intermittent lenses of sand and gravel.

The groundwater level was observed at depths ranging between approximately 5 to 8 feet bsg.

In November 1999, sampling and analysis of site fill material detected benzene, toluene, ethylbenzene, naphthalene, total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), and lead at concentrations exceeding the then applicable MCP cleanup standards, but less than MCP upper concentration limits (UCLs). Cyanide was detected at concentrations in site soils exceeding the MCP Reportable Concentration but which were well below the MCP cleanup standard. Historical reports submitted to the MassDEP indicated the contamination was not a listed waste pursuant to the criteria under RCRA Hazardous Waste Identification at 40 CFR Part 261.

In November 1999, analysis of groundwater samples collected at the site detected naphthalene, benzene, toluene and xylenes concentrations exceeding the then-applicable MCP GW-2 cleanup standards in two monitoring wells. Phenanthrene, dissolved lead, total cyanide, and physiologically available cyanide (PAC) were detected at concentrations exceeding the then-applicable MCP GW-3 cleanup standards at some locations. Twelve dissolved Priority Pollutant metals (antimony, arsenic, beryllium, cadmium, chromium, copper, mercury, nickel, selenium,

silver, thallium, and zinc) were not detected in groundwater samples at concentrations exceeding the then-applicable MCP GW-3 cleanup standards.

According to an October 2003 Phase II Comprehensive Site Assessment submitted to the MassDEP, the following chemicals of potential concern (CoPCs) were detected in groundwater samples collected at the site (CoPCs in bold font were detected in one or more groundwater samples at concentrations exceeding MCP Method 1 cleanup standards applicable in 2003):

VOLATILE ORGANIC COMPOUNDS	SEMI-VOLATILE ORGANIC COMPOUNDS
Benzene	2-Methylnaphthalene
Toluene	Acenaphthene
Ethylbenzene	Acenaphthylene
Xylenes	Anthracene
1,2,4 Trimethylbenzene	Benzo(a)anthracene
1,3,5 Trimethylbenzene	Benzo(a)pyrene
4-Methyl-2-pentanone	Benzo(b)fluoranthene
Naphthalene	Benzo(g,h,i)perylene
4-Isopropyltoluene	Benzo(k)fluoranthene
Isopropylbenzene	Chrysene
n-propylbenzene	Dibenzo(a,h)anthracene
sec-Butylbenzene	Fluoranthene
INORGANICS	Fluorene
Physiologically available cyanide	Indeno(1,2,3-cd)pyrene
Barium	Naphthalene
Lead	**Phenanthrene**
Mercury	Pyrene
PETROLEUM	
Total petroleum hydrocarbons	
C11-C22 aromatic hydrocarbons	
C9-C18 aliphatic hydrocarbons	

According to the 2008 MCP Phase IV Completion Report and RAO Statement, remediation conducted at the site to address the contamination included excavation and removal of 132,007 tons of impacted soils/fill materials. All soil to a minimum depth of 26 feet below ground surface was excavated from the footprint of the current site building. According to the report "*since virtually all soil was excavated to the abutting public sidewalks and roadways in all four directions,* [excavation] *limit samples were obtained from the bottom of the excavation*." A total of 39 soil samples were obtained from the native clay layers which underlie the site and were analyzed for the presence of volatile organic compounds (VOCs). In addition, 12 samples were analyzed for total metals (including arsenic, lead, and mercury), 22 samples were analyzed for PAHs, four samples were analyzed for extractable petroleum hydrocarbons (EPH), and eight samples were analyzed for PAC. Target analyte concentrations exceeding applicable MCP cleanup standards were not detected in the 39 samples.

After soil excavation, groundwater samples were collected from the newly constructed building's foundation-drain sumps in July 2007, September 2007, January 2008, and April 2008. Samples collected during these events were analyzed for PAC and/or TPH. In addition, selected samples were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX), PAHs, total lead, and/or total iron. The analyses did not detect target analytes at concentrations exceeding applicable MCP GW-2 or GW-3 cleanup standards.

A MCP site-specific Method 3 risk characterization concluded a condition of no significant risk had been achieved and the Class A2 RAO Statement was submitted to close MCP response actions associated with RTN 3-18975.

FOUNDATION DRAIN HISTORY

In 2007, the current foundation drain and treatment system, which functions and remains in continuous operation today, was installed. This system includes three 2-inch submersible pumps that pump untreated water from drain sumps into a 1,335-gallon polyethylene tank. Water is gravity fed to a 550-gallon polyethylene tank equipped with water-level float switches. Skid-mounted pumps transfer the water through two 5-micron particulate bag filters in series. From the filters, water is sent through two 1,000-pound liquid phase granular activated carbon adsorbers in series followed by a 35-cubic foot resin filter. The system was operated in accordance with NPDES RGP No. MAG910155 and the permit-specific effluent limitations.

The designed treatment rate of the system is up to 50 gallons per minute; however, based on readings obtained from the flow meter serving the system, the actual average flow is approximately one gallon per minute.

PROPOSED MANAGEMENT OF FOUNDATION DRAIN DEWATERING EFFLUENT

Operation of the foundation drain is necessary for the continued operation and occupancy of the site building.

The site operator treats groundwater prior to discharging the dewatering effluent to the existing stormdrain system via a connection in the lowest subgrade level of the site building. Figures 2 and 3, created from the City of Cambridge geographic information system website, depict the stormdrain system at the site and the discharge location for treated stormwater at the Charles River via outfall D07 located at the head of the Broad Canal, upstream of the Charles River dam. A City of Cambridge map identifying outfall D07 as a separated stormwater outfall is included as Attachment A.

The treatment system as described in the Operation & Maintenance Manual included in Attachment B will be operated and maintained with appropriate sedimentation control systems. As described above, the treatment system consists of one 1,335-gallon and one 550-gallon polyethylene equalization tanks, two particulate bag filters, two 1,000-pound granular activated carbon adsorbers, and a 35 cubic-foot resin filter. The system is also equipped with a flow meter and totalizer to monitor the discharge volume.

Influent and effluent sampling and analysis will be conducted and reported as required by the permit. The treatment system and/or dewatering procedures will be modified as necessary to comply with the Permit Discharge Criteria.

SUPPORTING DOCUMENTATION & PUBLIC CORRESPONDENCE

A copy of the NOI to conduct foundation drain dewatering is provided in Attachment C. The NOI indicates that the proposed discharge point (The Charles River) was calculated to have a 7Q10 of 29.2 cubic feet per second (cfs). This was developed using USGS StreamStats application. Based upon the calculated 7Q10 of 29.2, a dilution factor of 263 has been calculated for the site's dewatering effluent. Notification of the proposed dilution factor was provided to Cathy Vakalopolulos with the for treated stormwater, which she confirmed and approved via email correspondence.

Information available on the Massachusetts Geographical Information System website[1] indicates that the site is not located within the limits of an Area of Critical Environmental Concern (ACEC). Information provided by the United States Department of Interior – Fish and Wildlife Service indicates that the site is not located within a critical habitat for endangered species. The site is also not identified on the Massachusetts Cultural Resource Information System (MACRIS) database. Please refer to Attachments E, F, and G for supporting correspondence and research documentation which was used to determine the site's status.

CONTACT INFORMATION

Applicant:
303 Third SPE, LLC
Two North Riverside Plaza, Suite 400
Chicago, Illinois 60606
Attention: Rebecca Becker
Tel: 312.928.8471

Representative preparing this application:
The Vertex Companies, Inc.
100 North Washington Street, Suite 302
Boston, Massachusetts 02114
Attention: William J Gibbons , PG, LSP
Tel: 617.275.5407

ANALYTICAL TESTING

Analytical testing of water was performed to help further determine the necessary treatment to meet required discharge parameters. VERTEX collected and analyzed representative samples of treatment system influent and effluent and the discharge receiving water. Sample analysis results are summarized in the attached Table 1 – RGP Analytical Results. On June 12, 2019, influent and effluent samples (INF and EFF) were obtained directly from the existing treatment system located at the site, and the receiving water sample (RECEIVING) was obtained from the Broad Canal (tributary to the Charles River) at the location of the storm water outfall. The samples were analyzed for the analytes specified in Table 2 – "Chemical Specific Effluent Limitations and

[1] http://maps.massgis.state.ma.us/map_ol/oliver.php

Monitor-Only Requirements" in the final RGP and compared to their applicable Technology Based Effluent Limitations (TBELs) and Water Quality Based Effluent Limitations (WQBELs).

Analysis of the influent and receiving water samples did not detect analyte concentrations exceeding the TBEL or WQBEL. Analysis of the treatment system effluent sample did not detect concentrations of target analytes exceeding TBELs, or concentrations exceeding WQBELs after application of the authorized 263 dilution factor. Please refer to Attachment H for copies of the laboratory analytical reports.

BEST MANAGEMENT PRACTICES PLAN

A Best Management Practices Plan, in the form of an Operation & Maintenance Manual, has been prepared and implemented. A copy of which is included in Attachment B.

CLOSING

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

Sincerely,

The Vertex Companies, Inc.

Benjamin Sivonen, EIT
Project Manager

William J. Gibbons, PG, LSP
Senior Project Manager

Attachments:

Figures

Figure 1: United States Geological Survey – Topographic Map – Boston South
Figure 2: Proposed Discharge Point
Figure 3: Proposed Discharge Point

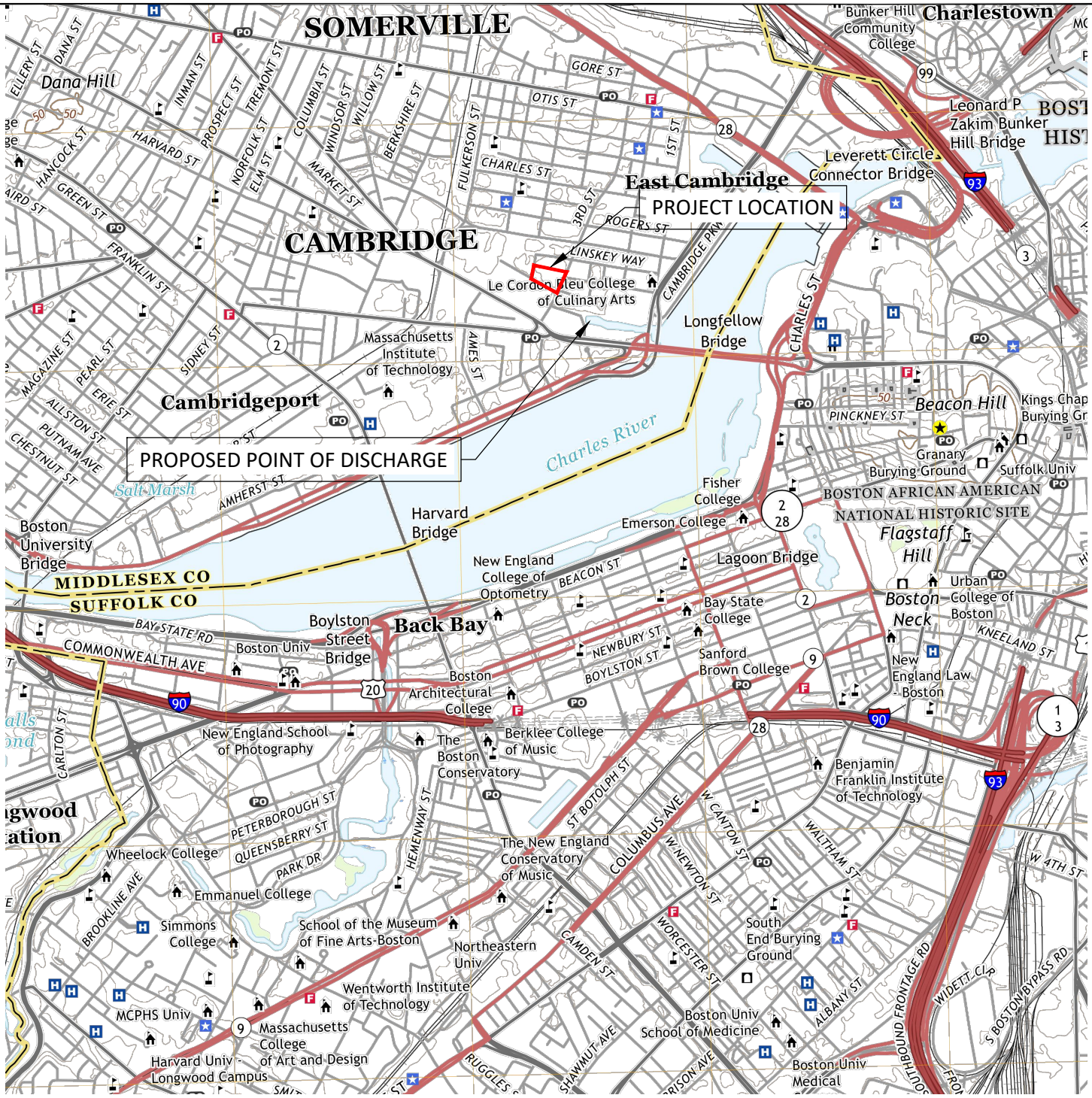
Tables

Table 1: RGP Analytical Results

Appendices

Attachment A: Combined Sewer Overflow Map
Attachment B: Best Management Practices Plan
Attachment C: Notice of Intent
Attachment D: Areas of Critical Environmental Concern Documentation
Attachment E: National Register of Historic Places and Massachusetts Historical Commission Documentation
Attachment F: Endangered Species Act Documentation
Attachment G: Laboratory Analytical Reports

FIGURES



SOURCE: UNITED STATES GEOLOGICAL SURVEY MAP
BOSTON SOUTH QUADRANGLE, MA 7.5-MINUTE SERIES (2018)

N

0' 2000' 4000'

SCALE:1" = 2000'

SITE LOCUS

SITE:

303 THIRD STREET
CAMBRIDGE, MA 02142

DATE:	07/09/2019
DRAWN BY:	STL
CHECKED BY:	BNS
VERTEX PROJ NO.:	56813

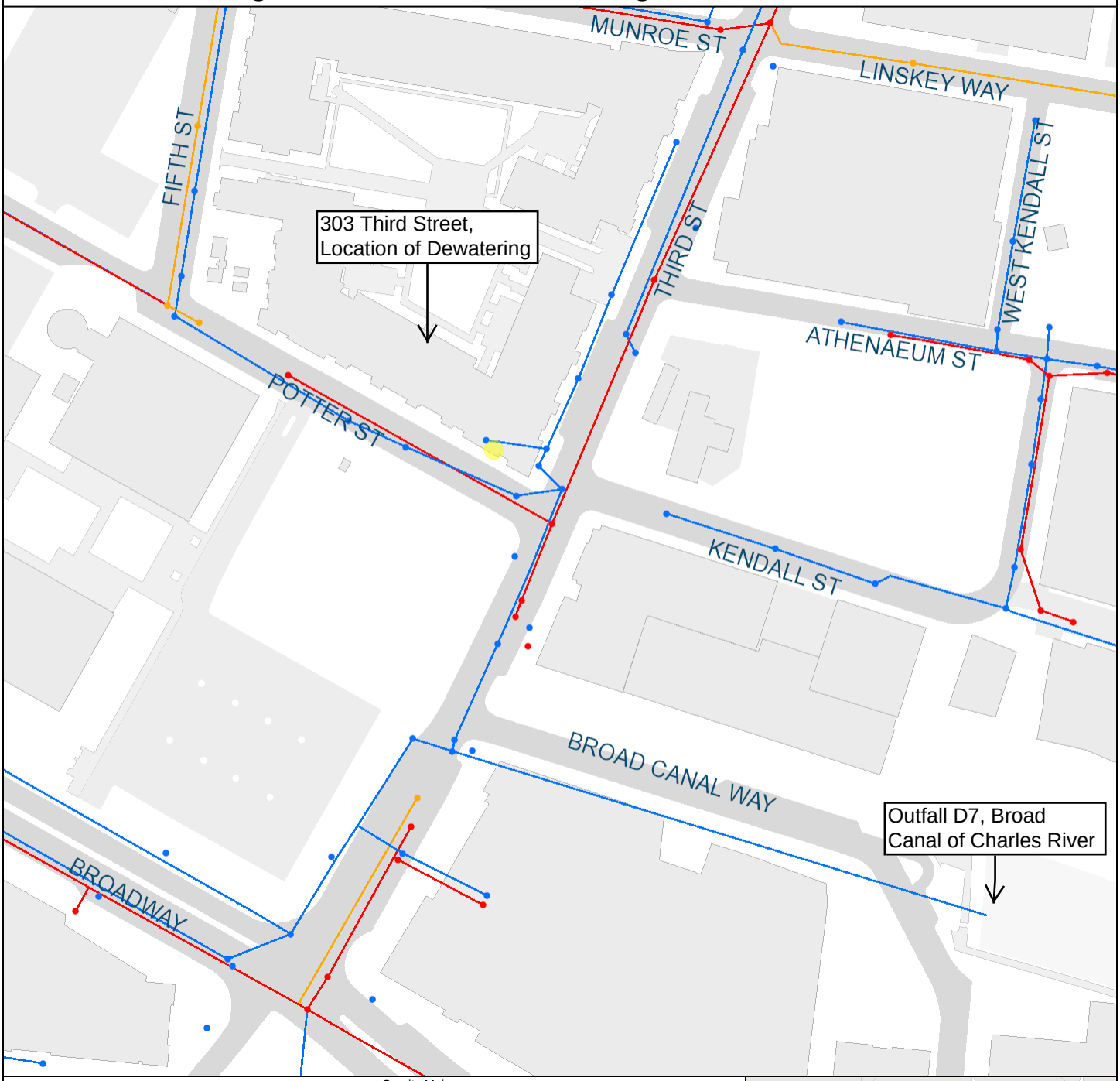
FIGURE 1

VERTEX®
100 North Washington Street, Suite 302 I Boston, MA 02114
Main: 617.275.5407 I VERTEXENG.COM

City of Cambridge

Figure 2 - 303 3rd St. Cambridge, MA Stormwater

July 22, 2019



Gravity Mai
- Stormwater
- Sewage
- Combined Sewage
- Abandoned

Zoom Three Paved Surfaces
- Paved Roads
- Other Paved Surface
- Bridges
- Public Footpath

City of Cambridge
Massachusetts

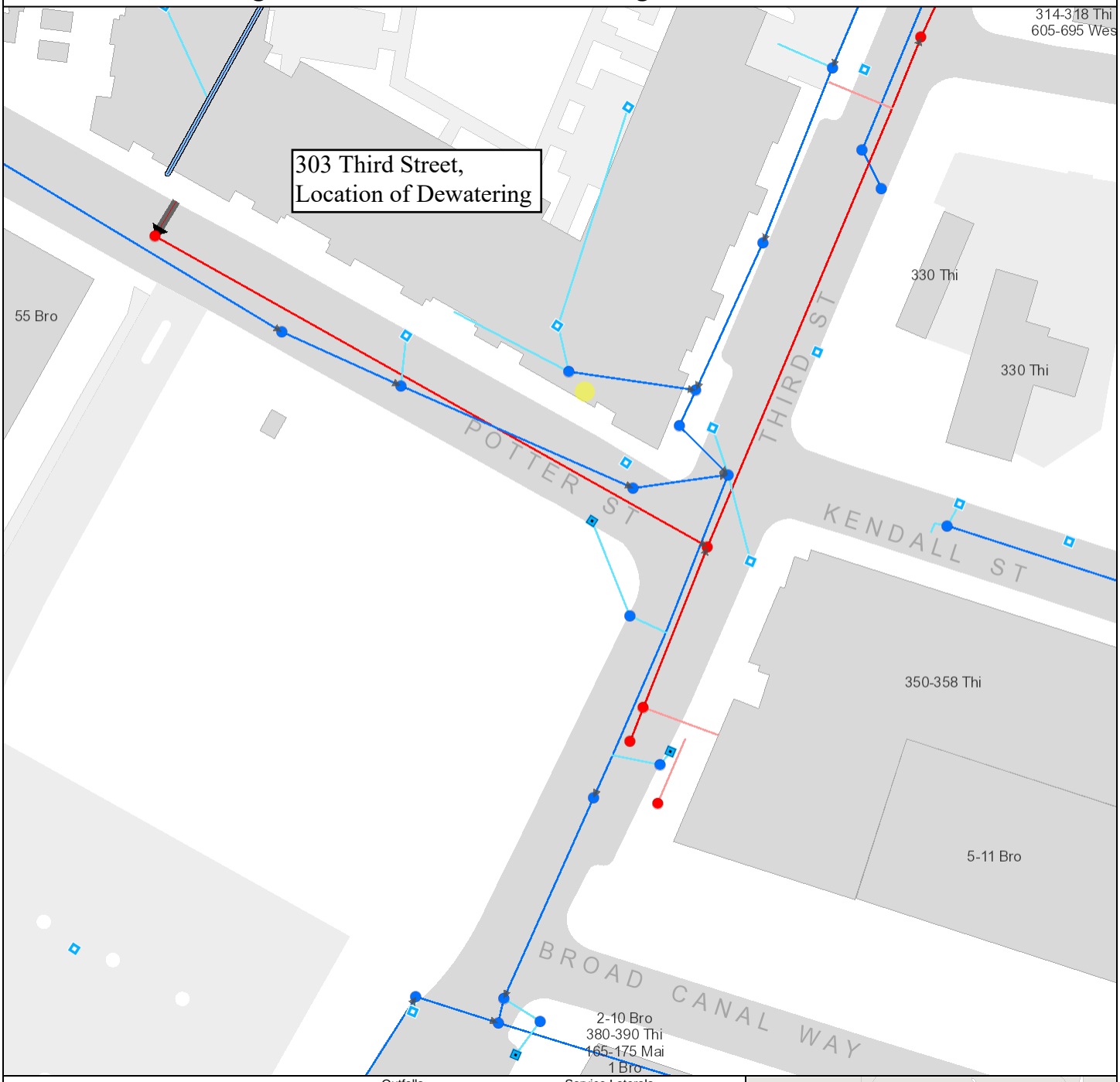
1" = 139 ft

www.cambridgema.gov/gis

City of Cambridge

Figure 3 - 303 3rd St. Cambridge, MA Stormwater

July 22, 2019



City of Cambridge
Massachusetts

1" = 66 ft

www.cambridgema.gov/gis

Outfalls
- Stormwater
- Combined Sewer Overflo
- Abandoned

Pumping Structures
- Pump Station
- Lift Station

Manholes
- Stormwater
- Sewage
- Combined Sewage
- Abandoned

Lampholes
- LampHole, Sewage
- LampHole, Storm Runoff

Catchbasins
- Standard Sump
- Drop Inlet
- Area Drain
- Drywell
- Oil/Water Separator
- Abandoned

Trench Drains

Service Laterals
- Combined Wastewater, In
- Stormwater
- Sewage
- Abandoned

Force Mains
- Combined Wastewater
- Sewage
- Storm Runoff

MWRA Mains
- Abandoned
- In Service

Underground Structures
- Stormwater
- Sewage
- Combined Sewage

Zoom Three Paved Surfaces
- Paved Roads
- Other Paved Surface
- Bridges
- Public Footpath

TABLES

Table 1
Summary of NPDES Groundwater Results
303 Third Street
Cambridge, Massachusetts
VERTEX Project No. 56813

LOCATION				INF	EFF	RECEIVING
SAMPLING DATE				6/12/2019	6/12/2019	6/12/2019
LABORATORY SAMPLE ID				L1925177-01	L1925177-02	L1925177-03
SAMPLE TYPE				Influent	Effluent	Receiving Water
ANALYTE	CAS No.	NPDES Effluent Limitation	Units			
		TBEL / WQBEL				
Total Petroleum Hydrocarbons (TPH)						
TPH	NONE	5000	µg/L	ND(4000)	ND(4000)	ND(4000)
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	200	µg/L	ND (2)	ND (2)	ND (2)
1,1,2-Trichloroethane	79-00-5	5	µg/L	ND (1.5)	ND (1.5)	ND (1.5)
1,1-Dichloroethane	75-34-3	70	µg/L	ND (1.5)	ND (1.5)	ND (1.5)
1,1-Dichloroethene	75-35-4	3.2	µg/L	ND (1)	ND (1)	ND (1)
1,2-Dibromoethane	106-93-4	0.05	µg/L	ND (0.010)	ND (0.010)	ND (0.010)
1,2-Dichlorobenzene	95-50-1	600	µg/L	ND (5)	ND (5)	ND (5)
1,2-Dichloroethane	107-06-2	5	µg/L	ND (1.5)	ND (1.5)	ND (1.5)
1,3-Dichlorobenzene	541-73-1	320	µg/L	ND (5)	ND (5)	ND (5)
1,4-Dichlorobenzene	106-46-7	5	µg/L	ND (5)	ND (5)	ND (5)
1,4-Dioxane	123-91-1	200	µg/L	ND (50)	ND (50)	ND (50)
Acetone	67-64-1	7970	µg/L	ND (10)	ND (10)	ND (10)
Benzene	71-43-2	5	µg/L	ND (1)	ND (1)	ND (1)
Carbon tetrachloride	56-23-5	4.4 / 1.6	µg/L	ND (1)	ND (1)	ND (1)
cis-1,2-Dichloroethene	156-59-2	70	µg/L	ND (1)	ND (1)	ND (1)
Ethylbenzene	100-41-4	-	µg/L	ND (1)	ND (1)	ND (1)
Methyl tert butyl ether	1634-04-4	70 / 20	µg/L	ND (10)	ND (10)	ND (10)
Methylene chloride	75-09-2	4.6	µg/L	ND (1)	ND (1)	ND (1)
o-Xylene	95-47-6	-	µg/L	ND (1)	ND (1)	ND (1)
p/m-Xylene	179601-23-1	-	µg/L	ND (2)	ND (2)	ND (2)
Tert-Butyl Alcohol	75-65-0	120	µg/L	ND (100)	ND (100)	ND (100)
Tertiary-Amyl Methyl Ether	994-05-8	90	µg/L	ND (20)	ND (20)	ND (20)
Tetrachloroethylene	127-18-4	5 / 3.3	µg/L	ND (1)	ND (1)	ND (1)
Toluene	108-88-3	-	µg/L	ND (1)	ND (1)	ND (1)
Trichloroethene	79-01-6	5	µg/L	ND (1)	ND (1)	ND (1)
Vinyl chloride	75-01-4	2	µg/L	ND (1)	ND (1)	ND (1)
Total Xylenes	1330-20-7	-	µg/L	ND(CS)	ND(CS)	ND(CS)
Total BTEX	Multiple	100	µg/L	ND(CS)	ND(CS)	ND(CS)
Semivolatile Organic Compounds (SVOCs)						
Bis(2-ethylhexyl)phthalate	117-81-7	101 / 2.2	µg/L	ND (2.2)	ND (2.2)	ND (2.2)
Butyl benzyl phthalate	85-68-7	-	µg/L	ND (5)	ND (5)	ND (5)
Di-n-butylphthalate	84-74-2	-	µg/L	ND (5)	ND (5)	ND (5)
Di-n-octylphthalate	117-84-0	-	µg/L	ND (5)	ND (5)	ND (5)
Diethyl phthalate	84-66-2	-	µg/L	ND (5)	ND (5)	ND (5)
Dimethyl phthalate	131-11-3	-	µg/L	ND (5)	ND (5)	ND (5)
Total Phthalates	Multiple	190 / 3	µg/L	ND(CS)	ND(CS)	ND(CS)
Acenaphthene	83-32-9	-	µg/L	ND (0.10)	ND (0.10)	ND (0.10)
Acenaphthylene	208-96-8	-	µg/L	ND (0.10)	ND (0.10)	ND (0.10)
Anthracene	120-12-7	-	µg/L	ND (0.10)	ND (0.10)	ND (0.10)
Benzo(a)anthracene	56-55-3	1 / 0.0038*	µg/L	ND (0.10)	ND (0.10)	ND (0.10)
Benzo(a)pyrene	50-32-8	1 / 0.0038*	µg/L	ND (0.10)	ND (0.10)	ND (0.10)
Benzo(b)fluoranthene	205-99-2	1 / 0.0038*	µg/L	ND (0.10)	ND (0.10)	ND (0.10)
Benzo(ghi)perylene	191-24-2	-	µg/L	ND (0.10)	ND (0.10)	ND (0.10)
Benzo(k)fluoranthene	207-08-9	1 / 0.0038*	µg/L	ND (0.10)	ND (0.10)	ND (0.10)
Chrysene	218-01-9	1 / 0.0038*	µg/L	ND (0.10)	ND (0.10)	ND (0.10)
Dibenzo(a,h)anthracene	53-70-3	1 / 0.0038*	µg/L	ND (0.10)	ND (0.10)	ND (0.10)
Fluoranthene	206-44-0	-	µg/L	ND (0.10)	ND (0.10)	ND (0.10)
Fluorene	86-73-7	-	µg/L	ND (0.10)	ND (0.10)	ND (0.10)
Indeno(1,2,3-cd)Pyrene	193-39-5	1 / 0.0038*	µg/L	ND (0.10)	ND (0.10)	ND (0.10)
Naphthalene	91-20-3	20	µg/L	ND (0.10)	ND (0.10)	ND (0.10)
Pentachlorophenol	87-86-5	1	µg/L	ND (1)	ND (1)	ND (1)
Phenanthrene	85-01-8	-	µg/L	ND (0.10)	ND (0.10)	ND (0.10)
Pyrene	129-00-0	-	µg/L	ND (0.10)	ND (0.10)	ND (0.10)
Total Group I PAHs	Multiple	1 / -	µg/L	ND (0.10)	ND (0.10)	ND (0.10)
Total Group II PAHs	Multiple	100	µg/L	ND (0.10)	ND (0.10)	ND (0.10)

Table 1
Summary of NPDES Groundwater Results
303 Third Street
Cambridge, Massachusetts
VERTEX Project No. 56813

LOCATION					INF	EFF	RECEIVING
SAMPLING DATE					6/12/2019	6/12/2019	6/12/2019
LABORATORY SAMPLE ID					L1925177-01	L1925177-02	L1925177-03
SAMPLE TYPE					Influent	Effluent	Receiving Water
ANALYTE	CAS No.	NPDES Effluent Limitation		Units			
		TBEL	WQBEL				
Total Metals							
Antimony, Total	7440-36-0	206	640	µg/L	ND (4)	15.48	4.14
Arsenic, Total	7440-38-2	104	10	µg/L	4.8	22.30	1.32
Cadmium, Total	7440-43-9	10.2	0.25	µg/L	ND (0.2)	ND (0.2)	ND (0.2)
Chromium, Total	7440-47-3	NSE	NSE	µg/L	1.11	ND (1)	ND (1)
Copper, Total	7440-50-8	242	9	µg/L	39	35.48	2.8
Iron, Total	7439-89-6	500	1000	µg/L	4,100	388	366
Lead, Total	7439-92-1	160	2.5	µg/L	5.33	10.87	1.52
Mercury, Total	7439-97-6	0.739	0.77	µg/L	ND (0.2)	ND (0.2)	ND (0.2)
Nickel, Total	7440-02-0	1450	52	µg/L	ND (2)	5.26	ND (2)
Selenium, Total	7782-49-2	235.8	5	µg/L	ND (5)	ND (5)	ND (5)
Silver, Total	7440-22-4	35.1	3.2	µg/L	ND (0.4)	ND (0.4)	ND (0.4)
Zinc, Total	7440-66-6	420	120	µg/L	213.8	141.3	ND (10)
Chromium, Trivalent	16065-83-1	323	74	µg/L	ND (10)	ND (10)	ND (10)
Chromium, Hexavalent	18540-29-9	323	11	µg/L	ND (10)	ND (10)	ND (10)
Polychlorinated Biphenyls (PCBs)							
Aroclor 1016	12674-11-2	0.000064		µg/L	ND (0.250)	ND (0.250)	ND (0.250)
Aroclor 1221	11104-28-2	0.000064		µg/L	ND (0.250)	ND (0.250)	ND (0.250)
Aroclor 1232	11141-16-5	0.000064		µg/L	ND (0.250)	ND (0.250)	ND (0.250)
Aroclor 1242	53469-21-9	0.000064		µg/L	ND (0.250)	ND (0.250)	ND (0.250)
Aroclor 1248	12672-29-6	0.000064		µg/L	ND (0.250)	ND (0.250)	ND (0.250)
Aroclor 1254	11097-69-1	0.000064		µg/L	ND (0.250)	ND (0.250)	ND (0.250)
Aroclor 1260	11096-82-5	0.000064		µg/L	ND (0.200)	ND (0.200)	ND (0.200)
Cyanide							
Cyanide, Total	57-12-5	178,000	5.2	µg/L	24	ND(5)	ND (5)
General Chemistry							
Chlorine, Total Residual	NONE	200	11	µg/L	ND(20)	ND(20)	ND (20)
Ethanol	64-17-5	Report		µg/L	ND(2000)	ND(2000)	ND(2000)
Nitrogen, Ammonia	7664-41-7	Report		µg/L	2,460	1,410	158
pH	12408-02-5	6.5-8.5		SU	7.96†	7.82†	7.78†
Phenolics, Total	NONE	1080	300	µg/L	ND(30)	ND(30)	ND (30)
Solids, Total Suspended	NONE	30000		µg/L	99,000	ND (5000)	5,500
Specific Conductance @ 25 C	NONE	-		µmhos/cm	1274†	1649†	838†
Temperature (field measured in °C)	NONE	-		°C	21.3◦C†	24.6◦C†	23.7◦C†
Anions by Ion Chromatography							
Chloride	16887-00-6	Report		µg/L	621,000	683,000	234,000
Hardness							
Hardness	NONE	-		µg/L	257,000	288,000	95,000

Notes

1. CAS No. = Chemical Abstract Service Number.
2. ND = Not Detected above the laboratory reporting limit shown in parenthesis.
3. µg/L = micrograms per liter.
4. mg CaCO3/L = milligrams of calcium carbonate per liter.
5. SU = Standard Units.
6. µmhos/cm = micromhos per centimeter.
7. † = Field Measured.
8. TBEL = Technology-Based Effluent Limitation.
9. WQBEL - Water Quality-based Effluent Limitation.
10. * = Calculated WQBEL value.

