Environmental Services

Engineering Services

Notice of Intent for Coverage Under Remediation General Permit MAG910000

Former Hathaway Motors

4 & 16 North Main Street
Whitinsville (Northbridge), Massachusetts

February 23, 2018

Prepared for:

Mr. Tarek Yatim, CEO
Yatco Energy
4 Mount Royal Avenue, Suite 370
Marlborough, MA 01752

Prepared by:

CMG Environmental, Inc.
CMG ID 2017-235

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PREPARERS' CERTIFICATION

The undersigned employees of CMG Environmental, Inc. (CMG) prepared and reviewed this report. Please direct any requests for additional information regarding the content of this document to these individuals.

C. Ryan Goad
Hydrogeologist

23 February 2018
Date

Benson R. Gould, LSP, LEP
Licensed Site Professional #9923

February 23, 2018
Date

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1.0 INTRODUCTION

CMG Environmental, Inc. (CMG) has prepared the attached Notice of Intent (NOI) for the National Pollutant Discharge Elimination System (NPDES) General Permit for Remediation Activity Discharges (RGP) for the Commonwealth of Massachusetts (MAG910000) and State of New Hampshire (NHG910000). **Attachment A** provides a copy of the NOI.

1.1 PURPOSE & BACKGROUND

1.1.1 PURPOSE OF SUBMITTAL

The purpose of this submittal is to obtain authorization to temporarily discharge treated groundwater extracted during underground storage tank (UST) installation activities at 4 & 16 North Main Street in the Whitinsville section of Northbridge, Massachusetts (the 'Site'). Figure 1 (Site Location Map) depicts the Site in relation to streets and other topographic features.

1.1.2 HISTORICAL & ENVIRONMENTAL BACKGROUND

The Site formerly operated as Hathaway Motors, an automobile dealership with on-Site service. The Site is a location of extensive 'urban fill' placement, with coal ash & clinker, bricks, and other debris present in overburden. The Site also formerly utilized two 5,000-gallon gasoline USTs for fuel storage. Former owners installed these USTs in 1967 and removed them in 1988. CMG has limited information about these USTs, but the Site contractor has not yet identified evidence of a significant petroleum release from those tanks.

The Site adjoins 355 Main Street (south of the Site across Main Street), which was formerly part of the extensive Whitin Machine Works properties in Northbridge. The 355 Main Street parcel was Whitin's disposal location for coal combustion and foundry wastes, with extensive use of coal combustion waste as fill in the vicinity (including at the subject Site). Whitin's main industrial operation abutted the 355 Main Street parcel to the east.

The current Site owner (HTK7 Whitinsville, LLC) purchased the Site in early 2017 and planned to redevelop it into a gasoline filling station and convenience store. Yatco Energy (planned Site operator) contracted CMG to dispose of Site soil deemed structurally unsuitable for the planned construction.

In December 2017 CMG collected a composite sample of in-situ soil from the Site for disposal characterization. We observed a concentration of benzo(a)pyrene just above its 2 mg/Kg RCS-1 reportable concentration in the MCP (a 120-day notification requirement per 310 CMR 40.0315). The Massachusetts Department of Environmental Protection (DEP) assigned Release Tracking Number (RTN) **2-20434** to identify the Site release. Site redevelopment contractor LaMountain Brothers, Inc. (LBI) of Oxford, Massachusetts planned to remove approximately 2,000 cubic yards of unsuitable material from the Site, which necessitated release notification and disposal of the soil under a Release Abatement Measure Plan.

CMG notes that impacts thus far identified at the Site are consistent with historic fill and therefore constitute anthropomorphic background per the MCP. Excavation at the Site is not intended to remediate urban fill impacts, but to remove unsuitable fill material. The planned excavation dewatering that is the subject of this NOI is likewise not intended to remediate a known release to groundwater. However, the potential for impacts to Site groundwater requires registration under the RGP rather than the dewatering general permit.

1.2 SITE LOCATION & IDENTIFICATION

The Site is located at 4 & 16 North Main Street, Whitinsville MA 01588. It is on the northeasterly corner of the intersection of North Main and Main Streets, with North Main Street forming its western boundary, Main Street its southern boundary, and Arcade Street its eastern boundary. Northbridge Assessor's Map 6A identifies the Property as Lot 29 (#4 North Main) and Lot 48 (#16 North Main), which consists of a total of 0.94 acres (approximately 41,000 square feet) of land.

The Site center is at 42º06'45" north latitude (42.11258°N), 71º40'44" west longitude (71.67899°W). The UTM (Universal Transverse Mercator) coordinates in the middle of the Site are 4,665,750 meters north and 278,516 meters east in Zone 19. Figure 2 (Site Plan) depicts Site boundaries.

1.3 PARTY SEEKING COVERAGE

Name: Yatco Energy

Address: 4 Mount Royal Avenue
Marlborough, MA 01752

Contact: Mr. Tarek Yatim, Chief Executive Officer
(508) 786-5670 ext. 104

2.0 PRE-DISCHARGE CHARACTERIZATION

2.1 SITE GROUNDWATER CHARACTERIZATION

CMG collected samples of Site groundwater on January 24 & February 2, 2018. We note that there were no monitoring wells on-Site, and we collected the samples via lowering a pail into groundwater entering an open excavation. This resulted in high turbidity and suspended solids that likely contributed to metals concentrations we observed in the samples. We anticipate installation of gravel-packed dewatering wells and use of a fractionation (frac) tank for settling will greatly reduce suspended solids prior to planned flow-through treatment units.

CMG submitted the sample collected on January 24, 2018 to Eurofins Spectrum Analytical, Inc. (Spectrum) of Agawam, Massachusetts (a state-certified and NELAC-accredited environmental laboratory) for analysis of the following parameters:

- Volatile organic compounds (VOCs) by EPA Method 8260C;
- Semivolatile organic compounds (SVOCs) by EPA Method 8270D (full list);
- Total silver, arsenic, barium, cadmium, chromium, copper, iron, nickel, lead, antimony, selenium & zinc by EPA Method 6010C;
- Total mercury by EPA Method 245.1/7470A;
- Chloride by EPA Method 300.0;
- Total dissolved solids by Standard Method 18-22 2540C;
- Total suspended solids by Standard Method 2540D (11); and
- Ammonia as nitrogen by EPA Method 350.1.

We submitted the February 2, 2018 sample to Spectrum for analysis of the following:

- Polynuclear aromatic hydrocarbons (PAHs) by Modified EPA Method 625;
- SVOCs (full) by EPA Method 625;

- Polychlorinated biphenyls (PCBs) by EPA Method 608;
- Total petroleum hydrocarbons by EPA Method 8100 Modified;
- Total cyanide by EPA Method 335.4/9012B;
- Total antimony by EPA Method 200.8;
- Total iron & zinc by EPA Method 6010C;
- Total arsenic, cadmium, chromium, copper, selenium, lead, nickel & silver by EPA Method 6020B; and
- Total mercury by EPA Method 7470A.

CMG requested Spectrum meet the reporting limits specified for RGP discharges for the February 2, 2018 samples.

CMG recorded the results of our analyses (using the higher of two concentrations for duplicate analyses) in the NOI in **Attachment A**, which also includes laboratory certificates of analyses (following the NOI).

2.2 RECEIVING WATER BODY CHARACTERIZATION

The receiving water body for this discharge is Arcade Pond, a manmade impoundment located east of the Site across Arcade Street. The pond reportedly covers combustion waste from Whitin Machine Works. This water body receives input from a drainage area north of Main Street and discharges via a concrete outflow structure/weir along the northerly side of Main Street further east of the Site. From its discharge location, water flows via buried drainage pipes to an outfall on the Mumford River bank on the 355 Main Street parcel to the south.

2.2.1 WATER QUALITY

CMG collected a sample of Arcade Pond's outflow on February 2, 2018 (one of the few places not frozen on that date) and submitted it to Spectrum for analysis of the following:

- pH by ASTM D 1293-99B;
- Total antimony by EPA Method 200.8-5.4;
- Total iron by EPA Method 200.7;
- Total hardness (as $CaCO_3$);
- Ammonia as nitrogen by EPA Method 350.1;
- Total zinc by EPA Method 6010C;
- Total arsenic, cadmium, chromium, copper, lead, selenium, nickel & silver by EPA Method 6020B; and
- Total mercury by EPA Method 7470A.

The table below summarizes the results of surface water quality monitoring.

RECEIVING WATER BODY QUALITY
SAMPLE 'AP OUTFALL' (LAB ID SC43704-01)

PARAMETER	RESULT	PARAMETER	RESULT
pH	6.51 S.U.	Copper	*BRL<0.025 mg/L*
Hardness	24.9 mg/L $CaCO_3$	Iron	0.337 mg/L
Ammonia as N	0.27 mg/L	Lead	*BRL<0.0020 mg/L*
Total Metals:		Mercury	*BRL<0.002 mg/L*
Antimony	*BRL<0.0050 mg/L*	Nickel	*BRL<0.0025 mg/L*
Arsenic	*BRL<0.0050 mg/L*	Selenium	*BRL<0.010 mg/L*
Cadmium	*BRL<0.0010 mg/L*	Silver	*BRL<0.0010 mg/L*
Chromium	*BRL<0.010 mg/L*	Zinc	0.010 mg/L

BRL = BELOW LABORATORY REPORTING LIMIT

2.2.2 OUTFALL LOCATION & FLOW

CMG plans to discharge to an on-Site catchbasin that discharges to Arcade Pond at approximately 42°06'46" north latitude, 71°40'42" west longitude (42.11278°N, 71.67833°W) based on Northbridge Department of Public Works records. However, CMG could not locate this outfall. Arcade Pond's outfall location is 42°06'45" north latitude, 71°40'34" west longitude (42.11250°N, 71.67611°W).

CMG used the USGS StreamStats online application (https://streamstats.usgs.gov/ss) to determine low-flow characteristics for Arcade Pond it its outfall. CMG determined the following:

- Arcade Pond's outfall drains an area of 0.55 square miles (352 acres);
- The August 50% duration flow is 0.115 ft^3/s (52 gallons per minute, gpm; 0.075 million gallons per day, MGD), and
- The 7-day, 10-year low flow (7Q10) is 0.0189 ft^3/s (~8.5 gpm, 0.012 MGD).

Attachment B provides the StreamStats report CMG created for the Site.

2.2.3 MASSACHUSETTS DILUTION FACTOR & WATER QUALITY-BASED EFFLUENT LIMITATIONS

CMG used the 7Q10 flow from StreamStats to determine the dilution factor for the planned Site discharge. CMG estimates the planned discharge to be approximately 50 gpm (0.072 MGD). RGP Appendix V, Section I.B., provides an equation for calculating dilution factor as:

$$\frac{Q_s + Q_d}{Q_d}$$

Where: Q_s = 7Q10 in MGD

Q_d = (Permitted) discharge flow in MGD

Using this equation, CMG determined a dilution factor of 1.2 (to 2 significant figures).

CMG used the EPA-provided spreadsheet for calculating Water Quality-Based Effluent Limitations (WQBELs) for the RGP at https://www3.epa.gov/region1/npdes/remediation/MALimitsBook.xlsx to determine appropriate effluent limits. **Attachment C** provides a copy of the calculated freshwater

effluent limits for the Site. CMG entered WQBELs where applicable on the NOI, in accordance with the results of our calculation.

CMG notes the 0.0044 µg/L WQBELs calculated for Group I polycyclic (polynuclear) aromatic hydrocarbons (PAHs) are an order of magnitude below our laboratory's detection limit using modified EPA Method 625 (SIM) and are thus not practical to achieve. The achievable laboratory detection limit is **0.050 µg/L**.

3.0 DISCHARGE TREATMENT

3.1 TREATMENT SYSTEM PARAMETERS & DESIGN

LBI will prepare a drain sump with a perforated pipe dewatering well. They will wrap the pipe with filter fabric and backfill the sump with stone. The stone and filter fabric will provide the first measure of filtration. Water pumped from the well will then pass through the following additional treatment:

- Applied Polymer Systems APS 700 Series Floc Logs® – polyacramide sediment and turbidity control applicator logs (see the photograph in **Attachment D**);
- A 21,000-gallon fractionation (frac) tank to allow settling of solids by loss of velocity and the action of the floc logs;
- An 50 gallon-per-minute (gpm) pump connected after the frac tank will discharge water through the rest of the system;
- After the pump, water will pass through two 1 µm bag filters connected in parallel to capture additional suspended solids;
- Two 1,000-pound granular activated carbon reaction vessels connected in series to remove organic contaminants; and
- Two vessels containing approximately 60 cubic feet of Evoqua Water Technologies C-211 cation resin to remove dissolved metals.

Flow will pass through a flow meter totalizer after treatment to record discharge rate and overall volume, and will discharge to an on-Site catchbasin. The Site catchbasin discharges to the municipal separate storm sewer system beneath Main Street, with ultimate discharge to Arcade Pond east of the Site.

Figure 2 depicts discharge flow path and Figure 3 provides a treatment system diagram for the Site discharge. **Attachment D** provides information about the floc logs and cation exchange resin planned for use at the Site.

3.2 MONITORING REQUIREMENTS

3.2.1 RGP MONITORING REQUIREMENTS

CMG will prepare and implement a Best Management Practices Plan (BMPP) prior to initiating the discharge. We will perform monitoring in accordance with Section 4.0 and Appendix IV of the RGP. The anticipated discharge duration is approximately 7 days (possibly less), and thus constitutes a "short-term discharge" subject to Section 4.4 of the RGP. We will perform monitoring either in accordance with Section 4.4.2 ("Short-Term Discharges Other than Those from

Dewatering of Pipelines and Tanks"). We anticipate Section 4.4.2.b. (discharges lasting 7 days or less) will apply.

If the discharge runs longer than anticipated, we will continue monitoring in accordance with Section 4.4.2.c.

CMG will prepare Discharge Monitoring Reports for electronic submittal to EPA Region 1 in accordance with Section 4.6.1.b. (NetDMR submittal is not required for this discharge).

3.2.2 MCP MONITORING REQUIREMENTS

As an M.G.L. c. 21E 'disposal site,' the requirements of 310 CMR 40.0040 ("Management Procedures for Remedial Wastewater and Remedial Additives") apply to the Site discharge. CMG and LBI will construct the on-Site treatment works in a manner adequate to protect health, safety, public welfare, and the environment, and in compliance with M.G.L. c. 21E and the MCP. Furthermore, 40.0041(9) mandates a Grade 2 or higher Wastewater Treatment Plan Operator be engaged to ensure the proper operation and maintenance of the treatment works.

CMG will inspect the discharge treatment system in accordance with 40.0041(6)(b) and document these activities within a treatment log containing the following information:

- The name and affiliation of the person performing the inspection;
- The date and time of the inspection;
- The total volume of remedial wastewater treated since the previous inspection;
- The average flow rate of the system at the time of the inspection;
- The total volume of any non-aqueous phase oil or hazardous materials recovered since the previous inspection (neither CMG nor LBI has observed any at the Site);
- A description of any maintenance activities performed during the inspection or to be scheduled as a result of the inspection; and
- A description of any problems or potential problems observed during the inspection.

CMG will maintain this treatment log in the planned on-Site treatment system container.

4.0 ENDANGERED SPECIES & HISTORIC PROPERTIES

4.1 ENDANGERED OR THREATENED SPECIES AND HABITAT

CMG consulted the U.S. Fish & Wildlife Service's Information, Planning and Conservation System (IPaC) at http://ecos.fws.gov/ipac to determine if protected species are present in the 'action area' of the discharge. We included the entirety of Arcade Pond and the portion of the Mumford River between Arcade Pond's outfall and the downstream dam historically used to provide water power for Whitin Machine Works. **Attachment E** provides a copy of the IPaC printout.

There is no 'critical habitat' in the planned discharge area. The only listing for the Site vicinity is the threatened Northern long-eared bat due to population decline from white nose syndrome. This bat utilizes trees during summer months and hibernates in caves or mines during wintertime (i.e., at present). CMG expects these bats are currently within their hibernacula. Furthermore, the

discharge will not involve tree removal thus if some bats did emerge the subject discharge would not likely affect them.

The USFWS New England Field Office's "Endangered Species Consultation" procedures (https://www.fws.gov/newengland/EndangeredSpec-Consultation_Project_Review.htm) provide a step-by-step guide to determining whether or not an activity is likely to affect protected species. A printout of this page is included in **Attachment E**. Since the discharge will not affect either bat hibernacula or tree habitat (i.e., it is limited to surface water), then no protected species are present within the "action area."

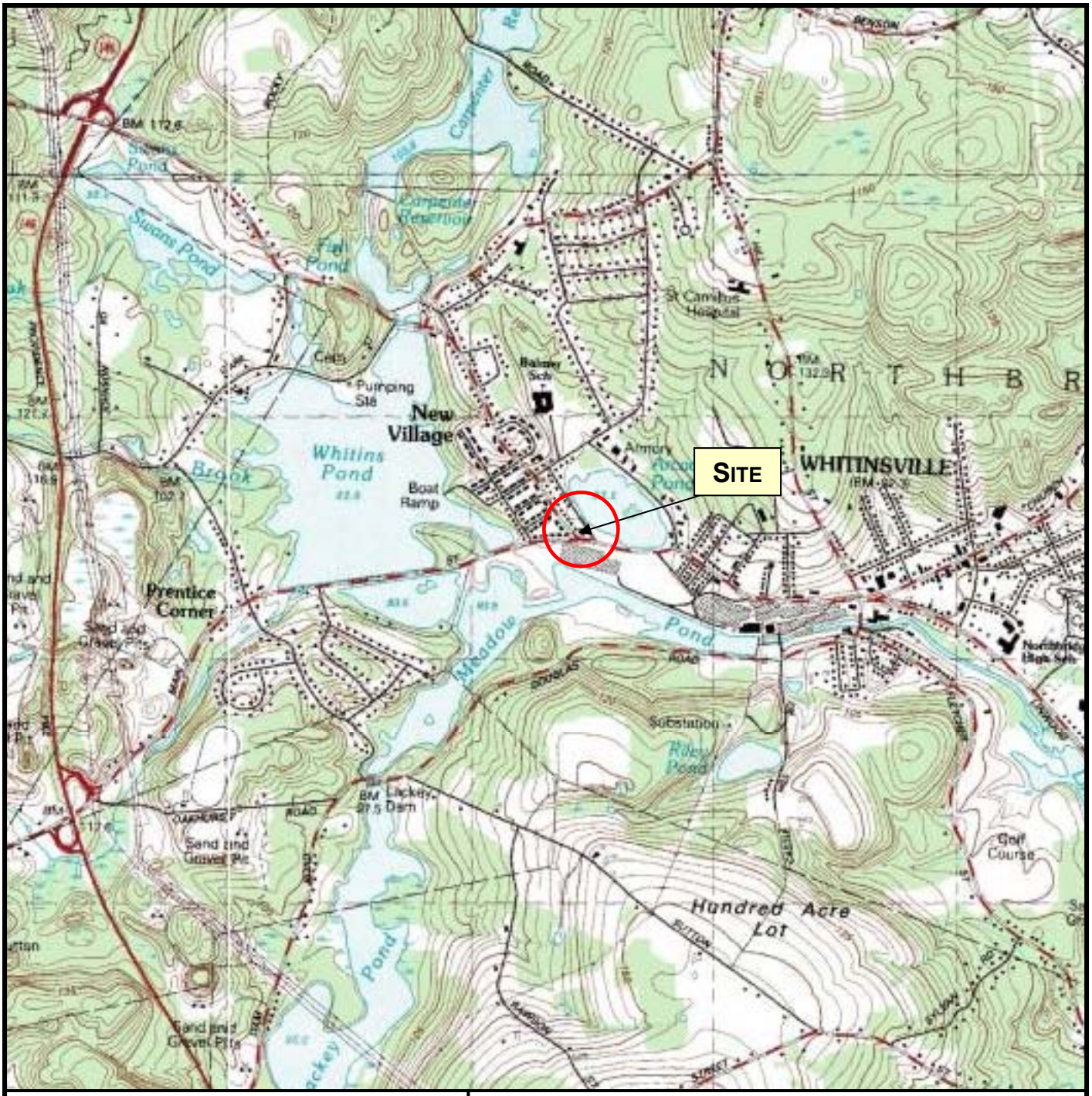
CMG reviewed several RGP NOI submittals available on EPA's website, and observed correspondence between USFWS and consultants indicating RGP discharges will not likely affect the Northern long-eared bat. CMG queried New England FWS personnel regarding the bat, but have not yet received a reply. Nonetheless, we opine the subject discharge meets the requirements of FWS Criterion A based upon our review.

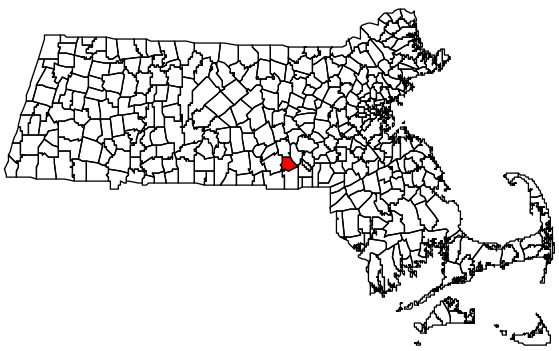
The subject discharge does not occur in one of the fisheries or potential habitats listed in the RGP or its appendices and is unlikely to affect marine species

4.2 HISTORIC PROPERTIES

CMG reviewed the Massachusetts Historical Commisssion's 'Massachusetts Cultural Resource Information System' (MACRIS) webpage (http://mhc-macris.net) to identify nearby historic properties. MACRIS listed the nearby Whitinsville Historic District (including the former Whitin Machine Works and worker housing) as a historically significant property. However, the entries were all buildings and not within either Arcade Pond or the Mumford River. CMG therefore concludes Criterion A applies to this discharge with respect to historic properties. **Attachment F** provides information about the Whitinsville Historic District listing.

FIGURES





TOWN LOCATION – NORTHBRIDGE, MA

FIGURE 1 – SITE LOCATION

4 & 16 NORTH MAIN STREET
WHITINSVILLE, MASSACHUSETTS
CMG ID 2017-235

SCALE 1:24,000

0.5 0 0.5 Miles

N

ENVIRONMENTAL SERVICES
CMG EST. 2002
ENGINEERING SERVICES

67 HALL ROAD, STURBRIDGE MA 01566

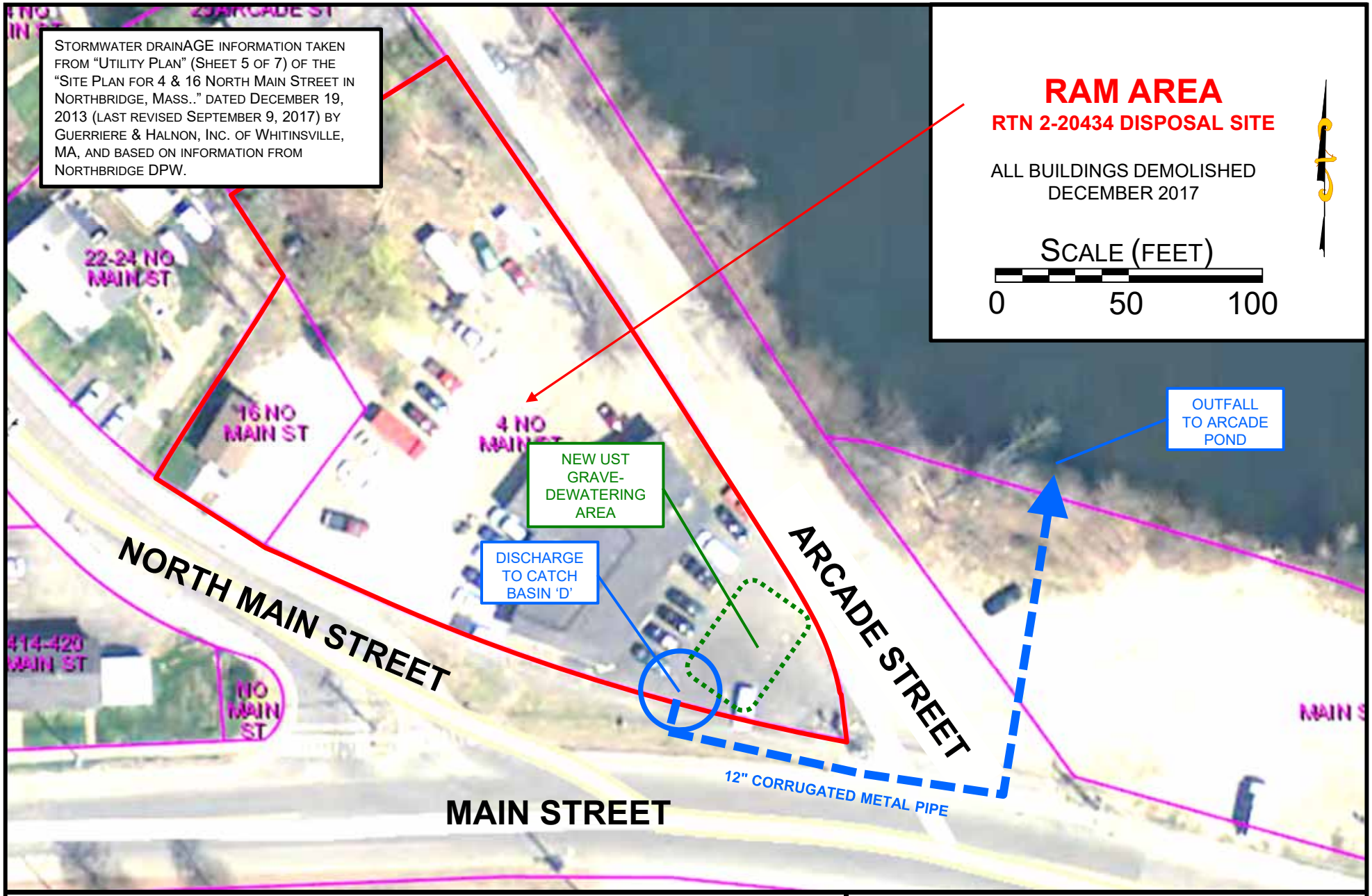
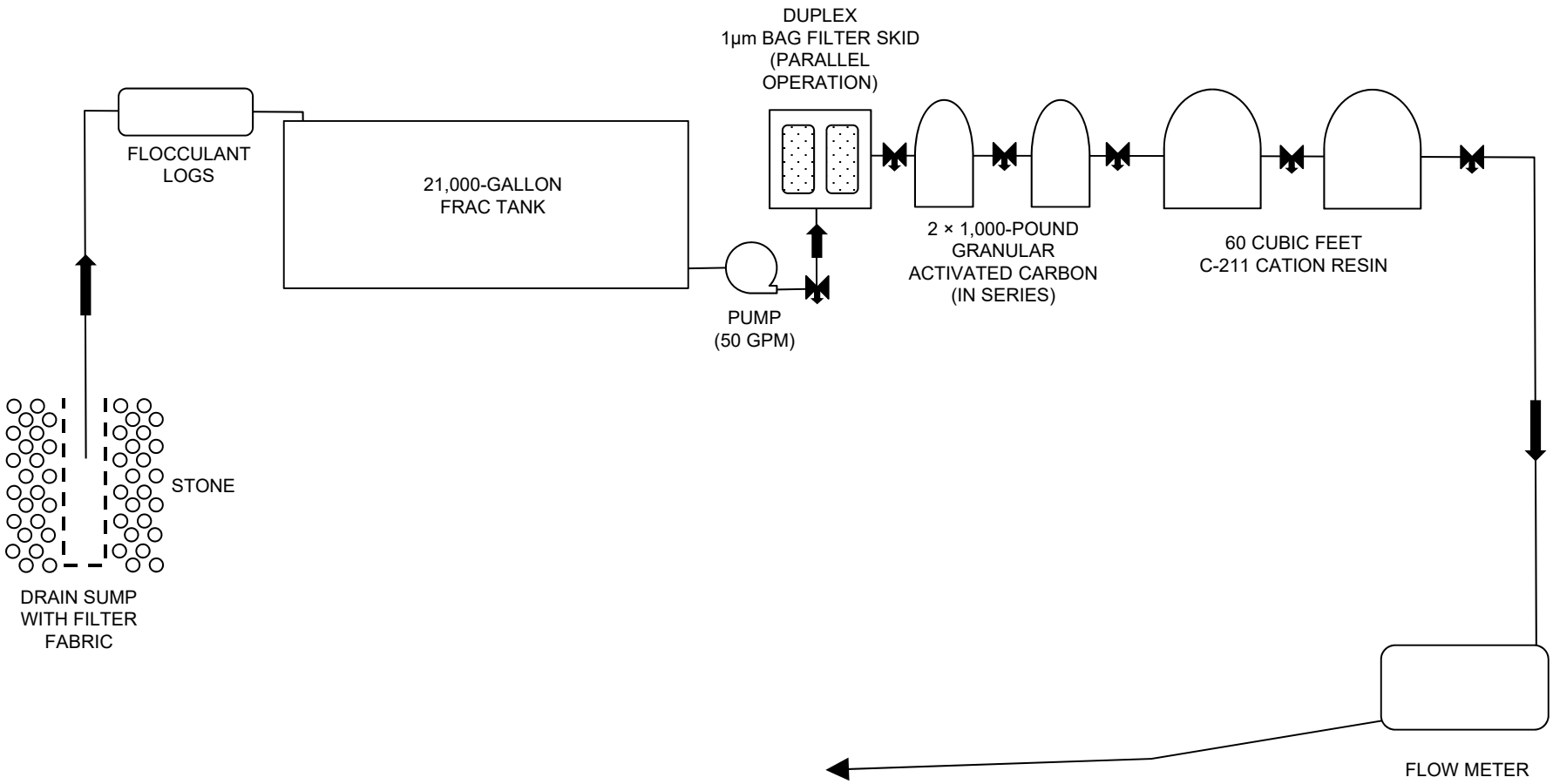


FIGURE 2: SITE PLAN
4 & 16 NORTH MAIN STREET, WHITINSVILLE MA
CMG ID 2017-235

ENVIRONMENTAL SERVICES CMG EST. 2002 ENGINEERING SERVICES

67 HALL ROAD, STURBRIDGE MA 01566



NOT TO SCALE

FIGURE 3: TREATMENT SYSTEM DIAGRAM
4 & 16 NORTH MAIN STREET, WHITINSVILLE MA
CMG ID 2017-235

ENVIRONMENTAL SERVICES CMG EST. 2002 ENGINEERING SERVICES
67 HALL ROAD, STURBRIDGE MA 01566

ATTACHMENT A

RGP NOTICE OF INTENT & SUPPORTING LABORATORY DATA

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

A. General site information:

<table>
<tr><td rowspan="2">1. Name of site:
Former Hathaway Motors & Adjacent Barber Shop</td><td colspan="3">Site address: 4 & 16 North Main Street
Street:</td></tr>
<tr><td>City: Whitnisville (Town of Northbridge)</td><td>State: MA</td><td>Zip: 01588</td></tr>
<tr><td rowspan="4">2. Site owner
HTK7 Whitinsville, LLC

Owner is (check one): ☐ Federal ☐ State/Tribal ■ Private
☐ Other; if so, specify:</td><td colspan="3">Contact Person: Tarek Yatim, Manager</td></tr>
<tr><td colspan="2">Telephone: 508-786-5670</td><td>Email: tyatim@yatcoenergy.com</td></tr>
<tr><td colspan="3">Mailing address: 44 Bearfoot Road, Suite 175
Street:</td></tr>
<tr><td>City: Northborough</td><td>State: MA</td><td>Zip: 01532</td></tr>
<tr><td rowspan="4">3. Site operator, if different than owner
Yatco Energy</td><td colspan="3">Contact Person: Tarek Yatim, CEO</td></tr>
<tr><td colspan="2">Telephone: 508-786-5670</td><td>Email: tyatim@yatcoenergy.com</td></tr>
<tr><td colspan="3">Mailing address:
Street: 4 Mount Royal Avenue</td></tr>
<tr><td>City: Marlborough</td><td>State: MA</td><td>Zip: 01752</td></tr>
<tr><td>4. NPDES permit number assigned by EPA:

NPDES permit is (check all that apply: ■ RGP ☐ DGP ☐ CGP
☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:</td><td colspan="3">5. Other regulatory program(s) that apply to the site (check all that apply):
■ MA Chapter 21e; list RTN(s): 2-20434
☐ NH Groundwater Management Permit or Groundwater Release Detection Permit:
☐ CERCLA
☐ UIC Program
☐ POTW Pretreatment
☐ CWA Section 404</td></tr>
</table>

B. Receiving water information:

1. Name of receiving water(s):	Waterbody identification of receiving water(s):	Classification of receiving water(s):
Arcade Pond (discharges to Mumford River)	Arcade Pond: MA51003; Mumford River Segment MA51-14	MA51003: Class B freshwater lake; MA51-14: Class B warm water

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. Arcade Pond & Mumford River are Cat. 5 impaired (TMDL required). Non-native aquatic plants, algal growth; Cu & Pb in river

4. Indicate the seven day-ten-year low flow (7Q10) of the receiving water determined in accordance with the instructions in Appendix V for sites located in Massachusetts and Appendix VI for sites located in New Hampshire.	0.012 MGD
5. Indicate the requested dilution factor for the calculation of water quality-based effluent limitations (WQBELs) determined in accordance with the instructions in Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire.	1.0 (no dilution)

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

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

C. Source water information:

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

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

2. Source water contaminants: Metals, PAHs, TSS from urban fill; TPH from fill and/or historic UST releases/overfills (USTs removed 1988)	
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): Treated water to be discharged into onsite catch basin. Discharge will flow via Main Street & Arcade Street municipal storm sewer before discharging to Arcade Pond.	Outfall location(s): (Latitude, Longitude) 42.11250N, 71.67611W
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: Northbridge DPW to be notified in writing upon receipt of EPA approval. 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): February 2018 (start) to March 2018 (end); ~4-7 days duration Indicate if the discharge is expected to occur over a duration of: ■ less than 12 months ☐ 12 months or more ☐ is an emergency discharge	
Has the operator attached a site plan in accordance with the instructions in D, above? (check one): ■ Yes ☐ No	

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

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

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

4. Influent and Effluent Characteristics

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
A. Inorganics									
Ammonia		✔	1	350.1	50	820	820	Report mg/L	---
Chloride		✔	1	300.0	497	98,800	98,800	Report µg/l	---
Total Residual Chlorine	✔		0					0.2 mg/L	
Total Suspended Solids		✔	1	SM2540	2,200	394,000	394,000	30 mg/L	---
Antimony	✔		2	200.8/601	5	<5	<5	206 µg/L	ND
Arsenic		✔	2	6020	5	1,800	1,800	104 µg/L	10 ug/L
Cadmium	✔		2	6020	1	<1	<1	10.2 µg/L	0.2706 ug/L
Chromium III		✔	2 (tot. Cr)	6020	10	2,500	2,500	323 µg/L	86.2 ug/L
Chromium VI	✔							323 µg/L	11.4 ug/L (if
Copper		✔	2	6020	25	6,080	6,080	242 µg/L	9.3ug/L
Iron		✔	2	6010	10	2,420,000	2,420,000	5,000 µg/L	1,000 ug/L
Lead		✔	2	6020	4	22,000	22,000	160 µg/L	3.18 ug/L
Mercury		✔	2		0.2	29.9	29.9	0.739 µg/L	TBEL
Nickel		✔	2	6020	5	1,780	1,780	1,450 µg/L	52.2 ug/L
Selenium	✔		2	6020	10	<10	<10	235.8 µg/L	5.0 ug/L
Silver	✔		2	6020	2	<2	<2	35.1 µg/L	ND
Zinc		✔	2	6010	2	23,700	23,700	420 µg/L	119.8 ug/L
Cyanide	✔		1	335.4	5	<5	<5	178 mg/L	ND
B. Non-Halogenated VOCs									
Total BTEX	✔		1	8260	2.00	<2.00	<2.00	100 µg/L	---
Benzene	✔		1	8260	1.00	<1.00	<1.00	5.0 µg/L	---
1,4 Dioxane	✔		1	8260	20.0	<20.0	<20.0	200 µg/L	---
Acetone	✔		1	8260	10.0	<10.0	<10.0	7.97 mg/L	---
Phenol	✔		1	625	4.72	<4.72	<4.72	1,080 µg/L	TBEL

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
C. Halogenated VOCs									
Carbon Tetrachloride	✔		1	8260	1.00	<1.00	<1.00	4.4 µg/L	TBEL
1,2 Dichlorobenzene	✔		1	8260	1.00	<1.00	<1.00	600 µg/L	---
1,3 Dichlorobenzene	✔		1	8260	1.00	<1.00	<1.00	320 µg/L	---
1,4 Dichlorobenzene	✔		1	8260	1.00	<1.00	<1.00	5.0 µg/L	---
Total dichlorobenzene	✔		1	8260	1.00	<1.00	<1.00	763 µg/L in NH	---
1,1 Dichloroethane	✔		1	8260	1.00	<1.00	<1.00	70 µg/L	---
1,2 Dichloroethane	✔		1	8260	1.00	<1.00	<1.00	5.0 µg/L	---
1,1 Dichloroethylene	✔		1	8260	1.00	<1.00	<1.00	3.2 µg/L	---
Ethylene Dibromide	✔		1	8260	0.50	<0.50	<0.50	0.05 µg/L	---
Methylene Chloride	✔		1	8260	2.00	<2.00	<2.00	4.6 µg/L	---
1,1,1 Trichloroethane	✔		1	8260	1.00	<1.00	<1.00	200 µg/L	---
1,1,2 Trichloroethane	✔		1	8260	1.00	<1.00	<1.00	5.0 µg/L	---
Trichloroethylene	✔		1	8260	1.00	<1.00	<1.00	5.0 µg/L	---
Tetrachloroethylene	✔		1	8260	1.00	<1.00	<1.00	5.0 µg/L	
cis-1,2 Dichloroethylene	✔		1	8260	1.00	<1.00	<1.00	70 µg/L	---
Vinyl Chloride	✔		1	8260	1.00	<1.00	<1.00	2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates	✔		2	625	4.72	<4.72	<4.72	190 µg/L	TBEL
Diethylhexyl phthalate	✔		2	625	4.72	<4.72	<4.72	101 µg/L	2.2 ug/L
Total Group I PAHs		✔	2	625SIM	0.35 (sum)	3.14	3.14	1.0 µg/L	---
Benzo(a)anthracene		✔	2	625SIM	0.050	0.707	0.707	As Total PAHs	0.0038 ug/L*
Benzo(a)pyrene		✔	2	625SIM	0.050	0.502	0.502		0.0038 ug/L*
Benzo(b)fluoranthene		✔	2	625SIM	0.050	0.447	0.447		0.0038 ug/L*
Benzo(k)fluoranthene		✔	2	625SIM	0.050	0.412	0.412		0.0038 ug/L*
Chrysene		✔	2	625SIM	0.050	0.692	0.692		0.0038 ug/L*
Dibenzo(a,h)anthracene		✔	2	625SIM	0.050	0.086	0.086		0.0038 ug/L*
Indeno(1,2,3-cd)pyrene		✔	2	625SIM	0.050	0.294	0.294		0.0038 ug/L*

*These PAH limits are an order of magnitude below the lab's detection limit of 0.050 ug/L via Method 625 SIM, and are thus infeasible to achieve.

