

April 30, 2021

U.S. Environmental Protection Agency
Office of Ecosystem Protection
EPA/OEP RGP Applications Coordinator
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3912

Re: **NPDES Remedial General Permit Application** (Revision 01)
Project Title: Beacham Street and Williams Street Utility and Roadway Improvements
City of Chelsea Contract No.: 2021-132
Project Location: Chelsea, MA

Dear Ms. Little:

On behalf of the operator, FED. Corp., SAK Environmental (SAK) is submitting this application as part of permit coverage request under the National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) for the City of Chelsea's project, Contract No. 2021-132, titled "*Beacham Street and Williams Street Utility and Roadway Improvements*" Chelsea, MA (Project). A copy of the Notice of Intent (NOI) is included as **Attachment 1**. The dewatered groundwater will be discharged to a stormwater drainage line that discharges to an outfall at Island End River.

1. Project Description

The Project includes utility and roadway construction along Beacham Street and Williams Street between the city limit and Spruce Street in the City of Chelsea, Massachusetts. See **Figure 1** – Site Location Map and **Figure 2** – Aerial Site Map for more details of the Project location.

Utility construction includes cleaning and cured-in-place pipe lining of approximately 1,980 linear feet of 8-, 10-, and 12-inch mainline sewer; lining of building connections; sewer spot repairs; rehabilitation or replacement of existing sewer manholes; approximately 3,410 linear feet of 12-, 15-, 18-, 24-inch drain including manholes, gutter inlets, tidegates, and catch basins; approximately 290 linear feet of 6- to 16-inch water main with fittings, valves, hydrants, and water services; and approximately 1,380 linear feet of irrigation system with sprinkler heads with control assembly.

Roadway construction includes approximately 17,150 square yards of roadway reclamation; temporary, base, binder and top course pavement; approximately 4,000 square yards of cement concrete sidewalks; approximately 5,900 linear feet of new granite curb; intersection traffic signal reconstruction, and pavement markings and signage.

2. MCP Disposal Sites

There are several disposal sites, each has one or more Release Tracking Numbers (RTNs), as defined by the Massachusetts Contingency Plan (MCP) at 310 Code of Massachusetts Regulations (CMR) 40.0000 located near, adjacent to or within the Project limits. **Figure 2** shows the limits of each disposal site and associated (RTN) in relation to the Project. Descriptions of each disposal site are presented below.

Beacham Street and Williams Street (RTN 3-0036195) – The Project Site:

In November 2019, during a subsurface pre-characterization program to support proposed utility improvements (this Project), metals, polychlorinated biphenyls (PCBs), total petroleum hydrocarbons (TPH) and polycyclic aromatic hydrocarbons (PAHs) compounds were discovered in soil exceeding MCP Reportable Concentrations (RCs). The disposal site, also the Project site, was later identified with RTN 3-0036195. A Phase I Initial Site Investigation (Phase I ISI) and Tier Classification was submitted to MassDEP in March 2021. According to the Phase ISI, historic filling within the area is believed to be the source of the contaminant of concerns (COCs). A Permanent Solution has not yet been achieved for the disposal site.

City Chelsea DPW Yard at 380 Beacham Street (RTN 3-0012360) – The Project Site:

Petroleum compounds, originating from a leaking underground storage tank (UST), were discovered at this disposal site in 1995. RTN 3-0012360 was assigned to this release. USTs, contaminated soil and groundwater removals were performed as part of the cleanup effort. Metals were also detected at the site, which are believed to be from historic. A Class A-3 Response Action Outcome (RAO) was achieved for the site along with implementation of an Activity Use Limitation (AUL). The AUL was required to reduce exposure to residual metals, hydrocarbons and PAH contamination which remains in the soil throughout the site. This compliance status states that a level of No Significant Risk exists under the current and future site uses, as long as the conditions of the AUL are met. Two smaller releases (RTN 3-0015493 and RTN 3-0017752) are associated with waste oil and diesel fuel discovered within the site in 1997 and 1998. The two releases were determined to have originated from the same source as that of RTN 3-0012360 and were incorporated into the primary RTN 3-0012360.

United States Postal Service at 307 Beacham Street (RTN 3-0000548 and 3-0029511):

This site is located at the corner of Beacham Street and Market Street, adjacent to the Project's limits along the two streets. The site (RTN 3-0000548) was discovered to be impacted by petroleum hydrocarbons, polynuclear aromatic hydrocarbons and metals from former underground storage tanks and urban fill materials. Reportedly no continuing sources of contamination exist at the site and a Method 3 Risk Characterization achieved a condition of No Significant Risk in January 2002. RTN 3-0029511 is corresponding to a Utility Release Abatement Measurement (URAM) conducted for installation of gas pipeline at the site in September 2010.

Irving Gas Station at 410 Beacham Street (RTN 3-0034205):

This disposal site is located adjacent to the Project's limit along Beacham Street. The RTN 3-0034205 was assigned to this site due to the discovery of PAHs, metals, and PCBs identified in soil above RCs. Historic filling of the area is believed to be the source of these COCs. The site was closed out in December 2017 with a Permanent Solution with Conditions and implementation of an AUL.

Dunkin' Donuts at 276 Beacham Street (RTN 3-0032968):

This disposal site, a 10-foot by 10-foot area, located near the intersection of Riley Way and Beacham Street and is approximately 50 feet away from the Project's limit. A release of approximately 12 gallons of diesel fuel occurred at the site in June 2015. Soil was the only media impacted by this release. A soil removal was conducted and the site was remediated to achieve a Permanent Solution with No Conditions.

New England Produce Center at 300 Beacham Street (RTN 3-0003669, 3-0019944, 3-0023445, 3-0028652, 3-0030156, and 3-0032958):

This disposal site is a 40-acre property that is adjacent to the Project along Beacham Street and Market Street. RTN 3-0003669 was assigned to the entire property due to discovery of petroleum and coal tar-related compounds in soil and groundwater during utility repair work in June 1990. The disposal site is being managed under a Temporary Solution as a Class C-1 RAO with AUL in place. Between 2000 to 2015, five different small releases of diesel fuel also occurred throughout the site. Soil and groundwater were not impacted, except one release (RTN 3-0023445) where the release entered storm drain and reached the Island End River. These smaller releases were all achieved Class A-1 RAO and/or a Permanent Solution with No Conditions. Other URAM RTNs (not listed here) are corresponding to various utility repair works that occurred since mid-2010s within the disposal site.

3. Groundwater Characterization

Groundwater is likely to be encountered during excavation activities within the Project limits. According to the Phase I ISI and Tier Classification dated March 2021, completed by Weston & Sampson (the engineer representing the City of Chelsea) as part of RTN 3-0036195, groundwater was found to be tidally influenced and ranging between 4 feet below ground surface (bgs) to 11 feet bgs. On November 14, 2019 and November 18, 2019, as part of the Phase I ISI, Weston & Sampson collected groundwater samples from three groundwater monitoring wells (MW-04, MW-06, and MW-08) located along the Project alignment. The locations of these wells are shown on **Figure 2**. The samples were analyzed for MCP 14 metals, PCBs, extractable petroleum hydrocarbons (EPH), volatile petroleum hydrocarbons (VPH), volatile organic compounds (VOCs), and semivolatile organic compounds (SVOCs).

To comply with the remaining RGP testing requirements, SAK conducted groundwater sampling from monitoring well MW-8 on March 31, 2021. One groundwater sample (designed as SAK-MW-

08) was collected after purging three well volumes using a disposable bailer. The sample was submitted to New England Testing Laboratory Inc. of West Warwick, RI (NET Lab) and was analyzed for RGP parameters that were not previously analyzed by Weston & Sampson. These parameters are trivalent and hexavalent chromium, copper, iron, ammonia, chloride, cyanide, salinity, total residual chlorine, total suspended solids, and ethanol.

Laboratory results from both sampling events are shown in **Table 1**. Laboratory reports are included as **Attachment 2**.

4. Receiving Water Information

Island End River is considered to be the receiving water for the Project. The Project is proposed to discharge dewatered water via stormwater catch basins located along Beacham Street (see **Figure 2**). According to the Massachusetts Year 2016 Integrated List of Waters, pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act, the Island End River discharged to the Mystic River (Segment ID: MA71-03). This segment of Mystic River is listed as impaired due to un-ionized ammonia, dissolved oxygen, fecal coliform, flocculant masses, odor, oil and grease, PCBs in fish tissue, petroleum hydrocarbons, and scum/foam. Total Maximum Daily Load (TMDL) has been developed for the fecal coliform only.

On March 31, 2021, SAK collected a receiving water sample (designated as RE-01) from the Island End River pursuant to testing requirements by the RGP. Receiving water sample RE-01 was collected from surface water approximately 520 feet downstream from the discharge outfall (see **Figure 2**). The sample was submitted to NET Lab and was analyzed for the parameters required under the RGP for a receiving water. Results for the receiving water sample are summarized in **Table 1**. Laboratory reports are included in **Attachment 2**.

5. Water Treatment System

The proposed utility and roadway construction excavation will likely encounter groundwater and therefore require dewatering. Groundwater will be pumped into a 21,000-gallon fixed axle tank prior to treatment. The water will then be pumped into bag filter system, comprised of four filter bags, before reaching two media vessels containing activated carbon. Additional filtration may be added depending on effluent monitoring requirements and will consist of a resin media vessel. The effluent discharge flow rate will be an average of 200 gallons per minute (gpm) and a maximum of 300 gpm. The process flow diagram and data sheets of all components of the treatment system are included in **Attachment 3**. The treated water will then be discharged to various storm drains located within the Project (locations are shown on **Figure 2**). These storm drains discharge to an outfall at the Island End River, located at approximately 120 feet to the south of Beacham Street and Market Street intersection.

6. Consultation with Federal Services

SAK utilized the U.S. Fish & Wildlife Service (USFWS) Information, Planning, and Conservation (IPaC) System and determined that there are no threatened or endangered species or critical habitats located within vicinity of the Project. However, the National Marine Fisheries Service (NMFS) identified the receiving water to be habitat for several marine species (Atlantic sturgeon, shortnose sturgeon, Atlantic large whales, and sea turtles). Although the treated groundwater will be discharged from the Project via stormwater catch basins will reach waters where the Endangered Species Act (ESA)-listed species may be present, the discharge is not likely to adversely affect these species.

According to the Massachusetts Cultural Resource Information System (MACRIS), online mapping by the Massachusetts Historic Commission (MHC), there are no historic properties located within the Project's earth disturbance area. The nearest historic property is the Naval Hospital, with designation of National Registered District (NRD), that is located to the south of Williams Street. The Project's limit is not expected to overlap this NRD property. The nearest national registered structure is located more than 1000 feet to the south of Williams Street. These historic properties are not likely to be impact by the proposed discharge.

See **Attachment 4** for supporting documentation regarding consultation with the federal services.

7. Coverage under NPDES RGP

It is in our opinion that the information provided within this letter report is sufficient for eligibility determination of the proposed discharge to be covered under the NPDES RGP program.

The completed NOI form is included in **Attachment 1** and contain further information regarding the Project, discharge, treatment system, receiving water, and consultation with state and federal agencies. For the Project, FED. Corp. is considered the Operator with control over day-to-day construction activities, and the City of Chelsea is considered the Owner with operational control over the construction plans and specifications. Weston & Sampson is the engineer managing the Project on behalf of the City of Chelsea.

Do not hesitate to contact us with any questions.

SAK Environmental LLC

Prepared by:



Chhavan Nuon
Project Engineer

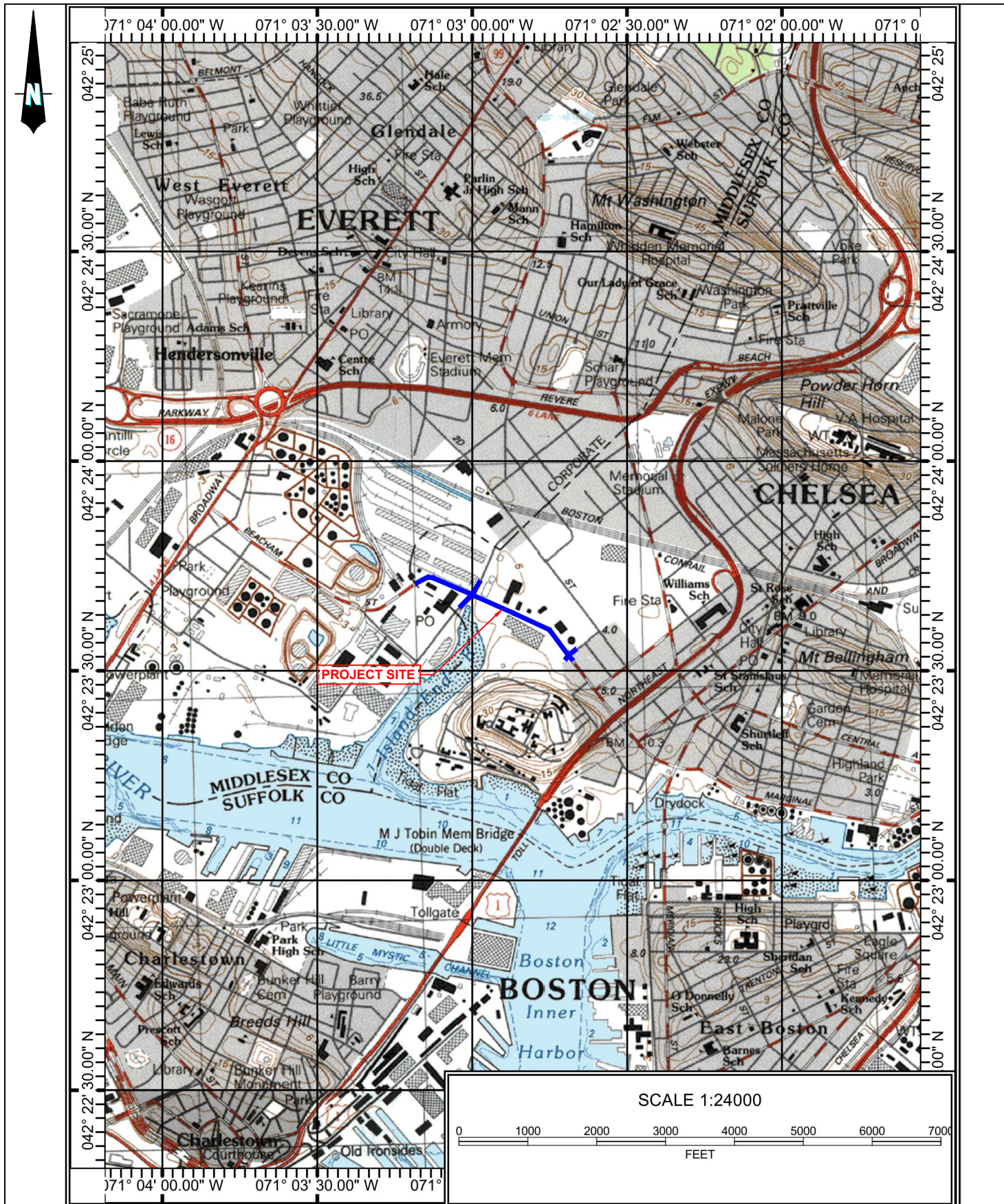
Reviewed by:



Meghan Emmert
Project Manager

ENCLOSURES

Figure 1	Site Location Map
Figure 2	Aerial Site Map
Table 1	Water Sample Analytical Results
Attachment 1	RGP NOI Form
Attachment 2	Laboratory Reports
Attachment 3	Treatment System Process Flow Diagram and Data Sheet
Attachment 4	Supporting Documentation with Federal and State Service/Agencies
Attachment 5	Water Quality Based Effluent Limitation Calculation



sak Environmental, LLC

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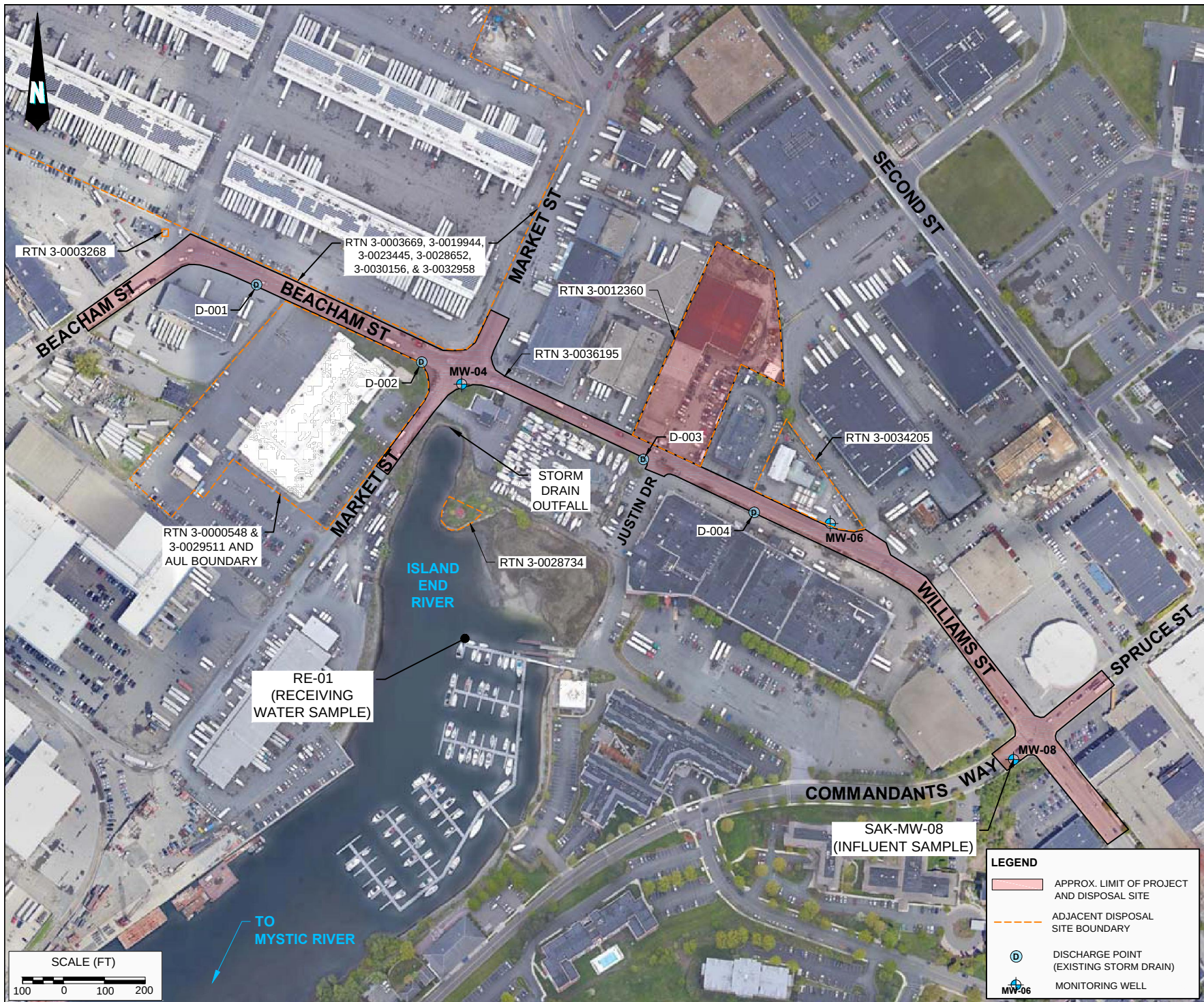
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PROJECT NAME & LOCATION
BEACHAM STREET AND WILLIAMS
STREET UTILITY AND ROADWAY
IMPROVEMENTS

CLIENT NAME
FED CORP.

SHEET NAME / NO.
FIGURE I
SITE LOCATION
MAP



SHEET NAME / NO.		
FIGURE 2		
AERIAL SITE MAP		
 SAK Environmental, LLC TELEPHONE: (978) 688-7804 FAX: (978) 688-7801 www.SAKenvironmental.com 231 SUTTON ST. SUITE 2G NORTH ANDOVER, MA 01845		
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PROJECT NAME & LOCATION		
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TABLE 1
WATER ANALYTICAL RESULTS
BEACHAM & WILLIAMS STREET
CHELSEA, MA

Parameter	Units	SAMPLING LOCATION (WESTON & SAMPSON)			SAMPLING LOCAITON (SAK)	
		MW-04	MW-06	MW-08	SAK-MW-08	RE-01
		11/14/2019	11/14/2019	11/18/2019	3/31/2021	3/31/2021
Metals (SW-846 6020B)						
ANTIMONY	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	NT	NT
ARSENIC	µg/L	11	4.3	11	NT	NT
BARIUM	µg/L	310	1100	190	NT	NT
BERYLLIUM	µg/L	ND (0.40)	ND (0.40)	ND (0.40)	NT	NT
CADMIUM	µg/L	ND (0.20)	ND (0.20)	ND (0.20)	NT	NT
CHROMIUM	µg/L	2.1	2.5	ND (1.0)	NT	NT
LEAD	µg/L	ND (2.5)	6.7	3.7	NT	NT
MERCURY	µg/L	ND (0.1)	ND (0.1)	ND (0.1)	NT	NT
NICKEL	µg/L	9.2	ND (5.0)	5.3	NT	NT
SELENIUM	µg/L	13	ND (5.0)	ND (5.0)	NT	NT
SILVER	µg/L	ND (0.20)	ND (0.20)	ND (0.20)	NT	NT
THALLIUM	µg/L	ND (1.0)	ND (0.20)	ND (0.20)	NT	NT
VANADIUM	µg/L	ND (5.0)	ND (5.0)	ND (5.0)	NT	NT
ZINC	µg/L	ND (10)	ND (10)	ND (10)	NT	NT
Metals (EPA 6010C)						
Antimony	µg/L	NT	NT	NT	NT	ND (5.0)
Arsenic	µg/L	NT	NT	NT	NT	20
Cadmium	µg/L	NT	NT	NT	NT	ND (5.0)
Chromium	µg/L	NT	NT	NT	32	ND (5.0)
Chromium III	µg/L	NT	NT	NT	32.2	ND (15)
Chromium VI	µg/L	NT	NT	NT	ND (10)	ND (10)
Copper	µg/L	NT	NT	NT	30	ND (20)
Iron	µg/L	NT	NT	NT	32900	180
Lead	µg/L	NT	NT	NT	NT	ND (5.0)
Mercury	µg/L	NT	NT	NT	NT	ND (0.4)
Selenium	µg/L	NT	NT	NT	NT	20
Silver	µg/L	NT	NT	NT	NT	6
Zinc	µg/L	NT	NT	NT	NT	ND (20)
General Chemistry						
Ammonia	µg/L	NT	NT	NT	400	100
Chloride	µg/L	NT	NT	NT	12400000	NT
Cyanide	µg/L	NT	NT	NT	ND (10)	NT
Salinity	ppt				NT	21
pH		NT	NT	NT	6.7	7.87
Temperature	oF	NT	NT	NT	61.3	53.4
Total Hardness	µg/L	NT	NT	NT	NT	4.17
Total Residual Chlorine	µg/L	NT	NT	NT	90	NT
Total Suspended Solids	µg/L	NT	NT	NT	173000	NT
Polychlorinated Biphenyls (PCBs)						
PCB 1016	µg/L	ND (0.20)	ND (0.20)	ND (0.20)	NT	NT
PCB 1221	µg/L	ND (0.20)	ND (0.20)	ND (0.20)	NT	NT
PCB 1232	µg/L	ND (0.20)	ND (0.20)	ND (0.20)	NT	NT
PCB 1242	µg/L	ND (0.20)	ND (0.20)	ND (0.20)	NT	NT
PCB 1248	µg/L	ND (0.20)	ND (0.20)	ND (0.20)	NT	NT
PCB 1254	µg/L	ND (0.20)	ND (0.20)	ND (0.20)	NT	NT
PCB 1260	µg/L	ND (0.20)	ND (0.20)	ND (0.20)	NT	NT
PCB 1262	µg/L	ND (0.20)	ND (0.20)	ND (0.20)	NT	NT
PCB 1268	µg/L	ND (0.20)	ND (0.20)	ND (0.20)	NT	NT
Total PCBs	µg/L	ND	ND	ND	NT	NT
Extractable Petroleum Hydrocarbons (EPH)						
C9-C18 ALIPHATICS	µg/L	ND (99)	ND (100)	ND (96)	NT	NT
C19-C36 ALIPHATICS	µg/L	ND (99)	ND (100)	ND (96)	NT	NT
UNADJUSTED C11-C22 AROMATICS	µg/L	ND (99)	ND (100)	ND (96)	NT	NT
C11-C22 AROMATICS	µg/L	ND (99)	ND (100)	ND (96)	NT	NT
ACENAPHTHENE	µg/L	ND (2.0)	ND (2.0)	ND (1.9)	NT	NT
ACENAPHTHYLENE	µg/L	ND (2.0)	ND (2.0)	ND (1.9)	NT	NT
ANTHRACENE	µg/L	ND (2.0)	ND (2.0)	ND (1.9)	NT	NT
BENZO(A)ANTHRACENE	µg/L	ND (2.0)	ND (2.0)	ND (1.9)	NT	NT
BENZO(A)PYRENE	µg/L	ND (2.0)	ND (2.0)	ND (1.9)	NT	NT
BENZO(B)FLUORANTHENE	µg/L	ND (2.0)	ND (2.0)	ND (1.9)	NT	NT
BENZO(G,H,I)PERYLENE	µg/L	ND (2.0)	ND (2.0)	ND (1.9)	NT	NT
BENZO(K)FLUORANTHENE	µg/L	ND (2.0)	ND (2.0)	ND (1.9)	NT	NT
CHRYSENE	µg/L	ND (2.0)	ND (2.0)	ND (1.9)	NT	NT
DIBENZ(A,H)ANTHRACENE	µg/L	ND (2.0)	ND (2.0)	ND (1.9)	NT	NT
FLUORANTHENE	µg/L	ND (2.0)	ND (2.0)	ND (1.9)	NT	NT
FLUORENE	µg/L	ND (2.0)	ND (2.0)	ND (1.9)	NT	NT
INDENO(1,2,3-CD)PYRENE	µg/L	ND (2.0)	ND (2.0)	ND (1.9)	NT	NT
2-METHYLNAPHTHALENE	µg/L	ND (2.0)	ND (2.0)	ND (1.9)	NT	NT
NAPHTHALENE	µg/L	ND (2.0)	ND (2.0)	ND (1.9)	NT	NT
PHENANTHRENE	µg/L	ND (2.0)	ND (2.0)	ND (1.9)	NT	NT
PYRENE	µg/L	ND (2.0)	ND (2.0)	ND (1.9)	NT	NT
Volatile Petroleum Hydrocarbons (VPH)						
UNADJUSTED C5-C8 ALIPHATICS	µg/L	ND (200)	ND (200)	ND (100)	NT	NT
C5-C8 ALIPHATICS	µg/L	ND (200)	ND (200)	ND (100)	NT	NT
UNADJUSTED C9-C12 ALIPHATICS	µg/L	ND (200)	ND (200)	ND (100)	NT	NT
C9-C12 ALIPHATICS	µg/L	ND (200)	ND (200)	ND (100)	NT	NT
C9-C10 AROMATICS	µg/L	ND (200)	ND (200)	ND (100)	NT	NT
BENZENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT

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WATER ANALYTICAL RESULTS
BEACHAM & WILLIAMS STREET
CHELSEA, MA

Parameter	Units	SAMPLING LOCATION (WESTON & SAMPSON)			SAMPLING LOCATION (SAK)	
		MW-04 11/14/2019	MW-06 11/14/2019	MW-08 11/18/2019	SAK-MW-08 3/31/2021	RE-01 3/31/2021
ETHYLBENZENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
METHYL TERT-BUTYL ETHER (MTBE)	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
NAPHTHALENE	µg/L	ND (10)	ND (10)	ND (5.0)	NT	NT
TOLUENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
M/P-XYLENE	µg/L	ND (4.0)	ND (4.0)	ND (2.0)	NT	NT
O-XYLENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
Volatile Organic Hydrocarbons (VOCs)						
ACETONE	µg/L	ND (20)	ND (20)	ND (10)	NT	NT
TERT-AMYL METHYL ETHER	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
BENZENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
BROMOBENZENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
BROMOCHLOROMETHANE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
BROMODICHLOROMETHANE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
BROMOFORM	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
BROMOMETHANE	µg/L	ND (4.0)	ND (4.0)	ND (2.0)	NT	NT
2-BUTANONE (MEK)	µg/L	ND (20)	ND (20)	ND (10)	NT	NT
N-BUTYLBENZENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
SEC-BUTYLBENZENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
TERT-BUTYLBENZENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
TERT-BUTYLETHYL ETHER	µg/L	ND (1.0)	ND (1.0)	ND (0.50)	NT	NT
CARBON DISULFIDE	µg/L	ND (10)	ND (10)	ND (5.0)	NT	NT
CARBON TETRACHLORIDE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
CHLOROBENZENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
CHLORODIBROMOMETHANE	µg/L	ND (1.0)	ND (1.0)	ND (0.50)	NT	NT
CHLOROETHANE	µg/L	ND (4.0)	ND (4.0)	ND (2.0)	NT	NT
CHLOROFORM	µg/L	ND (4.0)	ND (4.0)	ND (2.0)	NT	NT
CHLOROMETHANE	µg/L	ND (4.0)	ND (4.0)	ND (2.0)	NT	NT
2-CHLOROTOLUENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
4-CHLOROTOLUENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
1,2-DIBROMO-3-CHLOROPROPANE	µg/L	ND (4.0)	ND (4.0)	ND (2.0)	NT	NT
1,2-DIBROMOETHANE (EDB)	µg/L	ND (1.0)	ND (1.0)	ND (0.50)	NT	NT
DIBROMOMETHANE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
1,2-DICHLOROBENZENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
1,3-DICHLOROBENZENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
1,4-DICHLOROBENZENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
DICHLORODIFLUOROMETHANE	µg/L	ND (4.0)	ND (4.0)	ND (2.0)	NT	NT
1,1-DICHLOROETHANE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
1,2-DICHLOROETHANE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
1,1-DICHLOROETHYLENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
CIS-1,2-DICHLOROETHYLENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
TRANS-1,2-DICHLOROETHYLENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
1,2-DICHLOROPROPANE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
1,3-DICHLOROPROPANE	µg/L	ND (1.0)	ND (1.0)	ND (0.50)	NT	NT
2,2-DICHLOROPROPANE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
1,1-DICHLOROPROPENE	µg/L	ND (1.0)	ND (1.0)	ND (0.50)	NT	NT
CIS-1,3-DICHLOROPROPENE	µg/L	ND (0.80)	ND (0.80)	ND (0.40)	NT	NT
TRANS-1,3-DICHLOROPROPENE	µg/L	ND (0.80)	ND (0.80)	ND (0.40)	NT	NT
DIETHYL ETHER	µg/L	ND (4.0)	ND (4.0)	ND (2.0)	NT	NT
DIISOPROPYL ETHER	µg/L	ND (1.0)	ND (1.0)	ND (0.50)	NT	NT
1,4-DIOXANE	µg/L	ND (100)	ND (100)	ND (50)	NT	NT
ETHYLBENZENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
HEXACHLOROBUTADIENE	µg/L	ND (1.2)	ND (1.2)	ND (0.60)	NT	NT
2-HEXANONE	µg/L	ND (20)	ND (20)	ND (10)	NT	NT
ISOPROPYLBENZENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
P-ISOPROPYLTOLUENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
METHYL TERT-BUTYL ETHER (MTBE)	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
METHYLENE CHLORIDE	µg/L	ND (10)	ND (10)	ND (5.0)	NT	NT
4-METHYL-2-PENTANONE (MIBK)	µg/L	ND (20)	ND (20)	ND (10)	NT	NT
NAPHTHALENE	µg/L	ND (10)	ND (10)	ND (5.0)	NT	NT
N-PROPYLBENZENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
STYRENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
1,1,1,2-TETRACHLOROETHANE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
1,1,2,2-TETRACHLOROETHANE	µg/L	ND (1.0)	ND (1.0)	ND (0.50)	NT	NT
TETRACHLOROETHYLENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
TETRAHYDROFURAN	µg/L	ND (4.0)	ND (4.0)	ND (2.0)	NT	NT
TOLUENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
1,2,3-TRICHLOROBENZENE	µg/L	ND (4.0)	ND (4.0)	ND (2.0)	NT	NT
1,2,4-TRICHLOROBENZENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
1,1,1-TRICHLOROETHANE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
1,1,2-TRICHLOROETHANE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
TRICHLOROETHYLENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
TRICHLOROFLUOROMETHANE	µg/L	ND (4.0)	ND (4.0)	ND (2.0)	NT	NT
1,2,3-TRICHLOROPROPANE	µg/L	ND (4.0)	ND (4.0)	ND (2.0)	NT	NT
1,2,4-TRIMETHYLBENZENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
1,3,5-TRIMETHYLBENZENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
VINYL CHLORIDE	µg/L	ND (4.0)	ND (4.0)	ND (2.0)	NT	NT
M/P-XYLENE	µg/L	ND (4.0)	ND (4.0)	ND (2.0)	NT	NT
O-XYLENE	µg/L	ND (2.0)	ND (2.0)	ND (1.0)	NT	NT
Total VOCs	µg/L	ND	ND	ND	NT	NT

TABLE 1
WATER ANALYTICAL RESULTS
BEACHAM & WILLIAMS STREET
CHELSEA, MA

Parameter	Units	SAMPLING LOCATION (WESTON & SAMPSON)			SAMPLING LOCAITON (SAK)	
		MW-04	MW-06	MW-08	SAK-MW-08	RE-01
		11/14/2019	11/14/2019	11/18/2019	3/31/2021	3/31/2021
Semi-volatile Organic Compounds (SVOCs)					NT	NT
ACENAPHTHENE	µg/L	ND (4.9)	ND (4.9)	ND (5.1)	NT	NT
ACENAPHTHYLENE	µg/L	ND (4.9)	ND (4.9)	ND (5.1)	NT	NT
ACETOPHENONE	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
ANILINE	µg/L	ND (4.9)	ND (4.9)	ND (5.1)	NT	NT
ANTHRACENE	µg/L	ND (4.9)	ND (4.9)	ND (5.1)	NT	NT
BENZO(A)ANTHRACENE	µg/L	ND (4.9)	ND (4.9)	ND (5.1)	NT	NT
BENZO(A)PYRENE	µg/L	ND (4.9)	ND (4.9)	ND (5.1)	NT	NT
BENZO(B)FLUORANTHENE	µg/L	ND (4.9)	ND (4.9)	ND (5.1)	NT	NT
BENZO(G,H,I)PERYLENE	µg/L	ND (4.9)	ND (4.9)	ND (5.1)	NT	NT
BENZO(K)FLUORANTHENE	µg/L	ND (4.9)	ND (4.9)	ND (5.1)	NT	NT
BIS(2-CHLOROETHOXY)METHANE	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
BIS(2-CHLOROETHYL)ETHER	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
BIS(2-CHLOROISOPROPYL)ETHER	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
BIS(2-ETHYLHEXYL)PHTHALATE	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
4-BROMOPHENYL PHENYL ETHER	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
BUTYLBENZYLPHTHALATE	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
4-CHLOROANILINE	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
2-CHLORONAPHTHALENE	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
2-CHLOROPHENOL	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
CHRYSENE	µg/L	ND (4.9)	ND (4.9)	ND (5.1)	NT	NT
DIBENZ(A,H)ANTHRACENE	µg/L	ND (4.9)	ND (4.9)	ND (5.1)	NT	NT
DIBENZOFURAN	µg/L	ND (4.9)	ND (4.9)	ND (5.1)	NT	NT
DI-N-BUTYLPHTHALATE	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
1,2-DICHLOROBENZENE	µg/L	ND (4.9)	ND (4.9)	ND (5.1)	NT	NT
1,3-DICHLOROBENZENE	µg/L	ND (4.9)	ND (4.9)	ND (5.1)	NT	NT
1,4-DICHLOROBENZENE	µg/L	ND (4.9)	ND (4.9)	ND (5.1)	NT	NT
3,3'-DICHLOROBENZIDINE	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
2,4-DICHLOROPHENOL	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
DIETHYLPHTHALATE	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
2,4-DIMETHYLPHENOL	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
DIMETHYLPHTHALATE	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
2,4-DINITROPHENOL	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
2,4-DINITROTOLUENE	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
2,6-DINITROTOLUENE	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
DI-N-OCTYLPHTHALATE	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
1,2-DIPHENYLHYDRAZINE (AZOBENZENE)	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
FLUORANTHENE	µg/L	ND (4.9)	ND (4.9)	ND (5.1)	NT	NT
FLUORENE	µg/L	ND (4.9)	ND (4.9)	ND (5.1)	NT	NT
HEXACHLOROBENZENE	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
HEXACHLOROBUTADIENE	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
HEXACHLOROETHANE	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
INDENO(1,2,3-CD)PYRENE	µg/L	ND (4.9)	ND (4.9)	ND (5.1)	NT	NT
ISOPHORONE	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
2-METHYLNAPHTHALENE	µg/L	ND (4.9)	ND (4.9)	ND (5.1)	NT	NT
O-CRESOL	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
M/P-CRESOL	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
NAPHTHALENE	µg/L	ND (4.9)	ND (4.9)	ND (5.1)	NT	NT
NITROBENZENE	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
2-NITROPHENOL	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
4-NITROPHENOL	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
PENTACHLOROPHENOL	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
PHENANTHRENE	µg/L	ND (4.9)	ND (4.9)	ND (5.1)	NT	NT
PHENOL	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
PYRENE	µg/L	ND (4.9)	ND (4.9)	ND (5.1)	NT	NT
1,2,4-TRICHLOROBENZENE	µg/L	ND (4.9)	ND (4.9)	ND (5.1)	NT	NT
2,4,5-TRICHLOROPHENOL	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
2,4,6-TRICHLOROPHENOL	µg/L	ND (9.9)	ND (9.8)	ND (10)	NT	NT
Total SVOCs	µg/L	ND	ND	ND	NT	NT
Other SVOCs						
Ethanol	µg/L	NT	NT	NT	ND (0.01)	NT

NOTES:
NT = Not tested
ND = Not detected.