ATTACHMENT A:

COMBINED SEWER OVERFLOW MAP

CITY OF CAMBRIDGE
SEWER & ENGINEERING DIVISIONS

COMBINED SEWER AND STORM WATER CATCHMENT AREAS

MAR 31 2017

CATCHMENT AREAS

COMBINED	SEPARATED
D01 D26	D02 D27
D03 D29	D03B D28
D03A D30	D03C D31
D12 D32	D04 D33
D17 D37	D05 D33A
D20 D39	D06 D33L
D22 D41	D07 D34
D24 D43	D08 D34B
	D09 D36
	D10 D36R
	D11 D38
	D15 D40
	D16 D44
	D18 D45
	D19 D46
	D21 D50
	D23 D51
	D24A D52
	D25

C.S.O. TRIBUTARIES

- CAM 001
- CAM 002
- CAM 005
- CAM 007
- CAM 009
- CAM 011
- CAM 017
- CAM 401A
- CAM 401B
- MWR 003
- MWRA - Cottage Farm
- MWRA - Prison Point

- Storm Runoff Outfall * SEE NOTE 3
- Combined Wastewater Overflow * SEE NOTE 3
- Removed Common Manhole
- Remaining Common Manhole
- MWRA Facility
- MWRA Main
- Catchment Area Boundary * SEE NOTE 2
- Watershed Boundary * SEE NOTE 2

N

MATIGNON ROAD 18" S.D. (D44)
15" C.S.O. (CAM 001)
C.S.O. (CAM 002 A & B)
C.S.O. (CAM 401B)
HARRISON AVENUE 30" S.D. (D40)
NORTH OF CAMBRIDGEPARK DRIVE 66" S.D. (D36)
STORMWATER WETLAND FOREBAY (D38)
ACORN PARK DRIVE 36" S.D. (D46)
NORMANDY TERRACE 36" S.D. (D34)
WETLAND OUTLET
66" C.S.O (CAM 401A)
RUSSELL FIELD BIKE PATH EAST 12" S.D.
RUSSELL FIELD BIKE PATH WEST 12" S.D.
RUSSELL FIELD TOT LOT 8" S.D.
RUSSELL FIELD BUS TURNAROUND 8" S.D.
RUSSELL FIELD @ JERRY'S POND 12" S.D.
BLANCHARD ROAD @ WELLINGTON BROOK 78" x 84" S.D. (D33)
BLANCHARD ROAD 18" S.D. (D33A)
REGULATOR (CAM 401A)
HURON AVENUE 39" S.D. (From Belmont)
SAINT SAUVEUR COURT (From Belmont)
SHADY HILL SCHOOL 39" S.D. (From Mt Auburn Cemetery,Watertown)
SPARKS STREET 66" S.D. (D31)
54" C.S.O. (CAM 005)
76" C.S.O. (CAM 007)
BREWER STREET 18" S.D. (D28)
UNIVERSITY ROAD 34" x 54" S.D. (D27)
30" C.S.O. (CAM 009) *CLOSED*
J.F.K. STREET WEST 30" S.D. (D25)
J.F.K. STREET EAST 15" S.D. (D23)
48" C.S.O. (CAM 011) *CLOSED*
DEWOLFE STREET 72" S.D. (D21)
FLAGG STREET DOUBLE 42" S.D. (D19)
HINGHAM STREET 24" S.D. (D18)
WESTERN AVENUE 48" x 24" S.D. (D17A)
RIVER STREET 24" S.D. (D55)
PLEASANT STREET 60" S.D. (D16)
PEARL STREET 45" S.D. (D15)
CEMETERY RANGE 104 18" S.D. (D56)
CEMETERY RANGE 237 18" S.D. (D50)
AMESBURY STREET 24" x 48" S.D. (D11)
ENDICOTT STREET 68" x 72" S.D. (D10)
MASS AVE @ MEMORIAL DR TRIPLE 48" S.D. (D8)
AMES STREET 24" x 26" S.D. (D6)
WADSWORTH STREET 36" S.D. (D5)
MAIN STREET 24" x 26" S.D. (D4)
BROAD CANAL 54" S.D. (D7)
KENDALL STREET 36" S.D. (D51)
90" x 90" C.S.O. (CAM 017)
LECHMERE CANAL 36" x 72" S.D. (D2)
NORTH POINT 48" S.D. (D3C)
MUSEUM WAY 12" S.D. (D3B)
Prince Point Pumping Station * C.S.O. Facility
Cottage Farm C.S.O. Facility
Mystic River Watershed
Charles River Watershed
FRESH POND
CHARLES RIVER
ARLINGTON
BELMONT
WATERTOWN
CAMBRIDGE
SOMERVILLE
BOSTON

NOTES:

1) THIS DRAFT DOCUMENT IS CONTINUALLY UPDATED BY THE CITY OF CAMBRIDGE SEWER AND ENGINEERING DIVISIONS. THIS DRAWING MUST NOT BE USED TO LOCATE UTILITIES PRIOR TO EXCAVATION.

2) STORMWATER CATCHMENTS AND WATERSHEDS ARE BASED ON TOPOGRAPHY AND UTILITY DRAINAGE. THESE BOUNDARIES ARE CONTINUALLY UPDATED BY THE CITY OF CAMBRIDGE AS SEWER SEPARATION AND DRAINAGE IMPROVEMENT CONTRACTS ARE COMPLETED. OVERLAP MAY EXIST AND DISCHARGE POINTS MAY NOT BE ADJACENT TO THE ASSOCIATED CATCHMENT.

3) OUTFALLS NOT OWNED BY CITY OF CAMBRIDGE ARE NOT INCLUDED ON THIS MAP

SOURCES:

CITY OF CAMBRIDGE GEOGRAPHIC INFORMATION SYSTEMS
MASSACHUSETTS GEOGRAPHIC INFORMATION SYSTEMS
"ALEWIFE SEWER SYSTEM ASSESSMENT REPORT," (MONTGOMERY WATSON HARZA; JULY 2006).
"COMMON MANHOLES AND STORMWATER CATCHMENT AREAS;" (CITY OF CAMBRIDGE; MARCH 2006).
"PHASE 1 INFILTRATION / INFLOW ANALYSIS & SEWER SYSTEM EVALUATION SURVEY;" (MONTGOMERY WATSON HARZA; 2000).
"COMMON MANHOLES (SANITARY CATCHMENT AREAS)," (MAGUIRE GROUP INC.; 1998).
"CHARLES RIVER STORM WATER AND C.S.O. OUTFALLS;" (CITY OF CAMBRIDGE; DECEMBER 16, 1997).
"FIGURE 1: CAM 002 & CAM 004 SEWER SEPARATION;" (MWRA; MARCH 14, 1996).
"MASSACHUSETTS WATER RESOURCES AUTHORITY SEWERAGE DIVISION MAP: CITY OF CAMBRIDGE; (MWRA; MAY 13, 1994).

CAMBRIDGE DEPARTMENT OF PUBLIC WORKS

ATTACHMENT B:

BEST MANAGEMENT PRACTICES PLAN

BOSTON
ENVIRONMENTAL

Operation & Maintenance Manual

303 Third Street
Cambridge, MA

50 GPM Water Treatment System

PREPARED BY:

Boston Environmental Corporation
338 Howard Street
Brockton, Massachusetts 02302
(508) 897-8062

Table of Contents

1.0 PROCESS DESCRIPTION

A 50 gallon per minute (gpm) water treatment system was installed at 303 Third Street Cambridge, MA (site) by Boston Environmental Corporation with the assistance of Ground/Water Treatment and Technology (GWTT).. The system is shown in Appendix A and has a footprint of approximately 30'x15'.

Three (3) 2-inch submersible pumps (each pump requiring 110V and approximately 10 amps) with a level control system (supplied by others) capable of producing 20 gpm @ 40' TDH are used to pump non-treated water from basement sumps into a 1,335 gallon polycarbonate tank (shown in Appendix C) where solids are then allowed to settle. The tank outlet is fitted with an internal 2-inch diameter upfill pipe to further reduce solids in the tank effluent.

Water is gravity fed from the settling tank to a 550 gallon polycarbonate tank which contains five (5) floats, P1-ON, P1-OFF, P2-ON, P2-OFF, HIGH-LEVEL and is attached to a skid mounted, duplex transfer pump skid (Appendix C) with two pumps (each approximately 2 HP each) plumbed in parallel.

From the pump skid water is sent to one (1) dual bag filter skid (Appendix C) with two (2) single bag filters (which contain 5 micron filter bags) plumbed in parallel such that the bags in one (1) filter can be changed while the second filter continues to operate.

From the filter bag skid, water is sent through two (2) 1,000 pound liquid phase carbon adsorbers (Appendix C) which are plumbed in series. Each unit is rated for a maximum flow of 50 gpm and a maximum pressure of 75 psi. Each unit includes isolation valves, pressure gauges and sample ports. The carbon adsorbers are used to remove volatile organic carbons (VOC's) from the water and use coal based activated carbon (MSDS found in Appendix D).

From the carbon units water flows to a specialty resin vessel (Appendix C) containing 30 cubic feet of anion exchange resin which is used to remove cyanide from the water stream using an anion exchange resin (SBG1). An MSDS for the resin is included in Appendix D. The resin unit is rated for a maximum flow of 50 gpm and a maximum pressure of 75 psi. This unit contains isolation valves, pressure gauges and sample ports. The resin will reduce bound cyanide only which is the most common form of cyanide in dewatering applications.

From the anionic exchange vessel water passes through a 2" flow meter/totalizer (Appendix C) which measures the discharge rate and total volume of water exiting the system.

1.1 CONTROLS

The settling tank contains a HIGH level float switch which, when activated, turns on a red strobe light above the control panel and shuts down the influent submersible pumps. While the HIGH level float is activated, the influent system pumps remain shut down, but the 2 HP transfer pump continues to operate until the water level recedes in the primary settling tank at which point the strobe light will shut off and the influent pumps will be reactivated.

Floats activate on/off/alarm responses for the 550 gallon polycarbonate tank. The OFF float switches activate a signal to the control panel which deactivates the 2 HP pump skid in order for the tank to fill. The ON level float activates a signal to the control panel which activates the 2 HP pump skid. The HIGH level float activate, a red strobe illuminates on the control panel, the influent system pumps shut down, and the 2 HP pump skid continues to operate until the water level recedes in the second tank at which point the strobe light will shut off and the influent pumps are reactivated.

The control panel for the system (wiring diagram shown in Appendix B) is a NEMA 3R rated control panel with interfaces necessary to manipulate the control logic that consists of five (5) pump motor starters, two (2) pressure switches and seven (7) float switch controls – Submersible Pump 1 on, Submersible Pump 2 on, Submersible Pump 3 on, Transfer Pump 1 on, Transfer Pump 2 on (Transfer Pump 1-2 off), and a high level alarm for both poly tanks. Upon activation a signal is sent to the main control panel and to an auto dialer (Appendix C) which dials up to four (4) different numbers.

The filter bag skid is equipped with a pressure switch which will signal the control panel should a high pressure situation arise. The control panel will then illuminate a red light and shut down the system. A master reset button on the control panel must be depressed before the system can be restarted upon changeout of the filter bags.

A pressure switch is installed on the first carbon vessel and will signal the control panel should a high pressure situation occur. The control panel will then illuminate a red light and shut down the system. A master reset must be depressed before the system can be restarted upon corrective action.

2.0 START-UP PROCEDURES

1. Verify main circuit breaker is energized and component circuit breakers are switched to the on position.

2. Confirm that there are no fault indicator lights on the system control panel.

3. Perform a system walk though to verify the electrical disconnects in the treatment system are in the on position, and all necessary valves are open.

4. Turn the component control switches to the Auto position on the control panel.

5. Turn the master reset switch.

6. The extracted ground water should begin flowing from the recovery pumps into equalization tank, and then through the system. Once the water level triggers the float switch the transfer pump will begin pumping the water through to the bag filters. Make sure the water valves between the bag filter housing and carbon vessels are open and verify that water is flowing through the system by observing movement on the needle of the flow meter.

7. Make sure that the pressure differentials on the bag filter units are within adequate range. If the pressure differentials are too high, replace bag filters as necessary.

8. Make sure that the pressure differential for the carbon adsorbers and resin vessels are within adequate range. If the difference in pressure is too high, the vessels will require backwashing.

9. Record and log all data during each site visit in the system log book.

3.0 Troubleshooting

Problems	Responses
Red Strobe (Activated)	• Check tank level. Wait for level to go down if high. • Check that all valves are properly set and open valves if necessary • Check Bag Filter differential pressure. If high, see response for "High Bag Filter Pressure alarm is illuminated" • Check Carbon vessel differential pressure. If high, see response for "High Carbon Pressure alarm light is illuminated"
High Bag Filter Pressure alarm light is illuminated	• Check valves and open valves if necessary • Check pressure gauges (run system in hand if necessary) If differential pressure is high, then change out bag filters
High Carbon Pressure alarm light is illuminated	• Check valves and open valves if necessary • Check pressure gauges (run system in hand if necessary). If differential pressure is high, then backwash the vessel • If backwash did not lower differential pressure, then perform carbon changeout
No operational indicator light for pumps 1 and 2 (No Power)	• Check the main power in. contact the appropriate technician or electrician to properly diagnose system • Check all floats and water levels
Autodialer activated	• See "High Bag Filter Pressure alarm light is illuminated" • See "High Carbon Pressure alarm light is illuminated"
Other: Any conditions that cannot be corrected by on-site operator.	• Contact GWTT: 508-855-7075

Appendix A

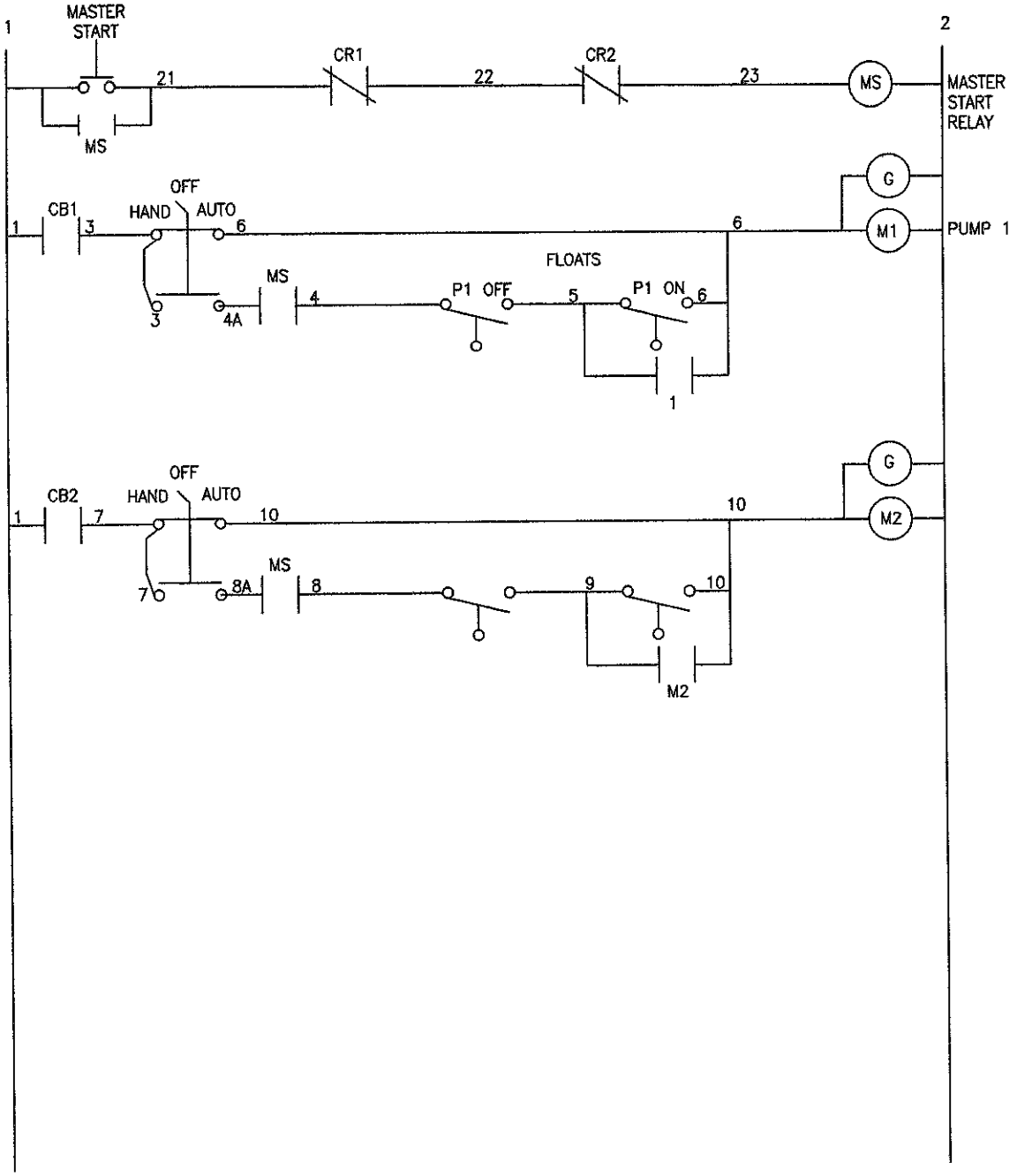
Treatment System Layout Diagram

Appendix B

Electrical Wiring Diagram

Appendix B

Electrical Wiring Diagram



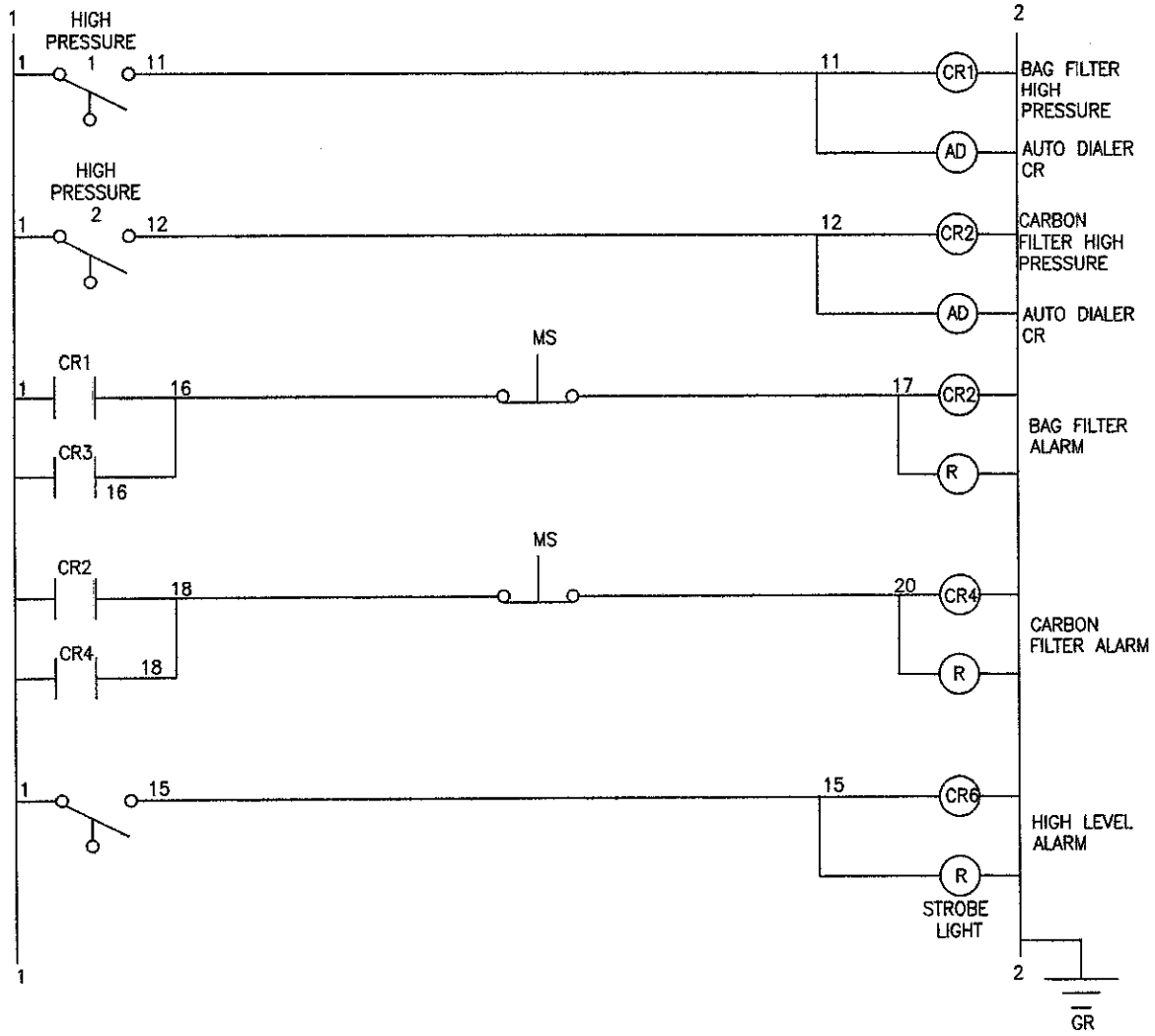
NO.	REVISIONS	DATE

ELECTRICAL WIRING DIAGRAM FOR 303 3RD ST. CAMBRIDGE MA

SCALE: NA	APPROVED:	DRAWN BY: DSP
DATE: 12/22/09:		

GROUND/WATER TREATMENT & TECHNOLOGY, INC.
39 River St.
Millbury, MA 01527

DWG SIZE: A	FILE: 16-1496-DSP-R1	DRAWING NUMBER: 1 OF 4



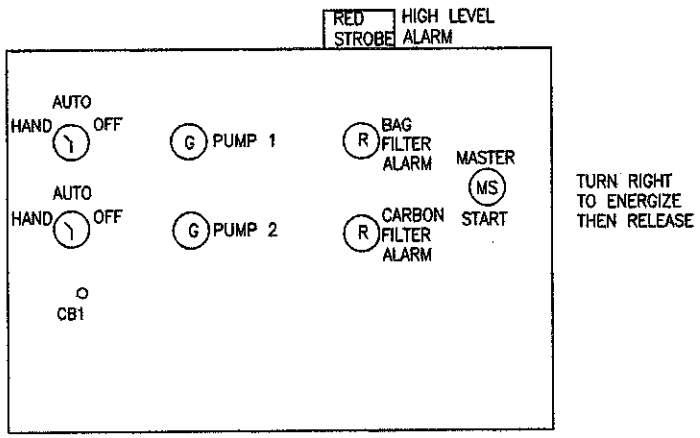
NO.	REVISIONS	DATE
1	Changed "AR" under CR2 to "R"	12/23/09

ELECTRICAL WIRING DIAGRAM FOR 303 3RD ST. CAMBRIDGE MA

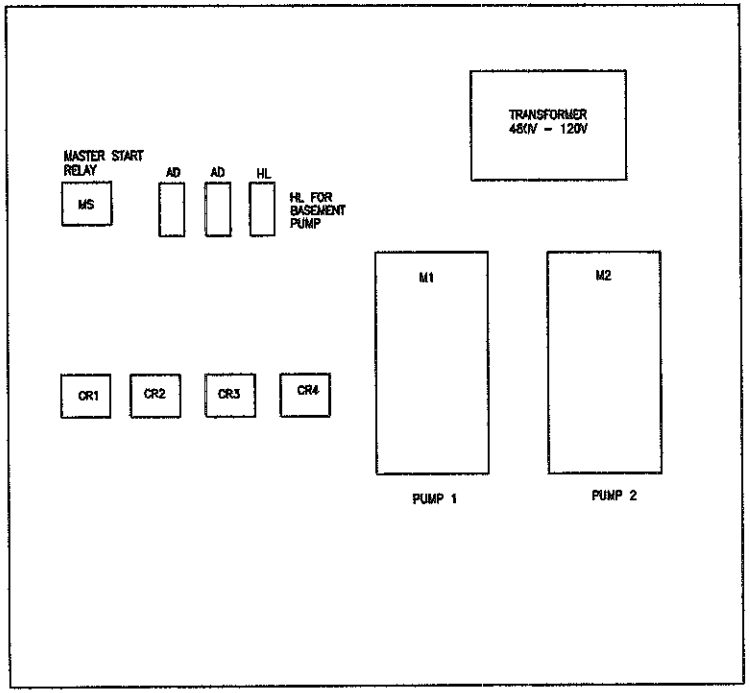
SCALE: NA	APPROVED:	DRAWN BY: DSP
DATE: 12/22/09:		

GROUND/WATER TREATMENT & TECHNOLOGY, INC.
39 River St.
Millbury, MA 01527

DWG SIZE: A	FILE: 16-1496-DSP-R1	DRAWING NUMBER: 2 OF 4



OUTSIDE VIEW



INSIDE VIEW

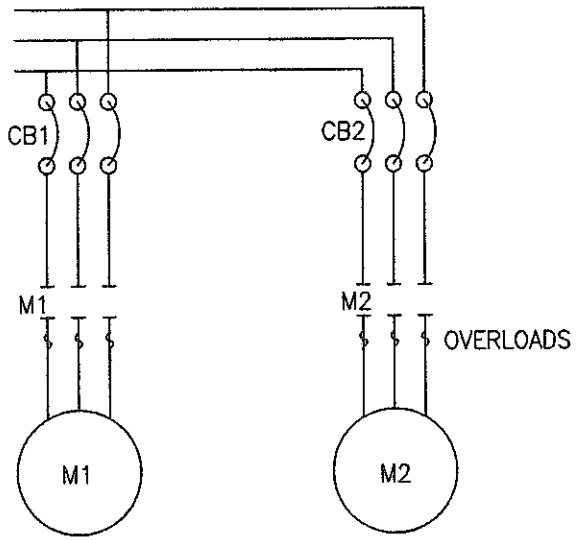
NO.	REVISIONS	DATE

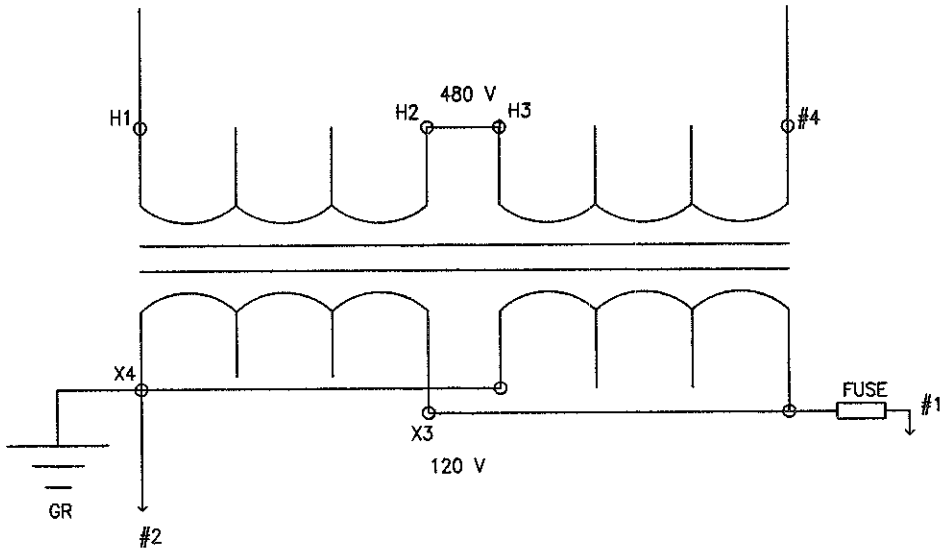
ELECTRICAL WIRING DIAGRAM FOR 303 3RD ST. CAMBRIDGE MA

SCALE: NA	APPROVED:	DRAWN BY: DSP
DATE: 12/22/09:		

GROUND/WATER TREATMENT & TECHNOLOGY, INC.
39 River St.
Millbury, MA 01527

DWG SIZE: A	FILE: 16-1496-DSP-R1	DRAWING NUMBER: 4 OF 4





NO.	REVISIONS	DATE
1	Added 120 V to diagram	12/23/09

ELECTRICAL WIRING DIAGRAM FOR 303 3RD ST. CAMBRIDGE MA

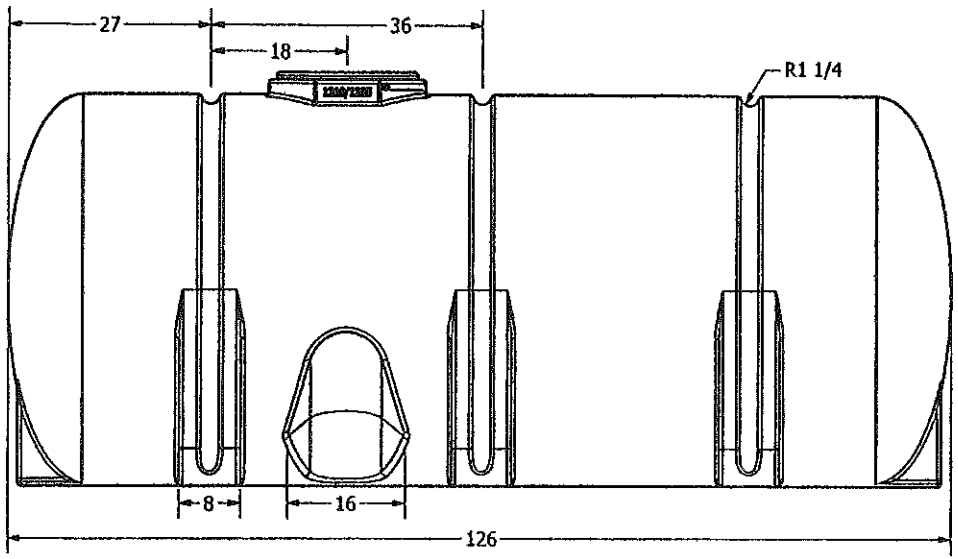
SCALE: NA	APPROVED:	DRAWN BY: DSP
DATE: 12/22/09:		

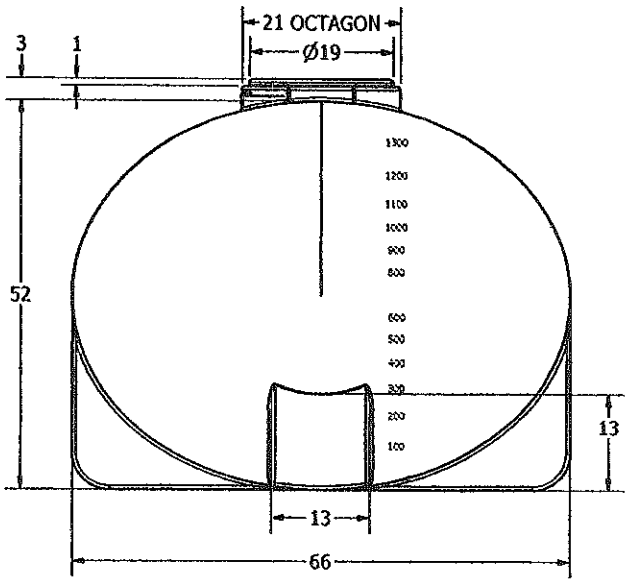
GROUND/WATER TREATMENT & TECHNOLOGY, INC.
39 River St.
Millbury, MA 01527

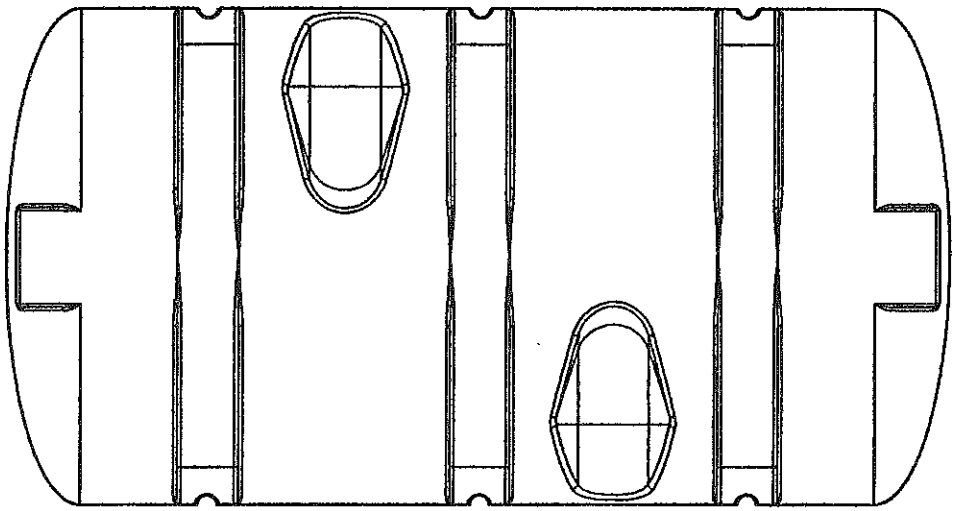
DWG SIZE: A	FILE: 16-1496-DSP-R1	DRAWING NUMBER: 3 OF 4