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
Total Group II PAHs		✔	2	625SIM	0.45 (sum)	17.4	17.4	100 µg/L	---
Naphthalene	✔		2	625SIM	0.050	<0.050	<0.050	20 µg/L	---
E. Halogenated SVOCs									
Total PCBs	✔		1	608	0.187	<0.187	<0.187	0.000064 µg/L	---
Pentachlorophenol	✔		2	625	4.72	<4.72	<4.72	1.0 µg/L	---
F. Fuels Parameters									
Total Petroleum Hydrocarbons		✔	1	8100M	200 (0.2	3,600 (3.6	3,600 (3.6mg)	5.0 mg/L	---
Ethanol	✔		1	8260	200	<200	<200	Report mg/L	---
Methyl-tert-Butyl Ether	✔		1	8260	1.00	<1.00	<1.00	70 µg/L	ND
tert-Butyl Alcohol	✔		1	8260	10.0	<10.0	<10.0	120 µg/L in MA 40 µg/L in NH	---
tert-Amyl Methyl Ether	✔		1	8260	1.00	<1.00	<1.00	90 µg/L in MA 140 µg/L in NH	---
Other (i.e., pH, temperature, hardness, salinity, LC_{50}, additional pollutants present); if so, specify:									
TDS		✔	1	SM2540	5,000	1,190,000	1,190,000		

E. Treatment system information

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

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

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

Pump(s) to dewater Site excavation will discharge through polymer flocculant logs to frac tank(s) for settling suspended solids. Discharge from frac tank will pass through 1 um bag filters to remove additional particles, granular activated carbon to remove organics, ion exchange resin to remove metals, then the flow meter totalizer 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: Two 1,000-pound GAC filters, 60 cubic feet ion exchange resion

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

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

F. Chemical and additive information

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

☐ Algaecides/biocides ☐ Antifoams ☐ Coagulants ☐ Corrosion/scale inhibitors ☐ Disinfectants ☐ Flocculants ☐ Neutralizing agents ☐ Oxidants ☐ Oxygen ☐ scavengers ☐ pH conditioners ☐ Bioremedial agents, including microbes ☐ Chlorine or chemicals containing chlorine ☐ Other; if so, specify:
Will pass through "floc logs" prior to entering frac tank.

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

This NOI is appended to a narrative description of planned activities along with required supporting documentation (figures, laboratory data, USFWS information, historic properties information).

Regarding Section F.3. on the previous page: Attachment D provides information about the "floc logs" including compliance with various aquatic toxicity tests and certification for use in drinking water treatment.

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

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

J. Certification requirement

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

BMPP certification statement:	A BMPP meeting the requirements of this general permit will be prepared and implemented prior to initiating the discharge.
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: 03/09/2018
Print Name and Title:	~~Tarek~~ Yatim, CEO, Yatco Energy

eurofins | Spectrum Analytical

☑ Final Report
☐ Revised Report

Report Date:
31-Jan-18 17:08

Laboratory Report
SC43470

CMG Environmental, Inc.
67 Hall Road
Sturbridge, MA 01566
Attn: Jerry Clark

Project: 4+16 N. Main - Northbridge, MA
Project #: 2017-235

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87936
Maine # MA138
New Hampshire # 2972/2538
New Jersey # MA011
New York # 11393
Pennsylvania # 68-04426/68-02924
Rhode Island # LAO00348
USDA # P330-15-00375
Vermont # VT-11393

Authorized by:

Dawn Wojcik
Laboratory Director

Dawn E Wojcik

Eurofins Spectrum Analytical holds primary certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes. Please refer to our website for specific certification holdings in each state.
Please note that this report contains 36 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Eurofins Spectrum Analytical, Inc.

Eurofins Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Eurofins Spectrum Analytical, Inc. is currently accredited for the specific method or analyte indicated. Please refer to our 'Quality' web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Eurofins Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey, Pennsylvania and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (PA-68-04426).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

Sample Summary

Work Order: SC43470

Project: 4+16 N. Main - Northbridge, MA

Project Number: 2017-235

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SC43470-01	GW	Ground Water	24-Jan-18 14:45	25-Jan-18 14:23

MassDEP Analytical Protocol Certification Form

Laboratory Name: Eurofins Spectrum Analytical, Inc.	**Project #:** 2017-235
Project Location: 4+16 N. Main - Northbridge, MA	**RTN:**
This form provides certifications for the following data set: SC43470-01	
Matrices: Ground Water	

CAM Protocol

✓ 8260 VOC CAM II A	✓ 7470/7471 Hg CAM III B	MassDEP VPH CAM IV A	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
✓ 8270 SVOC CAM II B	7010 Metals CAM III C	MassDEP EPH CAM IV B	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
✓ 6010 Metals CAM III A	6020 Metals CAM III D	8082 PCB CAM V A	9012 Total Cyanide/PAC CAM VI A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B

Affirmative responses to questions A through F are 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
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	✓ Yes No
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
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
E	a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	Yes No Yes No
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

Responses to questions G, H and I below are required for Presumptive Certainty status

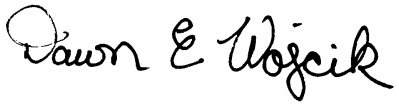
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	Yes ✓ No

***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
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes ✓ No

All negative responses are addressed in a case narrative on the cover page of this report.

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.



Dawn E. Wojcik
Laboratory Director
Date: 1/31/2018

CASE NARRATIVE:

Data has been reported to the RDL. This report excludes estimated concentrations detected below the RDL and above the MDL (J-Flag).

All non-detects and all results below the reporting limit are reported as "<" (less than) the reporting limit in this report.

The samples were received 2.7 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group. If method or program required MS/MSD/Dup were not performed, sufficient sample was not provided to the laboratory.

MADEP has published a list of analytical methods (CAM) which provides a series of recommended protocols for the acquisition, analysis and reporting of analytical data in support of MCP decisions. "Presumptive Certainty" can be established only for those methods published by the MADEP in the MCP CAM. The compounds and/or elements reported were specifically requested by the client on the Chain of Custody and in some cases may not include the full analyte list as defined in the method. Regulatory limits may not be achieved if specific method and/or technique was not requested on the Chain of Custody.

According to WSC-CAM 5/2009 Rev.1, Table 11 A-1, recovery for some VOC analytes have been deemed potentially difficult. Although they may still be within the recommended recovery range, a range has been set based on historical control limits.

Some target analytes which are not listed as exceptions in the Summary of CAM Reporting Limits may exceed the recommended RL based on sample initial volume or weight provided, % moisture content, or responsiveness of a particular analyte to purge and trap instrumentation.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

EPA 245.1/7470A

Spikes:

1801218-MS1 *Source: SC43470-01*

The spike recovery was outside of QC acceptance limits for the MS, MSD and/or PS due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

Mercury

1801218-MSD1 *Source: SC43470-01*

The spike recovery was outside of QC acceptance limits for the MS, MSD and/or PS due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

Mercury

Duplicates:

1801218-DUP1 *Source: SC43470-01*

Sample dilution required for high concentration of target analytes to be within the instrument calibration range.

Mercury

Samples:

SC43470-01 *GW*

Sample dilution required for high concentration of target analytes to be within the instrument calibration range.

Mercury

SW846 6010C

Spikes:

SW846 6010C

Spikes:

1801307-MS1 *Source: SC43470-01*

Due to dilution factor, recovery is unmeasurable

Antimony

The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.

Iron

1801307-MSD1 *Source: SC43470-01*

Due to dilution factor, recovery is unmeasurable

Antimony

The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.

Iron

1801307-PS1 *Source: SC43470-01*

Due to dilution factor, recovery is unmeasurable

Antimony

The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.

Iron

The spike recovery was outside of QC acceptance limits for the MS, MSD and/or PS due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

Barium

Duplicates:

1801307-DUP1 *Source: SC43470-01*

The Reporting Limit has been raised to account for matrix interference.

Antimony
Arsenic
Barium
Cadmium
Chromium
Copper
Iron
Lead
Nickel
Selenium
Silver
Zinc

Samples:

SC43470-01 *GW*

SW846 6010C

Samples:

SC43470-01 *GW*

The Reporting Limit has been raised to account for matrix interference.

Antimony
Arsenic
Barium
Cadmium
Chromium
Copper
Iron
Lead
Nickel
Selenium
Silver
Zinc

SW846 8260C

Calibration:

1801070

Analyte quantified by quadratic equation type calibration.

1,1,1,2-Tetrachloroethane
1,2-Dibromo-3-chloropropane
1,4-Dioxane
Bromodichloromethane
Bromoform
Carbon tetrachloride
Dibromochloromethane
Naphthalene
trans-1,3-Dichloropropene

This affected the following samples:

1801230-BLK1
1801230-BS1
1801230-BSD1
GW
S816062-ICV1
S816296-CCV1

Laboratory Control Samples:

1801230 BS/BSD

1,1,1,2-Tetrachloroethane percent recoveries (136/127) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially high bias:

GW

1,2-Dibromo-3-chloropropane percent recoveries (131/128) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially high bias:

GW

2,2-Dichloropropane percent recoveries (131/124) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially high bias:

GW

SW846 8260C

Laboratory Control Samples:

1801230 BS/BSD

Bromoform percent recoveries (154/147) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially high bias:

GW

Carbon tetrachloride percent recoveries (138/127) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially high bias:

GW

Dibromochloromethane percent recoveries (144/132) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially high bias:

GW

Tert-Butanol / butyl alcohol percent recoveries (113/137) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially high bias:

GW

Samples:

S816296-CCV1

Analyte percent difference is outside individual acceptance criteria (20), but within overall method allowances.

2,2-Dichloropropane (23.9%)
Ethanol (24.1%)
Tert-Butanol / butyl alcohol (37.3%)

Analyte percent drift is outside individual acceptance criteria (20), but within overall method allowances.

1,1,1,2-Tetrachloroethane (27.2%)
1,2-Dibromo-3-chloropropane (27.8%)
1,4-Dioxane (26.1%)
Bromoform (47.0%)
Carbon tetrachloride (26.9%)
Dibromochloromethane (32.4%)

This affected the following samples:

1801230-BLK1
1801230-BS1
1801230-BSD1
GW

SW846 8270D

Calibration:

1801047

SW846 8270D

Calibration:

1801047

Analyte quantified by quadratic equation type calibration.

2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
3-Nitroaniline
4,6-Dinitro-2-methylphenol
4-Nitrophenol
Benzidine
Benzoic acid
Carbazole
Pentachlorophenol

This affected the following samples:

1801200-BLK1
1801200-BS1
1801200-BSD1
GW
S815859-ICV1
S816340-CCV1

Laboratory Control Samples:

1801200 BS/BSD

1,2,4,5-Tetrachlorobenzene percent recoveries (35/44) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

GW

1,2,4-Trichlorobenzene percent recoveries (35/45) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

GW

1,2-Dichlorobenzene percent recoveries (32/41) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

GW

1,3-Dichlorobenzene percent recoveries (30/39) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

GW

1,4-Dichlorobenzene percent recoveries (31/40) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

GW

1-Methylnaphthalene percent recoveries (36/46) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

GW

Aniline percent recoveries (40/39) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

GW

SW846 8270D

Laboratory Control Samples:

1801200 BS/BSD

Bis(2-chloroethoxy)methane percent recoveries (33/41) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

GW

Bis(2-chloroethyl)ether percent recoveries (32/40) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

GW

Bis(2-chloroisopropyl)ether percent recoveries (32/40) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

GW

Hexachlorobutadiene percent recoveries (30/39) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

GW

Hexachloroethane percent recoveries (32/40) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

GW

Naphthalene percent recoveries (32/41) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

GW

N-Nitrosodimethylamine percent recoveries (31/34) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

GW

Phenol percent recoveries (20/23) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

GW

Pyridine percent recoveries (28/28) are outside individual acceptance criteria, but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

GW

1801200 BSD

1,2,4,5-Tetrachlorobenzene RPD 26% (20%) is outside individual acceptance criteria.

1,2,4-Trichlorobenzene RPD 27% (20%) is outside individual acceptance criteria.

1,2-Dichlorobenzene RPD 26% (20%) is outside individual acceptance criteria.

1,3-Dichlorobenzene RPD 26% (20%) is outside individual acceptance criteria.

1,4-Dichlorobenzene RPD 26% (20%) is outside individual acceptance criteria.

1-Methylnaphthalene RPD 27% (20%) is outside individual acceptance criteria.

2,4,5-Trichlorophenol RPD 25% (20%) is outside individual acceptance criteria.

SW846 8270D

Laboratory Control Samples:

1801200 BSD

2,4,6-Trichlorophenol RPD 25% (20%) is outside individual acceptance criteria.

2,4-Dichlorophenol RPD 21% (20%) is outside individual acceptance criteria.

2,4-Dimethylphenol RPD 27% (20%) is outside individual acceptance criteria.

2,4-Dinitrophenol RPD 24% (20%) is outside individual acceptance criteria.

2,4-Dinitrotoluene RPD 22% (20%) is outside individual acceptance criteria.

2,6-Dinitrotoluene RPD 24% (20%) is outside individual acceptance criteria.

2-Chloronaphthalene RPD 26% (20%) is outside individual acceptance criteria.

2-Methylnaphthalene RPD 23% (20%) is outside individual acceptance criteria.

2-Nitroaniline RPD 25% (20%) is outside individual acceptance criteria.

2-Nitrophenol RPD 24% (20%) is outside individual acceptance criteria.

3,3´-Dichlorobenzidine RPD 23% (20%) is outside individual acceptance criteria.

4,6-Dinitro-2-methylphenol RPD 23% (20%) is outside individual acceptance criteria.

4-Bromophenyl phenyl ether RPD 23% (20%) is outside individual acceptance criteria.

4-Chloro-3-methylphenol RPD 23% (20%) is outside individual acceptance criteria.

4-Chlorophenyl phenyl ether RPD 27% (20%) is outside individual acceptance criteria.

4-Nitroaniline RPD 24% (20%) is outside individual acceptance criteria.

Acenaphthene RPD 25% (20%) is outside individual acceptance criteria.

Acenaphthylene RPD 28% (20%) is outside individual acceptance criteria.

Anthracene RPD 25% (20%) is outside individual acceptance criteria.

Azobenzene/Diphenyldiazene RPD 31% (20%) is outside individual acceptance criteria.

Benzidine RPD 48% (20%) is outside individual acceptance criteria.

Bis(2-chloroethoxy)methane RPD 24% (20%) is outside individual acceptance criteria.

Bis(2-chloroethyl)ether RPD 22% (20%) is outside individual acceptance criteria.

Bis(2-chloroisopropyl)ether RPD 22% (20%) is outside individual acceptance criteria.

SW846 8270D

Laboratory Control Samples:

1801200 BSD

Carbazole RPD 24% (20%) is outside individual acceptance criteria.

Dibenzofuran RPD 26% (20%) is outside individual acceptance criteria.

Diethyl phthalate RPD 25% (20%) is outside individual acceptance criteria.

Dimethyl phthalate RPD 27% (20%) is outside individual acceptance criteria.

Di-n-butyl phthalate RPD 23% (20%) is outside individual acceptance criteria.

Fluoranthene RPD 24% (20%) is outside individual acceptance criteria.

Fluorene RPD 27% (20%) is outside individual acceptance criteria.

Hexachlorobenzene RPD 21% (20%) is outside individual acceptance criteria.

Hexachlorobutadiene RPD 27% (20%) is outside individual acceptance criteria.

Hexachlorocyclopentadiene RPD 32% (20%) is outside individual acceptance criteria.

Hexachloroethane RPD 24% (20%) is outside individual acceptance criteria.

Isophorone RPD 24% (20%) is outside individual acceptance criteria.

Naphthalene RPD 27% (20%) is outside individual acceptance criteria.

Nitrobenzene RPD 24% (20%) is outside individual acceptance criteria.

N-Nitrosodi-n-propylamine RPD 22% (20%) is outside individual acceptance criteria.

N-Nitrosodiphenylamine RPD 25% (20%) is outside individual acceptance criteria.

Pentachloronitrobenzene RPD 23% (20%) is outside individual acceptance criteria.

Pentachlorophenol RPD 27% (20%) is outside individual acceptance criteria.

Phenanthrene RPD 25% (20%) is outside individual acceptance criteria.

1801200-BSD1

SW846 8270D

Laboratory Control Samples:

1801200-BSD1

RPD out of acceptance range. The batch is accepted based upon LCS and/or LCSD recovery.

1,2,4,5-Tetrachlorobenzene
1,2,4-Trichlorobenzene
1,2-Dichlorobenzene
1,4-Dichlorobenzene
1-Methylnaphthalene
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
2,4-Dichlorophenol
2,4-Dimethylphenol
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
2-Chloronaphthalene
2-Methylnaphthalene
2-Nitroaniline
2-Nitrophenol
3,3´-Dichlorobenzidine
4,6-Dinitro-2-methylphenol
4-Bromophenyl phenyl ether
4-Chloro-3-methylphenol
4-Chlorophenyl phenyl ether
4-Nitroaniline
Acenaphthene
Acenaphthylene
Anthracene
Azobenzene/Diphenyldiazene
Benzidine
Bis(2-chloroethoxy)methane
Bis(2-chloroethyl)ether
Bis(2-chloroisopropyl)ether
Carbazole
Dibenzofuran
Diethyl phthalate
Dimethyl phthalate
Di-n-butyl phthalate
Fluoranthene
Fluorene
Hexachlorobenzene
Hexachlorocyclopentadiene
Hexachloroethane
Isophorone
Naphthalene
Nitrobenzene
N-Nitrosodi-n-propylamine
N-Nitrosodiphenylamine
Pentachloronitrobenzene
Pentachlorophenol
Phenanthrene

Samples:

S816340-CCV1

SW846 8270D

Samples:

S816340-CCV1

Analyte percent drift is outside individual acceptance criteria (20), but within overall method allowances.

2,4-Dinitrophenol (32.3%)
4,6-Dinitro-2-methylphenol (28.4%)
Carbazole (-21.0%)

This affected the following samples:

1801200-BLK1
1801200-BS1
1801200-BSD1
GW

SC43470-01 *GW*

Data for this analyte may be biased low based on QC spike recoveries.

1,2,4,5-Tetrachlorobenzene
1,2,4-Trichlorobenzene
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
1-Methylnaphthalene
Bis(2-chloroethoxy)methane
Bis(2-chloroethyl)ether
Bis(2-chloroisopropyl)ether
Hexachlorobutadiene
Hexachloroethane
Naphthalene
N-Nitrosodimethylamine
Phenol
Pyridine

Sample Acceptance Check Form

Client:	CMG Environmental, Inc.
Project:	4+16 N. Main - Northbridge, MA / 2017-235
Work Order:	SC43470
Sample(s) received on:	1/25/2018

The following outlines the condition of samples for the attached Chain of Custody upon receipt.

	Yes	No	N/A
Were custody seals present?	☐	☑	☐
Were custody seals intact?	☐	☐	☑
Were samples received at a temperature of ≤ 6°C?	☑	☐	☐
Were samples refrigerated upon transfer to laboratory representative?	☑	☐	☐
Were sample containers received intact?	☑	☐	☐
Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	☑	☐	☐
Were samples accompanied by a Chain of Custody document?	☑	☐	☐
Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample?	☐	☑	☐
Did sample container labels agree with Chain of Custody document?	☑	☐	☐
Were samples received within method-specific holding times?	☑	☐	☐

Summary of Hits

Lab ID: SC43470-01 **Client ID:** GW

Parameter	Result	Flag	Reporting Limit	Units	Analytical Method
Ammonia as Nitrogen	0.82		0.05	mg/l	E350.1
Mercury	0.0299	GS1, D	0.00100	mg/l	EPA 245.1/7470A
Chloride	98.8	D	5.00	mg/l	EPA 300.0
Total Dissolved Solids	1190		5	mg/l	SM18-22 2540C
Total Suspended Solids	394		5.0	mg/l	SM2540D (11)
Arsenic	1.80	D, R01	0.400	mg/l	SW846 6010C
Barium	10.0	D, R01	0.500	mg/l	SW846 6010C
Chromium	2.50	D, R01	0.500	mg/l	SW846 6010C
Copper	6.08	R01, D	0.500	mg/l	SW846 6010C
Iron	2420	R01, D	1.50	mg/l	SW846 6010C
Lead	22.0	R01, D	0.750	mg/l	SW846 6010C
Nickel	1.78	R01, D	0.500	mg/l	SW846 6010C
Zinc	23.7	R01, D	0.500	mg/l	SW846 6010C

Please note that because there are no reporting limits associated with hazardous waste characterizations or micro analyses, this summary does not include hits from these analyses if included in this work order.

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GW	2017-235	Ground Water	24-Jan-18 14:45	25-Jan-18
SC43470-01				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
Volatile Organic Compounds by SW846 8260 Prepared by method SW846 5030 Water MS													
76-13-1	1,1,2-Trichlorotrifluoroethane (Freon 113)	< 1.00		µg/l	1.00	0.53	1	SW846 8260C	29-Jan-18	29-Jan-18	GMA	1801230	
67-64-1	Acetone	< 10.0		µg/l	10.0	0.80	1	"	"	"	"	"	
107-13-1	Acrylonitrile	< 0.50		µg/l	0.50	0.47	1	"	"	"	"	"	
71-43-2	Benzene	< 1.00		µg/l	1.00	0.28	1	"	"	"	"	"	
108-86-1	Bromobenzene	< 1.00		µg/l	1.00	0.33	1	"	"	"	"	"	
74-97-5	Bromochloromethane	< 1.00		µg/l	1.00	0.34	1	"	"	"	"	"	
75-27-4	Bromodichloromethane	< 0.50		µg/l	0.50	0.42	1	"	"	"	"	"	
75-25-2	Bromoform	< 1.00		µg/l	1.00	0.42	1	"	"	"	"	"	
74-83-9	Bromomethane	< 2.00		µg/l	2.00	0.90	1	"	"	"	"	"	
78-93-3	2-Butanone (MEK)	< 2.00		µg/l	2.00	1.07	1	"	"	"	"	"	
104-51-8	n-Butylbenzene	< 1.00		µg/l	1.00	0.41	1	"	"	"	"	"	
135-98-8	sec-Butylbenzene	< 1.00		µg/l	1.00	0.33	1	"	"	"	"	"	
98-06-6	tert-Butylbenzene	< 1.00		µg/l	1.00	0.32	1	"	"	"	"	"	
75-15-0	Carbon disulfide	< 2.00		µg/l	2.00	0.41	1	"	"	"	"	"	
56-23-5	Carbon tetrachloride	< 1.00		µg/l	1.00	0.44	1	"	"	"	"	"	
108-90-7	Chlorobenzene	< 1.00		µg/l	1.00	0.25	1	"	"	"	"	"	
75-00-3	Chloroethane	< 2.00		µg/l	2.00	0.59	1	"	"	"	"	"	
67-66-3	Chloroform	< 1.00		µg/l	1.00	0.33	1	"	"	"	"	"	
74-87-3	Chloromethane	< 2.00		µg/l	2.00	0.37	1	"	"	"	"	"	
95-49-8	2-Chlorotoluene	< 1.00		µg/l	1.00	0.32	1	"	"	"	"	"	
106-43-4	4-Chlorotoluene	< 1.00		µg/l	1.00	0.32	1	"	"	"	"	"	
96-12-8	1,2-Dibromo-3-chloropropane	< 2.00		µg/l	2.00	0.86	1	"	"	"	"	"	
124-48-1	Dibromochloromethane	< 0.50		µg/l	0.50	0.32	1	"	"	"	"	"	
106-93-4	1,2-Dibromoethane (EDB)	< 0.50		µg/l	0.50	0.20	1	"	"	"	"	"	
74-95-3	Dibromomethane	< 1.00		µg/l	1.00	0.31	1	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	< 1.00		µg/l	1.00	0.28	1	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	< 1.00		µg/l	1.00	0.31	1	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	< 1.00		µg/l	1.00	0.27	1	"	"	"	"	"	
75-71-8	Dichlorodifluoromethane (Freon12)	< 2.00		µg/l	2.00	0.58	1	"	"	"	"	"	
75-34-3	1,1-Dichloroethane	< 1.00		µg/l	1.00	0.32	1	"	"	"	"	"	
107-06-2	1,2-Dichloroethane	< 1.00		µg/l	1.00	0.28	1	"	"	"	"	"	
75-35-4	1,1-Dichloroethene	< 1.00		µg/l	1.00	0.69	1	"	"	"	"	"	
156-59-2	cis-1,2-Dichloroethene	< 1.00		µg/l	1.00	0.33	1	"	"	"	"	"	
156-60-5	trans-1,2-Dichloroethene	< 1.00		µg/l	1.00	0.38	1	"	"	"	"	"	
78-87-5	1,2-Dichloropropane	< 1.00		µg/l	1.00	0.29	1	"	"	"	"	"	
142-28-9	1,3-Dichloropropane	< 1.00		µg/l	1.00	0.21	1	"	"	"	"	"	
594-20-7	2,2-Dichloropropane	< 1.00		µg/l	1.00	0.42	1	"	"	"	"	"	
563-58-6	1,1-Dichloropropene	< 1.00		µg/l	1.00	0.58	1	"	"	"	"	"	
10061-01-5	cis-1,3-Dichloropropene	< 0.50		µg/l	0.50	0.36	1	"	"	"	"	"	
10061-02-6	trans-1,3-Dichloropropene	< 0.50		µg/l	0.50	0.35	1	"	"	"	"	"	
100-41-4	Ethylbenzene	< 1.00		µg/l	1.00	0.33	1	"	"	"	"	"	
87-68-3	Hexachlorobutadiene	< 0.50		µg/l	0.50	0.47	1	"	"	"	"	"	
591-78-6	2-Hexanone (MBK)	< 2.00		µg/l	2.00	0.53	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GW	2017-235	Ground Water	24-Jan-18 14:45	25-Jan-18
SC43470-01				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Volatile Organic Compounds													
Volatile Organic Compounds by SW846 8260													
98-82-8	Isopropylbenzene	< 1.00		µg/l	1.00	0.36	1	SW846 8260C	29-Jan-18	29-Jan-18	GMA	1801230	
99-87-6	4-Isopropyltoluene	< 1.00		µg/l	1.00	0.28	1	"	"	"	"	"	
1634-04-4	Methyl tert-butyl ether	< 1.00		µg/l	1.00	0.24	1	"	"	"	"	"	
108-10-1	4-Methyl-2-pentanone (MIBK)	< 2.00		µg/l	2.00	0.52	1	"	"	"	"	"	
75-09-2	Methylene chloride	< 2.00		µg/l	2.00	0.66	1	"	"	"	"	"	
91-20-3	Naphthalene	< 1.00		µg/l	1.00	0.35	1	"	"	"	"	"	
103-65-1	n-Propylbenzene	< 1.00		µg/l	1.00	0.34	1	"	"	"	"	"	
100-42-5	Styrene	< 1.00		µg/l	1.00	0.40	1	"	"	"	"	"	
630-20-6	1,1,1,2-Tetrachloroethane	< 1.00		µg/l	1.00	0.38	1	"	"	"	"	"	
79-34-5	1,1,2,2-Tetrachloroethane	< 0.50		µg/l	0.50	0.33	1	"	"	"	"	"	
127-18-4	Tetrachloroethene	< 1.00		µg/l	1.00	0.57	1	"	"	"	"	"	
108-88-3	Toluene	< 1.00		µg/l	1.00	0.30	1	"	"	"	"	"	
87-61-6	1,2,3-Trichlorobenzene	< 1.00		µg/l	1.00	0.38	1	"	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	< 1.00		µg/l	1.00	0.38	1	"	"	"	"	"	
108-70-3	1,3,5-Trichlorobenzene	< 1.00		µg/l	1.00	0.30	1	"	"	"	"	"	
71-55-6	1,1,1-Trichloroethane	< 1.00		µg/l	1.00	0.51	1	"	"	"	"	"	
79-00-5	1,1,2-Trichloroethane	< 1.00		µg/l	1.00	0.33	1	"	"	"	"	"	
79-01-6	Trichloroethene	< 1.00		µg/l	1.00	0.50	1	"	"	"	"	"	
75-69-4	Trichlorofluoromethane (Freon 11)	< 1.00		µg/l	1.00	0.49	1	"	"	"	"	"	
96-18-4	1,2,3-Trichloropropane	< 1.00		µg/l	1.00	0.29	1	"	"	"	"	"	
95-63-6	1,2,4-Trimethylbenzene	< 1.00		µg/l	1.00	0.36	1	"	"	"	"	"	
108-67-8	1,3,5-Trimethylbenzene	< 1.00		µg/l	1.00	0.43	1	"	"	"	"	"	
75-01-4	Vinyl chloride	< 1.00		µg/l	1.00	0.47	1	"	"	"	"	"	
179601-23-1	m,p-Xylene	< 2.00		µg/l	2.00	0.38	1	"	"	"	"	"	
95-47-6	o-Xylene	< 1.00		µg/l	1.00	0.28	1	"	"	"	"	"	
109-99-9	Tetrahydrofuran	< 2.00		µg/l	2.00	1.06	1	"	"	"	"	"	
60-29-7	Ethyl ether	< 1.00		µg/l	1.00	0.37	1	"	"	"	"	"	
994-05-8	Tert-amyl methyl ether	< 1.00		µg/l	1.00	0.49	1	"	"	"	"	"	
637-92-3	Ethyl tert-butyl ether	< 1.00		µg/l	1.00	0.33	1	"	"	"	"	"	
108-20-3	Di-isopropyl ether	< 1.00		µg/l	1.00	0.29	1	"	"	"	"	"	
75-65-0	Tert-Butanol / butyl alcohol	< 10.0		µg/l	10.0	5.90	1	"	"	"	"	"	
123-91-1	1,4-Dioxane	< 20.0		µg/l	20.0	11.4	1	"	"	"	"	"	
110-57-6	trans-1,4-Dichloro-2-butene	< 5.00		µg/l	5.00	0.82	1	"	"	"	"	"	
64-17-5	Ethanol	< 200		µg/l	200	30.9	1	"	"	"	"	"	
Surrogate recoveries:													
460-00-4	*4-Bromofluorobenzene*	*108*			*70-130 %*			"	"	"	"	"	
2037-26-5	*Toluene-d8*	*100*			*70-130 %*			"	"	"	"	"	
17060-07-0	*1,2-Dichloroethane-d4*	*100*			*70-130 %*			"	"	"	"	"	
1868-53-7	*Dibromofluoromethane*	*106*			*70-130 %*			"	"	"	"	"	
Semivolatile Organic Compounds by GCMS													
Semivolatile Organic Compounds Prepared by method SW846 3510C													
83-32-9	Acenaphthene	< 5.10		µg/l	5.10	0.705	1	SW846 8270D	29-Jan-18	30-Jan-18	MSL	1801200	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GW	2017-235	Ground Water	24-Jan-18 14:45	25-Jan-18
SC43470-01				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GCMS													
Semivolatile Organic Compounds													
208-96-8	Acenaphthylene	< 5.10		µg/l	5.10	0.697	1	SW846 8270D	29-Jan-18	30-Jan-18	MSL	1801200	
62-53-3	Aniline	< 5.10		µg/l	5.10	1.81	1	"	"	"	"	"	
120-12-7	Anthracene	< 5.10		µg/l	5.10	0.620	1	"	"	"	"	"	
103-33-3	Azobenzene/Diphenyldiazene	< 5.10		µg/l	5.10	0.763	1	"	"	"	"	"	
92-87-5	Benzidine	< 5.10		µg/l	5.10	1.17	1	"	"	"	"	"	
56-55-3	Benzo (a) anthracene	< 5.10		µg/l	5.10	0.547	1	"	"	"	"	"	
50-32-8	Benzo (a) pyrene	< 5.10		µg/l	5.10	0.573	1	"	"	"	"	"	
205-99-2	Benzo (b) fluoranthene	< 5.10		µg/l	5.10	0.446	1	"	"	"	"	"	
191-24-2	Benzo (g,h,i) perylene	< 5.10		µg/l	5.10	0.541	1	"	"	"	"	"	
207-08-9	Benzo (k) fluoranthene	< 5.10		µg/l	5.10	0.490	1	"	"	"	"	"	
65-85-0	Benzoic acid	< 5.10		µg/l	5.10	0.538	1	"	"	"	"	"	
100-51-6	Benzyl alcohol	< 5.10		µg/l	5.10	0.796	1	"	"	"	"	"	
111-91-1	Bis(2-chloroethoxy)methane	< 5.10	BsL	µg/l	5.10	0.680	1	"	"	"	"	"	
111-44-4	Bis(2-chloroethyl)ether	< 5.10	BsL	µg/l	5.10	0.749	1	"	"	"	"	"	
108-60-1	Bis(2-chloroisopropyl)ether	< 5.10	BsL	µg/l	5.10	0.794	1	"	"	"	"	"	
117-81-7	Bis(2-ethylhexyl)phthalate	< 5.10		µg/l	5.10	0.651	1	"	"	"	"	"	
101-55-3	4-Bromophenyl phenyl ether	< 5.10		µg/l	5.10	0.614	1	"	"	"	"	"	
85-68-7	Butyl benzyl phthalate	< 5.10		µg/l	5.10	0.447	1	"	"	"	"	"	
86-74-8	Carbazole	< 5.10		µg/l	5.10	1.59	1	"	"	"	"	"	
59-50-7	4-Chloro-3-methylphenol	< 5.10		µg/l	5.10	0.511	1	"	"	"	"	"	
106-47-8	4-Chloroaniline	< 5.10		µg/l	5.10	1.14	1	"	"	"	"	"	
91-58-7	2-Chloronaphthalene	< 5.10		µg/l	5.10	0.602	1	"	"	"	"	"	
95-57-8	2-Chlorophenol	< 5.10		µg/l	5.10	0.763	1	"	"	"	"	"	
7005-72-3	4-Chlorophenyl phenyl ether	< 5.10		µg/l	5.10	0.615	1	"	"	"	"	"	
218-01-9	Chrysene	< 5.10		µg/l	5.10	0.543	1	"	"	"	"	"	
53-70-3	Dibenzo (a,h) anthracene	< 5.10		µg/l	5.10	0.459	1	"	"	"	"	"	
132-64-9	Dibenzofuran	< 5.10		µg/l	5.10	0.755	1	"	"	"	"	"	
95-50-1	1,2-Dichlorobenzene	< 5.10	BsL	µg/l	5.10	0.573	1	"	"	"	"	"	
541-73-1	1,3-Dichlorobenzene	< 5.10	BsL	µg/l	5.10	0.660	1	"	"	"	"	"	
106-46-7	1,4-Dichlorobenzene	< 5.10	BsL	µg/l	5.10	0.627	1	"	"	"	"	"	
91-94-1	3,3´-Dichlorobenzidine	< 5.10		µg/l	5.10	2.03	1	"	"	"	"	"	
120-83-2	2,4-Dichlorophenol	< 5.10		µg/l	5.10	0.541	1	"	"	"	"	"	
84-66-2	Diethyl phthalate	< 5.10		µg/l	5.10	0.636	1	"	"	"	"	"	
131-11-3	Dimethyl phthalate	< 5.10		µg/l	5.10	0.773	1	"	"	"	"	"	
105-67-9	2,4-Dimethylphenol	< 5.10		µg/l	5.10	0.666	1	"	"	"	"	"	
84-74-2	Di-n-butyl phthalate	< 5.10		µg/l	5.10	0.466	1	"	"	"	"	"	
534-52-1	4,6-Dinitro-2-methylphenol	< 5.10		µg/l	5.10	0.326	1	"	"	"	"	"	
51-28-5	2,4-Dinitrophenol	< 5.10		µg/l	5.10	0.572	1	"	"	"	"	"	
121-14-2	2,4-Dinitrotoluene	< 5.10		µg/l	5.10	0.687	1	"	"	"	"	"	
606-20-2	2,6-Dinitrotoluene	< 5.10		µg/l	5.10	0.605	1	"	"	"	"	"	
117-84-0	Di-n-octyl phthalate	< 5.10		µg/l	5.10	0.414	1	"	"	"	"	"	
206-44-0	Fluoranthene	< 5.10		µg/l	5.10	0.651	1	"	"	"	"	"	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GW	2017-235	Ground Water	24-Jan-18 14:45	25-Jan-18
SC43470-01				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GCMS													
Semivolatile Organic Compounds													
86-73-7	Fluorene	< 5.10		µg/l	5.10	0.624	1	SW846 8270D	29-Jan-18	30-Jan-18	MSL	1801200	
118-74-1	Hexachlorobenzene	< 5.10		µg/l	5.10	0.583	1	"	"	"	"	"	
87-68-3	Hexachlorobutadiene	< 5.10	BsL	µg/l	5.10	0.396	1	"	"	"	"	"	
77-47-4	Hexachlorocyclopentadiene	< 5.10		µg/l	5.10	1.06	1	"	"	"	"	"	
67-72-1	Hexachloroethane	< 5.10	BsL	µg/l	5.10	0.652	1	"	"	"	"	"	
193-39-5	Indeno (1,2,3-cd) pyrene	< 5.10		µg/l	5.10	0.592	1	"	"	"	"	"	
78-59-1	Isophorone	< 5.10		µg/l	5.10	0.598	1	"	"	"	"	"	
91-57-6	2-Methylnaphthalene	< 5.10		µg/l	5.10	0.586	1	"	"	"	"	"	
95-48-7	2-Methylphenol	< 5.10		µg/l	5.10	0.679	1	"	"	"	"	"	
108-39-4, 106-44-5	3 & 4-Methylphenol	< 10.2		µg/l	10.2	0.628	1	"	"	"	"	"	
91-20-3	Naphthalene	< 5.10	BsL	µg/l	5.10	0.699	1	"	"	"	"	"	
88-74-4	2-Nitroaniline	< 5.10		µg/l	5.10	0.618	1	"	"	"	"	"	
99-09-2	3-Nitroaniline	< 5.10		µg/l	5.10	0.554	1	"	"	"	"	"	
100-01-6	4-Nitroaniline	< 5.10		µg/l	5.10	0.382	1	"	"	"	"	"	
98-95-3	Nitrobenzene	< 5.10		µg/l	5.10	0.704	1	"	"	"	"	"	
88-75-5	2-Nitrophenol	< 5.10		µg/l	5.10	0.474	1	"	"	"	"	"	
100-02-7	4-Nitrophenol	< 20.4		µg/l	20.4	0.855	1	"	"	"	"	"	
62-75-9	N-Nitrosodimethylamine	< 5.10	BsL	µg/l	5.10	0.687	1	"	"	"	"	"	
621-64-7	N-Nitrosodi-n-propylamine	< 5.10		µg/l	5.10	0.590	1	"	"	"	"	"	
86-30-6	N-Nitrosodiphenylamine	< 5.10		µg/l	5.10	0.664	1	"	"	"	"	"	
87-86-5	Pentachlorophenol	< 20.4		µg/l	20.4	0.381	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 5.10		µg/l	5.10	0.598	1	"	"	"	"	"	
108-95-2	Phenol	< 5.10	BsL	µg/l	5.10	0.658	1	"	"	"	"	"	
129-00-0	Pyrene	< 5.10		µg/l	5.10	0.622	1	"	"	"	"	"	
110-86-1	Pyridine	< 5.10	BsL	µg/l	5.10	0.836	1	"	"	"	"	"	
120-82-1	1,2,4-Trichlorobenzene	< 5.10	BsL	µg/l	5.10	0.701	1	"	"	"	"	"	
90-12-0	1-Methylnaphthalene	< 5.10	BsL	µg/l	5.10	0.748	1	"	"	"	"	"	
95-95-4	2,4,5-Trichlorophenol	< 5.10		µg/l	5.10	0.531	1	"	"	"	"	"	
88-06-2	2,4,6-Trichlorophenol	< 5.10		µg/l	5.10	0.529	1	"	"	"	"	"	
82-68-8	Pentachloronitrobenzene	< 5.10		µg/l	5.10	0.710	1	"	"	"	"	"	
95-94-3	1,2,4,5-Tetrachlorobenzene	< 5.10	BsL	µg/l	5.10	0.740	1	"	"	"	"	"	
Surrogate recoveries:													
321-60-8	*2-Fluorobiphenyl*	*66*			*30-130 %*			"	"	"	"	"	
367-12-4	*2-Fluorophenol*	*53*			*15-110 %*			"	"	"	"	"	
4165-60-0	*Nitrobenzene-d5*	*76*			*30-130 %*			"	"	"	"	"	
4165-62-2	*Phenol-d5*	*39*			*15-110 %*			"	"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*86*			*30-130 %*			"	"	"	"	"	
118-79-6	*2,4,6-Tribromophenol*	*82*			*15-110 %*			"	"	"	"	"	
Total Metals by EPA 200/6000 Series Methods													
Prepared by method General Prep-Metal													
	Preservation	**Lab Preserved**		N/A			1	EPA 200/6000 methods	29-Jan-18		JS	1801233	
Total Metals by EPA 6000/7000 Series Methods													
Prepared by method SW846 3005A													