ATTACHMENT 1

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

A. General site information:

1. Name of site:	Site address: Street: <table border="1" data-bbox="888 475 1950 557"> <tr> <td data-bbox="888 475 1591 557">City:</td><td data-bbox="1591 475 1722 557">State:</td><td data-bbox="1722 475 1950 557">Zip:</td></tr> </table>	City:	State:	Zip:									
City:	State:	Zip:											
2. Site owner Owner is (check one): ☐ Federal ☐ State/Tribal ☐ Private ☐ Other; if so, specify:	<table border="1"> <tr> <td colspan="3" data-bbox="888 557 1950 630">Contact Person:</td></tr> <tr> <td data-bbox="888 630 1461 698">Telephone:</td><td colspan="2" data-bbox="1461 630 1950 698">Email:</td></tr> <tr> <td colspan="3" data-bbox="888 698 1950 800">Mailing address: Street:</td></tr> <tr> <td data-bbox="888 800 1591 878">City:</td><td data-bbox="1591 800 1722 878">State:</td><td data-bbox="1722 800 1950 878">Zip:</td></tr> </table>	Contact Person:			Telephone:	Email:		Mailing address: Street:			City:	State:	Zip:
Contact Person:													
Telephone:	Email:												
Mailing address: Street:													
City:	State:	Zip:											
3. Site operator, if different than owner	<table border="1"> <tr> <td colspan="3" data-bbox="888 878 1950 938">Contact Person:</td></tr> <tr> <td data-bbox="888 938 1461 998">Telephone:</td><td colspan="2" data-bbox="1461 938 1950 998">Email:</td></tr> <tr> <td colspan="3" data-bbox="888 998 1950 1101">Mailing address: Street:</td></tr> <tr> <td data-bbox="888 1101 1591 1154">City:</td><td data-bbox="1591 1101 1722 1154">State:</td><td data-bbox="1722 1101 1950 1154">Zip:</td></tr> </table>	Contact Person:			Telephone:	Email:		Mailing address: Street:			City:	State:	Zip:
Contact Person:													
Telephone:	Email:												
Mailing address: Street:													
City:	State:	Zip:											
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:	5. Other regulatory program(s) that apply to the site (check all that apply): <table border="0"> <tr> <td data-bbox="888 1214 1461 1282">☐ MA Chapter 21e; list RTN(s):</td><td data-bbox="1461 1214 1950 1282">☐ CERCLA</td></tr> <tr> <td data-bbox="888 1282 1461 1351">☐ NH Groundwater Management Permit or Groundwater Release Detection Permit:</td><td data-bbox="1461 1282 1950 1351">☐ UIC Program</td></tr> <tr> <td></td><td data-bbox="1461 1351 1950 1398">☐ POTW Pretreatment</td></tr> <tr> <td></td><td data-bbox="1461 1398 1950 1458">☐ CWA Section 404</td></tr> </table>	☐ MA Chapter 21e; list RTN(s):	☐ CERCLA	☐ NH Groundwater Management Permit or Groundwater Release Detection Permit:	☐ UIC Program		☐ POTW Pretreatment		☐ CWA Section 404				
☐ MA Chapter 21e; list RTN(s):	☐ CERCLA												
☐ NH Groundwater Management Permit or Groundwater Release Detection Permit:	☐ UIC Program												
	☐ POTW Pretreatment												
	☐ CWA Section 404												

B. Receiving water information:

1. Name of receiving water(s):	Waterbody identification of receiving water(s):	Classification of receiving water(s):
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.		
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.		
6. Has the operator received confirmation from the appropriate State for the 7Q10 and dilution factor indicated? (check one): ☐ Yes ☐ No If yes, indicate date confirmation received:		
7. Has the operator attached a summary of receiving water sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ☐ Yes ☐ No		

C. Source water information:

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

2. Source water contaminants:	
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):	Outfall location(s): (Latitude, Longitude)
Discharges enter the receiving water(s) via (check any that apply): ☐ Direct discharge to the receiving water ☐ Indirect discharge, if so, specify: ☐ A private storm sewer system ☐ A municipal storm sewer system If the discharge enters the receiving water via a private or municipal storm sewer system: Has notification been provided to the owner of this system? (check one): ☐ Yes ☐ No Has the operator has received permission from the owner to use such system for discharges? (check one): ☐ Yes ☐ No, if so, explain, with an estimated timeframe for obtaining permission: 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):	
Indicate if the discharge is expected to occur over a duration of: ☐ less than 12 months ☐ 12 months or more ☐ is an emergency discharge	
Has the operator attached a site plan in accordance with the instructions in D, above? (check one): ☐ Yes ☐ No	

2. Activity Category: (check all that apply)	3. Contamination Type Category: (check all that apply)	
☐ I – Petroleum-Related Site Remediation ☐ II – Non-Petroleum-Related Site Remediation ☐ III – Contaminated Site Dewatering ☐ IV – Dewatering of Pipelines and Tanks ☐ V – Aquifer Pump Testing ☐ VI – Well Development/Rehabilitation ☐ VII – Collection Structure Dewatering/Remediation ☐ VIII – Dredge-Related Dewatering	a. If Activity Category I or II: (check all that apply) ☐ A. Inorganics ☐ B. Non-Halogenated Volatile Organic Compounds ☐ C. Halogenated Volatile Organic Compounds ☐ D. Non-Halogenated Semi-Volatile Organic Compounds ☐ E. Halogenated Semi-Volatile Organic Compounds ☐ F. Fuels Parameters	
	b. If Activity Category III, IV, V, VI, VII or VIII: (check either G or H)	
	<table border="1"> <tr> <td data-bbox="970 800 1419 873">☐ G. Sites with Known Contamination</td><td data-bbox="1419 800 2003 873">☐ H. Sites with Unknown Contamination</td></tr> </table>	☐ G. Sites with Known Contamination
☐ G. Sites with Known Contamination	☐ H. Sites with Unknown Contamination	
<table border="1"> <tr> <td data-bbox="970 873 1419 1409"> c. If Category III-G, IV-G, V-G, VI-G, VII-G or VIII-G: (check all that apply) ☐ A. Inorganics ☐ B. Non-Halogenated Volatile Organic Compounds ☐ C. Halogenated Volatile Organic Compounds ☐ D. Non-Halogenated Semi-Volatile Organic Compounds ☐ E. Halogenated Semi-Volatile Organic Compounds ☐ F. Fuels Parameters </td><td data-bbox="1419 873 2003 1409"> d. If Category III-H, IV-H, V-H, VI-H, VII-H or VIII-H Contamination Type Categories A through F apply </td></tr> </table>	c. If Category III-G, IV-G, V-G, VI-G, VII-G or VIII-G: (check all that apply) ☐ A. Inorganics ☐ B. Non-Halogenated Volatile Organic Compounds ☐ C. Halogenated Volatile Organic Compounds ☐ D. Non-Halogenated Semi-Volatile Organic Compounds ☐ E. Halogenated Semi-Volatile Organic Compounds ☐ F. Fuels Parameters	d. If Category III-H, IV-H, V-H, VI-H, VII-H or VIII-H Contamination Type Categories A through F apply
c. If Category III-G, IV-G, V-G, VI-G, VII-G or VIII-G: (check all that apply) ☐ A. Inorganics ☐ B. Non-Halogenated Volatile Organic Compounds ☐ C. Halogenated Volatile Organic Compounds ☐ D. Non-Halogenated Semi-Volatile Organic Compounds ☐ E. Halogenated Semi-Volatile Organic Compounds ☐ F. Fuels Parameters	d. If Category III-H, IV-H, V-H, VI-H, VII-H or VIII-H Contamination Type Categories A through F apply	

MAG910000
NHG910000

4. Influent and Effluent Characteristics

Influent and Effluent Characteristics									
Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
A. Inorganics									
Ammonia								Report mg/L	---
Chloride								Report µg/l	---
Total Residual Chlorine								0.2 mg/L	
Total Suspended Solids								30 mg/L	---
Antimony								206 µg/L	
Arsenic								104 µg/L	
Cadmium								10.2 µg/L	
Chromium III								323 µg/L	
Chromium VI								323 µg/L	
Copper								242 µg/L	
Iron								5,000 µg/L	
Lead								160 µg/L	
Mercury								0.739 µg/L	
Nickel								1,450 µg/L	
Selenium								235.8 µg/L	
Silver								35.1 µg/L	
Zinc								420 µg/L	
Cyanide								178 mg/L	
B. Non-Halogenated VOCs									
Total BTEX								100 µg/L	---
Benzene								5.0 µg/L	---
1,4 Dioxane								200 µg/L	---
Acetone								7.97 mg/L	---
Phenol								1,080 µg/L	

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								4.4 µg/L	
1,2 Dichlorobenzene								600 µg/L	---
1,3 Dichlorobenzene								320 µg/L	---
1,4 Dichlorobenzene								5.0 µg/L	---
Total dichlorobenzene								763 µg/L in NH	---
1,1 Dichloroethane								70 µg/L	---
1,2 Dichloroethane								5.0 µg/L	---
1,1 Dichloroethylene								3.2 µg/L	---
Ethylene Dibromide								0.05 µg/L	---
Methylene Chloride								4.6 µg/L	---
1,1,1 Trichloroethane								200 µg/L	---
1,1,2 Trichloroethane								5.0 µg/L	---
Trichloroethylene								5.0 µg/L	---
Tetrachloroethylene								5.0 µg/L	
cis-1,2 Dichloroethylene								70 µg/L	---
Vinyl Chloride								2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates								190 µg/L	
Diethylhexyl phthalate								101 µg/L	
Total Group I PAHs								1.0 µg/L	---
Benzo(a)anthracene								As Total PAHs	
Benzo(a)pyrene									
Benzo(b)fluoranthene									
Benzo(k)fluoranthene									
Chrysene									
Dibenzo(a,h)anthracene									
Indeno(1,2,3-cd)pyrene									

[illegible]

E. Treatment system information

1. Indicate the type(s) of treatment that will be applied to effluent prior to discharge: (check all that apply) ☐ Adsorption/Absorption ☐ Advanced Oxidation Processes ☐ Air Stripping ☐ Granulated Activated Carbon (“GAC”)/Liquid Phase Carbon Adsorption ☐ Ion Exchange ☐ Precipitation/Coagulation/Flocculation ☐ Separation/Filtration ☐ Other; if so, specify:	
2. Provide a written description of all treatment system(s) or processes that will be applied to the effluent prior to discharge. 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: Is use of a flow meter feasible? (check one): ☐ Yes ☐ No, if so, provide justification:	
Provide the proposed maximum effluent flow in gpm.	
Provide the average effluent flow in gpm.	
If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:	
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:

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

Check one: Yes ☐ No ☐

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

Check one: Yes ☐ No ☐

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

Check one: Yes ☐ No ☐ NA ☐

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

Check one: Yes ☐ No ☐ NA ☐

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

Check one: Yes ☐ No ☐ NA ☐

Signature:

Date:

Print Name and Title:

ATTACHMENT 2



New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 1C31042
Client Project: 21.00.01 - FED Corp.

Report Date: 19-April-2021

Prepared for:

Chhavan Nuon
SAK Environmental, LLC
231 Sutton Street, Suite 2G
North Andover, MA 01845

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Samples Submitted :

The samples listed below were submitted to New England Testing Laboratory on 03/31/21. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 1C31042. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
1C31042-01	SAK-MW-08	Water	03/31/2021	03/31/2021
1C31042-02	RE-01	Water	03/31/2021	03/31/2021

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

RE-01 (Lab Number: 1C31042-02)

Analysis

Ammonia
Antimony
Arsenic
Cadmium
Calcium
Chromium
Copper
Hexavalent Chromium
Iron
Lead
Magnesium
Mercury
Salinity
Selenium
Silver
Total Hardness
Trivalent Chromium
Zinc

Method

SM4500-NH3-D (11)
EPA 6010C
EPA 6010C
EPA 6010C
SM3120-B (11)
EPA 6010C
EPA 6010C
SM3500-Cr-B (11)
EPA 6010C
EPA 6010C
SM3120-B (11)
EPA 7470A
SM2510-B (11)
EPA 6010C
EPA 6010C
Calculation
Calculation
EPA 6010C

SAK-MW-08 (Lab Number: 1C31042-01)

Analysis

Ammonia
Chloride
Chromium
Copper
Cyanide
Hexavalent Chromium
Iron
Methanol and Ethanol
Total Residual Chlorine
Total Suspended Solids
Trivalent Chromium

Method

SM4500-NH3-D (11)
SM4500CI-B (11)
EPA 6010C
EPA 6010C
SM4500-CN-E (11)
SM3500-Cr-B (11)
EPA 6010C
EPA-8100-mod
SM4500-CI-G (11)
SM2540-D (11)
Calculation

Method References

Methods for the Determination of Metals in Environmental Samples EPA-600/R-94/111, USEPA, 1994

Standard Methods for the Examination of Water and Wastewater, 20th Edition, APHA/ AWWA-WPCF, 1998

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

Sample Receipt:

The samples associated with this work order were received in appropriately cooled and preserved containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Exceptions: None

Analysis:

All samples were prepared and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control requirements and allowances. Results for all soil samples, unless otherwise indicated, are reported on a dry weight basis.

Exceptions: None

Results: Calculation

Sample: SAK-MW-08
Lab Number: 1C31042-01 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Trivalent Chromium	0.0322		0.0150	mg/L	04/01/21 13:49	04/07/21 11:04

Results: Calculation

Sample: RE-01
Lab Number: 1C31042-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Trivalent Chromium	ND		0.0150	mg/L	04/01/21 13:49	04/07/21 11:14

Results: General Chemistry**Sample: SAK-MW-08****Lab Number: 1C31042-01 (Water)**

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Ammonia	0.4		0.1	mg/L	04/06/21	04/06/21
Chloride	12400		200	mg/L	04/01/21	04/01/21
Cyanide	ND		0.010	mg/L	04/07/21	04/07/21
Hexavalent chromium	ND		0.01	mg/L	03/31/21 18:10	03/31/21 18:10
Total Residual Chlorine	0.09		0.01	mg/L	03/31/21 16:40	03/31/21 16:40
Total Suspended Solids	173		5	mg/L	04/05/21	04/05/21

Results: General Chemistry

Sample: RE-01
Lab Number: 1C31042-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Ammonia	0.1		0.1	mg/L	04/06/21	04/06/21
Hexavalent chromium	ND		0.01	mg/L	03/31/21 18:10	03/31/21 18:10
Salinity	21.0		1.0	ppt	04/08/21	04/08/21

Results: Total Metals

Sample: SAK-MW-08
Lab Number: 1C31042-01 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Chromium	0.032		0.005	mg/L	04/01/21	04/07/21
Copper	0.03		0.02	mg/L	04/01/21	04/07/21
Iron	32.9		0.05	mg/L	04/01/21	04/07/21

Results: Total Metals**Sample: RE-01****Lab Number: 1C31042-02 (Water)**

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Hardness	4170		0.125	mg/L	04/01/21	04/07/21
Antimony	ND		0.005	mg/L	04/01/21	04/07/21
Arsenic	0.02		0.01	mg/L	04/01/21	04/07/21
Cadmium	ND		0.005	mg/L	04/01/21	04/07/21
Calcium	273		0.05	mg/L	04/01/21	04/07/21
Chromium	ND		0.005	mg/L	04/01/21	04/07/21
Copper	ND		0.02	mg/L	04/01/21	04/07/21
Iron	0.18		0.05	mg/L	04/01/21	04/07/21
Lead	ND		0.005	mg/L	04/01/21	04/07/21
Magnesium	846		0.05	mg/L	04/01/21	04/07/21
Mercury	ND		0.0004	mg/L	04/01/21	04/01/21
Selenium	0.02		0.01	mg/L	04/01/21	04/07/21
Silver	0.006		0.005	mg/L	04/01/21	04/07/21
Zinc	ND		0.020	mg/L	04/01/21	04/07/21

Results: Semivolatile organic compounds

Sample: SAK-MW-08
Lab Number: 1C31042-01 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Ethanol	ND		10	mg/L	04/07/21	04/07/21

Quality Control

General Chemistry

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1D0075 - Chloride										
Blank (B1D0075-BLK1)	Prepared & Analyzed: 04/01/21									
Chloride	ND		1	mg/L						
LCS (B1D0075-BS1)	Prepared & Analyzed: 04/01/21									
Chloride	61		1	mg/L	60.6		101	90-110		
Duplicate (B1D0075-DUP1)	Prepared & Analyzed: 04/01/21									
Chloride	151		10	mg/L	151				0.00	20
Matrix Spike (B1D0075-MS1)	Prepared & Analyzed: 04/01/21									
Chloride	198		10	mg/L	60.6	151	77.8	80-120		
Batch: B1D0080 - Hexavalent Chrome										
Blank (B1D0080-BLK1)	Prepared & Analyzed: 03/31/21									
Hexavalent chromium	ND		0.01	mg/L						
Blank (B1D0080-BLK2)	Prepared & Analyzed: 03/31/21									
Hexavalent chromium	ND		0.01	mg/L						
LCS (B1D0080-BS1)	Prepared & Analyzed: 03/31/21									
Hexavalent chromium	0.53		0.01	mg/L	0.500		106	90-110		
LCS (B1D0080-BS2)	Prepared & Analyzed: 03/31/21									
Hexavalent chromium	0.10		0.01	mg/L	0.100		95.0	90-110		
LCS (B1D0080-BS3)	Prepared & Analyzed: 03/31/21									
Hexavalent chromium	0.53		0.01	mg/L	0.500		106	90-110		

Quality Control
(Continued)

General Chemistry (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1D0080 - Hexavalent Chrome (Continued)										
Duplicate (B1D0080-DUP1)		Source: 1C31020-02		Prepared & Analyzed: 03/31/21						
Hexavalent chromium	ND		0.01	mg/L		ND				20
Matrix Spike (B1D0080-MS1)		Source: 1C31020-02		Prepared & Analyzed: 03/31/21						
Hexavalent chromium	0.14		0.01	mg/L	0.500	ND	28.8	80-120		
Batch: B1D0117 - TSS										
Blank (B1D0117-BLK1)				Prepared & Analyzed: 04/05/21						
Total Suspended Solids	ND		2	mg/L						
LCS (B1D0117-BS1)				Prepared & Analyzed: 04/05/21						
Total Suspended Solids	916		10	mg/L	1000		91.6	90-110		
Duplicate (B1D0117-DUP1)		Source: 1C30020-02		Prepared & Analyzed: 04/05/21						
Total Suspended Solids	2		2	mg/L		4			57.1	20
Batch: B1D0149 - Residual chlorine										
Blank (B1D0149-BLK1)				Prepared & Analyzed: 03/31/21						
Total Residual Chlorine	ND		0.01	mg/L						
Blank (B1D0149-BLK2)				Prepared & Analyzed: 03/31/21						
Total Residual Chlorine	ND		0.01	mg/L						
LCS (B1D0149-BS1)				Prepared & Analyzed: 03/31/21						
Total Residual Chlorine	0.46		0.01	mg/L	0.500		92.0	90-110		

Quality Control
(Continued)

General Chemistry (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1D0149 - Residual chlorine (Continued)										
LCS (B1D0149-BS2)					Prepared & Analyzed: 03/31/21					
Total Residual Chlorine	0.45		0.01	mg/L	0.500		90.8	90-110		
Duplicate (B1D0149-DUP1)					Prepared & Analyzed: 03/31/21					
Total Residual Chlorine	16.8		0.25	mg/L	16.8				0.148	20
Matrix Spike (B1D0149-MS1)					Prepared & Analyzed: 03/31/21					
Total Residual Chlorine	21.3		0.25	mg/L	12.5	16.8	35.6	80-120		
Batch: B1D0199 - Ammonia										
Blank (B1D0199-BLK1)					Prepared & Analyzed: 04/06/21					
Ammonia	ND		0.1	mg/L						
Blank (B1D0199-BLK2)					Prepared & Analyzed: 04/06/21					
Ammonia	ND		0.1	mg/L						
LCS (B1D0199-BS1)					Prepared & Analyzed: 04/06/21					
Ammonia	1.1		0.1	mg/L	1.00		108	90-110		
LCS (B1D0199-BS2)					Prepared & Analyzed: 04/06/21					
Ammonia	1.1		0.1	mg/L	1.00		106	90-110		
Duplicate (B1D0199-DUP1)					Prepared & Analyzed: 04/06/21					
Ammonia	0.1		0.1	mg/L	0.1				17.3	20
Matrix Spike (B1D0199-MS1)					Prepared & Analyzed: 04/06/21					
Ammonia	1.3		0.1	mg/L	1.00	0.1	120	80-120		

Quality Control
(Continued)

General Chemistry (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1D0281 - Cyanide										
Blank (B1D0281-BLK1)					Prepared & Analyzed: 04/07/21					
Cyanide	ND		0.010	mg/L						
Blank (B1D0281-BLK2)					Prepared & Analyzed: 04/07/21					
Cyanide	ND		0.010	mg/L						
LCS (B1D0281-BS1)					Prepared & Analyzed: 04/07/21					
Cyanide	0.091		0.010	mg/L	0.100		91.0	90-110		
LCS (B1D0281-BS2)					Prepared & Analyzed: 04/07/21					
Cyanide	0.092		0.010	mg/L	0.100		92.0	90-110		
LCS (B1D0281-BS3)					Prepared & Analyzed: 04/07/21					
Cyanide	0.093		0.010	mg/L	0.100		93.0	90-110		
Duplicate (B1D0281-DUP1)		Source: 1C31052-02			Prepared & Analyzed: 04/07/21			200		
Cyanide	ND		0.010	mg/L		ND				
Matrix Spike (B1D0281-MS1)					Prepared & Analyzed: 04/07/21					
Cyanide	0.085		0.010	mg/L	0.100	ND	85.0	80-120		
Batch: B1D0336 - General Chemistry										
Blank (B1D0336-BLK1)					Prepared & Analyzed: 04/08/21					
Salinity	ND		1.0	ppt						
Duplicate (B1D0336-DUP1)		Source: 1C31042-02			Prepared & Analyzed: 04/08/21			20		
Salinity	20.7		1.0	ppt		21.0					1.25

Quality Control
(Continued)

Total Metals

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1D0060 - Metals Digestion Waters										
Blank (B1D0060-BLK1)					Prepared: 04/01/21 Analyzed: 04/07/21					
Antimony	ND		0.005	mg/L						
Arsenic	ND		0.01	mg/L						
Calcium	ND		0.05	mg/L						
Magnesium	ND		0.05	mg/L						
Silver	ND		0.005	mg/L						
Iron	ND		0.05	mg/L						
Zinc	ND		0.020	mg/L						
Selenium	ND		0.01	mg/L						
Lead	ND		0.005	mg/L						
Cadmium	ND		0.005	mg/L						
Copper	ND		0.02	mg/L						
Chromium	ND		0.005	mg/L						
LCS (B1D0060-BS1)					Prepared: 04/01/21 Analyzed: 04/07/21					
Antimony	0.894		0.005	mg/L	1.00		89.4	85-115		
Zinc	0.924		0.020	mg/L	1.00		92.4	85-115		
Arsenic	0.18		0.01	mg/L	0.200		91.3	85-115		
Iron	9.50		0.05	mg/L	10.0		95.0	85-115		
Cadmium	0.901		0.005	mg/L	1.00		90.1	85-114		
Chromium	1.00		0.005	mg/L	1.00		100	85-115		
Lead	0.887		0.005	mg/L	1.00		88.7	85-115		
Silver	0.391		0.005	mg/L	0.400		97.8	85-115		
Copper	0.87		0.02	mg/L	1.00		87.3	85-115		
Magnesium	9.92		0.05	mg/L	10.0		99.2	85-115		
Calcium	10.1		0.05	mg/L	10.0		101	85-115		
Selenium	0.18		0.01	mg/L	0.200		90.4	85-115		

Quality Control
(Continued)

Total Metals (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1D0082 - Metals Cold-Vapor Mercury										
Blank (B1D0082-BLK1)					Prepared & Analyzed: 04/01/21					
Mercury	ND		0.0002	mg/L						
LCS (B1D0082-BS1)					Prepared & Analyzed: 04/01/21					
Mercury	0.0010		0.0002	mg/L	0.00100		105	85-115		

Quality Control
(Continued)

Semivolatile organic compounds

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1D0246 - EPA 3580A										
Blank (B1D0246-BLK1)										
Ethanol	ND		10	mg/L						Prepared & Analyzed: 04/07/21

Notes and Definitions

Item	Definition
Wet	Sample results reported on a wet weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.

59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

1-888-863-8522



355 Temp. Received:

Standard 7 day Turnaround Time [Business Days]

add Salinity to
Re:01 per
Chavon
D 4/5

odd hardness to

RE-01 per Chhavan

4/12

December 3, 2019

Lee Koska
Weston & Sampson Engineers MA
55 Walkers Brook Drive
Reading, MA 01867

Project Location: Chelsea, MA
Client Job Number:
Project Number: 2190031
Laboratory Work Order Number: 19K1082

Enclosed are results of analyses for samples received by the laboratory on November 18, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Meghan E. Kelley". The signature is written in a cursive style with a large, flowing "M" and a long, sweeping "y" at the end.

Meghan E. Kelley
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Weston & Sampson Engineers MA
55 Walkers Brook Drive
Reading, MA 01867
ATTN: Lee Koska

REPORT DATE: 12/3/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 2190031

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19K1082

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Chelsea, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
MW-04	19K1082-01	Ground Water		MADEP-EPH-04-1.1 MADEP-VPH-Feb 2018 Rev 2.1 SW-846 6020B SW-846 7470A SW-846 8082A SW-846 8260C-D SW-846 8270D-E	
MW-06	19K1082-02	Ground Water		MADEP-EPH-04-1.1 MADEP-VPH-Feb 2018 Rev 2.1 SW-846 6020B SW-846 7470A SW-846 8082A SW-846 8260C-D SW-846 8270D-E	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

MADEP-VPH-Feb 2018 Rev 2.1**Qualifications:****RL-14**

Elevated reporting limit due to foaming sample matrix. MA CAM reporting limit not met.

Analyte & Samples(s) Qualified:

19K1082-01[MW-04], 19K1082-02[MW-06]

SW-846 6020B**Qualifications:****DL-15**

Sample required a dilution due to low internal standard recovery of the lesser diluted digestion, reporting limit is elevated.

Analyte & Samples(s) Qualified:**Lead**

19K1082-01[MW-04]

Thallium

19K1082-01[MW-04]

SW-846 8260C-D**Qualifications:****L-02**

Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.

Analyte & Samples(s) Qualified:**Vinyl Chloride**

B246534-BS1, B246534-BSD1

L-04

Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.

Analyte & Samples(s) Qualified:**tert-Amyl Methyl Ether (TAME)**

19K1082-01[MW-04], 19K1082-02[MW-06], B246534-BLK1, B246534-BS1, B246534-BSD1

tert-Butyl Ethyl Ether (TBEE)

19K1082-01[MW-04], 19K1082-02[MW-06], B246534-BLK1, B246534-BS1, B246534-BSD1

R-05

Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.

Analyte & Samples(s) Qualified:**Vinyl Chloride**

19K1082-01[MW-04], 19K1082-02[MW-06], B246534-BLK1, B246534-BS1, B246534-BSD1

RL-14

Elevated reporting limit due to foaming sample matrix. MA CAM reporting limit not met.

Analyte & Samples(s) Qualified:

19K1082-01[MW-04], 19K1082-02[MW-06]

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V-05

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:**Bromomethane**

19K1082-01[MW-04], 19K1082-02[MW-06], B246534-BLK1, B246534-BS1, B246534-BSD1

Chloromethane

19K1082-01[MW-04], 19K1082-02[MW-06], B246534-BLK1, B246534-BS1, B246534-BSD1

Dichlorodifluoromethane (Freon 12)

19K1082-01[MW-04], 19K1082-02[MW-06], B246534-BLK1, B246534-BS1, B246534-BSD1

tert-Amyl Methyl Ether (TAME)

19K1082-01[MW-04], 19K1082-02[MW-06], B246534-BLK1, B246534-BS1, B246534-BSD1

tert-Butyl Ethyl Ether (TBEE)

19K1082-01[MW-04], 19K1082-02[MW-06], B246534-BLK1, B246534-BS1, B246534-BSD1

V-16

Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.

Analyte & Samples(s) Qualified:**1,4-Dioxane**

19K1082-01[MW-04], 19K1082-02[MW-06], B246534-BLK1, B246534-BS1, B246534-BSD1

V-20

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:**Hexachlorobutadiene**

B246534-BS1, B246534-BSD1

Vinyl Chloride

B246534-BS1, B246534-BSD1

SW-846 8270D-E

Qualifications:

V-06

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:**1,2-Diphenylhydrazine/Azobenzene**

B246553-BS1, B246553-BSD1

4-Nitrophenol

B246553-BS1, B246553-BSD1

V-20

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:**1,2-Diphenylhydrazine/Azobenzene**

19K1082-01[MW-04], 19K1082-02[MW-06], B246553-BLK1

4-Nitrophenol

19K1082-01[MW-04], 19K1082-02[MW-06], B246553-BLK1

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MADEP-EPH-04-1.1

SPE cartridge contamination with non-petroleum compounds, if present, is verified by GC/MS in each method blank per extraction batch and excluded from C 11-C22 aromatic range fraction in all samples in the batch. No significant modifications were made to the method.

MADEP-VPH-Feb 2018 Rev 2.1

No significant modifications were made to the method. All VPH samples were received preserved properly at pH <2 in the proper containers as specified on the chain-of-custody form unless specified in this narrative.

Analytical column used for VPH analysis is Restek, Rtx-502.2, 105meter, 0.53mmID, 3um df. Trap used for VPH analysis is CarboSieve B/CarboSieveS-III.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

A handwritten signature in black ink, reading "Tod Kopyscinski". The signature is written in a cursive, flowing style with a large, prominent "T" and "K".

Tod E. Kopyscinski
Laboratory Director

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Chelsea, MA

Sample Description:

Work Order: 19K1082

Date Received: 11/18/2019

Field Sample #: MW-04

Sampled: 11/14/2019 09:50

Sample ID: 19K1082-01

Sample Matrix: Ground Water

Sample Flags: RL-14

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	20	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
tert-Amyl Methyl Ether (TAME)	ND	2.0	µg/L	2	L-04, V-05	SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Benzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Bromobenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Bromochloromethane	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Bromodichloromethane	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Bromoform	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Bromomethane	ND	4.0	µg/L	2	V-05	SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
2-Butanone (MEK)	ND	20	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
n-Butylbenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
sec-Butylbenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
tert-Butylbenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	1.0	µg/L	2	L-04, V-05	SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Carbon Disulfide	ND	10	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Carbon Tetrachloride	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Chlorobenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Chlorodibromomethane	ND	1.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Chloroethane	ND	4.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Chloroform	ND	4.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Chloromethane	ND	4.0	µg/L	2	V-05	SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
2-Chlorotoluene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
4-Chlorotoluene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	4.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
1,2-Dibromoethane (EDB)	ND	1.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Dibromomethane	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
1,2-Dichlorobenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
1,3-Dichlorobenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
1,4-Dichlorobenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Dichlorodifluoromethane (Freon 12)	ND	4.0	µg/L	2	V-05	SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
1,1-Dichloroethane	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
1,2-Dichloroethane	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
1,1-Dichloroethylene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
cis-1,2-Dichloroethylene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
trans-1,2-Dichloroethylene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
1,2-Dichloropropane	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
1,3-Dichloropropane	ND	1.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
2,2-Dichloropropane	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
1,1-Dichloropropene	ND	1.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
cis-1,3-Dichloropropene	ND	0.80	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
trans-1,3-Dichloropropene	ND	0.80	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Diethyl Ether	ND	4.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Diisopropyl Ether (DIPE)	ND	1.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
1,4-Dioxane	ND	100	µg/L	2	V-16	SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Ethylbenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Chelsea, MA

Sample Description:

Work Order: 19K1082

Date Received: 11/18/2019

Field Sample #: MW-04

Sampled: 11/14/2019 09:50

Sample ID: 19K1082-01

Sample Matrix: Ground Water

Sample Flags: RL-14

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	1.2	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
2-Hexanone (MBK)	ND	20	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Isopropylbenzene (Cumene)	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
p-Isopropyltoluene (p-Cymene)	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Methyl tert-Butyl Ether (MTBE)	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Methylene Chloride	ND	10	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
4-Methyl-2-pentanone (MIBK)	ND	20	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Naphthalene	ND	10	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
n-Propylbenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Styrene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
1,1,1,2-Tetrachloroethane	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
1,1,2,2-Tetrachloroethane	ND	1.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Tetrachloroethylene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Tetrahydrofuran	ND	4.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Toluene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
1,2,3-Trichlorobenzene	ND	4.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
1,2,4-Trichlorobenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
1,1,1-Trichloroethane	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
1,1,2-Trichloroethane	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Trichloroethylene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Trichlorofluoromethane (Freon 11)	ND	4.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
1,2,3-Trichloropropane	ND	4.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
1,2,4-Trimethylbenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
1,3,5-Trimethylbenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
Vinyl Chloride	ND	4.0	µg/L	2	R-05	SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
m+p Xylene	ND	4.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH
o-Xylene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:33	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual
1,2-Dichloroethane-d4	87.8	70-130	
Toluene-d8	99.1	70-130	
4-Bromofluorobenzene	97.5	70-130	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Chelsea, MA

Sample Description:

Work Order: 19K1082

Date Received: 11/18/2019

Field Sample #: MW-04

Sampled: 11/14/2019 09:50

Sample ID: 19K1082-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Acenaphthylene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Acetophenone	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Aniline	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Anthracene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Benzo(a)anthracene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Benzo(a)pyrene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Benzo(b)fluoranthene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Benzo(g,h,i)perylene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Benzo(k)fluoranthene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Bis(2-chloroethoxy)methane	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Bis(2-chloroethyl)ether	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Bis(2-chloroisopropyl)ether	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Bis(2-Ethylhexyl)phthalate	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
4-Bromophenylphenylether	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Butylbenzylphthalate	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
4-Chloroaniline	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
2-Chloronaphthalene	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
2-Chlorophenol	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Chrysene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Dibenz(a,h)anthracene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Dibenzofuran	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Di-n-butylphthalate	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
1,2-Dichlorobenzene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
1,3-Dichlorobenzene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
1,4-Dichlorobenzene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
3,3-Dichlorobenzidine	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
2,4-Dichlorophenol	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Diethylphthalate	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
2,4-Dimethylphenol	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Dimethylphthalate	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
2,4-Dinitrophenol	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
2,4-Dinitrotoluene	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
2,6-Dinitrotoluene	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Di-n-octylphthalate	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
1,2-Diphenylhydrazine/Azobenzene	ND	9.9	µg/L	1	V-20	SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Fluoranthene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Fluorene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Hexachlorobenzene	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Hexachlorobutadiene	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Hexachloroethane	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Indeno(1,2,3-cd)pyrene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Isophorone	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
2-Methylnaphthalene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Chelsea, MA

Sample Description:

Work Order: 19K1082

Date Received: 11/18/2019

Field Sample #: MW-04

Sampled: 11/14/2019 09:50

Sample ID: 19K1082-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
3/4-Methylphenol	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Naphthalene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Nitrobenzene	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
2-Nitrophenol	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
4-Nitrophenol	ND	9.9	µg/L	1	V-20	SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Pentachlorophenol	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Phenanthrene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Phenol	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Pyrene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
1,2,4-Trichlorobenzene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
2,4,5-Trichlorophenol	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
2,4,6-Trichlorophenol	ND	9.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:13	BGL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
2-Fluorophenol	40.9	15-110							
Phenol-d6	29.8	15-110							
Nitrobenzene-d5	69.0	30-130							
2-Fluorobiphenyl	68.5	30-130							
2,4,6-Tribromophenol	79.3	15-110							
p-Terphenyl-d14	80.8	30-130							

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Project Location: Chelsea, MA

Sample Description:

Work Order: 19K1082

Date Received: 11/18/2019

Field Sample #: MW-04

Sampled: 11/14/2019 09:50

Sample ID: 19K1082-01

Sample Matrix: Ground Water

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/19/19	11/21/19 17:28	JMB
Aroclor-1221 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/19/19	11/21/19 17:28	JMB
Aroclor-1232 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/19/19	11/21/19 17:28	JMB
Aroclor-1242 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/19/19	11/21/19 17:28	JMB
Aroclor-1248 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/19/19	11/21/19 17:28	JMB
Aroclor-1254 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/19/19	11/21/19 17:28	JMB
Aroclor-1260 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/19/19	11/21/19 17:28	JMB
Aroclor-1262 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/19/19	11/21/19 17:28	JMB
Aroclor-1268 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/19/19	11/21/19 17:28	JMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	86.0	30-150							
Decachlorobiphenyl [2]	80.8	30-150							
Tetrachloro-m-xylene [1]	86.0	30-150							
Tetrachloro-m-xylene [2]	80.5	30-150							

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Project Location: Chelsea, MA

Sample Description:

Work Order: 19K1082

Date Received: 11/18/2019

Field Sample #: MW-04

Sampled: 11/14/2019 09:50

Sample ID: 19K1082-01

Sample Matrix: Ground Water

Petrochemical Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	ND	99	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:18	RMW
C19-C36 Aliphatics	ND	99	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:18	RMW
Unadjusted C11-C22 Aromatics	ND	99	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:18	RMW
C11-C22 Aromatics	ND	99	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:18	RMW
Acenaphthene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:18	RMW
Acenaphthylene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:18	RMW
Anthracene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:18	RMW
Benzo(a)anthracene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:18	RMW
Benzo(a)pyrene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:18	RMW
Benzo(b)fluoranthene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:18	RMW
Benzo(g,h,i)perylene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:18	RMW
Benzo(k)fluoranthene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:18	RMW
Chrysene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:18	RMW
Dibenz(a,h)anthracene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:18	RMW
Fluoranthene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:18	RMW
Fluorene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:18	RMW
Indeno(1,2,3-cd)pyrene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:18	RMW
2-Methylnaphthalene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:18	RMW
Naphthalene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:18	RMW
Phenanthrene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:18	RMW
Pyrene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:18	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	67.2	40-140	
o-Terphenyl (OTP)	65.6	40-140	
2-Bromonaphthalene	88.8	40-140	
2-Fluorobiphenyl	91.0	40-140	

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Project Location: Chelsea, MA

Sample Description:

Work Order: 19K1082

Date Received: 11/18/2019

Field Sample #: MW-04

Sampled: 11/14/2019 09:50

Sample ID: 19K1082-01

Sample Matrix: Ground Water

Sample Flags: RL-14

Petroleum Hydrocarbons Analyses - VPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Unadjusted C5-C8 Aliphatics	ND	200	µg/L	2		MADEP-VPH-Feb 2018 Rev 2.1	11/21/19	11/22/19 3:56	KMB
C5-C8 Aliphatics	ND	200	µg/L	2		MADEP-VPH-Feb 2018 Rev 2.1	11/21/19	11/22/19 3:56	KMB
Unadjusted C9-C12 Aliphatics	ND	200	µg/L	2		MADEP-VPH-Feb 2018 Rev 2.1	11/21/19	11/22/19 3:56	KMB
C9-C12 Aliphatics	ND	200	µg/L	2		MADEP-VPH-Feb 2018 Rev 2.1	11/21/19	11/22/19 3:56	KMB
C9-C10 Aromatics	ND	200	µg/L	2		MADEP-VPH-Feb 2018 Rev 2.1	11/21/19	11/22/19 3:56	KMB
Benzene	ND	2.0	µg/L	2		MADEP-VPH-Feb 2018 Rev 2.1	11/21/19	11/22/19 3:56	KMB
Ethylbenzene	ND	2.0	µg/L	2		MADEP-VPH-Feb 2018 Rev 2.1	11/21/19	11/22/19 3:56	KMB
Methyl tert-Butyl Ether (MTBE)	ND	2.0	µg/L	2		MADEP-VPH-Feb 2018 Rev 2.1	11/21/19	11/22/19 3:56	KMB
Naphthalene	ND	10	µg/L	2		MADEP-VPH-Feb 2018 Rev 2.1	11/21/19	11/22/19 3:56	KMB
Toluene	ND	2.0	µg/L	2		MADEP-VPH-Feb 2018 Rev 2.1	11/21/19	11/22/19 3:56	KMB
m+p Xylene	ND	4.0	µg/L	2		MADEP-VPH-Feb 2018 Rev 2.1	11/21/19	11/22/19 3:56	KMB
o-Xylene	ND	2.0	µg/L	2		MADEP-VPH-Feb 2018 Rev 2.1	11/21/19	11/22/19 3:56	KMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
2,5-Dibromotoluene (FID)	117	70-130						11/22/19 3:56	
2,5-Dibromotoluene (PID)	117	70-130						11/22/19 3:56	