Appendix C

Equipment Specification Sheets







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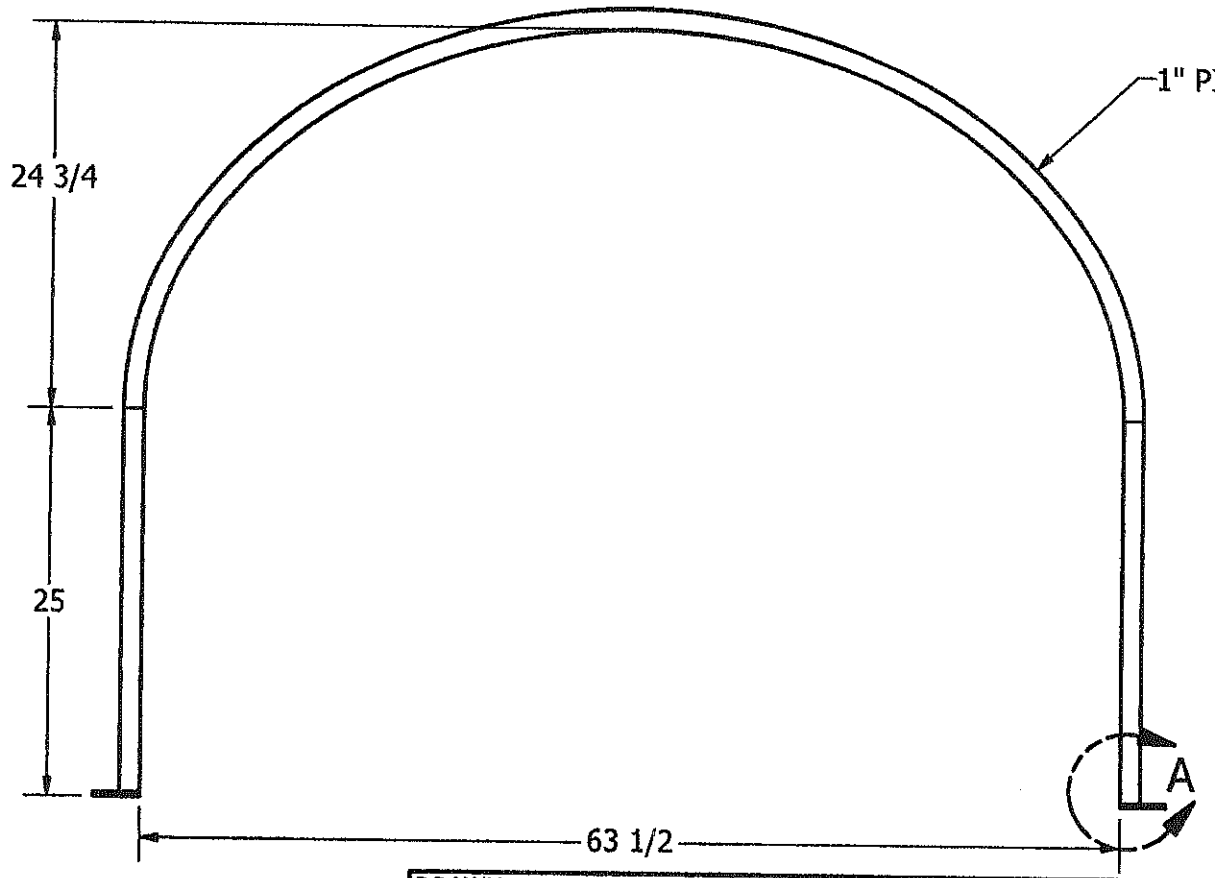
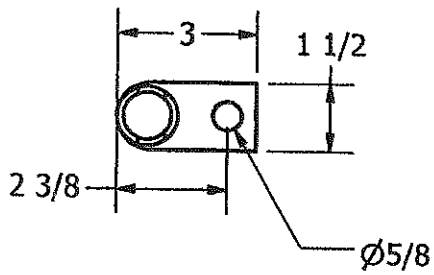
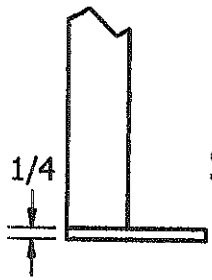
CHECKED		TITLE: 1335 GALLON ELLIPTICAL LEG TANK
QA		
MFG		
APPROVED		
		SIZE B / DWG NO / REV
		SCALE: 1/16 / SHEET 1 OF 1







DETAIL A
SCALE 1 / 4

DRAWN Jerry Paulson	8/4/2008
CHECKED	
QA	
MFG	
APPROVED	

NORWESCO

NORWESCO, INC., ST. BONIFACIUS, MN

TITLE

BAND, 1315 DRAINABLE LEG TANK & 1335 ELLIPTICAL LEG TANK

SIZE		DWG NO	REV
A			

SCALE: 1/16

SHEET 1 OF 1

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
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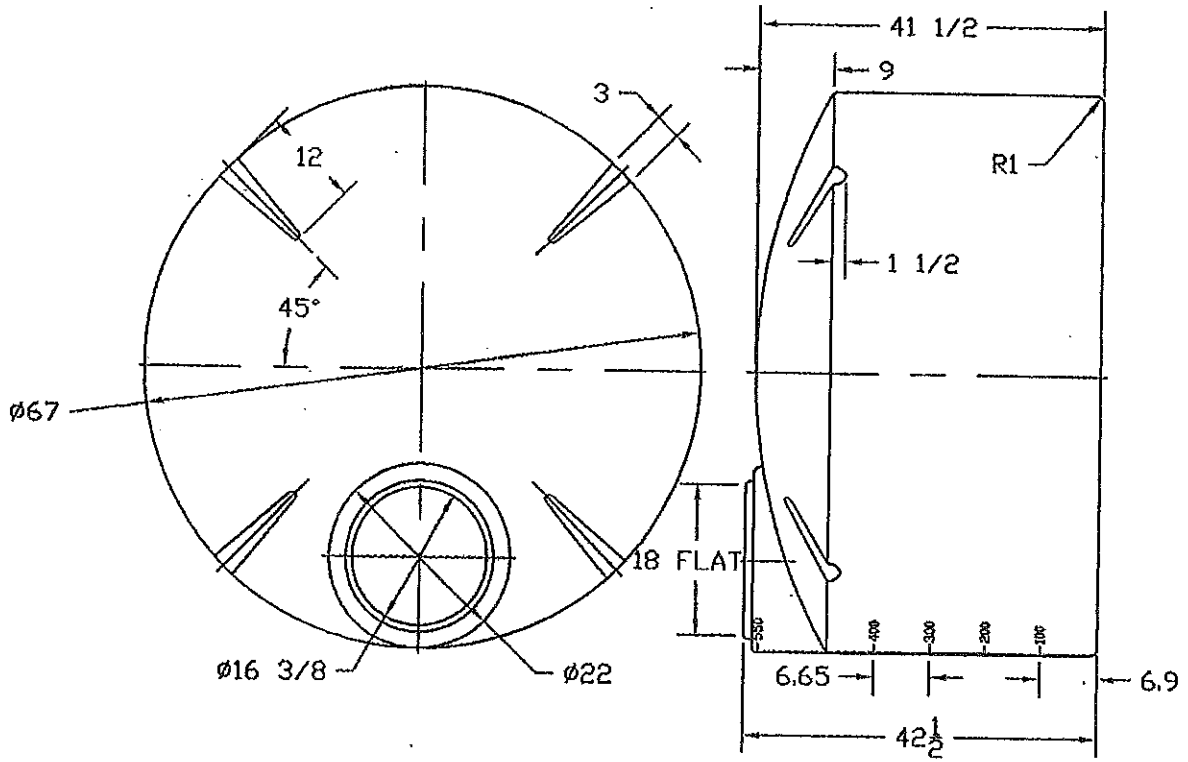


NORWESCO
ST. BONIFACIUS, MN

550 GALLON VERTICAL TANK

JTP 02JAN97	SIZE B	FSCM NO.	DWG NO.	REV B
	SCALE 1/16		SHEET	

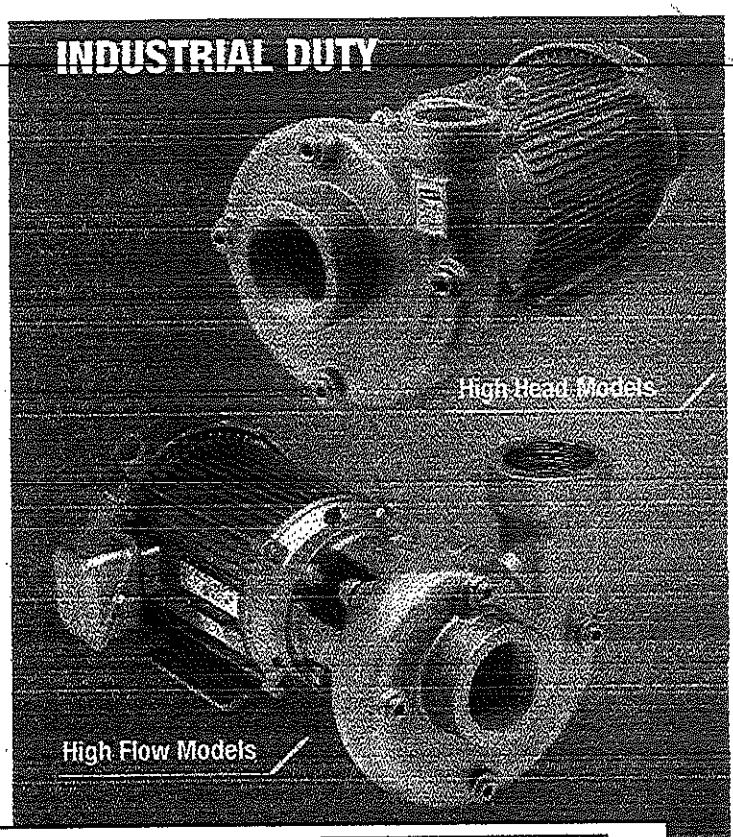
Heavy Duty Straight Centrifugal Pumps

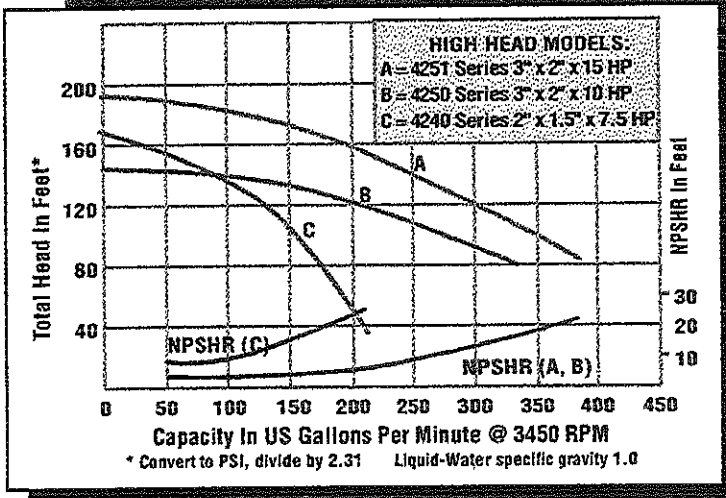
- ***Available in: Investment Cast 316 Stainless Steel, Cast Naval Bronze and Cast Iron with Stainless Steel Impeller Construction***
- ***2 HP to 15 HP NEMA Motors, Single and Three Phase***
- ***Type 21 Buna-N Mechanical Seal and O-Ring on Cast Iron Models***
- ***Type 21 Viton® Mechanical Seal and O-Ring on Stainless Steel and Naval Bronze Models***
- ***Optional Silicon Carbide Seals Available***
- ***High Flow and High Head Designs***
- ***Flanged or NPT Connections***
- ***Maximum Temperature***
  Viton®: 200° F
  Buna-N: 180° F
- ***Front Drain Plugs Located 90° Apart***
- ***Maximum Head 194 Ft. (100 PSI)***
- ***Maximum Flow 500 GPM***
- ***Maximum Working Pressure 150 PSI***

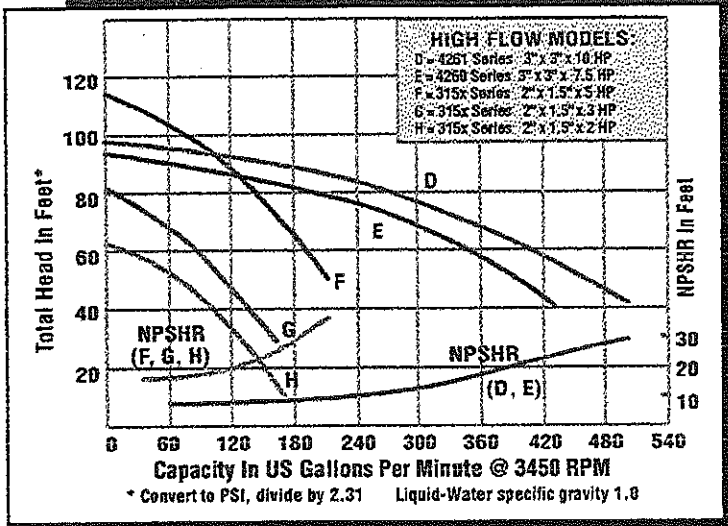
AMT Heavy Duty Straight Centrifugal pumps are suited for liquid and chemical transfer, heating and cooling, recirculation, booster service and other industrial applications. Stainless Steel units are especially effective in applications where rust and/or corrosion can develop in systems. Semi-open impeller features self-cleaning ability that makes the unit useful in applications involving muddy or dirty liquids, as well as clean, clear fluids. Discharge position can be adjusted in 90° increments, with vent and drain plugs for all positions. Type 21 mechanical seal and O-ring casing seal. Naval Bronze models feature a seal wash to rinse salt water from seal cavity. Pumps are close coupled to Totally Enclosed Fan Cooled motors (TEFC) or Open Drip Proof (ODP) depending on the models. **Pumps are not self-priming and require flooded suction.**

AMT Heavy Duty Straight Centrifugal pumps are reliable, cost effective and low maintenance. Many are readily available **"Off-the-Shelf"** for fast 24 hour shipment. For use with non-flammable liquids compatible with pump component materials.

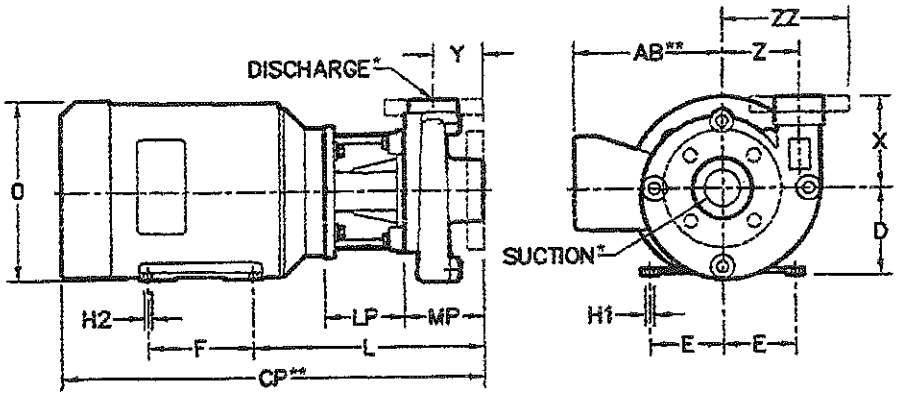
Viton® is a registered trademark of E.I. DuPont







Heavy Duty Straight Centrifugal Pumps



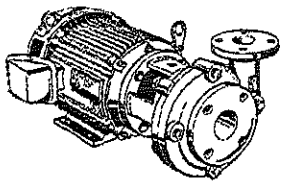
Pump Dimensional & Specification Chart

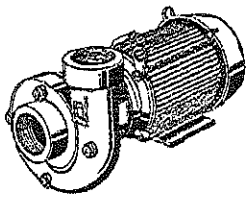
‡ Model No.	Curve	HP	PH	Frame	ENC	Voltage @ 60 Hz	Full Load Amps	Connect Type	SUC*	DIS*	AB**	CP**	D	E	F	H1	H2	L	LP	MP	O	X	Y	Z	ZZ	Ship Weight (Lbs) XNB ‡ -94	XCI ‡ -95	XSS ‡ -98
3150	H	2	3	145JM	TEFC	230/460	6/3	NPT	2"	1-1/2"	6.1	17.6	3.5	2.8	5.0	0.3	0.3	10.4	4.1	4.0	7.1	4.8	2.5	4.0	N/A	76	78	69
3151	G	3	3	182JM	TEFC	230/460	8/4	NPT	2"	1-1/2"	7.5	21.6	4.5	3.8	4.5	0.4	0.4	12.7	4.1	4.0	9.3	4.8	2.5	4.0	N/A	104	108	100
3152	F	5	3	184JM	TEFC	230/460	17/9	NPT	2"	1-1/2"	7.5	21.6	4.5	3.8	5.5	0.4	0.4	11.8	4.1	4.0	9.3	4.8	2.5	4.0	6.5	N/A	106	N/A
3154	G	3	3	182JM	TEFC	230/460	8/4	FLG	2"	1-1/2"	7.5	21.6	4.5	3.8	4.5	0.4	0.4	12.7	4.1	4.0	9.3	4.8	2.5	4.0	N/A	N/A	117	N/A
3155	F	5	3	184JM	TEFC	230/460	17/9	FLG	2"	1-1/2"	7.5	21.6	4.5	3.8	5.5	0.4	0.4	11.8	4.1	4.0	9.3	4.8	2.5	4.0	N/A	65	65	65
3156	H	2	1	56J	TEFC	230	22/11	NPT	2"	1-1/2"	4.6	17.7	3.5	2.4	3.0	0.9	0.3	8.6	2.0	4.0	7.1	4.8	2.5	4.0	N/A	64	64	64
3157	H	2	3	56J	TEFC	230/460	6/3	NPT	2"	1-1/2"	4.9	16.6	3.5	2.4	3.0	0.9	0.3	8.6	2.0	4.0	8.1	4.8	2.5	4.0	N/A	62	62	62
3158	H	2	1	56J	ODP	115/230	28/14	NPT	2"	1-1/2"	N/A	17.2	3.5	2.4	3.0	0.9	0.3	8.6	2.0	4.0	8.6	4.8	2.5	4.0	N/A	81	81	81
3159	H	2	3	56J	ODP	230/460	7/4	NPT	2"	1-1/2"	N/A	16.3	3.5	2.4	3.0	0.9	0.3	8.6	2.0	4.0	8.8	4.8	2.5	4.0	N/A	75	75	75
315A	G	3	1	56J	TEFC	230	16	NPT	2"	1-1/2"	4.9	18.6	3.5	2.4	3.0	0.9	0.3	8.6	2.0	4.0	7.1	4.8	2.5	4.0	N/A	74	74	74
315B	G	3	3	56J	TEFC	230/460	8/4	NPT	2"	1-1/2"	4.9	18.1	3.5	2.4	3.0	0.9	0.3	8.6	2.0	4.0	8.1	4.8	2.5	4.0	N/A	72	72	72
315C	G	3	1	56J	ODP	230	16	NPT	2"	1-1/2"	N/A	17.4	3.5	2.4	3.0	0.9	0.3	8.6	2.0	4.0	8.6	4.8	2.5	4.0	N/A	71	71	72
3150	G	3	3	56J	ODP	230/460	9/5	NPT	2"	1-1/2"	N/A	17.2	3.5	2.4	3.0	0.9	0.3	8.6	2.0	4.0	8.6	4.8	2.5	4.0	N/A	128	121	121
315E	F	5	1	184JM	TEFC	230	16	NPT	2"	1-1/2"	8.6	24.1	4.5	3.7	5.5	0.4	0.4	11.7	4.1	4.0	9.3	4.5	2.5	4.0	N/A	105	105	108
4240	C	7.5	3	184JM	TEFC	230/460	22/11	NPT	2"	1-1/2"	7.5	21.4	4.5	3.8	5.5	0.4	0.4	11.5	3.5	4.4	9.3	5.9	2.4	3.8	N/A	105	105	108
4250	B	10	3	184JM	TEFC	230/460	26/13	NPT	3"	2"	7.5	21.5	4.5	3.8	5.5	0.4	0.4	11.7	3.5	4.4	9.3	5.0	2.8	4.8	N/A	117	117	120
4251	A	15	3	215JM	TEFC	230/460	47/24	NPT	3"	2"	8.3	26.0	5.3	4.3	7.0	0.4	0.4	12.5	3.5	4.5	10.9	5.0	2.8	4.8	N/A	190	190	195
4260	E	7.5	3	184JM	TEFC	230/460	22/11	NPT	3"	3"	7.5	22.4	4.5	3.8	5.5	0.4	0.4	12.5	4.1	4.8	9.3	6.5	2.8	4.5	N/A	128	122	117
4261	D	10	3	184JM	TEFC	230/460	26/13	NPT	3"	3"	7.5	22.4	4.5	3.8	5.5	0.4	0.4	12.5	4.1	4.8	9.3	6.5	2.8	4.5	N/A	128	133	124

(*) Standard NPT (female) pipe thread.
(**) This dimension may vary due to motor manufacturer's specifications.
(+) 3-Phase motors can also operate on 50 Hz. (This will change the Full Load Amps, Service Factor and RPM)
NOTE: Dimensions have a tolerance of ±1/8".
NOTE: Electric supply for ALL motors must be within ±10% of nameplate voltage rating(Ex. 230V ±10%= 207 to 253)
NPT= Threaded, FLG= Flanged (125 Lb)

‡ *When Ordering Add the Correct-9x Suffix to Model Number Indicating Material Selection (ex: 3150-95)*

XCI (-95)=Cast Iron Construction with Stainless Steel Impeller and Buna-N Seals, Max. Temperature 180°F
XB (-94)=Naval Bronze Construction with Viton® Seals, Max. Temperature 200°F
XSS (-98)=All 316 Stainless Steel Construction with Viton® Seals, Max. Temperature 200°F





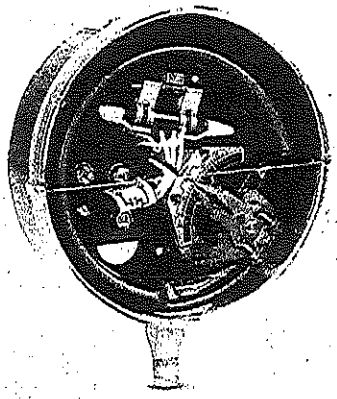
Standard Features

- Stainless Steel, Naval Bronze & Cast Iron Construction
- Buna-N or Viton® Mechanical Seal and O-Rings depending on Models, Optional Silicon Carbide Available
- Stainless Steel Hardware
- NEMA ODP & TEFC Single and Three Phase Motors Depending on the Model
- Stainless Steel Motor Shaft
- Self-cleaning Impeller
- Discharge Rotates in 90° Increments
- Maximum Working Pressure to 150 PSI
- Max. Temperature 200° F (Viton®), 180° F (Buna-N)
- Seal Wash Port and Hose is Included on Naval Bronze Models Only
- **"Off-the-Shelf"** Availablity for Many Models

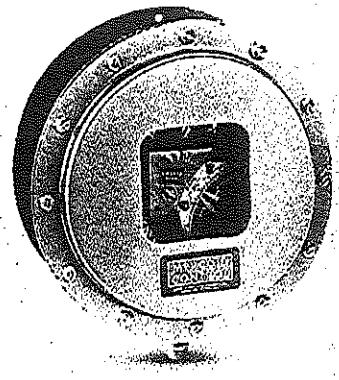
OTS OFF THE SHELF PUMPS

Viton® is a registered trademark of E.I. DuPont

See price book pages 36 & 37



Standard model



Weatherproof model

Mercoid® Bourdon Tube Pressure Switches

- **More accurate & repeatable than other pressure switches**
- **Easy to adjust, visible set points**
- **Can be used for level control**

The Mercoid DA series bourdon tube pressure switches combine high sensitivity and repeatability with easily adjustable set points via two external thumb wheels. The accuracy and narrow dead bands make these switches suitable for many types of precise pressure control, including level control applications. Choose from standard or weather-resistant enclosures with hermetically sealed mercury bulb contacts, or the non-mercury, high-current snap-action contacts. All switches listed here include SPDT contacts with an adjustable dead band. The minimum dead band may be set to anywhere within the range.

Call us for pressure ranges and other versions such as very narrow dead band models that are not listed here.

Note: A pressure snubber or pulsation damper is recommended.

Switch type:	SPDT mercury or snap-action with adjustable dead band
Contact rating	
Mercury:	4A @ 120V; 2A @ 240V, AC/DC
Snap-action:	10A @ 120/240 VAC
Wetted materials:	brass bourdon tube & connection
Process connection:	1/4" NPT(M), bottom
Electrical connection	
Standard:	hole for 1/2" conduit connection
Weatherproof:	1/2" conduit hub
Enclosure	
Standard:	epoxy-coated steel with clear plastic dust cover
Weatherproof:	epoxy-coated steel body & cover with window
Dimensions	
Standard:	$6^{1}/_{64}$"Dia x $2^{1}/_{4}$"D
Weatherproof:	7"Dia x $2^{13}/_{16}$"D
Approvals:	UL listed, CSA approved

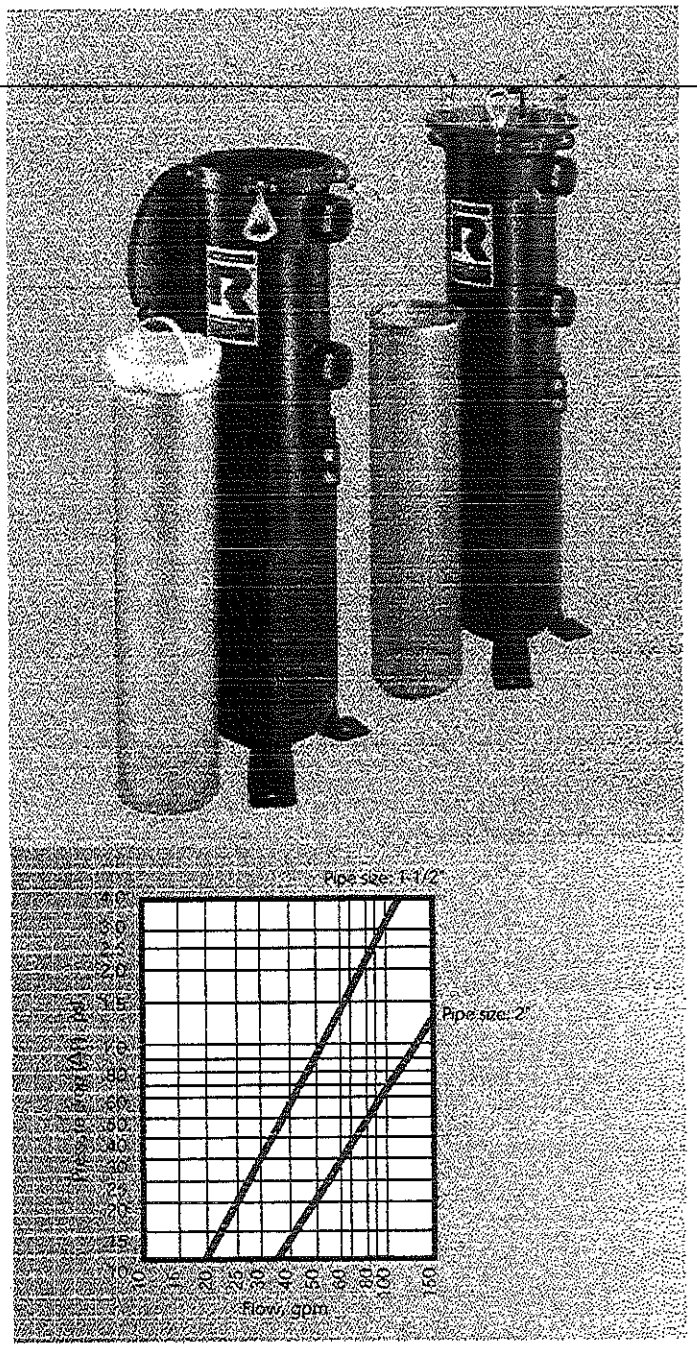
Model NCO Bag or Cartridge Filter Housings

Low cost filter housings for flow rates to 100 gpm*

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

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

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



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

Features

- Permanently piped housings are opened without special tools
- Carbon or stainless steel housings
- Covers are O-ring sealed
- O-ring seals: Buna N, EPR and Viton®
- 150 psi rated housing
- Heavy-duty basket, over 50% open area
- Uses standard number 1, 2 or 12 size bags and 500 or 700 series cartridges
- Filter selection surface area is:
  2.3 square feet (number 1 size bag),
  4.4 square feet (number 2 size bag),
  5.6 square feet (number 12 size bag)
  85 square feet (500 series cartridge)
  125 square feet (700 series cartridge)
- 1-1/2-inch or 2-inch NPT inlet and outlet
- 1/4-inch NPT vent connection
- Adjustable leg assembly

How To Order

Build an ordering code as shown in the example.

NSF QUALITY SYSTEM REGISTERED TO ISO 9001:1994

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

MODEL
NCO8 (#1, #2 bag & 500 cartridge)
NLCO8 (#12 bag)
NCO8135 (700 cartridge)
NCO8135 convertible

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

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

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

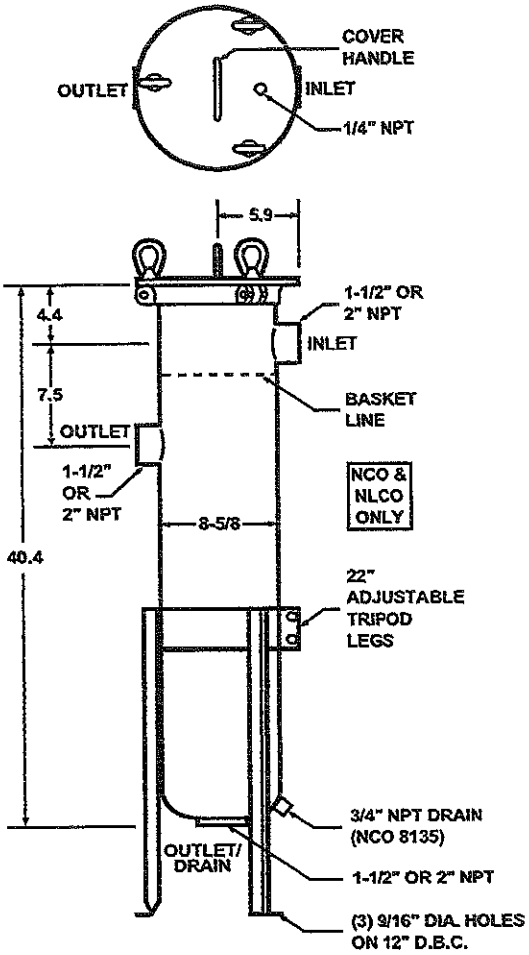
PRESSURE RATING
150 psi - **150**

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

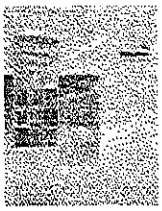
COVER SEAL
Buna N - **B**
Ethylene propylene - **E**
Viton® Fluoroelastomer - **V**

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

1. Filter bags are specified separately. See Rosedale Master Catalog 3rd edition.
2. Basket material is compatible with housing.
3. Weight (approximately): 70 lbs.

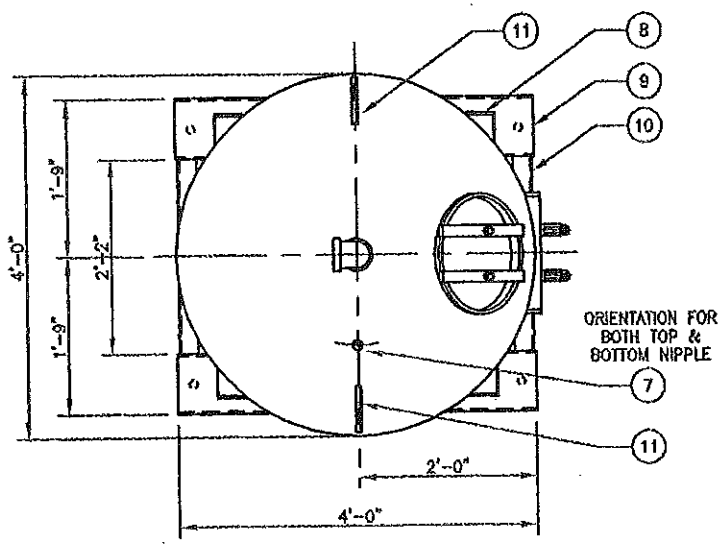


Rosedale Products, Inc.
3730 W. Liberty Rd, Ann Arbor, MI 48103
Tel: 800-821-5373 or 734-665-8201
Fax: 734-665-2214
http://www.rosedaleproducts.com/
E-mail: filters@rosedaleproducts.com

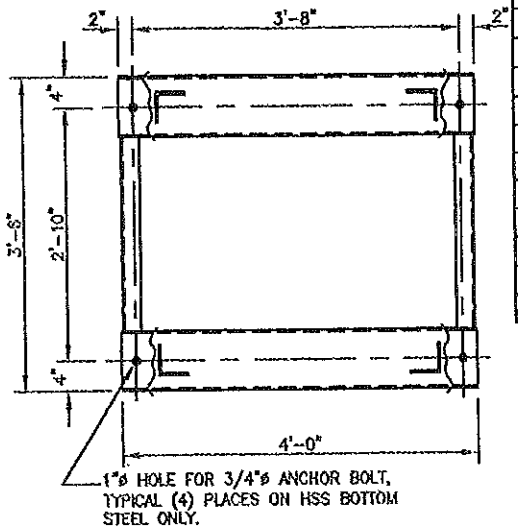


Call us today for our complete catalog or visit our web site to see our entire product line.