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Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
GW	2017-235	Ground Water	24-Jan-18 14:45	25-Jan-18
SC43470-01				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Total Metals by EPA 6000/7000 Series Methods													
Prepared by method SW846 3005A													
7440-22-4	Silver	< 0.500	D, R01	mg/l	0.500	0.0620	50	SW846 6010C	30-Jan-18	31-Jan-18	SJR/TBC	1801307	
7440-38-2	Arsenic	**1.80**	D, R01	mg/l	0.400	0.138	50	"	"	"	"	"	
7440-39-3	Barium	**10.0**	D, R01	mg/l	0.500	0.0695	50	"	"	"	"	"	
7440-43-9	Cadmium	< 0.250	D, R01	mg/l	0.250	0.0353	50	"	"	"	"	"	
7440-47-3	Chromium	**2.50**	D, R01	mg/l	0.500	0.0925	50	"	"	"	"	"	
7440-50-8	Copper	**6.08**	R01, D	mg/l	0.500	0.230	50	"	"	"	"	"	
7439-89-6	Iron	**2,420**	R01, D	mg/l	1.50	0.446	50	"	"	"	"	"	
7440-02-0	Nickel	**1.78**	R01, D	mg/l	0.500	0.0865	50	"	"	"	"	"	
7439-92-1	Lead	**22.0**	R01, D	mg/l	0.750	0.620	50	"	"	"	"	"	
7440-36-0	Antimony	< 0.600	R01, D	mg/l	0.600	0.160	50	"	"	"	"	"	
7782-49-2	Selenium	< 1.50	R01, D	mg/l	1.50	0.415	50	"	"	"	"	"	
7440-66-6	Zinc	**23.7**	R01, D	mg/l	0.500	0.158	50	"	"	"	"	"	
Total Metals by EPA 200 Series Methods													
7439-97-6	Mercury	**0.0299**	GS1, D,HTA	mg/l	0.00100	0.00065	5	EPA 245.1/7470A	30-Jan-18	31-Jan-18	ABW	1801218	X
General Chemistry Parameters													
16887-00-6	Chloride	**98.8**	D	mg/l	5.00	0.497	5	EPA 300.0	29-Jan-18	30-Jan-18	ABW	1801253	X
	Total Dissolved Solids	**1,190**		mg/l	5	3	1	SM18-22 2540C	27-Jan-18	30-Jan-18	CMB	1801186	X
	Total Suspended Solids	**394**		mg/l	5.0	2.2	1	SM2540D (11)	27-Jan-18	30-Jan-18	CMB	1801187	X
Subcontracted Analyses													
Prepared by method 418021													
*Analysis performed by Phoenix Environmental Labs, Inc. * - MACT007*													
7664-41-7	Ammonia as Nitrogen	**0.82**		mg/l	0.05	0.05	1	E350.1	24-Jan-18 14:45	30-Jan-18 11:47	M-CT007	418021A	

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1801230 - SW846 5030 Water MS										
Blank (1801230-BLK1)					Prepared & Analyzed: 29-Jan-18					
1,1,2-Trichlorotrifluoroethane (Freon 113)	< 1.00		µg/l	1.00						
Acetone	< 10.0		µg/l	10.0						
Acrylonitrile	< 0.50		µg/l	0.50						
Benzene	< 1.00		µg/l	1.00						
Bromobenzene	< 1.00		µg/l	1.00						
Bromochloromethane	< 1.00		µg/l	1.00						
Bromodichloromethane	< 0.50		µg/l	0.50						
Bromoform	< 1.00		µg/l	1.00						
Bromomethane	< 2.00		µg/l	2.00						
2-Butanone (MEK)	< 2.00		µg/l	2.00						
n-Butylbenzene	< 1.00		µg/l	1.00						
sec-Butylbenzene	< 1.00		µg/l	1.00						
tert-Butylbenzene	< 1.00		µg/l	1.00						
Carbon disulfide	< 2.00		µg/l	2.00						
Carbon tetrachloride	< 1.00		µg/l	1.00						
Chlorobenzene	< 1.00		µg/l	1.00						
Chloroethane	< 2.00		µg/l	2.00						
Chloroform	< 1.00		µg/l	1.00						
Chloromethane	< 2.00		µg/l	2.00						
2-Chlorotoluene	< 1.00		µg/l	1.00						
4-Chlorotoluene	< 1.00		µg/l	1.00						
1,2-Dibromo-3-chloropropane	< 2.00		µg/l	2.00						
Dibromochloromethane	< 0.50		µg/l	0.50						
1,2-Dibromoethane (EDB)	< 0.50		µg/l	0.50						
Dibromomethane	< 1.00		µg/l	1.00						
1,2-Dichlorobenzene	< 1.00		µg/l	1.00						
1,3-Dichlorobenzene	< 1.00		µg/l	1.00						
1,4-Dichlorobenzene	< 1.00		µg/l	1.00						
Dichlorodifluoromethane (Freon12)	< 2.00		µg/l	2.00						
1,1-Dichloroethane	< 1.00		µg/l	1.00						
1,2-Dichloroethane	< 1.00		µg/l	1.00						
1,1-Dichloroethene	< 1.00		µg/l	1.00						
cis-1,2-Dichloroethene	< 1.00		µg/l	1.00						
trans-1,2-Dichloroethene	< 1.00		µg/l	1.00						
1,2-Dichloropropane	< 1.00		µg/l	1.00						
1,3-Dichloropropane	< 1.00		µg/l	1.00						
2,2-Dichloropropane	< 1.00		µg/l	1.00						
1,1-Dichloropropene	< 1.00		µg/l	1.00						
cis-1,3-Dichloropropene	< 0.50		µg/l	0.50						
trans-1,3-Dichloropropene	< 0.50		µg/l	0.50						
Ethylbenzene	< 1.00		µg/l	1.00						
Hexachlorobutadiene	< 0.50		µg/l	0.50						
2-Hexanone (MBK)	< 2.00		µg/l	2.00						
Isopropylbenzene	< 1.00		µg/l	1.00						
4-Isopropyltoluene	< 1.00		µg/l	1.00						
Methyl tert-butyl ether	< 1.00		µg/l	1.00						
4-Methyl-2-pentanone (MIBK)	< 2.00		µg/l	2.00						
Methylene chloride	< 2.00		µg/l	2.00						
Naphthalene	< 1.00		µg/l	1.00						
n-Propylbenzene	< 1.00		µg/l	1.00						

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1801230 - SW846 5030 Water MS										
Blank (1801230-BLK1)					Prepared & Analyzed: 29-Jan-18					
Styrene	< 1.00		µg/l	1.00						
1,1,1,2-Tetrachloroethane	< 1.00		µg/l	1.00						
1,1,2,2-Tetrachloroethane	< 0.50		µg/l	0.50						
Tetrachloroethene	< 1.00		µg/l	1.00						
Toluene	< 1.00		µg/l	1.00						
1,2,3-Trichlorobenzene	< 1.00		µg/l	1.00						
1,2,4-Trichlorobenzene	< 1.00		µg/l	1.00						
1,3,5-Trichlorobenzene	< 1.00		µg/l	1.00						
1,1,1-Trichloroethane	< 1.00		µg/l	1.00						
1,1,2-Trichloroethane	< 1.00		µg/l	1.00						
Trichloroethene	< 1.00		µg/l	1.00						
Trichlorofluoromethane (Freon 11)	< 1.00		µg/l	1.00						
1,2,3-Trichloropropane	< 1.00		µg/l	1.00						
1,2,4-Trimethylbenzene	< 1.00		µg/l	1.00						
1,3,5-Trimethylbenzene	< 1.00		µg/l	1.00						
Vinyl chloride	< 1.00		µg/l	1.00						
m,p-Xylene	< 2.00		µg/l	2.00						
o-Xylene	< 1.00		µg/l	1.00						
Tetrahydrofuran	< 2.00		µg/l	2.00						
Ethyl ether	< 1.00		µg/l	1.00						
Tert-amyl methyl ether	< 1.00		µg/l	1.00						
Ethyl tert-butyl ether	< 1.00		µg/l	1.00						
Di-isopropyl ether	< 1.00		µg/l	1.00						
Tert-Butanol / butyl alcohol	< 10.0		µg/l	10.0						
1,4-Dioxane	< 20.0		µg/l	20.0						
trans-1,4-Dichloro-2-butene	< 5.00		µg/l	5.00						
Ethanol	< 200		µg/l	200						
Surrogate: 4-Bromofluorobenzene	*54.6*		µg/l		*50.0*		*109*	*70-130*		
Surrogate: Toluene-d8	*50.9*		µg/l		*50.0*		*102*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*51.1*		µg/l		*50.0*		*102*	*70-130*		
Surrogate: Dibromofluoromethane	*52.7*		µg/l		*50.0*		*105*	*70-130*		
LCS (1801230-BS1)					Prepared & Analyzed: 29-Jan-18					
1,1,2-Trichlorotrifluoroethane (Freon 113)	**20.4**		µg/l		20.0		102	70-130		
Acetone	**20.6**		µg/l		20.0		103	70-130		
Acrylonitrile	**18.3**		µg/l		20.0		91	70-130		
Benzene	**20.6**		µg/l		20.0		103	70-130		
Bromobenzene	**22.9**		µg/l		20.0		114	70-130		
Bromochloromethane	**23.4**		µg/l		20.0		117	70-130		
Bromodichloromethane	**24.7**		µg/l		20.0		123	70-130		
Bromoform	**30.7**	QC2	µg/l		20.0		154	70-130		
Bromomethane	**22.3**		µg/l		20.0		111	70-130		
2-Butanone (MEK)	**19.3**		µg/l		20.0		96	70-130		
n-Butylbenzene	**21.4**		µg/l		20.0		107	70-130		
sec-Butylbenzene	**22.3**		µg/l		20.0		112	70-130		
tert-Butylbenzene	**21.9**		µg/l		20.0		110	70-130		
Carbon disulfide	**20.2**		µg/l		20.0		101	70-130		
Carbon tetrachloride	**27.6**	QM9	µg/l		20.0		138	70-130		
Chlorobenzene	**21.5**		µg/l		20.0		108	70-130		
Chloroethane	**20.2**		µg/l		20.0		101	70-130		
Chloroform	**21.8**		µg/l		20.0		109	70-130		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1801230 - SW846 5030 Water MS										
LCS (1801230-BS1)					Prepared & Analyzed: 29-Jan-18					
Chloromethane	**17.9**		µg/l		20.0		89	70-130		
2-Chlorotoluene	**21.0**		µg/l		20.0		105	70-130		
4-Chlorotoluene	**21.5**		µg/l		20.0		107	70-130		
1,2-Dibromo-3-chloropropane	**26.2**	QM9	µg/l		20.0		131	70-130		
Dibromochloromethane	**28.8**	QC2	µg/l		20.0		144	70-130		
1,2-Dibromoethane (EDB)	**24.2**		µg/l		20.0		121	70-130		
Dibromomethane	**22.9**		µg/l		20.0		114	70-130		
1,2-Dichlorobenzene	**22.2**		µg/l		20.0		111	70-130		
1,3-Dichlorobenzene	**22.2**		µg/l		20.0		111	70-130		
1,4-Dichlorobenzene	**20.9**		µg/l		20.0		104	70-130		
Dichlorodifluoromethane (Freon12)	**20.7**		µg/l		20.0		104	70-130		
1,1-Dichloroethane	**21.7**		µg/l		20.0		108	70-130		
1,2-Dichloroethane	**22.7**		µg/l		20.0		114	70-130		
1,1-Dichloroethene	**19.5**		µg/l		20.0		97	70-130		
cis-1,2-Dichloroethene	**22.0**		µg/l		20.0		110	70-130		
trans-1,2-Dichloroethene	**20.3**		µg/l		20.0		102	70-130		
1,2-Dichloropropane	**20.8**		µg/l		20.0		104	70-130		
1,3-Dichloropropane	**21.6**		µg/l		20.0		108	70-130		
2,2-Dichloropropane	**26.3**	QM9	µg/l		20.0		131	70-130		
1,1-Dichloropropene	**20.9**		µg/l		20.0		105	70-130		
cis-1,3-Dichloropropene	**24.9**		µg/l		20.0		125	70-130		
trans-1,3-Dichloropropene	**24.5**		µg/l		20.0		122	70-130		
Ethylbenzene	**21.6**		µg/l		20.0		108	70-130		
Hexachlorobutadiene	**22.7**		µg/l		20.0		113	70-130		
2-Hexanone (MBK)	**20.6**		µg/l		20.0		103	70-130		
Isopropylbenzene	**21.1**		µg/l		20.0		105	70-130		
4-Isopropyltoluene	**21.4**		µg/l		20.0		107	70-130		
Methyl tert-butyl ether	**23.5**		µg/l		20.0		118	70-130		
4-Methyl-2-pentanone (MIBK)	**20.8**		µg/l		20.0		104	70-130		
Methylene chloride	**21.0**		µg/l		20.0		105	70-130		
Naphthalene	**20.6**		µg/l		20.0		103	70-130		
n-Propylbenzene	**21.9**		µg/l		20.0		109	70-130		
Styrene	**21.6**		µg/l		20.0		108	70-130		
1,1,1,2-Tetrachloroethane	**27.2**	QM9	µg/l		20.0		136	70-130		
1,1,2,2-Tetrachloroethane	**22.7**		µg/l		20.0		114	70-130		
Tetrachloroethene	**21.7**		µg/l		20.0		109	70-130		
Toluene	**21.3**		µg/l		20.0		106	70-130		
1,2,3-Trichlorobenzene	**23.2**		µg/l		20.0		116	70-130		
1,2,4-Trichlorobenzene	**22.9**		µg/l		20.0		114	70-130		
1,3,5-Trichlorobenzene	**22.7**		µg/l		20.0		113	70-130		
1,1,1-Trichloroethane	**24.2**		µg/l		20.0		121	70-130		
1,1,2-Trichloroethane	**22.5**		µg/l		20.0		113	70-130		
Trichloroethene	**21.7**		µg/l		20.0		109	70-130		
Trichlorofluoromethane (Freon 11)	**22.1**		µg/l		20.0		110	70-130		
1,2,3-Trichloropropane	**21.6**		µg/l		20.0		108	70-130		
1,2,4-Trimethylbenzene	**22.3**		µg/l		20.0		112	70-130		
1,3,5-Trimethylbenzene	**22.6**		µg/l		20.0		113	70-130		
Vinyl chloride	**18.9**		µg/l		20.0		95	70-130		
m,p-Xylene	**21.8**		µg/l		20.0		109	70-130		
o-Xylene	**21.8**		µg/l		20.0		109	70-130		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1801230 - SW846 5030 Water MS										
LCS (1801230-BS1)					Prepared & Analyzed: 29-Jan-18					
Tetrahydrofuran	**19.2**		µg/l		20.0		96	70-130		
Ethyl ether	**20.0**		µg/l		20.0		100	70-130		
Tert-amyl methyl ether	**20.8**		µg/l		20.0		104	70-130		
Ethyl tert-butyl ether	**22.0**		µg/l		20.0		110	70-130		
Di-isopropyl ether	**20.9**		µg/l		20.0		105	70-130		
Tert-Butanol / butyl alcohol	**226**		µg/l		200		113	70-130		
1,4-Dioxane	**243**		µg/l		200		122	70-130		
trans-1,4-Dichloro-2-butene	**22.1**		µg/l		20.0		110	70-130		
Ethanol	**405**		µg/l		400		101	70-130		
Surrogate: 4-Bromofluorobenzene	*51.8*		µg/l		*50.0*		*104*	*70-130*		
Surrogate: Toluene-d8	*51.5*		µg/l		*50.0*		*103*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*51.2*		µg/l		*50.0*		*102*	*70-130*		
Surrogate: Dibromofluoromethane	*52.5*		µg/l		*50.0*		*105*	*70-130*		
LCS Dup (1801230-BSD1)					Prepared & Analyzed: 29-Jan-18					
1,1,2-Trichlorotrifluoroethane (Freon 113)	**19.3**		µg/l		20.0		97	70-130	5	20
Acetone	**21.2**		µg/l		20.0		106	70-130	3	20
Acrylonitrile	**18.3**		µg/l		20.0		92	70-130	0.3	20
Benzene	**19.2**		µg/l		20.0		96	70-130	7	20
Bromobenzene	**21.5**		µg/l		20.0		108	70-130	6	20
Bromochloromethane	**21.8**		µg/l		20.0		109	70-130	7	20
Bromodichloromethane	**23.3**		µg/l		20.0		117	70-130	6	20
Bromoform	**29.4**	QC2	µg/l		20.0		147	70-130	4	20
Bromomethane	**22.8**		µg/l		20.0		114	70-130	2	20
2-Butanone (MEK)	**20.6**		µg/l		20.0		103	70-130	6	20
n-Butylbenzene	**20.3**		µg/l		20.0		102	70-130	5	20
sec-Butylbenzene	**21.0**		µg/l		20.0		105	70-130	6	20
tert-Butylbenzene	**21.0**		µg/l		20.0		105	70-130	4	20
Carbon disulfide	**18.2**		µg/l		20.0		91	70-130	10	20
Carbon tetrachloride	**25.4**		µg/l		20.0		127	70-130	8	20
Chlorobenzene	**19.9**		µg/l		20.0		100	70-130	8	20
Chloroethane	**18.5**		µg/l		20.0		93	70-130	9	20
Chloroform	**20.6**		µg/l		20.0		103	70-130	6	20
Chloromethane	**16.9**		µg/l		20.0		84	70-130	6	20
2-Chlorotoluene	**20.0**		µg/l		20.0		100	70-130	5	20
4-Chlorotoluene	**19.8**		µg/l		20.0		99	70-130	8	20
1,2-Dibromo-3-chloropropane	**25.6**		µg/l		20.0		128	70-130	3	20
Dibromochloromethane	**26.5**	QC2	µg/l		20.0		132	70-130	8	20
1,2-Dibromoethane (EDB)	**23.5**		µg/l		20.0		118	70-130	3	20
Dibromomethane	**22.0**		µg/l		20.0		110	70-130	4	20
1,2-Dichlorobenzene	**20.7**		µg/l		20.0		103	70-130	7	20
1,3-Dichlorobenzene	**20.6**		µg/l		20.0		103	70-130	8	20
1,4-Dichlorobenzene	**19.8**		µg/l		20.0		99	70-130	5	20
Dichlorodifluoromethane (Freon12)	**18.8**		µg/l		20.0		94	70-130	10	20
1,1-Dichloroethane	**19.9**		µg/l		20.0		100	70-130	9	20
1,2-Dichloroethane	**20.9**		µg/l		20.0		104	70-130	8	20
1,1-Dichloroethene	**18.2**		µg/l		20.0		91	70-130	7	20
cis-1,2-Dichloroethene	**20.5**		µg/l		20.0		103	70-130	7	20
trans-1,2-Dichloroethene	**19.5**		µg/l		20.0		97	70-130	4	20
1,2-Dichloropropane	**19.9**		µg/l		20.0		100	70-130	5	20
1,3-Dichloropropane	**21.1**		µg/l		20.0		106	70-130	2	20

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8260C										
Batch 1801230 - SW846 5030 Water MS										
LCS Dup (1801230-BSD1)					Prepared & Analyzed: 29-Jan-18					
2,2-Dichloropropane	**24.8**		µg/l		20.0		124	70-130	6	20
1,1-Dichloropropene	**19.2**		µg/l		20.0		96	70-130	8	20
cis-1,3-Dichloropropene	**23.3**		µg/l		20.0		116	70-130	7	20
trans-1,3-Dichloropropene	**23.3**		µg/l		20.0		117	70-130	5	20
Ethylbenzene	**20.0**		µg/l		20.0		100	70-130	8	20
Hexachlorobutadiene	**21.6**		µg/l		20.0		108	70-130	5	20
2-Hexanone (MBK)	**21.3**		µg/l		20.0		106	70-130	3	20
Isopropylbenzene	**19.7**		µg/l		20.0		98	70-130	7	20
4-Isopropyltoluene	**20.5**		µg/l		20.0		103	70-130	4	20
Methyl tert-butyl ether	**20.8**		µg/l		20.0		104	70-130	12	20
4-Methyl-2-pentanone (MIBK)	**20.7**		µg/l		20.0		104	70-130	0.3	20
Methylene chloride	**19.4**		µg/l		20.0		97	70-130	8	20
Naphthalene	**20.4**		µg/l		20.0		102	70-130	1	20
n-Propylbenzene	**20.2**		µg/l		20.0		101	70-130	8	20
Styrene	**20.4**		µg/l		20.0		102	70-130	6	20
1,1,1,2-Tetrachloroethane	**25.4**		µg/l		20.0		127	70-130	7	20
1,1,2,2-Tetrachloroethane	**22.2**		µg/l		20.0		111	70-130	2	20
Tetrachloroethene	**20.1**		µg/l		20.0		101	70-130	8	20
Toluene	**19.8**		µg/l		20.0		99	70-130	7	20
1,2,3-Trichlorobenzene	**23.6**		µg/l		20.0		118	70-130	2	20
1,2,4-Trichlorobenzene	**23.0**		µg/l		20.0		115	70-130	0.7	20
1,3,5-Trichlorobenzene	**21.9**		µg/l		20.0		109	70-130	3	20
1,1,1-Trichloroethane	**22.6**		µg/l		20.0		113	70-130	7	20
1,1,2-Trichloroethane	**21.8**		µg/l		20.0		109	70-130	3	20
Trichloroethene	**19.9**		µg/l		20.0		100	70-130	9	20
Trichlorofluoromethane (Freon 11)	**20.2**		µg/l		20.0		101	70-130	9	20
1,2,3-Trichloropropane	**20.7**		µg/l		20.0		104	70-130	4	20
1,2,4-Trimethylbenzene	**20.8**		µg/l		20.0		104	70-130	7	20
1,3,5-Trimethylbenzene	**21.0**		µg/l		20.0		105	70-130	7	20
Vinyl chloride	**17.1**		µg/l		20.0		86	70-130	10	20
m,p-Xylene	**19.9**		µg/l		20.0		99	70-130	9	20
o-Xylene	**19.9**		µg/l		20.0		99	70-130	9	20
Tetrahydrofuran	**20.6**		µg/l		20.0		103	70-130	7	20
Ethyl ether	**19.9**		µg/l		20.0		100	70-130	0.3	20
Tert-amyl methyl ether	**20.0**		µg/l		20.0		100	70-130	4	20
Ethyl tert-butyl ether	**20.6**		µg/l		20.0		103	70-130	6	20
Di-isopropyl ether	**20.1**		µg/l		20.0		101	70-130	4	20
Tert-Butanol / butyl alcohol	**275**	QM9	µg/l		200		137	70-130	19	20
1,4-Dioxane	**252**		µg/l		200		126	70-130	4	20
trans-1,4-Dichloro-2-butene	**20.5**		µg/l		20.0		102	70-130	7	20
Ethanol	**496**		µg/l		400		124	70-130	20	20
Surrogate: 4-Bromofluorobenzene	*52.2*		µg/l		*50.0*		*104*	*70-130*		
Surrogate: Toluene-d8	*51.4*		µg/l		*50.0*		*103*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4	*51.1*		µg/l		*50.0*		*102*	*70-130*		
Surrogate: Dibromofluoromethane	*53.2*		µg/l		*50.0*		*106*	*70-130*		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8270D										
Batch 1801200 - SW846 3510C										
Blank (1801200-BLK1)					Prepared: 29-Jan-18 Analyzed: 30-Jan-18					
Acenaphthene	< 5.00		µg/l	5.00						
Acenaphthylene	< 5.00		µg/l	5.00						
Aniline	< 5.00		µg/l	5.00						
Anthracene	< 5.00		µg/l	5.00						
Azobenzene/Diphenyldiazene	< 5.00		µg/l	5.00						
Benzidine	< 5.00		µg/l	5.00						
Benzo (a) anthracene	< 5.00		µg/l	5.00						
Benzo (a) pyrene	< 5.00		µg/l	5.00						
Benzo (b) fluoranthene	< 5.00		µg/l	5.00						
Benzo (g,h,i) perylene	< 5.00		µg/l	5.00						
Benzo (k) fluoranthene	< 5.00		µg/l	5.00						
Benzoic acid	< 5.00		µg/l	5.00						
Benzyl alcohol	< 5.00		µg/l	5.00						
Bis(2-chloroethoxy)methane	< 5.00		µg/l	5.00						
Bis(2-chloroethyl)ether	< 5.00		µg/l	5.00						
Bis(2-chloroisopropyl)ether	< 5.00		µg/l	5.00						
Bis(2-ethylhexyl)phthalate	< 5.00		µg/l	5.00						
4-Bromophenyl phenyl ether	< 5.00		µg/l	5.00						
Butyl benzyl phthalate	< 5.00		µg/l	5.00						
Carbazole	< 5.00		µg/l	5.00						
4-Chloro-3-methylphenol	< 5.00		µg/l	5.00						
4-Chloroaniline	< 5.00		µg/l	5.00						
2-Chloronaphthalene	< 5.00		µg/l	5.00						
2-Chlorophenol	< 5.00		µg/l	5.00						
4-Chlorophenyl phenyl ether	< 5.00		µg/l	5.00						
Chrysene	< 5.00		µg/l	5.00						
Dibenzo (a,h) anthracene	< 5.00		µg/l	5.00						
Dibenzofuran	< 5.00		µg/l	5.00						
1,2-Dichlorobenzene	< 5.00		µg/l	5.00						
1,3-Dichlorobenzene	< 5.00		µg/l	5.00						
1,4-Dichlorobenzene	< 5.00		µg/l	5.00						
3,3´-Dichlorobenzidine	< 5.00		µg/l	5.00						
2,4-Dichlorophenol	< 5.00		µg/l	5.00						
Diethyl phthalate	< 5.00		µg/l	5.00						
Dimethyl phthalate	< 5.00		µg/l	5.00						
2,4-Dimethylphenol	< 5.00		µg/l	5.00						
Di-n-butyl phthalate	< 5.00		µg/l	5.00						
4,6-Dinitro-2-methylphenol	< 5.00		µg/l	5.00						
2,4-Dinitrophenol	< 5.00		µg/l	5.00						
2,4-Dinitrotoluene	< 5.00		µg/l	5.00						
2,6-Dinitrotoluene	< 5.00		µg/l	5.00						
Di-n-octyl phthalate	< 5.00		µg/l	5.00						
Fluoranthene	< 5.00		µg/l	5.00						
Fluorene	< 5.00		µg/l	5.00						
Hexachlorobenzene	< 5.00		µg/l	5.00						
Hexachlorobutadiene	< 5.00		µg/l	5.00						
Hexachlorocyclopentadiene	< 5.00		µg/l	5.00						
Hexachloroethane	< 5.00		µg/l	5.00						
Indeno (1,2,3-cd) pyrene	< 5.00		µg/l	5.00						
Isophorone	< 5.00		µg/l	5.00						