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Project Location: Chelsea, MA

Sample Description:

Work Order: 19K1082

Date Received: 11/18/2019

Field Sample #: MW-04

Sampled: 11/14/2019 09:50

Sample ID: 19K1082-01

Sample Matrix: Ground Water

Metals Analyses (Dissolved)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	1.0	µg/L	1		SW-846 6020B	11/20/19	11/20/19 18:17	QNW
Arsenic	11	0.80	µg/L	1		SW-846 6020B	11/20/19	11/20/19 18:17	QNW
Barium	310	50	µg/L	5		SW-846 6020B	11/20/19	11/22/19 12:25	QNW
Beryllium	ND	0.40	µg/L	1		SW-846 6020B	11/20/19	11/20/19 18:17	QNW
Cadmium	ND	0.20	µg/L	1		SW-846 6020B	11/20/19	11/20/19 18:17	QNW
Chromium	2.1	1.0	µg/L	1		SW-846 6020B	11/20/19	11/20/19 18:17	QNW
Lead	ND	2.5	µg/L	5	DL-15	SW-846 6020B	11/20/19	11/22/19 12:25	QNW
Mercury	ND	0.00010	mg/L	1		SW-846 7470A	11/21/19	11/21/19 14:30	CJV
Nickel	9.2	5.0	µg/L	1		SW-846 6020B	11/20/19	11/20/19 18:17	QNW
Selenium	13	5.0	µg/L	1		SW-846 6020B	11/20/19	11/20/19 18:17	QNW
Silver	ND	0.20	µg/L	1		SW-846 6020B	11/20/19	11/20/19 18:17	QNW
Thallium	ND	1.0	µg/L	5	DL-15	SW-846 6020B	11/20/19	11/22/19 12:25	QNW
Vanadium	ND	5.0	µg/L	1		SW-846 6020B	11/20/19	11/20/19 18:17	QNW
Zinc	ND	10	µg/L	1		SW-846 6020B	11/20/19	11/20/19 18:17	QNW

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Project Location: Chelsea, MA

Sample Description:

Work Order: 19K1082

Date Received: 11/18/2019

Field Sample #: MW-06

Sampled: 11/14/2019 09:50

Sample ID: 19K1082-02

Sample Matrix: Ground Water

Sample Flags: RL-14

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	20	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
tert-Amyl Methyl Ether (TAME)	ND	2.0	µg/L	2	L-04, V-05	SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Benzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Bromobenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Bromochloromethane	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Bromodichloromethane	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Bromoform	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Bromomethane	ND	4.0	µg/L	2	V-05	SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
2-Butanone (MEK)	ND	20	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
n-Butylbenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
sec-Butylbenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
tert-Butylbenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	1.0	µg/L	2	L-04, V-05	SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Carbon Disulfide	ND	10	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Carbon Tetrachloride	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Chlorobenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Chlorodibromomethane	ND	1.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Chloroethane	ND	4.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Chloroform	ND	4.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Chloromethane	ND	4.0	µg/L	2	V-05	SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
2-Chlorotoluene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
4-Chlorotoluene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	4.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
1,2-Dibromoethane (EDB)	ND	1.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Dibromomethane	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
1,2-Dichlorobenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
1,3-Dichlorobenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
1,4-Dichlorobenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Dichlorodifluoromethane (Freon 12)	ND	4.0	µg/L	2	V-05	SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
1,1-Dichloroethane	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
1,2-Dichloroethane	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
1,1-Dichloroethylene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
cis-1,2-Dichloroethylene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
trans-1,2-Dichloroethylene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
1,2-Dichloropropane	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
1,3-Dichloropropane	ND	1.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
2,2-Dichloropropane	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
1,1-Dichloropropene	ND	1.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
cis-1,3-Dichloropropene	ND	0.80	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
trans-1,3-Dichloropropene	ND	0.80	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Diethyl Ether	ND	4.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Diisopropyl Ether (DIPE)	ND	1.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
1,4-Dioxane	ND	100	µg/L	2	V-16	SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Ethylbenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Chelsea, MA

Sample Description:

Work Order: 19K1082

Date Received: 11/18/2019

Field Sample #: MW-06

Sampled: 11/14/2019 09:50

Sample ID: 19K1082-02

Sample Matrix: Ground Water

Sample Flags: RL-14

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	1.2	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
2-Hexanone (MBK)	ND	20	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Isopropylbenzene (Cumene)	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
p-Isopropyltoluene (p-Cymene)	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Methyl tert-Butyl Ether (MTBE)	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Methylene Chloride	ND	10	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
4-Methyl-2-pentanone (MIBK)	ND	20	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Naphthalene	ND	10	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
n-Propylbenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Styrene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
1,1,1,2-Tetrachloroethane	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
1,1,2,2-Tetrachloroethane	ND	1.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Tetrachloroethylene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Tetrahydrofuran	ND	4.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Toluene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
1,2,3-Trichlorobenzene	ND	4.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
1,2,4-Trichlorobenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
1,1,1-Trichloroethane	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
1,1,2-Trichloroethane	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Trichloroethylene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Trichlorofluoromethane (Freon 11)	ND	4.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
1,2,3-Trichloropropane	ND	4.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
1,2,4-Trimethylbenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
1,3,5-Trimethylbenzene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
Vinyl Chloride	ND	4.0	µg/L	2	R-05	SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
m+p Xylene	ND	4.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH
o-Xylene	ND	2.0	µg/L	2		SW-846 8260C-D	11/20/19	11/21/19 2:04	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual
1,2-Dichloroethane-d4	85.4	70-130	
Toluene-d8	97.3	70-130	
4-Bromofluorobenzene	98.9	70-130	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Chelsea, MA

Sample Description:

Work Order: 19K1082

Date Received: 11/18/2019

Field Sample #: MW-06

Sampled: 11/14/2019 09:50

Sample ID: 19K1082-02

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Acenaphthylene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Acetophenone	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Aniline	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Anthracene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Benzo(a)anthracene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Benzo(a)pyrene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Benzo(b)fluoranthene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Benzo(g,h,i)perylene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Benzo(k)fluoranthene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Bis(2-chloroethoxy)methane	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Bis(2-chloroethyl)ether	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Bis(2-chloroisopropyl)ether	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Bis(2-Ethylhexyl)phthalate	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
4-Bromophenylphenylether	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Butylbenzylphthalate	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
4-Chloroaniline	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
2-Chloronaphthalene	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
2-Chlorophenol	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Chrysene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Dibenz(a,h)anthracene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Dibenzofuran	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Di-n-butylphthalate	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
1,2-Dichlorobenzene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
1,3-Dichlorobenzene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
1,4-Dichlorobenzene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
3,3-Dichlorobenzidine	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
2,4-Dichlorophenol	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Diethylphthalate	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
2,4-Dimethylphenol	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Dimethylphthalate	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
2,4-Dinitrophenol	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
2,4-Dinitrotoluene	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
2,6-Dinitrotoluene	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Di-n-octylphthalate	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
1,2-Diphenylhydrazine/Azobenzene	ND	9.8	µg/L	1	V-20	SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Fluoranthene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Fluorene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Hexachlorobenzene	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Hexachlorobutadiene	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Hexachloroethane	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Indeno(1,2,3-cd)pyrene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Isophorone	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
2-Methylnaphthalene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL

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Project Location: Chelsea, MA

Sample Description:

Work Order: 19K1082

Date Received: 11/18/2019

Field Sample #: MW-06

Sampled: 11/14/2019 09:50

Sample ID: 19K1082-02

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
3/4-Methylphenol	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Naphthalene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Nitrobenzene	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
2-Nitrophenol	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
4-Nitrophenol	ND	9.8	µg/L	1	V-20	SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Pentachlorophenol	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Phenanthrene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Phenol	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Pyrene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
1,2,4-Trichlorobenzene	ND	4.9	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
2,4,5-Trichlorophenol	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
2,4,6-Trichlorophenol	ND	9.8	µg/L	1		SW-846 8270D-E	11/20/19	11/22/19 16:38	BGL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
2-Fluorophenol	42.9	15-110							
Phenol-d6	32.2	15-110							
Nitrobenzene-d5	72.8	30-130							
2-Fluorobiphenyl	71.0	30-130							
2,4,6-Tribromophenol	84.9	15-110							
p-Terphenyl-d14	83.8	30-130							

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Project Location: Chelsea, MA

Sample Description:

Work Order: 19K1082

Date Received: 11/18/2019

Field Sample #: MW-06

Sampled: 11/14/2019 09:50

Sample ID: 19K1082-02

Sample Matrix: Ground Water

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/19/19	11/21/19 17:40	JMB
Aroclor-1221 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/19/19	11/21/19 17:40	JMB
Aroclor-1232 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/19/19	11/21/19 17:40	JMB
Aroclor-1242 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/19/19	11/21/19 17:40	JMB
Aroclor-1248 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/19/19	11/21/19 17:40	JMB
Aroclor-1254 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/19/19	11/21/19 17:40	JMB
Aroclor-1260 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/19/19	11/21/19 17:40	JMB
Aroclor-1262 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/19/19	11/21/19 17:40	JMB
Aroclor-1268 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/19/19	11/21/19 17:40	JMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	92.4	30-150							
Decachlorobiphenyl [2]	87.2	30-150							
Tetrachloro-m-xylene [1]	88.8	30-150							
Tetrachloro-m-xylene [2]	84.1	30-150							

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Project Location: Chelsea, MA

Sample Description:

Work Order: 19K1082

Date Received: 11/18/2019

Field Sample #: MW-06

Sampled: 11/14/2019 09:50

Sample ID: 19K1082-02

Sample Matrix: Ground Water

Petrolium Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	ND	100	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:37	RMW
C19-C36 Aliphatics	ND	100	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:37	RMW
Unadjusted C11-C22 Aromatics	ND	100	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:37	RMW
C11-C22 Aromatics	ND	100	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:37	RMW
Acenaphthene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:37	RMW
Acenaphthylene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:37	RMW
Anthracene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:37	RMW
Benzo(a)anthracene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:37	RMW
Benzo(a)pyrene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:37	RMW
Benzo(b)fluoranthene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:37	RMW
Benzo(g,h,i)perylene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:37	RMW
Benzo(k)fluoranthene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:37	RMW
Chrysene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:37	RMW
Dibenz(a,h)anthracene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:37	RMW
Fluoranthene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:37	RMW
Fluorene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:37	RMW
Indeno(1,2,3-cd)pyrene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:37	RMW
2-Methylnaphthalene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:37	RMW
Naphthalene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:37	RMW
Phenanthrene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:37	RMW
Pyrene	ND	2.0	µg/L	1		MADEP-EPH-04-1.1	11/22/19	11/25/19 10:37	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	65.7	40-140	
o-Terphenyl (OTP)	64.1	40-140	
2-Bromonaphthalene	93.8	40-140	
2-Fluorobiphenyl	95.4	40-140	

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Project Location: Chelsea, MA

Sample Description:

Work Order: 19K1082

Date Received: 11/18/2019

Field Sample #: MW-06

Sampled: 11/14/2019 09:50

Sample ID: 19K1082-02

Sample Matrix: Ground Water

Sample Flags: RL-14

Petroleum Hydrocarbons Analyses - VPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Unadjusted C5-C8 Aliphatics	ND	200	µg/L	2		MADEP-VPH-Feb 2018 Rev 2.1	11/21/19	11/22/19 3:27	KMB
C5-C8 Aliphatics	ND	200	µg/L	2		MADEP-VPH-Feb 2018 Rev 2.1	11/21/19	11/22/19 3:27	KMB
Unadjusted C9-C12 Aliphatics	ND	200	µg/L	2		MADEP-VPH-Feb 2018 Rev 2.1	11/21/19	11/22/19 3:27	KMB
C9-C12 Aliphatics	ND	200	µg/L	2		MADEP-VPH-Feb 2018 Rev 2.1	11/21/19	11/22/19 3:27	KMB
C9-C10 Aromatics	ND	200	µg/L	2		MADEP-VPH-Feb 2018 Rev 2.1	11/21/19	11/22/19 3:27	KMB
Benzene	ND	2.0	µg/L	2		MADEP-VPH-Feb 2018 Rev 2.1	11/21/19	11/22/19 3:27	KMB
Ethylbenzene	ND	2.0	µg/L	2		MADEP-VPH-Feb 2018 Rev 2.1	11/21/19	11/22/19 3:27	KMB
Methyl tert-Butyl Ether (MTBE)	ND	2.0	µg/L	2		MADEP-VPH-Feb 2018 Rev 2.1	11/21/19	11/22/19 3:27	KMB
Naphthalene	ND	10	µg/L	2		MADEP-VPH-Feb 2018 Rev 2.1	11/21/19	11/22/19 3:27	KMB
Toluene	ND	2.0	µg/L	2		MADEP-VPH-Feb 2018 Rev 2.1	11/21/19	11/22/19 3:27	KMB
m+p Xylene	ND	4.0	µg/L	2		MADEP-VPH-Feb 2018 Rev 2.1	11/21/19	11/22/19 3:27	KMB
o-Xylene	ND	2.0	µg/L	2		MADEP-VPH-Feb 2018 Rev 2.1	11/21/19	11/22/19 3:27	KMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
2,5-Dibromotoluene (FID)	126	70-130							
2,5-Dibromotoluene (PID)	122	70-130							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Chelsea, MA

Sample Description:

Work Order: 19K1082

Date Received: 11/18/2019

Field Sample #: MW-06

Sampled: 11/14/2019 09:50

Sample ID: 19K1082-02

Sample Matrix: Ground Water

Metals Analyses (Dissolved)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	1.0	µg/L	1		SW-846 6020B	11/20/19	11/22/19 23:40	MJH
Arsenic	4.3	0.80	µg/L	1		SW-846 6020B	11/20/19	11/20/19 18:20	QNW
Barium	1100	200	µg/L	20		SW-846 6020B	11/20/19	11/22/19 15:45	MJH
Beryllium	ND	0.40	µg/L	1		SW-846 6020B	11/20/19	11/20/19 18:20	QNW
Cadmium	ND	0.20	µg/L	1		SW-846 6020B	11/20/19	11/22/19 23:40	MJH
Chromium	2.5	1.0	µg/L	1		SW-846 6020B	11/20/19	11/20/19 18:20	QNW
Lead	6.7	1.0	µg/L	2		SW-846 6020B	11/20/19	11/22/19 11:06	QNW
Mercury	ND	0.00010	mg/L	1		SW-846 7470A	11/21/19	11/21/19 14:32	CJV
Nickel	ND	5.0	µg/L	1		SW-846 6020B	11/20/19	11/20/19 18:20	QNW
Selenium	ND	5.0	µg/L	1		SW-846 6020B	11/20/19	11/20/19 18:20	QNW
Silver	ND	0.20	µg/L	1		SW-846 6020B	11/20/19	11/22/19 23:40	MJH
Thallium	ND	0.20	µg/L	1		SW-846 6020B	11/20/19	11/22/19 23:40	MJH
Vanadium	ND	5.0	µg/L	1		SW-846 6020B	11/20/19	11/20/19 18:20	QNW
Zinc	ND	10	µg/L	1		SW-846 6020B	11/20/19	11/20/19 18:20	QNW

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Sample Extraction Data**Prep Method: SW-846 3510C-MADEP-EPH-04-1.1**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19K1082-01 [MW-04]	B246727	1010	2.00	11/22/19
19K1082-02 [MW-06]	B246727	1000	2.00	11/22/19

Prep Method: MA VPH-MADEP-VPH-Feb 2018 Rev 2.1

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19K1082-01 [MW-04]	B246665	2.5	5.00	11/21/19
19K1082-02 [MW-06]	B246665	2.5	5.00	11/21/19

Prep Method: SW-846 3005A Dissolved-SW-846 6020B

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19K1082-01 [MW-04]	B246549	50.0	50.0	11/20/19
19K1082-02 [MW-06]	B246549	50.0	50.0	11/20/19

Prep Method: SW-846 7470A Dissolved-SW-846 7470A

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19K1082-01 [MW-04]	B246658	6.00	6.00	11/21/19
19K1082-02 [MW-06]	B246658	6.00	6.00	11/21/19

Prep Method: SW-846 3510C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19K1082-01 [MW-04]	B246371	1010	10.0	11/19/19
19K1082-02 [MW-06]	B246371	990	10.0	11/19/19

Prep Method: SW-846 5030B-SW-846 8260C-D

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19K1082-01 [MW-04]	B246534	2.5	5.00	11/20/19
19K1082-02 [MW-06]	B246534	2.5	5.00	11/20/19

Prep Method: SW-846 3510C-SW-846 8270D-E

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19K1082-01 [MW-04]	B246553	1020	1.00	11/20/19
19K1082-02 [MW-06]	B246553	1020	1.00	11/20/19

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QUALITY CONTROL
Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B246534 - SW-846 5030B										
Blank (B246534-BLK1)				Prepared & Analyzed: 11/20/19						
Acetone	ND	10	µg/L							
tert-Amyl Methyl Ether (TAME)	ND	0.50	µg/L							L-04, V-05
Benzene	ND	1.0	µg/L							
Bromobenzene	ND	1.0	µg/L							
Bromochloromethane	ND	1.0	µg/L							
Bromodichloromethane	ND	1.0	µg/L							
Bromoform	ND	1.0	µg/L							
Bromomethane	ND	2.0	µg/L							V-05
2-Butanone (MEK)	ND	10	µg/L							
n-Butylbenzene	ND	1.0	µg/L							
sec-Butylbenzene	ND	1.0	µg/L							
tert-Butylbenzene	ND	1.0	µg/L							
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	µg/L							L-04, V-05
Carbon Disulfide	ND	5.0	µg/L							
Carbon Tetrachloride	ND	1.0	µg/L							
Chlorobenzene	ND	1.0	µg/L							
Chlorodibromomethane	ND	0.50	µg/L							
Chloroethane	ND	2.0	µg/L							
Chloroform	ND	2.0	µg/L							
Chloromethane	ND	2.0	µg/L							V-05
2-Chlorotoluene	ND	1.0	µg/L							
4-Chlorotoluene	ND	1.0	µg/L							
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	µg/L							
1,2-Dibromoethane (EDB)	ND	0.50	µg/L							
Dibromomethane	ND	1.0	µg/L							
1,2-Dichlorobenzene	ND	1.0	µg/L							
1,3-Dichlorobenzene	ND	1.0	µg/L							
1,4-Dichlorobenzene	ND	1.0	µg/L							
Dichlorodifluoromethane (Freon 12)	ND	2.0	µg/L							V-05
1,1-Dichloroethane	ND	1.0	µg/L							
1,2-Dichloroethane	ND	1.0	µg/L							
1,1-Dichloroethylene	ND	1.0	µg/L							
cis-1,2-Dichloroethylene	ND	1.0	µg/L							
trans-1,2-Dichloroethylene	ND	1.0	µg/L							
1,2-Dichloropropane	ND	1.0	µg/L							
1,3-Dichloropropane	ND	0.50	µg/L							
2,2-Dichloropropane	ND	1.0	µg/L							
1,1-Dichloropropene	ND	0.50	µg/L							
cis-1,3-Dichloropropene	ND	0.40	µg/L							
trans-1,3-Dichloropropene	ND	0.40	µg/L							
Diethyl Ether	ND	2.0	µg/L							
Diisopropyl Ether (DIPE)	ND	0.50	µg/L							
1,4-Dioxane	ND	50	µg/L							V-16
Ethylbenzene	ND	1.0	µg/L							
Hexachlorobutadiene	ND	0.60	µg/L							
2-Hexanone (MBK)	ND	10	µg/L							
Isopropylbenzene (Cumene)	ND	1.0	µg/L							
p-Isopropyltoluene (p-Cymene)	ND	1.0	µg/L							
Methyl tert-Butyl Ether (MTBE)	ND	1.0	µg/L							
Methylene Chloride	ND	5.0	µg/L							
4-Methyl-2-pentanone (MIBK)	ND	10	µg/L							
Naphthalene	ND	2.0	µg/L							

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Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B246534 - SW-846 5030B										
Blank (B246534-BLK1)										
Prepared & Analyzed: 11/20/19										
n-Propylbenzene	ND	1.0	µg/L							
Styrene	ND	1.0	µg/L							
1,1,1,2-Tetrachloroethane	ND	1.0	µg/L							
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L							
Tetrachloroethylene	ND	1.0	µg/L							
Tetrahydrofuran	ND	2.0	µg/L							
Toluene	ND	1.0	µg/L							
1,2,3-Trichlorobenzene	ND	2.0	µg/L							
1,2,4-Trichlorobenzene	ND	1.0	µg/L							
1,1,1-Trichloroethane	ND	1.0	µg/L							
1,1,2-Trichloroethane	ND	1.0	µg/L							
Trichloroethylene	ND	1.0	µg/L							
Trichlorofluoromethane (Freon 11)	ND	2.0	µg/L							
1,2,3-Trichloropropane	ND	2.0	µg/L							
1,2,4-Trimethylbenzene	ND	1.0	µg/L							
1,3,5-Trimethylbenzene	ND	1.0	µg/L							
Vinyl Chloride	ND	2.0	µg/L							R-05
m+p Xylene	ND	2.0	µg/L							
o-Xylene	ND	1.0	µg/L							
Surrogate: 1,2-Dichloroethane-d4	21.6		µg/L	25.0		86.6	70-130			
Surrogate: Toluene-d8	24.6		µg/L	25.0		98.2	70-130			
Surrogate: 4-Bromofluorobenzene	24.6		µg/L	25.0		98.5	70-130			
LCS (B246534-BS1)										
Prepared & Analyzed: 11/20/19										
Acetone	99.9	10	µg/L	100		99.9	40-160			†
tert-Amyl Methyl Ether (TAME)	5.66	0.50	µg/L	10.0		56.6 *	70-130			L-04, V-05
Benzene	8.55	1.0	µg/L	10.0		85.5	70-130			
Bromobenzene	10.4	1.0	µg/L	10.0		104	70-130			
Bromochloromethane	8.42	1.0	µg/L	10.0		84.2	70-130			
Bromodichloromethane	9.64	1.0	µg/L	10.0		96.4	70-130			
Bromoform	10.9	1.0	µg/L	10.0		109	70-130			
Bromomethane	5.32	2.0	µg/L	10.0		53.2	40-160			L-14, V-05 †
2-Butanone (MEK)	84.3	10	µg/L	100		84.3	40-160			†
n-Butylbenzene	11.0	1.0	µg/L	10.0		110	70-130			
sec-Butylbenzene	11.2	1.0	µg/L	10.0		112	70-130			
tert-Butylbenzene	10.8	1.0	µg/L	10.0		108	70-130			
tert-Butyl Ethyl Ether (TBEE)	6.24	0.50	µg/L	10.0		62.4 *	70-130			L-04, V-05
Carbon Disulfide	9.53	5.0	µg/L	10.0		95.3	70-130			
Carbon Tetrachloride	9.58	1.0	µg/L	10.0		95.8	70-130			
Chlorobenzene	11.1	1.0	µg/L	10.0		111	70-130			
Chlorodibromomethane	9.96	0.50	µg/L	10.0		99.6	70-130			
Chloroethane	8.80	2.0	µg/L	10.0		88.0	70-130			
Chloroform	8.34	2.0	µg/L	10.0		83.4	70-130			
Chloromethane	7.17	2.0	µg/L	10.0		71.7	40-160			V-05 †
2-Chlorotoluene	10.0	1.0	µg/L	10.0		100	70-130			
4-Chlorotoluene	11.0	1.0	µg/L	10.0		110	70-130			
1,2-Dibromo-3-chloropropane (DBCP)	9.75	2.0	µg/L	10.0		97.5	70-130			
1,2-Dibromoethane (EDB)	10.2	0.50	µg/L	10.0		102	70-130			
Dibromomethane	9.49	1.0	µg/L	10.0		94.9	70-130			
1,2-Dichlorobenzene	10.8	1.0	µg/L	10.0		108	70-130			
1,3-Dichlorobenzene	11.1	1.0	µg/L	10.0		111	70-130			
1,4-Dichlorobenzene	11.0	1.0	µg/L	10.0		110	70-130			

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Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B246534 - SW-846 5030B										
LCS (B246534-BS1)				Prepared & Analyzed: 11/20/19						
Dichlorodifluoromethane (Freon 12)	7.20	2.0	µg/L	10.0		72.0	40-160			V-05 †
1,1-Dichloroethane	8.73	1.0	µg/L	10.0		87.3	70-130			
1,2-Dichloroethane	9.61	1.0	µg/L	10.0		96.1	70-130			
1,1-Dichloroethylene	9.40	1.0	µg/L	10.0		94.0	70-130			
cis-1,2-Dichloroethylene	8.76	1.0	µg/L	10.0		87.6	70-130			
trans-1,2-Dichloroethylene	9.11	1.0	µg/L	10.0		91.1	70-130			
1,2-Dichloropropane	9.22	1.0	µg/L	10.0		92.2	70-130			
1,3-Dichloropropane	9.62	0.50	µg/L	10.0		96.2	70-130			
2,2-Dichloropropane	9.39	1.0	µg/L	10.0		93.9	70-130			
1,1-Dichloropropene	8.89	0.50	µg/L	10.0		88.9	70-130			
cis-1,3-Dichloropropene	9.71	0.40	µg/L	10.0		97.1	70-130			
trans-1,3-Dichloropropene	9.42	0.40	µg/L	10.0		94.2	70-130			
Diethyl Ether	8.62	2.0	µg/L	10.0		86.2	70-130			
Diisopropyl Ether (DIPE)	9.04	0.50	µg/L	10.0		90.4	70-130			
1,4-Dioxane	104	50	µg/L	100		104	40-160			V-16 †
Ethylbenzene	10.8	1.0	µg/L	10.0		108	70-130			
Hexachlorobutadiene	12.2	0.60	µg/L	10.0		122	70-130			V-20 †
2-Hexanone (MBK)	105	10	µg/L	100		105	40-160			†
Isopropylbenzene (Cumene)	11.1	1.0	µg/L	10.0		111	70-130			
p-Isopropyltoluene (p-Cymene)	10.6	1.0	µg/L	10.0		106	70-130			
Methyl tert-Butyl Ether (MTBE)	8.19	1.0	µg/L	10.0		81.9	70-130			
Methylene Chloride	8.50	5.0	µg/L	10.0		85.0	70-130			
4-Methyl-2-pentanone (MIBK)	107	10	µg/L	100		107	40-160			†
Naphthalene	9.52	2.0	µg/L	10.0		95.2	70-130			
n-Propylbenzene	10.8	1.0	µg/L	10.0		108	70-130			
Styrene	9.44	1.0	µg/L	10.0		94.4	70-130			
1,1,1,2-Tetrachloroethane	11.6	1.0	µg/L	10.0		116	70-130			
1,1,2,2-Tetrachloroethane	11.4	0.50	µg/L	10.0		114	70-130			
Tetrachloroethylene	11.2	1.0	µg/L	10.0		112	70-130			
Tetrahydrofuran	8.15	2.0	µg/L	10.0		81.5	70-130			
Toluene	9.95	1.0	µg/L	10.0		99.5	70-130			
1,2,3-Trichlorobenzene	9.16	2.0	µg/L	10.0		91.6	70-130			
1,2,4-Trichlorobenzene	10.6	1.0	µg/L	10.0		106	70-130			
1,1,1-Trichloroethane	9.29	1.0	µg/L	10.0		92.9	70-130			
1,1,2-Trichloroethane	9.86	1.0	µg/L	10.0		98.6	70-130			
Trichloroethylene	9.64	1.0	µg/L	10.0		96.4	70-130			
Trichlorofluoromethane (Freon 11)	8.37	2.0	µg/L	10.0		83.7	70-130			
1,2,3-Trichloropropane	10.9	2.0	µg/L	10.0		109	70-130			
1,2,4-Trimethylbenzene	9.48	1.0	µg/L	10.0		94.8	70-130			
1,3,5-Trimethylbenzene	10.8	1.0	µg/L	10.0		108	70-130			
Vinyl Chloride	13.8	2.0	µg/L	10.0		138	* 70-130			L-02, R-05, V-20
m+p Xylene	22.0	2.0	µg/L	20.0		110	70-130			
o-Xylene	11.1	1.0	µg/L	10.0		111	70-130			
Surrogate: 1,2-Dichloroethane-d4	21.9		µg/L	25.0		87.7	70-130			
Surrogate: Toluene-d8	24.4		µg/L	25.0		97.7	70-130			
Surrogate: 4-Bromofluorobenzene	24.8		µg/L	25.0		99.2	70-130			

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Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B246534 - SW-846 5030B										
LCS Dup (B246534-BSD1)				Prepared & Analyzed: 11/20/19						
Acetone	104	10	µg/L	100		104	40-160	4.45	20	†
tert-Amyl Methyl Ether (TAME)	5.69	0.50	µg/L	10.0		56.9 *	70-130	0.529	20	L-04, V-05
Benzene	8.27	1.0	µg/L	10.0		82.7	70-130	3.33	20	
Bromobenzene	10.4	1.0	µg/L	10.0		104	70-130	0.192	20	
Bromochloromethane	8.43	1.0	µg/L	10.0		84.3	70-130	0.119	20	
Bromodichloromethane	9.91	1.0	µg/L	10.0		99.1	70-130	2.76	20	
Bromoform	11.9	1.0	µg/L	10.0		119	70-130	9.05	20	
Bromomethane	6.41	2.0	µg/L	10.0		64.1	40-160	18.6	20	L-14, V-05 †
2-Butanone (MEK)	85.6	10	µg/L	100		85.6	40-160	1.53	20	†
n-Butylbenzene	11.3	1.0	µg/L	10.0		113	70-130	2.70	20	
sec-Butylbenzene	11.2	1.0	µg/L	10.0		112	70-130	0.714	20	
tert-Butylbenzene	10.7	1.0	µg/L	10.0		107	70-130	1.58	20	
tert-Butyl Ethyl Ether (TBEE)	6.20	0.50	µg/L	10.0		62.0 *	70-130	0.643	20	L-04, V-05
Carbon Disulfide	9.77	5.0	µg/L	10.0		97.7	70-130	2.49	20	
Carbon Tetrachloride	9.74	1.0	µg/L	10.0		97.4	70-130	1.66	20	
Chlorobenzene	11.1	1.0	µg/L	10.0		111	70-130	0.00	20	
Chlorodibromomethane	10.1	0.50	µg/L	10.0		101	70-130	1.79	20	
Chloroethane	8.45	2.0	µg/L	10.0		84.5	70-130	4.06	20	
Chloroform	8.15	2.0	µg/L	10.0		81.5	70-130	2.30	20	
Chloromethane	7.44	2.0	µg/L	10.0		74.4	40-160	3.70	20	V-05 †
2-Chlorotoluene	10.2	1.0	µg/L	10.0		102	70-130	2.18	20	
4-Chlorotoluene	11.1	1.0	µg/L	10.0		111	70-130	0.633	20	
1,2-Dibromo-3-chloropropane (DBCP)	10.5	2.0	µg/L	10.0		105	70-130	7.41	20	
1,2-Dibromoethane (EDB)	10.1	0.50	µg/L	10.0		101	70-130	0.0986	20	
Dibromomethane	9.52	1.0	µg/L	10.0		95.2	70-130	0.316	20	
1,2-Dichlorobenzene	10.6	1.0	µg/L	10.0		106	70-130	1.31	20	
1,3-Dichlorobenzene	11.3	1.0	µg/L	10.0		113	70-130	2.32	20	
1,4-Dichlorobenzene	10.8	1.0	µg/L	10.0		108	70-130	1.38	20	
Dichlorodifluoromethane (Freon 12)	7.53	2.0	µg/L	10.0		75.3	40-160	4.48	20	V-05 †
1,1-Dichloroethane	8.68	1.0	µg/L	10.0		86.8	70-130	0.574	20	
1,2-Dichloroethane	9.53	1.0	µg/L	10.0		95.3	70-130	0.836	20	
1,1-Dichloroethylene	9.35	1.0	µg/L	10.0		93.5	70-130	0.533	20	
cis-1,2-Dichloroethylene	8.69	1.0	µg/L	10.0		86.9	70-130	0.802	20	
trans-1,2-Dichloroethylene	8.89	1.0	µg/L	10.0		88.9	70-130	2.44	20	
1,2-Dichloropropane	9.22	1.0	µg/L	10.0		92.2	70-130	0.00	20	
1,3-Dichloropropane	9.43	0.50	µg/L	10.0		94.3	70-130	1.99	20	
2,2-Dichloropropane	9.38	1.0	µg/L	10.0		93.8	70-130	0.107	20	
1,1-Dichloropropene	8.83	0.50	µg/L	10.0		88.3	70-130	0.677	20	
cis-1,3-Dichloropropene	9.81	0.40	µg/L	10.0		98.1	70-130	1.02	20	
trans-1,3-Dichloropropene	9.46	0.40	µg/L	10.0		94.6	70-130	0.424	20	
Diethyl Ether	8.37	2.0	µg/L	10.0		83.7	70-130	2.94	20	
Diisopropyl Ether (DIPE)	8.59	0.50	µg/L	10.0		85.9	70-130	5.10	20	
1,4-Dioxane	105	50	µg/L	100		105	40-160	0.488	20	V-16 †
Ethylbenzene	10.8	1.0	µg/L	10.0		108	70-130	0.185	20	
Hexachlorobutadiene	12.6	0.60	µg/L	10.0		126	70-130	3.79	20	V-20
2-Hexanone (MBK)	104	10	µg/L	100		104	40-160	1.06	20	†
Isopropylbenzene (Cumene)	11.4	1.0	µg/L	10.0		114	70-130	1.96	20	
p-Isopropyltoluene (p-Cymene)	10.6	1.0	µg/L	10.0		106	70-130	0.189	20	
Methyl tert-Butyl Ether (MTBE)	8.01	1.0	µg/L	10.0		80.1	70-130	2.22	20	
Methylene Chloride	8.59	5.0	µg/L	10.0		85.9	70-130	1.05	20	
4-Methyl-2-pentanone (MIBK)	107	10	µg/L	100		107	40-160	0.242	20	†
Naphthalene	10.1	2.0	µg/L	10.0		101	70-130	5.52	20	

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B246534 - SW-846 5030B										
LCS Dup (B246534-BSD1)				Prepared & Analyzed: 11/20/19						
n-Propylbenzene	11.1	1.0	µg/L	10.0		111	70-130	2.73	20	
Styrene	9.94	1.0	µg/L	10.0		99.4	70-130	5.16	20	
1,1,1,2-Tetrachloroethane	11.7	1.0	µg/L	10.0		117	70-130	0.257	20	
1,1,2,2-Tetrachloroethane	11.5	0.50	µg/L	10.0		115	70-130	1.40	20	
Tetrachloroethylene	11.1	1.0	µg/L	10.0		111	70-130	0.540	20	
Tetrahydrofuran	8.62	2.0	µg/L	10.0		86.2	70-130	5.61	20	
Toluene	9.74	1.0	µg/L	10.0		97.4	70-130	2.13	20	
1,2,3-Trichlorobenzene	10.0	2.0	µg/L	10.0		100	70-130	8.87	20	
1,2,4-Trichlorobenzene	11.2	1.0	µg/L	10.0		112	70-130	5.32	20	
1,1,1-Trichloroethane	9.44	1.0	µg/L	10.0		94.4	70-130	1.60	20	
1,1,2-Trichloroethane	10.0	1.0	µg/L	10.0		100	70-130	1.61	20	
Trichloroethylene	9.79	1.0	µg/L	10.0		97.9	70-130	1.54	20	
Trichlorofluoromethane (Freon 11)	8.67	2.0	µg/L	10.0		86.7	70-130	3.52	20	
1,2,3-Trichloropropane	11.4	2.0	µg/L	10.0		114	70-130	4.03	20	
1,2,4-Trimethylbenzene	9.46	1.0	µg/L	10.0		94.6	70-130	0.211	20	
1,3,5-Trimethylbenzene	11.1	1.0	µg/L	10.0		111	70-130	2.83	20	
Vinyl Chloride	17.3	2.0	µg/L	10.0		173 *	70-130	22.9 *	20	L-02, R-05, V-20
m+p Xylene	21.8	2.0	µg/L	20.0		109	70-130	0.912	20	
o-Xylene	11.1	1.0	µg/L	10.0		111	70-130	0.00	20	
Surrogate: 1,2-Dichloroethane-d4	21.7		µg/L	25.0		86.8	70-130			
Surrogate: Toluene-d8	24.4		µg/L	25.0		97.7	70-130			
Surrogate: 4-Bromofluorobenzene	25.3		µg/L	25.0		101	70-130			

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B246553 - SW-846 3510C

Blank (B246553-BLK1)