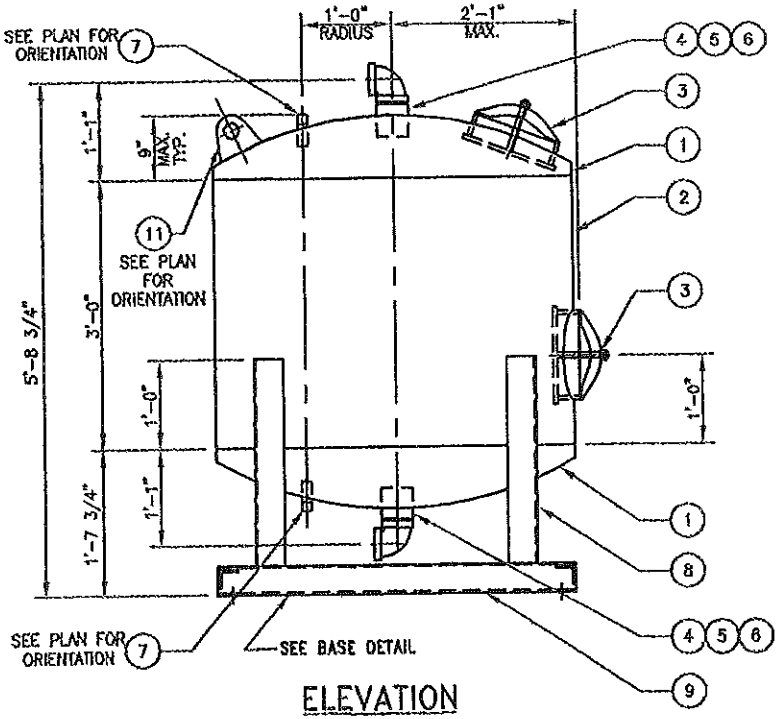
Sheet NCO-100 5M605 Printed in USA



PLAN



BASE DETAIL



ELEVATION

#	QTY.	DESCRIPTION
1	2	C.S. STD. Flanged&Dished Non-Code tank head 3/16" THK.
2	1	C.S. 3/16" THK. x 48" OD x 36" Long
3	2	C.S. Elliptical Non-Code Manway Assembly 12"x16" w/ 2 yoke
4	2	3"ø, 150 LBS, C.S. Black Pipe Threaded Coupling
5	2	3"ø, SCH 40, C.S. Close Threaded Nipple
6	2	3"ø, 150 LBS, C.S. Black Pipe 90° Elbow
7	2	1"ø, SCH 40, C.S. 4" Long Threaded Nipple
8	4	Angle 4" x 4" x 1/4" Support Leg
9	2	HSS 8" x 4" x 1/4" Base
10	2	Angle 2 1/2" x 2 1/2" x 1/4" Cross Tie
11	2	Lifting Lug (Design by Fabricator, See Note 2)

GENERAL NOTES

1) MATERIAL SHALL BE CARBON STEEL GRADE A 36 UNLESS NOTED OTHERWISE.

2) FABRICATOR TO DESIGN LIFTING LUGS TO MEET 4000 LBS LIFTING REQUIREMENT.

3) TANK INTERIOR SHALL BE SANDBLASTED TO SSPC-SP-5 WHITE METAL FINISH, PAINTING BY OTHERS.

4) TANK EXTERIOR SANDBLASTING AND PAINTING BY OTHERS.

5) TANK SHALL BE LEVEL +/- ONE DEGREE.

6) FABRICATION TOLERANCE SHALL BE +/- (1/4) INCH.

7) UNLESS NOTED OTHERWISE, ALL WELDS SHALL BE SEAL WELD, ALL JOINTS SHALL BE WELDED BOTH SIDE WHERE APPLICABLE.

8) STEEL PLATES JOINING METHOD SHOWN ARE INTENDED FOR REFERENCES ONLY, FINAL STEEL JOINING METHOD SHALL BE DETERMINE BY FABRICATOR TO SUIT THEIR SHOP PREFERENCES.

9) THE TANK SHALL BE PRESSURE TESTED TO HOLD WATER AT FULL CAPACITY AT 75 PSI PRIOR SHIPMENT.

10) THIS DRAWINGS IS THE PROPERTY OF GROUND/WATER TREATMENT & TECHNOLOGY, INC

NO.	REVISIONS	DATE
A	FOR QUOTATION	06/28/05

1000 LBS LIQUID PHASE ADSORPTION TANK GENERAL ARRANGEMENT & DETAILS

SCALE:	NONE	APPROVED:	DRAWN BY: TLo
DATE:	06/27/05		

GROUNDWATER TREATMENT & TECHNOLOGY
P.O. BOX 1174
DENVILLE, NJ 07834

FILE: 11-1181 DRAWING NUMBER: M-01

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

DESCRIPTION

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

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

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

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

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

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

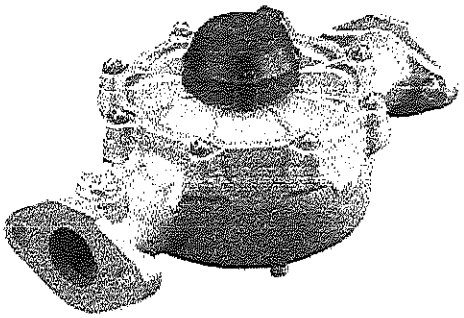
MAGNETIC DRIVE: Direct magnetic drive, through the use of high-strength magnets, provides positive, reliable and dependable register coupling for straight-reading, remote or automatic meter reading options.

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

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

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

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



Model 170 shown with optional 1" Test Plug

SPECIFICATIONS

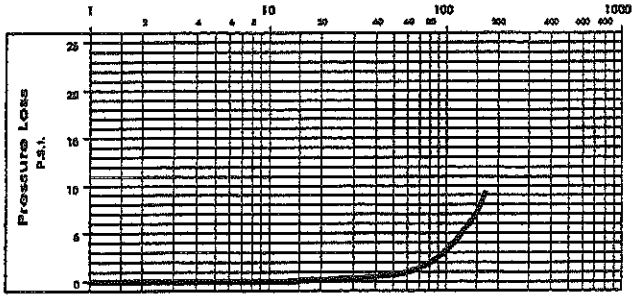
Typical Operating Range (100% ± 1.5%)	2 1/2 - 170 GPM (.57 to 39 m³/hr)
Low Flow (Min. 95%)	1 1/2 GPM (.34 m³/hr)
Maximum Continuous Operation	100 GPM (23 m³/hr)
Pressure Loss at Maximum Continuous Operation	3.3 PSI at 100 GPM (.23 bar at 23 m³/hr)
Maximum Operating Temperature	80°F (26°C)
Maximum Operating Pressure	150 PSI (10 bar)
Measuring Element	Nutating disc, positive displacement
Register Type	Straight reading, permanently sealed magnetic drive standard. Remote reading or Automatic Meter Reading units optional.
Registration	100 Gallons, 10 Cubic Feet, 1 m³
Register Capacity	100,000,000 Gallons, 10,000,000 Cubic Feet, 1,000,000 m³. 6 odometer wheels.
Meter Connections	2" AWWA two bolt elliptical flange, drilled, or 2" - 11 1/2 NPT internal pipe threads.
Optional Test Plug	1" NPT test plug (TP) available on elliptical long and short versions.

MATERIALS

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

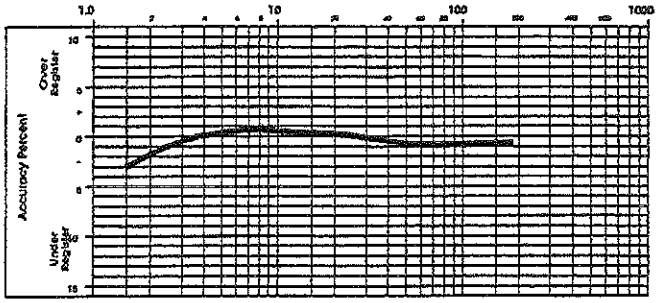
PRESSURE LOSS CHART

Rate of Flow, in Gallons per Minute



ACCURACY CHART

Rate of Flow, in Gallons per Minute

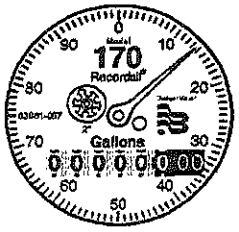


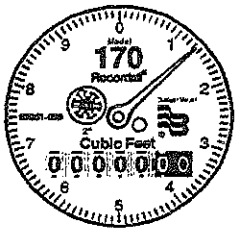
METER SIZE	METER MODEL	A LAYING LENGTH	B HEIGHT REG./RTR	C HEIGHT GEN.	D CENTERLINE BASE	WIDTH	APPROX. SHIPPING WEIGHT
2" (50mm)	170 EL, Hex. 170 EL, TP	15¼" (387mm)	8" (203mm)	9⅜" (238mm)	2⅞" (73mm)	9½" (241mm)	30 lb. (13.6kg)
2" (50mm)	170 ELL, 170 ELL, TP	17" (432mm)	8" (203mm)	9⅜" (238mm)	2⅞" (73mm)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

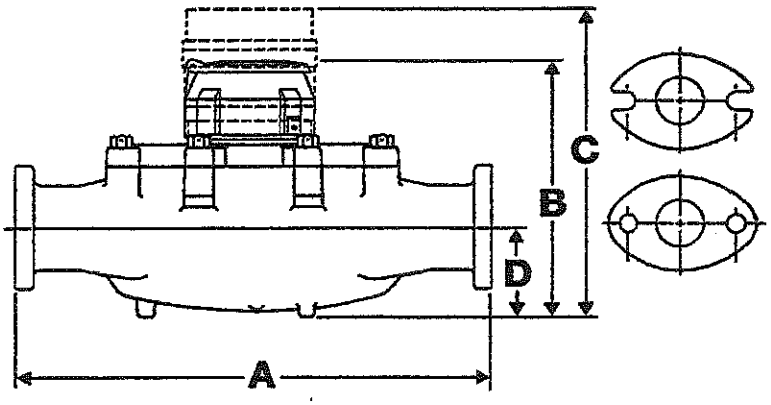
EL = Elliptical ELL = Elliptical Long Hex = Hexagon, 2" - 11½ NPT Thread TP=Test Plug 1"

Sweep Hand Registration

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







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

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

BadgerMeter, Inc.
P.O. Box 245036, Milwaukee, WI 53224-9536
(800) 876-3837 / Fax: (888) 371-5982
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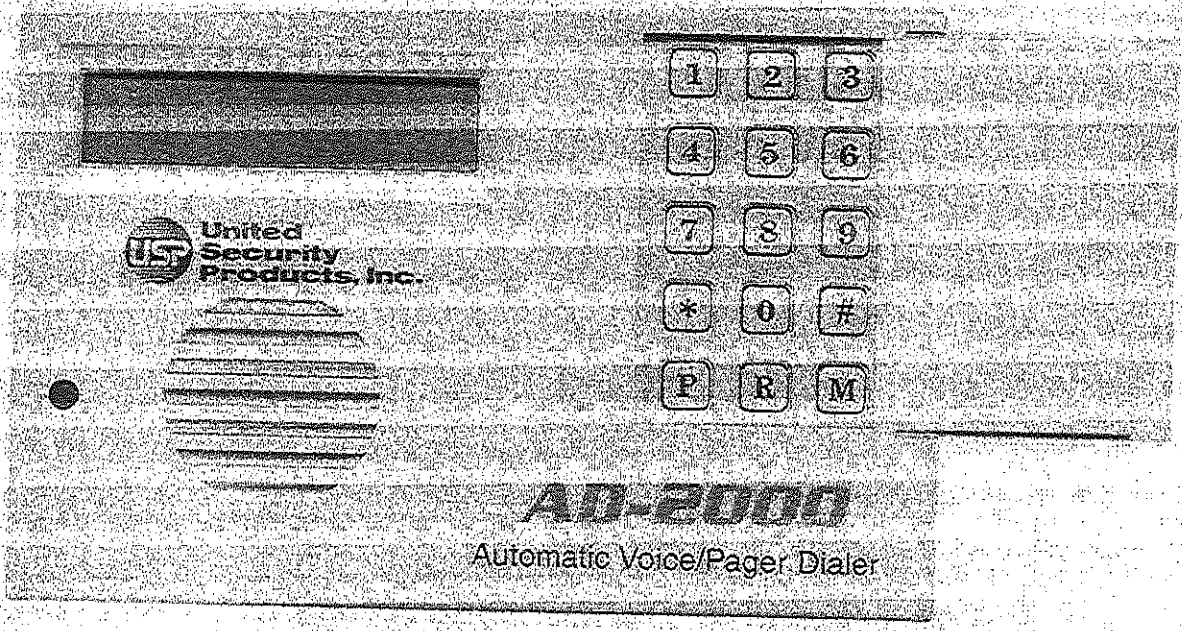
Not just the next generation...it's the next millennium!



Versatile * Full-featured * Easy to Program

2-way Listen in Verification
Operates with all alarm systems
Ideal stand-alone dialer
Provides reliable emergency notification 24 hours a day

United Security Products, Inc.

PLEASE READ THIS MANUAL BEFORE PROGRAMMING AND USING THE UNIT.

IMPORTANT: SAVE THESE INSTRUCTIONS

MODEL AD-2000

Owner's Manual and Operating Instructions
The Automatic Voice/Pager Dialer System
For The Next Millennium

Congratulations!

Thank you for purchasing United Security Products, Inc.'s Model AD-2000 - the "smartest", most comprehensive automatic voice/pager security dialer available. Representing an exciting new level of achievement, the AD-2000 combines technologically advanced features, ease of programming and reliable operation in a compact, unobtrusive dialer completely compatible with any security alarm system. Installation and hookup are quick and easy, whether installed in conjunction with normally open, normally closed dry contact or voltage activation sensors. The unit can also function as a stand-alone device, by simple connection to an ordinary telephone jack. The keypad cover glides on and off for added attractiveness and security.

How It Works

The AD2000 dialer features busy-line and no-answer detection to ensure prompt transmission of up to 4 prerecorded messages delivered sequentially to as many as 8 standard telephones, cellular phones, voice and/or numeric pagers. Messages to both local and long-distance calls can be transmitted. When activated, the dialer instantly begins calling the numbers in sequence, delivering each message 1 to 3 times in a row, in accordance with the pre-selected number of dialing attempts.

The AD-2000 is extensively programmable, offering personalized customization to fulfill virtually any residential or business requirement. Plain-English prompts walk the user through the process in a timely manner.

Programming options abound, allowing the user to:

- Store up to 8 telephone/pager numbers.
- Choose 1- 9 calling efforts for the numbers dialed.
- Select 1-3 message repeats.
- Record a variable combination (maximum: 7) of instructional outgoing messages (total elapsed time: 51 seconds).

Program up to 4 separate input channels with individually enable/disable, entry/exit delay and activation options (Normally Open (N.O.), Normally Closed (N.C.) (dry contact or voltage activation) including momentary and continuous activation for each).

Further individualize each channel by selecting the delay times, telephone/pager numbers to be dialed and the specific outgoing messages to be played.

Please Familiarize Yourself With These Instructions Before Installation/Operation. This guide describes how to program and operate the dialer. We strongly recommend that you read the entire manual before attempting to use the unit.

To enhance ease of programming and operation, this guide includes:

- A Programming Sample/Quick Setup review on page 13 with a corresponding Program Planner.
- A Blank Program Planner on page 14. One copy of this Planner should be kept in a safe place by the end user. A separate copy should also be retained by the installer.

We are happy to provide a full measure of security reassurance and peace of mind with the Model AD-2000. For information about other innovative United Security Products equipment, call (800) 227-1592.

For Technical Service and Support, call: 858-413-0149 or Fax: 858-413-0124
You may also contact us via e-mail: usp@unitedsecurity.com
Technical Support is available Monday - Friday 6:30 a.m. to 4:30 P.M. PST

THIS PACKAGE CONTAINS:

1 ea. MODEL AD-2000

1 ea. PHONE CABLE

1 ea. INSTRUCTION MANUAL

4 ea. 1K RESISTORS

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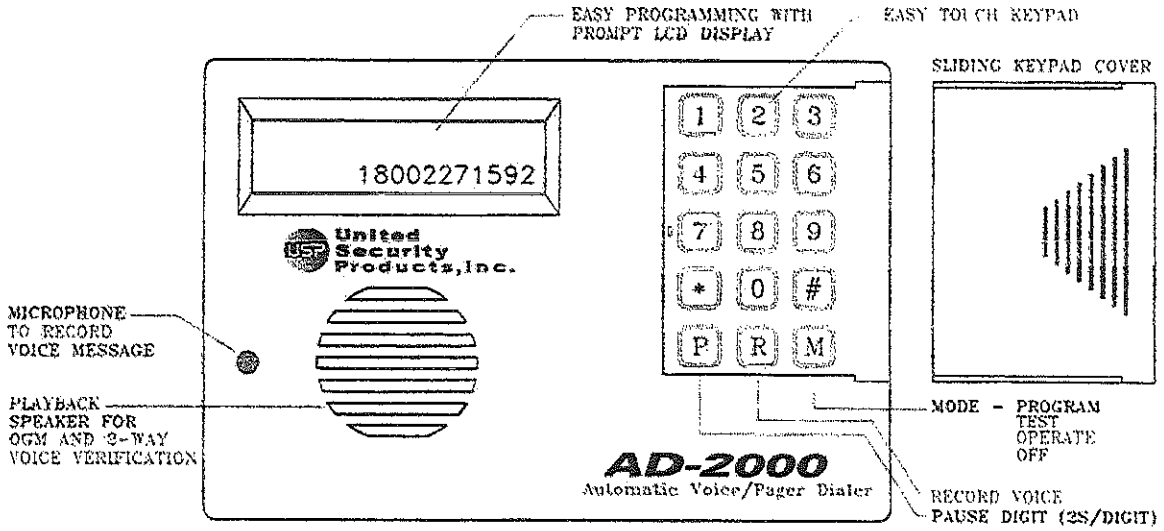
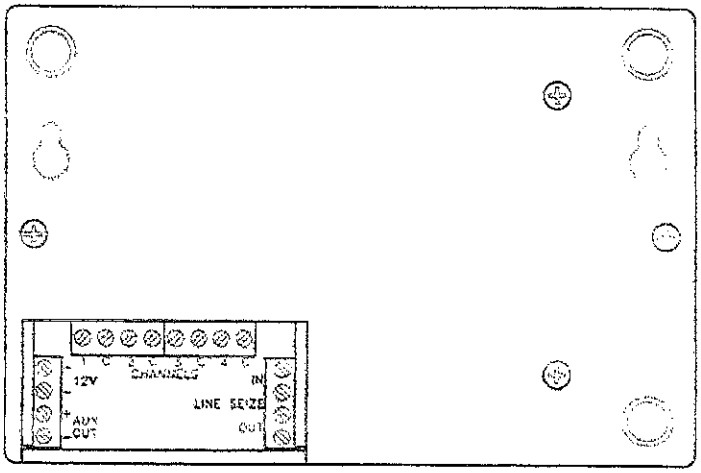
PANEL DISPLAYS

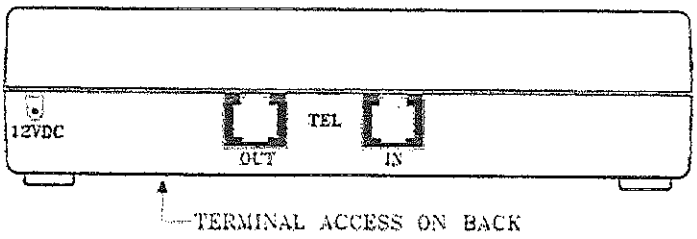


AD-2000 FRONT VIEW



BREAK-OFF PANEL FOR WIRING INPUT

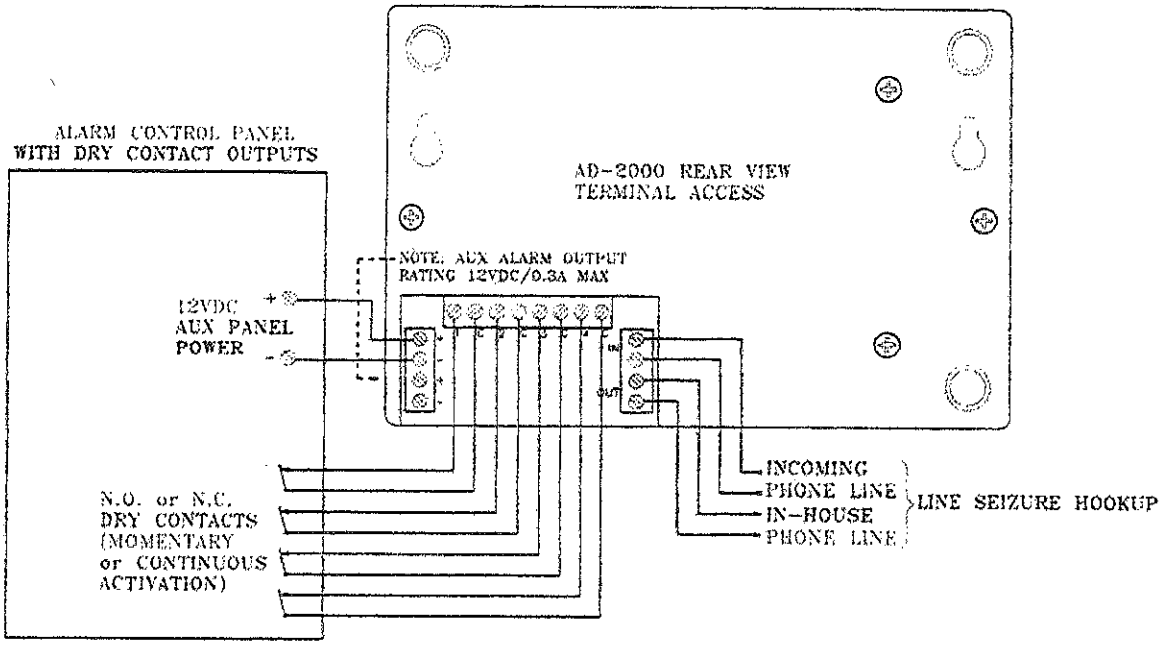
AD-2000 BACK VIEW



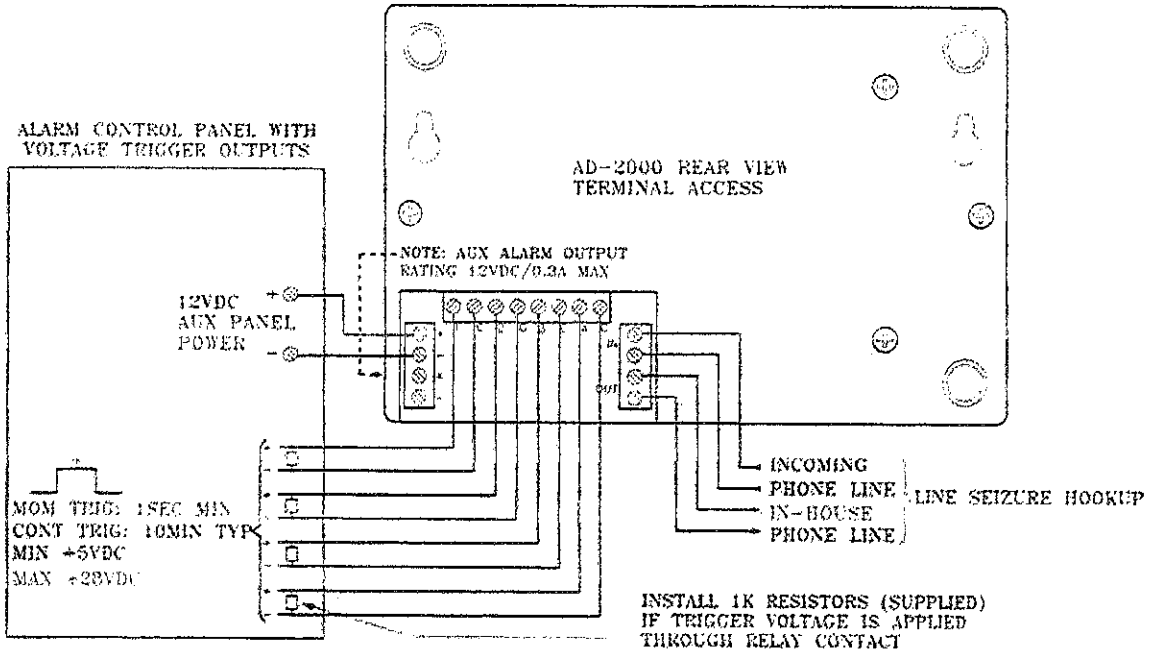
AD-2000 TOP VIEW

AD-2000 INSTALLATION HOOKUPS

Alarm Panel



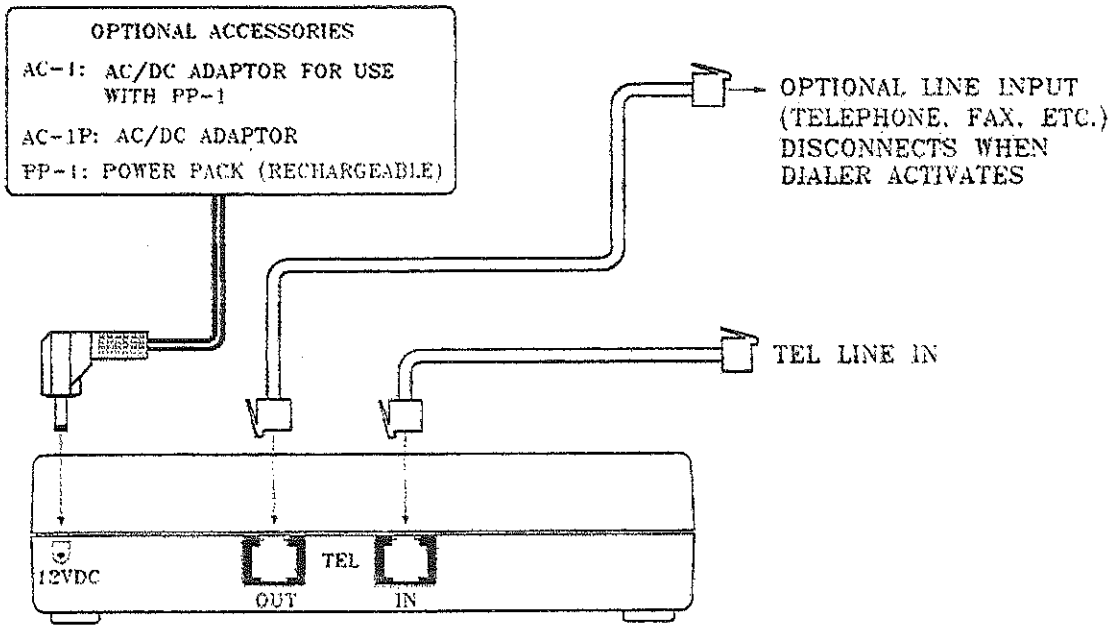
DRY CONTACT ALARM PANEL INTERFACE



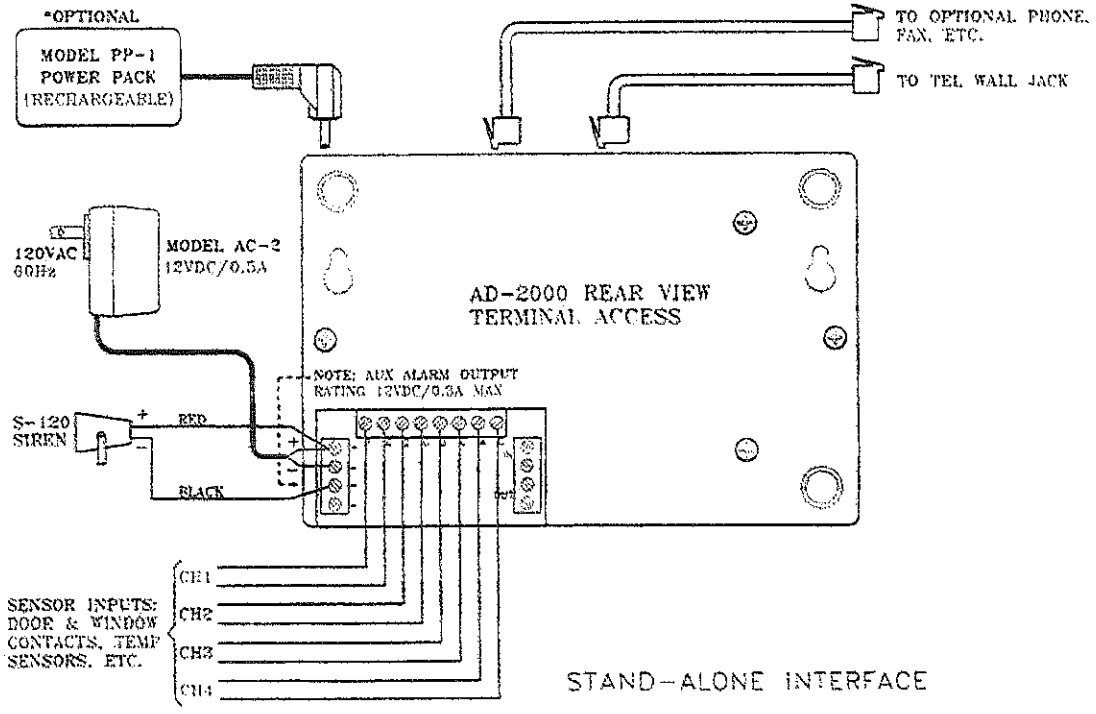
VOLTAGE TRIGGER ALARM PANEL INTERFACE

AD-2000 INSTALLATION HOOKUPS

Stand Alone



POWER & TELEPHONE LINE INTERFACE



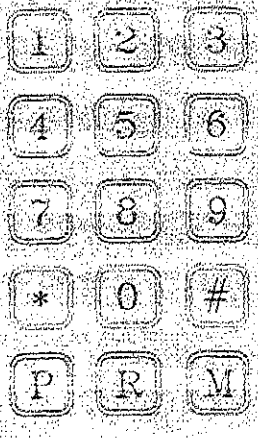
STAND-ALONE INTERFACE

PROGRAMMING THE DIALER

Overview

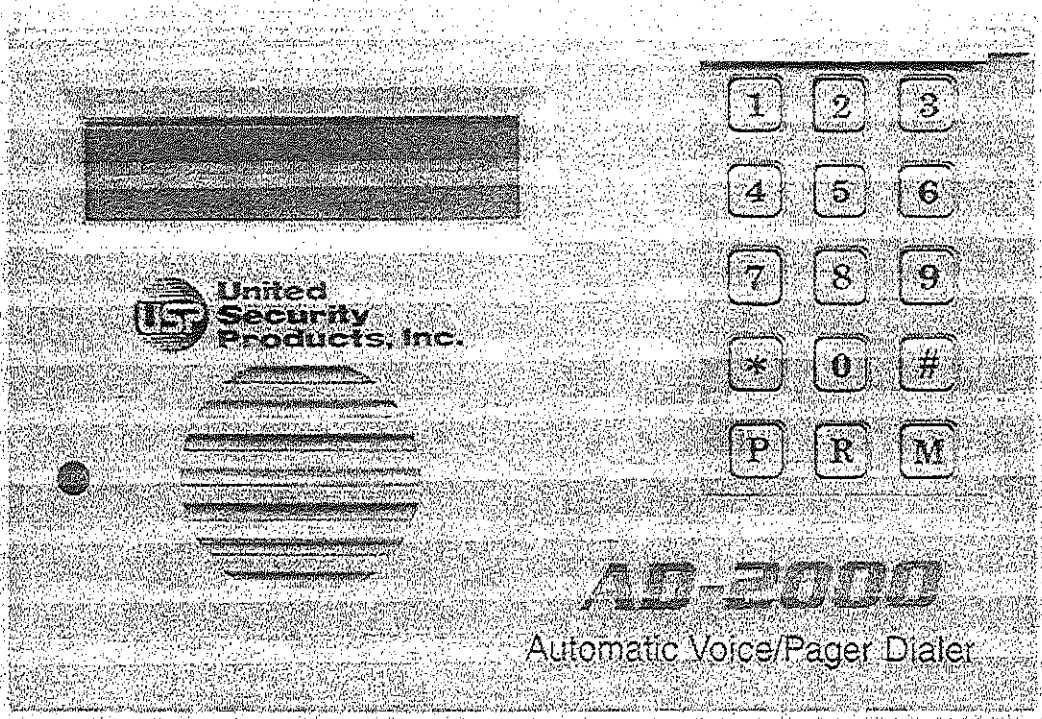
Please study this section thoroughly before beginning to program the dialer, referring to the Sample Program Planner on page 13. Then, select from among the options for each feature, listing each choice in pencil on the blank Program Planner on page 14. Once the dialer is correctly programmed, list each choice in ink. One copy of the Planner should be kept by the installer; one copy should remain with the end user.

A look At The Keypad



- **CALLOUT FOR NUMERALS:**
  Press these keys to enter telephone numbers and other programming information as specified in this manual. A maximum of 50 digits can be input in each phone/pager location.
- **CALLOUT FOR P:**
  Press this key to program in a pause. Each "P" provides a 2-second pause.
- **CALLOUT FOR R:**
  Press this key to record the combination of identification and directional outgoing messages (OGMs). The total elapsed OGM time cannot exceed 51 seconds.
- **CALLOUT FOR M:**
  Press this key to change the Mode of the dialer, in sequence:
  PROGRAM TEST OPERATE OFF.

Once the unit has been programmed, removing power or placing the dialer in the OFF mode will not affect the programming.



PROGRAMMING THE DIALER

First Time Installation to Initialize Dialer Follow Steps 1 & 2.

STEP 1 Apply power to the unit.
The LCD will read:
NOT PROGRAMMED
PRESS KEYPAD #1

STEP 2 Press 1.
The LCD will change to read:
USP AD2000 X.X
then: PROGRAM: NUMBERS
then: SELECT: 1-8
0(DONE)

Programming Telephone And/Or Pager Numbers

You are now ready to begin programming the dialer.
All programming can be input before connecting the dialer to a telephone line. Check the unit's LCD as you program numbers in the dialer to ensure accuracy. Please complete all programming instructions before attempting to operate the unit.

Before programming your dialer to call the police, fire department or 9-1-1 directly, you must check with these agencies for their approval.

A maximum of 50 digits (including pauses) can be programmed in at each location.

***PROGRAM: NUMBERS** **SELECT: 1-8**
1(YES) 2(NO) 0(DONE)

*This prompt will appear after a number has been programmed and this section has been exited

STEP 1 Press location number 1-8 to program the first number. This can be any location 1-8. You do not have to program locations in sequence. For example, you can program numbers in locations 3 and 5. **When you are done programming all the desired telephone and/or pager numbers, press "0" to exit this section.**
The LCD will read: PAGER
1(YES) 2(NO)

STEP 2 Press "1" if you wish to program in a numeric pager number (step 3A). Press "2" if you wish to program in a telephone number (step 3B), cellular phone numer (step 3B), or a voice pager (step 3C).

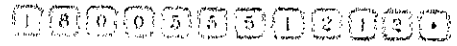
STEP 3A- NUMERIC PAGERS

NOTE: WHEN PROGRAMMING NUMERIC PAGERS, YOU MUST PROGRAM IN ONE OR MORE PAUSES. EACH "P" PROVIDES A 2-SECOND PAUSE. BEFORE PROGRAMMING IN A PAGER, CALL THE NUMBER TO DETERMINE THE NUMBER OF 2-SECOND PAUSES TO BE PROGRAMMED IN.