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8270D										
Batch 1801200 - SW846 3510C										
Blank (1801200-BLK1)					Prepared: 29-Jan-18 Analyzed: 30-Jan-18					
2-Methylnaphthalene	< 5.00		µg/l	5.00						
2-Methylphenol	< 5.00		µg/l	5.00						
3 & 4-Methylphenol	< 10.0		µg/l	10.0						
Naphthalene	< 5.00		µg/l	5.00						
2-Nitroaniline	< 5.00		µg/l	5.00						
3-Nitroaniline	< 5.00		µg/l	5.00						
4-Nitroaniline	< 5.00		µg/l	5.00						
Nitrobenzene	< 5.00		µg/l	5.00						
2-Nitrophenol	< 5.00		µg/l	5.00						
4-Nitrophenol	< 20.0		µg/l	20.0						
N-Nitrosodimethylamine	< 5.00		µg/l	5.00						
N-Nitrosodi-n-propylamine	< 5.00		µg/l	5.00						
N-Nitrosodiphenylamine	< 5.00		µg/l	5.00						
Pentachlorophenol	< 20.0		µg/l	20.0						
Phenanthrene	< 5.00		µg/l	5.00						
Phenol	< 5.00		µg/l	5.00						
Pyrene	< 5.00		µg/l	5.00						
Pyridine	< 5.00		µg/l	5.00						
1,2,4-Trichlorobenzene	< 5.00		µg/l	5.00						
1-Methylnaphthalene	< 5.00		µg/l	5.00						
2,4,5-Trichlorophenol	< 5.00		µg/l	5.00						
2,4,6-Trichlorophenol	< 5.00		µg/l	5.00						
Pentachloronitrobenzene	< 5.00		µg/l	5.00						
1,2,4,5-Tetrachlorobenzene	< 5.00		µg/l	5.00						
Surrogate: 2-Fluorobiphenyl	*24.9*		µg/l		*50.0*		*50*	*30-130*		
Surrogate: 2-Fluorophenol	*20.2*		µg/l		*50.0*		*40*	*15-110*		
Surrogate: Nitrobenzene-d5	*26.5*		µg/l		*50.0*		*53*	*30-130*		
Surrogate: Phenol-d5	*13.5*		µg/l		*50.0*		*27*	*15-110*		
Surrogate: Terphenyl-dl4	*40.7*		µg/l		*50.0*		*81*	*30-130*		
Surrogate: 2,4,6-Tribromophenol	*32.9*		µg/l		*50.0*		*66*	*15-110*		
LCS (1801200-BS1)					Prepared: 29-Jan-18 Analyzed: 30-Jan-18					
Acenaphthene	**21.3**		µg/l	5.05	50.5		42	40-140		
Acenaphthylene	**20.8**		µg/l	5.05	50.5		41	40-140		
Aniline	**20.1**		µg/l	5.05	50.5		40	40-140		
Anthracene	**23.5**		µg/l	5.05	50.5		46	40-140		
Azobenzene/Diphenyldiazene	**21.8**		µg/l	5.05	50.5		43	40-140		
Benzidine	**20.4**		µg/l	5.05	50.5		40	40-140		
Benzo (a) anthracene	**26.9**		µg/l	5.05	50.5		53	40-140		
Benzo (a) pyrene	**29.7**		µg/l	5.05	50.5		59	40-140		
Benzo (b) fluoranthene	**32.4**		µg/l	5.05	50.5		64	40-140		
Benzo (g,h,i) perylene	**29.6**		µg/l	5.05	50.5		59	40-140		
Benzo (k) fluoranthene	**28.9**		µg/l	5.05	50.5		57	40-140		
Benzoic acid	**15.8**		µg/l	5.05	50.5		31	30-130		
Benzyl alcohol	**24.1**		µg/l	5.05	50.5		48	40-140		
Bis(2-chloroethoxy)methane	**16.4**		µg/l	5.05	50.5		33	40-140		
Bis(2-chloroethyl)ether	**16.4**		µg/l	5.05	50.5		32	40-140		
Bis(2-chloroisopropyl)ether	**16.3**		µg/l	5.05	50.5		32	40-140		
Bis(2-ethylhexyl)phthalate	**27.7**		µg/l	5.05	50.5		55	40-140		
4-Bromophenyl phenyl ether	**22.6**		µg/l	5.05	50.5		45	40-140		
Butyl benzyl phthalate	**25.2**		µg/l	5.05	50.5		50	40-140		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8270D										
Batch 1801200 - SW846 3510C										
LCS (1801200-BS1)						Prepared: 29-Jan-18 Analyzed: 30-Jan-18				
Carbazole	**37.6**		µg/l	5.05	50.5		74	40-140		
4-Chloro-3-methylphenol	**23.6**		µg/l	5.05	50.5		47	30-130		
4-Chloroaniline	**30.3**		µg/l	5.05	50.5		60	40-140		
2-Chloronaphthalene	**23.0**		µg/l	5.05	50.5		46	40-140		
2-Chlorophenol	**18.6**		µg/l	5.05	50.5		37	30-130		
4-Chlorophenyl phenyl ether	**20.9**		µg/l	5.05	50.5		41	40-140		
Chrysene	**25.6**		µg/l	5.05	50.5		51	40-140		
Dibenzo (a,h) anthracene	**31.0**		µg/l	5.05	50.5		61	40-140		
Dibenzofuran	**24.4**		µg/l	5.05	50.5		48	40-140		
1,2-Dichlorobenzene	**16.2**		µg/l	5.05	50.5		32	40-140		
1,3-Dichlorobenzene	**15.3**		µg/l	5.05	50.5		30	40-140		
1,4-Dichlorobenzene	**15.6**		µg/l	5.05	50.5		31	40-140		
3,3´-Dichlorobenzidine	**31.7**		µg/l	5.05	50.5		63	40-140		
2,4-Dichlorophenol	**20.6**		µg/l	5.05	50.5		41	30-130		
Diethyl phthalate	**22.3**		µg/l	5.05	50.5		44	40-140		
Dimethyl phthalate	**20.6**		µg/l	5.05	50.5		41	40-140		
2,4-Dimethylphenol	**18.6**		µg/l	5.05	50.5		37	30-130		
Di-n-butyl phthalate	**23.4**		µg/l	5.05	50.5		46	40-140		
4,6-Dinitro-2-methylphenol	**32.5**		µg/l	5.05	50.5		64	30-130		
2,4-Dinitrophenol	**28.8**		µg/l	5.05	50.5		57	30-130		
2,4-Dinitrotoluene	**33.8**		µg/l	5.05	50.5		67	40-140		
2,6-Dinitrotoluene	**32.2**		µg/l	5.05	50.5		64	40-140		
Di-n-octyl phthalate	**29.9**		µg/l	5.05	50.5		59	40-140		
Fluoranthene	**24.1**		µg/l	5.05	50.5		48	40-140		
Fluorene	**21.5**		µg/l	5.05	50.5		42	40-140		
Hexachlorobenzene	**29.3**		µg/l	5.05	50.5		58	40-140		
Hexachlorobutadiene	**15.1**		µg/l	5.05	50.5		30	40-140		
Hexachlorocyclopentadiene	**20.5**		µg/l	5.05	50.5		41	40-140		
Hexachloroethane	**16.0**		µg/l	5.05	50.5		32	40-140		
Indeno (1,2,3-cd) pyrene	**30.8**		µg/l	5.05	50.5		61	40-140		
Isophorone	**20.4**		µg/l	5.05	50.5		40	40-140		
2-Methylnaphthalene	**22.2**		µg/l	5.05	50.5		44	40-140		
2-Methylphenol	**19.8**		µg/l	5.05	50.5		39	30-130		
3 & 4-Methylphenol	**19.1**		µg/l	10.1	50.5		38	30-130		
Naphthalene	**16.0**		µg/l	5.05	50.5		32	40-140		
2-Nitroaniline	**25.2**		µg/l	5.05	50.5		50	40-140		
3-Nitroaniline	**41.1**		µg/l	5.05	50.5		81	40-140		
4-Nitroaniline	**39.2**		µg/l	5.05	50.5		78	40-140		
Nitrobenzene	**23.7**		µg/l	5.05	50.5		47	40-140		
2-Nitrophenol	**20.4**		µg/l	5.05	50.5		40	30-130		
4-Nitrophenol	**15.4**		µg/l	20.2	50.5		30	30-130		
N-Nitrosodimethylamine	**15.6**		µg/l	5.05	50.5		31	40-140		
N-Nitrosodi-n-propylamine	**21.2**		µg/l	5.05	50.5		42	40-140		
N-Nitrosodiphenylamine	**25.9**		µg/l	5.05	50.5		51	40-140		
Pentachlorophenol	**22.5**		µg/l	20.2	50.5		45	30-130		
Phenanthrene	**23.1**		µg/l	5.05	50.5		46	40-140		
Phenol	**9.96**		µg/l	5.05	50.5		20	30-130		
Pyrene	**25.2**		µg/l	5.05	50.5		50	40-140		
Pyridine	**13.9**		µg/l	5.05	50.5		28	40-140		
1,2,4-Trichlorobenzene	**17.6**		µg/l	5.05	50.5		35	40-140		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8270D										
Batch 1801200 - SW846 3510C										
LCS (1801200-BS1)					Prepared: 29-Jan-18 Analyzed: 30-Jan-18					
1-Methylnaphthalene	**18.1**		µg/l	5.05	50.5		36	40-140		
2,4,5-Trichlorophenol	**24.2**		µg/l	5.05	50.5		48	30-130		
2,4,6-Trichlorophenol	**21.9**		µg/l	5.05	50.5		43	30-130		
Pentachloronitrobenzene	**25.8**		µg/l	5.05	50.5		51	40-140		
1,2,4,5-Tetrachlorobenzene	**17.5**		µg/l	5.05	50.5		35	40-140		
Surrogate: 2-Fluorobiphenyl	*18.2*		µg/l		*50.5*		*36*	*30-130*		
Surrogate: 2-Fluorophenol	*13.3*		µg/l		*50.5*		*26*	*15-110*		
Surrogate: Nitrobenzene-d5	*19.3*		µg/l		*50.5*		*38*	*30-130*		
Surrogate: Phenol-d5	*9.72*		µg/l		*50.5*		*19*	*15-110*		
Surrogate: Terphenyl-dl4	*27.8*		µg/l		*50.5*		*55*	*30-130*		
Surrogate: 2,4,6-Tribromophenol	*24.7*		µg/l		*50.5*		*49*	*15-110*		
LCS Dup (1801200-BSD1)					Prepared: 29-Jan-18 Analyzed: 30-Jan-18					
Acenaphthene	**27.4**	QR9	µg/l	5.10	51.0		54	40-140	25	20
Acenaphthylene	**27.5**	QR9	µg/l	5.10	51.0		54	40-140	28	20
Aniline	**20.1**	QM9	µg/l	5.10	51.0		39	40-140	0.4	20
Anthracene	**30.1**	QR9	µg/l	5.10	51.0		59	40-140	25	20
Azobenzene/Diphenyldiazene	**29.9**	QR9	µg/l	5.10	51.0		59	40-140	31	20
Benzidine	**33.3**	QR9	µg/l	5.10	51.0		65	40-140	48	20
Benzo (a) anthracene	**31.9**		µg/l	5.10	51.0		63	40-140	17	20
Benzo (a) pyrene	**34.8**		µg/l	5.10	51.0		68	40-140	16	20
Benzo (b) fluoranthene	**38.7**		µg/l	5.10	51.0		76	40-140	18	20
Benzo (g,h,i) perylene	**33.8**		µg/l	5.10	51.0		66	40-140	13	20
Benzo (k) fluoranthene	**31.9**		µg/l	5.10	51.0		63	40-140	10	20
Benzoic acid	**17.7**		µg/l	5.10	51.0		35	30-130	11	20
Benzyl alcohol	**27.4**		µg/l	5.10	51.0		54	40-140	13	20
Bis(2-chloroethoxy)methane	**21.0**	QR9	µg/l	5.10	51.0		41	40-140	24	20
Bis(2-chloroethyl)ether	**20.4**	QR9	µg/l	5.10	51.0		40	40-140	22	20
Bis(2-chloroisopropyl)ether	**20.3**	QR9	µg/l	5.10	51.0		40	40-140	22	20
Bis(2-ethylhexyl)phthalate	**31.4**		µg/l	5.10	51.0		62	40-140	12	20
4-Bromophenyl phenyl ether	**28.5**	QR9	µg/l	5.10	51.0		56	40-140	23	20
Butyl benzyl phthalate	**30.5**		µg/l	5.10	51.0		60	40-140	19	20
Carbazole	**48.0**	QR9	µg/l	5.10	51.0		94	40-140	24	20
4-Chloro-3-methylphenol	**29.8**	QR9	µg/l	5.10	51.0		58	30-130	23	20
4-Chloroaniline	**30.7**		µg/l	5.10	51.0		60	40-140	1	20
2-Chloronaphthalene	**29.9**	QR9	µg/l	5.10	51.0		59	40-140	26	20
2-Chlorophenol	**22.1**		µg/l	5.10	51.0		43	30-130	17	20
4-Chlorophenyl phenyl ether	**27.6**	QR9	µg/l	5.10	51.0		54	40-140	27	20
Chrysene	**29.7**		µg/l	5.10	51.0		58	40-140	15	20
Dibenzo (a,h) anthracene	**36.0**		µg/l	5.10	51.0		71	40-140	15	20
Dibenzofuran	**31.6**	QR9	µg/l	5.10	51.0		62	40-140	26	20
1,2-Dichlorobenzene	**21.1**	QR9	µg/l	5.10	51.0		41	40-140	26	20
1,3-Dichlorobenzene	**19.9**		µg/l	5.10	51.0		39	40-140	26	20
1,4-Dichlorobenzene	**20.4**	QR9	µg/l	5.10	51.0		40	40-140	26	20
3,3´-Dichlorobenzidine	**39.8**	QR9	µg/l	5.10	51.0		78	40-140	23	20
2,4-Dichlorophenol	**25.4**	QR9	µg/l	5.10	51.0		50	30-130	21	20
Diethyl phthalate	**28.5**	QR9	µg/l	5.10	51.0		56	40-140	25	20
Dimethyl phthalate	**27.0**	QR9	µg/l	5.10	51.0		53	40-140	27	20
2,4-Dimethylphenol	**24.4**	QR9	µg/l	5.10	51.0		48	30-130	27	20
Di-n-butyl phthalate	**29.4**	QR9	µg/l	5.10	51.0		58	40-140	23	20
4,6-Dinitro-2-methylphenol	**40.8**	QR9	µg/l	5.10	51.0		80	30-130	23	20

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8270D										
Batch 1801200 - SW846 3510C										
LCS Dup (1801200-BSD1)					Prepared: 29-Jan-18 Analyzed: 30-Jan-18					
2,4-Dinitrophenol	**36.6**	QR9	µg/l	5.10	51.0		72	30-130	24	20
2,4-Dinitrotoluene	**42.0**	QR9	µg/l	5.10	51.0		82	40-140	22	20
2,6-Dinitrotoluene	**40.7**	QR9	µg/l	5.10	51.0		80	40-140	24	20
Di-n-octyl phthalate	**33.9**		µg/l	5.10	51.0		66	40-140	13	20
Fluoranthene	**30.7**	QR9	µg/l	5.10	51.0		60	40-140	24	20
Fluorene	**28.2**	QR9	µg/l	5.10	51.0		55	40-140	27	20
Hexachlorobenzene	**36.0**	QR9	µg/l	5.10	51.0		71	40-140	21	20
Hexachlorobutadiene	**19.8**		µg/l	5.10	51.0		39	40-140	27	20
Hexachlorocyclopentadiene	**28.3**	QR9	µg/l	5.10	51.0		55	40-140	32	20
Hexachloroethane	**20.3**	QR9	µg/l	5.10	51.0		40	40-140	24	20
Indeno (1,2,3-cd) pyrene	**35.0**		µg/l	5.10	51.0		69	40-140	13	20
Isophorone	**25.8**	QR9	µg/l	5.10	51.0		51	40-140	24	20
2-Methylnaphthalene	**27.9**	QR9	µg/l	5.10	51.0		55	40-140	23	20
2-Methylphenol	**23.4**		µg/l	5.10	51.0		46	30-130	17	20
3 & 4-Methylphenol	**23.1**		µg/l	10.2	51.0		45	30-130	19	20
Naphthalene	**21.0**	QR9	µg/l	5.10	51.0		41	40-140	27	20
2-Nitroaniline	**32.6**	QR9	µg/l	5.10	51.0		64	40-140	25	20
3-Nitroaniline	**45.2**		µg/l	5.10	51.0		89	40-140	9	20
4-Nitroaniline	**49.8**	QR9	µg/l	5.10	51.0		98	40-140	24	20
Nitrobenzene	**30.3**	QR9	µg/l	5.10	51.0		59	40-140	24	20
2-Nitrophenol	**26.1**	QR9	µg/l	5.10	51.0		51	30-130	24	20
4-Nitrophenol	**18.8**		µg/l	20.4	51.0		37	30-130	20	20
N-Nitrosodimethylamine	**17.1**		µg/l	5.10	51.0		34	40-140	9	20
N-Nitrosodi-n-propylamine	**26.5**	QR9	µg/l	5.10	51.0		52	40-140	22	20
N-Nitrosodiphenylamine	**33.4**	QR9	µg/l	5.10	51.0		66	40-140	25	20
Pentachlorophenol	**29.4**	QR9	µg/l	20.4	51.0		58	30-130	27	20
Phenanthrene	**29.6**	QR9	µg/l	5.10	51.0		58	40-140	25	20
Phenol	**11.8**		µg/l	5.10	51.0		23	30-130	17	20
Pyrene	**30.9**		µg/l	5.10	51.0		61	40-140	20	20
Pyridine	**14.5**		µg/l	5.10	51.0		28	40-140	4	20
1,2,4-Trichlorobenzene	**23.1**	QR9	µg/l	5.10	51.0		45	40-140	27	20
1-Methylnaphthalene	**23.7**	QR9	µg/l	5.10	51.0		46	40-140	27	20
2,4,5-Trichlorophenol	**31.1**	QR9	µg/l	5.10	51.0		61	30-130	25	20
2,4,6-Trichlorophenol	**28.1**	QR9	µg/l	5.10	51.0		55	30-130	25	20
Pentachloronitrobenzene	**32.4**	QR9	µg/l	5.10	51.0		64	40-140	23	20
1,2,4,5-Tetrachlorobenzene	**22.7**	QR9	µg/l	5.10	51.0		44	40-140	26	20
Surrogate: 2-Fluorobiphenyl	*24.4*		µg/l		*51.0*		*48*	*30-130*		
Surrogate: 2-Fluorophenol	*15.7*		µg/l		*51.0*		*31*	*15-110*		
Surrogate: Nitrobenzene-d5	*25.1*		µg/l		*51.0*		*49*	*30-130*		
Surrogate: Phenol-d5	*11.7*		µg/l		*51.0*		*23*	*15-110*		
Surrogate: Terphenyl-dl4	*33.3*		µg/l		*51.0*		*65*	*30-130*		
Surrogate: 2,4,6-Tribromophenol	*33.8*		µg/l		*51.0*		*66*	*15-110*		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 6010C										
Batch 1801307 - SW846 3005A										
Blank (1801307-BLK1)					Prepared: 30-Jan-18 Analyzed: 31-Jan-18					
Iron	< 0.0150		mg/l	0.0150						
Zinc	< 0.0050		mg/l	0.0050						
Selenium	< 0.0150		mg/l	0.0150						
Antimony	< 0.0060		mg/l	0.0060						
Lead	< 0.0075		mg/l	0.0075						
Nickel	< 0.0050		mg/l	0.0050						
Chromium	< 0.0050		mg/l	0.0050						
Cadmium	< 0.0025		mg/l	0.0025						
Barium	< 0.0050		mg/l	0.0050						
Silver	< 0.0050		mg/l	0.0050						
Copper	< 0.0050		mg/l	0.0050						
Arsenic	< 0.0040		mg/l	0.0040						
LCS (1801307-BS1)					Prepared: 30-Jan-18 Analyzed: 31-Jan-18					
Iron	**1.35**		mg/l	0.0150	1.25		108	85-115		
Zinc	**1.27**		mg/l	0.0050	1.25		102	85-115		
Selenium	**1.39**		mg/l	0.0150	1.25		111	85-115		
Antimony	**1.29**		mg/l	0.0060	1.25		103	85-115		
Lead	**1.29**		mg/l	0.0075	1.25		103	85-115		
Nickel	**1.26**		mg/l	0.0050	1.25		101	85-115		
Chromium	**1.24**		mg/l	0.0050	1.25		99	85-115		
Cadmium	**1.23**		mg/l	0.0025	1.25		99	85-115		
Barium	**1.36**		mg/l	0.0050	1.25		109	85-115		
Arsenic	**1.29**		mg/l	0.0040	1.25		103	85-115		
Silver	**1.16**		mg/l	0.0050	1.25		93	85-115		
Copper	**1.36**		mg/l	0.0050	1.25		109	85-115		
LCS Dup (1801307-BSD1)					Prepared: 30-Jan-18 Analyzed: 31-Jan-18					
Iron	**1.35**		mg/l	0.0150	1.25		108	85-115	0.1	20
Cadmium	**1.23**		mg/l	0.0025	1.25		99	85-115	0.07	20
Zinc	**1.27**		mg/l	0.0050	1.25		102	85-115	0.04	20
Arsenic	**1.28**		mg/l	0.0040	1.25		103	85-115	0.5	20
Selenium	**1.37**		mg/l	0.0150	1.25		110	85-115	1	20
Antimony	**1.29**		mg/l	0.0060	1.25		103	85-115	0.3	20
Lead	**1.28**		mg/l	0.0075	1.25		103	85-115	0.2	20
Nickel	**1.26**		mg/l	0.0050	1.25		101	85-115	0.3	20
Copper	**1.35**		mg/l	0.0050	1.25		108	85-115	0.5	20
Chromium	**1.24**		mg/l	0.0050	1.25		99	85-115	0.04	20
Barium	**1.36**		mg/l	0.0050	1.25		109	85-115	0.07	20
Silver	**1.16**		mg/l	0.0050	1.25		93	85-115	0.1	20
Duplicate (1801307-DUP1)			**Source: SC43470-01**		Prepared: 30-Jan-18 Analyzed: 31-Jan-18					
Iron	**2460**	R01, D	mg/l	1.50		2420			2	20
Antimony	< 0.600	R01, D	mg/l	0.600		BRL				20
Selenium	< 1.50	R01, D	mg/l	1.50		BRL				20
Cadmium	**0.137**	J,R01, D	mg/l	0.250		0.141			3	20
Silver	< 0.500	R01, D	mg/l	0.500		BRL				20
Arsenic	**1.72**	R01, D	mg/l	0.400		1.80			5	20
Zinc	**23.8**	R01, D	mg/l	0.500		23.7			0.4	20
Barium	**10.3**	R01, D	mg/l	0.500		10.0			3	20
Lead	**21.9**	R01, D	mg/l	0.750		22.0			0.5	20
Chromium	**2.51**	R01, D	mg/l	0.500		2.50			0.2	20
Copper	**6.08**	R01, D	mg/l	0.500		6.08			0	20

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 6010C										
Batch 1801307 - SW846 3005A										
Duplicate (1801307-DUP1)			**Source: SC43470-01**			Prepared: 30-Jan-18 Analyzed: 31-Jan-18				
Nickel	**1.80**	R01, D	mg/l	0.500		1.78			0.8	20
Matrix Spike (1801307-MS1)			**Source: SC43470-01**			Prepared: 30-Jan-18 Analyzed: 31-Jan-18				
Iron	**2450**	QM2, D	mg/l	1.50	2.50	2420	1040	75-125		
Cadmium	**2.54**	D	mg/l	0.250	2.50	0.141	96	75-125		
Lead	**24.4**	D	mg/l	0.750	2.50	22.0	98	75-125		
Nickel	**4.26**	D	mg/l	0.500	2.50	1.78	99	75-125		
Antimony	< 0.600	Z-2, D	mg/l	0.600	2.50	BRL	<1	75-125		
Zinc	**26.6**	D	mg/l	0.500	2.50	23.7	115	75-125		
Chromium	**4.90**	D	mg/l	0.500	2.50	2.50	96	75-125		
Copper	**8.62**	D	mg/l	0.500	2.50	6.08	101	75-125		
Arsenic	**4.28**	D	mg/l	0.400	2.50	1.80	99	75-125		
Silver	**2.27**	D	mg/l	0.500	2.50	BRL	91	75-125		
Selenium	**2.36**	D	mg/l	1.50	2.50	BRL	94	75-125		
Barium	**13.0**	D	mg/l	0.500	2.50	10.0	117	75-125		
Matrix Spike Dup (1801307-MSD1)			**Source: SC43470-01**			Prepared: 30-Jan-18 Analyzed: 31-Jan-18				
Iron	**2430**	QM2, D	mg/l	1.50	2.50	2420	300	75-125	0.8	20
Arsenic	**4.04**	D	mg/l	0.400	2.50	1.80	90	75-125	6	20
Selenium	**2.44**	D	mg/l	1.50	2.50	BRL	98	75-125	4	20
Antimony	< 0.600	Z-2, D	mg/l	0.600	2.50	BRL	<1	75-125		20
Lead	**24.4**	D	mg/l	0.750	2.50	22.0	96	75-125	0.2	20
Nickel	**4.14**	D	mg/l	0.500	2.50	1.78	94	75-125	3	20
Copper	**8.61**	D	mg/l	0.500	2.50	6.08	101	75-125	0.1	20
Chromium	**4.94**	D	mg/l	0.500	2.50	2.50	97	75-125	0.7	20
Barium	**13.1**	D	mg/l	0.500	2.50	10.0	123	75-125	1	20
Zinc	**26.8**	D	mg/l	0.500	2.50	23.7	123	75-125	0.8	20
Silver	**2.30**	D	mg/l	0.500	2.50	BRL	92	75-125	1	20
Cadmium	**2.51**	D	mg/l	0.250	2.50	0.141	95	75-125	1	20
Post Spike (1801307-PS1)			**Source: SC43470-01**			Prepared: 30-Jan-18 Analyzed: 31-Jan-18				
Iron	**2490**	QM2, D	mg/l	1.50	2.50	2420	2760	80-120		
Cadmium	**2.51**	D	mg/l	0.250	2.50	0.141	95	80-120		
Copper	**8.66**	D	mg/l	0.500	2.50	6.08	103	80-120		
Nickel	**4.19**	D	mg/l	0.500	2.50	1.78	96	80-120		
Lead	**24.4**	D	mg/l	0.750	2.50	22.0	99	80-120		
Antimony	**0.415**	Z-2, D	mg/l	0.600	2.50	BRL	17	80-120		
Selenium	**2.76**	D	mg/l	1.50	2.50	BRL	111	80-120		
Chromium	**4.96**	D	mg/l	0.500	2.50	2.50	98	80-120		
Zinc	**26.2**	D	mg/l	0.500	2.50	23.7	98	80-120		
Barium	**13.4**	QM4X, D	mg/l	0.500	2.50	10.0	133	80-120		
Silver	**2.30**	D	mg/l	0.500	2.50	BRL	92	80-120		
Arsenic	**4.29**	D	mg/l	0.400	2.50	1.80	100	80-120		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
EPA 245.1/7470A										
Batch 1801218 - EPA200/SW7000 Series										
Blank (1801218-BLK1)						Prepared: 30-Jan-18 Analyzed: 31-Jan-18				
Mercury	< 0.00020		mg/l	0.00020						
LCS (1801218-BS1)						Prepared: 30-Jan-18 Analyzed: 31-Jan-18				
Mercury	**0.00451**		mg/l	0.00020	0.00500		90	85-115		
Duplicate (1801218-DUP1)			**Source: SC43470-01**			Prepared: 30-Jan-18 Analyzed: 31-Jan-18				
Mercury	**0.0306**	GS1, D	mg/l	0.00100		0.0299			2	20
Matrix Spike (1801218-MS1)			**Source: SC43470-01**			Prepared: 30-Jan-18 Analyzed: 31-Jan-18				
Mercury	**0.0308**	QM4X, D	mg/l	0.00100	0.00500	0.0299	17	80-120		
Matrix Spike Dup (1801218-MSD1)			**Source: SC43470-01**			Prepared: 30-Jan-18 Analyzed: 31-Jan-18				
Mercury	**0.0290**	QM4X, D	mg/l	0.00100	0.00500	0.0299	-19	80-120	6	20

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
EPA 300.0										
Batch 1801253 - General Preparation										
Blank (1801253-BLK1)						Prepared: 29-Jan-18 Analyzed: 30-Jan-18				
Chloride	< 1.00		mg/l	1.00						
LCS (1801253-BS1)						Prepared: 29-Jan-18 Analyzed: 30-Jan-18				
Chloride	**19.2**		mg/l	1.00	20.0		96	90-110		
Reference (1801253-SRM1)						Prepared: 29-Jan-18 Analyzed: 30-Jan-18				
Chloride	**24.0**		mg/l	1.00	25.0		96	90-110		
SM18-22 2540C										
Batch 1801186 - General Preparation										
Blank (1801186-BLK1)						Prepared: 27-Jan-18 Analyzed: 30-Jan-18				
Total Dissolved Solids	< 5		mg/l	5						
LCS (1801186-BS1)						Prepared: 27-Jan-18 Analyzed: 30-Jan-18				
Total Dissolved Solids	**1020**		mg/l	10	1000		102	90-110		
Duplicate (1801186-DUP1)			**Source: SC43470-01**			Prepared: 27-Jan-18 Analyzed: 30-Jan-18				
Total Dissolved Solids	**1190**		mg/l	5		1190			0.3	5
SM2540D (11)										
Batch 1801187 - General Preparation										
Blank (1801187-BLK1)						Prepared: 27-Jan-18 Analyzed: 30-Jan-18				
Total Suspended Solids	< 0.5		mg/l	0.5						
LCS (1801187-BS1)						Prepared: 27-Jan-18 Analyzed: 30-Jan-18				
Total Suspended Solids	**94.0**		mg/l	10.0	100		94	90-110		

Subcontracted Analyses - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
E350.1										
Batch 418021A - 418021										
BLK (BZ81139-BLK)						Prepared: 29-Jan-18 Analyzed: 30-Jan-18				
Ammonia as Nitrogen	< 0.05		mg/l	0.05				-		
DUP (BZ81139-DUP)			**Source: BZ81139**			Prepared: 29-Jan-18 Analyzed: 30-Jan-18				
Ammonia as Nitrogen	**0.27**		mg/l	0.05				-	7.1	20
LCS (BZ81139-LCS)						Prepared: 29-Jan-18 Analyzed: 30-Jan-18				
Ammonia as Nitrogen	**3.500**		mg/l	0.05	3.74		93.6	90-110		20
MS (BZ81139-MS)			**Source: BZ81139**			Prepared: 29-Jan-18 Analyzed: 30-Jan-18				
Ammonia as Nitrogen	**2.280**		mg/l	0.05	2		99.7	90-110		20

Notes and Definitions

BsL	Data for this analyte may be biased low based on QC spike recoveries.
D	Data reported from a dilution
GS1	Sample dilution required for high concentration of target analytes to be within the instrument calibration range.
QC2	Analyte out of acceptance range in QC spike but no reportable concentration present in sample.
QM2	The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.
QM4X	The spike recovery was outside of QC acceptance limits for the MS, MSD and/or PS due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
QM9	The spike recovery for this QC sample is outside the established control limits. The sample results for the QC batch were accepted based on LCS/LCSD or SRM recoveries within the control limits.
QR9	RPD out of acceptance range. The batch is accepted based upon LCS and/or LCSD recovery.
R01	The Reporting Limit has been raised to account for matrix interference.
Z-2	Due to dilution factor, recovery is unmeasurable
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
HTA	In accordance with 40 CFR 136.3, preserve samples within 15 minutes of collection. Samples not preserved in the field within 15 minutes of collection are not within method requirements.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic intervals. Concentrations, intervals, and criteria are method specific.

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CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:

- ☐ Standard TAT - 7 to 10 business days
- ☑ Rush TAT - Date Needed: 1/30/18

All TATs subject to laboratory approval
Min. 24-hr notification needed for rushes
Samples disposed after 30 days unless otherwise instructed.

Report To: CMG ENVIRONMENTAL INC.
63 Hall Rd
STURBRIDGE MA 01518

Telephone #: 774-241-0501
Project Mgr: J. Cusmano

Invoice To: SAME

P.O No.: _____ Quote #: _____

Project No: 2017-235
Site Name: 416 N. MAIN
Location: NORTH BRIDGE State: MA
Sampler(s): _____

F=Field Filtered 1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
7=CH3OH 8=$NaHSO_4$ 9=Deionized Water 10=H_3PO_4 11=_____ 12=_____

DW=Drinking Water GW=Groundwater SW=Surface Water WW=Waste Water
O=Oil SO=Soil SL=Sludge A=Indoor/Ambient Air SG=Soil Gas
X1=_____ X2=_____ X3=_____

G= Grab C=Compsite

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	Containers: # of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	TOTAL ANTIMONY	Analysis: 8260	SVOCs (8270)	TDS	TSS	RCRA 8	TOTAL Fe, Zn, Cu, Ni	AMMONIA	CHLORIDE	Check if chlorinated
434700-02	GW	1/24/18	14:45	C	GW	3	1		3	X	X	X	X	X	X	X	X	X	☐
																			☐
																			☐
																			☐
																			☐
																			☐
																			☐
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																			☐
																			☐

List Preservative Code below:

QA/QC Reporting Notes:
* additional charges may apply

MA DEP MCP CAM Report? ☑ Yes ☐ No
CT DPH RCP Report? ☐ Yes ☐ No
☑ Standard ☐ No QC ☐ DQA*
☐ ASP A* ☐ ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ Tier II* ☐ Tier IV*
☐ Other: _____
State-specific reporting standards:

Relinquished by:	Received by:	Date:	Time:
	Daniel Dec	1-25-18	8:54
Daniel Dec 9:13 1-26-18	Alex	1/26/18	1003

Temp °C: Observed 1.2; Correction Factor 0; Corrected 1.2; IR ID # 2

☐ EDD format:
☑ E-mail to: RGOAD CCMFENV.COM

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☐ Iced ☒ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

Batch Summary

1801186

General Chemistry Parameters

1801186-BLK1
1801186-BS1
1801186-DUP1
SC43470-01 (GW)

1801187

General Chemistry Parameters

1801187-BLK1
1801187-BS1
SC43470-01 (GW)

1801200

Semivolatile Organic Compounds by GCMS

1801200-BLK1
1801200-BS1
1801200-BSD1
SC43470-01 (GW)

1801218

Total Metals by EPA 200 Series Methods

1801218-BLK1
1801218-BS1
1801218-DUP1
1801218-MS1
1801218-MSD1
SC43470-01 (GW)

1801230

Volatile Organic Compounds

1801230-BLK1
1801230-BS1
1801230-BSD1
SC43470-01 (GW)

1801233

Total Metals by EPA 200/6000 Series Methods

SC43470-01 (GW)

1801253

General Chemistry Parameters

1801253-BLK1
1801253-BS1
1801253-SRM1
SC43470-01 (GW)

1801307

Total Metals by EPA 6000/7000 Series Methods

1801307-BLK1
1801307-BS1
1801307-BSD1
1801307-DUP1
1801307-MS1
1801307-MSD1
1801307-PS1
SC43470-01 (GW)

418021A

Subcontracted Analyses

BZ81139-BLK
BZ81139-DUP
BZ81139-LCS
BZ81139-MS
SC43470-01 (GW)

S815859

Semivolatile Organic Compounds by GCMS

S815859-CAL1
S815859-CAL2
S815859-CAL3
S815859-CAL4
S815859-CAL5
S815859-CAL6
S815859-CAL7
S815859-CAL8
S815859-CAL9
S815859-CALA
S815859-ICV1
S815859-LCV1
S815859-LCV2
S815859-TUN1

S816062

Volatile Organic Compounds

S816062-CAL1
S816062-CAL2
S816062-CAL3
S816062-CAL4
S816062-CAL5
S816062-CAL6
S816062-CAL7
S816062-CAL8
S816062-CAL9
S816062-ICV1
S816062-LCV1
S816062-LCV2
S816062-TUN1

S816296

Volatile Organic Compounds

S816296-CCV1
S816296-TUN1

S816340

Semivolatile Organic Compounds by GCMS

S816340-CCV1
S816340-TUN1

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☑ Final Report
☐ Revised Report

Report Date:
13-Feb-18 15:53

Laboratory Report
SC43702

CMG Environmental, Inc.
67 Hall Road
Sturbridge, MA 01566
Attn: Jerry Clark

Project: 4+16 N. Main - Northbridge, MA
Project #: 2017-235

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87936
Maine # MA138
New Hampshire # 2972/2538
New Jersey # MA011
New York # 11393
Pennsylvania # 68-04426/68-02924
Rhode Island # LAO00348
USDA # P330-15-00375
Vermont # VT-11393

Authorized by:

Dawn Wojcik
Laboratory Director

Dawn E Wojcik

Eurofins Spectrum Analytical holds primary certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes. Please refer to our website for specific certification holdings in each state.
Please note that this report contains 20 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Eurofins Spectrum Analytical, Inc.