Prepared: 11/20/19 Analyzed: 11/22/19

Acenaphthene	ND	5.0	µg/L							
Acenaphthylene	ND	5.0	µg/L							
Acetophenone	ND	10	µg/L							
Aniline	ND	5.0	µg/L							
Anthracene	ND	5.0	µg/L							
Benzo(a)anthracene	ND	5.0	µg/L							
Benzo(a)pyrene	ND	5.0	µg/L							
Benzo(b)fluoranthene	ND	5.0	µg/L							
Benzo(g,h,i)perylene	ND	5.0	µg/L							
Benzo(k)fluoranthene	ND	5.0	µg/L							
Bis(2-chloroethoxy)methane	ND	10	µg/L							
Bis(2-chloroethyl)ether	ND	10	µg/L							
Bis(2-chloroisopropyl)ether	ND	10	µg/L							
Bis(2-Ethylhexyl)phthalate	ND	10	µg/L							
4-Bromophenylphenylether	ND	10	µg/L							
Butylbenzylphthalate	ND	10	µg/L							
4-Chloroaniline	ND	10	µg/L							
2-Chloronaphthalene	ND	10	µg/L							
2-Chlorophenol	ND	10	µg/L							
Chrysene	ND	5.0	µg/L							
Dibenz(a,h)anthracene	ND	5.0	µg/L							
Dibenzofuran	ND	5.0	µg/L							
Di-n-butylphthalate	ND	10	µg/L							
1,2-Dichlorobenzene	ND	5.0	µg/L							
1,3-Dichlorobenzene	ND	5.0	µg/L							
1,4-Dichlorobenzene	ND	5.0	µg/L							
3,3-Dichlorobenzidine	ND	10	µg/L							
2,4-Dichlorophenol	ND	10	µg/L							
Diethylphthalate	ND	10	µg/L							
2,4-Dimethylphenol	ND	10	µg/L							
Dimethylphthalate	ND	10	µg/L							
2,4-Dinitrophenol	ND	10	µg/L							
2,4-Dinitrotoluene	ND	10	µg/L							
2,6-Dinitrotoluene	ND	10	µg/L							
Di-n-octylphthalate	ND	10	µg/L							
1,2-Diphenylhydrazine/Azobenzene	ND	10	µg/L							V-20
Fluoranthene	ND	5.0	µg/L							
Fluorene	ND	5.0	µg/L							
Hexachlorobenzene	ND	10	µg/L							
Hexachlorobutadiene	ND	10	µg/L							
Hexachloroethane	ND	10	µg/L							
Indeno(1,2,3-cd)pyrene	ND	5.0	µg/L							
Isophorone	ND	10	µg/L							
2-Methylnaphthalene	ND	5.0	µg/L							
2-Methylphenol	ND	10	µg/L							
3/4-Methylphenol	ND	10	µg/L							
Naphthalene	ND	5.0	µg/L							
Nitrobenzene	ND	10	µg/L							
2-Nitrophenol	ND	10	µg/L							
4-Nitrophenol	ND	10	µg/L							V-20
Pentachlorophenol	ND	10	µg/L							
Phenanthrene	ND	5.0	µg/L							

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B246553 - SW-846 3510C										
Blank (B246553-BLK1)				Prepared: 11/20/19 Analyzed: 11/22/19						
Phenol	ND	10	µg/L							
Pyrene	ND	5.0	µg/L							
Pyridine	ND	5.0	µg/L							
1,2,4-Trichlorobenzene	ND	5.0	µg/L							
2,4,5-Trichlorophenol	ND	10	µg/L							
2,4,6-Trichlorophenol	ND	10	µg/L							
Surrogate: 2-Fluorophenol	71.5		µg/L	200		35.7	15-110			
Surrogate: Phenol-d6	51.5		µg/L	200		25.7	15-110			
Surrogate: Nitrobenzene-d5	58.6		µg/L	100		58.6	30-130			
Surrogate: 2-Fluorobiphenyl	59.1		µg/L	100		59.1	30-130			
Surrogate: 2,4,6-Tribromophenol	138		µg/L	200		69.0	15-110			
Surrogate: p-Terphenyl-d14	77.3		µg/L	100		77.3	30-130			
LCS (B246553-BS1)				Prepared: 11/20/19 Analyzed: 11/22/19						
Acenaphthene	26.6	5.0	µg/L	50.0		53.3	40-140			
Acenaphthylene	27.9	5.0	µg/L	50.0		55.7	40-140			
Acetophenone	26.9	10	µg/L	50.0		53.8	40-140			
Aniline	29.1	5.0	µg/L	50.0		58.2	40-140			
Anthracene	28.9	5.0	µg/L	50.0		57.8	40-140			
Benzo(a)anthracene	29.4	5.0	µg/L	50.0		58.7	40-140			
Benzo(a)pyrene	28.3	5.0	µg/L	50.0		56.6	40-140			
Benzo(b)fluoranthene	28.6	5.0	µg/L	50.0		57.3	40-140			
Benzo(g,h,i)perylene	28.8	5.0	µg/L	50.0		57.7	40-140			
Benzo(k)fluoranthene	29.0	5.0	µg/L	50.0		58.0	40-140			
Bis(2-chloroethoxy)methane	28.0	10	µg/L	50.0		56.1	40-140			
Bis(2-chloroethyl)ether	27.2	10	µg/L	50.0		54.5	40-140			
Bis(2-chloroisopropyl)ether	32.7	10	µg/L	50.0		65.4	40-140			
Bis(2-Ethylhexyl)phthalate	30.8	10	µg/L	50.0		61.5	40-140			
4-Bromophenylphenylether	25.4	10	µg/L	50.0		50.7	40-140			
Butylbenzylphthalate	31.6	10	µg/L	50.0		63.3	40-140			
4-Chloroaniline	33.0	10	µg/L	50.0		66.0	15-140			†
2-Chloronaphthalene	24.0	10	µg/L	50.0		47.9	40-140			
2-Chlorophenol	24.8	10	µg/L	50.0		49.7	30-130			
Chrysene	28.8	5.0	µg/L	50.0		57.6	40-140			
Dibenz(a,h)anthracene	27.3	5.0	µg/L	50.0		54.7	40-140			
Dibenzofuran	28.4	5.0	µg/L	50.0		56.8	40-140			
Di-n-butylphthalate	30.2	10	µg/L	50.0		60.3	40-140			
1,2-Dichlorobenzene	22.2	5.0	µg/L	50.0		44.4	40-140			
1,3-Dichlorobenzene	21.4	5.0	µg/L	50.0		42.9	40-140			
1,4-Dichlorobenzene	21.4	5.0	µg/L	50.0		42.8	40-140			
3,3-Dichlorobenzidine	39.4	10	µg/L	50.0		78.7	40-140			
2,4-Dichlorophenol	26.1	10	µg/L	50.0		52.2	30-130			
Diethylphthalate	30.6	10	µg/L	50.0		61.3	40-140			
2,4-Dimethylphenol	27.3	10	µg/L	50.0		54.6	30-130			
Dimethylphthalate	28.7	10	µg/L	50.0		57.5	40-140			
2,4-Dinitrophenol	24.1	10	µg/L	50.0		48.1	15-140			†
2,4-Dinitrotoluene	28.0	10	µg/L	50.0		56.1	40-140			
2,6-Dinitrotoluene	28.4	10	µg/L	50.0		56.9	40-140			
Di-n-octylphthalate	29.1	10	µg/L	50.0		58.2	40-140			
1,2-Diphenylhydrazine/Azobenzene	34.5	10	µg/L	50.0		69.0	40-140			V-06
Fluoranthene	29.4	5.0	µg/L	50.0		58.8	40-140			
Fluorene	28.0	5.0	µg/L	50.0		56.0	40-140			

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B246553 - SW-846 3510C										
LCS (B246553-BS1)										
Prepared: 11/20/19 Analyzed: 11/22/19										
Hexachlorobenzene	27.1	10	µg/L	50.0		54.1	40-140			
Hexachlorobutadiene	22.2	10	µg/L	50.0		44.5	40-140			
Hexachloroethane	23.0	10	µg/L	50.0		45.9	40-140			
Indeno(1,2,3-cd)pyrene	30.4	5.0	µg/L	50.0		60.8	40-140			
Isophorone	31.3	10	µg/L	50.0		62.6	40-140			
2-Methylnaphthalene	29.0	5.0	µg/L	50.0		58.0	40-140			
2-Methylphenol	23.4	10	µg/L	50.0		46.7	30-130			
3/4-Methylphenol	23.9	10	µg/L	50.0		47.8	30-130			
Naphthalene	25.3	5.0	µg/L	50.0		50.6	40-140			
Nitrobenzene	27.8	10	µg/L	50.0		55.7	40-140			
2-Nitrophenol	25.4	10	µg/L	50.0		50.9	30-130			
4-Nitrophenol	21.4	10	µg/L	50.0		42.9	15-140			V-06 †
Pentachlorophenol	18.3	10	µg/L	50.0		36.6	30-130			
Phenanthrene	29.1	5.0	µg/L	50.0		58.2	40-140			
Phenol	12.8	10	µg/L	50.0		25.6	15-140			†
Pyrene	29.8	5.0	µg/L	50.0		59.6	40-140			
Pyridine	13.2	5.0	µg/L	50.0		26.4	10-140			†
1,2,4-Trichlorobenzene	23.4	5.0	µg/L	50.0		46.7	40-140			
2,4,5-Trichlorophenol	27.9	10	µg/L	50.0		55.8	30-130			
2,4,6-Trichlorophenol	26.5	10	µg/L	50.0		53.1	30-130			
Surrogate: 2-Fluorophenol	74.2		µg/L	200		37.1	15-110			
Surrogate: Phenol-d6	54.3		µg/L	200		27.2	15-110			
Surrogate: Nitrobenzene-d5	61.7		µg/L	100		61.7	30-130			
Surrogate: 2-Fluorobiphenyl	57.5		µg/L	100		57.5	30-130			
Surrogate: 2,4,6-Tribromophenol	134		µg/L	200		66.9	15-110			
Surrogate: p-Terphenyl-d14	66.3		µg/L	100		66.3	30-130			
LCS Dup (B246553-BS1)										
Prepared: 11/20/19 Analyzed: 11/22/19										
Acenaphthene	27.4	5.0	µg/L	50.0		54.8	40-140	2.70	20	
Acenaphthylene	28.3	5.0	µg/L	50.0		56.5	40-140	1.46	20	
Acetophenone	26.8	10	µg/L	50.0		53.5	40-140	0.522	20	
Aniline	30.9	5.0	µg/L	50.0		61.8	40-140	6.00	20	
Anthracene	30.4	5.0	µg/L	50.0		60.8	40-140	5.09	20	
Benzo(a)anthracene	31.0	5.0	µg/L	50.0		62.0	40-140	5.46	20	
Benzo(a)pyrene	29.7	5.0	µg/L	50.0		59.4	40-140	4.69	20	
Benzo(b)fluoranthene	30.3	5.0	µg/L	50.0		60.5	40-140	5.50	20	
Benzo(g,h,i)perylene	29.6	5.0	µg/L	50.0		59.2	40-140	2.57	20	
Benzo(k)fluoranthene	30.4	5.0	µg/L	50.0		60.8	40-140	4.78	20	
Bis(2-chloroethoxy)methane	28.4	10	µg/L	50.0		56.7	40-140	1.06	20	
Bis(2-chloroethyl)ether	26.5	10	µg/L	50.0		53.1	40-140	2.64	20	
Bis(2-chloroisopropyl)ether	32.1	10	µg/L	50.0		64.3	40-140	1.76	20	
Bis(2-Ethylhexyl)phthalate	32.7	10	µg/L	50.0		65.5	40-140	6.21	20	
4-Bromophenylphenylether	27.0	10	µg/L	50.0		54.1	40-140	6.49	20	
Butylbenzylphthalate	33.4	10	µg/L	50.0		66.9	40-140	5.53	20	
4-Chloroaniline	36.4	10	µg/L	50.0		72.8	15-140	9.74	20	†
2-Chloronaphthalene	23.9	10	µg/L	50.0		47.8	40-140	0.167	20	
2-Chlorophenol	24.3	10	µg/L	50.0		48.5	30-130	2.32	20	
Chrysene	30.9	5.0	µg/L	50.0		61.8	40-140	7.07	20	
Dibenz(a,h)anthracene	27.9	5.0	µg/L	50.0		55.8	40-140	2.06	20	
Dibenzofuran	29.1	5.0	µg/L	50.0		58.2	40-140	2.37	20	
Di-n-butylphthalate	32.4	10	µg/L	50.0		64.8	40-140	7.19	20	
1,2-Dichlorobenzene	21.1	5.0	µg/L	50.0		42.1	40-140	5.36	20	

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B246553 - SW-846 3510C										
LCS Dup (B246553-BSD1)										
					Prepared: 11/20/19 Analyzed: 11/22/19					
1,3-Dichlorobenzene	20.2	5.0	µg/L	50.0		40.4	40-140	5.95	20	
1,4-Dichlorobenzene	20.5	5.0	µg/L	50.0		41.1	40-140	4.15	20	
3,3-Dichlorobenzidine	40.9	10	µg/L	50.0		81.9	40-140	3.91	20	
2,4-Dichlorophenol	27.2	10	µg/L	50.0		54.3	30-130	4.02	20	
Diethylphthalate	32.2	10	µg/L	50.0		64.4	40-140	5.00	20	
2,4-Dimethylphenol	27.8	10	µg/L	50.0		55.7	30-130	1.89	20	
Dimethylphthalate	29.9	10	µg/L	50.0		59.8	40-140	3.99	20	
2,4-Dinitrophenol	25.4	10	µg/L	50.0		50.8	15-140	5.38	20	†
2,4-Dinitrotoluene	29.5	10	µg/L	50.0		59.0	40-140	5.04	20	
2,6-Dinitrotoluene	29.6	10	µg/L	50.0		59.3	40-140	4.17	20	
Di-n-octylphthalate	31.0	10	µg/L	50.0		62.1	40-140	6.35	20	
1,2-Diphenylhydrazine/Azobenzene	36.2	10	µg/L	50.0		72.4	40-140	4.75	20	V-06
Fluoranthene	30.4	5.0	µg/L	50.0		60.8	40-140	3.28	20	
Fluorene	29.4	5.0	µg/L	50.0		58.7	40-140	4.85	20	
Hexachlorobenzene	28.5	10	µg/L	50.0		57.0	40-140	5.25	20	
Hexachlorobutadiene	21.9	10	µg/L	50.0		43.7	40-140	1.68	20	
Hexachloroethane	21.9	10	µg/L	50.0		43.8	40-140	4.77	20	
Indeno(1,2,3-cd)pyrene	30.9	5.0	µg/L	50.0		61.8	40-140	1.57	20	
Isophorone	31.5	10	µg/L	50.0		63.0	40-140	0.605	20	
2-Methylnaphthalene	29.4	5.0	µg/L	50.0		58.7	40-140	1.23	20	
2-Methylphenol	23.0	10	µg/L	50.0		46.1	30-130	1.34	20	
3/4-Methylphenol	23.6	10	µg/L	50.0		47.3	30-130	1.09	20	
Naphthalene	25.0	5.0	µg/L	50.0		50.0	40-140	1.11	20	
Nitrobenzene	27.3	10	µg/L	50.0		54.6	40-140	2.03	20	
2-Nitrophenol	25.6	10	µg/L	50.0		51.3	30-130	0.705	20	
4-Nitrophenol	20.5	10	µg/L	50.0		41.0	15-140	4.44	20	V-06 †
Pentachlorophenol	20.0	10	µg/L	50.0		40.0	30-130	8.87	20	
Phenanthrene	30.3	5.0	µg/L	50.0		60.7	40-140	4.14	20	
Phenol	12.7	10	µg/L	50.0		25.3	15-140	1.10	20	†
Pyrene	31.3	5.0	µg/L	50.0		62.6	40-140	4.91	20	
Pyridine	13.2	5.0	µg/L	50.0		26.4	10-140	0.0758	50	† ‡
1,2,4-Trichlorobenzene	23.5	5.0	µg/L	50.0		47.0	40-140	0.470	20	
2,4,5-Trichlorophenol	28.4	10	µg/L	50.0		56.8	30-130	1.67	20	
2,4,6-Trichlorophenol	27.4	10	µg/L	50.0		54.8	30-130	3.15	20	
Surrogate: 2-Fluorophenol	69.5		µg/L	200		34.8	15-110			
Surrogate: Phenol-d6	52.6		µg/L	200		26.3	15-110			
Surrogate: Nitrobenzene-d5	59.9		µg/L	100		59.9	30-130			
Surrogate: 2-Fluorobiphenyl	57.8		µg/L	100		57.8	30-130			
Surrogate: 2,4,6-Tribromophenol	143		µg/L	200		71.4	15-110			
Surrogate: p-Terphenyl-d14	69.5		µg/L	100		69.5	30-130			

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QUALITY CONTROL
Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B246371 - SW-846 3510C
Blank (B246371-BLK1)

Prepared: 11/19/19 Analyzed: 11/20/19

Aroclor-1016	ND	0.020	µg/L							
Aroclor-1016 [2C]	ND	0.020	µg/L							
Aroclor-1221	ND	0.020	µg/L							
Aroclor-1221 [2C]	ND	0.020	µg/L							
Aroclor-1232	ND	0.020	µg/L							
Aroclor-1232 [2C]	ND	0.020	µg/L							
Aroclor-1242	ND	0.020	µg/L							
Aroclor-1242 [2C]	ND	0.020	µg/L							
Aroclor-1248	ND	0.020	µg/L							
Aroclor-1248 [2C]	ND	0.020	µg/L							
Aroclor-1254	ND	0.020	µg/L							
Aroclor-1254 [2C]	ND	0.020	µg/L							
Aroclor-1260	ND	0.020	µg/L							
Aroclor-1260 [2C]	ND	0.020	µg/L							
Aroclor-1262	ND	0.020	µg/L							
Aroclor-1262 [2C]	ND	0.020	µg/L							
Aroclor-1268	ND	0.020	µg/L							
Aroclor-1268 [2C]	ND	0.020	µg/L							
Surrogate: Decachlorobiphenyl	0.131		µg/L	0.200		65.7	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.133		µg/L	0.200		66.6	30-150			
Surrogate: Tetrachloro-m-xylene	0.123		µg/L	0.200		61.3	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.142		µg/L	0.200		70.8	30-150			

LCS (B246371-BS1)

Prepared: 11/19/19 Analyzed: 11/20/19

Aroclor-1016	0.34	0.20	µg/L	0.500		67.1	40-140			
Aroclor-1016 [2C]	0.35	0.20	µg/L	0.500		70.4	40-140			
Aroclor-1260	0.27	0.20	µg/L	0.500		54.4	40-140			
Aroclor-1260 [2C]	0.28	0.20	µg/L	0.500		55.1	40-140			
Surrogate: Decachlorobiphenyl	1.21		µg/L	2.00		60.4	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.22		µg/L	2.00		60.8	30-150			
Surrogate: Tetrachloro-m-xylene	1.08		µg/L	2.00		54.0	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.23		µg/L	2.00		61.5	30-150			

LCS Dup (B246371-BSD1)

Prepared: 11/19/19 Analyzed: 11/20/19

Aroclor-1016	0.31	0.20	µg/L	0.500		62.8	40-140	6.70	20	
Aroclor-1016 [2C]	0.31	0.20	µg/L	0.500		61.6	40-140	13.3	20	
Aroclor-1260	0.25	0.20	µg/L	0.500		50.6	40-140	7.33	20	
Aroclor-1260 [2C]	0.25	0.20	µg/L	0.500		50.0	40-140	9.66	20	
Surrogate: Decachlorobiphenyl	1.09		µg/L	2.00		54.4	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.10		µg/L	2.00		54.8	30-150			
Surrogate: Tetrachloro-m-xylene	1.10		µg/L	2.00		55.1	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.22		µg/L	2.00		60.9	30-150			

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QUALITY CONTROL
Petroleum Hydrocarbons Analyses - EPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B246727 - SW-846 3510C
Blank (B246727-BLK1)

Prepared: 11/22/19 Analyzed: 11/24/19

C9-C18 Aliphatics	ND	100	µg/L							
C19-C36 Aliphatics	ND	100	µg/L							
Unadjusted C11-C22 Aromatics	ND	100	µg/L							
C11-C22 Aromatics	ND	100	µg/L							
Acenaphthene	ND	2.0	µg/L							
Acenaphthylene	ND	2.0	µg/L							
Anthracene	ND	2.0	µg/L							
Benzo(a)anthracene	ND	2.0	µg/L							
Benzo(a)pyrene	ND	2.0	µg/L							
Benzo(b)fluoranthene	ND	2.0	µg/L							
Benzo(g,h,i)perylene	ND	2.0	µg/L							
Benzo(k)fluoranthene	ND	2.0	µg/L							
Chrysene	ND	2.0	µg/L							
Dibenz(a,h)anthracene	ND	2.0	µg/L							
Fluoranthene	ND	2.0	µg/L							
Fluorene	ND	2.0	µg/L							
Indeno(1,2,3-cd)pyrene	ND	2.0	µg/L							
2-Methylnaphthalene	ND	2.0	µg/L							
Naphthalene	ND	2.0	µg/L							
Phenanthrene	ND	2.0	µg/L							
Pyrene	ND	2.0	µg/L							
n-Decane	ND	10	µg/L							
n-Docosane	ND	10	µg/L							
n-Dodecane	ND	10	µg/L							
n-Eicosane	ND	10	µg/L							
n-Hexacosane	ND	10	µg/L							
n-Hexadecane	ND	10	µg/L							
n-Hexatriacontane	ND	10	µg/L							
n-Nonadecane	ND	10	µg/L							
n-Nonane	ND	10	µg/L							
n-Octacosane	ND	10	µg/L							
n-Octadecane	ND	10	µg/L							
n-Tetracosane	ND	10	µg/L							
n-Tetradecane	ND	10	µg/L							
n-Triacontane	ND	10	µg/L							
Naphthalene-aliphatic fraction	ND	2.0	µg/L							
2-Methylnaphthalene-aliphatic fraction	ND	2.0	µg/L							
Surrogate: Chlorooctadecane (COD)	71.3		µg/L	100		71.3	40-140			
Surrogate: o-Terphenyl (OTP)	69.3		µg/L	100		69.3	40-140			
Surrogate: 2-Bromonaphthalene	83.7		µg/L	100		83.7	40-140			
Surrogate: 2-Fluorobiphenyl	86.5		µg/L	100		86.5	40-140			

LCS (B246727-BS1)

Prepared: 11/22/19 Analyzed: 11/24/19

C9-C18 Aliphatics	375	100	µg/L	600		62.5	0-200			
C19-C36 Aliphatics	697	100	µg/L	800		87.1	0-200			
Unadjusted C11-C22 Aromatics	1250	100	µg/L	1700		73.5	0-200			
Acenaphthene	57.5	2.0	µg/L	100		57.5	40-140			
Acenaphthylene	53.3	2.0	µg/L	100		53.3	40-140			
Anthracene	69.0	2.0	µg/L	100		69.0	40-140			
Benzo(a)anthracene	75.1	2.0	µg/L	100		75.1	40-140			
Benzo(a)pyrene	71.6	2.0	µg/L	100		71.6	40-140			
Benzo(b)fluoranthene	74.1	2.0	µg/L	100		74.1	40-140			

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QUALITY CONTROL
Petroleum Hydrocarbons Analyses - EPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B246727 - SW-846 3510C
LCS (B246727-BS1)

Prepared: 11/22/19 Analyzed: 11/24/19

Benzo(g,h,i)perylene	72.7	2.0	µg/L	100		72.7	40-140			
Benzo(k)fluoranthene	74.0	2.0	µg/L	100		74.0	40-140			
Chrysene	77.5	2.0	µg/L	100		77.5	40-140			
Dibenz(a,h)anthracene	75.0	2.0	µg/L	100		75.0	40-140			
Fluoranthene	73.8	2.0	µg/L	100		73.8	40-140			
Fluorene	61.3	2.0	µg/L	100		61.3	40-140			
Indeno(1,2,3-cd)pyrene	71.1	2.0	µg/L	100		71.1	40-140			
2-Methylnaphthalene	51.8	2.0	µg/L	100		51.8	40-140			
Naphthalene	49.2	2.0	µg/L	100		49.2	40-140			
Phenanthrene	69.3	2.0	µg/L	100		69.3	40-140			
Pyrene	75.5	2.0	µg/L	100		75.5	40-140			
n-Decane	41.8	10	µg/L	100		41.8	40-140			
n-Docosane	77.9	10	µg/L	100		77.9	40-140			
n-Dodecane	50.3	10	µg/L	100		50.3	40-140			
n-Eicosane	74.9	10	µg/L	100		74.9	40-140			
n-Hexacosane	80.0	10	µg/L	100		80.0	40-140			
n-Hexadecane	67.4	10	µg/L	100		67.4	40-140			
n-Hexatriacontane	85.7	10	µg/L	100		85.7	40-140			
n-Nonadecane	75.5	10	µg/L	100		75.5	40-140			
n-Nonane	31.4	10	µg/L	100		31.4	30-140			
n-Octacosane	79.0	10	µg/L	100		79.0	40-140			
n-Octadecane	75.0	10	µg/L	100		75.0	40-140			
n-Tetracosane	78.9	10	µg/L	100		78.9	40-140			
n-Tetradecane	59.6	10	µg/L	100		59.6	40-140			
n-Triacontane	80.8	10	µg/L	100		80.8	40-140			
Naphthalene-aliphatic fraction	ND	2.0	µg/L	100			0-5			
2-Methylnaphthalene-aliphatic fraction	ND	2.0	µg/L	100			0-5			
Surrogate: Chlorooctadecane (COD)	69.6		µg/L	100		69.6	40-140			
Surrogate: o-Terphenyl (OTP)	71.0		µg/L	100		71.0	40-140			
Surrogate: 2-Bromonaphthalene	86.3		µg/L	100		86.3	40-140			
Surrogate: 2-Fluorobiphenyl	92.2		µg/L	100		92.2	40-140			

LCS Dup (B246727-BS1)

Prepared: 11/22/19 Analyzed: 11/24/19

C9-C18 Aliphatics	387	100	µg/L	600		64.5	0-200	3.25		
C19-C36 Aliphatics	762	100	µg/L	800		95.2	0-200	8.90		
Unadjusted C11-C22 Aromatics	1180	100	µg/L	1700		69.4	0-200	5.73		
Acenaphthene	53.3	2.0	µg/L	100		53.3	40-140	7.65	25	
Acenaphthylene	49.3	2.0	µg/L	100		49.3	40-140	7.75	25	
Anthracene	66.5	2.0	µg/L	100		66.5	40-140	3.77	25	
Benzo(a)anthracene	72.9	2.0	µg/L	100		72.9	40-140	3.05	25	
Benzo(a)pyrene	69.4	2.0	µg/L	100		69.4	40-140	3.19	25	
Benzo(b)fluoranthene	71.1	2.0	µg/L	100		71.1	40-140	4.05	25	
Benzo(g,h,i)perylene	70.2	2.0	µg/L	100		70.2	40-140	3.59	25	
Benzo(k)fluoranthene	72.4	2.0	µg/L	100		72.4	40-140	2.28	25	
Chrysene	75.8	2.0	µg/L	100		75.8	40-140	2.20	25	
Dibenz(a,h)anthracene	72.8	2.0	µg/L	100		72.8	40-140	2.95	25	
Fluoranthene	70.9	2.0	µg/L	100		70.9	40-140	4.04	25	
Fluorene	57.3	2.0	µg/L	100		57.3	40-140	6.72	25	
Indeno(1,2,3-cd)pyrene	68.5	2.0	µg/L	100		68.5	40-140	3.78	25	
2-Methylnaphthalene	47.8	2.0	µg/L	100		47.8	40-140	8.09	25	
Naphthalene	45.2	2.0	µg/L	100		45.2	40-140	8.35	25	
Phenanthrene	66.2	2.0	µg/L	100		66.2	40-140	4.51	25	

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QUALITY CONTROL
Petroleum Hydrocarbons Analyses - EPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B246727 - SW-846 3510C										
LCS Dup (B246727-BSD1)					Prepared: 11/22/19 Analyzed: 11/24/19					
Pyrene	72.5	2.0	µg/L	100		72.5	40-140	4.09	25	
n-Decane	40.7	10	µg/L	100		40.7	40-140	2.67	25	
n-Docosane	84.9	10	µg/L	100		84.9	40-140	8.59	25	
n-Dodecane	49.2	10	µg/L	100		49.2	40-140	2.21	25	
n-Eicosane	82.0	10	µg/L	100		82.0	40-140	9.04	25	
n-Hexacosane	86.3	10	µg/L	100		86.3	40-140	7.53	25	
n-Hexadecane	70.7	10	µg/L	100		70.7	40-140	4.75	25	
n-Hexatriacontane	85.8	10	µg/L	100		85.8	40-140	0.173	25	
n-Nonadecane	82.1	10	µg/L	100		82.1	40-140	8.34	25	
n-Nonane	30.6	10	µg/L	100		30.6	30-140	2.77	25	
n-Octacosane	84.2	10	µg/L	100		84.2	40-140	6.38	25	
n-Octadecane	81.1	10	µg/L	100		81.1	40-140	7.85	25	
n-Tetracosane	85.9	10	µg/L	100		85.9	40-140	8.40	25	
n-Tetradecane	59.6	10	µg/L	100		59.6	40-140	0.104	25	
n-Triacontane	85.0	10	µg/L	100		85.0	40-140	5.07	25	
Naphthalene-aliphatic fraction	ND	2.0	µg/L	100			0-5			
2-Methylnaphthalene-aliphatic fraction	ND	2.0	µg/L	100			0-5			
Surrogate: Chlorooctadecane (COD)	70.3		µg/L	100		70.3	40-140			
Surrogate: o-Terphenyl (OTP)	67.1		µg/L	100		67.1	40-140			
Surrogate: 2-Bromonaphthalene	95.1		µg/L	100		95.1	40-140			
Surrogate: 2-Fluorobiphenyl	99.5		µg/L	100		99.5	40-140			

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QUALITY CONTROL
Petroleum Hydrocarbons Analyses - VPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B246665 - MA VPH
Blank (B246665-BLK1)

Prepared & Analyzed: 11/21/19

Unadjusted C5-C8 Aliphatics	ND	100	µg/L							
C5-C8 Aliphatics	ND	100	µg/L							
Unadjusted C9-C12 Aliphatics	ND	100	µg/L							
C9-C12 Aliphatics	ND	100	µg/L							
C9-C10 Aromatics	ND	100	µg/L							
Benzene	ND	1.0	µg/L							
Butylcyclohexane	ND	1.0	µg/L							
Decane	ND	1.0	µg/L							
Ethylbenzene	ND	1.0	µg/L							
Methyl tert-Butyl Ether (MTBE)	ND	1.0	µg/L							
2-Methylpentane	ND	1.0	µg/L							
Naphthalene	ND	5.0	µg/L							
Nonane	ND	1.0	µg/L							
Pentane	ND	1.0	µg/L							
Toluene	ND	1.0	µg/L							
1,2,4-Trimethylbenzene	ND	1.0	µg/L							
2,2,4-Trimethylpentane	ND	1.0	µg/L							
m+p Xylene	ND	2.0	µg/L							
o-Xylene	ND	1.0	µg/L							
Surrogate: 2,5-Dibromotoluene (FID)	35.1		µg/L	40.0		87.8	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	36.7		µg/L	40.0		91.6	70-130			

LCS (B246665-BS1)

Prepared & Analyzed: 11/21/19

Benzene	56.9	1.0	µg/L	50.0		114	70-130			
Butylcyclohexane	60.9	1.0	µg/L	50.0		122	70-130			
Decane	48.8	1.0	µg/L	50.0		97.7	70-130			
Ethylbenzene	57.9	1.0	µg/L	50.0		116	70-130			
Methyl tert-Butyl Ether (MTBE)	54.8	1.0	µg/L	50.0		110	70-130			
2-Methylpentane	52.5	1.0	µg/L	50.0		105	70-130			
Naphthalene	48.7	5.0	µg/L	50.0		97.5	70-130			
Nonane	58.6	1.0	µg/L	50.0		117	30-130			
Pentane	50.9	1.0	µg/L	50.0		102	70-130			
Toluene	57.0	1.0	µg/L	50.0		114	70-130			
1,2,4-Trimethylbenzene	57.2	1.0	µg/L	50.0		114	70-130			
2,2,4-Trimethylpentane	51.8	1.0	µg/L	50.0		104	70-130			
m+p Xylene	117	2.0	µg/L	100		117	70-130			
o-Xylene	58.3	1.0	µg/L	50.0		117	70-130			
Surrogate: 2,5-Dibromotoluene (FID)	40.7		µg/L	40.0		102	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	39.6		µg/L	40.0		99.0	70-130			

LCS Dup (B246665-BS1)

Prepared & Analyzed: 11/21/19

Benzene	52.5	1.0	µg/L	50.0		105	70-130	8.02	25	
Butylcyclohexane	57.3	1.0	µg/L	50.0		115	70-130	5.97	25	
Decane	44.7	1.0	µg/L	50.0		89.4	70-130	8.84	25	
Ethylbenzene	53.0	1.0	µg/L	50.0		106	70-130	8.86	25	
Methyl tert-Butyl Ether (MTBE)	51.9	1.0	µg/L	50.0		104	70-130	5.28	25	
2-Methylpentane	47.3	1.0	µg/L	50.0		94.7	70-130	10.3	25	
Naphthalene	47.2	5.0	µg/L	50.0		94.3	70-130	3.32	25	
Nonane	55.5	1.0	µg/L	50.0		111	30-130	5.34	25	
Pentane	47.5	1.0	µg/L	50.0		95.0	70-130	6.94	25	
Toluene	52.4	1.0	µg/L	50.0		105	70-130	8.36	25	
1,2,4-Trimethylbenzene	52.8	1.0	µg/L	50.0		106	70-130	7.84	25	

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QUALITY CONTROL
Petroleum Hydrocarbons Analyses - VPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B246665 - MA VPH
LCS Dup (B246665-BSD1)

Prepared & Analyzed: 11/21/19

2,2,4-Trimethylpentane	46.5	1.0	µg/L	50.0		93.1	70-130	10.6	25	
m+p Xylene	107	2.0	µg/L	100		107	70-130	8.81	25	
o-Xylene	53.8	1.0	µg/L	50.0		108	70-130	8.05	25	
Surrogate: 2,5-Dibromotoluene (FID)	39.6		µg/L	40.0		99.0	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	38.2		µg/L	40.0		95.5	70-130			

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QUALITY CONTROL
Metals Analyses (Dissolved) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B246549 - SW-846 3005A Dissolved
Blank (B246549-BLK1)

Prepared & Analyzed: 11/20/19

Antimony	ND	1.0	µg/L
Arsenic	ND	0.80	µg/L
Barium	ND	10	µg/L
Beryllium	ND	0.40	µg/L
Cadmium	ND	0.20	µg/L
Chromium	ND	1.0	µg/L
Lead	ND	0.50	µg/L
Nickel	ND	5.0	µg/L
Selenium	ND	5.0	µg/L
Silver	ND	0.20	µg/L
Thallium	ND	0.20	µg/L
Vanadium	ND	5.0	µg/L
Zinc	ND	10	µg/L

LCS (B246549-BS1)

Prepared & Analyzed: 11/20/19

Antimony	507	10	µg/L	500	101	80-120
Arsenic	515	8.0	µg/L	500	103	80-120
Barium	511	100	µg/L	500	102	80-120
Beryllium	487	4.0	µg/L	500	97.3	80-120
Cadmium	512	2.0	µg/L	500	102	80-120
Chromium	496	10	µg/L	500	99.2	80-120
Lead	518	5.0	µg/L	500	104	80-120
Nickel	487	50	µg/L	500	97.4	80-120
Selenium	521	50	µg/L	500	104	80-120
Silver	515	2.0	µg/L	500	103	80-120
Thallium	494	2.0	µg/L	500	98.8	80-120
Vanadium	530	50	µg/L	500	106	80-120
Zinc	1040	100	µg/L	1000	104	80-120

LCS Dup (B246549-BSD1)

Prepared & Analyzed: 11/20/19

Antimony	514	10	µg/L	500	103	80-120	1.33	20
Arsenic	518	8.0	µg/L	500	104	80-120	0.623	20
Barium	509	100	µg/L	500	102	80-120	0.363	20
Beryllium	481	4.0	µg/L	500	96.3	80-120	1.10	20
Cadmium	516	2.0	µg/L	500	103	80-120	0.800	20
Chromium	486	10	µg/L	500	97.2	80-120	2.05	20
Lead	519	5.0	µg/L	500	104	80-120	0.158	20
Nickel	482	50	µg/L	500	96.3	80-120	1.14	20
Selenium	519	50	µg/L	500	104	80-120	0.352	20
Silver	514	2.0	µg/L	500	103	80-120	0.248	20
Thallium	500	2.0	µg/L	500	100	80-120	1.13	20
Vanadium	514	50	µg/L	500	103	80-120	2.91	20
Zinc	1050	100	µg/L	1000	105	80-120	1.15	20

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QUALITY CONTROL
Metals Analyses (Dissolved) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B246658 - SW-846 7470A Dissolved										
Blank (B246658-BLK1)				Prepared & Analyzed: 11/21/19						
Mercury	ND	0.00010	mg/L							
LCS (B246658-BS1)				Prepared & Analyzed: 11/21/19						
Mercury	0.00437	0.00010	mg/L	0.00400		109	80-120			
LCS Dup (B246658-BSD1)				Prepared & Analyzed: 11/21/19						
Mercury	0.00436	0.00010	mg/L	0.00400		109	80-120	0.0548	20	
Duplicate (B246658-DUP1)				Source: 19K1082-01		Prepared & Analyzed: 11/21/19				
Mercury	ND	0.00010	mg/L		ND			NC	20	
Matrix Spike (B246658-MS1)				Source: 19K1082-01		Prepared & Analyzed: 11/21/19				
Mercury	0.00415	0.00010	mg/L	0.00400	ND	104	75-125			

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
DL-15	Sample required a dilution due to low internal standard recovery of the lesser diluted digestion, reporting limit is elevated.
L-02	Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.
L-04	Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.
L-14	Compound classified by MA CAM as difficult with acceptable recoveries of 40-160%. Recovery does not meet 70-130% criteria but does meet difficult compound criteria.
R-05	Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.
RL-14	Elevated reporting limit due to foaming sample matrix. MA CAM reporting limit not met.
V-05	Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.
V-06	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.
V-16	Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.
V-20	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>MADEP-EPH-04-1.1 in Water</i>	
C9-C18 Aliphatics	CT,NC,ME,NH-P
C19-C36 Aliphatics	CT,NC,ME,NH-P
Unadjusted C11-C22 Aromatics	CT,NC,ME,NH-P
C11-C22 Aromatics	CT,NC,ME,NH-P
Acenaphthene	CT,NC,ME,NH-P
Acenaphthylene	CT,NC,ME,NH-P
Anthracene	CT,NC,ME,NH-P
Benzo(a)anthracene	CT,NC,ME,NH-P
Benzo(a)pyrene	CT,NC,ME,NH-P
Benzo(b)fluoranthene	CT,NC,ME,NH-P
Benzo(g,h,i)perylene	CT,NC,ME,NH-P
Benzo(k)fluoranthene	CT,NC,ME,NH-P
Chrysene	CT,NC,ME,NH-P
Dibenz(a,h)anthracene	CT,NC,ME,NH-P
Fluoranthene	CT,NC,ME,NH-P
Fluorene	CT,NC,ME
Indeno(1,2,3-cd)pyrene	CT,NC,ME,NH-P
2-Methylnaphthalene	CT,NC
Naphthalene	CT,NC,ME,NH-P
Phenanthrene	CT,NC,ME,NH-P
Pyrene	CT,NC,ME,NH-P
<i>MADEP-VPH-Feb 2018 Rev 2.1 in Water</i>	
Unadjusted C5-C8 Aliphatics	CT,NC,ME,NH-P
C5-C8 Aliphatics	CT,NC,ME,NH-P
Unadjusted C9-C12 Aliphatics	CT,NC,ME,NH-P
C9-C12 Aliphatics	CT,NC,ME,NH-P
C9-C10 Aromatics	CT,NC,ME,NH-P
Benzene	CT,NC,ME,NH-P
Ethylbenzene	CT,NC,ME,NH-P
Methyl tert-Butyl Ether (MTBE)	CT,NC,ME,NH-P
Naphthalene	CT,NC,ME,NH-P
Toluene	CT,NC,ME,NH-P
m+p Xylene	CT,NC,ME,NH-P
o-Xylene	CT,NC,ME,NH-P
<i>SW-846 6020B in Water</i>	
Antimony	CT,NH,NY,ME,VA,NC
Arsenic	CT,NH,NY,NC,ME,VA
Barium	MA,NY,CT,NC,NH,ME,VA
Beryllium	CT,NH,NY,NC,ME,VA
Cadmium	CT,NH,NY,NC,ME,VA
Chromium	CT,NH,NY,NC,ME,VA
Lead	CT,NH,NY,NC,ME,VA
Nickel	CT,NH,NY,NC,ME,VA
Selenium	CT,NH,NY,NC,ME,VA
Silver	CT,NC,NH,NY,ME,VA
Thallium	CT,NH,NY,NC,ME,VA