If you pressed "1" to program in a numeric pager...
Press the digits of the pager to be called. The numbers will appear on the LCD, as will the following key designations.
Press "P" one or more times in accordance with the number of seconds needed to accommodate the pager.
(Remember, each "P" provides a 2-second pause).
Press the digits of the numeric pager code.
NOTE: SOME PAGER SERVICES REQUIRE A "#" SIGN FOR SEPARATION OF THE NUMERIC CODE OR AT THE END OF THE NUMERIC CODE FOR PROPER TRANSMISSION.
Press "*" to store the sequence.
Example: To store numeric pager number 555-1212, a 4-second Pause and code 3456:
Press

STEP 3B – TELEPHONE NUMBERS

If you pressed "2" and wish to program in a telephone number...
Press the digits of the number to be dialed. For long-distance numbers, first press "1" followed by the area code and then the number. The number will appear on the LCD.
Press "*" to store the sequence.
Example: Store telephone number 1-800-555-1212:
Press:



REMEMBER/NOTE: Before programming your dialer to call the police, fire department or 9-1-1 directly, you must check with these agencies for their approval.

STEP 3C – VOICE PAGERS

If you pressed "2" and wish to program in a voice pager...

Press the digits of the pager to be called.

Press "P" one or more times in accordance with the number of seconds needed to accommodate the pager.
(Remember each "P" provides a 2-second pause).

Press "*" to store the sequence. The number will appear on the LCD.
Example: To store voice pager 555-1212 and a 4-second pause:
Press:

STEP 4 Repeat steps 1-3 for each number to be programmed in each location. Select any of 8 location numbers in Step 1 (SELECT: 1-8) for each number to be programmed.

STEP 5 When you are done programming all desired telephone and/or pager numbers, press "0" to exit this section.

NOTE: IF YOU ENTER THE WRONG CHOICE, PRESS "M" KEY REPEATEDLY AND RETURN TO THE "PROGRAM MODE". THEN SELECT THE SECTION TO CHANGE ("1" ACCEPT SECTION, "2" FOR NEXT SECTION). THEN ENTER CORRECT INFORMATION.

PROGRAMMING THE DIALER

Programming Auxiliary Information

The dialer is preset at the factory to typical telephone line (T-LINE), PBX, Dialing Attempts and Message Repeat options. If you choose to accept the following default prompts, simply press "2" to scroll to the next section. If your phone system **requires dialing a digit to get an outside line or dial tone,** similar to PBX, then turn PBX on and enter digit to **program.**

PRESETS

T-LINE.....TONE
PBX.....OFF
ATTEMPTS.....2
MESSAGE.....2

To change the presets, follow these steps.

T-LINE

The LCD will display: **PROGRAM: T-LINE**
1(YES) 2(NO)

Press "1" to program T-LINE.
Press "2" to scroll to the next section.

The LCD will display: **PROGRAM: T-LINE**
1(TONE) 2(PULSE)

Press "1" for TONE. Press "2" for PULSE.

PBX

The LCD will display: **PROGRAM: PBX**
1(ON) 2(OFF)

Step 1: Press "1" for ON. Press "2" for OFF.
Step 2: If "1" is entered, the LCD will display:
PROGRAM: PBX
ENTER PBX NUMBER

Enter PBX number (1 digit).

ATTEMPTS

ATTEMPTS refers to the number of times the dialer will call each designated number. Both successful and unsuccessful (busy or no answer) call are considered attempts.

The LCD will display: **PROGRAM: ATTEMPTS**
ENTER 1-9

Step 1: Press the digit (1-9) corresponding to the number of times you wish the dialer to call each number.

MESSAGE

MESSAGE refers to the number of times each message will be delivered to each designated number.

The LCD will display: PROGRAM: MESSAGE
REPEAT ENTER 1-3

Step 1: Press the digits (1-3) corresponding to the number of times you wish the message(s) to be delivered.

After selecting the number of message repeats, the dialer will automatically exit this section.

Structuring Your Outgoing Messages

The AD-2000 dialer was designed with optimum versatility and functionality in mind. Nowhere is this more apparent than in the matrix of outgoing messages (OGMs). The user's ability to "mix and match" OGMs allows complete system customization and provides ultimate efficiency.

Total OGM time is 51 seconds.

A beginning identification (ID) message of up to 15 seconds can be programmed in (options #4, #6, and #8). Your ID message should clearly state your name, address and other pertinent emergency information.

Typically, each OGM will have a specific purpose. For instance, OGM 1 can alert the person notified to contact the fire department while OGM 2 can alert the person to contact the police department. Typically the dialer is programmed to notify family, friends or another responsible party. Before programming your dialer to call the police, fire department or 9-1-1 directly, you must check with these agencies for their approval.

OPTION #1 No OGM. Select this option if you do not wish to record any outgoing messages.

OPTION #2 1 OGM. Select this option if you wish to record one OGM, which may be as long as 51 seconds.

OPTION #3 2 OGMs. Select this option if you wish to record two OGMs, each of which may be as long as 25.5 seconds.

OPTION #4 ID plus 2 OGMs. Select this option if you wish to record one ID of up to 15 seconds in length, and two OGMs, each of which may be as long as 18 seconds.*

OPTION #5 3 OGMs. Select this option if you wish to record three OGMs, each of which may be as long as 17 seconds.

OPTION #6 ID plus 3 OGMs. Select this option if you wish to record one ID of up to 15 seconds in length, and three OGMs, each of which may be as long as 12 seconds.*

OPTION #7 4 OGMs. Select this option if you wish to record four OGMs, each of which may be as long as 12.75 seconds.

OPTION #8 ID plus 4 OGMs. Select this option if you wish to record one ID of up 15 seconds in length, and four OGMs, each of which may be as long as 9 seconds.*

*If your ID message is less than 15 seconds in length, the remaining time will be evenly divided among the OGMs.

Example: OPTION #4: ID plus 2 OGMs.

If the ID is 10 seconds, then each OGM can be (51 minus 10 equals 41 divided by 2 equals) 20.5 seconds in length.

PROGRAMMING THE DIALER

Programming And Recording Your Outgoing Messages

Follow these steps to program and record your outgoing messages. Skip this portion if you have programmed in only numeric pagers, which rely on coded DTMF messages. As with all AD-2000 programming, the unit need not be connected to a phone line when information is programmed in. Remember that "OPT" on the LCD stands for option; "OGM" stands for outgoing message.

NOTE: IF YOU ENTER THE WRONG CHOICE, PRESS "M" KEY REPEATEDLY AND RETURN TO THE "PROGRAM MODE", THEN SELECT THE SECTION TO CHANGE ("1" ACCEPT SECTION, "2" FOR NEXT SECTION). THEN ENTER CORRECT INFORMATION.

STEP 1 Decide which of the eight options you prefer.

STEP 2 Before programming in this option, write down all your messages. Time them carefully, changing them if necessary to fit the alotted time frame. Practice saying them, clearly enunciating each message for maximum clarity in case of an emergency. Keep a final recording script.

STEP 3 Program your option.

A) The LCD will read: **PROGRAM: OGMS**
1(YES) 2(NO)

B) Press "1" to program your OGMs. Press "2" to scroll to the next section.

C) Press "1" to select the option (#1- #8) displayed or press "2" to scroll to the desired option.

STEP 4 After selecting your option as explained above, record your message.

A) The word RECORD will appear in the upper left corner of the LCD, above the instruction: PRESS R. The option selected will appear in the upper right corner. For instance, if you selected option #2, the LCD will read:
RECORD OGM1
PRESS R

B) Speak 6-12 inches away from the microphone. Referring to your script and speaking in a normal voice, press and hold R (the word RECORDING will be displayed), releasing the key after you have completed enunciating your messages. The word DONE will appear on the LCD when the maximum allotted time has been reached.

C) The LCD will read: **PLAY OGM(S)**
1(YES) 2(NO)
Press "1" to play back your recording

D) The LCD will read: **ACCEPT**
1(YES) 2(NO)
Press "1" to accept the recorded OGM(s). Press "2" if you wish to re-record the messages, beginning with Step 4.

Changing The OGMs

After your system is up and operating, you may change one or more of the recorded OGMs and/or choose a completely different option. To do so, simply scroll to the programming section on your display: PROGRAM: OGMS
1(YES) 2(NO)
Select the option, then begin again from Step 3 above to record your new message(s).

Programming The Channels

The AD-2000 is designed to be adaptable to a complete range of personalized applications. Each of the four input channels can be programmed individually for full system customization. In addition to setting enable/disable options, entry/exit delays and type of activation (N.O., N.C., & momentary or continuous), each user can specify which emergency messages will be delivered and which numbers will be dialed. The first channel activated will be the priority channel. Numbers programmed to that channel will be completed before the dialer moves on to the next channel(s).

Although comprehensive in scope, the system is easy to program. Just follow these simple steps.

NOTE: IF YOU ENTER THE WRONG CHOICE, PRESS "M" KEY REPEATEDLY AND RETURN TO THE "PROGRAM MODE", THEN SELECT THE SECTION TO CHANGE ("1" ACCEPT SECTION, "2" FOR NEXT SECTION). THEN ENTER CORRECT INFORMATION.

STEP 1 The LCD will read: **PROGRAM: CHANNELS**
1(YES) 2(NO)
Press "1" to begin programming the channels.

STEP 2 The LCD will read: **SELECT: 1-4**
0(DONE)
Enter the channel you wish to program (1-4).

Enable/Disable

STEP 3 The LCD will read: **CH *X*: ENABLE**
1(YES) 2(NO)
("CH *X*" being the channel selected)
Press "1" to enable the channel. Press "2" to disable the channel.

Exit/Entry Delays

Capable of programming up to a maximum of 3 minutes and 20 seconds each.

STEP 4 The LCD will read: **CH *X*: EXIT DELAY**
1(YES) 2(NO)
Proceed with A) if you wish to program an exit delay.
Proceed with B) if you do not.

A) To program exit delay, press "1".
The LCD will read: **ENTER 0-199 THEN**
PRESS *
Enter the digits corresponding to the number of seconds you wish to install. (For example, press "120" then press "*", if you wish to install a 120-second exit delay).

B) If you do not wish to program an exit delay, press "2".

STEP 5 The LCD will read: **CH *X*: ENTRY DELAY**
1(YES) 2(NO)
Proceed with A) if you wish to program an entry delay.
Proceed with B) if you do not.

A) To program an entry delay, press "1".
The LCD will read: **ENTER 0-199 THEN**
PRESS *
Press "1" to program a delay. Then enter the digits corresponding to the number of seconds you wish to install. (For example, press "90" then press "*", if you wish to install a 90-second delay).

B) If you do not wish to program an entry delay, press "2".

PROGRAMMING THE DIALER

Normally Open/Normally Closed

STEP 6 The LCD will read:

CH *X*: N.O./N.C.
1(N.O.) 2(N.C.)

A) Press "1" to select a normally open channel.
B) Press "2" to select a normally closed channel.

Momentary/Continuous Activation

STEP 7 The LCD will read:

CH *X*: MOM/CONT
1(MOM) 2(CONT)

A) Press "1" to select a momentary trigger.
B) Press "2" to select continuous activation.

Numbers Dialed/Outgoing Messages

Following these steps allows you to choose which OGM(s) will be delivered and which numbers will be dialed for each channel. NOTE: Dialer LCD will only show programmed numbers and OGM options.

STEP 8 The LCD will read:

CH *X*: DIAL #X
1(YES) 2(NO)

("Dial #X" being the number in phone/pager location 1-8)

A) Press "1" to dial phone/pager #X to be dialed when the selected channel is activated. Press "2" if you do not wish this number to be dialed.
B) Continue the above procedure for each of the up to eight phone/pager numbers programmed in.

STEP 9 The LCD will read:

CH *X*: OGM *X*
1(YES) 2(NO)

("OGM *X*" being the OGM recorded in OGM options #2 - #8)

A) Press "1" to deliver OGM *X* when the channel is activated. Press "2" if you do not wish this OGM to be delivered.
B) Continue the above procedure for each Channel/OGM. If you have programmed in and recorded an ID message as one of your OGM options, this ID will be delivered to all channels. It will not appear in the Channel display.

NOTE: ID AND OGM(S) WILL ONLY BE DELIVERED TO TELEPHONE NUMBERS, CELLULAR NUMBERS, AND VOICE PAGERS.

Completing The Programming

Once you have programmed in all dialing and OGM options for each channel, the LCD will read:

ACCEPT
1(YES) 2(NO)

STEP 10 Press "1" to accept the Channel programming. Press "2" to re-program or to revert to previously programmed setting.

You are now ready to review your programming and test the system.

PRESS "M" TO EXIT PROGRAMMING MODE.

TESTING YOUR SYSTEM

Test your system before an emergency occurs.

Do not neglect to review programmed information and verify all elements of your system thoroughly before relying on the dialer to deliver the necessary information to the desired parties accurately and completely.

We strongly recommend testing the system in test mode before connecting to a telephone line. The test mode tests the stored information, not the full functionality of the dialer. To test the full functionality of the dialer, the unit must be tested in the operate mode. In the test mode, the dialer will not make more than one attempt per number dialed or play any OGM more than once.

NOTE: IF YOU ENTER THE WRONG CHOICE, PRESS "M" KEY REPEATEDLY AND RETURN TO THE "PROGRAM MODE". THEN SELECT THE SECTION TO CHANGE ("1" ACCEPT SECTION, "2" FOR NEXT SECTION), THEN ENTER CORRECT INFORMATION.

STEP 1 Press the "M" Mode key until the LCD reads:

TEST: T-LINE
1(YES) 2(NO)

STEP 2 Press "1" to display the T-Line configuration. The data will scroll through all selections.
Press "2" to scroll to the next section.

STEP 3 The LCD will read:

TEST: CHANNEL(S)
1(YES) 2(NO)

Press "1" to test channels.
Press "2" to scroll to the next section.

STEP 4 The LCD will read:

SELECT: 1-4
5(ALL) 0(DONE)

Select the channel you wish to test (1-4). Press "5" to test "all" Channels. Once a channel is selected (or "all") the programmed channel information will be displayed on the LCD. Verify data accuracy as the LCD scrolls through by comparing the information displayed with that specified on your Program Planner. Listen to your recorded message(s) to ensure that the correct OGM (if programmed) is delivered. Press "0" to exit testing.

STEP 5 Now connect your dialer to the telephone line you will be using and test the system again, to determine if it functions correctly in an actual emergency situation.

Make sure you notify the receiving party of your intent to call them, and tell them it is just a test.

STEP 6 To test the operation of your entire system, set Mode to OPERATE and proceed as explained in the next section: Operating Your System.

Test your system on a regular basis, at least once a week.

OPERATING YOUR SYSTEM

You are now ready to begin operating your system, relying on the AD-2000 to work in conjunction with your alarm system to provide 24-hour security reassurance and peace of mind.
When in the operating mode, the system will monitor all the enabled channels, initiating dialing when a valid alarm condition occurs. Upon activation the dialer will begin calling each phone/pager number selected, in sequence, for the pre-selected number of attempts. During each successful attempt, the voice message will be delivered 1, 2, or 3 times, in accordance with the option selected (numeric messages will only be delivered one time). In unsuccessful attempts, the dialer will move on to the next phone/pager number after receiving 8 busy or 8 rings without an answer. The dialer will not allow voice messages to be delivered to programmed numeric pager locations.
If you send a message to a phone attached to an answering machine, it will consider this a successful attempt. Make sure you designate the maximum number of message repeats to be sure that a complete message will be left on the answering machine, because part or all of your emergency message may be "lost" while the answering machine delivers its greeting message.
Placing your system in OPERATE can also be used as a final test of the full functionality of each channel's exit/entry delay, activation, momentary/continuous trigger, phone numbers and OGM. Although serving as a test, this mode reflects actual operation; therefore the OGM(s) will not be heard through your dialer's speaker but only by each party called.
To begin operating your system, simply press the "M" Mode key until the word OPERATE appears on the LCD. To disarm the dialer, switch the mode of OFF by pressing the same key. All programming information will be retained.

System Notations

Here are a few explanations to help you better understand how your AD-2000 dialer operates. For specific information on the AD-2000 unit alone, call United Security Products, Inc.'s Customer Service Department during normal business hours at 858-413-0149

Channel Activation

Each of the dialer's four channels can be activated by any of the following: a normally open dry contact, normally closed dry contact or positive 5-28VDC voltage activation.
Under a momentary activation, a single violation of a channel will cause the dialer to initiate delivering all pre-selected OGMs to all programmed numbers associated with that channel. Under continuous activation, the dialer will initiate the process, terminating it if/when the activated channel is retored to a non-alarm state. Once an alarm has occurred and all attempts satisfied, the dialer will continue to monitor any remaining enabled channel(s). Once the activated channel has been restored to a non-alarm state, it will then be rearmed and ready for the next alarm.

Exit/Entry Delays

If a channel is activated during a pre-selected exit delay, the alarm condition will be ignored until the delay has expired. If an alarm occurs, the entry delay will cause the dialer to wait before starting the dialing process. To de-activate the dialer during the entry wait period, simply press "M" to return to the OFF Mode. Both exit and entry delay times can be pre-selected to range from 1-199 seconds.

Additional features

The dialer offers three innovative features that enhance the utility of the entire system.

Listen-In

While receiving an OGM on a touch-tone phone, the called party can press "1" to listen in to the activity at the other end of the line for one minute. Pressing "1" again restarts the minute increment period and can be repeated indefinitely. When "1" is pressed the OGM will stop playing and the listen in period will start.

Two-Way

After the called party is listening-in, that party can press "2" to begin a two-way conversation lasting for one minute. This procedure also can be repeated indefinitely by pressing "2" again to restart the minute. Once you are in two-way mode you cannot go back to Listen-In.

Remote Turn-Off

The called party can remotely terminate the activated channel any time during the OGM by pressing "1" then "#" twice within one second. The dialer will continue to monitor the remaining channel(s). Once the terminated channel is restored to a non-alarm state, it will re-arm. If in listen-in or two-way, simply press "#" twice in one second, for remote turn-off.

New Feature

A new feature has been added to the dialer, allowing you, the user, to disable the microphone during initial setup. In locations where the noise level is very high, the AD2000 and AD2001 dialers my have difficulty accepting the RTO (remote turn-off) command that you, the primary user, may issue via your telephone keypad. As a result of high ambient noise, the dialer may fail to recognize the RTO sequence during the listen-in period (or in the 2-way conversation mode) and continues to dial other number stored in its memory. With the microphone disabled, the dialer would have no problem recognizing the "#" "#"sequence to prevent it from dialing other numbers regardless of background noise. If, on the other hand, you decide to stay on the line for 60 seconds, the microphone channel will re-activate and allow you to listen in and decide then if other actions need to be taken based on the audible information received. But keep in mind that you may not succeed in sending the RTO command during this time. After completing the call, the dialer simply continues to dial other numbers as many times as programmed. If programmed for multiple dialing, you should be able to break the sequence by sending the RTO command the next time you're called within 60 seconds after pressing "1" during the OGM cycle. Please read the manual for standard RTO operation and determine beforehand if noise is a problem and decide to disable the microphone at installation time, or if it's best to relocate the dialer to a less noisy environment.

Sample Program Planner

AD2000 PROGRAM PLANNER

Date: 11/3/97

PROGRAM: NUMBERS

NUMBER	PAGER YES	PAGER NO	TELEPHONE NUMBER (exclude PBX digit, include numeric pager code)	NAME OF PARTY TO BE REACHED
1		✓	2345678	John Johnson's house
2				
3				
4				
5	✓		3456789PP4455#	John Johnson's pager – burglary code
6	✓		3456789PP5544#	John Johnson's pager – fire code
7				
8				

PROGRAM: T-LINE

TONE	PULSE	PBX ON	PBX OFF	ATTEMPTS 1 THROUGH 9	MESSAGE REPEAT 1 THROUGH 3
✓		NUMBER ___	✓	2	2

SAMPLE

PROGRAM: OGMs

OPTION	STYLE	BRIEFLY DESCRIBE TYPE OF VOICE MESSAGE(S)
	1 NO OGM	
	2 1 OGM	
	3 2 OGMs	
✓	4 ID + 2 OGMs	ID: My name is Mary Smith and I need help. OGM1: Call the police department. OGM2: Call the fire department.
	5 3 OGMs	
	6 ID + 3 OGMs	
	7 4 OGMs	
	8 ID + 4 OGMs	

PROGRAM: CHANNELS

CH	ENABLE YES	ENABLE NO	EXIT DELAY(SEC) YES	EXIT DELAY(SEC) NO	EXIT DELAY(SEC) 0–199	ENTRY DELAY(SEC) YES	ENTRY DELAY(SEC) NO	ENTRY DELAY(SEC) 0–199	ACTIVATION NO	ACTIVATION NC	ACTIVATION MOM	ACTIVATION CONT	DIAL NUMBER 1	2	3	4	5	6	7	8	PLAY OGM 1	2	3	4
1	✓		✓		30	✓		15		✓	✓		✓				✓				✓			
2		✓																						
3		✓																						
4	✓			✓	0		✓	0	✓			✓	✓					✓				✓		

Programming Example for Quick Setup

Before programming the dialer, study the example shown on this page. This "quick setup" example programs in one telephone number, two numeric pager numbers, two attempts, two repeats, an ID plus two additional OGMs, and channels 1 and 4.

Once you understand the setup, use the blank Program Planner on page 14 to begin programming your dialer. We recommend making several blank copies of the Planner before beginning the process. It also is advisable to fill in the Planner in pencil initially.

STEP 1 Press "1".

STEP 2 When the LCD reads SELECT 1-8, press "1" to install the first phone number in location 1 press "2" to indicate no pager; then press, in sequence, (fictitious) phone number "2345678" followed by the "*" sign to store the programming process for that number.

STEP 3 Press "5" to install the second phone number in location 5; press "1" to indicate numeric pager; then press, in sequence, "3456789PP4455#" followed by the "*" sign. The first seven digits represent the pager number dialed; each P stands for a 2-second pause; the next four digits followed by the # sign represent the pager code and the * stores the programming process for that number.

Now press "6" to install the third phone number in location 6; press "1" to indicate numeric pager; then press, in sequence, "3456789PP5544#" followed by the "*" sign.

STEP 4 Press "0" to exit PROGRAM NUMBERS.

STEP 5 At the PROGRAM: T-LINE prompt, press "1" to choose tone; press "2" to indicate no PBX; press "2" to program in two dialing attempts per emergency number called; press "2" to program in two message repeats for each call.

STEP 6 Press "1" to PROGRAM OGM(S). Press "2" three times to Scroll to option #4; press "1" to program in an ID message and two specific outgoing messages (OGMs).

STEP 7 Using a prepared script and speaking six-to-eight inches from the dialer's microphone on the front of the unit, press "R" when you are ready to enunciate your 15-second identification message and your two 18-second messages. Dialer automatically prompts to next OGM. Make OGM1 a message telling the receiving party to call the police department. Make OGM2 a message to call the fire department.

STEP 8 Press "1" to play back all recorded messages; press "1" again to accept. (NOTE: DIALER LCD WILL ONLY SHOW PROGRAMMED NUMBERS AND OGM OPTIONS).

STEP 9 Press "1" to PROGRAM CHANNELS.

STEP 10 Press "1" to program Channel 1. Press "1" to ENABLE. Press "1" then enter "30" then press "*" for a 30-second EXIT delay; press "1" then enter "15" then press "*" for a 15-second entry delay. Now press "2" for NORMALLY CLOSED and then "1" for MOMENTARY activation. Press "1" to select phone/pager number 1 to be dialed. Press "1" again to select phone/pager number 5 to be dialed. Press "2" to not select phone/pager number 6 to be dialed. Press "1" to select OGM1 to be delivered and press "2" to not select OGM2 to be delivered. Press "1" to accept the channel configuration.

STEP 11 Press "4" to program Channel 4. Press "1" to ENABLE. Press "2" twice to indicate no EXIT or ENTRY delay. Now press "1" for NORMALLY OPEN and the "2" for CONTINUOUS activation. Press "1" to select phone/pager number 1 to be dialed. Press "2" to not select phone/pager 5 to be dialed. Press "1" to select phone/pager number 6 to be dialed. Press "2" to not select OGM1 to be delivered and press "1" to select OGM2 to be delivered. Press "1" to accept the channel configuration.

STEP 12 Press "0" to exit PROGRAM: CHANNELS.

Press "M" to exit programming mode.

Fill out this Program Planner in pencil initially

AD2000 PROGRAM PLANNER

Date:

PROGRAM: NUMBERS

NUMBER	PAGER YES	PAGER NO	TELEPHONE NUMBER (exclude PBX digit, include numeric pager code)	NAME OF PARTY TO BE REACHED
1				
2				
3				
4				
5				
6				
7				
8				

PROGRAM: T-LINE

TONE	PULSE	PBX ON	PBX OFF	ATTEMPTS 1 THROUGH 9	MESSAGE REPEAT 1 THROUGH 3
		NUMBER ___			

PROGRAM: OGMs

OPTION	STYLE	BRIEFLY DESCRIBE TYPE OF VOICE MESSAGE(S)
1	NO OGM	
2	1 OGM	
3	2 OGMs	
4	ID + 2 OGMs	
5	3 OGMs	
6	ID + 3 OGMs	
7	4 OGMs	
8	ID + 4 OGMs	

PROGRAM: CHANNELS

CH	ENABLE YES	ENABLE NO	EXIT DELAY(SEC) YES	EXIT DELAY(SEC) NO	EXIT DELAY(SEC) 0-199	ENTRY DELAY(SEC) YES	ENTRY DELAY(SEC) NO	ENTRY DELAY(SEC) 0-199	ACTIVATION NO	ACTIVATION NC	ACTIVATION MOM	ACTIVATION CONT	DIAL NUMBER 1	2	3	4	5	6	7	8	PLAY OGM 1	2	3	4
1																								
2																								
3																								
4																								

AD2000 PROGRAM PLANNER

Date:

PROGRAM: NUMBERS

NUMBER	PAGER YES	PAGER NO	TELEPHONE NUMBER (exclude PBX digit, include numeric pager code)	NAME OF PARTY TO BE REACHED
1				
2				
3				
4				
5				
6				
7				
8				

PROGRAM: T-LINE

TONE	PULSE	PBX ON	PBX OFF	ATTEMPTS 1 THROUGH 9	MESSAGE REPEAT 1 THROUGH 3
		NUMBER ___			

PROGRAM: OGMs

OPTION	STYLE	BRIEFLY DESCRIBE TYPE OF VOICE MESSAGE(S)
1	NO OGM	
2	1 OGM	
3	2 OGMs	
4	ID + 2 OGMs	
5	3 OGMs	
6	ID + 3 OGMs	
7	4 OGMs	
8	ID + 4 OGMs	

PROGRAM: CHANNELS

CH	ENABLE YES	ENABLE NO	EXIT DELAY(SEC) YES	EXIT DELAY(SEC) NO	EXIT DELAY(SEC) 0-199	ENTRY DELAY(SEC) YES	ENTRY DELAY(SEC) NO	ENTRY DELAY(SEC) 0-199	ACTIVATION NO	ACTIVATION NC	ACTIVATION MOM	ACTIVATION CONT	DIAL NUMBER 1	2	3	4	5	6	7	8	PLAY OGM 1	2	3	4
1																								
2																								
3																								
4																								

After thoroughly testing your system, redo your Program Planner in ink.
One copy should be kept in a safe place by the end user; one copy should be retained by the installer.

SPECIFICATIONS

Dimensions

Power source:	9-18VDC
Current (OPERATE mode – standby):	28mA typical.
Current (OPERATE mode – dialing):	100mA max.
Activation:	1) N.C. Activation: dialer activates when an "open" is detected 2) N.O. Activation: dialer activates when a "close" is detected 3) Voltage Activation: N.C. (applied voltage: Min. +5VDC, Max. +28VDC) N.O. (loss of continuous voltage: Min. 0VDC, Max. 0.25VDC)
Max. digits for outgoing numbers:	50
Operating temperature range:	-18 to 55 C (0 to 130 F)
Dimensions (inches):	6 x 4 x 1.5 in
Weight (ounces):	10 oz
Mounting:	Wall or Flat Surface
Case Material:	ABS
Color:	White
Warranty:	1 Year

Note: Design and specifications subject to change without notice.

DIALER ACCESSORIES

Power Source

AC-1: AC/DC Adaptor
Plugs into regular 110VAC outlet to provide the dialer with the required primary power.

AC-2: AC/DC Adaptor
12VDC/0.5A for stand alone with siren use.

PP-1: Power (Rechargeable)
Provides 24 (est.) hours of backup standby power.

AC-1P: AC/DC Adaptor For Use With PP-1
Plugs into regular 110VAC outlet to provide the dialer with the required primary power and additional input for PP-1 interface.

IR-1: Isolation Relay
Converts alarm output voltage to N.C. to provide clean input trigger to dialer.

Industrial/Residential Sensors

F20: Temperature Supervisory Switch <40 F

WLS: Water Level Sensor
RTS: Adjustable Temperature Controller, N.O., N.C.
PLS: Power Loss Sensor (110VAC)

Sensors

Magnetic Contacts – Door and Window
Glass Break Detectors
Hold Up Buttons/Emergency Switches
Pressure Mats – Sealed and Under Carpet
Motion Detectors

Siren

S-120: 2" Mini Siren, 12VDC @ 120 mA typical

Additional Options

24V Application: AD-2000/F
For this option the dialer is configured to operate at 24VDC to 32VDC max. All other specifications apply.

NOTE: CALL UNITED SECURITY PRODUCTS FOR ADDITIONAL INFORMATION AND DEVICES NOT LISTED HERE.

IMPORTANT INFORMATION

Care And Precautions

LOCATION
Place the dialer on a flat level surface or mount the unit on the wall, away from extreme cold or heat, direct sunlight, excessive humidity and away from equipment that generate strong magnetic fields. Avoid placing near large metal objects and areas that produce smoke, dust and mechanical vibrations.

CARE
Clean the housing with a soft cloth lightly moistened with water or mild detergent solution. Never use solvents such as alcohol or thinner. Do not allow liquids to spill into the unit.

OPTIONAL BACKUP
To ensure continuous operation during power outages, hookup to a 12VDC backup battery pack is recommended. (PP-1) Available from United Security Products.

CAUTION
Do not use the dialer if a gas leak is suspected or during lightning.

PROBLEMS
If liquid or a foreign object penetrates the unit, disconnect it immediately and contact your installer or other qualified technician.

Before calling USP, please make sure...

- You have read this manual and understand how to operate the dialer.
- Your phone line is working.
- You check out the entire system, including external hookup wiring and sensors attached.

If you still have questions or concerns, call our USP Technical Service Department between the hours of 7:30 AM and 4:00 PM, PST, Monday through Friday.

Federal Communications Commission Radio And Television Interference Statement For A Class 'B' Device
This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class 'B' computing device in accordance with the specifications in Subpart B of FCC Rules and Regulations (as outlined in the Code of Federal Regulation, Title 47), which are designed to provide reasonable protection against such interference in a residential installation.

User Instructions
If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off, then on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate radio or television.
- Increase the separation between the equipment and receiver.
- Connect the equipment into a different outlet so that the equipment and receiver are on different branch circuits.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by United security Products, Inc. could void the user's authority to operate the equipment.

Appendix D

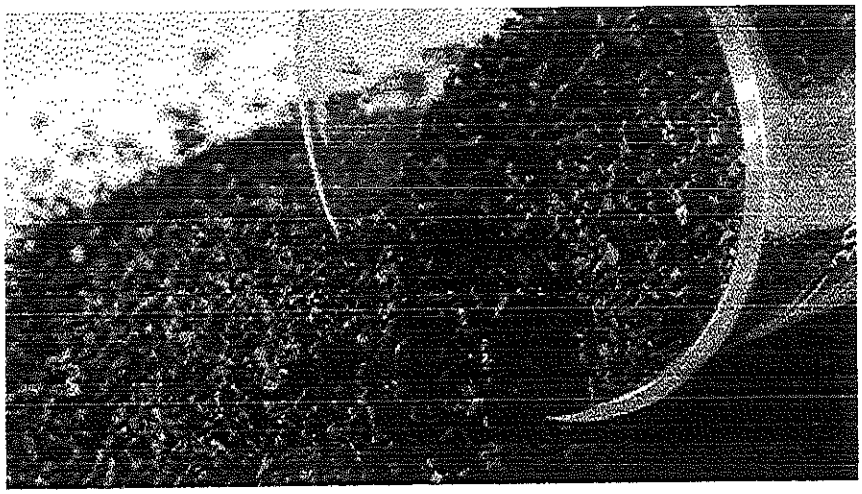
MSDS Sheets

USFILTER WESTATES CARBON

AQUACARB® 830 AND 1240

Coal based granular activated carbon

(Formerly KG-401 and KG-502)



FOR MUNICIPAL, INDUSTRIAL AND REMEDIAL WATER TREATMENT

Description & Applications

AquaCarb® 830 and AquaCarb® 1240 are high activity granular activated carbons manufactured from selected grades of bituminous coal. Manufactured by direct activation, they exhibit exceptional hardness and attrition resistance and have become a cost effective choice for use in municipal, industrial and remedial water treatment applications. These high surface area microporous carbons have been specifically developed for the removal of a broad range of organic contaminants from potable, waste and process waters.

- ANSI/NSF Standard 61 classified for use in potable water applications
- Fully conforms to physical, performance and leachability requirements established by the current ANSI/AWWA B604 (which includes the Food Chemical Codex requirements)
- A detailed quality assurance program guarantees consistent quality from lot to lot and shipment to shipment

Quality Control

All AquaCarb® activated carbons are extensively quality checked at our State of California certified environmental and carbon testing laboratory located in Los Angeles, CA. USFilter's laboratory is fully equipped to provide complete quality control analyses using ASTM standard test methods in order to assure the consistent quality of all AquaCarb® carbons.