Eurofins Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Eurofins Spectrum Analytical, Inc. is currently accredited for the specific method or analyte indicated. Please refer to our Quality web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Eurofins Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey, Pennsylvania and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (PA-68-04426).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

Sample Summary

Work Order: SC43702

Project: 4+16 N. Main - Northbridge, MA

Project Number: 2017-235

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SC43702-01	4NMGW	Ground Water	02-Feb-18 10:40	05-Feb-18 16:40

CASE NARRATIVE:

Data has been reported to the RDL. This report excludes estimated concentrations detected below the RDL and above the MDL (J-Flag).

All non-detects and all results below the reporting limit are reported as "<" (less than) the reporting limit in this report.

The samples were received 0.8 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group. If method or program required MS/MSD/Dup were not performed, sufficient sample was not provided to the laboratory.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

EPA 625

Calibration:

1801047

Analyte quantified by quadratic equation type calibration.

2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
4,6-Dinitro-2-methylphenol
4-Nitrophenol
Benzidine
Pentachlorophenol

This affected the following samples:

1801761-BLK1
1801761-BS1
1801761-BSD1
4NMGW
S815859-ICV1
S816687-CCV1
S816732-CCV1

Laboratory Control Samples:

1801761 BS/BSD

Fluorene percent recoveries (58/64) are outside individual acceptance criteria (59-121), but within overall method allowances. All reported results of the following samples are considered to have a potentially low bias:

4NMGW

1801761 BSD

Benzidine RPD 44% (20%) is outside individual acceptance criteria.

1801761-BSD1

RPD out of acceptance range. The batch is accepted based upon LCS and/or LCSD recovery.

Benzidine

Samples:

S816687-CCV1

EPA 625

Samples:

S816687-CCV1

Analyte percent difference is outside individual acceptance criteria (20), but within overall method allowances.

3,3´-Dichlorobenzidine (22.5%)
Bis(2-chloroisopropyl)ether (27.5%)
Butyl benzyl phthalate (32.1%)
Di-n-octyl phthalate (42.1%)
N-Nitrosodimethylamine (24.8%)
Pyrene (27.3%)

Analyte percent drift is outside individual acceptance criteria (20), but within overall method allowances.

2,4-Dinitrophenol (31.8%)
4,6-Dinitro-2-methylphenol (30.6%)

This affected the following samples:

1801761-BLK1
1801761-BS1
1801761-BSD1

S816732-CCV1

Analyte percent difference is outside individual acceptance criteria (20), but within overall method allowances.

Bis(2-chloroisopropyl)ether (29.0%)
Bis(2-ethylhexyl)phthalate (22.9%)
Di-n-octyl phthalate (21.3%)
Nitrobenzene (20.2%)
N-Nitrosodimethylamine (38.9%)

Analyte percent drift is outside individual acceptance criteria (20), but within overall method allowances.

2,4-Dinitrophenol (22.7%)
4,6-Dinitro-2-methylphenol (21.5%)

This affected the following samples:

4NMGW

Mod. EPA 625

Samples:

S816728-CCV1

Analyte percent difference is outside individual acceptance criteria (20), but within overall method allowances.

Naphthalene (30.5%)

This affected the following samples:

4NMGW

Sample Acceptance Check Form

Client:	CMG Environmental, Inc.
Project:	4+16 N. Main - Northbridge, MA / 2017-235
Work Order:	SC43702
Sample(s) received on:	2/5/2018

The following outlines the condition of samples for the attached Chain of Custody upon receipt.

	Yes	No	N/A
Were custody seals present?	☐	☑	☐
Were custody seals intact?	☐	☐	☑
Were samples received at a temperature of ≤ 6°C?	☑	☐	☐
Were samples refrigerated upon transfer to laboratory representative?	☑	☐	☐
Were sample containers received intact?	☑	☐	☐
Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	☑	☐	☐
Were samples accompanied by a Chain of Custody document?	☑	☐	☐
Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample?	☑	☐	☐
Did sample container labels agree with Chain of Custody document?	☑	☐	☐
Were samples received within method-specific holding times?	☑	☐	☐

Summary of Hits

Lab ID: SC43702-01 **Client ID:** 4NMGW

Parameter	Result	Flag	Reporting Limit	Units	Analytical Method
1-Methylnaphthalene	0.220		0.050	µg/l	Mod. EPA 625
Acenaphthene	2.90		0.050	µg/l	Mod. EPA 625
Acenaphthylene	0.206		0.050	µg/l	Mod. EPA 625
Anthracene	0.491		0.050	µg/l	Mod. EPA 625
Benzo (a) anthracene	0.707		0.050	µg/l	Mod. EPA 625
Benzo (a) pyrene	0.502		0.050	µg/l	Mod. EPA 625
Benzo (b) fluoranthene	0.447		0.050	µg/l	Mod. EPA 625
Benzo (g,h,i) perylene	0.247		0.050	µg/l	Mod. EPA 625
Benzo (k) fluoranthene	0.412		0.050	µg/l	Mod. EPA 625
Chrysene	0.692		0.050	µg/l	Mod. EPA 625
Dibenzo (a,h) anthracene	0.086		0.050	µg/l	Mod. EPA 625
Fluoranthene	3.31		0.050	µg/l	Mod. EPA 625
Fluorene	4.02		0.050	µg/l	Mod. EPA 625
Indeno (1,2,3-cd) pyrene	0.294		0.050	µg/l	Mod. EPA 625
Phenanthrene	3.89		0.050	µg/l	Mod. EPA 625
Pyrene	2.38		0.050	µg/l	Mod. EPA 625
Iron	60.3		0.010	mg/l	SW6010C
Zinc	0.385		0.002	mg/l	SW6010C
Arsenic	0.0168		0.0050	mg/l	SW6020B
Chromium	0.044		0.010	mg/l	SW6020B
Copper	0.058		0.025	mg/l	SW6020B
Lead	0.586		0.0040	mg/l	SW6020B
Nickel	0.0367		0.0050	mg/l	SW6020B
Other Oil	Calculated as		0.2	mg/l	SW846 8100Mod.
Total Petroleum Hydrocarbons	3.6		0.2	mg/l	SW846 8100Mod.
Unidentified	3.6		0.2	mg/l	SW846 8100Mod.

Please note that because there are no reporting limits associated with hazardous waste characterizations or micro analyses, this summary does not include hits from these analyses if included in this work order.

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
4NMGW SC43702-01	2017-235	Ground Water	02-Feb-18 10:40	05-Feb-18

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GCMS													
PAHs by SIM													
83-32-9	Acenaphthene	**2.90**		µg/l	0.050	0.030	1	Mod. EPA 625	07-Feb-18	12-Feb-18	MSL	1801761	
208-96-8	Acenaphthylene	**0.206**		µg/l	0.050	0.032	1	"	"	"	"	"	
90-12-0	1-Methylnaphthalene	**0.220**		µg/l	0.050	0.024	1	"	"	"	"	"	
120-12-7	Anthracene	**0.491**		µg/l	0.050	0.026	1	"	"	"	"	"	
56-55-3	Benzo (a) anthracene	**0.707**		µg/l	0.050	0.024	1	"	"	"	"	"	
50-32-8	Benzo (a) pyrene	**0.502**		µg/l	0.050	0.036	1	"	"	"	"	"	
205-99-2	Benzo (b) fluoranthene	**0.447**		µg/l	0.050	0.035	1	"	"	"	"	"	
191-24-2	Benzo (g,h,i) perylene	**0.247**		µg/l	0.050	0.027	1	"	"	"	"	"	
207-08-9	Benzo (k) fluoranthene	**0.412**		µg/l	0.050	0.028	1	"	"	"	"	"	
218-01-9	Chrysene	**0.692**		µg/l	0.050	0.023	1	"	"	"	"	"	
53-70-3	Dibenzo (a,h) anthracene	**0.086**		µg/l	0.050	0.026	1	"	"	"	"	"	
206-44-0	Fluoranthene	**3.31**		µg/l	0.050	0.020	1	"	"	"	"	"	
86-73-7	Fluorene	**4.02**		µg/l	0.050	0.030	1	"	"	"	"	"	
193-39-5	Indeno (1,2,3-cd) pyrene	**0.294**		µg/l	0.050	0.022	1	"	"	"	"	"	
91-57-6	2-Methylnaphthalene	< 0.050		µg/l	0.050	0.023	1	"	"	"	"	"	
91-20-3	Naphthalene	< 0.050		µg/l	0.050	0.027	1	"	"	"	"	"	
85-01-8	Phenanthrene	**3.89**		µg/l	0.050	0.026	1	"	"	"	"	"	
129-00-0	Pyrene	**2.38**		µg/l	0.050	0.022	1	"	"	"	"	"	
Surrogate recoveries:													
205440-82-0	*Benzo (e) pyrene-d12*	*54*			*30-130 %*			"	"	"	"	"	
Semivolatile Organic Compounds													
83-32-9	Acenaphthene	< 4.72		µg/l	4.72	0.652	1	EPA 625	"	12-Feb-18	MSL	"	X
208-96-8	Acenaphthylene	< 4.72		µg/l	4.72	0.644	1	"	"	"	"	"	X
120-12-7	Anthracene	< 4.72		µg/l	4.72	0.574	1	"	"	"	"	"	X
92-87-5	Benzidine	< 9.43		µg/l	9.43	1.08	1	"	"	"	"	"	X
56-55-3	Benzo (a) anthracene	< 4.72		µg/l	4.72	0.506	1	"	"	"	"	"	X
50-32-8	Benzo (a) pyrene	< 4.72		µg/l	4.72	0.530	1	"	"	"	"	"	X
205-99-2	Benzo (b) fluoranthene	< 4.72		µg/l	4.72	0.412	1	"	"	"	"	"	X
191-24-2	Benzo (g,h,i) perylene	< 4.72		µg/l	4.72	0.500	1	"	"	"	"	"	X
207-08-9	Benzo (k) fluoranthene	< 4.72		µg/l	4.72	0.453	1	"	"	"	"	"	X
111-91-1	Bis(2-chloroethoxy)methane	< 4.72		µg/l	4.72	0.628	1	"	"	"	"	"	X
111-44-4	Bis(2-chloroethyl)ether	< 4.72		µg/l	4.72	0.692	1	"	"	"	"	"	X
108-60-1	Bis(2-chloroisopropyl)ether	< 4.72		µg/l	4.72	0.734	1	"	"	"	"	"	X
117-81-7	Bis(2-ethylhexyl)phthalate	< 4.72		µg/l	4.72	0.602	1	"	"	"	"	"	X
101-55-3	4-Bromophenyl phenyl ether	< 4.72		µg/l	4.72	0.568	1	"	"	"	"	"	X
85-68-7	Butyl benzyl phthalate	< 4.72		µg/l	4.72	0.413	1	"	"	"	"	"	X
59-50-7	4-Chloro-3-methylphenol	< 4.72		µg/l	4.72	0.473	1	"	"	"	"	"	X
91-58-7	2-Chloronaphthalene	< 4.72		µg/l	4.72	0.557	1	"	"	"	"	"	X
95-57-8	2-Chlorophenol	< 4.72		µg/l	4.72	0.706	1	"	"	"	"	"	X
7005-72-3	4-Chlorophenyl phenyl ether	< 4.72		µg/l	4.72	0.569	1	"	"	"	"	"	X
218-01-9	Chrysene	< 4.72		µg/l	4.72	0.502	1	"	"	"	"	"	X
53-70-3	Dibenzo (a,h) anthracene	< 4.72		µg/l	4.72	0.425	1	"	"	"	"	"	X
95-50-1	1,2-Dichlorobenzene	< 4.72		µg/l	4.72	0.530	1	"	"	"	"	"	X

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
4NMGW	2017-235	Ground Water	02-Feb-18 10:40	05-Feb-18
SC43702-01				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GCMS													
Semivolatile Organic Compounds													
541-73-1	1,3-Dichlorobenzene	< 4.72		µg/l	4.72	0.610	1	EPA 625	07-Feb-18	12-Feb-18	MSL	1801761	X
106-46-7	1,4-Dichlorobenzene	< 4.72		µg/l	4.72	0.579	1	"	"	"	"	"	X
91-94-1	3,3´-Dichlorobenzidine	< 4.72		µg/l	4.72	1.88	1	"	"	"	"	"	X
120-83-2	2,4-Dichlorophenol	< 4.72		µg/l	4.72	0.500	1	"	"	"	"	"	X
84-66-2	Diethyl phthalate	< 4.72		µg/l	4.72	0.588	1	"	"	"	"	"	X
131-11-3	Dimethyl phthalate	< 4.72		µg/l	4.72	0.715	1	"	"	"	"	"	X
105-67-9	2,4-Dimethylphenol	< 4.72		µg/l	4.72	0.616	1	"	"	"	"	"	X
84-74-2	Di-n-butyl phthalate	< 4.72		µg/l	4.72	0.431	1	"	"	"	"	"	X
534-52-1	4,6-Dinitro-2-methylphenol	< 4.72		µg/l	4.72	0.301	1	"	"	"	"	"	X
51-28-5	2,4-Dinitrophenol	< 4.72		µg/l	4.72	0.529	1	"	"	"	"	"	X
121-14-2	2,4-Dinitrotoluene	< 4.72		µg/l	4.72	0.635	1	"	"	"	"	"	X
606-20-2	2,6-Dinitrotoluene	< 4.72		µg/l	4.72	0.559	1	"	"	"	"	"	X
117-84-0	Di-n-octyl phthalate	< 4.72		µg/l	4.72	0.383	1	"	"	"	"	"	X
206-44-0	Fluoranthene	< 4.72		µg/l	4.72	0.602	1	"	"	"	"	"	X
86-73-7	Fluorene	< 4.72		µg/l	4.72	0.577	1	"	"	"	"	"	X
118-74-1	Hexachlorobenzene	< 4.72		µg/l	4.72	0.539	1	"	"	"	"	"	X
87-68-3	Hexachlorobutadiene	< 4.72		µg/l	4.72	0.366	1	"	"	"	"	"	X
77-47-4	Hexachlorocyclopentadiene	< 4.72		µg/l	4.72	0.977	1	"	"	"	"	"	X
67-72-1	Hexachloroethane	< 4.72		µg/l	4.72	0.603	1	"	"	"	"	"	X
193-39-5	Indeno (1,2,3-cd) pyrene	< 4.72		µg/l	4.72	0.547	1	"	"	"	"	"	X
78-59-1	Isophorone	< 4.72		µg/l	4.72	0.553	1	"	"	"	"	"	X
91-20-3	Naphthalene	< 4.72		µg/l	4.72	0.646	1	"	"	"	"	"	X
98-95-3	Nitrobenzene	< 4.72		µg/l	4.72	0.651	1	"	"	"	"	"	X
88-75-5	2-Nitrophenol	< 4.72		µg/l	4.72	0.439	1	"	"	"	"	"	X
100-02-7	4-Nitrophenol	< 4.72		µg/l	4.72	0.791	1	"	"	"	"	"	X
62-75-9	N-Nitrosodimethylamine	< 4.72		µg/l	4.72	0.635	1	"	"	"	"	"	X
621-64-7	N-Nitrosodi-n-propylamine	< 4.72		µg/l	4.72	0.545	1	"	"	"	"	"	X
86-30-6	N-Nitrosodiphenylamine	< 4.72		µg/l	4.72	0.614	1	"	"	"	"	"	X
87-86-5	Pentachlorophenol	< 4.72		µg/l	4.72	0.352	1	"	"	"	"	"	X
85-01-8	Phenanthrene	< 4.72		µg/l	4.72	0.553	1	"	"	"	"	"	X
108-95-2	Phenol	< 4.72		µg/l	4.72	0.608	1	"	"	"	"	"	X
129-00-0	Pyrene	< 4.72		µg/l	4.72	0.575	1	"	"	"	"	"	X
120-82-1	1,2,4-Trichlorobenzene	< 4.72		µg/l	4.72	0.648	1	"	"	"	"	"	X
88-06-2	2,4,6-Trichlorophenol	< 4.72		µg/l	4.72	0.489	1	"	"	"	"	"	X
Surrogate recoveries:													
321-60-8	*2-Fluorobiphenyl*	*47*			*30-130 %*			"	"	"	"	"	
367-12-4	*2-Fluorophenol*	*38*			*15-110 %*			"	"	"	"	"	
4165-60-0	*Nitrobenzene-d5*	*58*			*30-130 %*			"	"	"	"	"	
4165-62-2	*Phenol-d5*	*24*			*15-110 %*			"	"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*62*			*30-130 %*			"	"	"	"	"	
118-79-6	*2,4,6-Tribromophenol*	*50*			*15-110 %*			"	"	"	"	"	
Semivolatile Organic Compounds by GC													
Polychlorinated Biphenyls													
12674-11-2	Aroclor-1016	< 0.187		µg/l	0.187	0.0972	1	EPA 608	10-Feb-18	12-Feb-18	AM	1801762	X

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
4NMGW SC43702-01	2017-235	Ground Water	02-Feb-18 10:40	05-Feb-18

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GC													
Polychlorinated Biphenyls													
11104-28-2	Aroclor-1221	< 0.187		µg/l	0.187	0.107	1	EPA 608	10-Feb-18	12-Feb-18	AM	1801762	X
11141-16-5	Aroclor-1232	< 0.187		µg/l	0.187	0.104	1	"	"	"	"	"	X
53469-21-9	Aroclor-1242	< 0.187		µg/l	0.187	0.100	1	"	"	"	"	"	X
12672-29-6	Aroclor-1248	< 0.187		µg/l	0.187	0.127	1	"	"	"	"	"	X
11097-69-1	Aroclor-1254	< 0.187		µg/l	0.187	0.108	1	"	"	"	"	"	X
11096-82-5	Aroclor-1260	< 0.187		µg/l	0.187	0.0795	1	"	"	"	"	"	X
37324-23-5	Aroclor-1262	< 0.187		µg/l	0.187	0.0837	1	"	"	"	"	"	
11100-14-4	Aroclor-1268	< 0.187		µg/l	0.187	0.0855	1	"	"	"	"	"	
Surrogate recoveries:													
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr)*	*95*			*30-150 %*			"	"	"	"	"	
10386-84-2	*4,4-DB-Octafluorobiphenyl (Sr) [2C]*	*90*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr)*	*105*			*30-150 %*			"	"	"	"	"	
2051-24-3	*Decachlorobiphenyl (Sr) [2C]*	*90*			*30-150 %*			"	"	"	"	"	
Extractable Petroleum Hydrocarbons													
Fingerprinting by GC Prepared by method SW846 3510C													
8006-61-9	Gasoline	< 0.2		mg/l	0.2	0.2	1	SW846 8100Mod.	05-Feb-18	06-Feb-18	DJS	1801596	
68476-30-2	Fuel Oil #2	< 0.2		mg/l	0.2	0.2	1	"	"	"	"	"	
68476-31-3	Fuel Oil #4	< 0.2		mg/l	0.2	0.2	1	"	"	"	"	"	
68553-00-4	Fuel Oil #6	< 0.2		mg/l	0.2	0.2	1	"	"	"	"	"	
M09800000	Motor Oil	< 0.2		mg/l	0.2	0.2	1	"	"	"	"	"	
8032-32-4	Ligroin	< 0.2		mg/l	0.2	0.2	1	"	"	"	"	"	
J00100000	Aviation Fuel	< 0.2		mg/l	0.2	0.2	1	"	"	"	"	"	
	Hydraulic Oil	< 0.2		mg/l	0.2	0.2	1	"	"	"	"	"	
	Dielectric Fluid	< 0.2		mg/l	0.2	0.2	1	"	"	"	"	"	
	Unidentified	**3.6**		mg/l	0.2	0.2	1	"	"	"	"	"	
	Other Oil	**Calculated as**		mg/l	0.2	0.2	1	"	"	"	"	"	
	Total Petroleum Hydrocarbons	**3.6**		mg/l	0.2	0.2	1	"	"	"	"	"	
Surrogate recoveries:													
3386-33-2	*1-Chlorooctadecane*	*120*			*40-140 %*			"	"	"	"	"	
General Chemistry Parameters													
57-12-5	Cyanide (total)	< 0.00500		mg/l	0.00500	0.00474	1	EPA 335.4 / SW846 9012B	06-Feb-18	06-Feb-18	RLT	1801712	X
Subcontracted Analyses													
*Analysis performed by Phoenix Environmental Labs, Inc. * - MACT007*													
7440-36-0	Antimony	< 0.0050		mg/l	0.0050	0.0050	5	200.8-5.4	06-Feb-18	07-Feb-18 13:55	M-CT007	418964A	
Subcontracted Analyses Prepared by method 418943-													
*Analysis performed by Phoenix Environmental Labs, Inc. * - MACT007*													
7439-89-6	Iron	**60.3**		mg/l	0.010	0.010	1	SW6010C	"	07-Feb-18 00:46	M-CT007	418943A	
7440-66-6	Zinc	**0.385**		mg/l	0.002	0.002	1	"	"	"	"	"	

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Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
4NMGW SC43702-01	2017-235	Ground Water	02-Feb-18 10:40	05-Feb-18

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Subcontracted Analyses													
Subcontracted Analyses Prepared by method 418964-													
*Analysis performed by Phoenix Environmental Labs, Inc. * - MACT007*													
7440-38-2	Arsenic	**0.0168**		mg/l	0.0050	0.0050	5	SW6020B	06-Feb-18	07-Feb-18 13:55	M-CT007	418964B	
7440-43-9	Cadmium	< 0.0010		mg/l	0.0010	0.0010	5	"	"	"	"	"	
7440-47-3	Chromium	**0.044**		mg/l	0.010	0.010	5	"	"	"	"	"	
7440-50-8	Copper	**0.058**		mg/l	0.025	0.025	5	"	"	"	"	"	
7782-49-2	Selenium	< 0.010		mg/l	0.010	0.010	5	"	"	"	"	"	
7439-92-1	Lead	**0.586**		mg/l	0.0040	0.0040	10	"	"	07-Feb-18 15:24	"	"	
7440-02-0	Nickel	**0.0367**		mg/l	0.0050	0.0050	10	"	"	"	"	"	
7440-22-4	Silver	< 0.0020		mg/l	0.0020	0.0020	10	"	"	"	"	"	
Prepared by method 419000-													
*Analysis performed by Phoenix Environmental Labs, Inc. * - MACT007*													
7439-97-6	Mercury	< 0.0002		mg/l	0.0002	0.0002	1	SW7470A	07-Feb-18	07-Feb-18 11:56	M-CT007	419000A	

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
EPA 625										
Batch 1801761 - SW846 3510C										
Blank (1801761-BLK1)					Prepared: 07-Feb-18 Analyzed: 08-Feb-18					
Acenaphthene	< 5.10		µg/l	5.10						
Acenaphthylene	< 5.10		µg/l	5.10						
Anthracene	< 5.10		µg/l	5.10						
Benzidine	< 10.2		µg/l	10.2						
Benzo (a) anthracene	< 5.10		µg/l	5.10						
Benzo (a) pyrene	< 5.10		µg/l	5.10						
Benzo (b) fluoranthene	< 5.10		µg/l	5.10						
Benzo (g,h,i) perylene	< 5.10		µg/l	5.10						
Benzo (k) fluoranthene	< 5.10		µg/l	5.10						
Bis(2-chloroethoxy)methane	< 5.10		µg/l	5.10						
Bis(2-chloroethyl)ether	< 5.10		µg/l	5.10						
Bis(2-chloroisopropyl)ether	< 5.10		µg/l	5.10						
Bis(2-ethylhexyl)phthalate	< 5.10		µg/l	5.10						
4-Bromophenyl phenyl ether	< 5.10		µg/l	5.10						
Butyl benzyl phthalate	< 5.10		µg/l	5.10						
4-Chloro-3-methylphenol	< 5.10		µg/l	5.10						
2-Chloronaphthalene	< 5.10		µg/l	5.10						
2-Chlorophenol	< 5.10		µg/l	5.10						
4-Chlorophenyl phenyl ether	< 5.10		µg/l	5.10						
Chrysene	< 5.10		µg/l	5.10						
Dibenzo (a,h) anthracene	< 5.10		µg/l	5.10						
1,2-Dichlorobenzene	< 5.10		µg/l	5.10						
1,3-Dichlorobenzene	< 5.10		µg/l	5.10						
1,4-Dichlorobenzene	< 5.10		µg/l	5.10						
3,3´-Dichlorobenzidine	< 5.10		µg/l	5.10						
2,4-Dichlorophenol	< 5.10		µg/l	5.10						
Diethyl phthalate	< 5.10		µg/l	5.10						
Dimethyl phthalate	< 5.10		µg/l	5.10						
2,4-Dimethylphenol	< 5.10		µg/l	5.10						
Di-n-butyl phthalate	< 5.10		µg/l	5.10						
4,6-Dinitro-2-methylphenol	< 5.10		µg/l	5.10						
2,4-Dinitrophenol	< 5.10		µg/l	5.10						
2,4-Dinitrotoluene	< 5.10		µg/l	5.10						
2,6-Dinitrotoluene	< 5.10		µg/l	5.10						
Di-n-octyl phthalate	< 5.10		µg/l	5.10						
Fluoranthene	< 5.10		µg/l	5.10						
Fluorene	< 5.10		µg/l	5.10						
Hexachlorobenzene	< 5.10		µg/l	5.10						
Hexachlorobutadiene	< 5.10		µg/l	5.10						
Hexachlorocyclopentadiene	< 5.10		µg/l	5.10						
Hexachloroethane	< 5.10		µg/l	5.10						
Indeno (1,2,3-cd) pyrene	< 5.10		µg/l	5.10						
Isophorone	< 5.10		µg/l	5.10						
Naphthalene	< 5.10		µg/l	5.10						
Nitrobenzene	< 5.10		µg/l	5.10						
2-Nitrophenol	< 5.10		µg/l	5.10						
4-Nitrophenol	< 5.10		µg/l	5.10						
N-Nitrosodimethylamine	< 5.10		µg/l	5.10						
N-Nitrosodi-n-propylamine	< 5.10		µg/l	5.10						
N-Nitrosodiphenylamine	< 5.10		µg/l	5.10						

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
EPA 625										
Batch 1801761 - SW846 3510C										
Blank (1801761-BLK1)					Prepared: 07-Feb-18 Analyzed: 08-Feb-18					
Pentachlorophenol	< 5.10		µg/l	5.10						
Phenanthrene	< 5.10		µg/l	5.10						
Phenol	< 5.10		µg/l	5.10						
Pyrene	< 5.10		µg/l	5.10						
1,2,4-Trichlorobenzene	< 5.10		µg/l	5.10						
2,4,6-Trichlorophenol	< 5.10		µg/l	5.10						
Surrogate: 2-Fluorobiphenyl	*24.0*		µg/l		*51.0*		*47*	*30-130*		
Surrogate: 2-Fluorophenol	*18.5*		µg/l		*51.0*		*36*	*15-110*		
Surrogate: Nitrobenzene-d5	*30.0*		µg/l		*51.0*		*59*	*30-130*		
Surrogate: Phenol-d5	*13.2*		µg/l		*51.0*		*26*	*15-110*		
Surrogate: Terphenyl-dl4	*33.4*		µg/l		*51.0*		*66*	*30-130*		
Surrogate: 2,4,6-Tribromophenol	*31.6*		µg/l		*51.0*		*62*	*15-110*		
LCS (1801761-BS1)					Prepared: 07-Feb-18 Analyzed: 08-Feb-18					
Acenaphthene	**30.9**		µg/l	5.10	51.0		61	47-145		
Acenaphthylene	**30.7**		µg/l	5.10	51.0		60	33-145		
Anthracene	**32.5**		µg/l	5.10	51.0		64	27-133		
Benzidine	**24.8**		µg/l	10.2	51.0		49	40-140		
Benzo (a) anthracene	**34.0**		µg/l	5.10	51.0		67	33-143		
Benzo (a) pyrene	**36.9**		µg/l	5.10	51.0		72	17-163		
Benzo (b) fluoranthene	**41.2**		µg/l	5.10	51.0		81	24-159		
Benzo (g,h,i) perylene	**35.5**		µg/l	5.10	51.0		70	1-219		
Benzo (k) fluoranthene	**33.2**		µg/l	5.10	51.0		65	11-162		
Bis(2-chloroethoxy)methane	**25.9**		µg/l	5.10	51.0		51	33-184		
Bis(2-chloroethyl)ether	**27.9**		µg/l	5.10	51.0		55	12-158		
Bis(2-chloroisopropyl)ether	**31.7**		µg/l	5.10	51.0		62	36-166		
Bis(2-ethylhexyl)phthalate	**37.5**		µg/l	5.10	51.0		74	8-158		
4-Bromophenyl phenyl ether	**28.7**		µg/l	5.10	51.0		56	53-127		
Butyl benzyl phthalate	**36.0**		µg/l	5.10	51.0		71	1-152		
4-Chloro-3-methylphenol	**32.2**		µg/l	5.10	51.0		63	22-147		
2-Chloronaphthalene	**35.1**		µg/l	5.10	51.0		69	60-118		
2-Chlorophenol	**28.8**		µg/l	5.10	51.0		57	23-134		
4-Chlorophenyl phenyl ether	**28.8**		µg/l	5.10	51.0		56	25-158		
Chrysene	**32.2**		µg/l	5.10	51.0		63	17-168		
Dibenzo (a,h) anthracene	**37.2**		µg/l	5.10	51.0		73	1-227		
1,2-Dichlorobenzene	**32.7**		µg/l	5.10	51.0		64	32-129		
1,3-Dichlorobenzene	**31.2**		µg/l	5.10	51.0		61	1-172		
1,4-Dichlorobenzene	**32.0**		µg/l	5.10	51.0		63	20-124		
3,3´-Dichlorobenzidine	**47.3**		µg/l	5.10	51.0		93	1-262		
2,4-Dichlorophenol	**28.4**		µg/l	5.10	51.0		56	39-135		
Diethyl phthalate	**31.3**		µg/l	5.10	51.0		61	1-114		
Dimethyl phthalate	**28.7**		µg/l	5.10	51.0		56	1-112		
2,4-Dimethylphenol	**27.6**		µg/l	5.10	51.0		54	32-119		
Di-n-butyl phthalate	**32.7**		µg/l	5.10	51.0		64	1-118		
4,6-Dinitro-2-methylphenol	**41.2**		µg/l	5.10	51.0		81	1-181		
2,4-Dinitrophenol	**31.8**		µg/l	5.10	51.0		62	1-191		
2,4-Dinitrotoluene	**44.0**		µg/l	5.10	51.0		86	39-139		
2,6-Dinitrotoluene	**42.9**		µg/l	5.10	51.0		84	50-158		
Di-n-octyl phthalate	**41.2**		µg/l	5.10	51.0		81	4-146		
Fluoranthene	**31.3**		µg/l	5.10	51.0		61	26-137		
Fluorene	**29.6**	QC2	µg/l	5.10	51.0		58	59-121		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
EPA 625										
Batch 1801761 - SW846 3510C										
LCS (1801761-BS1)					Prepared: 07-Feb-18 Analyzed: 08-Feb-18					
Hexachlorobenzene	**33.9**		µg/l	5.10	51.0		66	1-152		
Hexachlorobutadiene	**25.8**		µg/l	5.10	51.0		51	24-116		
Hexachlorocyclopentadiene	**35.2**		µg/l	5.10	51.0		69	40-140		
Hexachloroethane	**34.6**		µg/l	5.10	51.0		68	40-113		
Indeno (1,2,3-cd) pyrene	**37.0**		µg/l	5.10	51.0		72	1-171		
Isophorone	**30.6**		µg/l	5.10	51.0		60	21-196		
Naphthalene	**27.8**		µg/l	5.10	51.0		55	21-133		
Nitrobenzene	**41.8**		µg/l	5.10	51.0		82	35-180		
2-Nitrophenol	**32.3**		µg/l	5.10	51.0		63	29-182		
4-Nitrophenol	**20.7**		µg/l	5.10	51.0		41	1-132		
N-Nitrosodimethylamine	**30.9**		µg/l	5.10	51.0		61	40-140		
N-Nitrosodi-n-propylamine	**33.6**		µg/l	5.10	51.0		66	1-230		
N-Nitrosodiphenylamine	**35.4**		µg/l	5.10	51.0		69	40-140		
Pentachlorophenol	**25.0**		µg/l	5.10	51.0		49	14-176		
Phenanthrene	**31.0**		µg/l	5.10	51.0		61	54-120		
Phenol	**14.5**		µg/l	5.10	51.0		28	5-112		
Pyrene	**34.2**		µg/l	5.10	51.0		67	52-115		
1,2,4-Trichlorobenzene	**31.2**		µg/l	5.10	51.0		61	44-142		
2,4,6-Trichlorophenol	**29.1**		µg/l	5.10	51.0		57	37-144		
Surrogate: 2-Fluorobiphenyl	*27.1*		µg/l		*51.0*		*53*	*30-130*		
Surrogate: 2-Fluorophenol	*20.3*		µg/l		*51.0*		*40*	*15-110*		
Surrogate: Nitrobenzene-d5	*32.7*		µg/l		*51.0*		*64*	*30-130*		
Surrogate: Phenol-d5	*13.9*		µg/l		*51.0*		*27*	*15-110*		
Surrogate: Terphenyl-dl4	*33.9*		µg/l		*51.0*		*66*	*30-130*		
Surrogate: 2,4,6-Tribromophenol	*29.8*		µg/l		*51.0*		*58*	*15-110*		
LCS Dup (1801761-BSD1)					Prepared: 07-Feb-18 Analyzed: 08-Feb-18					
Acenaphthene	**34.4**		µg/l	5.10	51.0		68	47-145	11	20
Acenaphthylene	**34.2**		µg/l	5.10	51.0		67	33-145	11	20
Anthracene	**36.2**		µg/l	5.10	51.0		71	27-133	11	20
Benzidine	**38.8**	QR9	µg/l	10.2	51.0		76	40-140	44	20
Benzo (a) anthracene	**36.7**		µg/l	5.10	51.0		72	33-143	7	20
Benzo (a) pyrene	**39.6**		µg/l	5.10	51.0		78	17-163	7	20
Benzo (b) fluoranthene	**42.0**		µg/l	5.10	51.0		82	24-159	2	20
Benzo (g,h,i) perylene	**38.8**		µg/l	5.10	51.0		76	1-219	9	20
Benzo (k) fluoranthene	**38.7**		µg/l	5.10	51.0		76	11-162	15	20
Bis(2-chloroethoxy)methane	**28.2**		µg/l	5.10	51.0		55	33-184	8	20
Bis(2-chloroethyl)ether	**31.1**		µg/l	5.10	51.0		61	12-158	11	20
Bis(2-chloroisopropyl)ether	**34.8**		µg/l	5.10	51.0		68	36-166	9	20
Bis(2-ethylhexyl)phthalate	**37.6**		µg/l	5.10	51.0		74	8-158	0.05	20
4-Bromophenyl phenyl ether	**32.6**		µg/l	5.10	51.0		64	53-127	13	20
Butyl benzyl phthalate	**36.8**		µg/l	5.10	51.0		72	1-152	2	20
4-Chloro-3-methylphenol	**34.6**		µg/l	5.10	51.0		68	22-147	7	20
2-Chloronaphthalene	**39.2**		µg/l	5.10	51.0		77	60-118	11	20
2-Chlorophenol	**31.6**		µg/l	5.10	51.0		62	23-134	9	20
4-Chlorophenyl phenyl ether	**32.3**		µg/l	5.10	51.0		63	25-158	12	20
Chrysene	**35.5**		µg/l	5.10	51.0		70	17-168	10	20
Dibenzo (a,h) anthracene	**40.9**		µg/l	5.10	51.0		80	1-227	9	20
1,2-Dichlorobenzene	**36.7**		µg/l	5.10	51.0		72	32-129	12	20
1,3-Dichlorobenzene	**35.2**		µg/l	5.10	51.0		69	1-172	12	20
1,4-Dichlorobenzene	**35.6**		µg/l	5.10	51.0		70	20-124	11	20