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 6020B in Water</i>	
Vanadium	CT,NH,NY,NC,ME,VA
Zinc	CT,NH,NY,NC,ME,VA
<i>SW-846 7470A in Water</i>	
Mercury	CT,NH,NY,NC,ME,VA
<i>SW-846 8082A in Water</i>	
Aroclor-1016	CT,NH,NY,NC,ME,VA,PA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1221	CT,NH,NY,NC,ME,VA,PA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1232	CT,NH,NY,NC,ME,VA,PA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1242	CT,NH,NY,NC,ME,VA,PA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1248	CT,NH,NY,NC,ME,VA,PA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1254	CT,NH,NY,NC,ME,VA,PA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1260	CT,NH,NY,NC,ME,VA,PA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1262	NH,NY,NC,ME,VA,PA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA,PA
Aroclor-1268	NH,NY,NC,ME,VA,PA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA,PA
<i>SW-846 8260C-D in Water</i>	
Acetone	CT,NH,NY,ME
tert-Amyl Methyl Ether (TAME)	NH,NY,ME
Benzene	CT,NH,NY,ME
Bromobenzene	ME
Bromochloromethane	NH,NY,ME
Bromodichloromethane	CT,NH,NY,ME
Bromoform	CT,NH,NY,ME
Bromomethane	CT,NH,NY,ME
2-Butanone (MEK)	CT,NH,NY,ME
n-Butylbenzene	NY,ME
sec-Butylbenzene	NY,ME
tert-Butylbenzene	NY,ME
tert-Butyl Ethyl Ether (TBEE)	NH,NY,ME
Carbon Disulfide	CT,NH,NY,ME
Carbon Tetrachloride	CT,NH,NY,ME
Chlorobenzene	CT,NH,NY,ME
Chlorodibromomethane	CT,NH,NY,ME
Chloroethane	CT,NH,NY,ME
Chloroform	CT,NH,NY,ME
Chloromethane	CT,NH,NY,ME
2-Chlorotoluene	NY,ME
4-Chlorotoluene	NY,ME

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8260C-D in Water</i>	
1,2-Dibromo-3-chloropropane (DBCP)	NY
1,2-Dibromoethane (EDB)	NY
Dibromomethane	NH,NY,ME
1,2-Dichlorobenzene	CT,NY,ME
1,3-Dichlorobenzene	CT,NH,NY,ME
1,4-Dichlorobenzene	CT,NH,NY,ME
Dichlorodifluoromethane (Freon 12)	NH,NY,ME
1,1-Dichloroethane	CT,NH,NY,ME
1,2-Dichloroethane	CT,NH,NY,ME
1,1-Dichloroethylene	CT,NH,NY,ME
cis-1,2-Dichloroethylene	NY,ME
trans-1,2-Dichloroethylene	CT,NH,NY,ME
1,2-Dichloropropane	CT,NH,NY,ME
1,3-Dichloropropane	NY,ME
2,2-Dichloropropane	NH,NY,ME
1,1-Dichloropropene	NH,NY,ME
cis-1,3-Dichloropropene	CT,NH,NY,ME
trans-1,3-Dichloropropene	CT,NH,NY,ME
Diisopropyl Ether (DIPE)	NH,NY,ME
Ethylbenzene	CT,NH,NY,ME
Hexachlorobutadiene	CT,NH,NY,ME
2-Hexanone (MBK)	CT,NH,NY,ME
Isopropylbenzene (Cumene)	NY,ME
p-Isopropyltoluene (p-Cymene)	CT,NH,NY,ME
Methyl tert-Butyl Ether (MTBE)	CT,NH,NY,ME
Methylene Chloride	CT,NH,NY,ME
4-Methyl-2-pentanone (MIBK)	CT,NH,NY,ME
Naphthalene	NH,NY,ME
n-Propylbenzene	CT,NH,NY,ME
Styrene	CT,NH,NY,ME
1,1,1,2-Tetrachloroethane	CT,NH,NY,ME
1,1,2,2-Tetrachloroethane	CT,NH,NY,ME
Tetrachloroethylene	CT,NH,NY,ME
Toluene	CT,NH,NY,ME
1,2,3-Trichlorobenzene	NH,NY,ME
1,2,4-Trichlorobenzene	CT,NH,NY,ME
1,1,1-Trichloroethane	CT,NH,NY,ME
1,1,2-Trichloroethane	CT,NH,NY,ME
Trichloroethylene	CT,NH,NY,ME
Trichlorofluoromethane (Freon 11)	CT,NH,NY,ME
1,2,3-Trichloropropane	NH,NY,ME
1,2,4-Trimethylbenzene	NY,ME
1,3,5-Trimethylbenzene	NY,ME
Vinyl Chloride	CT,NH,NY,ME
m+p Xylene	CT,NH,NY,ME
o-Xylene	CT,NH,NY,ME

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8270D-E in Water</i>	
Acenaphthene	CT,NY,NH
Acenaphthylene	CT,NY,NH
Acetophenone	NY
Aniline	CT,NY
Anthracene	CT,NY,NH
Benzo(a)anthracene	CT,NY,NH
Benzo(a)pyrene	CT,NY,NH
Benzo(b)fluoranthene	CT,NY,NH
Benzo(g,h,i)perylene	CT,NY,NH
Benzo(k)fluoranthene	CT,NY,NH
Bis(2-chloroethoxy)methane	CT,NY,NH
Bis(2-chloroethyl)ether	CT,NY,NH
Bis(2-chloroisopropyl)ether	CT,NY,NH
Bis(2-Ethylhexyl)phthalate	CT,NY,NH
4-Bromophenylphenylether	CT,NY,NH
Butylbenzylphthalate	CT,NY,NH
4-Chloroaniline	CT,NY,NH
2-Chloronaphthalene	CT,NY,NH
2-Chlorophenol	CT,NY,NH
Chrysene	CT,NY,NH
Dibenz(a,h)anthracene	CT,NY,NH
Dibenzofuran	CT,NY,NH
Di-n-butylphthalate	CT,NY,NH
1,2-Dichlorobenzene	CT,NY,NH
1,3-Dichlorobenzene	CT,NY,NH
1,4-Dichlorobenzene	CT,NY,NH
3,3-Dichlorobenzidine	CT,NY,NH
2,4-Dichlorophenol	CT,NY,NH
Diethylphthalate	CT,NY,NH
2,4-Dimethylphenol	CT,NY,NH
Dimethylphthalate	CT,NY,NH
2,4-Dinitrophenol	CT,NY,NH
2,4-Dinitrotoluene	CT,NY,NH
2,6-Dinitrotoluene	CT,NY,NH
Di-n-octylphthalate	CT,NY,NH
1,2-Diphenylhydrazine/Azobenzene	NY
Fluoranthene	CT,NY,NH
Fluorene	NY,NH
Hexachlorobenzene	CT,NY,NH
Hexachlorobutadiene	CT,NY,NH
Hexachloroethane	CT,NY,NH
Indeno(1,2,3-cd)pyrene	CT,NY,NH
Isophorone	CT,NY,NH
2-Methylnaphthalene	CT,NY,NH
2-Methylphenol	CT,NY,NH
3/4-Methylphenol	CT,NY,NH
Naphthalene	CT,NY,NH

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8270D-E in Water</i>	
Nitrobenzene	CT,NY,NH
2-Nitrophenol	CT,NY,NH
4-Nitrophenol	CT,NY,NH
Pentachlorophenol	CT,NY,NH
Phenanthrene	CT,NY,NH
Phenol	CT,NY,NH
Pyrene	CT,NY,NH
1,2,4-Trichlorobenzene	CT,NY,NH
2,4,5-Trichlorophenol	CT,NY,NH
2,4,6-Trichlorophenol	CT,NY,NH

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2022
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Public Health	PH-0567	09/30/2021
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2020
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2020
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

I Have Not Confirmed Sample Container
Numbers With Lab Staff Before Relinquishing
Over Samples _____



con-test®
ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False
Statement will be brought to the attention of the Client - State True or False

Client WTS

Received By af

Date 11/18/19

Time 17:35

How were the samples
received?

In Cooler T

No Cooler _____

On Ice T

No Ice _____

Direct from Sampling _____

Ambient _____

Melted Ice _____

Were samples within
Temperature? 2-6°C T

By Gun # 5

Actual Temp - 2.3

By Blank # _____

Actual Temp - _____

Was Custody Seal Intact? N/A

Were Samples Tampered with? N/A

Was COC Relinquished? T

Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T

Were samples received within holding time? T

Did COC include all Client T

Analysis T

Sampler Name T

pertinent Information? Project T

ID's T

Collection Dates/Times T*

Are Sample labels filled out and legible? T

Are there Lab to Filters? F

Who was notified? _____

Are there Rushes? F

Who was notified? _____

Are there Short Holds? F

Who was notified? _____

Is there enough Volume? T

Is there Headspace where applicable? F

MS/MSD? F

Proper Media/Containers Used? T

Is splitting samples required? F

Were trip blanks received? F

On COC? F

Do all samples have the proper pH? _____

Acid T/LZ

Base _____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.	<u>12</u>	1 Liter Plastic		16 oz Amb.	
HCL-	<u>12</u>	500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic	<u>2</u>	4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

no collection time for MW-06 on COC, containers labeled 12:20

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Con-Test Analytical Laboratory				Project #: 19K1082	
Project Location: Chelsea, MA				RTN:	
This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)] 19K1082-01 thru 19K1082-02					
Matrices: Water					
CAM Protocol (check all that below)					
8260 VOC CAM II A (X)	7470/7471 Hg CAM IIIB (X)	MassDEP VPH CAM IV A (X)	8082 PCB CAM V A (X)	9014 Total Cyanide/PAC CAM VI A ()	6860 Perchlorate CAM VIII B ()
8270 SVOC CAM II B (X)	7010 Metals CAM III C ()	MassDEP VPH CAM IV C ()	8081 Pesticides CAM V B ()	7196 Hex Cr CAM VI B ()	MassDEP APH CAM IX A ()
6010 Metals CAM III A ()	6020 Metals CAM III D (X)	MassDEP EPH CAM IV B (X)	8151 Herbicides CAM V C ()	8330 Explosives CAM VIII A ()	TO-15 VOC CAM IX B ()
Affirmative response to Questions A through F is required for "Presumptive Certainty" status					
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?				☒ Yes ☐ No ¹
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?				☒ Yes ☐ No ¹
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?				☒ Yes ☐ No ¹
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?				☒ Yes ☐ No ¹
E a	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).				☒ Yes ☐ No ¹
E b	APH and TO-15 Methods only: Was the complete analyte list reported for each method?				☐ Yes ☐ No ¹
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all No responses to Questions A through E)?				☒ Yes ☐ No ¹
A response to questions G, H and I below is required for "Presumptive Certainty" status					
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?				☐ Yes ☒ No ¹
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.					
H	Were all QC performance standards specified in the CAM protocol(s) achieved?				☐ Yes ☒ No ¹
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?				☒ Yes ☐ No ¹
¹ All Negative responses must be addressed in an attached Environmental Laboratory case narrative.					
I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.					
Signature: <u>Tod E. Kopyscinski</u>			Position: Laboratory Director		
Printed Name: <u>Tod E. Kopyscinski</u>			Date: <u>11/25/19</u>		

November 26, 2019

Lee Koska
Weston & Sampson Engineers MA
55 Walkers Brook Drive
Reading, MA 01867

Project Location: Beacham & Williams St. Chelsea, MA
Client Job Number:
Project Number: 2190031
Laboratory Work Order Number: 19K1172

Enclosed are results of analyses for samples received by the laboratory on November 19, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Michelle Koch". The signature is written in a cursive, flowing style.

Michelle M. Koch
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Weston & Sampson Engineers MA
55 Walkers Brook Drive
Reading, MA 01867
ATTN: Lee Koska

REPORT DATE: 11/26/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 2190031

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19K1172

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Beacham & Williams St. Chelsea, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
MW-08	19K1172-01	Ground Water		MADEP-EPH-04-1.1 MADEP-VPH-Feb 2018 Rev 2.1 SW-846 6020B SW-846 7470A SW-846 8082A SW-846 8260C-D SW-846 8270D-E	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

SW-846 8260C-D

Qualifications:**L-04**

Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.

Analyte & Samples(s) Qualified:**tert-Amyl Methyl Ether (TAME)**

19K1172-01[MW-08], B246743-BLK1, B246743-BS1, B246743-BSD1

tert-Butyl Ethyl Ether (TBEE)

19K1172-01[MW-08], B246743-BLK1, B246743-BS1, B246743-BSD1

L-06

Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the high side.

Analyte & Samples(s) Qualified:**Vinyl Chloride**

B246743-BS1, B246743-BSD1

RL-07

Elevated reporting limit based on lowest point in calibration.

MA CAM reporting limit not met.

Analyte & Samples(s) Qualified:**Carbon Disulfide**

19K1172-01[MW-08]

Methylene Chloride

19K1172-01[MW-08]

Naphthalene

19K1172-01[MW-08]

V-05

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:**tert-Amyl Methyl Ether (TAME)**

19K1172-01[MW-08], B246743-BLK1, B246743-BS1, B246743-BSD1, S043031-CCV1

tert-Butyl Ethyl Ether (TBEE)

19K1172-01[MW-08], B246743-BLK1, B246743-BS1, B246743-BSD1, S043031-CCV1

V-06

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:**Vinyl Chloride**

B246743-BS1, B246743-BSD1, S043031-CCV1

V-16

Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.

Analyte & Samples(s) Qualified:**1,4-Dioxane**

19K1172-01[MW-08], B246743-BLK1, B246743-BS1, B246743-BSD1, S043031-CCV1

SW-846 8270D-E

Qualifications:**S-07**

One associated surrogate standard recovery is outside of control limits but the other(s) is/are within limits. All recoveries are > 10%.

Analyte & Samples(s) Qualified:**2,4,6-Tribromophenol**

B246765-BLK1, B246765-BS1, B246765-BSD1

p-Terphenyl-d14

B246765-BLK1

V-06

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:**4-Nitrophenol**

B246765-BS1, B246765-BSD1, S043070-CCV1

V-20

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:**1,2-Diphenylhydrazine/Azobenzene**

19K1172-01[MW-08], B246765-BLK1, S043069-CCV1

4-Nitrophenol

19K1172-01[MW-08], B246765-BLK1, S043069-CCV1

MADEP-EPH-04-1.1

SPE cartridge contamination with non-petroleum compounds, if present, is verified by GC/MS in each method blank per extraction batch and excluded from C 11-C22 aromatic range fraction in all samples in the batch. No significant modifications were made to the method.

MADEP-VPH-Feb 2018 Rev 2.1

No significant modifications were made to the method. All VPH samples were received preserved properly at pH <2 in the proper containers as specified on the chain-of-custody form unless specified in this narrative.

Analytical column used for VPH analysis is Restek, Rtx-502.2, 105meter, 0.53mmID, 3um df. Trap used for VPH analysis is CarboSieve B/CarboSieveS-III.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Lisa A. Worthington
Technical Representative

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Beacham & Williams St. Chelsea,

Sample Description:

Work Order: 19K1172

Date Received: 11/19/2019

Field Sample #: MW-08

Sampled: 11/18/2019 11:15

Sample ID: 19K1172-01

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	10	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
tert-Amyl Methyl Ether (TAME)	ND	1.0	µg/L	1	L-04, V-05	SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Benzene	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Bromobenzene	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Bromochloromethane	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Bromodichloromethane	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Bromoform	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Bromomethane	ND	2.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
2-Butanone (MEK)	ND	10	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
n-Butylbenzene	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
sec-Butylbenzene	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
tert-Butylbenzene	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	µg/L	1	L-04, V-05	SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Carbon Disulfide	ND	5.0	µg/L	1	RL-07	SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Carbon Tetrachloride	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Chlorobenzene	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Chlorodibromomethane	ND	0.50	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Chloroethane	ND	2.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Chloroform	ND	2.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Chloromethane	ND	2.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
2-Chlorotoluene	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
4-Chlorotoluene	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
1,2-Dibromoethane (EDB)	ND	0.50	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Dibromomethane	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
1,2-Dichlorobenzene	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
1,3-Dichlorobenzene	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
1,4-Dichlorobenzene	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Dichlorodifluoromethane (Freon 12)	ND	2.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
1,1-Dichloroethane	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
1,2-Dichloroethane	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
1,1-Dichloroethylene	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
cis-1,2-Dichloroethylene	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
trans-1,2-Dichloroethylene	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
1,2-Dichloropropane	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
1,3-Dichloropropane	ND	0.50	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
2,2-Dichloropropane	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
1,1-Dichloropropene	ND	0.50	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
cis-1,3-Dichloropropene	ND	0.40	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
trans-1,3-Dichloropropene	ND	0.40	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Diethyl Ether	ND	2.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Diisopropyl Ether (DIPE)	ND	0.50	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
1,4-Dioxane	ND	50	µg/L	1	V-16	SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Ethylbenzene	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Beacham & Williams St. Chelsea,

Sample Description:

Work Order: 19K1172

Date Received: 11/19/2019

Field Sample #: MW-08

Sampled: 11/18/2019 11:15

Sample ID: 19K1172-01

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.60	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
2-Hexanone (MBK)	ND	10	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Isopropylbenzene (Cumene)	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
p-Isopropyltoluene (p-Cymene)	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Methyl tert-Butyl Ether (MTBE)	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Methylene Chloride	ND	5.0	µg/L	1	RL-07	SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
4-Methyl-2-pentanone (MIBK)	ND	10	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Naphthalene	ND	5.0	µg/L	1	RL-07	SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
n-Propylbenzene	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Styrene	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
1,1,1,2-Tetrachloroethane	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Tetrachloroethylene	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Tetrahydrofuran	ND	2.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Toluene	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
1,2,3-Trichlorobenzene	ND	2.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
1,2,4-Trichlorobenzene	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
1,1,1-Trichloroethane	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
1,1,2-Trichloroethane	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Trichloroethylene	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Trichlorofluoromethane (Freon 11)	ND	2.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
1,2,3-Trichloropropane	ND	2.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
1,2,4-Trimethylbenzene	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
1,3,5-Trimethylbenzene	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Vinyl Chloride	ND	2.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
m+p Xylene	ND	2.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
o-Xylene	ND	1.0	µg/L	1		SW-846 8260C-D	11/22/19	11/23/19 17:09	EEH
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
1,2-Dichloroethane-d4	95.6	70-130							
Toluene-d8	101	70-130							
4-Bromofluorobenzene	97.2	70-130							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Beacham & Williams St. Chelsea,

Sample Description:

Work Order: 19K1172

Date Received: 11/19/2019

Field Sample #: MW-08

Sampled: 11/18/2019 11:15

Sample ID: 19K1172-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	5.1	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Acenaphthylene	ND	5.1	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Acetophenone	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Aniline	ND	5.1	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Anthracene	ND	5.1	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Benzo(a)anthracene	ND	5.1	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Benzo(a)pyrene	ND	5.1	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Benzo(b)fluoranthene	ND	5.1	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Benzo(g,h,i)perylene	ND	5.1	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Benzo(k)fluoranthene	ND	5.1	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Bis(2-chloroethoxy)methane	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Bis(2-chloroethyl)ether	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Bis(2-chloroisopropyl)ether	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Bis(2-Ethylhexyl)phthalate	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
4-Bromophenylphenylether	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Butylbenzylphthalate	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
4-Chloroaniline	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
2-Chloronaphthalene	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
2-Chlorophenol	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Chrysene	ND	5.1	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Dibenz(a,h)anthracene	ND	5.1	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Dibenzofuran	ND	5.1	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Di-n-butylphthalate	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
1,2-Dichlorobenzene	ND	5.1	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
1,3-Dichlorobenzene	ND	5.1	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
1,4-Dichlorobenzene	ND	5.1	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
3,3-Dichlorobenzidine	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
2,4-Dichlorophenol	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Diethylphthalate	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
2,4-Dimethylphenol	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Dimethylphthalate	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
2,4-Dinitrophenol	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
2,4-Dinitrotoluene	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
2,6-Dinitrotoluene	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Di-n-octylphthalate	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
1,2-Diphenylhydrazine/Azobenzene	ND	10	µg/L	1	V-20	SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Fluoranthene	ND	5.1	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Fluorene	ND	5.1	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Hexachlorobenzene	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Hexachlorobutadiene	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Hexachloroethane	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Indeno(1,2,3-cd)pyrene	ND	5.1	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Isophorone	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
2-Methylnaphthalene	ND	5.1	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Beacham & Williams St. Chelsea,

Sample Description:

Work Order: 19K1172

Date Received: 11/19/2019

Field Sample #: MW-08

Sampled: 11/18/2019 11:15

Sample ID: 19K1172-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
2-Methylphenol	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
3/4-Methylphenol	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Naphthalene	ND	5.1	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Nitrobenzene	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
2-Nitrophenol	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
4-Nitrophenol	ND	10	µg/L	1	V-20	SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Pentachlorophenol	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Phenanthrene	ND	5.1	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Phenol	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Pyrene	ND	5.1	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
1,2,4-Trichlorobenzene	ND	5.1	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
2,4,5-Trichlorophenol	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
2,4,6-Trichlorophenol	ND	10	µg/L	1		SW-846 8270D-E	11/22/19	11/25/19 14:18	BGL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
2-Fluorophenol	49.1	15-110							
Phenol-d6	35.3	15-110							
Nitrobenzene-d5	79.5	30-130							
2-Fluorobiphenyl	78.5	30-130							
2,4,6-Tribromophenol	92.8	15-110							
p-Terphenyl-d14	97.2	30-130							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Beacham & Williams St. Chelsea,

Sample Description:

Work Order: 19K1172

Date Received: 11/19/2019

Field Sample #: MW-08

Sampled: 11/18/2019 11:15

Sample ID: 19K1172-01

Sample Matrix: Ground Water

Polychlorinated Biphenyls By GC/ECD

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/25/19	11/26/19 11:10	TG
Aroclor-1221 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/25/19	11/26/19 11:10	TG
Aroclor-1232 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/25/19	11/26/19 11:10	TG
Aroclor-1242 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/25/19	11/26/19 11:10	TG
Aroclor-1248 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/25/19	11/26/19 11:10	TG
Aroclor-1254 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/25/19	11/26/19 11:10	TG
Aroclor-1260 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/25/19	11/26/19 11:10	TG
Aroclor-1262 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/25/19	11/26/19 11:10	TG
Aroclor-1268 [1]	ND	0.20	µg/L	1		SW-846 8082A	11/25/19	11/26/19 11:10	TG
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	71.3	30-150							
Decachlorobiphenyl [2]	67.8	30-150							
Tetrachloro-m-xylene [1]	65.4	30-150							
Tetrachloro-m-xylene [2]	65.7	30-150							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Beacham & Williams St. Chelsea,

Sample Description:

Work Order: 19K1172

Date Received: 11/19/2019

Field Sample #: MW-08

Sampled: 11/18/2019 11:15

Sample ID: 19K1172-01

Sample Matrix: Ground Water

Petrolium Hydrocarbons Analyses - EPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
C9-C18 Aliphatics	ND	96	µg/L	1		MADEP-EPH-04-1.1	11/25/19	11/25/19 20:43	RMW
C19-C36 Aliphatics	ND	96	µg/L	1		MADEP-EPH-04-1.1	11/25/19	11/25/19 20:43	RMW
Unadjusted C11-C22 Aromatics	ND	96	µg/L	1		MADEP-EPH-04-1.1	11/25/19	11/25/19 20:43	RMW
C11-C22 Aromatics	ND	96	µg/L	1		MADEP-EPH-04-1.1	11/25/19	11/25/19 20:43	RMW
Acenaphthene	ND	1.9	µg/L	1		MADEP-EPH-04-1.1	11/25/19	11/25/19 20:43	RMW
Acenaphthylene	ND	1.9	µg/L	1		MADEP-EPH-04-1.1	11/25/19	11/25/19 20:43	RMW
Anthracene	ND	1.9	µg/L	1		MADEP-EPH-04-1.1	11/25/19	11/25/19 20:43	RMW
Benzo(a)anthracene	ND	1.9	µg/L	1		MADEP-EPH-04-1.1	11/25/19	11/25/19 20:43	RMW
Benzo(a)pyrene	ND	1.9	µg/L	1		MADEP-EPH-04-1.1	11/25/19	11/25/19 20:43	RMW
Benzo(b)fluoranthene	ND	1.9	µg/L	1		MADEP-EPH-04-1.1	11/25/19	11/25/19 20:43	RMW
Benzo(g,h,i)perylene	ND	1.9	µg/L	1		MADEP-EPH-04-1.1	11/25/19	11/25/19 20:43	RMW
Benzo(k)fluoranthene	ND	1.9	µg/L	1		MADEP-EPH-04-1.1	11/25/19	11/25/19 20:43	RMW
Chrysene	ND	1.9	µg/L	1		MADEP-EPH-04-1.1	11/25/19	11/25/19 20:43	RMW
Dibenz(a,h)anthracene	ND	1.9	µg/L	1		MADEP-EPH-04-1.1	11/25/19	11/25/19 20:43	RMW
Fluoranthene	ND	1.9	µg/L	1		MADEP-EPH-04-1.1	11/25/19	11/25/19 20:43	RMW
Fluorene	ND	1.9	µg/L	1		MADEP-EPH-04-1.1	11/25/19	11/25/19 20:43	RMW
Indeno(1,2,3-cd)pyrene	ND	1.9	µg/L	1		MADEP-EPH-04-1.1	11/25/19	11/25/19 20:43	RMW
2-Methylnaphthalene	ND	1.9	µg/L	1		MADEP-EPH-04-1.1	11/25/19	11/25/19 20:43	RMW
Naphthalene	ND	1.9	µg/L	1		MADEP-EPH-04-1.1	11/25/19	11/25/19 20:43	RMW
Phenanthrene	ND	1.9	µg/L	1		MADEP-EPH-04-1.1	11/25/19	11/25/19 20:43	RMW
Pyrene	ND	1.9	µg/L	1		MADEP-EPH-04-1.1	11/25/19	11/25/19 20:43	RMW

Surrogates	% Recovery	Recovery Limits	Flag/Qual
Chlorooctadecane (COD)	57.8	40-140	
o-Terphenyl (OTP)	60.3	40-140	
2-Bromonaphthalene	89.5	40-140	
2-Fluorobiphenyl	91.7	40-140	

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Project Location: Beacham & Williams St. Chelsea,

Sample Description:

Work Order: 19K1172

Date Received: 11/19/2019

Field Sample #: MW-08

Sampled: 11/18/2019 11:15

Sample ID: 19K1172-01

Sample Matrix: Ground Water

Petrolium Hydrocarbons Analyses - VPH

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Unadjusted C5-C8 Aliphatics	ND	100	µg/L	1		MADEP-VPH-Feb 2018 Rev 2.1	11/22/19	11/23/19 5:41	KMB
C5-C8 Aliphatics	ND	100	µg/L	1		MADEP-VPH-Feb 2018 Rev 2.1	11/22/19	11/23/19 5:41	KMB
Unadjusted C9-C12 Aliphatics	ND	100	µg/L	1		MADEP-VPH-Feb 2018 Rev 2.1	11/22/19	11/23/19 5:41	KMB
C9-C12 Aliphatics	ND	100	µg/L	1		MADEP-VPH-Feb 2018 Rev 2.1	11/22/19	11/23/19 5:41	KMB
C9-C10 Aromatics	ND	100	µg/L	1		MADEP-VPH-Feb 2018 Rev 2.1	11/22/19	11/23/19 5:41	KMB
Benzene	ND	1.0	µg/L	1		MADEP-VPH-Feb 2018 Rev 2.1	11/22/19	11/23/19 5:41	KMB
Ethylbenzene	ND	1.0	µg/L	1		MADEP-VPH-Feb 2018 Rev 2.1	11/22/19	11/23/19 5:41	KMB
Methyl tert-Butyl Ether (MTBE)	ND	1.0	µg/L	1		MADEP-VPH-Feb 2018 Rev 2.1	11/22/19	11/23/19 5:41	KMB
Naphthalene	ND	5.0	µg/L	1		MADEP-VPH-Feb 2018 Rev 2.1	11/22/19	11/23/19 5:41	KMB
Toluene	ND	1.0	µg/L	1		MADEP-VPH-Feb 2018 Rev 2.1	11/22/19	11/23/19 5:41	KMB
m+p Xylene	ND	2.0	µg/L	1		MADEP-VPH-Feb 2018 Rev 2.1	11/22/19	11/23/19 5:41	KMB
o-Xylene	ND	1.0	µg/L	1		MADEP-VPH-Feb 2018 Rev 2.1	11/22/19	11/23/19 5:41	KMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
2,5-Dibromotoluene (FID)	87.6	70-130							
2,5-Dibromotoluene (PID)	92.9	70-130							

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Project Location: Beacham & Williams St. Chelsea,

Sample Description:

Work Order: 19K1172

Date Received: 11/19/2019

Field Sample #: MW-08

Sampled: 11/18/2019 11:15

Sample ID: 19K1172-01

Sample Matrix: Ground Water

Metals Analyses (Dissolved)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	1.0	µg/L	1		SW-846 6020B	11/22/19	11/22/19 21:11	MJH
Arsenic	11	0.80	µg/L	1		SW-846 6020B	11/22/19	11/22/19 21:11	MJH
Barium	190	50	µg/L	5		SW-846 6020B	11/22/19	11/22/19 23:21	MJH
Beryllium	ND	0.40	µg/L	1		SW-846 6020B	11/22/19	11/22/19 21:11	MJH
Cadmium	ND	0.20	µg/L	1		SW-846 6020B	11/22/19	11/22/19 21:11	MJH
Chromium	ND	1.0	µg/L	1		SW-846 6020B	11/22/19	11/22/19 21:11	MJH
Lead	3.7	0.50	µg/L	1		SW-846 6020B	11/22/19	11/22/19 21:11	MJH
Mercury	ND	0.00010	mg/L	1		SW-846 7470A	11/21/19	11/21/19 14:35	CJV
Nickel	5.3	5.0	µg/L	1		SW-846 6020B	11/22/19	11/22/19 21:11	MJH
Selenium	ND	5.0	µg/L	1		SW-846 6020B	11/22/19	11/22/19 21:11	MJH
Silver	ND	0.20	µg/L	1		SW-846 6020B	11/22/19	11/22/19 21:11	MJH
Thallium	ND	0.20	µg/L	1		SW-846 6020B	11/22/19	11/22/19 21:11	MJH
Vanadium	ND	5.0	µg/L	1		SW-846 6020B	11/22/19	11/22/19 21:11	MJH
Zinc	ND	10	µg/L	1		SW-846 6020B	11/22/19	11/22/19 21:11	MJH

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Sample Extraction Data**Prep Method: SW-846 3510C-MADEP-EPH-04-1.1**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19K1172-01 [MW-08]	B246896	990	1.90	11/25/19

Prep Method: MA VPH-MADEP-VPH-Feb 2018 Rev 2.1

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19K1172-01 [MW-08]	B246768	5	5.00	11/22/19

Prep Method: SW-846 3005A Dissolved-SW-846 6020B

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19K1172-01 [MW-08]	B246783	50.0	50.0	11/22/19

Prep Method: SW-846 7470A Dissolved-SW-846 7470A

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19K1172-01 [MW-08]	B246658	6.00	6.00	11/21/19

Prep Method: SW-846 3510C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19K1172-01 [MW-08]	B246945	1000	10.0	11/25/19

Prep Method: SW-846 5030B-SW-846 8260C-D

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19K1172-01 [MW-08]	B246743	5	5.00	11/22/19

Prep Method: SW-846 3510C-SW-846 8270D-E

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19K1172-01 [MW-08]	B246765	990	1.00	11/22/19

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QUALITY CONTROL
Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B246743 - SW-846 5030B										
Blank (B246743-BLK1)				Prepared: 11/22/19 Analyzed: 11/23/19						
Acetone	ND	10	µg/L							
tert-Amyl Methyl Ether (TAME)	ND	0.50	µg/L							L-04, V-05
Benzene	ND	1.0	µg/L							
Bromobenzene	ND	1.0	µg/L							
Bromochloromethane	ND	1.0	µg/L							
Bromodichloromethane	ND	1.0	µg/L							
Bromoform	ND	1.0	µg/L							
Bromomethane	ND	2.0	µg/L							
2-Butanone (MEK)	ND	10	µg/L							
n-Butylbenzene	ND	1.0	µg/L							
sec-Butylbenzene	ND	1.0	µg/L							
tert-Butylbenzene	ND	1.0	µg/L							
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	µg/L							L-04, V-05
Carbon Disulfide	ND	5.0	µg/L							
Carbon Tetrachloride	ND	1.0	µg/L							
Chlorobenzene	ND	1.0	µg/L							
Chlorodibromomethane	ND	0.50	µg/L							
Chloroethane	ND	2.0	µg/L							
Chloroform	ND	2.0	µg/L							
Chloromethane	ND	2.0	µg/L							
2-Chlorotoluene	ND	1.0	µg/L							
4-Chlorotoluene	ND	1.0	µg/L							
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	µg/L							
1,2-Dibromoethane (EDB)	ND	0.50	µg/L							
Dibromomethane	ND	1.0	µg/L							
1,2-Dichlorobenzene	ND	1.0	µg/L							
1,3-Dichlorobenzene	ND	1.0	µg/L							
1,4-Dichlorobenzene	ND	1.0	µg/L							
Dichlorodifluoromethane (Freon 12)	ND	2.0	µg/L							
1,1-Dichloroethane	ND	1.0	µg/L							
1,2-Dichloroethane	ND	1.0	µg/L							
1,1-Dichloroethylene	ND	1.0	µg/L							
cis-1,2-Dichloroethylene	ND	1.0	µg/L							
trans-1,2-Dichloroethylene	ND	1.0	µg/L							
1,2-Dichloropropane	ND	1.0	µg/L							
1,3-Dichloropropane	ND	0.50	µg/L							
2,2-Dichloropropane	ND	1.0	µg/L							
1,1-Dichloropropene	ND	0.50	µg/L							
cis-1,3-Dichloropropene	ND	0.40	µg/L							
trans-1,3-Dichloropropene	ND	0.40	µg/L							
Diethyl Ether	ND	2.0	µg/L							
Diisopropyl Ether (DIPE)	ND	0.50	µg/L							
1,4-Dioxane	ND	50	µg/L							V-16
Ethylbenzene	ND	1.0	µg/L							
Hexachlorobutadiene	ND	0.60	µg/L							
2-Hexanone (MBK)	ND	10	µg/L							
Isopropylbenzene (Cumene)	ND	1.0	µg/L							
p-Isopropyltoluene (p-Cymene)	ND	1.0	µg/L							
Methyl tert-Butyl Ether (MTBE)	ND	1.0	µg/L							
Methylene Chloride	ND	5.0	µg/L							
4-Methyl-2-pentanone (MIBK)	ND	10	µg/L							
Naphthalene	ND	2.0	µg/L							

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B246743 - SW-846 5030B										
Blank (B246743-BLK1)										
Prepared: 11/22/19 Analyzed: 11/23/19										
n-Propylbenzene	ND	1.0	µg/L							
Styrene	ND	1.0	µg/L							
1,1,1,2-Tetrachloroethane	ND	1.0	µg/L							
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L							
Tetrachloroethylene	ND	1.0	µg/L							
Tetrahydrofuran	ND	2.0	µg/L							
Toluene	ND	1.0	µg/L							
1,2,3-Trichlorobenzene	ND	2.0	µg/L							
1,2,4-Trichlorobenzene	ND	1.0	µg/L							
1,1,1-Trichloroethane	ND	1.0	µg/L							
1,1,2-Trichloroethane	ND	1.0	µg/L							
Trichloroethylene	ND	1.0	µg/L							
Trichlorofluoromethane (Freon 11)	ND	2.0	µg/L							
1,2,3-Trichloropropane	ND	2.0	µg/L							
1,2,4-Trimethylbenzene	ND	1.0	µg/L							
1,3,5-Trimethylbenzene	ND	1.0	µg/L							
Vinyl Chloride	ND	2.0	µg/L							
m+p Xylene	ND	2.0	µg/L							
o-Xylene	ND	1.0	µg/L							
Surrogate: 1,2-Dichloroethane-d4	24.3		µg/L	25.0		97.0	70-130			
Surrogate: Toluene-d8	24.6		µg/L	25.0		98.6	70-130			
Surrogate: 4-Bromofluorobenzene	24.5		µg/L	25.0		97.9	70-130			
LCS (B246743-BS1)										
Prepared: 11/22/19 Analyzed: 11/23/19										
Acetone	119	10	µg/L	100		119	40-160			†
tert-Amyl Methyl Ether (TAME)	5.31	0.50	µg/L	10.0		53.1 *	70-130			L-04, V-05
Benzene	8.55	1.0	µg/L	10.0		85.5	70-130			
Bromobenzene	9.90	1.0	µg/L	10.0		99.0	70-130			
Bromochloromethane	8.75	1.0	µg/L	10.0		87.5	70-130			
Bromodichloromethane	10.1	1.0	µg/L	10.0		101	70-130			
Bromoform	10.5	1.0	µg/L	10.0		105	70-130			
Bromomethane	5.56	2.0	µg/L	10.0		55.6	40-160			L-14 †
2-Butanone (MEK)	88.5	10	µg/L	100		88.5	40-160			†
n-Butylbenzene	10.4	1.0	µg/L	10.0		104	70-130			
sec-Butylbenzene	10.8	1.0	µg/L	10.0		108	70-130			
tert-Butylbenzene	10.6	1.0	µg/L	10.0		106	70-130			
tert-Butyl Ethyl Ether (TBEE)	5.90	0.50	µg/L	10.0		59.0 *	70-130			L-04, V-05
Carbon Disulfide	9.01	5.0	µg/L	10.0		90.1	70-130			
Carbon Tetrachloride	10.2	1.0	µg/L	10.0		102	70-130			
Chlorobenzene	10.2	1.0	µg/L	10.0		102	70-130			
Chlorodibromomethane	9.55	0.50	µg/L	10.0		95.5	70-130			
Chloroethane	9.20	2.0	µg/L	10.0		92.0	70-130			
Chloroform	8.96	2.0	µg/L	10.0		89.6	70-130			
Chloromethane	6.50	2.0	µg/L	10.0		65.0	40-160			L-14 †
2-Chlorotoluene	9.72	1.0	µg/L	10.0		97.2	70-130			
4-Chlorotoluene	10.5	1.0	µg/L	10.0		105	70-130			
1,2-Dibromo-3-chloropropane (DBCP)	10.3	2.0	µg/L	10.0		103	70-130			
1,2-Dibromoethane (EDB)	9.59	0.50	µg/L	10.0		95.9	70-130			
Dibromomethane	9.75	1.0	µg/L	10.0		97.5	70-130			
1,2-Dichlorobenzene	10.2	1.0	µg/L	10.0		102	70-130			
1,3-Dichlorobenzene	10.5	1.0	µg/L	10.0		105	70-130			
1,4-Dichlorobenzene	10.1	1.0	µg/L	10.0		101	70-130			