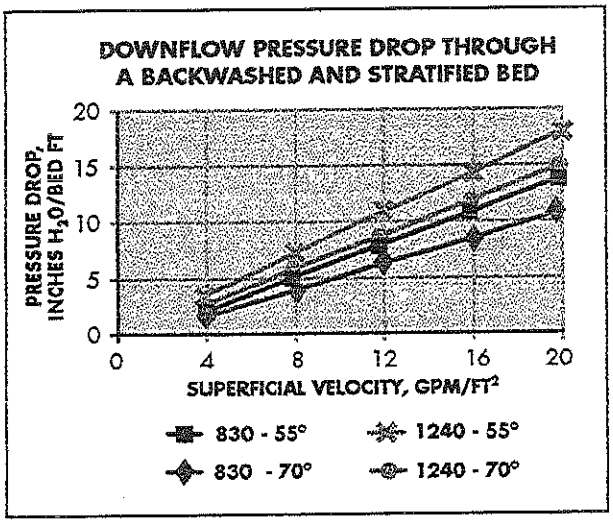
Our technical staff offers hands-on guidance in selecting the most appropriate system, operating conditions and carbon to meet your needs. For more information, contact your nearest USFilter representative.

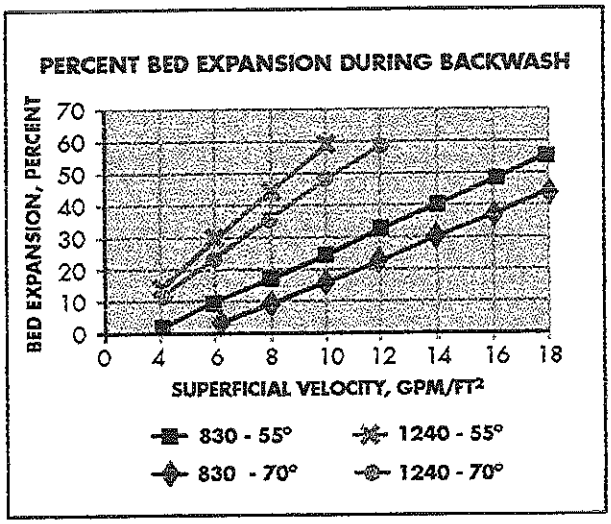
USFilter

AQUACARB® 830
AQUACARB® 1240

Coal based granular activated carbon

(Formerly KG-401 and KG-502)





Safety Note: Wet activated carbon depletes oxygen from the air and therefore dangerously low levels of oxygen may be encountered. Whenever workers enter a vessel containing activated carbon, the vessel's oxygen content should be determined and work procedures for potentially low oxygen areas should be followed. Read Material Safety Data Sheet (MSDS) before using this product.

All information presented herein is believed reliable and in accordance with accepted engineering practices. USFilter makes no warranties as to the completeness of this information. Users are responsible for evaluating individual product suitability for specific applications. USFilter assumes no liability whatsoever for any special, indirect or consequential damages arising from the sale, resale or misuse of its products.

SPECIFICATIONS/TYPICAL PROPERTIES

Specification	AquaCarb® 830	AquaCarb® 1240
Carbon Type	Bituminous Coal	Bituminous Coal
Mesh Size, U.S. Sieve	8 x 30	12 x 40
Effective Size, mm	0.8 - 1.1	0.55 - 0.75
Uniformity Coefficient (max)	2.1	1.9
Iodine No., mgI_2/g (min.)	900	1000
Abrasion No., Wt. % (min.)	80	80
Apparent Density, g/cc	0.46 - 0.54	0.46 - 0.54

USFilter reserves the right to change the specifications referred to in this literature at any time, without prior notice. AquaCarb is a trademark of United States Filter Corporation or its affiliates.

USFilter

Westates
Customer and
Technical Service Network:

Gulf Coast Region 800.659.1723
(Louisiana) 225.744.3153
Western Region 800.659.1771
Mid-Atlantic Region 800.659.1717
Midwest Region 708.345.7290
Northwest Region 800.659.1718
Southeast Region 225.744.3153
New England Region 800.659.1717

www.usfilter.com

RESINTECH SBG1

ANION EXCHANGE RESIN TYPE ONE GEL Cl OR OH FORM

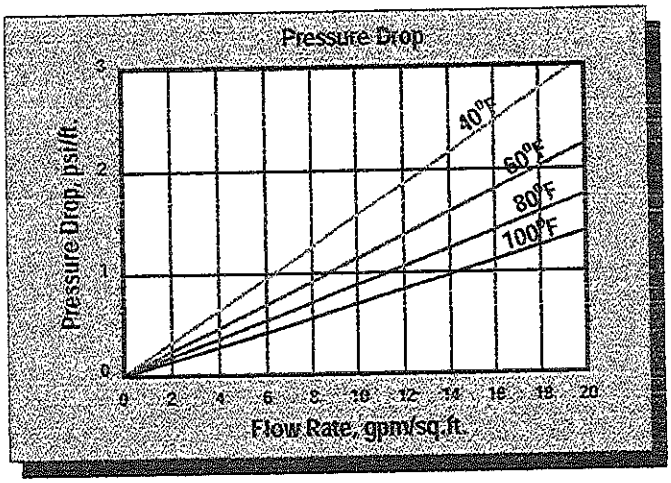
RESINTECH SBG1 is a high capacity, shock resistant, gelular, Type 1, strongly basic anion exchange resin supplied in the chloride or hydroxide form as moist, tough, uniform, spherical beads. *RESINTECH SBG1* is intended for use in all types of deionization systems and chemical processing applications. 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.

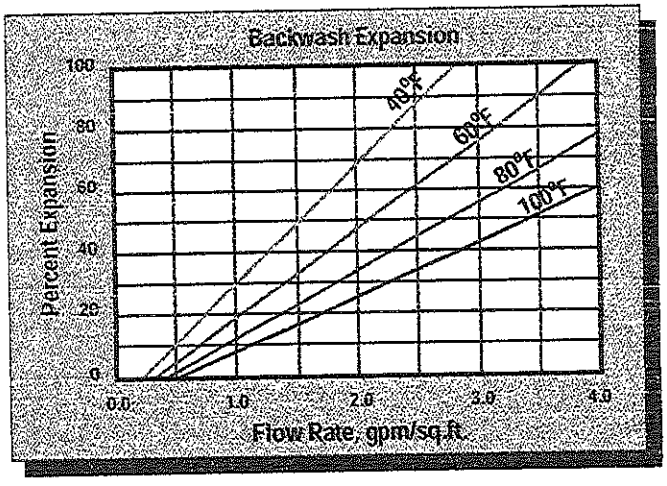
*For potable water applications, the resin must be properly pre-treated, usually by multiple exhaustion and regeneration cycles, to ensure compliance with extractable levels.

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.

1 Resintech Plaza - 160 Cooper Road - West Berlin,NJ 08091 - Phone:(856)768-9600 - Fax:(856)768-9601 - E-mail:ixresin@resintech.com - Web Site:www.resintech.com

Appendix E

Emergency Contacts List

In the event of an emergency:

GWTT Technician	**Chris Botelho**	**Cell - 508-455-7798**
Boston Environmental	**John Cole-**	**Office - 508-897-8025**
		Cell - 617-799-9271
	Mike Toomey-	**Office - 508-897-8062**
		Cell - 617-877-6648

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 $NaOH/ft^3$	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.

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Emergency Contacts List

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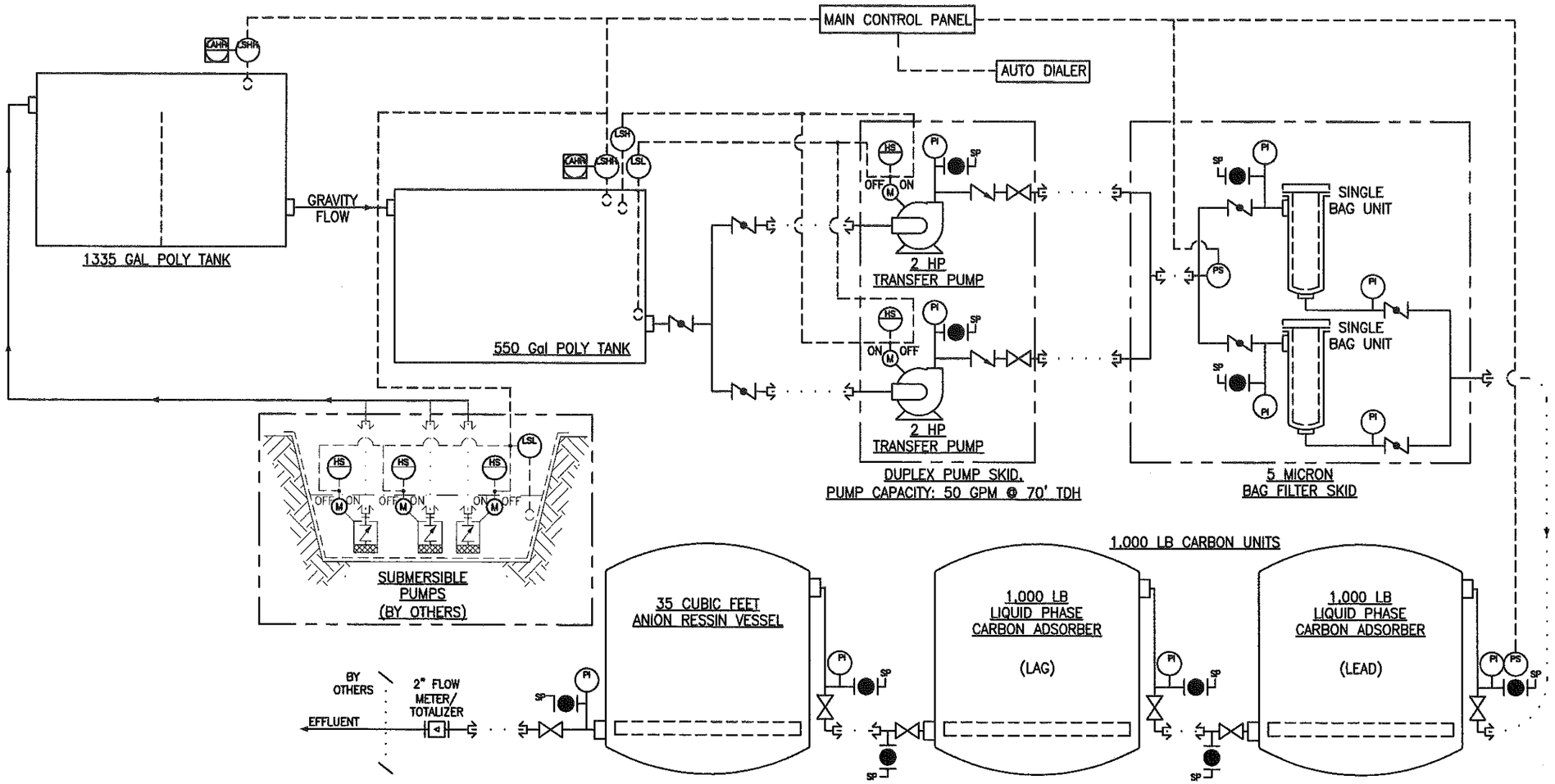


LEGEND

- PROCESS PIPING
- FLEXIBLE HOSE
- FLOW DIRECTION
- PIPE CROSS OVER
- BALL VALVE (NORMALLY CLOSE)
- BUTTERFLY VALVE
- CHECK VALVE
- GATE VALVE (OPEN)
- SP SAMPLE PORT
- CAM LOCK COUPLING
- (PI) PRESSURE GAGE
- (PS) PRESSURE SWITCH
- LEVEL FLOAT
- (M) MOTOR
- FLOW METER
- SUBMERSIBLE PUMP
- (LAHH) LEVEL ALARM HIGH HIGH
- (LSH) LEVEL SWITCH HIGH
- (LSHH) LEVEL SWITCH HIGH HIGH
- (LSL) LEVEL SWITCH LOW
- (HS) HAND OPERATED SWITCH

NOTES:
1) MAXIMUM FLOWRATE = 50 GPM
2) SYSTEM FOOTPRINT APPROX. 10' X 100'
3) NOT ALL VALVES, INSTRUMENTATION AND PIPING, ETC. SHOWN FOR CLARITY.
4) GENERATOR BY OTHERS. – 460V, 3 PHASE, 50 AMPS.
5) THIS DRAWING IS THE PROPERTY OF GROUND/WATER TREATMENT AND TECHNOLOGY, INC.

NO.	REVISIONS	DATE
D	CHANGED AUTODIALER TO CONTROL PANEL	11/03/09
C	ADDED 2 CHAMBER 1500 GAL POLY TANK	10/26/09
B	REMOVED TRAILER LIMITS,ADDED BY OTHERS FOR PUMPS	06/09/08
A	PRELIMINARY DESIGN FOR REVIEW, #1556	03/06/08

BOSTON ENVIRONMENTAL
CAMBRIDGE, MA

50 GPM WATER TREATMENT SYSTEM

SCALE: NONE	APPROVED: –	DRAWN BY: AV
DATE: 12/13/07		

GROUND/WATER TREATMENT & TECHNOLOGY, INC.
P.O. BOX 1174
DENVILLE, NJ 07834

DWG SIZE: A SIZE	FILE: 16-1496-PD	DRAWING NUMBER: PD

ATTACHMENT C:

NOTICE OF INTENT

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

A. General site information:

<table>
<tr><td>1. Name of site:
303 Third Street</td><td colspan="3">Site address:
Street: 303 Third Street</td></tr>
<tr><td rowspan="3">2. Site owner
303 Third SPE, LLC

Owner is (check one): ☐ Federal ☐ State/Tribal ■ Private
☐ Other; if so, specify:</td><td colspan="3">Contact Person: Rebecca Becker</td></tr>
<tr><td colspan="2">Telephone: 312-928-8471</td><td>Email: rbecker@eqr.com</td></tr>
<tr><td colspan="3">Mailing address:
Street: Two N. Riverside Plaza, Suite 400</td></tr>
<tr><td>City: Chicago</td><td>State: IL</td><td>Zip: 60606-2609</td></tr>
<tr><td rowspan="3">3. Site operator, if different than owner</td><td colspan="3">Contact Person:</td></tr>
<tr><td colspan="2">Telephone:</td><td>Email:</td></tr>
<tr><td colspan="3">Mailing address:
Street:</td></tr>
<tr><td>City:</td><td>State:</td><td>Zip:</td></tr>
<tr><td>4. NPDES permit number assigned by EPA:

NPDES permit is (check all that apply: ■ RGP ☐ DGP ☐ CGP
☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:</td><td colspan="3">5. Other regulatory program(s) that apply to the site (check all that apply):
■ MA Chapter 21e; list RTN(s):
3-18975
☐ 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):
Charles River	MA72-38	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.

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.	29.2 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.	263

6. Has the operator received confirmation from the appropriate State for the 7Q10and dilution factor indicated? (check one): ■ Yes ☐ No
If yes, indicate date confirmation received: 7/24/2019 (via email)

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: arsenic, copper, iron, lead, zinc, and cyanide	
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): City of Cambridge Out Fall D07	Outfall location(s): (Latitude, Longitude) 42 21' 46.2" N 71 04' 55.3" W
Discharges enter the receiving water(s) via (check any that apply): ☐ Direct discharge to the receiving water ■ Indirect discharge, if so, specify: Stormwater Drain ☐ 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: City approval for discharge requires EPA authorization and is expected within 2 weeks of EPA authorization 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): Ongoing Indicate if the discharge is expected to occur over a duration of: ☐ less than 12 months ■ 12 months or more ☐ is an emergency discharge	
Has the operator attached a site plan in accordance with the instructions in D, above? (check one): ■ Yes ☐ No	

<table>
<tr><td>2. Activity Category: (check all that apply)</td><td colspan="2">3. Contamination Type Category: (check all that apply)</td></tr>
<tr><td rowspan="5">☐ I – Petroleum-Related Site Remediation
☐ II – Non-Petroleum-Related Site Remediation
■ III – Contaminated Site Dewatering
☐ IV – Dewatering of Pipelines and Tanks
☐ V – Aquifer Pump Testing
☐ VI – Well Development/Rehabilitation
☐ VII – Collection Structure Dewatering/Remediation
☐ VIII – Dredge-Related Dewatering</td><td colspan="2">a. If Activity Category I or II: (check all that apply)

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

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

4. Influent and Effluent Characteristics

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
A. Inorganics									
Ammonia		✓	1	4500	75	2460	2460	Report mg/L	---
Chloride		✓	1	300	2500	621000	621000	Report µg/l	---
Total Residual Chlorine	✓		1	4500	20	0	0	0.2 mg/L	2894 µg/L
Total Suspended Solids		✓	1	2540D	12	99000	99000	30 mg/L	---
Antimony	✓		1	200.8	4	0	0	206 µg/L	167288 µg/L
Arsenic		✓	1	200.8	1	4.8	4.8	104 µg/L	2285 µg/L
Cadmium	✓		1	200.8	0.2	0	0	10.2 µg/L	0.2618 µg/L
Chromium III	✓		1	Calc	10	1.11	1.11	323 µg/L	21855.1 µg/L
Chromium VI	✓		1	3500	10	0	0	323 µg/L	3008.1 µg/L
Copper		✓	1	200.8	1	39	39	242 µg/L	1628.2 µg/L
Iron		✓	1	200.7	50	4100	4100	5,000 µg/L	167161 µg/L
Lead		✓	1	200.8	1	5.33	5.33	160 µg/L	392.22 µg/L
Mercury		✓	1	245.1	0.2	0	0	0.739 µg/L	238.32 µµg/L
Nickel	✓		1	200.8	2	0	0	1,450 µg/L	13212.5 µg/L
Selenium	✓		1	200.8	5	0	0	235.8 µg/L	1315.4 µg/L
Silver	✓		1	200.8	0.4	0	0	35.1 µg/L	921.7 µg/L
Zinc		✓	1	200.8	10	213.8	213.8	420 µg/L	30346.8 µg/L
Cyanide		✓	1	4500	5	24	24	178 mg/L	1368 µg/L
B. Non-Halogenated VOCs									
Total BTEX		✓	1	624.1	Multiple	0	0	100 µg/L	---
Benzene		✓	1	624.1	1	0	0	5.0 µg/L	---
1,4 Dioxane	✓		1	624.1	50	0	0	200 µg/L	---
Acetone	✓		1	624.1	10	0	0	7.97 mg/L	---
Phenol	✓		1	625.1	30	0	0	1,080 µg/L	78925 µg/L

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
C. Halogenated VOCs									
Carbon Tetrachloride	✓		1	624.1	1	0	0	4.4 µg/L	420.9 µg/L
1,2 Dichlorobenzene	✓		1	624.1	5	0	0	600 µg/L	---
1,3 Dichlorobenzene	✓		1	624.1	5	0	0	320 µg/L	---
1,4 Dichlorobenzene	✓		1	624.1	5	0	0	5.0 µg/L	---
Total dichlorobenzene	✓		1	624.1	5	0	0	763 µg/L in NH	---
1,1 Dichloroethane	✓		1	624.1	1.5	0	0	70 µg/L	---
1,2 Dichloroethane	✓		1	624.1	1.5	0	0	5.0 µg/L	---
1,1 Dichloroethylene	✓		1	624.1	1	0	0	3.2 µg/L	---
Ethylene Dibromide	✓		1	504.1	0.01	0	0	0.05 µg/L	---
Methylene Chloride	✓		1	624.1	1	0	0	4.6 µg/L	---
1,1,1 Trichloroethane	✓		1	624.1	2	0	0	200 µg/L	---
1,1,2 Trichloroethane	✓		1	624.1	1.5	0	0	5.0 µg/L	---
Trichloroethylene	✓		1	624.1	1	0	0	5.0 µg/L	---
Tetrachloroethylene	✓		1	624.1	1	0	0	5.0 µg/L	868.2 µg/L
cis-1,2 Dichloroethylene	✓		1	624.1	1	0	0	70 µg/L	---
Vinyl Chloride	✓		1	624.1	1	0	0	2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates	✓		1	8270D	Multiple	0	0	190 µg/L	---
Diethylhexyl phthalate	✓		1	8270D	5	0	0	101 µg/L	578.8 µg/L
Total Group I PAHs		✓	1	8270D	0.1	0	0	1.0 µg/L	---
Benzo(a)anthracene		✓	1	8270D	0.1	0	0	As Total PAHs	0.9997 µg/L
Benzo(a)pyrene		✓	1	8270D	0.1	0	0		0.9997 µg/L
Benzo(b)fluoranthene		✓	1	8270D	0.1	0	0		0.9997 µg/L
Benzo(k)fluoranthene		✓	1	8270D	0.1	0	0		0.9997 µg/L
Chrysene		✓	1	8270D	0.1	0	0		0.9997 µg/L
Dibenzo(a,h)anthracene		✓	1	8270D	0.1	0	0		0.9997 µg/L
Indeno(1,2,3-cd)pyrene		✓	1	8270D	0.1	0	0		0.9997 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
Total Group II PAHs		✓	1	8270D	0.1	0	0	100 µg/L	---
Naphthalene		✓	1	8270D	0.1	0	0	20 µg/L	---
E. Halogenated SVOCs									
Total PCBs	✓		1	608.3	1.7	0	0	0.000064 µg/L	---
Pentachlorophenol	✓		1	8270D	1	0	0	1.0 µg/L	---
F. Fuels Parameters									
Total Petroleum Hydrocarbons		✓	1	TPH 1664	4000	0	0	5.0 mg/L	---
Ethanol	✓		1	8015C	2000	0	0	Report mg/L	---
Methyl-tert-Butyl Ether	✓		1	624.1	10	0	0	70 µg/L	5262 µg/L
tert-Butyl Alcohol	✓		1	624.1	100	0	0	120 µg/L in MA 40 µg/L in NH	---
tert-Amyl Methyl Ether	✓		1	624.1	20	0	0	90 µg/L in MA 140 µg/L in NH	---
Other (i.e., pH, temperature, hardness, salinity, LC_{50}, additional pollutants present); if so, specify:									
Temperature (C)		✓	1	Field	NA	21.3	21.3		
pH		✓	1	Field	NA	7.96	7.96		
Specific Cond. (umhos/cm)		✓	1	Field	NA	1274	1274		
Hardness (ug/L)		✓	1	3005A	660	257,000	257,000		

E. Treatment system information

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

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

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

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: Bag filters Is use of a flow meter feasible? (check one): ■ Yes ☐ No, if so, provide justification:	50 gpm
Provide the proposed maximum effluent flow in gpm.	50 gpm
Provide the average effluent flow in gpm.	1 gpm
If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:	N/A

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

F. Chemical and additive information

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

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

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

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

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

G. Endangered Species Act eligibility determination

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

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

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

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

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

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

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

H. National Historic Preservation Act eligibility determination

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

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

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

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

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

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

I. Supplemental information

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

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

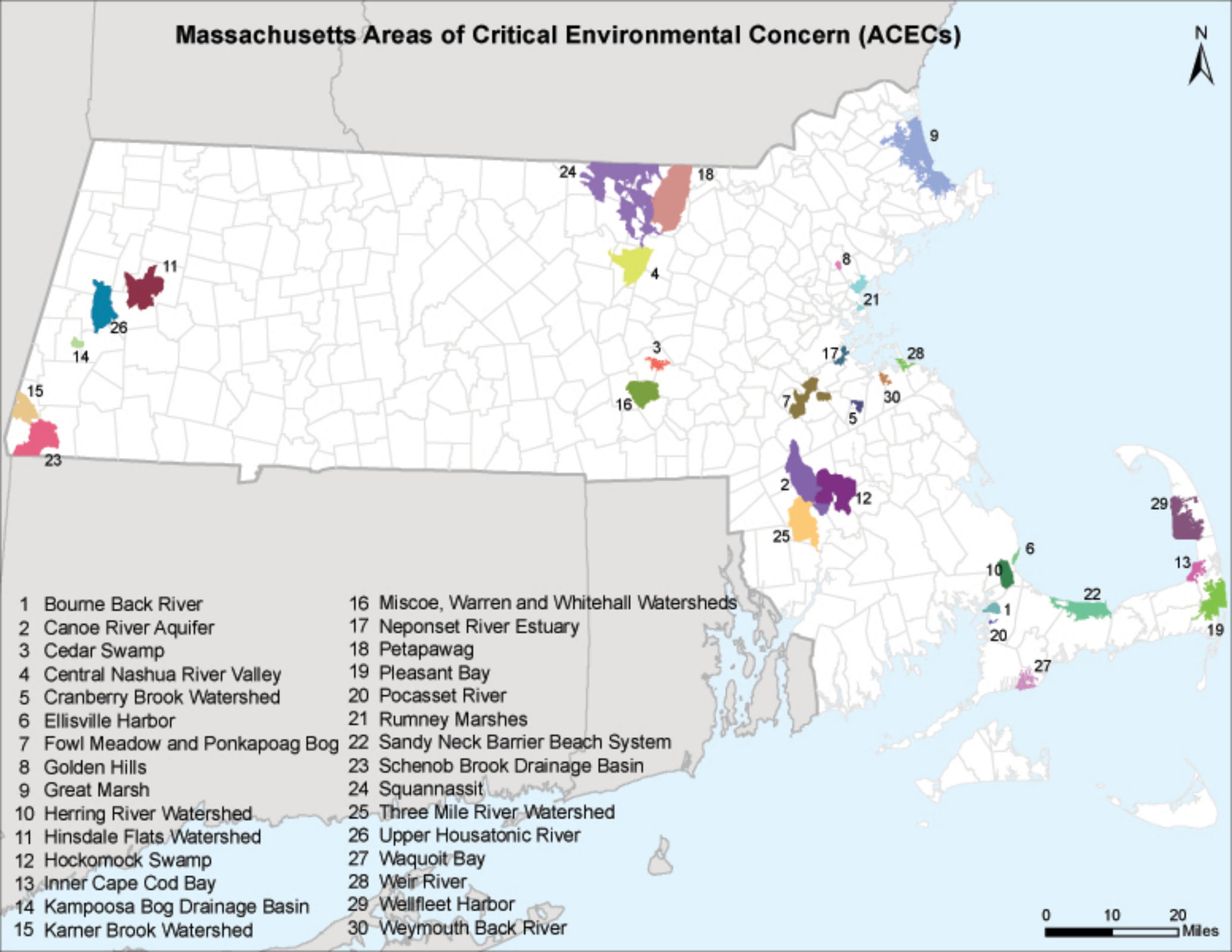
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage 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 has been developed and implemented.	
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: [signature]	Date: 8/15/19
Print Name and Title: Rebecca Becker, Assistant Vice President	

ATTACHMENT D:

AREAS OF CRITICAL ENVIRONMENTAL CONCERN DOCUMENTATION

Massachusetts Areas of Critical Environmental Concern (ACECs)



1 Bourne Back River
2 Canoe River Aquifer
3 Cedar Swamp
4 Central Nashua River Valley
5 Cranberry Brook Watershed
6 Ellisville Harbor
7 Fowl Meadow and Ponkapoag Bog
8 Golden Hills
9 Great Marsh
10 Herring River Watershed
11 Hinsdale Flats Watershed
12 Hockomock Swamp
13 Inner Cape Cod Bay
14 Kampoosa Bog Drainage Basin
15 Karner Brook Watershed
16 Miscoe, Warren and Whitehall Watersheds
17 Neponset River Estuary
18 Petapawag
19 Pleasant Bay
20 Pocasset River
21 Rumney Marshes
22 Sandy Neck Barrier Beach System
23 Schenob Brook Drainage Basin
24 Squannassit
25 Three Mile River Watershed
26 Upper Housatonic River
27 Waquoit Bay
28 Weir River
29 Wellfleet Harbor
30 Weymouth Back River

MASSACHUSETTS AREAS OF CRITICAL ENVIRONMENTAL CONCERN
November 2010

Total Approximate Acreage: 268,000 acres
Approximate acreage and designation date follow ACEC names below.

Bourne Back River
(1,850 acres, 1989) Bourne

Canoe River Aquifer and Associated Areas (17,200 acres, 1991) Easton, Foxborough, Mansfield, Norton, Sharon, and Taunton

Cedar Swamp
(1,650 acres, 1975) Hopkinton and Westborough

Central Nashua River Valley
(12,900 acres, 1996) Bolton, Harvard, Lancaster, and Leominster

Cranberry Brook Watershed
(1,050 acres, 1983) Braintree and Holbrook

Ellisville Harbor
(600 acres, 1980) Plymouth

Fowl Meadow and Ponkapoag Bog
(8,350 acres, 1992) Boston, Canton, Dedham, Milton, Norwood, Randolph, Sharon, and Westwood

Golden Hills
(500 acres, 1987) Melrose, Saugus, and Wakefield

Great Marsh (originally designated as Parker River/Essex Bay)
(25,500 acres, 1979) Essex, Gloucester, Ipswich, Newbury, and Rowley

Herring River Watershed
(4,450 acres, 1991) Bourne and Plymouth

Hinsdale Flats Watershed
(14,500 acres, 1992) Dalton, Hinsdale, Peru, and Washington

Hockomock Swamp
(16,950 acres, 1990) Bridgewater, Easton, Norton, Raynham, Taunton, and West Bridgewater

Inner Cape Cod Bay
(2,600 acres, 1985) Brewster, Eastham, and Orleans

Kampoosa Bog Drainage Basin
(1,350 acres, 1995) Lee and Stockbridge

Karner Brook Watershed
(7,000 acres, 1992) Egremont and Mount Washington

Miscoe, Warren, and Whitehall Watersheds
(8,700 acres, 2000) Grafton, Hopkinton, and Upton

Neponset River Estuary
(1,300 acres, 1995) Boston, Milton, and Quincy

Petapawag
(25,680 acres, 2002) Ayer, Dunstable, Groton, Pepperell, and Tyngsborough

Pleasant Bay
(9,240 acres, 1987) Brewster, Chatham, Harwich, and Orleans

Pocasset River
(160 acres, 1980) Bourne

Rumney Marshes
(2,800 acres, 1988) Boston, Lynn, Revere, Saugus, and Winthrop

Sandy Neck Barrier Beach System
(9,130 acres, 1978) Barnstable and Sandwich

Schenob Brook Drainage Basin
(13,750 acres, 1990) Mount Washington and Sheffield

Squannassit
(37,420 acres, 2002) Ashby, Ayer, Groton, Harvard, Lancaster, Lunenburg, Pepperell, Shirley, and Townsend

Three Mile River Watershed
(14,280 acres, 2008) Dighton, Norton, Taunton

Upper Housatonic River
(12,280 acres, 2009) Lee, Lenox, Pittsfield, Washington

Waquoit Bay
(2,580 acres, 1979) Falmouth and Mashpee

Weir River
(950 acres, 1986) Cohasset, Hingham, and Hull

Wellfleet Harbor
(12,480 acres, 1989) Eastham, Truro, and Wellfleet

Weymouth Back River
(800 acres, 1982) Hingham and Weymouth

ACEC acreages above are based on MassGIS calculations and may differ from numbers originally presented in designation documents and other ACEC publications due to improvements in accuracy of GIS data and boundary clarifications. Listed acreages have been rounded to the nearest 50 or 10 depending on whether boundary clarification has occurred. For more information please see, http://www.mass.gov/dcr/stewardship/acec/aboutMaps.htm.

Towns with ACECs within their Boundaries — November 2010

TOWN	ACEC
Ashby	Squannassit
Ayer	Petapawag
	Squannassit
Barnstable	Sandy Neck Barrier Beach System
Bolton	Central Nashua River Valley
Boston	Rumney Marshes
	Fowl Meadow and Ponkapoag Bog
	Neponset River Estuary
Bourne	Pocasset River
	Bourne Back River
	Herring River Watershed
Braintree	Cranberry Brook Watershed
Brewster	Pleasant Bay
	Inner Cape Cod Bay
Bridgewater	Hockomock Swamp
Canton	Fowl Meadow and Ponkapoag Bog
Chatham	Pleasant Bay
Cohasset	Weir River
Dalton	Hinsdale Flats Watershed
Dedham	Fowl Meadow and Ponkapoag Bog
Dighton	Three Mile River Watershed
Dunstable	Petapawag
Eastham	Inner Cape Cod Bay
	Wellfleet Harbor
Easton	Canoe River Aquifer
	Hockomock Swamp
Egremont	Karner Brook Watershed
Essex	Great Marsh
Falmouth	Waquoit Bay
Foxborough	Canoe River Aquifer
Gloucester	Great Marsh
Grafton	Miscoe-Warren-Whitehall Watersheds
Groton	Petapawag
	Squannassit
Harvard	Central Nashua River Valley
	Squannassit
Harwich	Pleasant Bay
Hingham	Weir River
	Weymouth Back River
Hinsdale	Hinsdale Flats Watershed
Holbrook	Cranberry Brook Watershed
Hopkinton	Miscoe-Warren-Whitehall Watersheds
	Cedar Swamp
Hull	Weir River
Ipswich	Great Marsh
Lancaster	Central Nashua River Valley
	Squannassit
Lee	Kampoosa Bog Drainage Basin
	Upper Housatonic River
Lenox	Upper Housatonic River
Leominster	Central Nashua River Valley
Lunenburg	Squannassit
Lynn	Rumney Marshes
Mansfield	Canoe River Aquifer
Mashpee	Waquoit Bay
Melrose	Golden Hills
Milton	Fowl Meadow and Ponkapoag Bog
	Neponset River Estuary
Mt. Washington	Karner Brook Watershed
	Schenob Brook
Newbury	Great Marsh
Norton	Hockomock Swamp
	Canoe River Aquifer
	Three Mile River Watershed
Norwood	Fowl Meadow and Ponkapoag Bog
Orleans	Inner Cape Cod Bay
	Pleasant Bay
Pepperell	Petapawag
	Squannassit
Peru	Hinsdale Flats Watershed
Pittsfield	Upper Housatonic River
Plymouth	Herring River Watershed
	Ellisville Harbor
Quincy	Neponset River Estuary
Randolph	Fowl Meadow and Ponkapoag Bog
Raynham	Hockomock Swamp
Revere	Rumney Marshes
Rowley	Great Marsh
Sandwich	Sandy Neck Barrier Beach System
Saugus	Rumney Marshes
	Golden Hills
Sharon	Canoe River Aquifer
	Fowl Meadow and Ponkapoag Bog
Sheffield	Schenob Brook
Shirley	Squannassit
Stockbridge	Kampoosa Bog Drainage Basin
Taunton	Hockomock Swamp
	Canoe River Aquifer
	Three Mile River Watershed
Truro	Wellfleet Harbor
Townsend	Squannassit
Tyngsborough	Petapawag
Upton	Miscoe-Warren-Whitehall Watersheds
Wakefield	Golden Hills
Washington	Hinsdale Flats Watershed
	Upper Housatonic River
Wellfleet	Wellfleet Harbor
W Bridgewater	Hockomock Swamp
Westborough	Cedar Swamp
Westwood	Fowl Meadow and Ponkapoag Bog
Weymouth	Weymouth Back River
Winthrop	Rumney Marshes

.