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
EPA 625										
Batch 1801761 - SW846 3510C										
LCS Dup (1801761-BSD1)					Prepared: 07-Feb-18 Analyzed: 08-Feb-18					
3,3´-Dichlorobenzidine	**55.4**		µg/l	5.10	51.0		109	1-262	16	20
2,4-Dichlorophenol	**32.1**		µg/l	5.10	51.0		63	39-135	12	20
Diethyl phthalate	**34.4**		µg/l	5.10	51.0		67	1-114	10	20
Dimethyl phthalate	**32.1**		µg/l	5.10	51.0		63	1-112	11	20
2,4-Dimethylphenol	**31.2**		µg/l	5.10	51.0		61	32-119	12	20
Di-n-butyl phthalate	**36.6**		µg/l	5.10	51.0		72	1-118	11	20
4,6-Dinitro-2-methylphenol	**45.4**		µg/l	5.10	51.0		89	1-181	10	20
2,4-Dinitrophenol	**36.0**		µg/l	5.10	51.0		71	1-191	13	20
2,4-Dinitrotoluene	**48.3**		µg/l	5.10	51.0		95	39-139	9	20
2,6-Dinitrotoluene	**46.9**		µg/l	5.10	51.0		92	50-158	9	20
Di-n-octyl phthalate	**40.0**		µg/l	5.10	51.0		78	4-146	3	20
Fluoranthene	**35.0**		µg/l	5.10	51.0		69	26-137	11	20
Fluorene	**32.8**		µg/l	5.10	51.0		64	59-121	10	20
Hexachlorobenzene	**38.3**		µg/l	5.10	51.0		75	1-152	12	20
Hexachlorobutadiene	**30.1**		µg/l	5.10	51.0		59	24-116	15	20
Hexachlorocyclopentadiene	**40.2**		µg/l	5.10	51.0		79	40-140	13	20
Hexachloroethane	**37.9**		µg/l	5.10	51.0		74	40-113	9	20
Indeno (1,2,3-cd) pyrene	**39.2**		µg/l	5.10	51.0		77	1-171	6	20
Isophorone	**33.7**		µg/l	5.10	51.0		66	21-196	10	20
Naphthalene	**31.3**		µg/l	5.10	51.0		61	21-133	12	20
Nitrobenzene	**45.8**		µg/l	5.10	51.0		90	35-180	9	20
2-Nitrophenol	**36.5**		µg/l	5.10	51.0		72	29-182	12	20
4-Nitrophenol	**21.9**		µg/l	5.10	51.0		43	1-132	5	20
N-Nitrosodimethylamine	**28.3**		µg/l	5.10	51.0		55	40-140	9	20
N-Nitrosodi-n-propylamine	**36.7**		µg/l	5.10	51.0		72	1-230	9	20
N-Nitrosodiphenylamine	**39.4**		µg/l	5.10	51.0		77	40-140	11	20
Pentachlorophenol	**28.5**		µg/l	5.10	51.0		56	14-176	13	20
Phenanthrene	**34.3**		µg/l	5.10	51.0		67	54-120	10	20
Phenol	**14.9**		µg/l	5.10	51.0		29	5-112	3	20
Pyrene	**28.5**		µg/l	5.10	51.0		56	52-115	18	20
1,2,4-Trichlorobenzene	**35.6**		µg/l	5.10	51.0		70	44-142	13	20
2,4,6-Trichlorophenol	**32.5**		µg/l	5.10	51.0		64	37-144	11	20
Surrogate: 2-Fluorobiphenyl	*30.3*		µg/l		*51.0*		*59*	*30-130*		
Surrogate: 2-Fluorophenol	*21.0*		µg/l		*51.0*		*41*	*15-110*		
Surrogate: Nitrobenzene-d5	*36.6*		µg/l		*51.0*		*72*	*30-130*		
Surrogate: Phenol-d5	*14.3*		µg/l		*51.0*		*28*	*15-110*		
Surrogate: Terphenyl-dl4	*28.6*		µg/l		*51.0*		*56*	*30-130*		
Surrogate: 2,4,6-Tribromophenol	*33.8*		µg/l		*51.0*		*66*	*15-110*		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
EPA 608										
Batch 1801762 - SW846 3510C										
Blank (1801762-BLK1)					Prepared: 10-Feb-18 Analyzed: 12-Feb-18					
Aroclor-1016	< 0.204		µg/l	0.204						
Aroclor-1016 [2C]	< 0.204		µg/l	0.204						
Aroclor-1221	< 0.204		µg/l	0.204						
Aroclor-1221 [2C]	< 0.204		µg/l	0.204						
Aroclor-1232	< 0.204		µg/l	0.204						
Aroclor-1232 [2C]	< 0.204		µg/l	0.204						
Aroclor-1242	< 0.204		µg/l	0.204						
Aroclor-1242 [2C]	< 0.204		µg/l	0.204						
Aroclor-1248	< 0.204		µg/l	0.204						
Aroclor-1248 [2C]	< 0.204		µg/l	0.204						
Aroclor-1254	< 0.204		µg/l	0.204						
Aroclor-1254 [2C]	< 0.204		µg/l	0.204						
Aroclor-1260	< 0.204		µg/l	0.204						
Aroclor-1260 [2C]	< 0.204		µg/l	0.204						
Aroclor-1262	< 0.204		µg/l	0.204						
Aroclor-1262 [2C]	< 0.204		µg/l	0.204						
Aroclor-1268	< 0.204		µg/l	0.204						
Aroclor-1268 [2C]	< 0.204		µg/l	0.204						
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*0.153*		µg/l		*0.204*		*75*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*0.133*		µg/l		*0.204*		*65*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*0.214*		µg/l		*0.204*		*105*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*0.204*		µg/l		*0.204*		*100*	*30-150*		
LCS (1801762-BS1)					Prepared: 10-Feb-18 Analyzed: 12-Feb-18					
Aroclor-1016	**1.99**		µg/l	0.204	2.55		78	50-114		
Aroclor-1016 [2C]	**1.89**		µg/l	0.204	2.55		74	50-114		
Aroclor-1260	**2.10**		µg/l	0.204	2.55		82	40-127		
Aroclor-1260 [2C]	**1.99**		µg/l	0.204	2.55		78	40-127		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*0.122*		µg/l		*0.204*		*60*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*0.112*		µg/l		*0.204*		*55*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*0.184*		µg/l		*0.204*		*90*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*0.173*		µg/l		*0.204*		*85*	*30-150*		
LCS Dup (1801762-BSD1)					Prepared: 10-Feb-18 Analyzed: 12-Feb-18					
Aroclor-1016	**2.10**		µg/l	0.200	2.50		84	50-114	5	20
Aroclor-1016 [2C]	**2.12**		µg/l	0.200	2.50		85	50-114	12	20
Aroclor-1260	**2.26**		µg/l	0.200	2.50		90	40-127	7	20
Aroclor-1260 [2C]	**2.29**		µg/l	0.200	2.50		92	40-127	14	20
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	*0.140*		µg/l		*0.200*		*70*	*30-150*		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	*0.130*		µg/l		*0.200*		*65*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr)	*0.210*		µg/l		*0.200*		*105*	*30-150*		
Surrogate: Decachlorobiphenyl (Sr) [2C]	*0.210*		µg/l		*0.200*		*105*	*30-150*		

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW846 8100Mod.										
Batch 1801596 - SW846 3510C										
Blank (1801596-BLK1)					Prepared: 05-Feb-18 Analyzed: 06-Feb-18					
Gasoline	< 0.2		mg/l	0.2						
Fuel Oil #2	< 0.2		mg/l	0.2						
Fuel Oil #4	< 0.2		mg/l	0.2						
Fuel Oil #6	< 0.2		mg/l	0.2						
Motor Oil	< 0.2		mg/l	0.2						
Ligroin	< 0.2		mg/l	0.2						
Aviation Fuel	< 0.2		mg/l	0.2						
Hydraulic Oil	< 0.2		mg/l	0.2						
Dielectric Fluid	< 0.2		mg/l	0.2						
Unidentified	< 0.2		mg/l	0.2						
Other Oil	< 0.2		mg/l	0.2						
Total Petroleum Hydrocarbons	< 0.2		mg/l	0.2						
Surrogate: 1-Chlorooctadecane	*0.0322*		mg/l		*0.0510*		*63*	*40-140*		
LCS (1801596-BS2)					Prepared: 05-Feb-18 Analyzed: 06-Feb-18					
Fuel Oil #2	**2.9**		mg/l	0.2	4.04		72	40-140		
Surrogate: 1-Chlorooctadecane	*0.0492*		mg/l		*0.0505*		*97*	*40-140*		
LCS Dup (1801596-BSD2)					Prepared: 05-Feb-18 Analyzed: 06-Feb-18					
Fuel Oil #2	**2.8**		mg/l	0.2	2.02		140	40-140	3	30
Surrogate: 1-Chlorooctadecane	*0.0495*		mg/l		*0.0505*		*98*	*40-140*		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
EPA 335.4 / SW846 9012B										
Batch 1801712 - General Preparation										
Blank (1801712-BLK1)						Prepared & Analyzed: 06-Feb-18				
Cyanide (total)	< 0.00500		mg/l	0.00500						
Blank (1801712-BLK2)						Prepared & Analyzed: 06-Feb-18				
Cyanide (total)	< 0.00500		mg/l	0.00500						
LCS (1801712-BS1)						Prepared & Analyzed: 06-Feb-18				
Cyanide (total)	**0.254**		mg/l	0.00500	0.250		102	90-110		
LCS (1801712-BS2)						Prepared & Analyzed: 06-Feb-18				
Cyanide (total)	**0.251**		mg/l	0.00500	0.250		100	90-110		
Reference (1801712-SRM1)						Prepared & Analyzed: 06-Feb-18				
Cyanide (total)	**0.264**		mg/l	0.00500	0.324		81	76-123		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
200.8-5.4										
Batch 418964A - 418964-20										
BLK (BZ84827-BLK)						Prepared: 06-Feb-18 Analyzed: 07-Feb-18				
Arsenic	< 0.0025		mg/l	0.0025				-		
Silver	< 0.0025		mg/l	0.0025				-		
Cadmium	< 0.0005		mg/l	0.0005				-		
Chromium	< 0.010		mg/l	0.010				-		
Copper	< 0.025		mg/l	0.025				-		
Lead	< 0.0025		mg/l	0.0025				-		
Selenium	< 0.005		mg/l	0.005				-		
Nickel	< 0.0050		mg/l	0.0050				-		
Antimony	< 0.0020		mg/l	0.0020				-		
DUP (BZ84827-DUP)			**Source: BZ84827**			Prepared: 06-Feb-18 Analyzed: 07-Feb-18				
Nickel	< 0.0050		mg/l	0.0050				-	NC	20
Arsenic	< 0.0025		mg/l	0.0025				-	NC	20
Cadmium	< 0.0005		mg/l	0.0005				-	NC	20
Chromium	< 0.010		mg/l	0.010				-	NC	20
Copper	< 0.025		mg/l	0.025				-	NC	20
Lead	< 0.0025		mg/l	0.0025				-	NC	20
Selenium	< 0.005		mg/l	0.005				-	NC	20
Silver	< 0.0025		mg/l	0.0025				-	NC	20
Antimony	< 0.0020		mg/l	0.0020				-	NC	20
LCS (BZ84827-LCS)						Prepared: 06-Feb-18 Analyzed: 07-Feb-18				
Arsenic	**0.0483**		mg/l	0.0025	0.05		96.6	75-125		20
Cadmium	**0.0511**		mg/l	0.0005	0.05		102	75-125		20
Chromium	**0.0517**		mg/l	0.010	0.05		103	75-125		20
Copper	**0.0505**		mg/l	0.025	0.05		101	75-125		20
Lead	**0.0489**		mg/l	0.0025	0.05		97.8	75-125		20
Selenium	**0.0513**		mg/l	0.005	0.05		103	75-125		20
Nickel	**0.0526**		mg/l	0.0050	0.05		105	75-125		20
Silver	**0.0497**		mg/l	0.0025	0.05		99.4	75-125		20
Antimony	**0.0539**		mg/l	0.0020	0.05		108	75-125		20
MS (BZ84827-MS)			**Source: BZ84827**			Prepared: 06-Feb-18 Analyzed: 07-Feb-18				
Copper	**0.0532**		mg/l	0.025	0.05		98.6	75-125		20
Silver	**0.0491**		mg/l	0.0025	0.05		98.2	75-125		20
Nickel	**0.0489**		mg/l	0.0050	0.05		95.8	75-125		20
Lead	**0.0485**		mg/l	0.0025	0.05		95.6	75-125		20
Chromium	**0.0495**		mg/l	0.010	0.05		96.2	75-125		20
Cadmium	**0.0495**		mg/l	0.0005	0.05		99.0	75-125		20
Arsenic	**0.0479**		mg/l	0.0025	0.05		97.0	75-125		20
Selenium	**0.0501**		mg/l	0.005	0.05		100	75-125		20
Antimony	**0.0532**		mg/l	0.0020	0.05		106	75-125		20
SW6020B										
Batch 418964B - 418964-										
BLK (BZ84827-BLK)						Prepared: 06-Feb-18 Analyzed: 07-Feb-18				
Antimony	< 0.0020		mg/l	0.0020				-		
Silver	< 0.0025		mg/l	0.0025				-		
Arsenic	< 0.0025		mg/l	0.0025				-		
Cadmium	< 0.0005		mg/l	0.0005				-		
Chromium	< 0.010		mg/l	0.010				-		
Copper	< 0.025		mg/l	0.025				-		
Lead	< 0.0025		mg/l	0.0025				-		
Selenium	< 0.005		mg/l	0.005				-		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW6020B										
Batch 418964B - 418964-										
BLK (BZ84827-BLK)						Prepared: 06-Feb-18 Analyzed: 07-Feb-18				
Nickel	< 0.0050		mg/l	0.0050				-		
DUP (BZ84827-DUP)			**Source: BZ84827**			Prepared: 06-Feb-18 Analyzed: 07-Feb-18				
Antimony	< 0.0020		mg/l	0.0020				-	NC	20
Cadmium	< 0.0005		mg/l	0.0005				-	NC	20
Chromium	< 0.010		mg/l	0.010				-	NC	20
Copper	< 0.025		mg/l	0.025				-	NC	20
Lead	< 0.0025		mg/l	0.0025				-	NC	20
Selenium	< 0.005		mg/l	0.005				-	NC	20
Nickel	< 0.0050		mg/l	0.0050				-	NC	20
Silver	< 0.0025		mg/l	0.0025				-	NC	20
Arsenic	< 0.0025		mg/l	0.0025				-	NC	20
LCS (BZ84827-LCS)						Prepared: 06-Feb-18 Analyzed: 07-Feb-18				
Antimony	**0.0539**		mg/l	0.0020	0.05		108	75-125		20
Selenium	**0.0513**		mg/l	0.005	0.05		103	75-125		20
Nickel	**0.0526**		mg/l	0.0050	0.05		105	75-125		20
Lead	**0.0489**		mg/l	0.0025	0.05		97.8	75-125		20
Chromium	**0.0517**		mg/l	0.010	0.05		103	75-125		20
Cadmium	**0.0511**		mg/l	0.0005	0.05		102	75-125		20
Arsenic	**0.0483**		mg/l	0.0025	0.05		96.6	75-125		20
Copper	**0.0505**		mg/l	0.025	0.05		101	75-125		20
Silver	**0.0497**		mg/l	0.0025	0.05		99.4	75-125		20
MS (BZ84827-MS)			**Source: BZ84827**			Prepared: 06-Feb-18 Analyzed: 07-Feb-18				
Antimony	**0.0532**		mg/l	0.0020	0.05		106	75-125		20
Chromium	**0.0495**		mg/l	0.010	0.05		96.2	75-125		20
Silver	**0.0491**		mg/l	0.0025	0.05		98.2	75-125		20
Nickel	**0.0489**		mg/l	0.0050	0.05		95.8	75-125		20
Selenium	**0.0501**		mg/l	0.005	0.05		100	75-125		20
Copper	**0.0532**		mg/l	0.025	0.05		98.6	75-125		20
Cadmium	**0.0495**		mg/l	0.0005	0.05		99.0	75-125		20
Arsenic	**0.0479**		mg/l	0.0025	0.05		97.0	75-125		20
Lead	**0.0485**		mg/l	0.0025	0.05		95.6	75-125		20
SW7470A										
Batch 419000A - 419000-										
BLK (BZ84827-BLK)						Prepared & Analyzed: 07-Feb-18				
Mercury	< 0.0002		mg/l	0.0002				-		
DUP (BZ84827-DUP)			**Source: BZ84827**			Prepared & Analyzed: 07-Feb-18				
Mercury	< 0.0002		mg/l	0.0002				-	NC	30
LCS (BZ84827-LCS)						Prepared & Analyzed: 07-Feb-18				
Mercury	**0.0022**		mg/l	0.0002	0.0025		86.9	75-125		30
MS (BZ84827-MS)			**Source: BZ84827**			Prepared & Analyzed: 07-Feb-18				
Mercury	**0.0020**		mg/l	0.0002	0.0025		81.5	75-125		30

Notes and Definitions

QC2	Analyte out of acceptance range in QC spike but no reportable concentration present in sample.
QR9	RPD out of acceptance range. The batch is accepted based upon LCS and/or LCSD recovery.
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference
[2C]	Indicates concentration was reported from the secondary, confirmation column.

Interpretation of Total Petroleum Hydrocarbon Report

Petroleum identification is determined by comparing the GC fingerprint obtained from the sample with a library of GC fingerprints obtained from analyses of various petroleum products. Possible match categories are as follows:

Gasoline - includes regular, unleaded, premium, etc.
Fuel Oil #2 - includes home heating oil, #2 fuel oil, and diesel
Fuel Oil #4 - includes #4 fuel oil
Fuel Oil #6 - includes #6 fuel oil and bunker "C" oil
Motor Oil - includes virgin and waste automobile oil
Ligroin - includes mineral spirits, petroleum naphtha, vm&p naphtha
Aviation Fuel - includes kerosene, Jet A and JP-4
Other Oil - includes lubricating and cutting oil, and silicon oil

At times, the unidentified petroleum product is quantified using a calibration that most closely approximates the distribution of compounds in the sample. When this occurs, the result is qualified as Calculated as.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic intervals. Concentrations, intervals, and criteria are method specific.

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CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:

☐ Standard TAT - 7 to 10 business days
☒ Rush TAT - Date Needed: 2/7/18
All TATs subject to laboratory approval
Min. 24-hr notification needed for rushes RE#181
Samples disposed after 30 days unless otherwise instructed.

Report To: CME ENVIRONMENTAL, INC
67 HALL RD
STURBRIDGE, MA 01566

Telephone #: 774-241-0901
Project Mgr: D CLARK

Invoice To: SAME

P.O No.: Quote #:

Project No: 2017-235
Site Name: 4 & 16 NM
Location: NORTHBRIDGE State: MA
Sampler(s): R. GOAD

F=Field Filtered 1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
7=CH3OH 8=$NaHSO_4$ 9=Deionized Water 10=H_3PO_4 11=______ 12=______

List Preservative Code below: 2 | 4 | 5 | – | –

DW=Drinking Water **GW**=Groundwater **SW**=Surface Water **WW**=Waste Water
O=Oil **SO**=Soil **SL**=Sludge **A**=Indoor/Ambient Air **SG**=Soil Gas
X1=______ **X2**=______ **X3**=______

G= Grab C=Compsite

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	TPH 8100	TOTAL METALS* (list attached)	TOTAL CYANIDE	PCB 608	~~8270~~ SIM 625 e 2/5/18				Check if chlorinated
43702-01	4NM GW	2/2/18	1040	G	GW		6		4	X	X	X	X	X				☐

QA/QC Reporting Notes:
* additional charges may appply

MA DEP MCP CAM Report? ☒ Yes ☐ No
CT DPH RCP Report? ☐ Yes ☐ No
☒ Standard ☐ No QC
☐ DQA*
☐ ASP A* ☐ ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ Tier II* ☐ Tier IV*
☐ Other:
State-specific reporting standards:

RL'S PER ATTACHED LIST (FW FOR FRESHWATER)
*TOTAL Sb, As, Cd, Cr, Cu, Fe, Pb, Hg, Ni, Se, Ag, Zn
200.8
per client req 2/5/18 e

Relinquished by:	Received by:	Date:	Time:	Temp °C
CRG	DSR	2-5-18	1010	Observed 0.8
DSR	[signature]	2/5/18	1640	Correction Factor 0
				Corrected 0.8
				IR ID # 1

☐ EDD format:
☒ E-mail to: rgoad@cmeenv.com

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☐ Iced ☒ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

Additional Resource for Selecting Sufficiently Sensitive Test Methods for RGP Notice of Intent (NOI) Sampling Requirements[1]

Table 1: Parameters, Required Minimum Levels (MLs), and Common Test Methods[2]

Parameter	Requirements	
	ML Must Be ≤	Commonly Used Test Method(s) from 40 C.F.R. Part 136 that Generally Achieves the ML Noted
. Inorganics		
mmonia	0.1 mg/L	SM 4500 B and D; 350.1
hloride	230 mg/L	SM 4110 B; 300.0
otal Residual Chlorine	50 µg/L	SM 4500-Cl G and E
otal Suspended Solids	30 mg/L	SM 2540 D
ntimony	206 µg/L	200.8 and 200.9
rsenic	FW= 10 µg/L SW= 36 µg/L	200.8 and 200.9 in FW 200.7, 200.8 and 200.9 in SW
admium	FW= 0.25 µg/L SW= 8.8 µg/L in MA SW= 9.3 µg/L in NH	200.8 in FW 200.8 and 200.9 in SW
hromium III	FW= 74 µg/L SW= 100 µg/L	200.7, 200.8 and 200.9
hromium VI	FW= 11 µg/L SW= 50 µg/L	218.6
opper	FW= 9 µg/L SW= 3.1 µg/L	200.8 and 200.9
on	FW = 1,000 µg/L	200.7 and 200.8
ead	FW= 2.5 µg/L SW= 8.1 µg/L	200.8 and 200.9
lercury	FW= 0.77 µg/L SW= 0.739 µg/L	245.1, 245.7 and 1631E
ickel	FW= 52 µg/L SW= 8.2 µg/L	200.8 and 200.9
elenium	FW= 5.0 µg/L SW= 71 µg/L	200.8 and 200.9 in FW 200.7, 200.8 and 200.9 in SW
ilver	FW= 3.2 µg/L SW= 1.9 µg/L	200.8
inc	FW= 120 µg/L SW= 81 µg/L	200.7 and 200.8
yanide	FW = 5.2 µg/L SW = 5.0 µg/L	SM 4500-CN
. Non-Halogenated Volatile Organic Compounds		
otal BTEX[3]	100 µg/L (sum of individual MLs)	624 and 1624B
enzene	5.0 µg/L	624 and 1624B
,4 Dioxane	50 µg/L	SIM
cetone	7.97 mg/L	524.2
henol	300 µg/L	420.1 and 420.4

Parameter	Requirements	
	ML Must Be ≤	Commonly Used Test Method(s) from 40 C.F.R. Part 136 that Generally Achieves the ML Noted
. Halogenated Volatile Organic Compounds		
arbon Tetrachloride	1.6 µg/L in MA 4.4 µg/L in NH	624
2 Dichlorobenzene	600 µg/L	624
3 Dichlorobenzene	320 µg/L	624
4 Dichlorobenzene	5.0 µg/L	624
otal Dichlorobenzene[4]	Not required in MA 763 µg/L in NH (sum of individual MLs)	624
1 Dichloroethane	70 µg/L	624
2 Dichloroethane	5.0 µg/L	624
1 Dichloroethylene	3.2 µg/L	624
thylene Dibromide	0.05 µg/L	SIM
Iethylene Chloride	4.6 µg/L	624
1,1 Trichloroethane	200 µg/L	624
1,2 Trichloroethane	5.0 µg/L	624
richloroethylene	5.0 µg/L	624
etrachloroethylene	3.3 µg/L in MA 5.0 µg/L in NH	624
s-1,2 Dichloroethylene	70 µg/L	624
inyl Chloride	2.0 µg/L	624
. Non-Halogenated Semi-Volatile Organic Compounds		
otal Phthalates[5]	190 µg/L in MA FW = 3.0 µg/L in NH SW = 3.4 µg/L in NH	625 and 1625B in MA 625 in NH
iethylhexyl Phthalate	2.2 µg/L in MA 5.9 µg/L in NH	625 in MA 625 and 1625B in NH
otal Group I Polycyclic Aromatic Hydrocarbons[6]	1.0 µg/L (sum of individual MLs)	SIM
enzo(a)anthracene	0.1 µg/L	SIM
enzo(a)pyrene	0.1 µg/L	SIM
enzo(b)fluoranthene	0.1 µg/L	SIM
enzo(k)fluoranthene	0.1 µg/L	SIM
hrysene	0.1 µg/L	SIM
ibenzo(a,h)anthracene	0.1 µg/L	SIM
ndeno(1,2,3-cd)pyrene	0.1 µg/L	SIM
otal Group II Polycyclic Aromatic Hydrocarbons[7]	100 µg/L (sum of individual MLs)	625
aphthalene	20 µg/L	625

Parameter	Requirements	
	ML Must Be ≤	Commonly Used Test Method(s) from 40 C.F.R. Part 136 that Generally Achieves the ML Noted
Halogenated Semi-Volatile Organic Compounds		
otal Polychlorinated Biphenyls[8]	0.5 µg/L	608
entachlorophenol[9]	1.0 µg/L	625
Fuels Parameters		
otal Petroleum Hydrocarbons	5.0 mg/L	1664A and B
hanol	0.4 mg/L	1666/1671/D3695
ethyl-tert-Butyl Ether	20 µg/L in MA 70 µg/L in NH	SIM
rt-Butyl Alcohol	120 µg/L in MA 40 µg/L in NH	1666
rt-Amyl Methyl Ether	90 µg/L in MA 140 µg/L in NH	624

Table 1 Footnotes:

[1] The minimum levels specified in this table will satisfy the sufficiently sensitive test method requirements for the purposes of sample analysis used to prepare a Notice of Intent (NOI) for coverage under the Remediation General Permit. Where less sensitive minimum levels (MLs) may be used upon authorization to discharge, these MLs will be noted in the written authorization to discharge for an individual site.

[2] The following abbreviations are used in Table 1, above:
- [a] mg/L = milligrams per liter
- [b] µg/L = micrograms per liter
- [c] FW = freshwater
- [d] SW = saltwater
- [e] SM = standard method
- [d] SIM = selected ion monitoring

[3] Total BTEX is the sum of: benzene (CAS No. 71432); toluene (CAS No. 108883); ethylbenzene (CAS No. 100-41-4); and (m,p,o) xylenes (CAS Nos. 108-88-3, 106-42-3, 95-47-6, and 1330-20-7).

[4] Total dichlorobenzene is the sum of: 1,2 dichlorobenzene (CAS No. 95-50-1); 1,3 dichlorobenzene (CAS No. 541-73-1); and 1,4 dichlorobenzene (CAS No. 106-46-7).

[5] Total Phthalates is the sum of: diethylhexyl phthalate (CAS No. 117-81-7); butyl benzyl phthalate (CAS No. 85-68-7); di-n-butyl phthalate (CAS No. 84-74-2); diethyl phthalate (CAS No. 84-66-2); dimethyl phthalate (CAS No. 131-11-3); di-n-octyl phthalate (CAS No. 117-84-0). For the diethylhexyl phthalate in NH, EPA anticipates that the applicable ML will be revised to 2.2 µg/L, once incorporated into the RGP for sites in New Hampshire.

p I PAHs is the sum of: benzo(a)anthracene (CAS No. 56-55-3); benzo(a
)-32-8); benzo(b)fluoranthene (CAS No. 205-99-2); benzo(k)fluoranthen
rysene (CAS No. 218-01); dibenzo(a,h)anthracene (CAS No. 53-70-3);
-cd)pyrene (CAS No. 193-39-5).

p II PAHs is the sum of: acenaphthene (CAS No. 83-32-9); acenaphthyle
8); anthracene (CAS No. 120-12-7); benzo(g,h,i)perylene (CAS No. 191-
(CAS No. 206-44-0); fluorene (CAS No. 86-73-7); naphthalene (CAS N
rene (CAS No. 85-01-8); pyrene (CAS No. 129-00-0).

s is the sum of the following aroclors: PCB-1016, PCB-1221, PCB-1232,
PCB-1254, and PCB-1260.

r analysis of pentachlorophenol must be as close to 1.0 µg/L as possible,
µg/L.

Batch Summary

1801596

Extractable Petroleum Hydrocarbons

1801596-BLK1
1801596-BS2
1801596-BSD2
SC43702-01 (4NMGW)

1801712

General Chemistry Parameters

1801712-BLK1
1801712-BLK2
1801712-BS1
1801712-BS2
1801712-SRM1
SC43702-01 (4NMGW)

1801761

Semivolatile Organic Compounds by GCMS

1801761-BLK1
1801761-BS1
1801761-BSD1
SC43702-01 (4NMGW)

1801762

Semivolatile Organic Compounds by GC

1801762-BLK1
1801762-BS1
1801762-BSD1
SC43702-01 (4NMGW)

418943A

Subcontracted Analyses

BZ84786-BLK
BZ84786-DUP
BZ84786-LCS
BZ84786-MS
SC43702-01 (4NMGW)

418964A

Subcontracted Analyses

BZ84827-BLK
BZ84827-DUP
BZ84827-LCS
BZ84827-MS
SC43702-01 (4NMGW)

418964B

Subcontracted Analyses

BZ84827-BLK
BZ84827-DUP
BZ84827-LCS
BZ84827-MS
SC43702-01 (4NMGW)

419000A

Subcontracted Analyses

BZ84827-BLK
BZ84827-DUP
BZ84827-LCS
BZ84827-MS
SC43702-01 (4NMGW)

S602716

Extractable Petroleum Hydrocarbons

S602716-CAL9
S602716-CALA
S602716-CALB
S602716-CALC
S602716-CALD
S602716-CALE
S602716-CALF
S602716-CALG
S602716-CALH
S602716-CALI
S602716-CALJ
S602716-CALK
S602716-CALL
S602716-CALM
S602716-ICV2
S602716-LCV2

S711062

Semivolatile Organic Compounds by GCMS

S711062-CAL1
S711062-CAL2
S711062-CAL3
S711062-CAL4
S711062-CAL5
S711062-CAL6
S711062-CAL7
S711062-CAL8
S711062-CAL9
S711062-ICV1
S711062-LCV1
S711062-LCV2
S711062-TUN1

S815859

Semivolatile Organic Compounds by GCMS

S815859-CAL1
S815859-CAL2
S815859-CAL3
S815859-CAL4
S815859-CAL5
S815859-CAL6
S815859-CAL7
S815859-CAL8
S815859-CAL9
S815859-CALA
S815859-ICV1
S815859-LCV1
S815859-LCV2
S815859-TUN1

S816480

Semivolatile Organic Compounds by GC

S816480-CAL1
S816480-CAL2
S816480-CAL3
S816480-CAL4
S816480-CAL5
S816480-CAL6
S816480-CAL7
S816480-CAL8
S816480-CAL9
S816480-CALA
S816480-CALB
S816480-CALC
S816480-CALD
S816480-CALE
S816480-CALF
S816480-CALG
S816480-CALH
S816480-CALI
S816480-CALJ
S816480-CALK
S816480-CALL
S816480-CALM
S816480-CALN
S816480-CALO
S816480-CALP
S816480-CALQ
S816480-CALR
S816480-CALS
S816480-CALT
S816480-CALU
S816480-ICV2
S816480-ICV3
S816480-ICV4
S816480-ICV5
S816480-ICV6
S816480-LCV1
S816480-LCV2
S816480-LCV3
S816480-LCV4
S816480-LCV5
S816480-LCV6

S816543

Extractable Petroleum Hydrocarbons

S816543-CCV1
S816543-CCV3
S816543-CCV5

S816687

Semivolatile Organic Compounds by GCMS

S816687-CCV1
S816687-TUN1

S816728

Semivolatile Organic Compounds by GCMS

S816728-CCV1
S816728-TUN1

S816732

Semivolatile Organic Compounds by GCMS

S816732-CCV1
S816732-TUN1

S816753

Semivolatile Organic Compounds by GC

S816753-CCV1
S816753-CCV2
S816753-IBL1
S816753-IBL2

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☑ Final Report
☐ Revised Report

Report Date:
07-Feb-18 16:41

Laboratory Report
SC43704

CMG Environmental, Inc.
67 Hall Road
Sturbridge, MA 01566
Attn: Jerry Clark

Project: 4+16 N. Main - Northbridge, MA
Project #: 2017-235

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87936
Maine # MA138
New Hampshire # 2972/2538
New Jersey # MA011
New York # 11393
Pennsylvania # 68-04426/68-02924
Rhode Island # LAO00348
USDA # P330-15-00375
Vermont # VT-11393

Authorized by:

Dawn Wojcik
Laboratory Director

Dawn E Wojcik

Eurofins Spectrum Analytical holds primary certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes. Please refer to our website for specific certification holdings in each state.
Please note that this report contains 11 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Eurofins Spectrum Analytical, Inc.

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Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

Sample Summary

Work Order: SC43704

Project: 4+16 N. Main - Northbridge, MA

Project Number: 2017-235

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SC43704-01	AP Outfall	Surface Water	02-Feb-18 11:30	05-Feb-18 16:40

CASE NARRATIVE:

Data has been reported to the RDL. This report excludes estimated concentrations detected below the RDL and above the MDL (J-Flag).

All non-detects and all results below the reporting limit are reported as "<" (less than) the reporting limit in this report.

The samples were received 0.8 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group. If method or program required MS/MSD/Dup were not performed, sufficient sample was not provided to the laboratory.

Analyses for Total Hardness, pH, and Total Residual Chlorine fall under the state of Pennsylvania code Chapter 252.6 accreditation by rule.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

E350.1

BZ84710-MS

This parameter is outside laboratory ms/msd specified recovery limits.

Ammonia as Nitrogen

SW6010C

Samples:

SC43704-01 *AP Outfall*

Present in blank, no bias suspected.

Calcium

Sample Acceptance Check Form

Client:	CMG Environmental, Inc.
Project:	4+16 N. Main - Northbridge, MA / 2017-235
Work Order:	SC43704
Sample(s) received on:	2/5/2018

The following outlines the condition of samples for the attached Chain of Custody upon receipt.

	Yes	No	N/A
Were custody seals present?	☐	☑	☐
Were custody seals intact?	☐	☐	☑
Were samples received at a temperature of ≤ 6°C?	☑	☐	☐
Were samples refrigerated upon transfer to laboratory representative?	☑	☐	☐
Were sample containers received intact?	☑	☐	☐
Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	☑	☐	☐
Were samples accompanied by a Chain of Custody document?	☑	☐	☐
Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample?	☑	☐	☐
Did sample container labels agree with Chain of Custody document?	☑	☐	☐
Were samples received within method-specific holding times?	☑	☐	☐

Summary of Hits

Lab ID: SC43704-01 **Client ID:** AP Outfall

Parameter	Result	Flag	Reporting Limit	Units	Analytical Method
Hardness (CaCO3)	24.9		0.1	mg/l	E200.7
Iron	0.337		0.010	mg/l	E200.7
Ammonia as Nitrogen	0.27		0.05	mg/l	E350.1
Calcium	7.46	Q1	0.010	mg/l	SW6010C
Magnesium	1.52		0.010	mg/l	SW6010C
Zinc	0.010		0.002	mg/l	SW6010C

Please note that because there are no reporting limits associated with hazardous waste characterizations or micro analyses, this summary does not include hits from these analyses if included in this work order.