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B246743 - SW-846 5030B										
LCS (B246743-BS1)				Prepared: 11/22/19 Analyzed: 11/23/19						
Dichlorodifluoromethane (Freon 12)	6.92	2.0	µg/L	10.0		69.2	40-160			L-14 †
1,1-Dichloroethane	9.20	1.0	µg/L	10.0		92.0	70-130			
1,2-Dichloroethane	10.4	1.0	µg/L	10.0		104	70-130			
1,1-Dichloroethylene	10.6	1.0	µg/L	10.0		106	70-130			
cis-1,2-Dichloroethylene	9.24	1.0	µg/L	10.0		92.4	70-130			
trans-1,2-Dichloroethylene	9.65	1.0	µg/L	10.0		96.5	70-130			
1,2-Dichloropropane	9.00	1.0	µg/L	10.0		90.0	70-130			
1,3-Dichloropropane	9.38	0.50	µg/L	10.0		93.8	70-130			
2,2-Dichloropropane	9.10	1.0	µg/L	10.0		91.0	70-130			
1,1-Dichloropropene	9.27	0.50	µg/L	10.0		92.7	70-130			
cis-1,3-Dichloropropene	9.41	0.40	µg/L	10.0		94.1	70-130			
trans-1,3-Dichloropropene	9.32	0.40	µg/L	10.0		93.2	70-130			
Diethyl Ether	9.54	2.0	µg/L	10.0		95.4	70-130			
Diisopropyl Ether (DIPE)	9.00	0.50	µg/L	10.0		90.0	70-130			
1,4-Dioxane	113	50	µg/L	100		113	40-160			V-16 †
Ethylbenzene	10.4	1.0	µg/L	10.0		104	70-130			
Hexachlorobutadiene	11.4	0.60	µg/L	10.0		114	70-130			
2-Hexanone (MBK)	99.5	10	µg/L	100		99.5	40-160			†
Isopropylbenzene (Cumene)	10.6	1.0	µg/L	10.0		106	70-130			
p-Isopropyltoluene (p-Cymene)	9.82	1.0	µg/L	10.0		98.2	70-130			
Methyl tert-Butyl Ether (MTBE)	8.36	1.0	µg/L	10.0		83.6	70-130			
Methylene Chloride	9.72	5.0	µg/L	10.0		97.2	70-130			
4-Methyl-2-pentanone (MIBK)	104	10	µg/L	100		104	40-160			†
Naphthalene	9.75	2.0	µg/L	10.0		97.5	70-130			
n-Propylbenzene	10.3	1.0	µg/L	10.0		103	70-130			
Styrene	8.72	1.0	µg/L	10.0		87.2	70-130			
1,1,1,2-Tetrachloroethane	10.8	1.0	µg/L	10.0		108	70-130			
1,1,2,2-Tetrachloroethane	10.7	0.50	µg/L	10.0		107	70-130			
Tetrachloroethylene	10.0	1.0	µg/L	10.0		100	70-130			
Tetrahydrofuran	8.43	2.0	µg/L	10.0		84.3	70-130			
Toluene	9.84	1.0	µg/L	10.0		98.4	70-130			
1,2,3-Trichlorobenzene	9.37	2.0	µg/L	10.0		93.7	70-130			
1,2,4-Trichlorobenzene	10.0	1.0	µg/L	10.0		100	70-130			
1,1,1-Trichloroethane	10.4	1.0	µg/L	10.0		104	70-130			
1,1,2-Trichloroethane	9.67	1.0	µg/L	10.0		96.7	70-130			
Trichloroethylene	9.81	1.0	µg/L	10.0		98.1	70-130			
Trichlorofluoromethane (Freon 11)	9.77	2.0	µg/L	10.0		97.7	70-130			
1,2,3-Trichloropropane	10.4	2.0	µg/L	10.0		104	70-130			
1,2,4-Trimethylbenzene	8.99	1.0	µg/L	10.0		89.9	70-130			
1,3,5-Trimethylbenzene	10.2	1.0	µg/L	10.0		102	70-130			
Vinyl Chloride	19.0	2.0	µg/L	10.0		190 *	70-130			L-06, V-06
m+p Xylene	20.9	2.0	µg/L	20.0		104	70-130			
o-Xylene	10.6	1.0	µg/L	10.0		106	70-130			
Surrogate: 1,2-Dichloroethane-d4	24.9		µg/L	25.0		99.6	70-130			
Surrogate: Toluene-d8	24.6		µg/L	25.0		98.6	70-130			
Surrogate: 4-Bromofluorobenzene	25.6		µg/L	25.0		102	70-130			

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B246743 - SW-846 5030B										
LCS Dup (B246743-BSD1)					Prepared: 11/22/19 Analyzed: 11/23/19					
Acetone	116	10	µg/L	100		116	40-160	2.57	20	†
tert-Amyl Methyl Ether (TAME)	5.43	0.50	µg/L	10.0		54.3 *	70-130	2.23	20	L-04, V-05
Benzene	8.65	1.0	µg/L	10.0		86.5	70-130	1.16	20	
Bromobenzene	10.0	1.0	µg/L	10.0		100	70-130	1.10	20	
Bromochloromethane	8.74	1.0	µg/L	10.0		87.4	70-130	0.114	20	
Bromodichloromethane	9.95	1.0	µg/L	10.0		99.5	70-130	1.89	20	
Bromoform	10.2	1.0	µg/L	10.0		102	70-130	2.60	20	
Bromomethane	6.58	2.0	µg/L	10.0		65.8	40-160	16.8	20	L-14 †
2-Butanone (MEK)	86.7	10	µg/L	100		86.7	40-160	2.08	20	†
n-Butylbenzene	10.8	1.0	µg/L	10.0		108	70-130	3.31	20	
sec-Butylbenzene	11.0	1.0	µg/L	10.0		110	70-130	2.11	20	
tert-Butylbenzene	10.5	1.0	µg/L	10.0		105	70-130	1.32	20	
tert-Butyl Ethyl Ether (TBEE)	5.91	0.50	µg/L	10.0		59.1 *	70-130	0.169	20	L-04, V-05
Carbon Disulfide	8.53	5.0	µg/L	10.0		85.3	70-130	5.47	20	
Carbon Tetrachloride	10.2	1.0	µg/L	10.0		102	70-130	0.0978	20	
Chlorobenzene	10.3	1.0	µg/L	10.0		103	70-130	0.682	20	
Chlorodibromomethane	9.63	0.50	µg/L	10.0		96.3	70-130	0.834	20	
Chloroethane	8.88	2.0	µg/L	10.0		88.8	70-130	3.54	20	
Chloroform	8.66	2.0	µg/L	10.0		86.6	70-130	3.41	20	
Chloromethane	6.75	2.0	µg/L	10.0		67.5	40-160	3.77	20	L-14 †
2-Chlorotoluene	9.96	1.0	µg/L	10.0		99.6	70-130	2.44	20	
4-Chlorotoluene	10.6	1.0	µg/L	10.0		106	70-130	1.14	20	
1,2-Dibromo-3-chloropropane (DBCP)	10.2	2.0	µg/L	10.0		102	70-130	0.488	20	
1,2-Dibromoethane (EDB)	9.97	0.50	µg/L	10.0		99.7	70-130	3.89	20	
Dibromomethane	9.65	1.0	µg/L	10.0		96.5	70-130	1.03	20	
1,2-Dichlorobenzene	10.3	1.0	µg/L	10.0		103	70-130	1.46	20	
1,3-Dichlorobenzene	10.7	1.0	µg/L	10.0		107	70-130	1.60	20	
1,4-Dichlorobenzene	10.1	1.0	µg/L	10.0		101	70-130	0.0988	20	
Dichlorodifluoromethane (Freon 12)	6.73	2.0	µg/L	10.0		67.3	40-160	2.78	20	L-14 †
1,1-Dichloroethane	9.06	1.0	µg/L	10.0		90.6	70-130	1.53	20	
1,2-Dichloroethane	10.5	1.0	µg/L	10.0		105	70-130	0.766	20	
1,1-Dichloroethylene	10.6	1.0	µg/L	10.0		106	70-130	0.189	20	
cis-1,2-Dichloroethylene	9.19	1.0	µg/L	10.0		91.9	70-130	0.543	20	
trans-1,2-Dichloroethylene	9.48	1.0	µg/L	10.0		94.8	70-130	1.78	20	
1,2-Dichloropropane	9.15	1.0	µg/L	10.0		91.5	70-130	1.65	20	
1,3-Dichloropropane	9.32	0.50	µg/L	10.0		93.2	70-130	0.642	20	
2,2-Dichloropropane	8.97	1.0	µg/L	10.0		89.7	70-130	1.44	20	
1,1-Dichloropropene	9.32	0.50	µg/L	10.0		93.2	70-130	0.538	20	
cis-1,3-Dichloropropene	9.50	0.40	µg/L	10.0		95.0	70-130	0.952	20	
trans-1,3-Dichloropropene	9.26	0.40	µg/L	10.0		92.6	70-130	0.646	20	
Diethyl Ether	9.35	2.0	µg/L	10.0		93.5	70-130	2.01	20	
Diisopropyl Ether (DIPE)	8.98	0.50	µg/L	10.0		89.8	70-130	0.222	20	
1,4-Dioxane	111	50	µg/L	100		111	40-160	1.27	20	V-16 †
Ethylbenzene	10.4	1.0	µg/L	10.0		104	70-130	0.193	20	
Hexachlorobutadiene	11.6	0.60	µg/L	10.0		116	70-130	1.91	20	
2-Hexanone (MBK)	100	10	µg/L	100		100	40-160	0.811	20	†
Isopropylbenzene (Cumene)	10.6	1.0	µg/L	10.0		106	70-130	0.189	20	
p-Isopropyltoluene (p-Cymene)	10.0	1.0	µg/L	10.0		100	70-130	2.12	20	
Methyl tert-Butyl Ether (MTBE)	8.17	1.0	µg/L	10.0		81.7	70-130	2.30	20	
Methylene Chloride	8.84	5.0	µg/L	10.0		88.4	70-130	9.48	20	
4-Methyl-2-pentanone (MIBK)	105	10	µg/L	100		105	40-160	0.986	20	†
Naphthalene	9.97	2.0	µg/L	10.0		99.7	70-130	2.23	20	

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QUALITY CONTROL
Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B246743 - SW-846 5030B										
LCS Dup (B246743-BSD1)					Prepared: 11/22/19 Analyzed: 11/23/19					
n-Propylbenzene	10.5	1.0	µg/L	10.0		105	70-130	1.25	20	
Styrene	8.71	1.0	µg/L	10.0		87.1	70-130	0.115	20	
1,1,1,2-Tetrachloroethane	10.8	1.0	µg/L	10.0		108	70-130	0.556	20	
1,1,2,2-Tetrachloroethane	10.7	0.50	µg/L	10.0		107	70-130	0.0936	20	
Tetrachloroethylene	10.3	1.0	µg/L	10.0		103	70-130	2.85	20	
Tetrahydrofuran	8.27	2.0	µg/L	10.0		82.7	70-130	1.92	20	
Toluene	9.99	1.0	µg/L	10.0		99.9	70-130	1.51	20	
1,2,3-Trichlorobenzene	9.83	2.0	µg/L	10.0		98.3	70-130	4.79	20	
1,2,4-Trichlorobenzene	10.8	1.0	µg/L	10.0		108	70-130	7.59	20	
1,1,1-Trichloroethane	9.96	1.0	µg/L	10.0		99.6	70-130	4.23	20	
1,1,2-Trichloroethane	9.90	1.0	µg/L	10.0		99.0	70-130	2.35	20	
Trichloroethylene	9.95	1.0	µg/L	10.0		99.5	70-130	1.42	20	
Trichlorofluoromethane (Freon 11)	9.62	2.0	µg/L	10.0		96.2	70-130	1.55	20	
1,2,3-Trichloropropane	10.6	2.0	µg/L	10.0		106	70-130	1.90	20	
1,2,4-Trimethylbenzene	9.04	1.0	µg/L	10.0		90.4	70-130	0.555	20	
1,3,5-Trimethylbenzene	10.4	1.0	µg/L	10.0		104	70-130	2.14	20	
Vinyl Chloride	21.2	2.0	µg/L	10.0		212 *	70-130	11.3	20	L-06, V-06
m+p Xylene	20.6	2.0	µg/L	20.0		103	70-130	1.16	20	
o-Xylene	10.7	1.0	µg/L	10.0		107	70-130	0.188	20	
Surrogate: 1,2-Dichloroethane-d4	24.4		µg/L	25.0		97.8	70-130			
Surrogate: Toluene-d8	24.7		µg/L	25.0		98.8	70-130			
Surrogate: 4-Bromofluorobenzene	25.5		µg/L	25.0		102	70-130			

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QUALITY CONTROL
Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B246765 - SW-846 3510C
Blank (B246765-BLK1)

Prepared: 11/22/19 Analyzed: 11/25/19

Acenaphthene	ND	5.0	µg/L							
Acenaphthylene	ND	5.0	µg/L							
Acetophenone	ND	10	µg/L							
Aniline	ND	5.0	µg/L							
Anthracene	ND	5.0	µg/L							
Benzo(a)anthracene	ND	5.0	µg/L							
Benzo(a)pyrene	ND	5.0	µg/L							
Benzo(b)fluoranthene	ND	5.0	µg/L							
Benzo(g,h,i)perylene	ND	5.0	µg/L							
Benzo(k)fluoranthene	ND	5.0	µg/L							
Bis(2-chloroethoxy)methane	ND	10	µg/L							
Bis(2-chloroethyl)ether	ND	10	µg/L							
Bis(2-chloroisopropyl)ether	ND	10	µg/L							
Bis(2-Ethylhexyl)phthalate	ND	10	µg/L							
4-Bromophenylphenylether	ND	10	µg/L							
Butylbenzylphthalate	ND	10	µg/L							
4-Chloroaniline	ND	10	µg/L							
2-Chloronaphthalene	ND	10	µg/L							
2-Chlorophenol	ND	10	µg/L							
Chrysene	ND	5.0	µg/L							
Dibenz(a,h)anthracene	ND	5.0	µg/L							
Dibenzofuran	ND	5.0	µg/L							
Di-n-butylphthalate	ND	10	µg/L							
1,2-Dichlorobenzene	ND	5.0	µg/L							
1,3-Dichlorobenzene	ND	5.0	µg/L							
1,4-Dichlorobenzene	ND	5.0	µg/L							
3,3-Dichlorobenzidine	ND	10	µg/L							
2,4-Dichlorophenol	ND	10	µg/L							
Diethylphthalate	ND	10	µg/L							
2,4-Dimethylphenol	ND	10	µg/L							
Dimethylphthalate	ND	10	µg/L							
2,4-Dinitrophenol	ND	10	µg/L							
2,4-Dinitrotoluene	ND	10	µg/L							
2,6-Dinitrotoluene	ND	10	µg/L							
Di-n-octylphthalate	ND	10	µg/L							
1,2-Diphenylhydrazine/Azobenzene	ND	10	µg/L							V-20
Fluoranthene	ND	5.0	µg/L							
Fluorene	ND	5.0	µg/L							
Hexachlorobenzene	ND	10	µg/L							
Hexachlorobutadiene	ND	10	µg/L							
Hexachloroethane	ND	10	µg/L							
Indeno(1,2,3-cd)pyrene	ND	5.0	µg/L							
Isophorone	ND	10	µg/L							
2-Methylnaphthalene	ND	5.0	µg/L							
2-Methylphenol	ND	10	µg/L							
3/4-Methylphenol	ND	10	µg/L							
Naphthalene	ND	5.0	µg/L							
Nitrobenzene	ND	10	µg/L							
2-Nitrophenol	ND	10	µg/L							
4-Nitrophenol	ND	10	µg/L							V-20
Pentachlorophenol	ND	10	µg/L							
Phenanthrene	ND	5.0	µg/L							

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B246765 - SW-846 3510C										
Blank (B246765-BLK1)				Prepared: 11/22/19 Analyzed: 11/25/19						
Phenol	ND	10	µg/L							
Pyrene	ND	5.0	µg/L							
Pyridine	ND	5.0	µg/L							
1,2,4-Trichlorobenzene	ND	5.0	µg/L							
2,4,5-Trichlorophenol	ND	10	µg/L							
2,4,6-Trichlorophenol	ND	10	µg/L							
Surrogate: 2-Fluorophenol	135		µg/L	200		67.4	15-110			
Surrogate: Phenol-d6	96.4		µg/L	200		48.2	15-110			
Surrogate: Nitrobenzene-d5	106		µg/L	100		106	30-130			
Surrogate: 2-Fluorobiphenyl	108		µg/L	100		108	30-130			
Surrogate: 2,4,6-Tribromophenol	255		µg/L	200		128 *	15-110			S-07
Surrogate: p-Terphenyl-d14	133		µg/L	100		133 *	30-130			S-07
LCS (B246765-BS1)				Prepared: 11/22/19 Analyzed: 11/26/19						
Acenaphthene	42.4	5.0	µg/L	50.0		84.8	40-140			
Acenaphthylene	43.3	5.0	µg/L	50.0		86.6	40-140			
Acetophenone	45.7	10	µg/L	50.0		91.4	40-140			
Aniline	42.3	5.0	µg/L	50.0		84.6	40-140			
Anthracene	46.7	5.0	µg/L	50.0		93.4	40-140			
Benzo(a)anthracene	45.7	5.0	µg/L	50.0		91.4	40-140			
Benzo(a)pyrene	44.3	5.0	µg/L	50.0		88.7	40-140			
Benzo(b)fluoranthene	45.8	5.0	µg/L	50.0		91.6	40-140			
Benzo(g,h,i)perylene	44.9	5.0	µg/L	50.0		89.9	40-140			
Benzo(k)fluoranthene	45.1	5.0	µg/L	50.0		90.1	40-140			
Bis(2-chloroethoxy)methane	44.9	10	µg/L	50.0		89.7	40-140			
Bis(2-chloroethyl)ether	45.1	10	µg/L	50.0		90.3	40-140			
Bis(2-chloroisopropyl)ether	55.5	10	µg/L	50.0		111	40-140			
Bis(2-Ethylhexyl)phthalate	48.9	10	µg/L	50.0		97.9	40-140			
4-Bromophenylphenylether	43.5	10	µg/L	50.0		87.0	40-140			
Butylbenzylphthalate	50.4	10	µg/L	50.0		101	40-140			
4-Chloroaniline	49.5	10	µg/L	50.0		98.9	15-140			†
2-Chloronaphthalene	35.6	10	µg/L	50.0		71.3	40-140			
2-Chlorophenol	40.8	10	µg/L	50.0		81.5	30-130			
Chrysene	45.6	5.0	µg/L	50.0		91.3	40-140			
Dibenz(a,h)anthracene	42.6	5.0	µg/L	50.0		85.2	40-140			
Dibenzofuran	44.2	5.0	µg/L	50.0		88.5	40-140			
Di-n-butylphthalate	49.9	10	µg/L	50.0		99.8	40-140			
1,2-Dichlorobenzene	36.4	5.0	µg/L	50.0		72.8	40-140			
1,3-Dichlorobenzene	35.0	5.0	µg/L	50.0		69.9	40-140			
1,4-Dichlorobenzene	35.1	5.0	µg/L	50.0		70.1	40-140			
3,3-Dichlorobenzidine	59.6	10	µg/L	50.0		119	40-140			
2,4-Dichlorophenol	44.1	10	µg/L	50.0		88.2	30-130			
Diethylphthalate	47.5	10	µg/L	50.0		95.0	40-140			
2,4-Dimethylphenol	43.0	10	µg/L	50.0		86.0	30-130			
Dimethylphthalate	44.4	10	µg/L	50.0		88.8	40-140			
2,4-Dinitrophenol	31.3	10	µg/L	50.0		62.6	15-140			†
2,4-Dinitrotoluene	44.5	10	µg/L	50.0		89.0	40-140			
2,6-Dinitrotoluene	43.3	10	µg/L	50.0		86.7	40-140			
Di-n-octylphthalate	46.4	10	µg/L	50.0		92.8	40-140			
1,2-Diphenylhydrazine/Azobenzene	56.7	10	µg/L	50.0		113	40-140			
Fluoranthene	45.7	5.0	µg/L	50.0		91.4	40-140			
Fluorene	44.4	5.0	µg/L	50.0		88.8	40-140			

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B246765 - SW-846 3510C										
LCS (B246765-BS1)										
Prepared: 11/22/19 Analyzed: 11/26/19										
Hexachlorobenzene	45.6	10	µg/L	50.0		91.3	40-140			
Hexachlorobutadiene	36.0	10	µg/L	50.0		71.9	40-140			
Hexachloroethane	38.0	10	µg/L	50.0		76.0	40-140			
Indeno(1,2,3-cd)pyrene	48.6	5.0	µg/L	50.0		97.3	40-140			
Isophorone	50.7	10	µg/L	50.0		101	40-140			
2-Methylnaphthalene	47.7	5.0	µg/L	50.0		95.4	40-140			
2-Methylphenol	41.0	10	µg/L	50.0		82.0	30-130			
3/4-Methylphenol	41.2	10	µg/L	50.0		82.5	30-130			
Naphthalene	40.3	5.0	µg/L	50.0		80.6	40-140			
Nitrobenzene	45.1	10	µg/L	50.0		90.2	40-140			
2-Nitrophenol	41.2	10	µg/L	50.0		82.4	30-130			
4-Nitrophenol	31.6	10	µg/L	50.0		63.1	15-140			V-06 †
Pentachlorophenol	37.1	10	µg/L	50.0		74.2	30-130			
Phenanthrene	47.0	5.0	µg/L	50.0		93.9	40-140			
Phenol	21.7	10	µg/L	50.0		43.4	15-140			†
Pyrene	47.0	5.0	µg/L	50.0		93.9	40-140			
Pyridine	17.1	5.0	µg/L	50.0		34.3	10-140			†
1,2,4-Trichlorobenzene	37.5	5.0	µg/L	50.0		75.0	40-140			
2,4,5-Trichlorophenol	43.8	10	µg/L	50.0		87.6	30-130			
2,4,6-Trichlorophenol	42.9	10	µg/L	50.0		85.7	30-130			
Surrogate: 2-Fluorophenol	122		µg/L	200		60.9	15-110			
Surrogate: Phenol-d6	92.8		µg/L	200		46.4	15-110			
Surrogate: Nitrobenzene-d5	93.9		µg/L	100		93.9	30-130			
Surrogate: 2-Fluorobiphenyl	92.9		µg/L	100		92.9	30-130			
Surrogate: 2,4,6-Tribromophenol	235		µg/L	200		118 *	15-110			S-07
Surrogate: p-Terphenyl-d14	106		µg/L	100		106	30-130			
LCS Dup (B246765-BSD1)										
Prepared: 11/22/19 Analyzed: 11/26/19										
Acenaphthene	41.0	5.0	µg/L	50.0		82.0	40-140	3.31	20	
Acenaphthylene	42.0	5.0	µg/L	50.0		83.9	40-140	3.17	20	
Acetophenone	43.2	10	µg/L	50.0		86.4	40-140	5.67	20	
Aniline	37.8	5.0	µg/L	50.0		75.6	40-140	11.3	20	
Anthracene	44.4	5.0	µg/L	50.0		88.9	40-140	5.02	20	
Benzo(a)anthracene	44.4	5.0	µg/L	50.0		88.8	40-140	2.91	20	
Benzo(a)pyrene	43.3	5.0	µg/L	50.0		86.6	40-140	2.30	20	
Benzo(b)fluoranthene	44.4	5.0	µg/L	50.0		88.7	40-140	3.22	20	
Benzo(g,h,i)perylene	43.7	5.0	µg/L	50.0		87.4	40-140	2.75	20	
Benzo(k)fluoranthene	44.2	5.0	µg/L	50.0		88.5	40-140	1.86	20	
Bis(2-chloroethoxy)methane	42.6	10	µg/L	50.0		85.2	40-140	5.19	20	
Bis(2-chloroethyl)ether	42.1	10	µg/L	50.0		84.1	40-140	7.04	20	
Bis(2-chloroisopropyl)ether	52.1	10	µg/L	50.0		104	40-140	6.31	20	
Bis(2-Ethylhexyl)phthalate	47.4	10	µg/L	50.0		94.9	40-140	3.13	20	
4-Bromophenylphenylether	41.0	10	µg/L	50.0		81.9	40-140	5.97	20	
Butylbenzylphthalate	48.0	10	µg/L	50.0		96.1	40-140	4.71	20	
4-Chloroaniline	43.3	10	µg/L	50.0		86.6	15-140	13.3	20	†
2-Chloronaphthalene	35.4	10	µg/L	50.0		70.7	40-140	0.789	20	
2-Chlorophenol	38.5	10	µg/L	50.0		77.0	30-130	5.73	20	
Chrysene	44.4	5.0	µg/L	50.0		88.7	40-140	2.82	20	
Dibenz(a,h)anthracene	42.1	5.0	µg/L	50.0		84.3	40-140	1.16	20	
Dibenzofuran	42.3	5.0	µg/L	50.0		84.7	40-140	4.41	20	
Di-n-butylphthalate	46.4	10	µg/L	50.0		92.8	40-140	7.31	20	
1,2-Dichlorobenzene	33.0	5.0	µg/L	50.0		65.9	40-140	9.92	20	

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B246765 - SW-846 3510C										
LCS Dup (B246765-BSD1)										
Prepared: 11/22/19 Analyzed: 11/26/19										
1,3-Dichlorobenzene	32.2	5.0	µg/L	50.0		64.4	40-140	8.13	20	
1,4-Dichlorobenzene	32.3	5.0	µg/L	50.0		64.6	40-140	8.26	20	
3,3-Dichlorobenzidine	56.8	10	µg/L	50.0		114	40-140	4.93	20	
2,4-Dichlorophenol	41.3	10	µg/L	50.0		82.6	30-130	6.63	20	
Diethylphthalate	44.8	10	µg/L	50.0		89.7	40-140	5.76	20	
2,4-Dimethylphenol	37.7	10	µg/L	50.0		75.4	30-130	13.2	20	
Dimethylphthalate	42.1	10	µg/L	50.0		84.2	40-140	5.34	20	
2,4-Dinitrophenol	32.8	10	µg/L	50.0		65.7	15-140	4.83	20	†
2,4-Dinitrotoluene	41.8	10	µg/L	50.0		83.6	40-140	6.21	20	
2,6-Dinitrotoluene	43.0	10	µg/L	50.0		86.0	40-140	0.834	20	
Di-n-octylphthalate	44.6	10	µg/L	50.0		89.2	40-140	3.91	20	
1,2-Diphenylhydrazine/Azobenzene	53.9	10	µg/L	50.0		108	40-140	5.08	20	
Fluoranthene	43.7	5.0	µg/L	50.0		87.3	40-140	4.61	20	
Fluorene	42.8	5.0	µg/L	50.0		85.6	40-140	3.74	20	
Hexachlorobenzene	43.2	10	µg/L	50.0		86.3	40-140	5.61	20	
Hexachlorobutadiene	33.9	10	µg/L	50.0		67.7	40-140	5.99	20	
Hexachloroethane	35.2	10	µg/L	50.0		70.3	40-140	7.84	20	
Indeno(1,2,3-cd)pyrene	48.4	5.0	µg/L	50.0		96.8	40-140	0.474	20	
Isophorone	46.5	10	µg/L	50.0		92.9	40-140	8.73	20	
2-Methylnaphthalene	44.9	5.0	µg/L	50.0		89.8	40-140	6.03	20	
2-Methylphenol	36.1	10	µg/L	50.0		72.1	30-130	12.8	20	
3/4-Methylphenol	37.9	10	µg/L	50.0		75.8	30-130	8.41	20	
Naphthalene	37.6	5.0	µg/L	50.0		75.3	40-140	6.83	20	
Nitrobenzene	41.7	10	µg/L	50.0		83.5	40-140	7.72	20	
2-Nitrophenol	39.0	10	µg/L	50.0		78.0	30-130	5.39	20	
4-Nitrophenol	30.6	10	µg/L	50.0		61.2	15-140	3.09	20	V-06 †
Pentachlorophenol	33.6	10	µg/L	50.0		67.2	30-130	9.96	20	
Phenanthrene	45.1	5.0	µg/L	50.0		90.1	40-140	4.11	20	
Phenol	20.4	10	µg/L	50.0		40.9	15-140	5.89	20	†
Pyrene	45.8	5.0	µg/L	50.0		91.7	40-140	2.41	20	
Pyridine	14.9	5.0	µg/L	50.0		29.9	10-140	13.7	50	† ‡
1,2,4-Trichlorobenzene	35.5	5.0	µg/L	50.0		71.0	40-140	5.40	20	
2,4,5-Trichlorophenol	42.3	10	µg/L	50.0		84.6	30-130	3.53	20	
2,4,6-Trichlorophenol	41.4	10	µg/L	50.0		82.9	30-130	3.39	20	
Surrogate: 2-Fluorophenol	115		µg/L	200		57.3	15-110			
Surrogate: Phenol-d6	86.1		µg/L	200		43.1	15-110			
Surrogate: Nitrobenzene-d5	89.0		µg/L	100		89.0	30-130			
Surrogate: 2-Fluorobiphenyl	88.9		µg/L	100		88.9	30-130			
Surrogate: 2,4,6-Tribromophenol	226		µg/L	200		113	* 15-110			S-07
Surrogate: p-Terphenyl-d14	104		µg/L	100		104	30-130			

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QUALITY CONTROL
Polychlorinated Biphenyls By GC/ECD - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B246945 - SW-846 3510C
Blank (B246945-BLK1)

Prepared: 11/25/19 Analyzed: 11/26/19

Aroclor-1016	ND	0.20	µg/L							
Aroclor-1016 [2C]	ND	0.20	µg/L							
Aroclor-1221	ND	0.20	µg/L							
Aroclor-1221 [2C]	ND	0.20	µg/L							
Aroclor-1232	ND	0.20	µg/L							
Aroclor-1232 [2C]	ND	0.20	µg/L							
Aroclor-1242	ND	0.20	µg/L							
Aroclor-1242 [2C]	ND	0.20	µg/L							
Aroclor-1248	ND	0.20	µg/L							
Aroclor-1248 [2C]	ND	0.20	µg/L							
Aroclor-1254	ND	0.20	µg/L							
Aroclor-1254 [2C]	ND	0.20	µg/L							
Aroclor-1260	ND	0.20	µg/L							
Aroclor-1260 [2C]	ND	0.20	µg/L							
Aroclor-1262	ND	0.20	µg/L							
Aroclor-1262 [2C]	ND	0.20	µg/L							
Aroclor-1268	ND	0.20	µg/L							
Aroclor-1268 [2C]	ND	0.20	µg/L							
Surrogate: Decachlorobiphenyl	1.61		µg/L	2.00		80.4	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.51		µg/L	2.00		75.7	30-150			
Surrogate: Tetrachloro-m-xylene	1.35		µg/L	2.00		67.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.36		µg/L	2.00		68.1	30-150			

LCS (B246945-BS1)

Prepared: 11/25/19 Analyzed: 11/26/19

Aroclor-1016	0.33	0.20	µg/L	0.500		66.5	40-140			
Aroclor-1016 [2C]	0.35	0.20	µg/L	0.500		70.1	40-140			
Aroclor-1260	0.38	0.20	µg/L	0.500		76.2	40-140			
Aroclor-1260 [2C]	0.34	0.20	µg/L	0.500		67.3	40-140			
Surrogate: Decachlorobiphenyl	1.59		µg/L	2.00		79.3	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.50		µg/L	2.00		75.0	30-150			
Surrogate: Tetrachloro-m-xylene	1.37		µg/L	2.00		68.5	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.38		µg/L	2.00		69.0	30-150			

LCS Dup (B246945-BSD1)

Prepared: 11/25/19 Analyzed: 11/26/19

Aroclor-1016	0.33	0.20	µg/L	0.500		65.6	40-140	1.30	20	
Aroclor-1016 [2C]	0.35	0.20	µg/L	0.500		70.4	40-140	0.461	20	
Aroclor-1260	0.39	0.20	µg/L	0.500		77.3	40-140	1.50	20	
Aroclor-1260 [2C]	0.34	0.20	µg/L	0.500		67.6	40-140	0.436	20	
Surrogate: Decachlorobiphenyl	1.40		µg/L	2.00		70.2	30-150			
Surrogate: Decachlorobiphenyl [2C]	1.33		µg/L	2.00		66.4	30-150			
Surrogate: Tetrachloro-m-xylene	1.35		µg/L	2.00		67.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	1.36		µg/L	2.00		68.1	30-150			

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QUALITY CONTROL
Petroleum Hydrocarbons Analyses - EPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B246896 - SW-846 3510C
Blank (B246896-BLK1)

Prepared & Analyzed: 11/25/19

C9-C18 Aliphatics	ND	100	µg/L							
C19-C36 Aliphatics	ND	100	µg/L							
Unadjusted C11-C22 Aromatics	ND	100	µg/L							
C11-C22 Aromatics	ND	100	µg/L							
Acenaphthene	ND	2.0	µg/L							
Acenaphthylene	ND	2.0	µg/L							
Anthracene	ND	2.0	µg/L							
Benzo(a)anthracene	ND	2.0	µg/L							
Benzo(a)pyrene	ND	2.0	µg/L							
Benzo(b)fluoranthene	ND	2.0	µg/L							
Benzo(g,h,i)perylene	ND	2.0	µg/L							
Benzo(k)fluoranthene	ND	2.0	µg/L							
Chrysene	ND	2.0	µg/L							
Dibenz(a,h)anthracene	ND	2.0	µg/L							
Fluoranthene	ND	2.0	µg/L							
Fluorene	ND	2.0	µg/L							
Indeno(1,2,3-cd)pyrene	ND	2.0	µg/L							
2-Methylnaphthalene	ND	2.0	µg/L							
Naphthalene	ND	2.0	µg/L							
Phenanthrene	ND	2.0	µg/L							
Pyrene	ND	2.0	µg/L							
n-Decane	ND	10	µg/L							
n-Docosane	ND	10	µg/L							
n-Dodecane	ND	10	µg/L							
n-Eicosane	ND	10	µg/L							
n-Hexacosane	ND	10	µg/L							
n-Hexadecane	ND	10	µg/L							
n-Hexatriacontane	ND	10	µg/L							
n-Nonadecane	ND	10	µg/L							
n-Nonane	ND	10	µg/L							
n-Octacosane	ND	10	µg/L							
n-Octadecane	ND	10	µg/L							
n-Tetracosane	ND	10	µg/L							
n-Tetradecane	ND	10	µg/L							
n-Triacontane	ND	10	µg/L							
Naphthalene-aliphatic fraction	ND	2.0	µg/L							
2-Methylnaphthalene-aliphatic fraction	ND	2.0	µg/L							
Surrogate: Chlorooctadecane (COD)	62.6		µg/L	100		62.6	40-140			
Surrogate: o-Terphenyl (OTP)	68.0		µg/L	100		68.0	40-140			
Surrogate: 2-Bromonaphthalene	89.6		µg/L	100		89.6	40-140			
Surrogate: 2-Fluorobiphenyl	91.2		µg/L	100		91.2	40-140			

LCS (B246896-BS1)

Prepared & Analyzed: 11/25/19

C9-C18 Aliphatics	359	100	µg/L	600		59.8	0-200			
C19-C36 Aliphatics	569	100	µg/L	800		71.2	0-200			
Unadjusted C11-C22 Aromatics	1110	100	µg/L	1700		65.2	0-200			
Acenaphthene	59.6	2.0	µg/L	100		59.6	40-140			
Acenaphthylene	54.3	2.0	µg/L	100		54.3	40-140			
Anthracene	63.0	2.0	µg/L	100		63.0	40-140			
Benzo(a)anthracene	65.1	2.0	µg/L	100		65.1	40-140			
Benzo(a)pyrene	64.8	2.0	µg/L	100		64.8	40-140			
Benzo(b)fluoranthene	66.0	2.0	µg/L	100		66.0	40-140			

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QUALITY CONTROL
Petroleum Hydrocarbons Analyses - EPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B246896 - SW-846 3510C
LCS (B246896-BS1)

Prepared & Analyzed: 11/25/19

Benzo(g,h,i)perylene	66.6	2.0	µg/L	100		66.6	40-140			
Benzo(k)fluoranthene	64.7	2.0	µg/L	100		64.7	40-140			
Chrysene	66.6	2.0	µg/L	100		66.6	40-140			
Dibenz(a,h)anthracene	68.8	2.0	µg/L	100		68.8	40-140			
Fluoranthene	63.0	2.0	µg/L	100		63.0	40-140			
Fluorene	59.2	2.0	µg/L	100		59.2	40-140			
Indeno(1,2,3-cd)pyrene	64.8	2.0	µg/L	100		64.8	40-140			
2-Methylnaphthalene	53.4	2.0	µg/L	100		53.4	40-140			
Naphthalene	51.4	2.0	µg/L	100		51.4	40-140			
Phenanthrene	63.4	2.0	µg/L	100		63.4	40-140			
Pyrene	65.5	2.0	µg/L	100		65.5	40-140			
n-Decane	44.9	10	µg/L	100		44.9	40-140			
n-Docosane	67.3	10	µg/L	100		67.3	40-140			
n-Dodecane	53.7	10	µg/L	100		53.7	40-140			
n-Eicosane	68.9	10	µg/L	100		68.9	40-140			
n-Hexacosane	67.9	10	µg/L	100		67.9	40-140			
n-Hexadecane	67.1	10	µg/L	100		67.1	40-140			
n-Hexatriacontane	69.3	10	µg/L	100		69.3	40-140			
n-Nonadecane	67.7	10	µg/L	100		67.7	40-140			
n-Nonane	34.8	10	µg/L	100		34.8	30-140			
n-Octacosane	65.8	10	µg/L	100		65.8	40-140			
n-Octadecane	69.5	10	µg/L	100		69.5	40-140			
n-Tetracosane	67.4	10	µg/L	100		67.4	40-140			
n-Tetradecane	61.3	10	µg/L	100		61.3	40-140			
n-Triacontane	65.6	10	µg/L	100		65.6	40-140			
Naphthalene-aliphatic fraction	ND	2.0	µg/L	100			0-5			
2-Methylnaphthalene-aliphatic fraction	ND	2.0	µg/L	100			0-5			
Surrogate: Chlorooctadecane (COD)	57.4		µg/L	100		57.4	40-140			
Surrogate: o-Terphenyl (OTP)	59.0		µg/L	100		59.0	40-140			
Surrogate: 2-Bromonaphthalene	86.5		µg/L	100		86.5	40-140			
Surrogate: 2-Fluorobiphenyl	88.6		µg/L	100		88.6	40-140			