ATTACHMENT E:

NATIONAL REGISTER OF HISTORIC PLACES AND MASSACHUSETTS HISTORICAL COMMISSION DOCUMENTATION

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

Search Criteria: Town(s): Cambridge; Street No: 303; Street Name: 3rd St; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

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

Inv. No.	Property Name	Street	Town	Year
CAM.353	Blake and Knowles Core Shop #1	Third St	Cambridge	c 1889
CAM.354	Blake and Knowles Core Shop #2	Third St	Cambridge	c 1890
CAM.505	Lechmere Point Corporation Row House	25 Third St	Cambridge	c 1821
CAM.381	Rollins, John W. Rowhouse	83 Third St	Cambridge	1860
CAM.382	Rollins, John W. Rowhouse	85 Third St	Cambridge	1860
CAM.383	Rollins, John W. Rowhouse	87 Third St	Cambridge	1860
CAM.384	Rollins, John W. Rowhouse	89 Third St	Cambridge	1860
CAM.331	Old Middlesex County Superior Courthouse	90 Third St	Cambridge	1814
CAM.385	Rollins, John W. Rowhouse	91 Third St	Cambridge	1860
CAM.386	Rollins, John W. Rowhouse	93 Third St	Cambridge	1860
CAM.387	Rollins, John W. Rowhouse	95 Third St	Cambridge	1860
CAM.314	Holy Cross Polish National Catholic Church	99 Third St	Cambridge	1827
CAM.315	Bottle House Block	204-214 Third St	Cambridge	1826
CAM.350	Blake and Knowles Machine Shop #1	265 Third St	Cambridge	1889
CAM.351	Blake and Knowles Office Headhouse	265 Third St	Cambridge	1892
CAM.355	Blake and Knowles Smith Shop and Brass Foundry	275 Third St	Cambridge	c 1890
CAM.326	Cambridge Gas Light Company Purifying Plant	354 Third St	Cambridge	1908

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

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

Inv. No.	Property Name	Street	Town	Year
CAM.1401	Volpe Center - High Rise Laboratory	2 Potter St	Cambridge	c 1965
CAM.1403	Volpe Center - Space Guidance Building	2 Potter St	Cambridge	c 1965
CAM.1404	Volpe Center - Space Optics Building	2 Potter St	Cambridge	c 1965

ATTACHMENT F:

ENDANGERED SPECIES ACT DOCUMENTATION

United States Department of the Interior

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

In Reply Refer To:
Consultation Code: 05E1NE00-2019-SLI-2109
Event Code: 05E1NE00-2019-E-05311
Project Name: 303 Third Street

June 26, 2019

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

To Whom It May Concern:

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

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

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

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

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

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

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

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

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

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

Project Summary

Consultation Code: 05E1NE00-2019-SLI-2109

Event Code: 05E1NE00-2019-E-05311

Project Name: 303 Third Street

Project Type: LAND - DRAINAGE

Project Description: NPDES RGP permit for the foundation drain discharge at 303 Third Street in Cambridge, MA.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/42.36434892473428N71.08392903089528W

Counties: Middlesex, MA

Endangered Species Act Species

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

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

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

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

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

Critical habitats

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

ATTACHMENT G:

LABORATORY ANALYTICAL REPORTS

ANALYTICAL REPORT

Lab Number:	L1925177
Client:	Vertex Environmental Services, Inc. 100 North Washington St., Suite 302 Boston, MA 02114
ATTN:	Benjamin Sivonen
Phone:	(781) 952-6000
Project Name:	CAMBRIDGE
Project Number:	56813
Report Date:	07/01/19

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

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

Project Name: CAMBRIDGE
Project Number: 56813

Lab Number: L1925177
Report Date: 07/01/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1925177-01	INF	WATER	MA	06/12/19 10:30	06/12/19
L1925177-02	EFF	WATER	MA	06/12/19 11:00	06/12/19
L1925177-03	RECEIVING	WATER	MA	06/12/19 12:00	06/12/19

Project Name:	CAMBRIDGE	**Lab Number:**	L1925177
Project Number:	56813	**Report Date:**	07/01/19

Case Narrative

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

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

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

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	CAMBRIDGE	**Lab Number:**	L1925177
Project Number:	56813	**Report Date:**	07/01/19

Case Narrative (continued)

Report Revision

July 01, 2019: This report includes the results of the Total Hardness analysis performed on L1925177-01, -02 and -03.

Report Submission

The analysis of Ethanol was subcontracted. A copy of the laboratory report is included as an addendum. Please note: This data is only available in PDF format and is not available on Data Merger.

Volatile Organics by Method 624

The WG1248059-11 LCS recovery, associated with L1925177-01 through -03, is above the acceptance criteria for carbon tetrachloride (140%); however, the associated samples are non-detect for this target analyte. The results of the original analysis are reported.

PCBs

L1925177-01, -02, and -03: The sample has concentrations above the reporting limits for 1242 in the original extraction. The sample was re-extracted with the method required holding time exceeded and the sample and method blank were non-detect for this target compound. Original extraction results are suspected laboratory contamination. Both sets of data are reported.

TPH, SGT-HEM

L1925177-02: The sample has an elevated detection limit due to limited sample volume available for analysis.

Anions by Ion Chromatography

The Effluent (L1925177-02) result is greater than the Influent (L1925177-01) result. The sample containers were verified as being labeled correctly by the laboratory.

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: Melissa Cripps

Title: Technical Director/Representative Date: 07/01/19

ORGANICS

VOLATILES

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-01
Client ID: INF
Sample Location: MA

Date Collected: 06/12/19 10:30
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 06/14/19 11:03
Analyst: GT

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

Project Name: CAMBRIDGE **Lab Number:** L1925177

Project Number: 56813 **Report Date:** 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-01 Date Collected: 06/12/19 10:30

Client ID: INF Date Received: 06/12/19

Sample Location: MA Field Prep: Not Specified

Sample Depth:

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	105		60-140
Fluorobenzene	91		60-140
4-Bromofluorobenzene	102		60-140

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-01
Client ID: INF
Sample Location: MA
Date Collected: 06/12/19 10:30
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1-SIM
Analytical Date: 06/14/19 11:03
Analyst: GT

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	94		60-140
4-Bromofluorobenzene	108		60-140

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-01
Client ID: INF
Sample Location: MA

Date Collected: 06/12/19 10:30
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 06/13/19 16:25
Analyst: AWS

Extraction Method: EPA 504.1
Extraction Date: 06/13/19 13:40

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

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-02
Client ID: EFF
Sample Location: MA
Date Collected: 06/12/19 11:00
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 06/14/19 11:40
Analyst: GT

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

Project Name: CAMBRIDGE **Lab Number:** L1925177

Project Number: 56813 **Report Date:** 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-02 Date Collected: 06/12/19 11:00

Client ID: EFF Date Received: 06/12/19

Sample Location: MA Field Prep: Not Specified

Sample Depth:

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	105		60-140
Fluorobenzene	90		60-140
4-Bromofluorobenzene	104		60-140

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-02
Client ID: EFF
Sample Location: MA
Date Collected: 06/12/19 11:00
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1-SIM
Analytical Date: 06/14/19 11:40
Analyst: GT

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	93		60-140
4-Bromofluorobenzene	109		60-140

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-02
Client ID: EFF
Sample Location: MA

Date Collected: 06/12/19 11:00
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 06/13/19 16:40
Analyst: AWS

Extraction Method: EPA 504.1
Extraction Date: 06/13/19 13:40

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

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-03
Client ID: RECEIVING
Sample Location: MA
Date Collected: 06/12/19 12:00
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 06/14/19 12:17
Analyst: GT

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

Project Name: CAMBRIDGE **Lab Number:** L1925177

Project Number: 56813 **Report Date:** 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-03 Date Collected: 06/12/19 12:00

Client ID: RECEIVING Date Received: 06/12/19

Sample Location: MA Field Prep: Not Specified

Sample Depth:

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	102		60-140
Fluorobenzene	87		60-140
4-Bromofluorobenzene	103		60-140

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-03
Client ID: RECEIVING
Sample Location: MA
Date Collected: 06/12/19 12:00
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1-SIM
Analytical Date: 06/14/19 12:17
Analyst: GT

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	93		60-140
4-Bromofluorobenzene	109		60-140

Project Name: CAMBRIDGE
Project Number: 56813

Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-03
Client ID: RECEIVING
Sample Location: MA

Date Collected: 06/12/19 12:00
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 06/13/19 16:55
Analyst: AWS

Extraction Method: EPA 504.1
Extraction Date: 06/13/19 13:40

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

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 06/14/19 07:57
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03 Batch: WG1248059-12					
Methylene chloride	ND		ug/l	1.0	--
1,1-Dichloroethane	ND		ug/l	1.5	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.5	--
Tetrachloroethene	ND		ug/l	1.0	--
1,2-Dichloroethane	ND		ug/l	1.5	--
1,1,1-Trichloroethane	ND		ug/l	2.0	--
Benzene	ND		ug/l	1.0	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Vinyl chloride	ND		ug/l	1.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--
1,2-Dichlorobenzene	ND		ug/l	5.0	--
1,3-Dichlorobenzene	ND		ug/l	5.0	--
1,4-Dichlorobenzene	ND		ug/l	5.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-xylene	ND		ug/l	1.0	--
Xylenes, Total	ND		ug/l	1.0	--
Acetone	ND		ug/l	10	--
Methyl tert butyl ether	ND		ug/l	10	--
Tert-Butyl Alcohol	ND		ug/l	100	--
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 06/14/19 07:57
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03 Batch: WG1248059-12					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	103		60-140
Fluorobenzene	90		60-140
4-Bromofluorobenzene	99		60-140

Project Name: CAMBRIDGE
Project Number: 56813

Lab Number: L1925177
Report Date: 07/01/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 06/13/19 15:40
Analyst: AWS

Extraction Method: EPA 504.1
Extraction Date: 06/13/19 13:40

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 01-03 Batch: WG1248121-1						
1,2-Dibromoethane	ND		ug/l	0.010	--	A

Project Name: CAMBRIDGE
Project Number: 56813

Lab Number: L1925177
Report Date: 07/01/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1-SIM
Analytical Date: 06/14/19 07:57
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-03 Batch: WG1249381-4					
1,4-Dioxane	ND		ug/l	50	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	94		60-140
4-Bromofluorobenzene	109		60-140

Lab Control Sample Analysis
Batch Quality Control

Project Name: CAMBRIDGE
Project Number: 56813

Lab Number: L1925177
Report Date: 07/01/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG1248059-11								
Methylene chloride	95		-		60-140	-		28
1,1-Dichloroethane	90		-		50-150	-		49
Carbon tetrachloride	**140**	Q	-		70-130	-		41
1,1,2-Trichloroethane	90		-		70-130	-		45
Tetrachloroethene	110		-		70-130	-		39
1,2-Dichloroethane	100		-		70-130	-		49
1,1,1-Trichloroethane	130		-		70-130	-		36
Benzene	100		-		65-135	-		61
Toluene	105		-		70-130	-		41
Ethylbenzene	110		-		60-140	-		63
Vinyl chloride	105		-		5-195	-		66
1,1-Dichloroethene	110		-		50-150	-		32
cis-1,2-Dichloroethene	100		-		60-140	-		30
Trichloroethene	100		-		65-135	-		48
1,2-Dichlorobenzene	110		-		65-135	-		57
1,3-Dichlorobenzene	105		-		70-130	-		43
1,4-Dichlorobenzene	110		-		65-135	-		57
p/m-Xylene	110		-		60-140	-		30
o-xylene	105		-		60-140	-		30
Acetone	86		-		40-160	-		30
Methyl tert butyl ether	95		-		60-140	-		30
Tert-Butyl Alcohol	82		-		60-140	-		30
Tertiary-Amyl Methyl Ether	90		-		60-140	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: CAMBRIDGE

Project Number: 56813

Lab Number: L1925177

Report Date: 07/01/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG1248059-11								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Pentafluorobenzene	107				60-140
Fluorobenzene	93				60-140
4-Bromofluorobenzene	101				60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: CAMBRIDGE

Project Number: 56813

Lab Number: L1925177

Report Date: 07/01/19

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: WG1248121-2								
1,2-Dibromoethane	114		-		80-120	-			A

Lab Control Sample Analysis
Batch Quality Control

Project Name: CAMBRIDGE
Project Number: 56813

Lab Number: L1925177
Report Date: 07/01/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-03 Batch: WG1249381-3								
1,4-Dioxane	96		-		60-140	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Fluorobenzene	94				60-140
4-Bromofluorobenzene	107				60-140

Matrix Spike Analysis

Batch Quality Control

Project Name: CAMBRIDGE

Project Number: 56813

Lab Number: L1925177

Report Date: 07/01/19

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: WG1248121-3 QC Sample: L1924991-01 Client ID: MS Sample													
1,2-Dibromoethane	ND	0.251	0.300	119		-	-		80-120	-		20	A
1,2-Dibromo-3-chloropropane	ND	0.251	0.285	114		-	-		80-120	-		20	A
1,2,3-Trichloropropane	ND	0.251	0.287	114		-	-		80-120	-		20	A

SEMIVOLATILES

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-01
Client ID: INF
Sample Location: MA

Date Collected: 06/12/19 10:30
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 06/16/19 05:44
Analyst: CB

Extraction Method: EPA 625.1
Extraction Date: 06/14/19 08:56

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	96		42-122
2-Fluorobiphenyl	95		46-121
4-Terphenyl-d14	109		47-138

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-01
Client ID: INF
Sample Location: MA

Date Collected: 06/12/19 10:30
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1-SIM
Analytical Date: 06/19/19 19:21
Analyst: DV

Extraction Method: EPA 625.1
Extraction Date: 06/18/19 14:02

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	40		25-87
Phenol-d6	27		16-65
Nitrobenzene-d5	68		42-122
2-Fluorobiphenyl	59		46-121
2,4,6-Tribromophenol	61		45-128
4-Terphenyl-d14	66		47-138

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-02
Client ID: EFF
Sample Location: MA

Date Collected: 06/12/19 11:00
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 06/16/19 06:12
Analyst: CB

Extraction Method: EPA 625.1
Extraction Date: 06/14/19 08:56

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	84		42-122
2-Fluorobiphenyl	81		46-121
4-Terphenyl-d14	95		47-138

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-02
Client ID: EFF
Sample Location: MA

Date Collected: 06/12/19 11:00
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1-SIM
Analytical Date: 06/19/19 19:38
Analyst: DV

Extraction Method: EPA 625.1
Extraction Date: 06/18/19 14:02

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	45		25-87
Phenol-d6	30		16-65
Nitrobenzene-d5	79		42-122
2-Fluorobiphenyl	68		46-121
2,4,6-Tribromophenol	71		45-128
4-Terphenyl-d14	73		47-138

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-03
Client ID: RECEIVING
Sample Location: MA

Date Collected: 06/12/19 12:00
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 06/16/19 06:40
Analyst: CB

Extraction Method: EPA 625.1
Extraction Date: 06/14/19 08:56

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	73		42-122
2-Fluorobiphenyl	69		46-121
4-Terphenyl-d14	75		47-138

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-03
Client ID: RECEIVING
Sample Location: MA

Date Collected: 06/12/19 12:00
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1-SIM
Analytical Date: 06/19/19 19:55
Analyst: DV

Extraction Method: EPA 625.1
Extraction Date: 06/18/19 14:02

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	45		25-87
Phenol-d6	30		16-65
Nitrobenzene-d5	80		42-122
2-Fluorobiphenyl	69		46-121
2,4,6-Tribromophenol	74		45-128
4-Terphenyl-d14	79		47-138

Project Name: CAMBRIDGE
Project Number: 56813

Lab Number: L1925177
Report Date: 07/01/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
Analytical Date: 06/14/19 13:23
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 06/13/19 23:58

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-03 Batch: WG1248339-1					
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--
Butyl benzyl phthalate	ND		ug/l	5.0	--
Di-n-butylphthalate	ND		ug/l	5.0	--
Di-n-octylphthalate	ND		ug/l	5.0	--
Diethyl phthalate	ND		ug/l	5.0	--
Dimethyl phthalate	ND		ug/l	5.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	103		42-122
2-Fluorobiphenyl	96		46-121
4-Terphenyl-d14	93		47-138

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1-SIM
Analytical Date: 06/19/19 18:13
Analyst: CB

Extraction Method: EPA 625.1
Extraction Date: 06/18/19 14:02

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-03 Batch: WG1249952-1					
Acenaphthene	ND		ug/l	0.10	--
Fluoranthene	ND		ug/l	0.10	--
Naphthalene	ND		ug/l	0.10	--
Benzo(a)anthracene	ND		ug/l	0.10	--
Benzo(a)pyrene	ND		ug/l	0.10	--
Benzo(b)fluoranthene	ND		ug/l	0.10	--
Benzo(k)fluoranthene	ND		ug/l	0.10	--
Chrysene	ND		ug/l	0.10	--
Acenaphthylene	ND		ug/l	0.10	--
Anthracene	ND		ug/l	0.10	--
Benzo(ghi)perylene	ND		ug/l	0.10	--
Fluorene	ND		ug/l	0.10	--
Phenanthrene	ND		ug/l	0.10	--
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--
Pyrene	ND		ug/l	0.10	--
Pentachlorophenol	ND		ug/l	1.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	48		25-87
Phenol-d6	34		16-65
Nitrobenzene-d5	79		42-122
2-Fluorobiphenyl	73		46-121
2,4,6-Tribromophenol	83		45-128
4-Terphenyl-d14	81		47-138

Lab Control Sample Analysis
Batch Quality Control

Project Name: CAMBRIDGE
Project Number: 56813

Lab Number: L1925177
Report Date: 07/01/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG1248339-3								
Bis(2-ethylhexyl)phthalate	96		-		29-137	-		82
Butyl benzyl phthalate	103		-		1-140	-		60
Di-n-butylphthalate	99		-		8-120	-		47
Di-n-octylphthalate	104		-		19-132	-		69
Diethyl phthalate	82		-		1-120	-		100
Dimethyl phthalate	91		-		1-120	-		183

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	90				42-122
2-Fluorobiphenyl	85				46-121
4-Terphenyl-d14	83				47-138

Lab Control Sample Analysis
Batch Quality Control

Project Name: CAMBRIDGE
Project Number: 56813

Lab Number: L1925177
Report Date: 07/01/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-03 Batch: WG1249952-3								
Acenaphthene	86		-		60-132	-		30
Fluoranthene	106		-		43-121	-		30
Naphthalene	86		-		36-120	-		30
Benzo(a)anthracene	104		-		42-133	-		30
Benzo(a)pyrene	97		-		32-148	-		30
Benzo(b)fluoranthene	93		-		42-140	-		30
Benzo(k)fluoranthene	92		-		25-146	-		30
Chrysene	94		-		44-140	-		30
Acenaphthylene	87		-		54-126	-		30
Anthracene	100		-		43-120	-		30
Benzo(ghi)perylene	95		-		1-195	-		30
Fluorene	86		-		70-120	-		30
Phenanthrene	96		-		65-120	-		30
Dibenzo(a,h)anthracene	96		-		1-200	-		30
Indeno(1,2,3-cd)pyrene	98		-		1-151	-		30
Pyrene	110		-		70-120	-		30
Pentachlorophenol	96		-		38-152	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: CAMBRIDGE
Project Number: 56813

Lab Number: L1925177
Report Date: 07/01/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-03 Batch: WG1249952-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	55				25-87
Phenol-d6	38				16-65
Nitrobenzene-d5	92				42-122
2-Fluorobiphenyl	80				46-121
2,4,6-Tribromophenol	92				45-128
4-Terphenyl-d14	91				47-138

PCBS

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-01
Client ID: INF
Sample Location: MA

Date Collected: 06/12/19 10:30
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 06/20/19 00:43
Analyst: AD

Extraction Method: EPA 608.3
Extraction Date: 06/16/19 04:53
Cleanup Method: EPA 3665A
Cleanup Date: 06/16/19
Cleanup Method: EPA 3660B
Cleanup Date: 06/17/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	0.266		ug/l	0.250	--	1	A
Aroclor 1248	ND		ug/l	0.250	--	1	A
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	ND		ug/l	0.200	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	65		37-123	B
Decachlorobiphenyl	78		38-114	B
2,4,5,6-Tetrachloro-m-xylene	65		37-123	A
Decachlorobiphenyl	66		38-114	A

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-01 RE
Client ID: INF
Sample Location: MA

Date Collected: 06/12/19 10:30
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 06/22/19 18:16
Analyst: KB

Extraction Method: EPA 608.3
Extraction Date: 06/21/19 15:42
Cleanup Method: EPA 3665A
Cleanup Date: 06/21/19
Cleanup Method: EPA 3660B
Cleanup Date: 06/21/19

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	71		37-123	B
Decachlorobiphenyl	82		38-114	B
2,4,5,6-Tetrachloro-m-xylene	71		37-123	A
Decachlorobiphenyl	82		38-114	A

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-02
Client ID: EFF
Sample Location: MA

Date Collected: 06/12/19 11:00
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 06/20/19 00:55
Analyst: AD

Extraction Method: EPA 608.3
Extraction Date: 06/16/19 04:53
Cleanup Method: EPA 3665A
Cleanup Date: 06/16/19
Cleanup Method: EPA 3660B
Cleanup Date: 06/17/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	0.338		ug/l	0.250	--	1	A
Aroclor 1248	ND		ug/l	0.250	--	1	A
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	ND		ug/l	0.200	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	70		37-123	B
Decachlorobiphenyl	77		38-114	B
2,4,5,6-Tetrachloro-m-xylene	69		37-123	A
Decachlorobiphenyl	71		38-114	A

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-02 RE
Client ID: EFF
Sample Location: MA

Date Collected: 06/12/19 11:00
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 06/22/19 18:28
Analyst: KB

Extraction Method: EPA 608.3
Extraction Date: 06/21/19 15:42
Cleanup Method: EPA 3665A
Cleanup Date: 06/21/19
Cleanup Method: EPA 3660B
Cleanup Date: 06/21/19

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	73		37-123	B
Decachlorobiphenyl	87		38-114	B
2,4,5,6-Tetrachloro-m-xylene	73		37-123	A
Decachlorobiphenyl	83		38-114	A

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-03
Client ID: RECEIVING
Sample Location: MA

Date Collected: 06/12/19 12:00
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 06/20/19 01:07
Analyst: AD

Extraction Method: EPA 608.3
Extraction Date: 06/16/19 04:53
Cleanup Method: EPA 3665A
Cleanup Date: 06/16/19
Cleanup Method: EPA 3660B
Cleanup Date: 06/17/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	0.308		ug/l	0.250	--	1	A
Aroclor 1248	ND		ug/l	0.250	--	1	A
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	ND		ug/l	0.200	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	66		37-123	B
Decachlorobiphenyl	65		38-114	B
2,4,5,6-Tetrachloro-m-xylene	64		37-123	A
Decachlorobiphenyl	61		38-114	A

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-03 RE
Client ID: RECEIVING
Sample Location: MA

Date Collected: 06/12/19 12:00
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 06/22/19 18:40
Analyst: KB

Extraction Method: EPA 608.3
Extraction Date: 06/21/19 15:42
Cleanup Method: EPA 3665A
Cleanup Date: 06/21/19
Cleanup Method: EPA 3660B
Cleanup Date: 06/21/19

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

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	69		37-123	B
Decachlorobiphenyl	84		38-114	B
2,4,5,6-Tetrachloro-m-xylene	68		37-123	A
Decachlorobiphenyl	81		38-114	A

Project Name: CAMBRIDGE
Project Number: 56813

Lab Number: L1925177
Report Date: 07/01/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 127,608.3
Analytical Date: 06/19/19 23:29
Analyst: KB

Extraction Method: EPA 608.3
Extraction Date: 06/16/19 03:52
Cleanup Method: EPA 3665A
Cleanup Date: 06/16/19
Cleanup Method: EPA 3660B
Cleanup Date: 06/17/19

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01-03 Batch: WG1249115-1						
Aroclor 1016	ND		ug/l	0.250	--	A
Aroclor 1221	ND		ug/l	0.250	--	A
Aroclor 1232	ND		ug/l	0.250	--	A
Aroclor 1242	ND		ug/l	0.250	--	A
Aroclor 1248	ND		ug/l	0.250	--	A
Aroclor 1254	ND		ug/l	0.250	--	A
Aroclor 1260	ND		ug/l	0.200	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	59		37-123	B
Decachlorobiphenyl	78		38-114	B
2,4,5,6-Tetrachloro-m-xylene	59		37-123	A
Decachlorobiphenyl	71		38-114	A

Project Name: CAMBRIDGE
Project Number: 56813

Lab Number: L1925177
Report Date: 07/01/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 127,608.3
Analytical Date: 06/22/19 16:37
Analyst: KB

Extraction Method: EPA 608.3
Extraction Date: 06/21/19 15:42
Cleanup Method: EPA 3665A
Cleanup Date: 06/21/19
Cleanup Method: EPA 3660B
Cleanup Date: 06/21/19

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01-03 Batch: WG1251625-1						
Aroclor 1016	ND		ug/l	0.250	--	A
Aroclor 1221	ND		ug/l	0.250	--	A
Aroclor 1232	ND		ug/l	0.250	--	A
Aroclor 1242	ND		ug/l	0.250	--	A
Aroclor 1248	ND		ug/l	0.250	--	A
Aroclor 1254	ND		ug/l	0.250	--	A
Aroclor 1260	ND		ug/l	0.200	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	69		37-123	B
Decachlorobiphenyl	88		38-114	B
2,4,5,6-Tetrachloro-m-xylene	68		37-123	A
Decachlorobiphenyl	83		38-114	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: CAMBRIDGE

Project Number: 56813

Lab Number: L1925177

Report Date: 07/01/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01-03 Batch: WG1249115-2									
Aroclor 1016	80		-		50-140	-		36	A
Aroclor 1260	72		-		8-140	-		38	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	73				37-123	B
Decachlorobiphenyl	81				38-114	B
2,4,5,6-Tetrachloro-m-xylene	72				37-123	A
Decachlorobiphenyl	75				38-114	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: CAMBRIDGE
Project Number: 56813

Lab Number: L1925177
Report Date: 07/01/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01-03 Batch: WG1251625-2									
Aroclor 1016	74		-		50-140	-		36	A
Aroclor 1260	76		-		8-140	-		38	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	71				37-123	B
Decachlorobiphenyl	95				38-114	B
2,4,5,6-Tetrachloro-m-xylene	70				37-123	A
Decachlorobiphenyl	88				38-114	A

METALS

Project Name: CAMBRIDGE
Lab Number: L1925177
Project Number: 56813
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-01
Client ID: INF
Sample Location: MA
Date Collected: 06/12/19 10:30
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.00400	--	1	06/18/19 14:30	06/19/19 10:40	EPA 3005A	3,200.8	AM
Arsenic, Total	0.00480		mg/l	0.00100	--	1	06/18/19 14:30	06/19/19 10:40	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	06/18/19 14:30	06/19/19 10:40	EPA 3005A	3,200.8	AM
Chromium, Total	0.00111		mg/l	0.00100	--	1	06/18/19 14:30	06/19/19 10:40	EPA 3005A	3,200.8	AM
Copper, Total	0.03900		mg/l	0.00100	--	1	06/18/19 14:30	06/19/19 10:40	EPA 3005A	3,200.8	AM
Iron, Total	4.10		mg/l	0.050	--	1	06/18/19 14:30	06/19/19 02:15	EPA 3005A	19,200.7	AB
Lead, Total	0.00533		mg/l	0.00100	--	1	06/18/19 14:30	06/19/19 10:40	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	06/18/19 17:43	06/18/19 22:42	EPA 245.1	3,245.1	EA
Nickel, Total	ND		mg/l	0.00200	--	1	06/18/19 14:30	06/19/19 10:40	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	06/18/19 14:30	06/19/19 10:40	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	06/18/19 14:30	06/19/19 10:40	EPA 3005A	3,200.8	AM
Zinc, Total	0.2138		mg/l	0.01000	--	1	06/18/19 14:30	06/19/19 10:40	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	257		mg/l	0.660	NA	1	06/18/19 14:30	06/19/19 02:15	EPA 3005A	19,200.7	AB
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		06/19/19 10:40	NA	107,-	

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-02
Client ID: EFF
Sample Location: MA
Sample Depth:
Matrix: Water

Date Collected: 06/12/19 11:00
Date Received: 06/12/19
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	0.01548		mg/l	0.00400	--	1	06/18/19 14:30	06/19/19 10:44	EPA 3005A	3,200.8	AM
Arsenic, Total	0.02230		mg/l	0.00100	--	1	06/18/19 14:30	06/19/19 10:44	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	06/18/19 14:30	06/19/19 10:44	EPA 3005A	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	06/18/19 14:30	06/19/19 10:44	EPA 3005A	3,200.8	AM
Copper, Total	0.03548		mg/l	0.00100	--	1	06/18/19 14:30	06/19/19 10:44	EPA 3005A	3,200.8	AM
Iron, Total	0.388		mg/l	0.050	--	1	06/18/19 14:30	06/19/19 02:20	EPA 3005A	19,200.7	AB
Lead, Total	0.01087		mg/l	0.00100	--	1	06/18/19 14:30	06/19/19 10:44	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	06/18/19 17:43	06/18/19 22:47	EPA 245.1	3,245.1	EA
Nickel, Total	0.00526		mg/l	0.00200	--	1	06/18/19 14:30	06/19/19 10:44	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	06/18/19 14:30	06/19/19 10:44	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	06/18/19 14:30	06/19/19 10:44	EPA 3005A	3,200.8	AM
Zinc, Total	0.1413		mg/l	0.01000	--	1	06/18/19 14:30	06/19/19 10:44	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	288		mg/l	0.660	NA	1	06/18/19 14:30	06/19/19 02:20	EPA 3005A	19,200.7	AB
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		06/19/19 10:44	NA	107,-	

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-03
Client ID: RECEIVING
Sample Location: MA
Date Collected: 06/12/19 12:00
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.00414		mg/l	0.00400	--	1	06/18/19 14:30	06/19/19 11:01	EPA 3005A	3,200.8	AM
Arsenic, Total	0.00132		mg/l	0.00100	--	1	06/18/19 14:30	06/19/19 11:01	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	06/18/19 14:30	06/19/19 11:01	EPA 3005A	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	06/18/19 14:30	06/19/19 11:01	EPA 3005A	3,200.8	AM
Copper, Total	0.00280		mg/l	0.00100	--	1	06/18/19 14:30	06/19/19 11:01	EPA 3005A	3,200.8	AM
Iron, Total	0.366		mg/l	0.050	--	1	06/18/19 14:30	06/19/19 02:25	EPA 3005A	19,200.7	AB
Lead, Total	0.00152		mg/l	0.00100	--	1	06/18/19 14:30	06/19/19 11:01	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	06/18/19 17:43	06/18/19 22:49	EPA 245.1	3,245.1	EA
Nickel, Total	ND		mg/l	0.00200	--	1	06/18/19 14:30	06/19/19 11:01	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	06/18/19 14:30	06/19/19 11:01	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	06/18/19 14:30	06/19/19 11:01	EPA 3005A	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	06/18/19 14:30	06/19/19 11:01	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	95.0		mg/l	0.660	NA	1	06/18/19 14:30	06/19/19 02:25	EPA 3005A	19,200.7	AB
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		06/19/19 11:01	NA	107,-	

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

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): 01-03 Batch: WG1249923-13										
Antimony, Total	ND		mg/l	0.00400	--	1	06/18/19 14:30	06/19/19 09:20	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	06/18/19 14:30	06/19/19 09:20	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	06/18/19 14:30	06/19/19 09:20	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	06/18/19 14:30	06/19/19 09:20	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	06/18/19 14:30	06/19/19 09:20	3,200.8	AM
Lead, Total	ND		mg/l	0.00100	--	1	06/18/19 14:30	06/19/19 09:20	3,200.8	AM
Nickel, Total	ND		mg/l	0.00200	--	1	06/18/19 14:30	06/19/19 09:20	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	06/18/19 14:30	06/19/19 09:20	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	06/18/19 14:30	06/19/19 09:20	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	06/18/19 14:30	06/19/19 09:20	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): 01-03 Batch: WG1249932-1										
Iron, Total	ND		mg/l	0.050	--	1	06/18/19 14:30	06/18/19 22:11	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): 01-03 Batch: WG1249932-1										
Hardness	ND		mg/l	0.660	NA	1	06/18/19 14:30	06/18/19 22:11	19,200.7	AB

Prep Information

Digestion Method: EPA 3005A

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

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): 01-03 Batch: WG1250036-1										
Mercury, Total	ND		mg/l	0.00020	--	1	06/18/19 17:43	06/18/19 22:11	3,245.1	EA