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
AP Outfall SC43704-01	2017-235	Surface Water	02-Feb-18 11:30	05-Feb-18

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
General Chemistry Parameters													
	pH	**6.51**	pH	pH Units			1	ASTM D 1293-99B	05-Feb-18 17:30	07-Feb-18 13:11	CMB	1801685	X
Subcontracted Analyses													
*Analysis performed by Phoenix Environmental Labs, Inc. * - MACT007*													
7440-36-0	Antimony	< 0.0050		mg/l	0.0050	0.0050	5	200.8-5.4	06-Feb-18	07-Feb-18 13:25	M-CT007	418964A	
Subcontracted Analyses													
*Analysis performed by Phoenix Environmental Labs, Inc. * - MACT007*													
7439-89-6	Iron	**0.337**		mg/l	0.010	0.010	1	E200.7	"	07-Feb-18 00:43	M-CT007	418943A	
	Hardness (CaCO3)	**24.9**		mg/l	0.1	0.1	1	"	"	07-Feb-18 15:42	"	"	
Prepared by method 418950													
*Analysis performed by Phoenix Environmental Labs, Inc. * - MACT007*													
7664-41-7	Ammonia as Nitrogen	**0.27**		mg/l	0.05	0.05	1	E350.1	"	07-Feb-18 10:47	M-CT007	418950A	
Subcontracted Analyses Prepared by method 418943-													
*Analysis performed by Phoenix Environmental Labs, Inc. * - MACT007*													
7440-70-2	Calcium	**7.46**	Q1	mg/l	0.010	0.010	1	SW6010C	"	07-Feb-18 00:43	M-CT007	418943B	
7439-95-4	Magnesium	**1.52**		mg/l	0.010	0.010	1	"	"	"	"	"	
7440-66-6	Zinc	**0.010**		mg/l	0.002	0.002	1	"	"	"	"	"	
Subcontracted Analyses Prepared by method 418964-													
*Analysis performed by Phoenix Environmental Labs, Inc. * - MACT007*													
7440-38-2	Arsenic	< 0.0050		mg/l	0.0050	0.0050	5	SW6020B	"	07-Feb-18 13:25	M-CT007	418964B	
7440-43-9	Cadmium	< 0.0010		mg/l	0.0010	0.0010	5	"	"	"	"	"	
7440-47-3	Chromium	< 0.010		mg/l	0.010	0.010	5	"	"	"	"	"	
7440-50-8	Copper	< 0.025		mg/l	0.025	0.025	5	"	"	"	"	"	
7439-92-1	Lead	< 0.0020		mg/l	0.0020	0.0020	5	"	"	"	"	"	
7782-49-2	Selenium	< 0.010		mg/l	0.010	0.010	5	"	"	"	"	"	
7440-02-0	Nickel	< 0.0025		mg/l	0.0025	0.0025	5	"	"	07-Feb-18 15:19	"	"	
7440-22-4	Silver	< 0.0010		mg/l	0.0010	0.0010	5	"	"	"	"	"	
Prepared by method 419000-													
*Analysis performed by Phoenix Environmental Labs, Inc. * - MACT007*													
7439-97-6	Mercury	< 0.0002		mg/l	0.0002	0.0002	1	SW7470A	07-Feb-18	07-Feb-18 11:54	M-CT007	419000A	

General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
ASTM D 1293-99B										
Batch 1801685 - General Preparation										
Duplicate (1801685-DUP1)			**Source: SC43704-01**			Prepared: 05-Feb-18 Analyzed: 07-Feb-18				
pH	**6.51**		pH Units			6.51			0	5
Reference (1801685-SRM1)						Prepared: 05-Feb-18 Analyzed: 07-Feb-18				
pH	**6.02**		pH Units		6.00		100	97.5-102.5		
Reference (1801685-SRM2)						Prepared: 05-Feb-18 Analyzed: 07-Feb-18				
pH	**6.02**		pH Units		6.00		100	97.5-102.5		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
200.8-5.4										
Batch 418964A - 418964-20										
BLK (BZ84827-BLK)					Prepared: 06-Feb-18 Analyzed: 07-Feb-18					
Copper	< 0.025		mg/l	0.025				-		
Nickel	< 0.0050		mg/l	0.0050				-		
Lead	< 0.0025		mg/l	0.0025				-		
Silver	< 0.0025		mg/l	0.0025				-		
Chromium	< 0.010		mg/l	0.010				-		
Cadmium	< 0.0005		mg/l	0.0005				-		
Arsenic	< 0.0025		mg/l	0.0025				-		
Selenium	< 0.005		mg/l	0.005				-		
Antimony	< 0.0020		mg/l	0.0020				-		
DUP (BZ84827-DUP)			**Source: SC43704-01**		Prepared: 06-Feb-18 Analyzed: 07-Feb-18					
Lead	< 0.0025		mg/l	0.0025				-	NC	20
Silver	< 0.0025		mg/l	0.0025				-	NC	20
Nickel	< 0.0050		mg/l	0.0050				-	NC	20
Selenium	< 0.005		mg/l	0.005				-	NC	20
Copper	< 0.025		mg/l	0.025				-	NC	20
Chromium	< 0.010		mg/l	0.010				-	NC	20
Cadmium	< 0.0005		mg/l	0.0005				-	NC	20
Arsenic	< 0.0025		mg/l	0.0025				-	NC	20
Antimony	< 0.0020		mg/l	0.0020		BRL		-	NC	20
LCS (BZ84827-LCS)					Prepared: 06-Feb-18 Analyzed: 07-Feb-18					
Chromium	**0.0517**		mg/l	0.010	0.05		103	75-125		20
Silver	**0.0497**		mg/l	0.0025	0.05		99.4	75-125		20
Nickel	**0.0526**		mg/l	0.0050	0.05		105	75-125		20
Selenium	**0.0513**		mg/l	0.005	0.05		103	75-125		20
Lead	**0.0489**		mg/l	0.0025	0.05		97.8	75-125		20
Cadmium	**0.0511**		mg/l	0.0005	0.05		102	75-125		20
Arsenic	**0.0483**		mg/l	0.0025	0.05		96.6	75-125		20
Copper	**0.0505**		mg/l	0.025	0.05		101	75-125		20
Antimony	**0.0539**		mg/l	0.0020	0.05		108	75-125		20
MS (BZ84827-MS)			**Source: SC43704-01**		Prepared: 06-Feb-18 Analyzed: 07-Feb-18					
Nickel	**0.0489**		mg/l	0.0050	0.05		95.8	75-125		20
Silver	**0.0491**		mg/l	0.0025	0.05		98.2	75-125		20
Selenium	**0.0501**		mg/l	0.005	0.05		100	75-125		20
Lead	**0.0485**		mg/l	0.0025	0.05		95.6	75-125		20
Chromium	**0.0495**		mg/l	0.010	0.05		96.2	75-125		20
Cadmium	**0.0495**		mg/l	0.0005	0.05		99.0	75-125		20
Arsenic	**0.0479**		mg/l	0.0025	0.05		97.0	75-125		20
Copper	**0.0532**		mg/l	0.025	0.05		98.6	75-125		20
Antimony	**0.0532**		mg/l	0.0020	0.05	BRL	106	75-125		20
E200.7										
Batch 418943A - 418943										
BLK (BZ84786-BLK)					Prepared: 06-Feb-18 Analyzed: 07-Feb-18					
Lead	< 0.002		mg/l	0.002				-		
Calcium	**0.015**		mg/l	0.010				-		
Magnesium	< 0.010		mg/l	0.010				-		
Zinc	< 0.002		mg/l	0.002				-		
Iron	< 0.010		mg/l	0.010				-		
DUP (BZ84786-DUP)			**Source: BZ84786**		Prepared: 06-Feb-18 Analyzed: 07-Feb-18					
Calcium	**66.2**		mg/l	0.010				-	0.3	20

Subcontracted Analyses - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
E200.7										
Batch 418943A - 418943										
DUP (BZ84786-DUP)			**Source: BZ84786**			Prepared: 06-Feb-18 Analyzed: 07-Feb-18				
Lead	< 0.002		mg/l	0.002				-	NC	20
Magnesium	**22.1**		mg/l	0.010				-	0.9	20
Zinc	**0.055**		mg/l	0.002				-	1.8	20
Iron	**0.033**		mg/l	0.010				-	NC	20
LCS (BZ84786-LCS)						Prepared: 06-Feb-18 Analyzed: 07-Feb-18				
Magnesium	**0.9800**		mg/l	0.010	1		98.0	75-125		20
Calcium	**1.018**		mg/l	0.010	1		102	75-125		20
Zinc	**0.9523**		mg/l	0.002	1		95.2	75-125		20
Lead	**1.881**		mg/l	0.002	2		94.1	75-125		20
Iron	**0.9710**		mg/l	0.010	1		97.1	75-125		20
MS (BZ84786-MS)			**Source: BZ84786**			Prepared: 06-Feb-18 Analyzed: 07-Feb-18				
Zinc	**1.024**		mg/l	0.002	1		97.0	75-125		20
Calcium	**64.90**		mg/l	0.010	1		NC	75-125		20
Lead	**1.841**		mg/l	0.002	2		92.1	75-125		20
Magnesium	**22.19**		mg/l	0.010	1		NC	75-125		20
Iron	**1.004**		mg/l	0.010	1		97.1	75-125		20
E350.1										
Batch 418950A - 418950										
BLK (BZ84710-BLK)						Prepared: 06-Feb-18 Analyzed: 07-Feb-18				
Ammonia as Nitrogen	< 0.05		mg/l	0.05				-		
DUP (BZ84710-DUP)			**Source: BZ84710**			Prepared: 06-Feb-18 Analyzed: 07-Feb-18				
Ammonia as Nitrogen	**0.11**		mg/l	0.05				-	NC	20
LCS (BZ84710-LCS)						Prepared: 06-Feb-18 Analyzed: 07-Feb-18				
Ammonia as Nitrogen	**3.450**		mg/l	0.05	3.74		92.2	90-110		20
MS (BZ84710-MS)			**Source: BZ84710**			Prepared: 06-Feb-18 Analyzed: 07-Feb-18				
Ammonia as Nitrogen	**1.840**	m	mg/l	0.05	2		85.9	90-110		20
SW6020B										
Batch 418964B - 418964-										
BLK (BZ84827-BLK)						Prepared: 06-Feb-18 Analyzed: 07-Feb-18				
Antimony	< 0.0020		mg/l	0.0020				-		
Lead	< 0.0025		mg/l	0.0025				-		
Silver	< 0.0025		mg/l	0.0025				-		
Nickel	< 0.0050		mg/l	0.0050				-		
Selenium	< 0.005		mg/l	0.005				-		
Copper	< 0.025		mg/l	0.025				-		
Chromium	< 0.010		mg/l	0.010				-		
Arsenic	< 0.0025		mg/l	0.0025				-		
Cadmium	< 0.0005		mg/l	0.0005				-		
DUP (BZ84827-DUP)			**Source: SC43704-01**			Prepared: 06-Feb-18 Analyzed: 07-Feb-18				
Antimony	< 0.0020		mg/l	0.0020				-	NC	20
Copper	< 0.025		mg/l	0.025		BRL		-	NC	20
Nickel	< 0.0050		mg/l	0.0050		BRL		-	NC	20
Silver	< 0.0025		mg/l	0.0025		BRL		-	NC	20
Lead	< 0.0025		mg/l	0.0025		BRL		-	NC	20
Cadmium	< 0.0005		mg/l	0.0005		BRL		-	NC	20
Arsenic	< 0.0025		mg/l	0.0025		BRL		-	NC	20
Selenium	< 0.005		mg/l	0.005		BRL		-	NC	20
Chromium	< 0.010		mg/l	0.010		BRL		-	NC	20
LCS (BZ84827-LCS)						Prepared: 06-Feb-18 Analyzed: 07-Feb-18				

Subcontracted Analyses - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
SW6020B										
Batch 418964B - 418964-										
LCS (BZ84827-LCS)					Prepared: 06-Feb-18 Analyzed: 07-Feb-18					
Antimony	**0.0539**		mg/l	0.0020	0.05		108	75-125		20
Silver	**0.0497**		mg/l	0.0025	0.05		99.4	75-125		20
Arsenic	**0.0483**		mg/l	0.0025	0.05		96.6	75-125		20
Cadmium	**0.0511**		mg/l	0.0005	0.05		102	75-125		20
Chromium	**0.0517**		mg/l	0.010	0.05		103	75-125		20
Copper	**0.0505**		mg/l	0.025	0.05		101	75-125		20
Lead	**0.0489**		mg/l	0.0025	0.05		97.8	75-125		20
Selenium	**0.0513**		mg/l	0.005	0.05		103	75-125		20
Nickel	**0.0526**		mg/l	0.0050	0.05		105	75-125		20
MS (BZ84827-MS)			**Source: SC43704-01**		Prepared: 06-Feb-18 Analyzed: 07-Feb-18					
Antimony	**0.0532**		mg/l	0.0020	0.05		106	75-125		20
Cadmium	**0.0495**		mg/l	0.0005	0.05	BRL	99.0	75-125		20
Chromium	**0.0495**		mg/l	0.010	0.05	BRL	96.2	75-125		20
Copper	**0.0532**		mg/l	0.025	0.05	BRL	98.6	75-125		20
Lead	**0.0485**		mg/l	0.0025	0.05	BRL	95.6	75-125		20
Selenium	**0.0501**		mg/l	0.005	0.05	BRL	100	75-125		20
Nickel	**0.0489**		mg/l	0.0050	0.05	BRL	95.8	75-125		20
Silver	**0.0491**		mg/l	0.0025	0.05	BRL	98.2	75-125		20
Arsenic	**0.0479**		mg/l	0.0025	0.05	BRL	97.0	75-125		20
SW7470A										
Batch 419000A - 419000-										
BLK (BZ84827-BLK)					Prepared & Analyzed: 07-Feb-18					
Mercury	< 0.0002		mg/l	0.0002				-		
DUP (BZ84827-DUP)			**Source: SC43704-01**		Prepared & Analyzed: 07-Feb-18					
Mercury	< 0.0002		mg/l	0.0002		BRL		-	NC	30
LCS (BZ84827-LCS)					Prepared & Analyzed: 07-Feb-18					
Mercury	**0.0022**		mg/l	0.0002	0.0025		86.9	75-125		30
MS (BZ84827-MS)			**Source: SC43704-01**		Prepared & Analyzed: 07-Feb-18					
Mercury	**0.0020**		mg/l	0.0002	0.0025	BRL	81.5	75-125		30

Notes and Definitions

m	This parameter is outside laboratory ms/msd specified recovery limits.
Q1	Present in blank, no bias suspected.
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference
pH	The method for pH does not stipulate a specific holding time other than to state that the samples should be analyzed as soon as possible. For aqueous samples the 40 CFR 136 specifies a holding time of 15 minutes from sampling to analysis. Therefore all aqueous pH samples not analyzed in the field are considered out of hold time at the time of sample receipt. All soil samples are analyzed as soon as possible after sample receipt.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic intervals. Concentrations, intervals, and criteria are method specific.

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CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:

☐ Standard TAT - 7 to 10 business days

☒ Rush TAT - Date Needed: 2/7/18

All TAT's subject to laboratory approval
Min. 24-hr notification needed for rushes
*Samples disposed after 30 days unless otherwise instructed.

RR# 419125

Report To: CMG ENVIRONMENTAL INC
67 HALL RD
STURBRIDGE MA 01566

Telephone #: 774-241-0901
Project Mgr: J. CRANK

Invoice To: SAME

P.O No.: _____ Quote #: _____

Project No: 2017-235
Site Name: 42-16 NM
Location: WHITINSVILLE (NORTHBRIDGE) State: MA
Sampler(s): R. GUAD

F=Field Filtered 1=Na_2S2O_3 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid
7=CH3OH 8=$NaHSO_4$ 9=Deionized Water 10=H_3PO_4 11=_____ 12=_____

DW=Drinking Water GW=Groundwater SW=Surface Water WW=Waste Water
O=Oil SO=Soil SL=Sludge A=Indoor/Ambient Air SG=Soil Gas
X1=_____ X2=_____ X3=_____

G= Grab C=Compsite

List Preservative Code below: 4 3 - - | Analysis: TOTAL METALS (LIST ATTACHED), SO4 300, AMMONIA 4N, pH, HARDNESS

Lab ID:	Sample ID:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Check if chlorinated
437044	AP OUTFALL	2/2/18	1130	CRG	SW		2		4	☐

QA/QC Reporting Notes:
* additional charges may apply

MA DEP MCP CAM Report? ☒ Yes ☐ No
CT DPH RCP Report? ☐ Yes ☐ No
☒ Standard ☐ No QC
☐ DQA*
☐ ASP A* ☐ ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ Tier II* ☐ Tier IV*
☐ Other: _____
State-specific reporting standards:

RL's PER ATTACHED LIST FOR METALS

TOTAL Sb, As, Cd, Cr, Cu, Fe, Pb, Hg, Ni, Se, Ag, Zn 200 series analysis

Relinquished by:	Received by:	Date:	Time:	Temp °C
CRG	DSR	2-5-18	1010	Observed 0.8
DSR		2/5/18	1640	Correction Factor 0
				Corrected 0.8
				IR ID # 1

☐ EDD format:
☒ E-mail to: rguad@cmgenv.com

Condition upon receipt: Custody Seals: ☐ Present ☐ Intact ☐ Broken
☐ Ambient ☐ Iced ☒ Refrigerated ☐ DI VOA Frozen ☐ Soil Jar Frozen

Additional Resource for Selecting Sufficiently Sensitive Test Methods for RGP Notice of Intent (NOI) Sampling Requirements[1]

Table 1: Parameters, Required Minimum Levels (MLs), and Common Test Methods[2]

Parameter	Requirements	
	ML Must Be ≤	Commonly Used Test Method(s) from 40 C.F.R. Part 136 that Generally Achieves the ML Noted
A. Inorganics		
Ammonia	0.1 mg/L	SM 4500 B and D; 350.1
Chloride	230 mg/L	SM 4110 B; 300.0
Total Residual Chlorine	50 µg/L	SM 4500-Cl G and E
Total Suspended Solids	30 mg/L	SM 2540 D
Antimony	206 µg/L	200.8 and 200.9
Arsenic	FW= 10 µg/L SW= 36 µg/L	200.8 and 200.9 in FW 200.7, 200.8 and 200.9 in SW
Cadmium	FW= 0.25 µg/L SW= 8.8 µg/L in MA SW= 9.3 µg/L in NH	200.8 in FW 200.8 and 200.9 in SW
Chromium III	FW= 74 µg/L SW= 100 µg/L	200.7, 200.8 and 200.9
Chromium VI	FW= 11 µg/L SW= 50 µg/L	218.6
Copper	FW= 9 µg/L SW= 3.1 µg/L	200.8 and 200.9
Iron	FW = 1,000 µg/L	200.7 and 200.8
Lead	FW= 2.5 µg/L SW= 8.1 µg/L	200.8 and 200.9
Mercury	FW= 0.77 µg/L SW= 0.739 µg/L	245.1, 245.7 and 1631E
Nickel	FW= 52 µg/L SW= 8.2 µg/L	200.8 and 200.9
Selenium	FW= 5.0 µg/L SW= 71 µg/L	200.8 and 200.9 in FW 200.7, 200.8 and 200.9 in SW
Silver	FW= 3.2 µg/L SW= 1.9 µg/L	200.8
Zinc	FW= 120 µg/L SW= 81 µg/L	200.7 and 200.8
Cyanide	FW = 5.2 µg/L SW = 5.0 µg/L	SM 4500-CN
B. Non-Halogenated Volatile Organic Compounds		
Total BTEX[3]	100 µg/L (sum of individual MLs)	624 and 1624B
Benzene	5.0 µg/L	624 and 1624B
1,4 Dioxane	50 µg/L	SIM
Acetone	7.97 mg/L	524.2
Phenol	300 µg/L	420.1 and 420.4

Batch Summary

1801685

General Chemistry Parameters

1801685-DUP1
1801685-SRM1
1801685-SRM2
SC43704-01 (AP Outfall)

418943A

Subcontracted Analyses

BZ84786-BLK
BZ84786-DUP
BZ84786-LCS
BZ84786-MS
SC43704-01 (AP Outfall)

418943B

Subcontracted Analyses

BZ84786-BLK
BZ84786-DUP
BZ84786-LCS
BZ84786-MS
SC43704-01 (AP Outfall)

418950A

Subcontracted Analyses

BZ84710-BLK
BZ84710-DUP
BZ84710-LCS
BZ84710-MS
SC43704-01 (AP Outfall)

418964A

Subcontracted Analyses

BZ84827-BLK
BZ84827-DUP
BZ84827-LCS
BZ84827-MS
SC43704-01 (AP Outfall)

418964B

Subcontracted Analyses

BZ84827-BLK
BZ84827-DUP
BZ84827-LCS
BZ84827-MS
SC43704-01 (AP Outfall)

419000A

Subcontracted Analyses

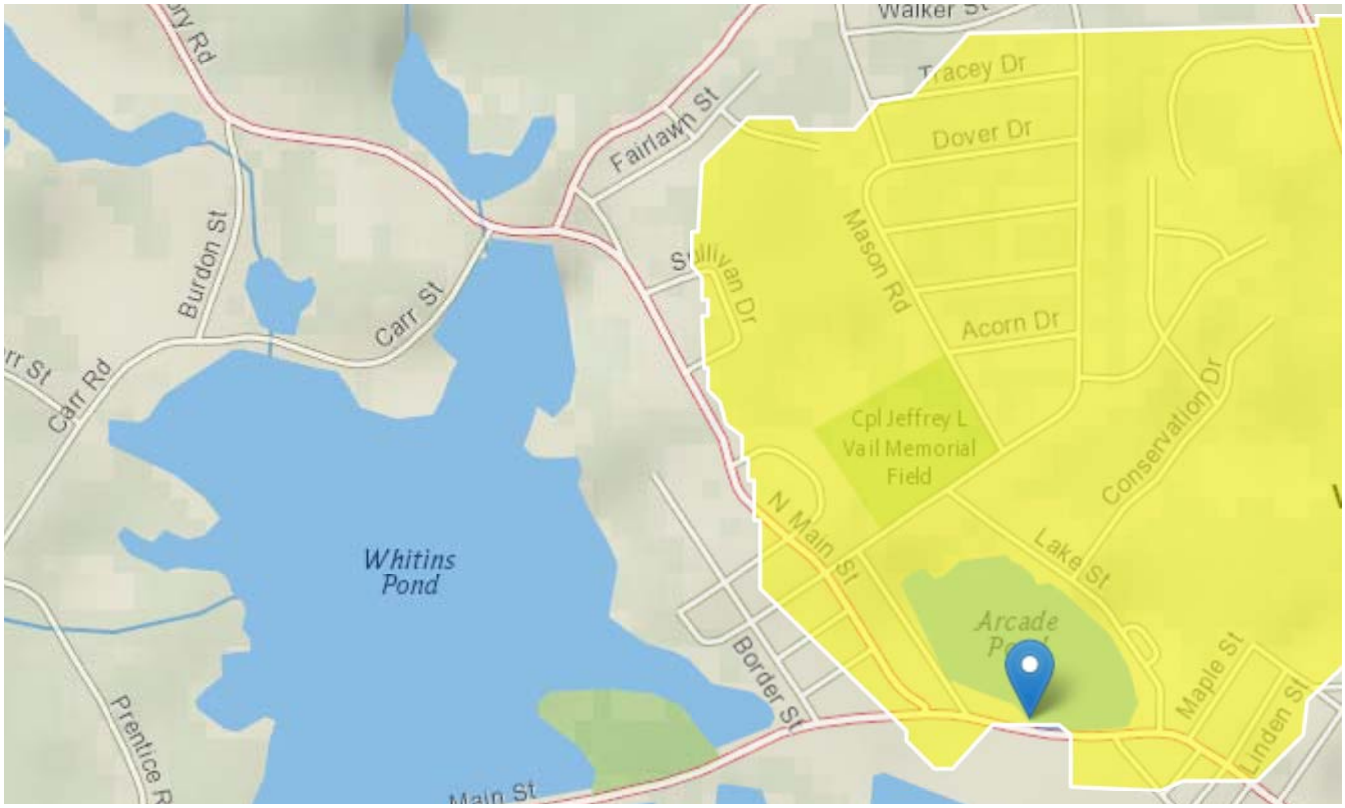
BZ84827-BLK
BZ84827-DUP
BZ84827-LCS
BZ84827-MS
SC43704-01 (AP Outfall)

ATTACHMENT B

STREAMSTATS REPORT FOR ARCADE POND OUTFALL

StreamStats Report for Arcade Pond Outfall

Region ID: MA
Workspace ID: MA20180201181401357000
Clicked Point (Latitude, Longitude): 42.11220, -71.67708
Time: 2018-02-01 13:14:16 -0500



Whitinsville, MA - Arcade Pond at its discharge point (flow south to Mumford River)

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.55	square miles
BSLDEM250	Mean basin slope computed from 1:250K DEM	3.216	percent
DRFTPERSTR	Area of stratified drift per unit of stream length	0.22	square mile per mile
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless

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

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.55	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	3.216	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0.22	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

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

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

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

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0455	ft^3/s
7 Day 10 Year Low Flow	0.0189	ft^3/s

Low-Flow Statistics Citations

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

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

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.55	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	3.216	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0.22	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

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

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

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

Statistic	Value	Unit
August 50 Percent Duration	0.115	ft^3/s

August Flow-Duration Statistics Citations

Ries, K.G., III,2000, Methods for estimating low-flow statistics for Massachusetts streams: U.S. Geological Survey Water

Resources Investigations Report 00-4135, 81 p. (http://pubs.usgs.gov/wri/wri004135/)

ATTACHMENT C

WATER QUALITY-BASED EFFLUENT LIMIT CALCULATIONS

Enter number values in green boxes below

Enter values in the units specified

↓

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

Enter a dilution factor, if other than zero

↓

0

Enter values in the units specified

↓

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

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

↓

6.51	pH in **Standard Units**
5	Temperature in **°C**
0.27	Ammonia in **mg/L**
25	Hardness in **mg/L** $CaCO_3$
0	Salinity in **ppt**
0	Antimony in **µg/L**
0	Arsenic in **µg/L**
0	Cadmium in **µg/L**
0	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
0	Copper in **µg/L**
337	Iron in **µg/L**
0	Lead in **µg/L**
0	Mercury in **µg/L**
0	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
10	Zinc in **µg/L**

Notes:

Freshwater: Q_R equal to the 7Q10; enter alternate Q_R if approved by the State; enter 0 if no dilution factor approved

Saltwater (estuarine and marine): enter Q_R if approved by the State; enter 0 if no entry

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

Only if approved by State as the entry for Q_R; leave 0 if no entry

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

Leave 0 if no entry

Freshwater only

pH, temperature, and ammonia required for all discharges

Hardness required for freshwater

Salinity required for saltwater (estuarine and marine)

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

Enter 0 if non-detect or testing not required

Enter **influent** concentrations in the units specified

if >1 sample, enter maximum

if >10 samples, may enter 95th percentile

Enter 0 if non-detect or testing not required

↓

0	TRC in **µg/L**
0.82	Ammonia in **mg/L**
0	Antimony in **µg/L**
1800	Arsenic in **µg/L**
0	Cadmium in **µg/L**
2500	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
6080	Copper in **µg/L**
2420000	Iron in **µg/L**
22000	Lead in **µg/L**
29.9	Mercury in **µg/L**
1780	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
23700	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**
0.707	Benzo(a)anthracene in **µg/L**
0.502	Benzo(a)pyrene in **µg/L**
0.447	Benzo(b)fluoranthene in **µg/L**
0.412	Benzo(k)fluoranthene in **µg/L**
0.692	Chrysene in **µg/L**
0.086	Dibenzo(a,h)anthracene in **µg/L**
0.294	Indeno(1,2,3-cd)pyrene in **µg/L**
0	Methyl-tert butyl ether in **µg/L**

I. Dilution Factor Calculation Method

A. 7Q10

Refer to Appendix V for determining critical low flow; must be approved by State before use in calculations.

B. Dilution Factor

Calculated as follows:

$$Df = \frac{Q_R + Q_P}{Q_P}$$

Q_R = 7Q10 in MGD

Q_P = Discharge flow, in MGD

II. Effluent Limitation Calculation Method

A. Calculate Water Quality Criterion:

Step 1. Downstream hardness, calculated as follows:

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

C_r = Downstream hardness in mg/L

Q_d = Discharge flow in MGD

C_d = Discharge hardness in mg/L

Q_s = Upstream flow (7Q10) in MGD

C_s = Upstream (receiving water) hardness in mg/L

Q_r = Downstream receiving water flow in MGD

Step 2. Total recoverable water quality criteria for hardness-dependent metals, calculated as follows:

Total Recoverable Criteria = $\exp\{m_c [\ln(h)] + b_c\}$

m_c = Pollutant-specific coefficient (m_a for silver)

b_c = Pollutant-specific coefficient (b_a for silver)

ln = Natural logarithm

h = Hardness calculated in Step 1

Step 3. Total recoverable water quality criteria for non-hardness-dependent metals, calculated as follows:

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

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 µg/L
Q_d = Discharge flow in MGD
C_d = WQBEL in µg/L
Q_s = Upstream flow (7Q10) in MGD
C_s = Ustream (receiving water) concentration in µg/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 µg/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 are 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 sampled in or not detected 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.

7Q10 Dilution (1.2)

Dilution Factor	1.2					
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	**13**	µg/L	50	µg/L
Total Suspended Solids	**30**	mg/L	---			
Antimony	**206**	µg/L	747	µg/L		
Arsenic	104	µg/L	**12**	µg/L		
Cadmium	**10.2**	µg/L	0.2886	µg/L		
Chromium III	323	µg/L	**91.0**	µg/L		
Chromium VI	**323**	µg/L	13.3	µg/L		
Copper	242	µg/L	**9.8**	µg/L		
Iron	5000	µg/L	**1111**	µg/L		
Lead	160	µg/L	**3.18**	µg/L		
Mercury	**0.739**	µg/L	1.06	µg/L		
Nickel	1450	µg/L	**54.9**	µg/L		
Selenium	**235.8**	µg/L	5.8	µg/L		
Silver	**35.1**	µg/L	3.6	µg/L		
Zinc	420	µg/L	**124.5**	µg/L		
Cyanide	**178**	mg/L	6.1	µg/L	---	µg/L
B. Non-Halogenated VOCs						
Total BTEX	**100**	µg/L	---			
Benzene	**5.0**	µg/L	---			
1,4 Dioxane	**200**	µg/L	---			
Acetone	**7970**	µg/L	---			
Phenol	**1,080**	µg/L	350	µg/L		
C. Halogenated VOCs						
Carbon Tetrachloride	**4.4**	µg/L	1.9	µg/L		
1,2 Dichlorobenzene	**600**	µg/L	---			
1,3 Dichlorobenzene	**320**	µg/L	---			
1,4 Dichlorobenzene	**5.0**	µg/L	---			
Total dichlorobenzene	**---**	µg/L	---			
1,1 Dichloroethane	**70**	µg/L	---			
1,2 Dichloroethane	**5.0**	µg/L	---			
1,1 Dichloroethylene	**3.2**	µg/L	---			
Ethylene Dibromide	**0.05**	µg/L	---			
Methylene Chloride	**4.6**	µg/L	---			
1,1,1 Trichloroethane	**200**	µg/L	---			
1,1,2 Trichloroethane	**5.0**	µg/L	---			
Trichloroethylene	**5.0**	µg/L	---			
Tetrachloroethylene	**5.0**	µg/L	3.9	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	2.6	µg/L		
Total Group I Polycyclic Aromatic Hydrocarbons	**1.0**	µg/L	---			
Benzo(a)anthracene	1.0	µg/L	**0.0044**	µg/L	0.1	µg/L
Benzo(a)pyrene	1.0	µg/L	**0.0044**	µg/L	0.1	µg/L
Benzo(b)fluoranthene	1.0	µg/L	**0.0044**	µg/L	0.1	µg/L
Benzo(k)fluoranthene	1.0	µg/L	**0.0044**	µg/L	0.1	µg/L
Chrysene	1.0	µg/L	**0.0044**	µg/L	0.1	µg/L
Dibenzo(a,h)anthracene	1.0	µg/L	**0.0044**	µg/L	0.1	µg/L
Indeno(1,2,3-cd)pyrene	1.0	µg/L	**0.0044**	µg/L	0.1	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	23	µg/L		
tert-Butyl Alcohol	**120**	µg/L	---			
tert-Amyl Methyl Ether	**90**	µg/L	---			

ATTACHMENT D

WATER TREATMENT MEDIA INFORMATION

Applied Polymer Systems

519 Industrial Drive, Woodstock, GA 30189
www.siltstop.com
Phone: 678-494-5998
Toll-free: 866-200-9868
Fax: 678-494-5298

APS 700 Series Floc Logs®

Polyacrylamide Sediment and Turbidity Control Applicator Logs

APS 700 Series Floc Logs are a group of soil-specific tailored log-blocks that contain blends of water treatment components and polyacrylamide co-polymer for water clarification. They reduce and prevent fine particles and colloidal clays from suspension in stormwater. There are several types of Floc Logs designed to treat most water and soil types. Contact Applied Polymer Systems, Inc. or your local distributor for free testing and site-specific application information.

Primary Applications

- Mine tailings and waste pile ditches
- Stormwater drainage from construction and building sites
- Road and highway construction runoff ditches
- Ditch and treatment system placement for all forms of highly turbid waters (less than 4% solids)
- Dredging operations as a flocculent

Features and Benefits

- Removes solubilized soils and clay from water
- Prevents colloidal solutions in water within ditch systems
- Binds cationic metals within water, reducing solubilization
- Binds pesticides and fertilizers within runoff water
- Reduces operational and cleanup costs
- Reduces environmental risks and helps meet compliance

Specifications / Compliances

- ANSI/NSF Standard 60 Drinking water treatment chemical additives
- 48h or 96h Acute Toxicity Tests (*D. magna* or *O. mykiss*)
- 7 Day Chronic Toxicity Tests *(P. promealas* or *C. dubia*

Packaging

APS 700 Series Floc Logs are packaged in boxes of four (4)

Technical Information

Appearance - semi-solid block
Biodegradable internal coconut skeleton
Percent Moisture - 40% maximum
pH 0.5% Solution - 6-8
Shelf Life – up to 5 years when stored out of UV rays

Applied Polymer Systems

519 Industrial Drive, Woodstock, GA 30189
www.siltstop.com
Phone: 678-494-5998
Toll-free: 866-200-9868
Fax: 678-494-5298

Placement

Floc Logs are designed for placement within ditches averaging three feet wide by two feet deep. Floc log placement is based on gallon per minute flow rates. Note: actual GPM or dosage will vary based on site criteria and soil/water testing.

Directions for Use

(Water and Floc Log Mixing is Very Important!)

APS 700 Series Floc Logs should be placed within the upper quarter to half of a *stabilized* ditch system or as close as possible to active earth moving activities. Floc Logs have built in ropes with attachment loops which can be looped over stakes to ensure they remain where placed. Mixing is key! If the flow rate is too slow, adding sand bags, cinder blocks, etc., can create the turbulence required for proper mixing. Floc Logs are designed to treat dirty water, not liquid mud; when the water contains heavy solids (exceeding 4%), it will be necessary to create a sediment or grit pit to let the heavy solids settle before treating the water.

Floc Logs must not be placed in areas where heavy erosion would result in the Floc Logs becoming buried. Where there is heavy sedimentation, maintenance will be required.

APS 700 Series Floc Logs can easily be moved to different locations as site conditions change. Water quality will be improved with the addition of a dispersion field or soft armor covered ditch checks below the Floc Log(s) to collect flocculated particulate. Construction of mixing weirs may be required in areas where short ditch lines, swelling clays, heavy particle concentrations, or steep slopes may be encountered.

Cleanup:

Latex or rubber gloves are recommended for handling during usage. Use soap and water to wash hands after handling.

Precautions / Limitations

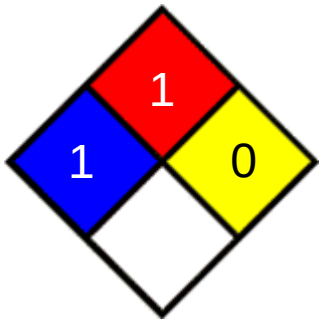
- APS 700 Series Floc Logs are extremely slippery when wet.
- Clean up spills quickly. Do not use water unless necessary as extremely slippery conditions will result and if water is necessary, use pressure washer.
- APS Floc Log will remain viable for up to 5 years when stored out of UV rays.
- APS 700 Series Floc Logs have been specifically tailored to specific water and soil types and samples must be tested. Testing is necessary and is free.
- For product information, treatment system design assistance, or performance issues, contact Applied Polymer Systems.