LCS Dup (B246896-BS1)

Prepared & Analyzed: 11/25/19

C9-C18 Aliphatics	411	100	µg/L	600		68.5	0-200	13.5		
C19-C36 Aliphatics	632	100	µg/L	800		79.0	0-200	10.4		
Unadjusted C11-C22 Aromatics	1210	100	µg/L	1700		71.3	0-200	9.02		
Acenaphthene	65.5	2.0	µg/L	100		65.5	40-140	9.47	25	
Acenaphthylene	59.7	2.0	µg/L	100		59.7	40-140	9.48	25	
Anthracene	70.2	2.0	µg/L	100		70.2	40-140	10.8	25	
Benzo(a)anthracene	72.5	2.0	µg/L	100		72.5	40-140	10.8	25	
Benzo(a)pyrene	71.2	2.0	µg/L	100		71.2	40-140	9.42	25	
Benzo(b)fluoranthene	72.6	2.0	µg/L	100		72.6	40-140	9.54	25	
Benzo(g,h,i)perylene	72.4	2.0	µg/L	100		72.4	40-140	8.26	25	
Benzo(k)fluoranthene	71.4	2.0	µg/L	100		71.4	40-140	9.86	25	
Chrysene	74.1	2.0	µg/L	100		74.1	40-140	10.7	25	
Dibenz(a,h)anthracene	74.9	2.0	µg/L	100		74.9	40-140	8.45	25	
Fluoranthene	70.5	2.0	µg/L	100		70.5	40-140	11.2	25	
Fluorene	65.4	2.0	µg/L	100		65.4	40-140	9.98	25	
Indeno(1,2,3-cd)pyrene	70.6	2.0	µg/L	100		70.6	40-140	8.47	25	
2-Methylnaphthalene	58.5	2.0	µg/L	100		58.5	40-140	9.11	25	
Naphthalene	56.1	2.0	µg/L	100		56.1	40-140	8.72	25	
Phenanthrene	70.4	2.0	µg/L	100		70.4	40-140	10.5	25	

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QUALITY CONTROL
Petroleum Hydrocarbons Analyses - EPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B246896 - SW-846 3510C										
LCS Dup (B246896-BSD1)					Prepared & Analyzed: 11/25/19					
Pyrene	73.2	2.0	µg/L	100		73.2	40-140	11.1	25	
n-Decane	46.9	10	µg/L	100		46.9	40-140	4.30	25	
n-Docosane	72.9	10	µg/L	100		72.9	40-140	8.02	25	
n-Dodecane	55.7	10	µg/L	100		55.7	40-140	3.63	25	
n-Eicosane	74.3	10	µg/L	100		74.3	40-140	7.57	25	
n-Hexacosane	72.8	10	µg/L	100		72.8	40-140	6.95	25	
n-Hexadecane	71.5	10	µg/L	100		71.5	40-140	6.43	25	
n-Hexatriacontane	76.6	10	µg/L	100		76.6	40-140	10.0	25	
n-Nonadecane	73.0	10	µg/L	100		73.0	40-140	7.44	25	
n-Nonane	36.4	10	µg/L	100		36.4	30-140	4.37	25	
n-Octacosane	70.4	10	µg/L	100		70.4	40-140	6.80	25	
n-Octadecane	74.5	10	µg/L	100		74.5	40-140	6.96	25	
n-Tetracosane	72.8	10	µg/L	100		72.8	40-140	7.64	25	
n-Tetradecane	64.2	10	µg/L	100		64.2	40-140	4.72	25	
n-Triacontane	70.2	10	µg/L	100		70.2	40-140	6.73	25	
Naphthalene-aliphatic fraction	ND	2.0	µg/L	100			0-5			
2-Methylnaphthalene-aliphatic fraction	ND	2.0	µg/L	100			0-5			
Surrogate: Chlorooctadecane (COD)	67.4		µg/L	100		67.4	40-140			
Surrogate: o-Terphenyl (OTP)	67.2		µg/L	100		67.2	40-140			
Surrogate: 2-Bromonaphthalene	92.2		µg/L	100		92.2	40-140			
Surrogate: 2-Fluorobiphenyl	93.6		µg/L	100		93.6	40-140			

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QUALITY CONTROL
Petroleum Hydrocarbons Analyses - VPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B246768 - MA VPH
Blank (B246768-BLK1)

Prepared & Analyzed: 11/22/19

Unadjusted C5-C8 Aliphatics	ND	100	µg/L							
C5-C8 Aliphatics	ND	100	µg/L							
Unadjusted C9-C12 Aliphatics	ND	100	µg/L							
C9-C12 Aliphatics	ND	100	µg/L							
C9-C10 Aromatics	ND	100	µg/L							
Benzene	ND	1.0	µg/L							
Butylcyclohexane	ND	1.0	µg/L							
Decane	ND	1.0	µg/L							
Ethylbenzene	ND	1.0	µg/L							
Methyl tert-Butyl Ether (MTBE)	ND	1.0	µg/L							
2-Methylpentane	ND	1.0	µg/L							
Naphthalene	ND	5.0	µg/L							
Nonane	ND	1.0	µg/L							
Pentane	ND	1.0	µg/L							
Toluene	ND	1.0	µg/L							
1,2,4-Trimethylbenzene	ND	1.0	µg/L							
2,2,4-Trimethylpentane	ND	1.0	µg/L							
m+p Xylene	ND	2.0	µg/L							
o-Xylene	ND	1.0	µg/L							
Surrogate: 2,5-Dibromotoluene (FID)	45.2		µg/L	40.0		113	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	45.2		µg/L	40.0		113	70-130			

LCS (B246768-BS1)

Prepared & Analyzed: 11/22/19

Benzene	55.4	1.0	µg/L	50.0		111	70-130			
Butylcyclohexane	59.1	1.0	µg/L	50.0		118	70-130			
Decane	47.8	1.0	µg/L	50.0		95.7	70-130			
Ethylbenzene	55.9	1.0	µg/L	50.0		112	70-130			
Methyl tert-Butyl Ether (MTBE)	53.3	1.0	µg/L	50.0		107	70-130			
2-Methylpentane	50.6	1.0	µg/L	50.0		101	70-130			
Naphthalene	53.0	5.0	µg/L	50.0		106	70-130			
Nonane	56.8	1.0	µg/L	50.0		114	30-130			
Pentane	50.5	1.0	µg/L	50.0		101	70-130			
Toluene	55.3	1.0	µg/L	50.0		111	70-130			
1,2,4-Trimethylbenzene	55.3	1.0	µg/L	50.0		111	70-130			
2,2,4-Trimethylpentane	50.1	1.0	µg/L	50.0		100	70-130			
m+p Xylene	113	2.0	µg/L	100		113	70-130			
o-Xylene	56.2	1.0	µg/L	50.0		112	70-130			
Surrogate: 2,5-Dibromotoluene (FID)	44.7		µg/L	40.0		112	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	44.5		µg/L	40.0		111	70-130			

LCS Dup (B246768-BS1)

Prepared & Analyzed: 11/22/19

Benzene	53.6	1.0	µg/L	50.0		107	70-130	3.36	25	
Butylcyclohexane	57.0	1.0	µg/L	50.0		114	70-130	3.66	25	
Decane	45.0	1.0	µg/L	50.0		90.0	70-130	6.14	25	
Ethylbenzene	53.9	1.0	µg/L	50.0		108	70-130	3.66	25	
Methyl tert-Butyl Ether (MTBE)	52.8	1.0	µg/L	50.0		106	70-130	0.941	25	
2-Methylpentane	48.2	1.0	µg/L	50.0		96.3	70-130	4.91	25	
Naphthalene	50.9	5.0	µg/L	50.0		102	70-130	4.07	25	
Nonane	54.9	1.0	µg/L	50.0		110	30-130	3.40	25	
Pentane	46.7	1.0	µg/L	50.0		93.3	70-130	7.87	25	
Toluene	53.5	1.0	µg/L	50.0		107	70-130	3.40	25	
1,2,4-Trimethylbenzene	53.7	1.0	µg/L	50.0		107	70-130	3.07	25	

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QUALITY CONTROL
Petroleum Hydrocarbons Analyses - VPH - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B246768 - MA VPH
LCS Dup (B246768-BSD1)

Prepared & Analyzed: 11/22/19

2,2,4-Trimethylpentane	46.9	1.0	µg/L	50.0		93.7	70-130	6.77	25	
m+p Xylene	109	2.0	µg/L	100		109	70-130	3.41	25	
o-Xylene	54.6	1.0	µg/L	50.0		109	70-130	3.03	25	
Surrogate: 2,5-Dibromotoluene (FID)	43.4		µg/L	40.0		108	70-130			
Surrogate: 2,5-Dibromotoluene (PID)	44.2		µg/L	40.0		111	70-130			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Metals Analyses (Dissolved) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B246658 - SW-846 7470A Dissolved										
Blank (B246658-BLK1)				Prepared & Analyzed: 11/21/19						
Mercury	ND	0.00010	mg/L							
LCS (B246658-BS1)				Prepared & Analyzed: 11/21/19						
Mercury	0.00437	0.00010	mg/L	0.00400		109	80-120			
LCS Dup (B246658-BSD1)				Prepared & Analyzed: 11/21/19						
Mercury	0.00436	0.00010	mg/L	0.00400		109	80-120	0.0548	20	
Batch B246783 - SW-846 3005A Dissolved										
Blank (B246783-BLK1)				Prepared & Analyzed: 11/22/19						
Antimony	ND	1.0	µg/L							
Arsenic	ND	0.80	µg/L							
Barium	ND	10	µg/L							
Beryllium	ND	0.40	µg/L							
Cadmium	ND	0.20	µg/L							
Chromium	ND	1.0	µg/L							
Lead	ND	0.50	µg/L							
Nickel	ND	5.0	µg/L							
Selenium	ND	5.0	µg/L							
Silver	ND	0.20	µg/L							
Thallium	ND	0.20	µg/L							
Vanadium	ND	5.0	µg/L							
Zinc	ND	10	µg/L							
LCS (B246783-BS1)				Prepared & Analyzed: 11/22/19						
Antimony	510	10	µg/L	500		102	80-120			
Arsenic	512	8.0	µg/L	500		102	80-120			
Barium	506	100	µg/L	500		101	80-120			
Beryllium	494	4.0	µg/L	500		98.8	80-120			
Cadmium	516	2.0	µg/L	500		103	80-120			
Chromium	528	10	µg/L	500		106	80-120			
Lead	519	5.0	µg/L	500		104	80-120			
Nickel	541	50	µg/L	500		108	80-120			
Selenium	512	50	µg/L	500		102	80-120			
Silver	517	2.0	µg/L	500		103	80-120			
Thallium	501	2.0	µg/L	500		100	80-120			
Vanadium	517	50	µg/L	500		103	80-120			
Zinc	1050	100	µg/L	1000		105	80-120			
LCS Dup (B246783-BSD1)				Prepared & Analyzed: 11/22/19						
Antimony	512	10	µg/L	500		102	80-120	0.336	20	
Arsenic	516	8.0	µg/L	500		103	80-120	0.893	20	
Barium	504	100	µg/L	500		101	80-120	0.348	20	
Beryllium	495	4.0	µg/L	500		99.0	80-120	0.218	20	
Cadmium	512	2.0	µg/L	500		102	80-120	0.708	20	
Chromium	526	10	µg/L	500		105	80-120	0.477	20	
Lead	519	5.0	µg/L	500		104	80-120	0.0849	20	
Nickel	541	50	µg/L	500		108	80-120	0.00388	20	
Selenium	523	50	µg/L	500		105	80-120	2.20	20	
Silver	508	2.0	µg/L	500		102	80-120	1.67	20	
Thallium	502	2.0	µg/L	500		100	80-120	0.286	20	
Vanadium	516	50	µg/L	500		103	80-120	0.0549	20	
Zinc	1060	100	µg/L	1000		106	80-120	0.307	20	

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS

Lab Sample ID: B246945-BS1 Date(s) Analyzed: 11/26/2019 11/26/2019

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.33	
	2	0.000	0.000	0.000	0.35	5.9
Aroclor-1260	1	0.000	0.000	0.000	0.38	
	2	0.000	0.000	0.000	0.34	11.1

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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***LCS Dup**Lab Sample ID: B246945-BSD1 Date(s) Analyzed: 11/26/2019 11/26/2019

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	0.33	
	2	0.000	0.000	0.000	0.35	5.9
Aroclor-1260	1	0.000	0.000	0.000	0.39	
	2	0.000	0.000	0.000	0.34	13.7

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
L-04	Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.
L-06	Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the high side.
L-14	Compound classified by MA CAM as difficult with acceptable recoveries of 40-160%. Recovery does not meet 70-130% criteria but does meet difficult compound criteria.
RL-07	Elevated reporting limit based on lowest point in calibration. MA CAM reporting limit not met.
S-07	One associated surrogate standard recovery is outside of control limits but the other(s) is/are within limits. All recoveries are > 10%.
V-05	Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.
V-06	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.
V-16	Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.
V-20	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>MADEP-EPH-04-1.1 in Water</i>	
C9-C18 Aliphatics	CT,NC,ME,NH-P
C19-C36 Aliphatics	CT,NC,ME,NH-P
Unadjusted C11-C22 Aromatics	CT,NC,ME,NH-P
C11-C22 Aromatics	CT,NC,ME,NH-P
Acenaphthene	CT,NC,ME,NH-P
Acenaphthylene	CT,NC,ME,NH-P
Anthracene	CT,NC,ME,NH-P
Benzo(a)anthracene	CT,NC,ME,NH-P
Benzo(a)pyrene	CT,NC,ME,NH-P
Benzo(b)fluoranthene	CT,NC,ME,NH-P
Benzo(g,h,i)perylene	CT,NC,ME,NH-P
Benzo(k)fluoranthene	CT,NC,ME,NH-P
Chrysene	CT,NC,ME,NH-P
Dibenz(a,h)anthracene	CT,NC,ME,NH-P
Fluoranthene	CT,NC,ME,NH-P
Fluorene	CT,NC,ME
Indeno(1,2,3-cd)pyrene	CT,NC,ME,NH-P
2-Methylnaphthalene	CT,NC
Naphthalene	CT,NC,ME,NH-P
Phenanthrene	CT,NC,ME,NH-P
Pyrene	CT,NC,ME,NH-P
<i>MADEP-VPH-Feb 2018 Rev 2.1 in Water</i>	
Unadjusted C5-C8 Aliphatics	CT,NC,ME,NH-P
C5-C8 Aliphatics	CT,NC,ME,NH-P
Unadjusted C9-C12 Aliphatics	CT,NC,ME,NH-P
C9-C12 Aliphatics	CT,NC,ME,NH-P
C9-C10 Aromatics	CT,NC,ME,NH-P
Benzene	CT,NC,ME,NH-P
Ethylbenzene	CT,NC,ME,NH-P
Methyl tert-Butyl Ether (MTBE)	CT,NC,ME,NH-P
Naphthalene	CT,NC,ME,NH-P
Toluene	CT,NC,ME,NH-P
m+p Xylene	CT,NC,ME,NH-P
o-Xylene	CT,NC,ME,NH-P
<i>SW-846 6020B in Water</i>	
Antimony	CT,NH,NY,ME,VA,NC
Arsenic	CT,NH,NY,NC,ME,VA
Barium	MA,NY,CT,NC,NH,ME,VA
Beryllium	CT,NH,NY,NC,ME,VA
Cadmium	CT,NH,NY,NC,ME,VA
Chromium	CT,NH,NY,NC,ME,VA
Lead	CT,NH,NY,NC,ME,VA
Nickel	CT,NH,NY,NC,ME,VA
Selenium	CT,NH,NY,NC,ME,VA
Silver	CT,NC,NH,NY,ME,VA
Thallium	CT,NH,NY,NC,ME,VA

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 6020B in Water</i>	
Vanadium	CT,NH,NY,NC,ME,VA
Zinc	CT,NH,NY,NC,ME,VA
<i>SW-846 7470A in Water</i>	
Mercury	CT,NH,NY,NC,ME,VA
<i>SW-846 8082A in Water</i>	
Aroclor-1016	CT,NH,NY,NC,ME,VA,PA
Aroclor-1016 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1221	CT,NH,NY,NC,ME,VA,PA
Aroclor-1221 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1232	CT,NH,NY,NC,ME,VA,PA
Aroclor-1232 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1242	CT,NH,NY,NC,ME,VA,PA
Aroclor-1242 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1248	CT,NH,NY,NC,ME,VA,PA
Aroclor-1248 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1254	CT,NH,NY,NC,ME,VA,PA
Aroclor-1254 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1260	CT,NH,NY,NC,ME,VA,PA
Aroclor-1260 [2C]	CT,NH,NY,NC,ME,VA,PA
Aroclor-1262	NH,NY,NC,ME,VA,PA
Aroclor-1262 [2C]	NH,NY,NC,ME,VA,PA
Aroclor-1268	NH,NY,NC,ME,VA,PA
Aroclor-1268 [2C]	NH,NY,NC,ME,VA,PA
<i>SW-846 8260C-D in Water</i>	
Acetone	CT,NH,NY,ME
tert-Amyl Methyl Ether (TAME)	NH,NY,ME
Benzene	CT,NH,NY,ME
Bromobenzene	ME
Bromochloromethane	NH,NY,ME
Bromodichloromethane	CT,NH,NY,ME
Bromoform	CT,NH,NY,ME
Bromomethane	CT,NH,NY,ME
2-Butanone (MEK)	CT,NH,NY,ME
n-Butylbenzene	NY,ME
sec-Butylbenzene	NY,ME
tert-Butylbenzene	NY,ME
tert-Butyl Ethyl Ether (TBEE)	NH,NY,ME
Carbon Disulfide	CT,NH,NY,ME
Carbon Tetrachloride	CT,NH,NY,ME
Chlorobenzene	CT,NH,NY,ME
Chlorodibromomethane	CT,NH,NY,ME
Chloroethane	CT,NH,NY,ME
Chloroform	CT,NH,NY,ME
Chloromethane	CT,NH,NY,ME
2-Chlorotoluene	NY,ME
4-Chlorotoluene	NY,ME

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8260C-D in Water</i>	
1,2-Dibromo-3-chloropropane (DBCP)	NY
1,2-Dibromoethane (EDB)	NY
Dibromomethane	NH,NY,ME
1,2-Dichlorobenzene	CT,NY,ME
1,3-Dichlorobenzene	CT,NH,NY,ME
1,4-Dichlorobenzene	CT,NH,NY,ME
Dichlorodifluoromethane (Freon 12)	NH,NY,ME
1,1-Dichloroethane	CT,NH,NY,ME
1,2-Dichloroethane	CT,NH,NY,ME
1,1-Dichloroethylene	CT,NH,NY,ME
cis-1,2-Dichloroethylene	NY,ME
trans-1,2-Dichloroethylene	CT,NH,NY,ME
1,2-Dichloropropane	CT,NH,NY,ME
1,3-Dichloropropane	NY,ME
2,2-Dichloropropane	NH,NY,ME
1,1-Dichloropropene	NH,NY,ME
cis-1,3-Dichloropropene	CT,NH,NY,ME
trans-1,3-Dichloropropene	CT,NH,NY,ME
Diisopropyl Ether (DIPE)	NH,NY,ME
Ethylbenzene	CT,NH,NY,ME
Hexachlorobutadiene	CT,NH,NY,ME
2-Hexanone (MBK)	CT,NH,NY,ME
Isopropylbenzene (Cumene)	NY,ME
p-Isopropyltoluene (p-Cymene)	CT,NH,NY,ME
Methyl tert-Butyl Ether (MTBE)	CT,NH,NY,ME
Methylene Chloride	CT,NH,NY,ME
4-Methyl-2-pentanone (MIBK)	CT,NH,NY,ME
Naphthalene	NH,NY,ME
n-Propylbenzene	CT,NH,NY,ME
Styrene	CT,NH,NY,ME
1,1,1,2-Tetrachloroethane	CT,NH,NY,ME
1,1,2,2-Tetrachloroethane	CT,NH,NY,ME
Tetrachloroethylene	CT,NH,NY,ME
Toluene	CT,NH,NY,ME
1,2,3-Trichlorobenzene	NH,NY,ME
1,2,4-Trichlorobenzene	CT,NH,NY,ME
1,1,1-Trichloroethane	CT,NH,NY,ME
1,1,2-Trichloroethane	CT,NH,NY,ME
Trichloroethylene	CT,NH,NY,ME
Trichlorofluoromethane (Freon 11)	CT,NH,NY,ME
1,2,3-Trichloropropane	NH,NY,ME
1,2,4-Trimethylbenzene	NY,ME
1,3,5-Trimethylbenzene	NY,ME
Vinyl Chloride	CT,NH,NY,ME
m+p Xylene	CT,NH,NY,ME
o-Xylene	CT,NH,NY,ME

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8270D-E in Water</i>	
Acenaphthene	CT,NY,NH
Acenaphthylene	CT,NY,NH
Acetophenone	NY
Aniline	CT,NY
Anthracene	CT,NY,NH
Benzo(a)anthracene	CT,NY,NH
Benzo(a)pyrene	CT,NY,NH
Benzo(b)fluoranthene	CT,NY,NH
Benzo(g,h,i)perylene	CT,NY,NH
Benzo(k)fluoranthene	CT,NY,NH
Bis(2-chloroethoxy)methane	CT,NY,NH
Bis(2-chloroethyl)ether	CT,NY,NH
Bis(2-chloroisopropyl)ether	CT,NY,NH
Bis(2-Ethylhexyl)phthalate	CT,NY,NH
4-Bromophenylphenylether	CT,NY,NH
Butylbenzylphthalate	CT,NY,NH
4-Chloroaniline	CT,NY,NH
2-Chloronaphthalene	CT,NY,NH
2-Chlorophenol	CT,NY,NH
Chrysene	CT,NY,NH
Dibenz(a,h)anthracene	CT,NY,NH
Dibenzofuran	CT,NY,NH
Di-n-butylphthalate	CT,NY,NH
1,2-Dichlorobenzene	CT,NY,NH
1,3-Dichlorobenzene	CT,NY,NH
1,4-Dichlorobenzene	CT,NY,NH
3,3-Dichlorobenzidine	CT,NY,NH
2,4-Dichlorophenol	CT,NY,NH
Diethylphthalate	CT,NY,NH
2,4-Dimethylphenol	CT,NY,NH
Dimethylphthalate	CT,NY,NH
2,4-Dinitrophenol	CT,NY,NH
2,4-Dinitrotoluene	CT,NY,NH
2,6-Dinitrotoluene	CT,NY,NH
Di-n-octylphthalate	CT,NY,NH
1,2-Diphenylhydrazine/Azobenzene	NY
Fluoranthene	CT,NY,NH
Fluorene	NY,NH
Hexachlorobenzene	CT,NY,NH
Hexachlorobutadiene	CT,NY,NH
Hexachloroethane	CT,NY,NH
Indeno(1,2,3-cd)pyrene	CT,NY,NH
Isophorone	CT,NY,NH
2-Methylnaphthalene	CT,NY,NH
2-Methylphenol	CT,NY,NH
3/4-Methylphenol	CT,NY,NH
Naphthalene	CT,NY,NH

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8270D-E in Water</i>	
Nitrobenzene	CT,NY,NH
2-Nitrophenol	CT,NY,NH
4-Nitrophenol	CT,NY,NH
Pentachlorophenol	CT,NY,NH
Phenanthrene	CT,NY,NH
Phenol	CT,NY,NH
Pyrene	CT,NY,NH
1,2,4-Trichlorobenzene	CT,NY,NH
2,4,5-Trichlorophenol	CT,NY,NH
2,4,6-Trichlorophenol	CT,NY,NH

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Public Health	PH-0567	09/30/2021
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2020
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2020
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020



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CHAIN OF CUSTODY RECORD

Doc # 381 Rev 1 03242017

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

MEK

Company Name: WESTON & SAMPSON
Address: 55 WALKERS BROOK DR READDUN
Phone: 1800 SAMPSON
Project Name: BLOOMING & WILLIAMS ST
Project Location: CHELSEA MA
Project Number: 290031
Project Manager: LEE KOSKA
Con-Test Quote Name/Number: _____
Invoice Recipient: LEE KOSKA
Sampled By: MDM

Requested Turnaround Time

7-Day ☐ 10-Day ☐

Due Date: 5 DAY

Rush-Approval Required

1-Day ☐ 3-Day ☐

2-Day ☐ 4-Day ☐

Data Delivery

Format: PDF ☒ EXCEL ☒

Other: _____

CLP Like Data Pkg Required: ☐

Email To: KOSKAL@WSEDC.NC

Fax To #: _____

3	2	2	3	3	1				
7	2	2	1	2	1				
V	A	A	V	A	P				
ANALYSIS REQUESTED									
SVOCs (BZC)									
SVOCs									
PCBs									
VPH									
EPH									
DISS METALS									
X	X	X	X	X	X				

~~APC~~

# of Containers	
² Preservation Code	
³ Container Code	
<i>Dissolved Metals Samples</i>	
☒ Field Filtered	
☐ Lab to Filter	
<i>Orthophosphate Samples</i>	
☐ Field Filtered	
☐ Lab to Filter	

1 Matrix Codes:
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please
define)

2 Preservation Codes:
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium
 Thiosulfate
O = Other (please
 define)

3 Container Codes:
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please
 define)

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	*Matrix Code	Conc. Code
1	MW-OE	11/18/19	11/15	-	X	BIN	U XXXXX X

~~MADE~~

~~11/18/19~~

Comments:

Comments:	MCP metals per clients request - MEK 11/20/19
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Please use the following codes to indicate possible sample concentration within the **Conc Code** column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Duration Limit Requirements		Special Requirements	
MA	RN-2	☒	MA MCP Required
	GN-3		MCP Certification Form Required
CT		☐	CT RCP Required
			RCP Certification Form Required
		☐	MA State DW Required
Other		PWSID #	

Project Entity			
☐	Government	☐	Municipality
☐	Federal	☐	21 J
☒	City	☐	Brownfield
		☐	MWRA
		☐	School
		☐	MRTA

<u>PCB ONLY</u>	
☐	Soxhlet
☐	Non Soxhlet

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Table of Contents

I Have Not Confirmed Sample Container
Numbers With Lab Staff Before Relinquishing
Over Samples _____



con-test®
ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False
Statement will be brought to the attention of the Client - State True or False

Client Weston + Sampson

Received By BBK Date 11/19/19 Time 1845

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____
Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C T By Gun # 2 Actual Temp - 2.6°C
By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? N/A Were Samples Tampered with? n/a

Was COC Relinquished? T Does Chain Agree With Samples? _____

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all Client T Analysis T Sampler Name T

pertinent Information? Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? F Who was notified? _____

Is there enough Volume? T

Is there Headspace where applicable? F MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? _____ Acid pH 2 Base n/a

Vials	#	Containers:	#	#	#	#
Unp-		1 Liter Amb.	<u>6</u>	1 Liter Plastic		16 oz Amb.
HCL-	<u>6</u>	500 mL Amb.		500 mL Plastic		8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic	<u>1</u>	4oz Amb/Clear
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear
DI-		Other Glass		Other Plastic		Encore
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:
Sulfuric-		Perchlorate		Ziplock		

Unused Media

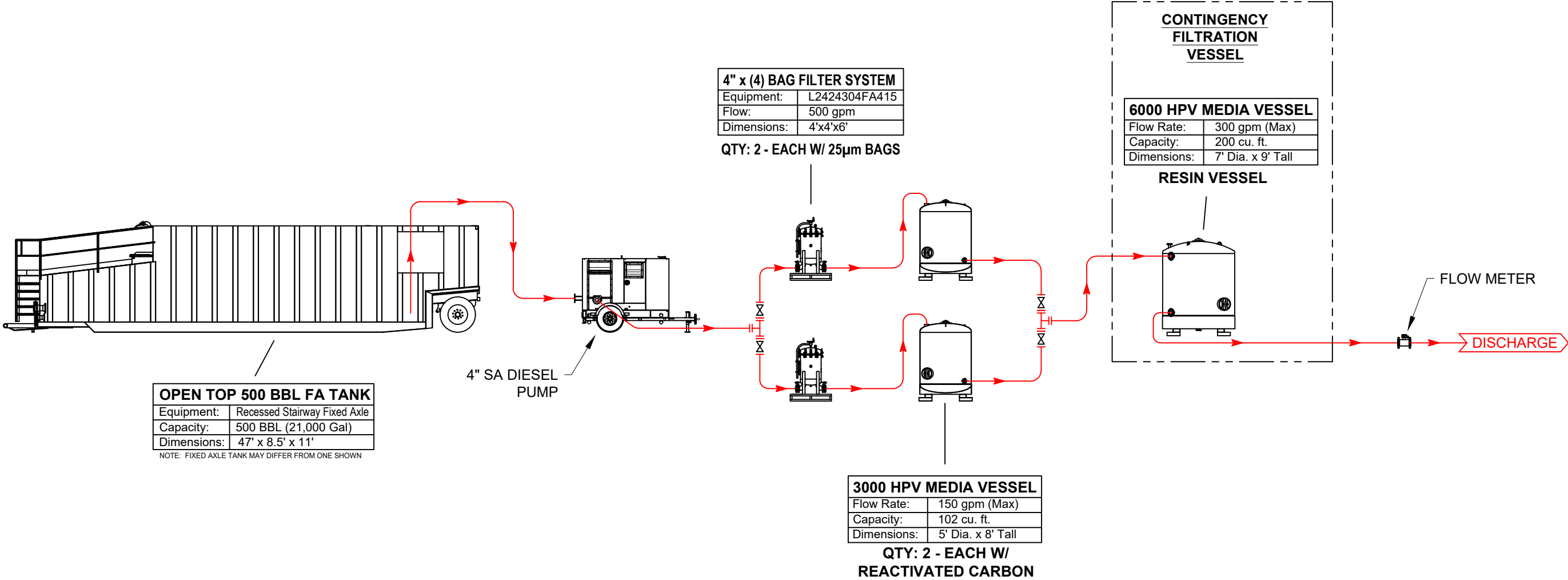
Vials	#	Containers:	#	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear
DI-		Other Plastic		Other Glass		Encore
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:
Sulfuric-		Perchlorate		Ziplock		

Comments:

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Con-Test Analytical Laboratory		Project #: 19K1172	
Project Location: Beacham & Williams St. Chelsea, MA		RTN:	
This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)] 19K1172-01			
Matrices: Water			
CAM Protocol (check all that below)			
8260 VOC CAM II A (X)	7470/7471 Hg CAM IIIB (X)	MassDEP VPH CAM IV A (X)	8082 PCB CAM V A (X)
			9014 Total Cyanide/PAC CAM VI A ()
			6860 Perchlorate CAM VIII B ()
8270 SVOC CAM II B (X)	7010 Metals CAM III C ()	MassDEP VPH CAM IV C ()	8081 Pesticides CAM V B ()
			7196 Hex Cr CAM VI B ()
			MassDEP APH CAM IX A ()
6010 Metals CAM III A ()	6020 Metals CAM III D (X)	MassDEP EPH CAM IV B (X)	8151 Herbicides CAM V C ()
			8330 Explosives CAM VIII A ()
			TO-15 VOC CAM IX B ()
Affirmative response to Questions A through F is required for "Presumptive Certainty" status			
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?		☒ Yes ☐ No ¹
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?		☒ Yes ☐ No ¹
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?		☒ Yes ☐ No ¹
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?		☒ Yes ☐ No ¹
E a	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).		☒ Yes ☐ No ¹
E b	APH and TO-15 Methods only: Was the complete analyte list reported for each method?		☐ Yes ☐ No ¹
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all No responses to Questions A through E)?		☒ Yes ☐ No ¹
A response to questions G, H and I below is required for "Presumptive Certainty" status			
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?		☐ Yes ☒ No ¹
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.			
H	Were all QC performance standards specified in the CAM protocol(s) achieved?		☐ Yes ☒ No ¹
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?		☒ Yes ☐ No ¹
¹ All Negative responses must be addressed in an attached Environmental Laboratory case narrative.			
I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.			
Signature: <u>Lisa Worthington</u>		Position: <u>Technical Representative</u>	
Printed Name: <u>Lisa A. Worthington</u>		Date: <u>11/26/19</u>	

ATTACHMENT 3



The information presented on this drawing is for informational purposes only. Use of this drawing is not a replacement for a professional engineering evaluation of the application. This drawing is intended to show preliminary equipment requirements and arrangement and is in no way a replacement for a thorough engineering review of the application at hand. A representative of the customer or end user should always conduct the final evaluation of the application. That representative, and not United Rentals, or its employees and representatives, is responsible for the final engineering design and performance of the application.

No warranty is provided or implied, including any warranty of fitness for a particular purpose. As such, the customer agrees that by using the suggestions shown on this drawing, you assume the risk of all loss or injury resulting from any information found within. In no event shall United Rentals, or any representative or agent thereof, be liable under any theory based in contract, negligence or strict liability or any other legal or equitable theory to any party for amounts including, without limitation, lost revenues, lost profits, lost business or indirect, consequential, incidental, special or punitive damages. This disclaimer shall survive any and all notices advising of the possibility that any user may suffer harm from any inaccuracies contained herein.

3415 W. CARDINAL DR.
BEAUMONT, TX 77705

TITLE:

250 GPM GROUNDWATER TREATMENT SYSTEM
PROCESS FLOW DIAGRAM

SHEET SIZE: **B**
11" x 17"

MATERIAL:

FINISH:

CUSTOMER: FED CORP

DWG BY: M. BROOKS

CKD BY: M. SCOPELLETI

DATE: 04-20-21

DATE: 04-20-21

DWG No: **SKF6613**

BRANCH: BOS

SHEET: 1 OF: 1

REV: _

PRODUCT DATA SHEET

January, 2014

EZ CLEAN FIXED AXLE OPEN ACCESS TANK (Full Walkway)

GENERAL INFORMATION

This fixed axle tank is designed to provide easy viewing of the contents. Very economical tank for smaller jobs or where space is a premium. Smooth interior walls for easy cleaning.

WEIGHTS AND MEASURES

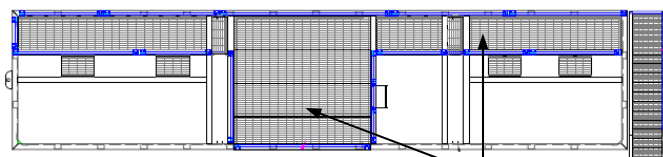
» Capacity:	.....	480 BBL (20,160 gal.)
» Height:	.....	11'-4" (grade to top rim) 14'-10" (grade to top of upright guardrails)
» Width:	.....	8'-6" (between side runners)
» Length:	.....	39'-11" (front nose to outside of rear stairway) 37'-6" (tank only)
» Weight:	.....	22,860 lbs.

STRUCTURAL DESIGN

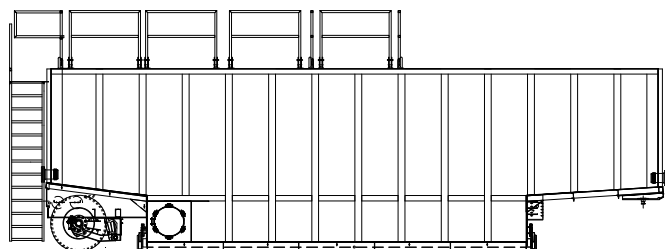
» Floor:	.....	1/4" thick ASTM A36 carbon steel (V-bottom)
» Sides/Ends:	.....	1/4" thick ASTM A36 carbon steel
» Top Catwalk:	.....	1" deep bar grating
» Wall Frame:	.....	3/16"x3"x5" ASTM A36 formed channel
» Top Rim:	.....	4"x4" structural tubing
» Skid Rails:	.....	C8x11.5 structural channel

FEATURES

» Valves:	.....	1-Front & 1-Rear: 6"- wafer butterfly valve. Cast iron body, Buna-N seat & seals, 316 SS stem, Nylon 11 coated ductile iron disk w/ plug and chain.
» Relief Valve:	.....	None (open top)
» Side Manway:	.....	One on curb side of tank; 20" diameter.



Top View Catwalk



Side View

FEATURES – cont.

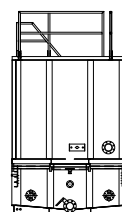
» Front Piping Connections:	.....	<u>Bottom Drain:</u> 6"-150# flanged nozzle and butterfly valve <u>Inlet/Outlet:</u> 2 - 4"-150# raised face flange with blind flange (chained) <u>Thermowell:</u> 1 - 2" 150# blind flanged connection <u>Adjustable Discharge:</u> 1 - 6" 150# blind flanged nozzle
» Rear Piping Connections:	.....	<u>Bottom Drain:</u> 6"-150# flanged nozzle and butterfly valve <u>Inlet/Outlet:</u> 2 - 4"-150# raised face flange with blind flange (chained) <u>Adjustable Discharge:</u> 1 - 6" 150# blind flanged nozzle
» Interior Access:	.....	One internal ladder from middle catwalk
» Manway Seal:	.....	Buna N gasket
» Catwalk Access Stairway:	.....	Rear mounted – lower section folds up for transport and down for use. Stairway includes handrails.
» Guardrails:	.....	Top deck, fold-down, 1 1/4" x 1 1/4" square tubing.
» Level Indication:	.....	None
» Axle:	.....	77 1/2" track straight, non steer, 22,500# capacity.
» Suspension:	.....	Silent Drive, 3 air-bags with manual release.

SURFACE DETAILS

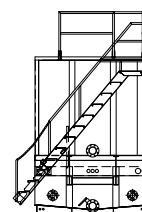
» Exterior Coating:	.....	High Gloss Polyurethane
» Interior Coating:	.....	Chemical resistant lining

TESTS/CERTIFICATIONS

» Tests Performed:		Major repairs – hydrotest Scheduled- Level I, II and III inspections
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Front View



Rear View

To the best of our knowledge the technical data contained herein are true and accurate at the date of issuance and are subject to change without prior notice. No guarantee of accuracy is given or implied because variations can and do exist. NO WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY BAKERCORP, EITHER EXPRESSED OR IMPLIED.