Prep Information

Digestion Method: EPA 245.1

Lab Control Sample Analysis

Batch Quality Control

Project Name: CAMBRIDGE

Project Number: 56813

Lab Number: L1925177

Report Date: 07/01/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03 Batch: WG1249923-14								
Antimony, Total	99		-		85-115	-		
Arsenic, Total	106		-		85-115	-		
Cadmium, Total	110		-		85-115	-		
Chromium, Total	103		-		85-115	-		
Copper, Total	100		-		85-115	-		
Lead, Total	112		-		85-115	-		
Nickel, Total	105		-		85-115	-		
Selenium, Total	111		-		85-115	-		
Silver, Total	108		-		85-115	-		
Zinc, Total	111		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01-03 Batch: WG1249932-2								
Iron, Total	98		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-03 Batch: WG1249932-2								
Hardness	98		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01-03 Batch: WG1250036-2								
Mercury, Total	101		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: CAMBRIDGE
Project Number: 56813

Lab Number: L1925177
Report Date: 07/01/19

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): 01-03 QC Batch ID: WG1249923-15 QC Sample: L1925512-01 Client ID: MS Sample												
Antimony, Total	ND	0.5	0.6536	**131**	Q	-	-		70-130	-		20
Arsenic, Total	0.01428	0.12	0.1434	108		-	-		70-130	-		20
Cadmium, Total	0.00020	0.051	0.05331	104		-	-		70-130	-		20
Chromium, Total	0.01020	0.2	0.2150	102		-	-		70-130	-		20
Copper, Total	0.01920	0.25	0.2573	95		-	-		70-130	-		20
Lead, Total	0.1249	0.51	0.6935	111		-	-		70-130	-		20
Nickel, Total	0.00995	0.5	0.5134	101		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1246	104		-	-		70-130	-		20
Silver, Total	ND	0.05	0.05246	105		-	-		70-130	-		20
Zinc, Total	0.06362	0.5	0.5869	105		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1249923-17 QC Sample: L1925512-02 Client ID: MS Sample												
Antimony, Total	0.00620	0.5	0.5969	118		-	-		70-130	-		20
Arsenic, Total	0.00466	0.12	0.1355	109		-	-		70-130	-		20
Cadmium, Total	ND	0.051	0.05387	106		-	-		70-130	-		20
Chromium, Total	0.00109	0.2	0.2163	108		-	-		70-130	-		20
Copper, Total	0.00305	0.25	0.2541	100		-	-		70-130	-		20
Lead, Total	0.00203	0.51	0.6363	124		-	-		70-130	-		20
Nickel, Total	0.00214	0.5	0.5262	105		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1240	103		-	-		70-130	-		20
Silver, Total	ND	0.05	0.05329	106		-	-		70-130	-		20
Zinc, Total	0.1093	0.5	0.6694	112		-	-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: CAMBRIDGE
Project Number: 56813

Lab Number: L1925177
Report Date: 07/01/19

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): 01-03 QC Batch ID: WG1249932-3 QC Sample: L1925512-01 Client ID: MS Sample										
Iron, Total	8.07	1	9.39	**132**	Q	-	-	75-125	-	20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1249932-3 QC Sample: L1925512-01 Client ID: MS Sample										
Hardness	584	66.2	638	82		-	-	75-125	-	20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1249932-7 QC Sample: L1925512-02 Client ID: MS Sample										
Iron, Total	ND	1	0.964	96		-	-	75-125	-	20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1249932-7 QC Sample: L1925512-02 Client ID: MS Sample										
Hardness	472	66.2	547	113		-	-	75-125	-	20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1250036-3 QC Sample: L1925512-01 Client ID: MS Sample										
Mercury, Total	ND	0.005	0.00271	**54**	Q	-	-	70-130	-	20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1250036-5 QC Sample: L1925512-02 Client ID: MS Sample										
Mercury, Total	ND	0.005	0.00300	**60**	Q	-	-	70-130	-	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: CAMBRIDGE

Project Number: 56813

Lab Number: L1925177

Report Date: 07/01/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1249923-16 QC Sample: L1925512-01 Client ID: DUP Sample						
Antimony, Total	ND	0.00469	mg/l	NC		20
Arsenic, Total	0.01428	0.01508	mg/l	5		20
Cadmium, Total	0.00020	0.00020	mg/l	1		20
Chromium, Total	0.01020	0.01016	mg/l	0		20
Copper, Total	0.01920	0.01868	mg/l	3		20
Lead, Total	0.1249	0.1218	mg/l	3		20
Nickel, Total	0.00995	0.00987	mg/l	1		20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	0.06362	0.06348	mg/l	0		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: CAMBRIDGE
Project Number: 56813

Lab Number: L1925177
Report Date: 07/01/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1249923-18 QC Sample: L1925512-02 Client ID: DUP Sample					
Antimony, Total	0.00620	0.00729	mg/l	16	20
Arsenic, Total	0.00466	0.00516	mg/l	10	20
Cadmium, Total	ND	ND	mg/l	NC	20
Chromium, Total	0.00109	0.00106	mg/l	3	20
Copper, Total	0.00305	0.00285	mg/l	7	20
Lead, Total	0.00203	0.00198	mg/l	2	20
Nickel, Total	0.00214	ND	mg/l	NC	20
Selenium, Total	ND	ND	mg/l	NC	20
Silver, Total	ND	ND	mg/l	NC	20
Zinc, Total	0.1093	0.1092	mg/l	0	20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1249932-4 QC Sample: L1925512-01 Client ID: DUP Sample					
Iron, Total	8.07	8.26	mg/l	2	20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1249932-8 QC Sample: L1925512-02 Client ID: DUP Sample					
Iron, Total	ND	ND	mg/l	NC	20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1250036-4 QC Sample: L1925512-01 Client ID: DUP Sample					
Mercury, Total	ND	0.00031	mg/l	NC	20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1250036-6 QC Sample: L1925512-02 Client ID: DUP Sample					
Mercury, Total	ND	ND	mg/l	NC	20

INORGANICS
&
MISCELLANEOUS

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-01
Client ID: INF
Sample Location: MA
Sample Depth:
Matrix: Water

Date Collected: 06/12/19 10:30
Date Received: 06/12/19
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	99.		mg/l	12	NA	2.5	-	06/13/19 11:20	121,2540D	DR
Cyanide, Total	0.024		mg/l	0.005	--	1	06/13/19 22:40	06/14/19 11:07	121,4500CN-CE	LH
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	06/13/19 00:23	121,4500CL-D	JW
Nitrogen, Ammonia	2.46		mg/l	0.075	--	1	06/13/19 03:00	06/13/19 22:17	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	4.00	--	1	06/13/19 16:30	06/13/19 22:17	74,1664A	ML
Phenolics, Total	ND		mg/l	0.030	--	1	06/14/19 03:40	06/14/19 06:18	4,420.1	GD
Chromium, Hexavalent	ND		mg/l	0.010	--	1	06/13/19 02:24	06/13/19 03:38	1,7196A	EJ
Anions by Ion Chromatography - Westborough Lab										
Chloride	621.		mg/l	25.0	--	50	-	06/21/19 22:43	44,300.0	JT

Project Name: CAMBRIDGE
Project Number: 56813

Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-02
Client ID: EFF
Sample Location: MA

Date Collected: 06/12/19 11:00
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	06/13/19 11:20	121,2540D	DR
Cyanide, Total	ND		mg/l	0.005	--	1	06/13/19 22:40	06/14/19 11:08	121,4500CN-CE	LH
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	06/13/19 00:23	121,4500CL-D	JW
Nitrogen, Ammonia	1.41		mg/l	0.075	--	1	06/13/19 03:00	06/13/19 22:18	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	11.6	--	2.9	06/13/19 16:30	06/13/19 22:17	74,1664A	ML
Phenolics, Total	ND		mg/l	0.030	--	1	06/14/19 03:40	06/14/19 07:07	4,420.1	GD
Chromium, Hexavalent	ND		mg/l	0.010	--	1	06/13/19 02:24	06/13/19 03:38	1,7196A	EJ
Anions by Ion Chromatography - Westborough Lab										
Chloride	683.		mg/l	25.0	--	50	-	06/21/19 22:52	44,300.0	JT

Project Name: CAMBRIDGE
Project Number: 56813

Lab Number: L1925177
Report Date: 07/01/19

SAMPLE RESULTS

Lab ID: L1925177-03
Client ID: RECEIVING
Sample Location: MA

Date Collected: 06/12/19 12:00
Date Received: 06/12/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total Suspended	5.5		mg/l	5.0	NA	1	-	06/13/19 11:20	121,2540D	DR
Cyanide, Total	ND		mg/l	0.005	--	1	06/13/19 22:40	06/14/19 11:09	121,4500CN-CE	LH
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	06/13/19 00:23	121,4500CL-D	JW
Nitrogen, Ammonia	0.158		mg/l	0.075	--	1	06/13/19 03:00	06/13/19 22:19	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	4.00	--	1	06/13/19 16:30	06/13/19 22:17	74,1664A	ML
Phenolics, Total	ND		mg/l	0.030	--	1	06/14/19 03:40	06/14/19 06:20	4,420.1	GD
Chromium, Hexavalent	ND		mg/l	0.010	--	1	06/13/19 02:24	06/13/19 03:39	1,7196A	EJ
Anions by Ion Chromatography - Westborough Lab										
Chloride	234.		mg/l	25.0	--	50	-	06/21/19 23:01	44,300.0	JT

Project Name: CAMBRIDGE
Project Number: 56813
Lab Number: L1925177
Report Date: 07/01/19

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): 01-03 Batch: WG1247761-1										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	06/13/19 00:23	121,4500CL-D	JW
General Chemistry - Westborough Lab for sample(s): 01-03 Batch: WG1247783-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	06/13/19 03:00	06/13/19 22:00	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01-03 Batch: WG1247789-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	06/13/19 02:24	06/13/19 03:35	1,7196A	EJ
General Chemistry - Westborough Lab for sample(s): 01-03 Batch: WG1247891-1										
Phenolics, Total	ND		mg/l	0.030	--	1	06/14/19 03:40	06/14/19 06:12	4,420.1	GD
General Chemistry - Westborough Lab for sample(s): 01-03 Batch: WG1247905-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	06/13/19 11:20	121,2540D	DR
General Chemistry - Westborough Lab for sample(s): 01-03 Batch: WG1248197-1										
TPH, SGT-HEM	ND		mg/l	4.00	--	1	06/13/19 16:30	06/13/19 22:17	74,1664A	ML
General Chemistry - Westborough Lab for sample(s): 01-03 Batch: WG1248300-1										
Cyanide, Total	ND		mg/l	0.005	--	1	06/13/19 22:40	06/14/19 10:56	121,4500CN-CE	LH
Anions by Ion Chromatography - Westborough Lab for sample(s): 01-03 Batch: WG1251757-1										
Chloride	ND		mg/l	0.500	--	1	-	06/21/19 17:50	44,300.0	JT

Lab Control Sample Analysis

Batch Quality Control

Project Name: CAMBRIDGE
Project Number: 56813

Lab Number: L1925177
Report Date: 07/01/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG1247761-2								
Chlorine, Total Residual	92		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG1247783-2								
Nitrogen, Ammonia	93		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG1247789-2								
Chromium, Hexavalent	100		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG1247891-2								
Phenolics, Total	103		-		70-130	-		
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG1248197-2								
TPH	89		-		64-132	-		34
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG1248300-2								
Cyanide, Total	103		-		90-110	-		
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-03 Batch: WG1251757-2								
Chloride	101		-		90-110	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: CAMBRIDGE
Project Number: 56813

Lab Number: L1925177
Report Date: 07/01/19

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): 01-03 QC Batch ID: WG1247761-3 QC Sample: L1925177-01 Client ID: INF												
Chlorine, Total Residual	ND	0.25	0.30	120		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1247783-4 QC Sample: L1925204-02 Client ID: MS Sample												
Nitrogen, Ammonia	3.90	4	7.72	96		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1247789-4 QC Sample: L1925177-03 Client ID: RECEIVING												
Chromium, Hexavalent	ND	0.1	0.104	104		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1247891-4 QC Sample: L1924991-01 Client ID: MS Sample												
Phenolics, Total	ND	0.4	0.36	91		-	-		70-130	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1248197-4 QC Sample: L1924888-01 Client ID: MS Sample												
TPH	ND	20	10.5	**52**	Q	-	-		64-132	-		34
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1248300-4 QC Sample: L1925258-02 Client ID: MS Sample												
Cyanide, Total	ND	0.2	0.191	96		-	-		90-110	-		30
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1251757-3 QC Sample: L1923993-04 Client ID: MS Sample												
Chloride	ND	4	4.04	101		-	-		90-110	-		18

Lab Duplicate Analysis
Batch Quality Control

Project Name: CAMBRIDGE
Project Number: 56813

Lab Number: L1925177
Report Date: 07/01/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1247761-4 QC Sample: L1925177-02 Client ID: EFF						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1247783-3 QC Sample: L1925204-02 Client ID: DUP Sample						
Nitrogen, Ammonia	3.90	3.80	mg/l	3		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1247789-3 QC Sample: L1925177-03 Client ID: RECEIVING						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1247891-3 QC Sample: L1924991-01 Client ID: DUP Sample						
Phenolics, Total	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1247905-2 QC Sample: L1925340-01 Client ID: DUP Sample						
Solids, Total Suspended	61	59	mg/l	3		29
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1248197-3 QC Sample: L1924888-01 Client ID: DUP Sample						
TPH	ND	ND	mg/l	NC		34
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1248300-3 QC Sample: L1925258-01 Client ID: DUP Sample						
Cyanide, Total	0.076	0.047	mg/l	**47**	Q	30
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG1251757-4 QC Sample: L1923993-04 Client ID: DUP Sample						
Chloride	ND	ND	mg/l	NC		18

Project Name: CAMBRIDGE
Project Number: 56813

Lab Number: L1925177
Report Date: 07/01/19

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1925177-01A	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1925177-01B	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1925177-01C	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1925177-01D	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1925177-01E	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1925177-01F	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1925177-01G	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		504(14)
L1925177-01H	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		504(14)
L1925177-01I	Amber 120ml unpreserved	A	7	7	3.2	Y	Absent		CL-300(28),HEXCR-7196(1),TRC-4500(1)
L1925177-01J	Vial HCl preserved	A	NA		3.2	Y	Absent		SUB-ETHANOL(14)
L1925177-01K	Vial HCl preserved	A	NA		3.2	Y	Absent		SUB-ETHANOL(14)
L1925177-01L	Vial HCl preserved	A	NA		3.2	Y	Absent		SUB-ETHANOL(14)
L1925177-01M	Plastic 500ml HNO3 preserved	A	<2	<2	3.2	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)
L1925177-01N	Plastic 250ml NaOH preserved	A	>12	>12	3.2	Y	Absent		TCN-4500(14)
L1925177-01O	Amber 120ml unpreserved	A	7	7	3.2	Y	Absent		CL-300(28),HEXCR-7196(1),TRC-4500(1)
L1925177-01P	Plastic 500ml H2SO4 preserved	A	<2	<2	3.2	Y	Absent		NH3-4500(28)
L1925177-01Q	Plastic 950ml unpreserved	A	7	7	3.2	Y	Absent		CL-300(28),HEXCR-7196(1),TRC-4500(1)
L1925177-01R	Plastic 950ml unpreserved	A	7	7	3.2	Y	Absent		TSS-2540(7)
L1925177-01S	Amber 950ml H2SO4 preserved	A	<2	<2	3.2	Y	Absent		TPHENOL-420(28)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1925177-01T	Amber 1000ml HCl preserved	A	NA		3.2	Y	Absent		TPH-1664(28)
L1925177-01U	Amber 1000ml HCl preserved	A	NA		3.2	Y	Absent		TPH-1664(28)
L1925177-01V	Amber 1000ml Na2S2O3	A	7	7	3.2	Y	Absent		PCB-608.3(7)
L1925177-01W	Amber 1000ml Na2S2O3	A	7	7	3.2	Y	Absent		PCB-608.3(7)
L1925177-01X	Amber 1000ml Na2S2O3	A	7	7	3.2	Y	Absent		PCB-608.3(7)
L1925177-01Y	Amber 1000ml Na2S2O3	A	7	7	3.2	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1925177-01Z	Amber 1000ml Na2S2O3	A	7	7	3.2	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1925177-01Z1	Amber 1000ml Na2S2O3	A	7	7	3.2	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1925177-02A	Vial Na2S2O3 preserved	B	NA		4.0	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1925177-02B	Vial Na2S2O3 preserved	B	NA		4.0	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1925177-02C	Vial Na2S2O3 preserved	B	NA		4.0	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1925177-02D	Vial Na2S2O3 preserved	B	NA		4.0	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1925177-02E	Vial Na2S2O3 preserved	B	NA		4.0	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1925177-02F	Vial Na2S2O3 preserved	B	NA		4.0	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1925177-02G	Vial Na2S2O3 preserved	B	NA		4.0	Y	Absent		504(14)
L1925177-02H	Vial Na2S2O3 preserved	B	NA		4.0	Y	Absent		504(14)
L1925177-02J	Vial HCl preserved	B	NA		4.0	Y	Absent		SUB-ETHANOL(14)
L1925177-02K	Vial HCl preserved	B	NA		4.0	Y	Absent		SUB-ETHANOL(14)
L1925177-02L	Vial HCl preserved	B	NA		4.0	Y	Absent		SUB-ETHANOL(14)
L1925177-02M	Plastic 250ml HNO3 preserved	B	<2	<2	4.0	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),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L1925177-02N	Plastic 250ml NaOH preserved	B	>12	>12	4.0	Y	Absent		TCN-4500(14)
L1925177-02P	Plastic 500ml H2SO4 preserved	B	<2	<2	4.0	Y	Absent		NH3-4500(28)
L1925177-02Q	Plastic 950ml unpreserved	B	7	7	4.0	Y	Absent		CL-300(28),HEXCR-7196(1),TRC-4500(1)
L1925177-02R	Plastic 950ml unpreserved	B	7	7	4.0	Y	Absent		TSS-2540(7)
L1925177-02S	Amber 950ml H2SO4 preserved	B	<2	<2	4.0	Y	Absent		TPHENOL-420(28)
L1925177-02T	Amber 1000ml HCl preserved	B	NA		4.0	Y	Absent		TPH-1664(28)

*Values in parentheses indicate holding time in days

Project Name: CAMBRIDGE
Project Number: 56813

Lab Number: L1925177
Report Date: 07/01/19

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1925177-02U	Amber 1000ml HCl preserved	B	NA		4.0	Y	Absent		TPH-1664(28)
L1925177-02V	Amber 1000ml Na2S2O3	B	7	7	4.0	Y	Absent		PCB-608.3(7)
L1925177-02W	Amber 1000ml Na2S2O3	B	7	7	4.0	Y	Absent		PCB-608.3(7)
L1925177-02X	Amber 1000ml Na2S2O3	B	7	7	4.0	Y	Absent		PCB-608.3(7)
L1925177-02Y	Amber 1000ml Na2S2O3	B	7	7	4.0	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1925177-02Z	Amber 1000ml Na2S2O3	B	7	7	4.0	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1925177-02Z1	Amber 1000ml Na2S2O3	B	7	7	4.0	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1925177-03A	Vial Na2S2O3 preserved	C	NA		3.7	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1925177-03B	Vial Na2S2O3 preserved	C	NA		3.7	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1925177-03C	Vial Na2S2O3 preserved	C	NA		3.7	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1925177-03D	Vial Na2S2O3 preserved	C	NA		3.7	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1925177-03E	Vial Na2S2O3 preserved	C	NA		3.7	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1925177-03F	Vial Na2S2O3 preserved	C	NA		3.7	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L1925177-03G	Vial Na2S2O3 preserved	C	NA		3.7	Y	Absent		504(14)
L1925177-03H	Vial Na2S2O3 preserved	C	NA		3.7	Y	Absent		504(14)
L1925177-03J	Vial HCl preserved	C	NA		3.7	Y	Absent		SUB-ETHANOL(14)
L1925177-03K	Vial HCl preserved	C	NA		3.7	Y	Absent		SUB-ETHANOL(14)
L1925177-03L	Vial HCl preserved	C	NA		3.7	Y	Absent		SUB-ETHANOL(14)
L1925177-03M	Plastic 250ml HNO3 preserved	C	<2	<2	3.7	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)
L1925177-03N	Plastic 250ml NaOH preserved	C	>12	>12	3.7	Y	Absent		TCN-4500(14)
L1925177-03P	Plastic 500ml H2SO4 preserved	C	<2	<2	3.7	Y	Absent		NH3-4500(28)
L1925177-03Q	Plastic 950ml unpreserved	C	7	7	3.7	Y	Absent		CL-300(28),HEXCR-7196(1),TRC-4500(1)
L1925177-03R	Plastic 950ml unpreserved	C	7	7	3.7	Y	Absent		TSS-2540(7)
L1925177-03S	Amber 950ml H2SO4 preserved	C	<2	<2	3.7	Y	Absent		TPHENOL-420(28)
L1925177-03T	Amber 1000ml HCl preserved	C	NA		3.7	Y	Absent		TPH-1664(28)
L1925177-03U	Amber 1000ml HCl preserved	C	NA		3.7	Y	Absent		TPH-1664(28)

*Values in parentheses indicate holding time in days

Project Name: CAMBRIDGE
Project Number: 56813

Lab Number: L1925177
Report Date: 07/01/19

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1925177-03V	Amber 1000ml Na2S2O3	C	7	7	3.7	Y	Absent		PCB-608.3(7)
L1925177-03W	Amber 1000ml Na2S2O3	C	7	7	3.7	Y	Absent		PCB-608.3(7)
L1925177-03X	Amber 1000ml Na2S2O3	C	7	7	3.7	Y	Absent		PCB-608.3(7)
L1925177-03Y	Amber 1000ml Na2S2O3	C	7	7	3.7	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1925177-03Z	Amber 1000ml Na2S2O3	C	7	7	3.7	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1925177-03Z1	Amber 1000ml Na2S2O3	C	7	7	3.7	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)

*Values in parentheses indicate holding time in days

Project Name:	CAMBRIDGE	**Lab Number:**	L1925177
Project Number:	56813	**Report Date:**	07/01/19

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

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.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: Data Usability Report

Project Name:	CAMBRIDGE	**Lab Number:**	L1925177
Project Number:	56813	**Report Date:**	07/01/19

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

Terms

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

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

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

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

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

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

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

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

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

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

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

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

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

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

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

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

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

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

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

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

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

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: Data Usability Report

Project Name:	CAMBRIDGE	**Lab Number:**	L1925177
Project Number:	56813	**Report Date:**	07/01/19

REFERENCES

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

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

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

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

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

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

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

107 Alpha Analytical - In-house calculation method.

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

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

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

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

LIMITATION OF LIABILITIES

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

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

Certification Information

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

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

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

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

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

Westborough Facility:

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

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

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

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

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

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 6/12/19

ALPHA Job #: L1925177

ALPHA ANALYTICAL
8 Walkup Drive, Westboro, MA 01581, Tel: 508-898-9220
320 Forbes Blvd, Mansfield, MA 02048, Tel: 508-822-9300

Client Information

Client: The Vortex Companies
Address: 100N Washington St, 302
Boston MA
Phone: 617-275-5407
Email: kscarson@vortexeng.com

Additional Project Information:

Project Information

Project Name: Cambridge
Project Location: MA
Project #: 56813
Project Manager: B. Sivonen
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due:

Report Information - Data Deliverables

☒ ADEx ☐ EMAIL

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements & Project Information Requirements

☒ Yes ☐ No MA MCP Analytical Methods ☐ Yes ☐ No CT RCP Analytical Methods
☐ Yes ☒ No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
☒ Yes ☐ No GW1 Standards (Info Required for Metals & EPH with Targets)
☒ Yes ☐ No NPDES RGP
☐ Other State /Fed Program _____ Criteria _____

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	VOC: ☐ 8260 ☒ 624 ☐ 524.2	SVOC: ☐ ABN ☐ PAH ☒ 8270SIM	METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15	METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13	EPH: ☐ Ranges & Targets ☐ Ranges Only	VPH: ☐ Ranges & Targets ☐ Ranges Only	☒ PCB ☐ PEST	TPH: ☒ Quant Only ☐ Fingerprint	Metals 3005A	Hex Chrom 7196A	Total Cyanide	TRC, TSS, Total Phenol	Ammonia, EDB	pH, conductivity, hardness	SAMPLE INFO: Filtration ☐ Field ☐ Lab to do; Preservation ☐ Lab to do; Sample Comments	TOTAL # BOTTLES
25177-01	Inf	6/12/19	1030	GW	KS	X	X					X	X	X	X	X	X	X	X		
02	Eff	↓	1100	↓	↓	X	X					X	X	X	X	X	X	X	X		
03	Receiving	↓	1200	↓	↓	X	X					X	X	X	X	X	X	X	X		

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

Preservative
A= None
B= HCl
C= HNO_3
D= H_2SO_4
E= NaOH
F= MeOH
G= $NaHSO_4$
H = $Na_2S_2O_3$
I= Ascorbic Acid
J = NH_4Cl
K= Zn Acetate
O= Other

Container Type																					
Preservative																					

Relinquished By:	Date/Time	Received By:	Date/Time
	06/12/19 1318		6/10/19 1320
	6/12/19 1845		6/12/19 1845

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 12-Mar-2012)

ALPHA ANALYTICAL
World Class Chemistry

Subcontract Chain of Custody

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

Alpha Job Number
L1925177

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 508.439.5137
Email: nhunt@alphalab.com

Project Information

Project Location: MA
Project Manager: Nichole Hunt

Turnaround & Deliverables Information

Due Date: 06/21/19
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:
Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L1925177

Report to include Method Blank, LCS/LCSD:

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

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	INF	06-12-19 10:30	WATER	Ethanol by EPA 1671 Revision A	
	EFF	06-12-19 11:00	WATER	Ethanol by EPA 1671 Revision A	
	RECEIVING	06-12-19 12:00	WATER	Ethanol by EPA 1671 Revision A	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
	Chris Telreau	6/13/19		
Form No: AL_subcoc				

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

Laboratory Job ID: 490-175876-1
Client Project/Site: L1925177

For:
Alpha Analytical Inc
145 Flanders Road
Westborough, Massachusetts 01581-1019

Attn: Reports Dept.

Authorized for release by:
6/19/2019 5:18:36 PM

Ken Hayes, Project Manager II
(615)301-5035
ken.hayes@testamericainc.com

Table of Contents

Sample Summary

Client: Alpha Analytical Inc
Project/Site: L1925177

Job ID: 490-175876-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
490-175876-1	INF	Water	06/12/19 10:30	06/14/19 09:35	
490-175876-2	EFF	Water	06/12/19 11:00	06/14/19 09:35	
490-175876-3	RECEIVING	Water	06/12/19 12:00	06/14/19 09:35	

Case Narrative

Client: Alpha Analytical Inc
Project/Site: L1925177

Job ID: 490-175876-1

Job ID: 490-175876-1

Laboratory: Eurofins TestAmerica, Nashville

Narrative

Job Narrative
490-175876-1

Comments
No additional comments.

Receipt
The samples were received on 6/14/2019 9:35 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.4° C.

GC Semi VOA
Method 1671A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 490-602301.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: Alpha Analytical Inc
Project/Site: L1925177

Job ID: 490-175876-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Alpha Analytical Inc
Project/Site: L1925177

Job ID: 490-175876-1

Client Sample ID: INF

Date Collected: 06/12/19 10:30
Date Received: 06/14/19 09:35

Lab Sample ID: 490-175876-1

Matrix: Water

Method: 1671A - Ethanol (GC/FID)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	ND		2000	500	ug/L			06/19/19 12:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Isopropyl acetate (Surr)	*86*		*70 - 130*		*06/19/19 12:58*	*1*

Client Sample Results

Client: Alpha Analytical Inc
Project/Site: L1925177

Job ID: 490-175876-1

Client Sample ID: EFF

Date Collected: 06/12/19 11:00
Date Received: 06/14/19 09:35

Lab Sample ID: 490-175876-2

Matrix: Water

Method: 1671A - Ethanol (GC/FID)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	ND		2000	500	ug/L			06/19/19 13:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Isopropyl acetate (Surr)	*78*		*70 - 130*		*06/19/19 13:04*	*1*

Client Sample Results

Client: Alpha Analytical Inc
Project/Site: L1925177

Job ID: 490-175876-1

Client Sample ID: RECEIVING

Date Collected: 06/12/19 12:00
Date Received: 06/14/19 09:35

Lab Sample ID: 490-175876-3

Matrix: Water

Method: 1671A - Ethanol (GC/FID)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	ND		2000	500	ug/L			06/19/19 13:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Isopropyl acetate (Surr)	*87*		*70 - 130*		*06/19/19 13:10*	*1*

QC Sample Results

Client: Alpha Analytical Inc
Project/Site: L1925177

Job ID: 490-175876-1

Method: 1671A - Ethanol (GC/FID)

Lab Sample ID: MB 490-602301/4
Matrix: Water
Analysis Batch: 602301

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	ND		2000	500	ug/L			06/19/19 12:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Isopropyl acetate (Surr)	*86*		*70 - 130*		*06/19/19 12:33*	*1*

Lab Sample ID: LCS 490-602301/5
Matrix: Water
Analysis Batch: 602301

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethanol			40200	47090		ug/L		117	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Isopropyl acetate (Surr)	*88*		*70 - 130*

Lab Sample ID: LCSD 490-602301/6
Matrix: Water
Analysis Batch: 602301

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethanol			40200	43240		ug/L		108	70 - 130	9	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Isopropyl acetate (Surr)	*89*		*70 - 130*

QC Association Summary

Client: Alpha Analytical Inc
Project/Site: L1925177

Job ID: 490-175876-1

GC VOA

Analysis Batch: 602301

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-175876-1	INF	Total/NA	Water	1671A	
490-175876-2	EFF	Total/NA	Water	1671A	
490-175876-3	RECEIVING	Total/NA	Water	1671A	
MB 490-602301/4	Method Blank	Total/NA	Water	1671A	
LCS 490-602301/5	Lab Control Sample	Total/NA	Water	1671A	
LCSD 490-602301/6	Lab Control Sample Dup	Total/NA	Water	1671A	

Lab Chronicle

Client: Alpha Analytical Inc
Project/Site: L1925177

Job ID: 490-175876-1

Client Sample ID: INF
Date Collected: 06/12/19 10:30
Date Received: 06/14/19 09:35

Lab Sample ID: 490-175876-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1671A		1			602301	06/19/19 12:58	AAB	TAL NSH

Client Sample ID: EFF
Date Collected: 06/12/19 11:00
Date Received: 06/14/19 09:35

Lab Sample ID: 490-175876-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1671A		1			602301	06/19/19 13:04	AAB	TAL NSH

Client Sample ID: RECEIVING
Date Collected: 06/12/19 12:00
Date Received: 06/14/19 09:35

Lab Sample ID: 490-175876-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1671A		1			602301	06/19/19 13:10	AAB	TAL NSH

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Method Summary

Client: Alpha Analytical Inc
Project/Site: L1925177

Job ID: 490-175876-1

Method	Method Description	Protocol	Laboratory
1671A	Ethanol (GC/FID)	EPA	TAL NSH

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Accreditation/Certification Summary

Client: Alpha Analytical Inc
Project/Site: L1925177

Job ID: 490-175876-1

Laboratory: Eurofins TestAmerica, Nashville

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2938	06-30-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
1671A		Water	Ethanol

Maine	State Program	1	TN00032	11-03-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
1671A		Water	Ethanol

Massachusetts	State Program	1	M-TN032	06-30-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
1671A		Water	Ethanol

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-175876 Chain of Custody

Cooler Received/Opened On 06-14-2019 @ 09:35

Time Samples Removed From Cooler 9:48 Time Samples Placed In Storage 9:52 (2 Hour Window)

1. Tracking # 1Z E30 654 19 7647 7339 (last 4 digits, FedEx) Courier: UPS NDA

IR Gun ID 31470368 pH Strip Lot N/A Chlorine Strip Lot N/A

2. Temperature of rep. sample or temp blank when opened: 5.4 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES NO NA

If yes, how many and where: _____

5. Were the seals intact, signed, and dated correctly? YES NO NA

6. Were custody papers inside cooler? YES NO NA

I certify that I opened the cooler and answered questions 1-6 (intial) KD

7. Were custody seals on containers: YES NO and Intact YES NO NA

Were these signed and dated correctly? YES NO NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES NO NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES NO NA

12. Did all container labels and tags agree with custody papers? YES NO NA

13a. Were VOA vials received? YES NO NA

b. Was there any observable headspace present in any VOA vial? YES NO NA

Larger than this.

14. Was there a Trip Blank in this cooler? YES NO NA If multiple coolers, sequence # _____

I certify that I unloaded the cooler and answered questions 7-14 (intial) _____

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES NO NA

b. Did the bottle labels indicate that the correct preservatives were used YES NO NA

16. Was residual chlorine present? YES NO NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) _____

17. Were custody papers properly filled out (ink, signed, etc)? YES NO NA

18. Did you sign the custody papers in the appropriate place? YES NO NA

19. Were correct containers used for the analysis requested? YES NO NA

20. Was sufficient amount of sample sent in each container? YES NO NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) _____

I certify that I attached a label with the unique LIMS number to each container (intial) _____

21. Were there Non-Conformance issues at login? YES NO Was a NCM generated? YES NO #_____

BIS = Broken in shipment

ALPHA ANALYTICAL
World Class Chemistry

Subcontract Chain of Custody

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

Alpha Job Number
L1925177

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 508.439.5137
Email: nhunt@alphalab.com

Project Information

Project Location: MA
Project Manager: Nichole Hunt

Turnaround & Deliverables Information

Due Date: 06/21/19
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:

Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L1925177

Report to include Method Blank, LCS/LCSD:

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

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	INF	06-12-19 10:30	WATER	Ethanol by EPA 1671 Revision A	
	EFF	06-12-19 11:00	WATER	Ethanol by EPA 1671 Revision A	
	RECEIVING	06-12-19 12:00	WATER	Ethanol by EPA 1671 Revision A	

Loc: 490
175876

Relinquished By:	Date/Time:	Received By:	Date/Time:
Chris Tebeau	6/13/19		6/14/19 9:35

Form No: AL_subcoc