3020 OLD RANCH PARKWAY • SUITE 220 • SEAL BEACH, CA • 562-430-6262

4" Diesel Pump

Vacuum Assisted – dBa Silencer

Product Description

Diesel engine driven centrifugal pump equipped with vacuum-assisted priming system.

Trailer mounted for easy transportation and enclosure for sound attenuation, having the following additional features: Run dry mechanical seal, Auto-start control, monitoring of fuel level, engine load, run time, oil and coolant temperature, and telemetry system.

Technical Data

Operating Parameters

Min. / Max. Flow	280 gpm / 1380 gpm
Min. / Max. Shutoff Head	57 ft (25psi) / 158 ft (68psi)
Maximum Casing Pressure	150 psi
Maximum Temperature	200°F
Maximum Solid Size	3 inch
Min. / Max. Pump Speed	1200 rpm / 2000 rpm

Pump & Accessory Specifications

Suction / Discharge Size	4 inch / 4 inch
Impeller Diameter	10.09 inch
Vacuum System - Type / Capacity	Diaphragm / 50 CFM

Casing	Cast Iron
Impeller	CA6NM Stainless Steel
Wear Ring	Cast Iron
Shaft	Stressproof Steel
Mechanical Seal Faces	Tungsten/Silicon-Carbide
Mechanical Seal Lubrication	ISO Viscosity Grade 32 or Lower (synthetic recommended)
O-rings & Gaskets	Buna-N & Viton
Check Valve Body	Ductile Iron
Check Valve Flapper	Buna-N
Check Valve Type	Swing type

Driver Properties	Type A	Type B
Driver Type	Diesel Engine	Diesel Engine
Driver Make	Cummins	Duetz
Model	QSF 2.8	D2.9L
Max. Continuous Rating	49 hp	49 hp
Total Displacement	2.8 liters	2.9 liters
Aspiration	Turbocharged	Naturally aspirated
Number of Cylinders	4	4
Safety Shutdowns	Low Oil Pressure, High Temp.	Low Oil Pressure, High Temp.
Fuel Consumption	1.6 gal/hr @ 1800 rpm	1.7 gal/hr @ 1800 rpm
Run Time	52.9 hours @ 1800 rpm	59.5 hours @ 1800 rpm
Fuel Type	No. 2 Diesel: NO BIODIESEL	No. 2 Diesel: NO BIODIESEL
Fuel Capacity	120 U.S. gallons	100 U.S. gallons
Noise Rating	70 dBa @ 30 feet	68 dBa @ 23 ft



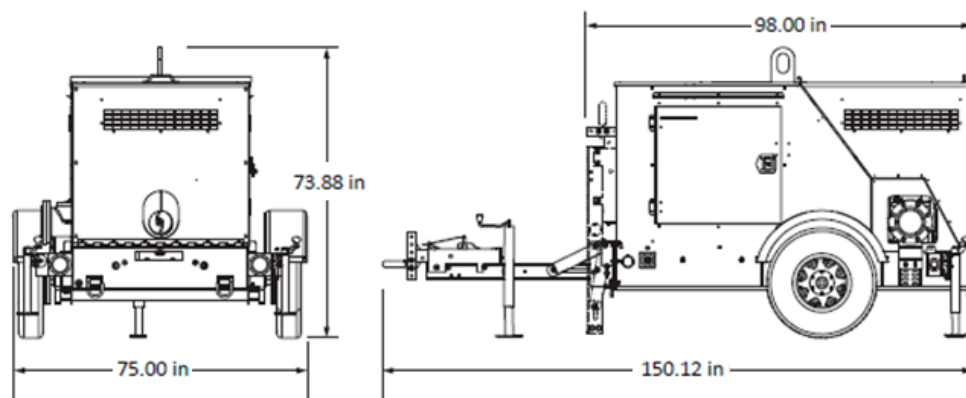
Notes

- Performance data based on water at 60°F
- Run time indicated is for reference and could vary based on speed and engine loads
- Maximum temperature is the equipment material limitation. Based on the application, process, product and NPSH requirements, the maximum allowable temperature could be lower
- This pump is also available with a 20 CFM venturi-compressor priming system

4" Diesel Pump

Vacuum Assisted – dBa Silencer

Dimensional Drawing



Dimensional Details

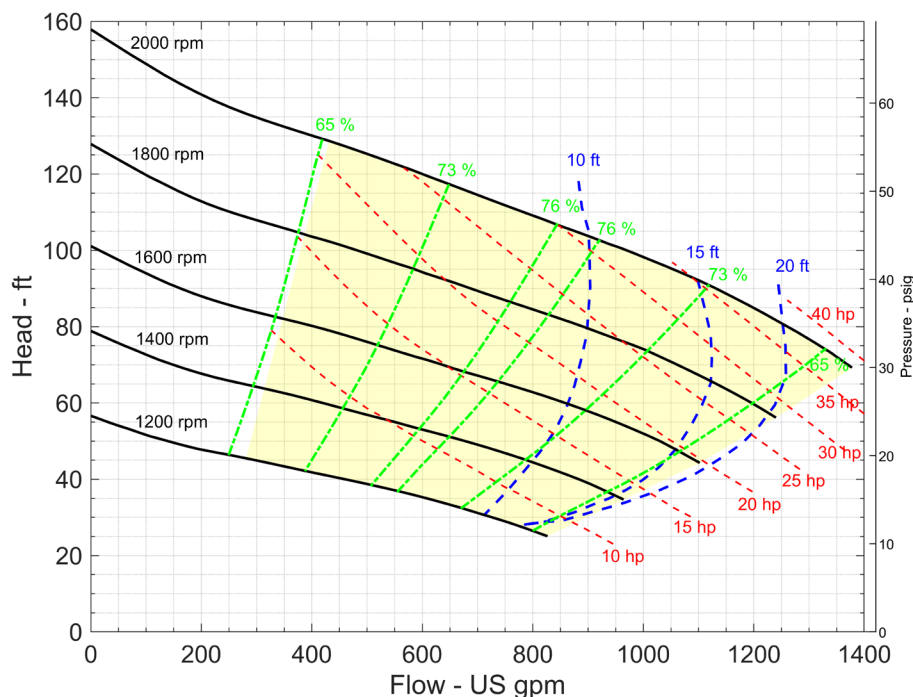
Type A

Total Weight wo/Fuel	3586 lbs
Total Weight w/Fuel	4400 lbs
Overall Height	74 inch
Overall Width	75 inch
Overall Length	150 inch

Type B

Total Weight wo/Fuel	4102 lbs
Total Weight w/Fuel	4812 lbs
Overall Height	74 inch
Overall Width	75 inch
Overall Length	150 inch

Performance Curve



Pump Make	Cornell
Pump Model	4NNT
Operating Speed	Variable
Min. Speed	1200 rpm
Max. Speed	2000 rpm
Impeller Rated Dia.	10.09 inch
Impeller Type	Enclosed
No. of Impeller Vanes	2
Solid Dia.	3 inch
Specific Speed	1900 US Units
Suction Size	4 inch
Discharge Size	4 inch

PRODUCT DATA SHEET

4" 304 S.S. BAG FILTER SYSTEM

GENERAL INFORMATION

Single vessel mounted on a forkliftable skid. Housing is not ASME code stamped. Different filter elements are available depending on job requirements and should be specified by the customer prior to use.

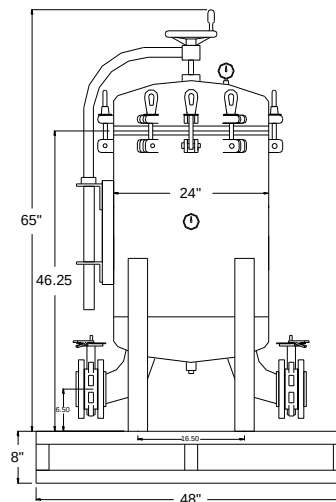
WEIGHTS AND MEASURES

» Capacity*:	.....	200 - 500 gpm (@ 5 microns and up)
» Design Press:	.....	150 psig
» Design Temp:	.....	225°F max.
» Height:	.....	6'-1" (overall)
» Width:	.....	4'-0"
» Depth:	.....	4'-0"
» Weight:	.....	850 lbs. (approx.)

*Capacity (flowrate) depends on factors such as liquid viscosity, micron value of the filter media, solids loading etc. Assuming water as a filtrate and factoring in pressure drop only, 500 gpm is a practical upper limit for a size #2 bag with a 10 micron rating. Clean pressure drop would be 2-3 psi. Lowering the micron rating increases the pressure drop. The minimum pressure drop for this unit at higher micron ratings is 1-2 psi. Filter bags should be changed out at 15-18 psid, or earlier if the process requires it. These units are gravity-flow capable.

SKID DESIGN

» Skid:	.....	2"x2" and 2"x4" c.s.
» Vessel Leg Supports:	.....	3x3x.375 angle, SA-36
» Forklift Pockets:	.....	Through front and rear framing channels (Each pocket is 21" wide)

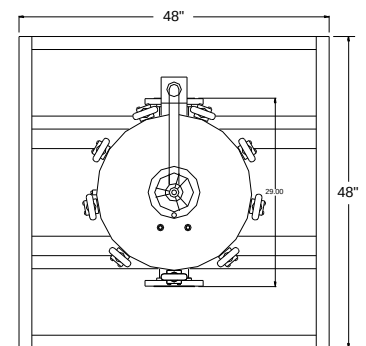


FILTER DESIGN

» Assembly Number:	.....	Krystil Klear L2424304FA415-SKID
» Top Head:	.....	Nine closure bolts and nuts with davit lift assembly. 24" O.D., 0.25" thk, SA-240 Gr. 304
» Shell:	.....	24" O.D., 0.25" thick weld pipe, SA-312 Gr. 304
» In/Out Piping:	.....	4" Male Cam Lock
» Inlet & Outlet:	.....	4" 150# 304 S.S. RFSO flanges
» Bag Elements:	.....	Four required: One size #2, 7-1/16" snap ring & 30" length required; Available fibers range from 1 to 1500 microns.
» Lid Seal:	.....	Buna N O-ring
» In/Out Valves:	.....	4" 150" butterfly with Buna seat
» Internal Hardware:	.....	316 SS center guide post, cup & spring assemblies

TESTS / CERTIFICATIONS

» Test Performed:		OEM Hydrotested @ 195 psi. Scheduled QMS inspections after purchase by BakerCorp.
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PRODUCT DATA SHEET

January, 2007

KLEEN.WATER 3000HPV

GENERAL INFORMATION

These units are designed for the efficient purification of contaminated water or liquid streams. These filters have the ability to remove contaminants to non-detectable levels. The vessels are constructed of heavy-duty mild steel and are lined with a double-layer epoxy coating. These filters are shipped from our warehouse with high quality filtration media ready for connection to process piping. Once the media is "spent", Baker can provide a number of service and disposal options.

WEIGHTS AND MEASURES

» Max. Flowrate:	150 gpm
» Max. Pressure:	75 psi
» Max. Temp:	150°F
» Height:	96"
» Diameter:	60"
» Shipping Wt*: (drum + media) (* Media dependent)	4350 lbs. – 7350 lbs.

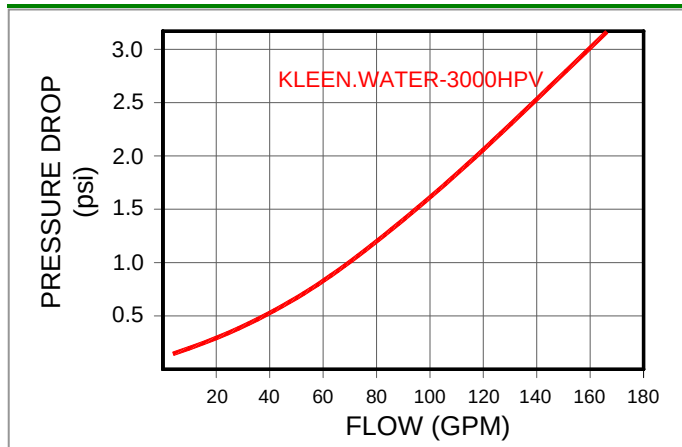
FILTER MEDIA

» Types:	•Activated Carbon •Organoclay •Ion Exchange Resin •Specialty Media
» Volume:	102 cu. ft.
» Weight*: (* Media dependent)	3000 lbs. – 6000 lbs.

MISCELLANEOUS

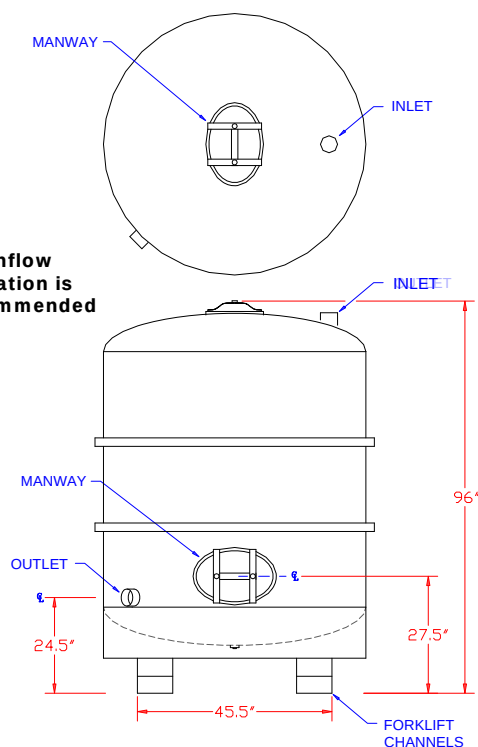
» Inlet:	4" FNPT
» Outlet:	4" FNPT
» Interior Coating:	Double-layered epoxy coating
» Internals:	PVC underdrain
» Media Access:	Top & side 12"x16" manways (neoprene gaskets)

PRESSURE DROP DATA



NOTE:

1. Wet activated carbon preferentially removes oxygen from air. In closed or partially closed containers and vessels, oxygen depletion may reach hazardous levels. If workers are to enter a vessel containing carbon, appropriate procedures for potentially low oxygen spaces must be followed, including all federal and state requirements.





COL - GL 60R (8x30)

LIQUID PHASE BITUMINOUS COAL BASE ACTIVATED CARBON

COL-GL 60R (8 x 30) is a hard reactivated bituminous coal-based activated carbon which is recommended for a variety of waste water and process water treatment. **COL-GL 60R (8 x 30)** efficiently removes chlorine, taste and odor compounds, and volatile organics, even with brief contact times.

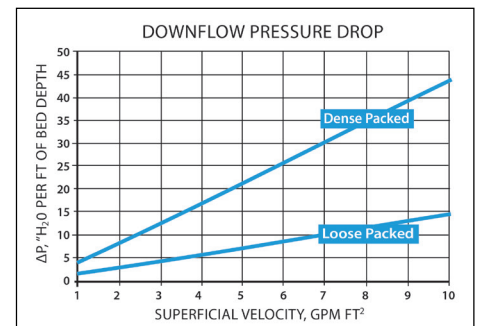


SPECIFICATIONS	COC-L 60R	ASTM TEST METHOD
Iodine Number, min	750	–
Bulk Density, min	0.54g/cc	D-2854
Abrasion No., mi.	75	–
Effective Size, mm	0.8–1.0	–
Moisture as packed	2%	D-2867
U.S. Standard Sieve Size	8 x 30	–
Larger than No. 8, max.	5%	
Smaller than No. 30, max.	5%	



APPLICATIONS

- Remediation
- Wastewater Treatment
- Condensate Water Treatment
- Range of Process Water Treatment



STANDARD PACKAGING

- 55 lb or 27.5 lb polylined polypropylene bags
- 200 lb fiber drums
- 1100 lb supersacks

This information is offered solely for your consideration and verification. It has been gathered from reference materials and/or test procedures and is believed to be true and accurate. None of this information shall be constituting a warranty or representation, expressed or implied, for which we assume legal responsibility or that the information or goods described is fit for any particular use either alone or in combination with other goods or processes.



ATTACHMENT 4



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:

March 17, 2021

Consultation Code: 05E1NE00-2021-SLI-1883

Event Code: 05E1NE00-2021-E-05966

Project Name: Beacham Street and Williams Street Utility and Roadway Improvements

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

To Whom It May Concern:

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

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

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

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

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

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

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

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at:

<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>;

<http://www.towerkill.com>; and

www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

[http://](http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html)

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

Attachment(s):

- Official Species List
-

Official Species List

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

This species list is provided by:

New England Ecological Services Field Office

70 Commercial Street, Suite 300

Concord, NH 03301-5094

(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2021-SLI-1883

Event Code: 05E1NE00-2021-E-05966

Project Name: Beacham Street and Williams Street Utility and Roadway Improvements

Project Type: TRANSPORTATION

Project Description: Beacham Street and Williams Street Utility and Roadway Improvements
in City of Chelsea, MA
Contract 2021-132

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@42.39362755,-71.04603336568339,14z>



Counties: Middlesex and Suffolk counties, Massachusetts

Endangered Species Act Species

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

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

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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.

Chhavan Nuon

From: Lester Valente <lester@fedcorponline.com>
Sent: Tuesday, April 6, 2021 6:52 AM
To: Chhavan Nuon
Subject: FW: EPA NeT CGP Notice of Intent (NOI) Submitted - Beacham Street and Williams Street Utility and Roadway Improvements, NPDES ID: MAR10038B
Attachments: Atlantic Sturgeon (9).csv; Shortnose Sturgeon (10).csv; Atlantic Large Whales (4).csv; Sea Turtles (7).csv

Follow Up Flag: Follow up
Flag Status: Flagged

Lester Valente
Chief Engineer

FED. CORP.
617-590-0035 Cell

From: NMFS.PGP WAORCANOIs - NOAA Service Account <nmfs.pgp.waorcanois@noaa.gov>
Sent: Monday, April 5, 2021 3:36 PM
To: gray.davidj@epa.gov
Cc: Lester Valente <lester@fedcorponline.com>
Subject: Fwd: EPA NeT CGP Notice of Intent (NOI) Submitted - Beacham Street and Williams Street Utility and Roadway Improvements, NPDES ID: MAR10038B

Hello

It is in the Operator's best interest to certify under Criterion D. This message can be attached to the NOI in support of that determination. While the receiving waterbody is identified on NMFS' [Greater Atlantic Region's Section 7 mapper](#) as being used by ESA-listed species (reports attached), stormwater is discharged via an MS4 and NMFS concurred with EPA's "not likely to adversely affect" determination for the MS4. The operator's basis statement should indicate that, while their stormwater will reach waters where ESA-listed species may be exposed, the discharges are expected to be consistent with the "not likely to adversely affect" determination resulting from the ESA section 7 consultation on the MS4 conveyance.

Thanks

Pat

----- Forwarded message -----

From: <no-reply@epacdx.net>
Date: Thu, Apr 1, 2021 at 12:39 PM
Subject: EPA NeT CGP Notice of Intent (NOI) Submitted - Beacham Street and Williams Street Utility and Roadway Improvements, NPDES ID: MAR10038B
To: <no-reply@epacdx.net>

2021-04-01

A Notice of Intent (NOI) requesting coverage for Beacham Street and Williams Street Utility and Roadway Improvements, Beacham Street, under EPA's Construction General Permit (CGP) was submitted to the EPA and a copy can be found [here](#). The operator of this Project Site indicated that he/she is eligible under ESA eligibility criterion A.

The latitude/longitude of this Project Site is: (42.39427, -71.04783).

Please review this NOI and contact the EPA with any concerns within the 14-day review period at NPDESereporting@epa.gov.

Eligibility criteria and procedures for determining permit eligibility with regard to protection of ESA-listed species and/or designated critical habitat(s) are described in the attached Appendix D of the permit, and also available at: <https://www.epa.gov/npdes/stormwater-discharges-construction-activities#cgp>.

This is an automated notification; please do not reply to this email.

OBJECTID	UNIQUEID	SPGROUP	SPNAME	SPLATIN	DPS
3	RIT_WRN_AJV_FOR	Whales	North Atlantic right whale	Eubalaena glacialis	No Data
4	RIT_WRN_AJV_WIN	Whales	North Atlantic right whale	Eubalaena glacialis	No Data
6	FIN_WFN_AJV_WIN	Whales	Fin whale	Balaenoptera physalus	No Data
7	FIN_WFN_AJV_FOR	Whales	Fin whale	Balaenoptera physalus	No Data

ESASTATUS	FRCIT	RECPLAN	LIFESTAGE	BEHAVIOR	WATERSHED
Endangered	73 FR 12024	NMFS 2005	Adults and juveniles	Foraging	No Data
Endangered	73 FR 12024	NMFS 2005	Adults and juveniles	Overwintering	No Data
Endangered	35 FR 18319	NMFS 2010	Adults and juveniles	Overwintering	No Data
Endangered	35 FR 18319	NMFS 2010	Adults and juveniles	Foraging	No Data

ZONE	SEASON1BEG	SEASON1END	SEASON2BEG	SEASON2END
Northeast (ME to Cape Cod, MA)	1-Jan	31-Dec	No Data	No Data
Northeast (ME to Cape Cod, MA)	1-Nov	31-Jan	No Data	No Data
Northeast (ME to Cape Cod, MA)	1-Nov	31-Mar	No Data	No Data
Northeast (ME to Cape Cod, MA)	1-Jan	31-Dec	No Data	No Data

RKMDNGAR	RKMUPGAR	RKMDNSRC	RKMUPSRC	RKMSRC
No Data	No Data	No Data	No Data	No Data
No Data	No Data	No Data	No Data	No Data
No Data	No Data	No Data	No Data	No Data
No Data	No Data	No Data	No Data	No Data

CITATION

CETAP 1982; Watkins and Schevill 1982; Payne 1984; Kenney et al. 1986, 1995; Schevill et al. 1986; Winn et al. 198

CETAP 1982; Watkins and Schevill 1982; Payne 1984; Kenney et al. 1986, 1995; Schevill et al. 1986; Winn et al. 198

CETAP 1982; Watkins and Schevill 1982; Payne 1984; Kenney et al. 1986, 1995; Schevill et al. 1986; Winn et al. 198

CETAP 1982; Watkins and Schevill 1982; Payne 1984; Kenney et al. 1986, 1995; Schevill et al. 1986; Winn et al. 198

NOTES

Cape Cod Bay (Jan-Apr), Massachusetts Bay (Jan-Apr), Great South Channel (Apr-June), the western Gulf of Maine
Increasing evidence of wintering areas (approximately Nov-Jan) in Cape Cod Bay, Jeffreys and Cashes Ledge, Jordan
Evidence of wintering areas in Stellwagen Bank and eastern perimeter of Georges Bank.
Greatest densities from Mar-Aug; lower densities from Sept-Nov; important foraging grounds include Massachuse

DATECREATE	Shape__Area	Shape__Length	Intersecting Area(acres)
5/23/2016, 8:00 PM	16.87	47.57	109.7780768
5/23/2016, 8:00 PM	16.87	47.57	109.7780768
5/23/2016, 8:00 PM	16.87	47.57	109.7780768
5/23/2016, 8:00 PM	16.87	47.57	109.7780768

OBJECTID	UNIQUEID	SPGROUP	SPNAME	SPLATIN
528	ANS_C50_ADU_MAF	Sturgeon	Atlantic sturgeon	Acipenser oxyrinchus oxyrinchus
529	ANS_C50_SUB_MAF	Sturgeon	Atlantic sturgeon	Acipenser oxyrinchus oxyrinchus

DPS	ESASTATUS	FRCIT	RECPLAN	LIFESTAGE
All DPSs	Threatened/Endangered	77 FR 5880 and 77 FR 5914	N/A	Adult
All DPSs	Threatened/Endangered	77 FR 5880 and 77 FR 5914	N/A	Subadult

BEHAVIOR	WATERSHED	ZONE	SEASON1BEG	SEASON1END	SEASON2BEG	SEASON2END
Migrating & Foraging	N/A	N/A	1-Jan	31-Dec	N/A	N/A
Migrating & Foraging	N/A	N/A	1-Jan	31-Dec	N/A	N/A

RKMDNGAR	RKMUPGAR	RKMDNSRC	RKMUPSRC	RKMSRC
No Data	No Data	No Data	No Data	Hilton et al. 2016, p. 8
No Data	No Data	No Data	No Data	Hilton et al. 2016, p. 8

CITATION

Hilton et al. 2016; Erickson et al. 2011; Stein et al. 2004

Hilton et al. 2016; Erickson et al. 2011; Stein et al. 2004

NOTES

We expect adult Atlantic sturgeon to opportunistically forage year round as they migrate along the coast to and from

We expect subadult Atlantic sturgeon to opportunistically forage year round as they migrate along the coast to and from

DATECREATE	Shape__Area	Shape__Length	Intersecting Area(acres)
7/12/2017, 8:00 PM	2.41	40.57	341.2409874
7/12/2017, 8:00 PM	2.41	40.57	341.2409874

OBJECTID	UNIQUEID	SPGROUP	SPNAME	SPLATIN
29	GRN_STN_AJV_MAF	Sea Turtles	Green sea turtle	Chelonia mydas
41	KMP_STN_AJV_MAF	Sea Turtles	Kemp's ridley sea turtle	Lepidochelys kempii
51	LTR_STN_AJV_MAF	Sea Turtles	Leatherback sea turtle	Dermochelys coriacea
60	LOG_STN_AJV_MAF	Sea Turtles	Loggerhead sea turtle	Caretta caretta

DPS	ESASTATUS	FRCIT	RECPLAN	LIFESTAGE
North Atlantic DPS	Threatened	81 FR 20057	NMFS & USFWS 1991	Adults and juveniles
N/A	Endangered	35 FR 18319	NMFS et al. 2011	Adults and juveniles
N/A	Endangered	35 FR 849	NMFS & USFWS 1992	Adults and juveniles
Northwest Atlantic DPS	Threatened	76 FR 58868	NMFS & USFWS 2008	Adults and juveniles

BEHAVIOR	WATERSHED	ZONE	SEASON1BEG
Migrating & Foraging	No Data	Maine to Massachusetts (N of Cape Cod)	1-Jun
Migrating & Foraging	No Data	Maine to Massachusetts (N of Cape Cod)	1-Jun
Migrating & Foraging	No Data	Maine to Massachusetts (N of Cape Cod)	1-Jun
Migrating & Foraging	No Data	Maine to Massachusetts (N of Cape Cod)	1-Jun

SEASON1END	SEASON2BEG	SEASON2END	RKMDNGAR	RKMUPGAR	RKMDNSRC	RKMUPSRC	RKMSRC
30-Nov	No Data	No Data	No Data	No Data	No Data	No Data	No Data
30-Nov	No Data	No Data	No Data	No Data	No Data	No Data	No Data
30-Nov	No Data	No Data	No Data	No Data	No Data	No Data	No Data
30-Nov	No Data	No Data	No Data	No Data	No Data	No Data	No Data

CITATION

[Loggerhead] Shoop and Kenney 1992; [Green]USFWS 2015; [Kemp's ridley] NMFS and USFWS 2015

[Loggerhead] Shoop and Kenney 1992; [Green]USFWS 2015; [Kemp's ridley] NMFS and USFWS 2015

[Loggerhead] Shoop and Kenney 1992; [Green]USFWS 2015; [Kemp's ridley] NMFS and USFWS 2015

[Loggerhead] Shoop and Kenney 1992; [Green]USFWS 2015; [Kemp's ridley] NMFS and USFWS 2015

NOTES

In general, juvenile and adult green sea turtles migrate into waters north of Cape Cod, MA beginning in June. As th

In general, juvenile and adult Kemp's ridley sea turtles migrate into waters north of Cape Cod, MA beginning in Jur

In general, juvenile and adult leatherback sea turtles migrate into waters north of Cape Cod, MA beginning in June

In general, juvenile and adult loggerhead sea turtles migrate into waters north of Cape Cod, MA beginning in June.

DATECREATE	Shape__Area	Shape__Length	Intersecting Area(acres)
3/26/2017, 8:00 PM	2.35	33.78	43.65628439
3/26/2017, 8:00 PM	2.35	33.78	43.65628439
3/26/2017, 8:00 PM	2.35	33.78	43.65628439
3/26/2017, 8:00 PM	2.35	33.78	43.65628439

OBJECTID_1	UNIQUEID	SPGROUP	SPNAME	SPLATIN	DPS
197	SNS_C50_ADU_MAF	Sturgeon	Shortnose sturgeon	Acipenser brevirostrum	N/A

ESASTATUS	FRCIT	RECPLAN	LIFESTAGE	BEHAVIOR	WATERSHED	ZONE
Endangered	32 FR 4001	NMFS 1998	Adult	Migrating & Foraging	N/A	N/A

SEASON1BEG	SEASON1END	SEASON2BEG	SEASON2END	RKMDNGAR	RKMUPGAR	RKMDNSRC
1-Apr	30-Nov	N/A	N/A	0	0	0

RKMUPSRC	RKMSRC	CITATION
0	Zydlewski et al. 2011	Zydlewski et al. 2011

NOTES

More recent research has demonstrated that shortnose sturgeon leave their natal estuaries, undergo coastal migr

DATECREATE	Shape__Area	Shape__Length	Intersecting Area(acres)
7/5/2017, 8:00 PM	2.3	43.09	341.2550666

ATTACHMENT 5

Enter number values in green boxes below

Enter values in the units specified

↓	
0	Q _R = Enter upstream flow in MGD
1	Q _P = Enter discharge flow in MGD
0	Downstream 7Q10

Enter a dilution factor, if other than zero

↓	
1	

Enter values in the units specified

↓	
0	C _d = Enter influent hardness in mg/L CaCO ₃
0	C _s = Enter receiving water hardness in mg/L CaCO ₃

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

↓	
7.87	pH in Standard Units
11.9	Temperature in °C
0.1	Ammonia in mg/L
4170	Hardness in mg/L CaCO ₃
21	Salinity in ppt
0	Antimony in µg/L
20	Arsenic in µg/L
0	Cadmium in µg/L
0	Chromium III in µg/L
0	Chromium VI in µg/L
0	Copper in µg/L
180	Iron in µg/L
0	Lead in µg/L
0	Mercury in µg/L
0	Nickel in µg/L
20	Selenium in µg/L
6	Silver in µg/L
0	Zinc in µg/L

Enter **influent** concentrations in the units specified

↓	
90	TRC in µg/L
0.4	Ammonia in mg/L
0	Antimony in µg/L
11	Arsenic in µg/L
0	Cadmium in µg/L
32.2	Chromium III in µg/L
0	Chromium VI in µg/L
30	Copper in µg/L
32900	Iron in µg/L
6.7	Lead in µg/L
0	Mercury in µg/L
9.2	Nickel in µg/L
13	Selenium in µg/L
0	Silver in µg/L
0	Zinc in µg/L
0	Cyanide in µg/L
0	Phenol in µg/L
0	Carbon Tetrachloride in µg/L
0	Tetrachloroethylene in µg/L
0	Total Phthalates in µg/L
0	Diethylhexylphthalate in µg/L
0	Benzo(a)anthracene in µg/L
0	Benzo(a)pyrene in µg/L
0	Benzo(b)fluoranthene in µg/L
0	Benzo(k)fluoranthene in µg/L
0	Chrysene in µg/L
0	Dibenzo(a,h)anthracene in µg/L
0	Indeno(1,2,3-cd)pyrene in µg/L
0	Methyl-tert butyl ether in µg/L

Notes:Freshwater: Q_R equal to the 7Q10; enter alternate Q_R if approved by the State; enter 0 if no dilution factor approvedSaltwater (estuarine and marine): enter Q_R if approved by the State; enter 0 if no entry

Discharge flow is equal to the design flow or 1 MGD, whichever is less

Downstream 7Q10 an optional entry for Q_R; leave 0 if no entry

Saltwater (estuarine and marine): only if approved by the State

Leave 0 if no entry

pH, temperature, and ammonia required for all discharges

Hardness required for freshwater

Salinity required for saltwater (estuarine and marine)

Metals required for all discharges if present and if dilution factor is > 1

Enter 0 if non-detect or testing not required

if >1 sample, enter maximum

if >10 samples, may enter 95th percentile

Enter 0 if non-detect or testing not required

I. Dilution Factor Calculation Method

A. 7Q10

No flow assumed at critical low flow for saltwater unless otherwise approved by the State

B. Dilution Factor

No dilution assumed for saltwater, unless otherwise approved by the State

II. Effluent Limitation Calculation Method

A. Calculate Water Quality Criterion:

Step 1. Not applicable to saltwater

Step 2. Not applicable to saltwater

Step 3. Total recoverable water quality criteria for dissolved metals, calculated as follows:

$$\text{WQC in } \mu\text{g/L} = \frac{\text{dissolved WQC in } \mu\text{g/L}}{\text{dissolved to total recoverable factor}}$$

B. Calculate WQBEL:

Step 1. WQBEL calculated as follows for parameter sampled in and detected in the receiving water:

$$C_d = \frac{Q_r C_r - Q_s C_s}{Q_d}$$

C_r = Water quality criterion in $\mu\text{g/L}$

Q_d = Discharge flow in MGD

C_d = WQBEL in $\mu\text{g/L}$

Q_s = Upstream flow (7Q10) in MGD

C_s = Ustream (receiving water) concentration in $\mu\text{g/L}$

Q_r = Downstream receiving water flow in MGD

Step 2. WQBEL calculated as follows for parameter not sampled in or not detected in receiving water:

$$C_d = (Q_r/Q_d) \times C_r$$

C_r = Water quality criterion in $\mu\text{g/L}$

Q_d = Discharge flow in MGD

Q_r = Downstream receiving water flow in MGD

C. Determine if a WQBEL applies:

Step 1. For parameter sampled in and detected in receiving water, downstream concentrations calculated as follows:

$$C_r = \frac{Q_d C_d + Q_s C_s}{Q_r}$$

C_r = Downstream concentration in µg/L

Q_d = Discharge flow in MGD

C_d = Influent concentration in µg/L

Q_s = Upstream flow (7Q10) in MGD

C_s = Upstream (receiving water) concentration in µg/L

Q_r = Downstream receiving water flow in MGD

The WQBEL applies if:

1) the projected downstream concentration calculated in accordance with Step 1, above, and the discharge concentration of a parameter is greater than the WQC calculated for that parameter in accordance with II.A, above

AND

2) the WQBEL determined for that parameter in accordance with II.B, above, is less than the TBEL in Part 2.1.1 of the RGP for that parameter. Otherwise, the TBEL in Part 2.1.1 of the RGP for that parameter applies.

Step 2. For a parameter not detected in or not sampled in receiving water, the WQBEL applies if:

1) the discharge concentration of a parameter is greater than the WQBEL determined for that parameter in accordance with II.A or II.B, above;

AND

2) the WQBEL determined for that parameter in accordance with II.A or II.B, above is less than the TBEL in Part 2.1.1 of the RGP for that parameter. Otherwise, the TBEL in Part 2.1.1 of the RGP for that parameter applies.

Dilution Factor	1.0					
A. Inorganics	TBEL applies if bolded		WQBEL applies if bolded		Compliance Level applies if shown	
Ammonia	Report	mg/L	---			
Chloride	Report	µg/L	---			
Total Residual Chlorine	0.2	mg/L	7.5	µg/L	50	µg/L
Total Suspended Solids	30	mg/L	---			
Antimony	206	µg/L	640	µg/L		
Arsenic	104	µg/L	36	µg/L		
Cadmium	10.2	µg/L	8.9	µg/L		
Chromium III	323	µg/L	100.0	µg/L		
Chromium VI	323	µg/L	50	µg/L		
Copper	242	µg/L	3.7	µg/L		
Iron	5000	µg/L	---	µg/L		
Lead	160	µg/L	8.5	µg/L		
Mercury	0.739	µg/L	1.11	µg/L		
Nickel	1450	µg/L	8.3	µg/L		
Selenium	235.8	µg/L	71	µg/L		
Silver	35.1	µg/L	2.2	µg/L		
Zinc	420	µg/L	86	µg/L		
Cyanide	178	mg/L	1.0	µg/L	---	µg/L
B. Non-Halogenated VOCs						
Total BTEX	100	µg/L	---			
Benzene	5.0	µg/L	---			
1,4 Dioxane	200	µg/L	---			
Acetone	7.97	mg/L	---			
Phenol	1,080	µg/L	300	µg/L		
C. Halogenated VOCs						
Carbon Tetrachloride	4.4		1.6	µg/L		
1,2 Dichlorobenzene	600	µg/L	---			
1,3 Dichlorobenzene	320	µg/L	---			
1,4 Dichlorobenzene	5.0	µg/L	---			
Total dichlorobenzene	---	µg/L	---			
1,1 Dichloroethane	70	µg/L	---			
1,2 Dichloroethane	5.0	µg/L	---			
1,1 Dichloroethylene	3.2	µg/L	---			
Ethylene Dibromide	0.05	µg/L	---			
Methylene Chloride	4.6	µg/L	---			
1,1,1 Trichloroethane	200	µg/L	---			
1,1,2 Trichloroethane	5.0	µg/L	---			
Trichloroethylene	5.0	µg/L	---			
Tetrachloroethylene	5.0	µg/L	3.3	µg/L		
cis-1,2 Dichloroethylene	70	µg/L	---			
Vinyl Chloride	2.0	µg/L	---			

D. Non-Halogenated SVOCs

Total Phthalates	190	µg/L	---	µg/L		
Diethylhexyl phthalate	101	µg/L	2.2	µg/L		
Total Group I Polycyclic Aromatic Hydrocarbons	1.0	µg/L	---			
Benzo(a)anthracene	1.0	µg/L	0.0038	µg/L	---	µg/L
Benzo(a)pyrene	1.0	µg/L	0.0038	µg/L	---	µg/L
Benzo(b)fluoranthene	1.0	µg/L	0.0038	µg/L	---	µg/L
Benzo(k)fluoranthene	1.0	µg/L	0.0038	µg/L	---	µg/L
Chrysene	1.0	µg/L	0.0038	µg/L	---	µg/L
Dibenzo(a,h)anthracene	1.0	µg/L	0.0038	µg/L	---	µg/L
Indeno(1,2,3-cd)pyrene	1.0	µg/L	0.0038	µg/L	---	µg/L
Total Group II Polycyclic Aromatic Hydrocarbons	100	µg/L	---			
Naphthalene	20	µg/L	---			

E. Halogenated SVOCs

Total Polychlorinated Biphenyls	0.000064	µg/L	---		0.5	µg/L
Pentachlorophenol	1.0	µg/L	---			

F. Fuels Parameters

Total Petroleum Hydrocarbons	5.0	mg/L	---			
Ethanol	Report	mg/L	---			
Methyl-tert-Butyl Ether	70	µg/L	20	µg/L		
tert-Butyl Alcohol	120	µg/L	---			
tert-Amyl Methyl Ether	90	µg/L	---			