FLOG LOG

SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY INFORMATION			
PRODUCT TYPE:	Ion Exchange resin, Strong acid cation		
PRODUCT NAME:	C-211 family, including C-211, C-211 XRR, C-211 UPS, C-211 C, C-211 PSMB, and C-211PSMBC		
COMPANY ID:	Evoqua Water Technologies LLC 181 Thorn Hill Drive, Warrendale, PA 15086		
TELEPHONE NUMBER:	**INFORMATION:**	**CORPORATE**	866.926.8420
	MEDICAL EMERGENCY:	**CHEMTREC**	800.424.9300
	TRANSPORTATION EMERGENCY:	**CHEMTREC**	800.424.9300
DATE PREPARED:	May 8, 2015	**REVISION:** 0	

SECTION 2: HAZARD(S) IDENTIFICATION

HMIS RATINGS		NFPA RATINGS	GUIDE
HEALTH	**1**		4 – EXTREME/SEVERE 3 – HIGH/SERIOUS 2 – MODERATE 1 - SLIGHT 0 – MINIMUM ~~W~~ – WATER REACTIVE OX - OXIDIZER
FLAMMABILITY	**1**		
PHYSICAL HAZARD	**0**		
PERSONAL PROTECTION	**E**		

PICTOGRAM	SIGNAL WORD	HAZARD STATEMENT
	Warning	Causes serious eye irritation.

PRECAUTIONARY STATEMENT(S)	
PREVENTION	Wear eye protection/ face protection.
RESPONSE	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
STORAGE	Not applicable.

OTHER HAZARDS
NONE

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

PERCENT BY WEIGHT	COMMON NAME (Ingredient / Component)	CAS NO.	IMPURITIES
35-65%	Sulfonated polymer of styrene, ethylstyrene and divinylbenzene in	69011-22-9	NONE

	the sodium form		
35-65%	Water	7732-18-5	NONE

SECTION 4: FIRST-AID MEASURES

NECESSARY FIRST AID INSTRUCTIONS

INHALATION FIRST AID	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
SKIN CONTACT FIRST AID	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
EYE CONTACT FIRST AID	No known significant effects or critical hazards.
INGESTION FIRST AID:	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

DESCRIPTION OF MOST IMPORTANT SYMPTOMS

No specific data

RECOMMENDATIONS FOR IMMEDIATE MEDICAL CARE

No known significant effects or critical hazards

SECTION 5: FIRE-FIGHTING MEASURES

SUITABLE EXTINGUISHING MEDIA	Water spray (fog), foam or dry chemical.
UNSUITABLE EXTINGUISHING MEDIA	None known.
SPECIFIC HAZARDS	No specific fire or explosion hazard. Decomposition products may include the following: carbon dioxide, carbon monoxide, metal oxide/oxides
PERSONAL PROTECTIVE EQUIPMENT	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

PERSONAL PRECAUTIONS	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment. Hazard of slipping on spilled product.
ENVIRONMENTAL PRECAUTIONS	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

CONTAINMENT AND CLEAN-UP	Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal. Prevent entry into sewers, water courses, basements or confined areas.
OTHER INFORMATION	NONE

SECTION 7: HANDLING AND STORAGE	
PRECAUTIONS FOR SAFE HANDLING	Remove contaminated clothing and protective equipment before entering eating areas. Workers should wash hands and face before eating, drinking and smoking. Put on appropriate personal protection equipment. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed.
CONDITIONS FOR SAFE STORAGE	Store between the following temperatures: -20 to 40°C (-4 to 104°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Empty containers or liners may retain some product residues. It is recommended to store ion exchange resins at temperatures above the freezing point of water. If the resin should become frozen, the resin should not be mechanically handled and should be left to thaw out gradually at ambient temperature. It must be completely thawed before handling or use. No attempt should be made to accelerate the thawing process.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION			
ENGINEERING CONTROLS	Good general ventilation should be sufficient to control worker exposure to airborne contaminants.		
RESPIRATORY PROTECTION	Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.		
SKIN PROTECTION	Wear suitable protective clothing and gloves. Suitable protective footwear.		
EYE/FACE PROTECTION	If contact with product is possible, wear safety glasses with side shields.		
EXPOSURE LIMITS/GUIDELINES	No exposure limit value known.		
	RESULT	**OSHA 8 HR** mg/m^3	**ACGIH TLV 8 HR** mg/m^3
PARTICULATES NOT OTHERWISE REGULATED (PNOR)	N/A		
PARTICULATES NOT OTHERWISE CLASSIFIED (PNOC)	N/A		

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES			
COLOR	Brown	**MOLECULAR WEIGHT**	Not available.
ODOR	Translucent	**ODOR THERSHOLD**	Odorless
pH VALUE	Not Available	**VAPOR PRESSURE**	Not available.
MELTING POINT	>204 °C (1013 hPa)	**VAPOR DENSITY**	Not available.
FREEZING POINT	Not available.	**RELATIVE DENSITY**	600 to 700 kg/m³
INITIAL BOILING POINT	Not available.	**SOLUBILITY**	Insoluble in the following materials: cold water
FLASHPOINT	Not available.	**PARTITION COEFFICEINT**	Not available.
EVAPORATION RATE	Not available.	**AUTO IGNITION TEMP.**	>500°C (>932°F)
FLAMMABILITY	Not available.	**DECOMP. TEMP.**	Not available.
UEL	Not available.	**VISCOSITY**	Not available.
LEL	Not available.		

SECTION 10: STABILITY AND REACTIVITY	
REACTIVIVITY	No specific test data related to reactivity available for this product or its ingredients.
CHEMICAL STABILITY	The product is stable.
POSSIBILITY OF HAZARDOUS REACTIONS	Under normal conditions of storage and use, hazardous reactions will not occur.
CONDITIONS TO AVOID	No specific data.
HAZAROUS DECOMPOSITION PRODUCTS	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: TOXICOLOGICAL INFORMATION		
INHALATION	ACUTE	No specific data.
	CHRONIC	No specific data.
SKIN	ACUTE	No specific data.
	CHRONIC	No specific data.
EYE	ACUTE	No specific data.
INGESTION	ACUTE	No specific data.
	CHRONIC	No specific data.
LD50		>5000 mg/kg Oral (rat)
LC50		Not applicable.
ACUTE TOXICITY ESTIMATE		Not available.
CARCINOGENICITY/MUTAGENICITY		No known significant effects or critical hazards.
REPRODUCTIVE EFFECTS		No known significant effects or critical hazards.
NEUROTOXICITY		No known significant effects or critical hazards.
OTHER EFFECTS		No known significant effects or critical hazards.
TARGET ORGANS		No known significant effects or critical hazards.

SECTION 12: ECOLOGICAL INFORMATION
The material, in its original state, is not harmful to the environment

SECTION 13: DISPOSAL CONSIDERATIONS

SPILL/LEAK PROCEDURES	Isolate spill area to prevent falls as material can be a slipping hazard. Avoid contact with eyes and skin. Material is heavier than water and has limited water solubility. It will collect on the lowest surface.
CLEANUP	Clean up floor area. Sweep up. Avoid generation of dust.
REGULATORY REQUIREMENTS	If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)
DISPOSAL	The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Waste disposal should be in accordance with existing federal state, provincial and or local environmental controls laws.

SECTION 14: TRANSPORT INFORMATION		
LAND – DOT	**UN/NA IDENTIFICATION NUMBER:**	Not regulated.
	UN-PROPER SHIPPING NAME:	Not regulated.
	TRANSPORT HAZARD CLASS:	Not regulated.
	PACKING GROUP:	Not regulated.
	MARINE POLLUTANT:	Not regulated.
	HAZARD CLASS:	Not regulated.
WATER – IMO/IMDG	**UN/NA IDENTIFICATION NUMBER:**	Not regulated.
	UN-PROPER SHIPPING NAME:	Not regulated.
	TRANSPORT HAZARD CLASS:	Not regulated.
	PACKING GROUP:	Not regulated.
	MARINE POLLUTANT:	Not regulated.
AIR – ICAO/IATA *For product quantities less than 0.5 Kg*	**UN/NA IDENTIFICATION NUMBER:**	Not regulated.
	UN-PROPER SHIPPING NAME:	Not regulated.
	TRANSPORT HAZARD CLASS:	Not regulated.
	PACKING GROUP:	Not regulated.
	MARINE POLLUTANT:	Not regulated.

SECTION 15: REGULATORY INFORMATION	
OSHA	NONE
OSHA	NONE
CAA	NONE
CERCLA	NONE
SARA	NONE
SARA HAZARD CATEGORIES 311/312	Not applicable
TSCA	NONE

SECTION 16: OTHER INFORMATION	
DISCLAIMER:	The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the user thereof. It is the buyer's responsibility to ensure that its activities comply with federal, state, provincial and local laws.
REVISION INDICATOR:	Revision 0: (This SDS replaces the former MSDS for this product pursuant to OSHA 1910.1200(g) Appendix D. The MSDS for this product should be considered obsolete).

ATTACHMENT E

USFWS ENDANGERED SPECIES CONSULTATION DOCUMENTATION

United States Department of the Interior

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

In Reply Refer To: February 01, 2018
Consultation Code: 05E1NE00-2018-SLI-0834
Event Code: 05E1NE00-2018-E-01928
Project Name: Remediation General Permit

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

To Whom It May Concern:

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

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

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

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

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

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

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

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

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

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

Project Summary

Consultation Code: 05E1NE00-2018-SLI-0834

Event Code: 05E1NE00-2018-E-01928

Project Name: Remediation General Permit

Project Type: WATER QUALITY MODIFICATION

Project Description: Construction dewatering discharge from contaminated site to Arcade Pond (which discharges to Mumford River). Discharge will be treated per the RGP.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/42.11149947931605N71.6748515146477W

Counties: Worcester, MA

Endangered Species Act Species

There is a total of 1 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. 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.

Mammals

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

Critical habitats

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

New England Field Office

Conserving the Nature of New England

Friday, February 16, 2018

ENDANGERED SPECIES
Overview
Consultation
N.E. Listed Species
Species Under Review
Recovery Activities
Habitat Conservation
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Biological Opinions

PARTNERS FOR FISH & WILDLIFE
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Restoration Initiatives
Species & Habitats of Special Concern
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ENVIRONMENTAL CONTAMINANTS
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FEDERAL ACTIVITIES
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Federal Projects & Permits
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FERC_ Hydropower Projects
River Flow Protection
Wind Energy Projects

OUTREACH
NH Envirothon
Kids Corner
Let's Go Outside

Staff Directory

Our Location

HOME

BOOKMARK

Endangered Species Reviews/Consultations

Endangered Species Consultation

Project Review for Projects with Federal Involvement (authorizing, funding or carrying out the project)

The following information is designed to assist applicants or project sponsors in determining whether a federally-listed, proposed and/or candidate species may occur within the proposed project area and whether it is appropriate to contact our office for additional coordination or consultation. We encourage you to print out all materials used in the analyses of effects on listed, proposed or candidate species for your records or submission to the appropriate federal agency or our office.

Step 1. - Determine whether any listed, proposed, or candidate species (T/E species) are likely to occur within the proposed project **action area** based on location of the proposed project:

A. Choose your state list below and review for Towns in which federally-listed species occur:

Connecticut - 12 species (29 KB)
Massachusetts - 14 species (41 KB)
New Hampshire - 13 species (31 KB)
Rhode Island - 8 species (22 KB)
Vermont - 10 species (25 KB)

B. You should contact your state Natural Heritage Program or Endangered Species Program (see list below) for additional information on federally and state-listed species:

Rhode Island Natural Heritage Program
Connecticut Endangered Species Program
Massachusetts **Natural Heritage and Endangered Species Program**
Vermont **Non-Game and Natural Heritage**
New Hampshire **Fish and Game's Non-game and Endangered Wildlife Program**
New Hampshire Natural Heritage Bureau's **Home Page**

Please note that these agencies provide information on known occurrences; this information does not replace field surveys, especially for plants, as most project sites have not been previously surveyed specifically for listed species.

C. If the project falls within a Town where the endangered dwarf wedgemussel is known to occur, check the appropriate map to determine whether your project is in the vicinity of its known range.

Massachusetts - **Connecticut River Watershed** (912 KB)
New Hampshire/Vermont - Connecticut River Watershed
Upper Connecticut River (872 KB)
Middle Connecticut River (1.07 MB)
Lower Connecticut River (1.56 MB)
New Hampshire - **Ashuelot River Watershed** (886 KB)
Connecticut - **Connecticut River Watershed** (2.04 MB)

D. If the project falls within a Town where the endangered northern red-bellied cooter is known to occur, or if the project occurs in Plymouth County, Massachusetts, check the map to determine whether your project is in the vicinity of its known range or critical habitat. **NRBC_MAP** (59 KB)

E. If a proposed project occurs in a Town with no known listed, proposed or candidate species present, no further coordination with the Service is needed. You may download a **"no species present" letter** (158 KB) stating "no species are known to occur in the project area".

F. If the proposed project occurs in a Town with known occurrences of T/E species, proceed to Step 2.

Step 2. - Determine whether any listed or proposed New England Species are likely to occur within the proposed project area by comparing the habitat present within the proposed project action area with habitat that is suitable for the species.

A. Review the information we have provided on the species list information from the appropriate state agency, and any other sources of information available to you to determine types of habitat the species use. A description of suitable habitat for New England's federally-listed species may be found in **New England Species**' profiles and fact sheets.
B. Determine whether your proposed project action area has any potential for listed species habitat (e.g., are suitable roost trees present? - Indiana bats; are wetlands present? - bog turtles or Northeastern bulrush; will project affect a waterway? – dwarf wedgemussel). After this initial coarse review, determine whether any more detailed surveys may be appropriate (e.g., survey for dwarf wedgemussels).
C. If your state Natural Heritage Program or Endangered Species Program does not identify any listed species for the proposed project AND there is no potential habitat for any listed species within the action area, no further coordination

with the Service is required. You may download a **"no species present" letter** (158 KB) stating "no species are known to occur in the project area".

D. If you have identified that potential listed species habitat is present although the species has not been documented from that specific location, further coordination with our office is recommended. Please send the results of your assessment including any habitat surveys to:

Supervisor
U.S. Fish and Wildlife Service
70 Commercial St., Suite 300
Concord, NH 03301

Include in your letter:
A detailed description of the proposed project, including approximate proposed project construction schedule and project activities (e.g., land clearing, utilities, stormwater management). Site plans are often helpful in our evaluation process.

- A description of the natural characteristics of the property and surrounding area (e.g., forested areas, freshwater wetlands, open waters, and soils). Photographs are often helpful in assessing the habitat. Additionally, please include a description of surrounding land use (residential, agricultural, or commercial).
- The location of the above referenced property and extent of any project related activities or discharges clearly indicated on a copy of a USGS 7.5 Minute Topographic Quadrangle (Quad) with the name of the Quad(s) and latitude/longitude clearly labeled.
- A description of conservation measures to avoid or minimize impacts to listed species.

Why does this matter?- In a case where no habitat is present, a quick and easy determination can be made that further coordination is not necessary. In a case where habitat is present, but you believe that the project activities will not impact listed species, it is important to coordinate with us to ensure that all project activities and all potential effects (direct and indirect) have been considered.

(Please allow 30 days following our receipt of your request for processing.)

Step 3. - Based on the results of the habitat survey and a description of the proposed project (including information as to whether any potential habitat may be directly or indirectly affected), the involved Federal agency may determine:

- The proposed project will result in no effect to any T/E species and no further coordination or consultation with the Service is required;
- Additional information (e.g., surveys) is required to determine whether any T/E species are likely to occur within the proposed project area; or
- The proposed project "may affect" a T/E species and consultation with the Service is required.

Files in PDF format will require Acrobat Reader to access the content. If you do not have a copy, please select the link [or click the image] to take you to the Adobe website where you can download a free copy. Get Adobe Acrobat Reader

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Last updated: March 3, 2014

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
http://www.fws.gov/newengland

January 8, 2018

To Whom It May Concern:

This project was reviewed for the presence of federally listed or proposed, threatened or endangered species or critical habitat per instructions provided on the U.S. Fish and Wildlife Service's New England Field Office website:

http://www.fws.gov/newengland/EndangeredSpec-Consultation.htm (accessed January 2018)

Based on information currently available to us, no federally listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur in the project area(s). Preparation of a Biological Assessment or further consultation with us under section 7 of the Endangered Species Act is not required. No further Endangered Species Act coordination is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.

Thank you for your cooperation. Please contact David Simmons of this office at 603-227-6425 if we can be of further assistance.

Sincerely yours,

Thomas R. Chapman
Supervisor
New England Field Office

ATTACHMENT F

HISTORIC PROPERTIES INFORMATION

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

Search Criteria: Town(s): Northbridge; Place: Whitinsville; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year
NBD.A	Whitinsville Historic District		Northbridge	
NBD.E	East Streetscape		Northbridge	
NBD.F	Fletcher Streetscape 1		Northbridge	
NBD.G	Fletcher Streetscape 2		Northbridge	
NBD.H	Forest Streetscape		Northbridge	
NBD.I	Grove Streetscape		Northbridge	
NBD.J	Linwood Avenue Streetscape 1		Northbridge	
NBD.K	Linwood Avenue Streetscape 2		Northbridge	
NBD.L	Lower High Streetscape		Northbridge	
NBD.M	Main Streetscape		Northbridge	
NBD.N	Maple Streetscape		Northbridge	
NBD.O	Pleasant Streetscape		Northbridge	
NBD.310		12 Baton Ave	Northbridge	
NBD.308		2 Briggs St	Northbridge	
NBD.307		5 Briggs St	Northbridge	
NBD.227		6-8 Briggs St	Northbridge	
NBD.221		Brook St	Northbridge	
NBD.235		Brook St	Northbridge	
NBD.216		2 Brook St	Northbridge	
NBD.234		5 Brook St	Northbridge	
NBD.217		10 Brook St	Northbridge	
NBD.233		11 Brook St	Northbridge	
NBD.218		12 Brook St	Northbridge	
NBD.219		16 Brook St	Northbridge	
NBD.232		17-21 Brook St	Northbridge	
NBD.220		20-22 Brook St	Northbridge	
NBD.231		25 Brook St	Northbridge	

Inv. No.	Property Name	Street	Town	Year
NBD.224		26 Brook St	Northbridge	
NBD.230		27-29 Brook St	Northbridge	
NBD.222		28 Brook St	Northbridge	
NBD.229		31-33 Brook St	Northbridge	
NBD.223		32-34 Brook St	Northbridge	
NBD.369		34 Brook St	Northbridge	
NBD.228		35 Brook St	Northbridge	
NBD.225		38 Brook St	Northbridge	
NBD.185		Castle Hill Rd	Northbridge	
NBD.184		182 Castle Hill Rd	Northbridge	
NBD.183		188 Castle Hill Rd	Northbridge	
NBD.182		192 Castle Hill Rd	Northbridge	
NBD.181		196 Castle Hill Rd	Northbridge	
NBD.336		3 Chestnut St	Northbridge	
NBD.337		7 Chestnut St	Northbridge	
NBD.1	Whitin, John Crane House	10 Chestnut St	Northbridge	r 1840
NBD.338		13 Chestnut St	Northbridge	
NBD.9	Whitinsville Savings Bank	Church St	Northbridge	1905
NBD.10	Village Congregational Church, The	Church St	Northbridge	1898
NBD.11	Whitinsville Social Library	Church St	Northbridge	c 1912
NBD.311	Pythian Building	Church St	Northbridge	
NBD.900	Northbridge Civil War Monument	Church St	Northbridge	1905
NBD.901	Northfield World War I Memorial Bench	Church St	Northbridge	c 1922
NBD.905	Town Common	Church St	Northbridge	
NBD.937	Dreams of Tomorrow Sculpture	Church St	Northbridge	1988
NBD.939	Casey, David P. Medal of Honor Monument	Church St	Northbridge	
NBD.2	Whitin House	31 Church St	Northbridge	c 1841
NBD.406	U. S. Post Office - Whitinsville Branch	44 Church St	Northbridge	1938
NBD.4	Pythian Building	76-82 Church St	Northbridge	r 1927
NBD.3	Whitin House	81 Church St	Northbridge	r 1875
NBD.5	Trowbridge, Charles House	107-109 Church St	Northbridge	c 1880
NBD.226		110-112 Church St	Northbridge	
NBD.6	Pollock, Susan House	151 Church St	Northbridge	c 1850
NBD.7	Fisher, John S. House	174 Church St	Northbridge	c 1880
NBD.8	Blanchard, G. M. House	229 Church St	Northbridge	c 1865
NBD.370		374-376 Church St	Northbridge	
NBD.377		374-376 Church St	Northbridge	
NBD.371		382-384 Church St	Northbridge	

Inv. No.	Property Name	Street	Town	Year
NBD.372		390-392 Church St	Northbridge	
NBD.373		402-404 Church St	Northbridge	
NBD.374		406-408 Church St	Northbridge	
NBD.375		414-416 Church St	Northbridge	
NBD.376		420-422 Church St	Northbridge	
NBD.19	United Presbyterian Church	Cottage St	Northbridge	1914
NBD.312		3 Cottage St	Northbridge	
NBD.12		24 Cottage St	Northbridge	c 1870
NBD.193		24 Cottage St	Northbridge	
NBD.191		28 Cottage St	Northbridge	
NBD.192		30 Cottage St	Northbridge	
NBD.190		32-34 Cottage St	Northbridge	
NBD.13	Whitin Mill Workers Housing	40-42 Cottage St	Northbridge	c 1820
NBD.14	Richard Malmgren Memorial Hall	48 Cottage St	Northbridge	r 1897
NBD.15	Lackey, Eugene House	63-65 Cottage St	Northbridge	c 1870
NBD.16		67-69 Cottage St	Northbridge	r 1872
NBD.17		74-76 Cottage St	Northbridge	c 1845
NBD.18	Rexford, H. House	106-108 Cottage St	Northbridge	1879
NBD.23	Clarke School	Cross St	Northbridge	1878
NBD.24	Saint Patrick's Catholic Church	Cross St	Northbridge	1898
NBD.204	Cross Street School	Cross St	Northbridge	
NBD.20	Adams, Earnst A. Art Studio	20 Cross St	Northbridge	c 1915
NBD.21		37 Cross St	Northbridge	r 1845
NBD.169		39-41 Cross St	Northbridge	c 1890
NBD.22	Whitin, Dr. N. D. House	43 Cross St	Northbridge	c 1850
NBD.389		51 Cross St	Northbridge	
NBD.26	Whitinsville Old Cotton Mill	Douglas Rd	Northbridge	c 1845
NBD.25	Whitinsville Mill and Forge	64 Douglas Rd	Northbridge	c 1826
NBD.257	St. Patrick's Church	East St	Northbridge	
NBD.236		14 East St	Northbridge	
NBD.258		17 East St	Northbridge	
NBD.368		18 East St	Northbridge	
NBD.67	Whitin Mill Workers Housing	21-23 East St	Northbridge	c 1875
NBD.237		24 East St	Northbridge	
NBD.68	Whitin Mill Workers Housing	25-27 East St	Northbridge	c 1850
NBD.285		26 East St	Northbridge	
NBD.238		28 East St	Northbridge	
NBD.69	Whitin Mill Workers Housing	29-31 East St	Northbridge	c 1850

Inv. No.	Property Name	Street	Town	Year
NBD.309		30 East St	Northbridge	
NBD.70	Whitin Mill Workers Housing	33 East St	Northbridge	c 1850
NBD.239		34 East St	Northbridge	
NBD.240		36-38 East St	Northbridge	
NBD.28		42-44 East St	Northbridge	c 1850
NBD.259		45-47 East St	Northbridge	
NBD.241		52 East St	Northbridge	
NBD.260		53 East St	Northbridge	
NBD.242		62 East St	Northbridge	
NBD.243		64 East St	Northbridge	
NBD.244		68 East St	Northbridge	
NBD.245		70 East St	Northbridge	
NBD.261		77 East St	Northbridge	
NBD.246		78 East St	Northbridge	
NBD.247		80 East St	Northbridge	
NBD.248		84 East St	Northbridge	
NBD.262		87 East St	Northbridge	
NBD.249		88 East St	Northbridge	
NBD.250		90-92 East St	Northbridge	
NBD.251		94 East St	Northbridge	
NBD.252		106 East St	Northbridge	
NBD.253		108 East St	Northbridge	
NBD.263		109-111 East St	Northbridge	
NBD.264		113 East St	Northbridge	
NBD.254		114 East St	Northbridge	
NBD.265		117-119 East St	Northbridge	
NBD.255		118 East St	Northbridge	
NBD.256		122 East St	Northbridge	
NBD.266		123 East St	Northbridge	
NBD.305		123 East St	Northbridge	
NBD.267		147 East St	Northbridge	
NBD.268		151 East St	Northbridge	
NBD.269		161 East St	Northbridge	
NBD.270		165-171 East St	Northbridge	
NBD.271		179 East St	Northbridge	
NBD.31	Whitin Estate Gray Barn	Elm Pl	Northbridge	c 1890
NBD.30	Fletcher, Col. James	1 Elm Pl	Northbridge	c 1770
NBD.194		2 Elm Pl	Northbridge	

Inv. No.	Property Name	Street	Town	Year
NBD.354		1A Elm St	Northbridge	
NBD.355		1 Elm St	Northbridge	
NBD.366		4 Elm St	Northbridge	
NBD.356		5 Elm St	Northbridge	
NBD.365		6 Elm St	Northbridge	
NBD.364		8 Elm St	Northbridge	
NBD.357		9-11 Elm St	Northbridge	
NBD.358		13-19 Elm St	Northbridge	
NBD.29	Whitin Mill Workers Housing	14-20 Elm St	Northbridge	c 1850
NBD.363		26 Elm St	Northbridge	
NBD.362		32-34 Elm St	Northbridge	
NBD.361		38 Elm St	Northbridge	
NBD.360		40-44 Elm St	Northbridge	
NBD.359		41 Elm St	Northbridge	
NBD.32	Whitin Mill Workers Housing	4-6 Fletcher St	Northbridge	c 1885
NBD.33	Whitin Mill Workers Housing	8-10 Fletcher St	Northbridge	c 1885
NBD.71	Whitin Mill Workers Housing	18-20 Fletcher St	Northbridge	r 1828
NBD.74	Whitin Mill Workers Housing	19-21 Fletcher St	Northbridge	c 1850
NBD.72	Whitin Mill Workers Housing	28 Fletcher St	Northbridge	r 1828
NBD.84	Whitin Mill Workers Housing	29 Fletcher St	Northbridge	c 1850
NBD.73	Whitin Mill Workers Housing	38 Fletcher St	Northbridge	r 1828
NBD.34	Whitin Mill Boarding House	42-48 Fletcher St	Northbridge	c 1845
NBD.75	Whitin Mill Workers Housing	45-47 Fletcher St	Northbridge	c 1850
NBD.76	Whitin Mill Workers Housing	52 Fletcher St	Northbridge	c 1880
NBD.83	Whitin Mill Workers Housing	53 Fletcher St	Northbridge	c 1950
NBD.77	Whitin Mill Workers Housing	59-63 Fletcher St	Northbridge	c 1850
NBD.79	Whitin Mill Workers Housing	62-64 Fletcher St	Northbridge	c 1880
NBD.80	Whitin Mill Workers Housing	70 Fletcher St	Northbridge	c 1830
NBD.78	Whitin Mill Workers Housing	71 Fletcher St	Northbridge	c 1850
NBD.81	Whitin Mill Workers Housing	76 Fletcher St	Northbridge	c 1830
NBD.82	Whitin Mill Workers Housing	83 Fletcher St	Northbridge	c 1840
NBD.35	Fletcher, Samuel Homestead	90-98 Fletcher St	Northbridge	r 1840
NBD.36	Whitin Mill Workers Housing	106 Fletcher St	Northbridge	c 1850
NBD.37	Whitin Mill Workers Housing	120 Fletcher St	Northbridge	c 1840
NBD.38	Whitin, Paul House	456 Fletcher St	Northbridge	c 1790
NBD.94	Whitin Mill Workers Housing	2-4 Forest St	Northbridge	r 1850
NBD.85	Whitin Mill Workers Housing	3-5 Forest St	Northbridge	r 1850
NBD.95	Whitin Mill Workers Housing	6-8 Forest St	Northbridge	r 1850

Inv. No.	Property Name	Street	Town	Year
NBD.86	Whitin Mill Workers Housing	7-9 Forest St	Northbridge	r 1850
NBD.96	Whitin Mill Workers Housing	10-12 Forest St	Northbridge	r 1850
NBD.87	Whitin Mill Workers Housing	11-13 Forest St	Northbridge	r 1850
NBD.97	Whitin Mill Workers Housing	14-16 Forest St	Northbridge	r 1850
NBD.88	Whitin Mill Workers Housing	15-17 Forest St	Northbridge	r 1850
NBD.98	Whitin Mill Workers Housing	18-20 Forest St	Northbridge	r 1850
NBD.89	Whitin Mill Workers Housing	19-21 Forest St	Northbridge	r 1850
NBD.99	Whitin Mill Workers Housing	22-24 Forest St	Northbridge	r 1850
NBD.90	Whitin Mill Workers Housing	23-25 Forest St	Northbridge	r 1850
NBD.100	Whitin Mill Workers Housing	26-30 Forest St	Northbridge	r 1850
NBD.91	Whitin Mill Workers Housing	27-29 Forest St	Northbridge	r 1850
NBD.101	Whitin Mill Workers Housing	30-32 Forest St	Northbridge	r 1850
NBD.92	Whitin Mill Workers Housing	31-33 Forest St	Northbridge	r 1850
NBD.102	Whitin Mill Workers Housing	34-36 Forest St	Northbridge	r 1850
NBD.93	Whitin Mill Workers Housing	35-37 Forest St	Northbridge	r 1850
NBD.104	Whitin Mill Workers Housing	1-3 Grove St	Northbridge	r 1850
NBD.105	Whitin Mill Workers Housing	5 Grove St	Northbridge	r 1850
NBD.106	Whitin Mill Workers Housing	11 Grove St	Northbridge	r 1850
NBD.107	Whitin Mill Workers Housing	15-17 Grove St	Northbridge	r 1850
NBD.339		2 High St	Northbridge	
NBD.123	Whitin Mill Workers Housing	6 High St	Northbridge	c 1864
NBD.334		66 High St	Northbridge	
NBD.333		68 High St	Northbridge	
NBD.332		76 High St	Northbridge	
NBD.331		80-82 High St	Northbridge	
NBD.330		90 High St	Northbridge	
NBD.42	Aldrich School	Hill St	Northbridge	c 1890
NBD.323	Whitinsville Retirement Society	Hill St	Northbridge	
NBD.40	Taft, Gustavus House	24 Hill St	Northbridge	c 1875
NBD.43	Lasell, Chester Whitin House	46 Hill St	Northbridge	c 1875
NBD.313		56 Hill St	Northbridge	
NBD.39	Remington, G. C. House	62 Hill St	Northbridge	c 1845
NBD.315		76 Hill St	Northbridge	
NBD.316		76 Hill St	Northbridge	
NBD.314		120 Hill St	Northbridge	
NBD.317		120 Hill St	Northbridge	
NBD.324		125 Hill St	Northbridge	
NBD.325		125 Hill St	Northbridge	

Inv. No.	Property Name	Street	Town	Year
NBD.326		125 Hill St	Northbridge	
NBD.322		195 Hill St	Northbridge	
NBD.321		205 Hill St	Northbridge	
NBD.320		213 Hill St	Northbridge	
NBD.319		221 Hill St	Northbridge	
NBD.318		229-231 Hill St	Northbridge	
NBD.41	Lasell, Josiah House	255 Hill St	Northbridge	r 1905
NBD.335		578 Hill St	Northbridge	
NBD.298		7 Johnson Ave	Northbridge	
NBD.299		11 Johnson Ave	Northbridge	
NBD.306		12 Johnson Ave	Northbridge	
NBD.186		36-40 Johnson Ave	Northbridge	
NBD.304		36 Johnson Ave	Northbridge	
NBD.300		39 Johnson Ave	Northbridge	
NBD.301		42 Johnson Ave	Northbridge	
NBD.188		2 Lake St	Northbridge	
NBD.189		3 Lake St	Northbridge	
NBD.302		34 Leland Hill Rd	Northbridge	
NBD.277		2-8 Leland Rd	Northbridge	
NBD.278		5 Leland Rd	Northbridge	
NBD.279		9-11 Leland Rd	Northbridge	
NBD.276		10-12 Leland Rd	Northbridge	
NBD.280		13-15 Leland Rd	Northbridge	
NBD.275		14 Leland Rd	Northbridge	
NBD.281		17-19 Leland Rd	Northbridge	
NBD.274		20 Leland Rd	Northbridge	
NBD.282		21 Leland Rd	Northbridge	
NBD.273		22-24 Leland Rd	Northbridge	
NBD.272		26 Leland Rd	Northbridge	
NBD.283		27 Leland Rd	Northbridge	
NBD.284		37 Leland Rd	Northbridge	
NBD.128	Whitin Mill Workers Housing	1 Linden St	Northbridge	c 1847
NBD.343		5-7 Linden St	Northbridge	
NBD.342		9 Linden St	Northbridge	
NBD.344		10-12 Linden St	Northbridge	
NBD.341		13 Linden St	Northbridge	
NBD.345		14 Linden St	Northbridge	
NBD.340		15 Linden St	Northbridge	

Inv. No.	Property Name	Street	Town	Year
NBD.346		16 Linden St	Northbridge	
NBD.908	Whitinsville World War II Memorial	Linwood Ave	Northbridge	
NBD.111	Whitin Mill Workers Housing	24-26 Linwood Ave	Northbridge	c 1850
NBD.112	Whitin Mill Workers Housing	30-32 Linwood Ave	Northbridge	c 1850
NBD.427	Trinity Episcopal Church	33 Linwood Ave	Northbridge	1929
NBD.113	Whitin Mill Workers Housing	42-44 Linwood Ave	Northbridge	c 1850
NBD.44	Whitin, Charles E. House	43 Linwood Ave	Northbridge	c 1870
NBD.45	Dudley, Paul Whitin House	49-51 Linwood Ave	Northbridge	c 1845
NBD.50	United Methodist Church	61 Linwood Ave	Northbridge	1911
NBD.46	Whitin Mill Workers Housing	66 Linwood Ave	Northbridge	r 1895
NBD.203	Methodist Rectory	71 Linwood Ave	Northbridge	
NBD.47	Whitin, Paul Senior Homestead	72-76 Linwood Ave	Northbridge	c 1800
NBD.202		77 Linwood Ave	Northbridge	
NBD.48	Old Methodist Hall	84-88 Linwood Ave	Northbridge	c 1845
NBD.52	Whitin, Arthur F. House	87 Linwood Ave	Northbridge	c 1875
NBD.195		92 Linwood Ave	Northbridge	
NBD.49	Whitinsville Hotel	108 Linwood Ave	Northbridge	c 1875
NBD.196		110 Linwood Ave	Northbridge	
NBD.108	Smith, B. L. M. House	121 Linwood Ave	Northbridge	c 1890
NBD.109	Brown, Rebbeca House	131 Linwood Ave	Northbridge	c 1890
NBD.197		134 Linwood Ave	Northbridge	
NBD.199		144 Linwood Ave	Northbridge	
NBD.110	Balcoum, Dr. House	145 Linwood Ave	Northbridge	c 1890
NBD.201		147 Linwood Ave	Northbridge	
NBD.51	Northbridge High School	171 Linwood Ave	Northbridge	1906
NBD.200		172 Linwood Ave	Northbridge	
NBD.122	Whitin Mill Workers Housing	7-17 Lower High St	Northbridge	c 1860
NBD.114	Whitin Mill Workers Housing	8-14 Lower High St	Northbridge	c 1864
NBD.115	Whitin Mill Workers Housing	16-22 Lower High St	Northbridge	c 1864
NBD.121	Whitin Mill Workers Housing	19 Lower High St	Northbridge	c 1840
NBD.116	Whitin Mill Workers Housing	24-30 Lower High St	Northbridge	c 1864
NBD.117	Whitin Mill Workers Housing	32-38 Lower High St	Northbridge	c 1864
NBD.118	Whitin Mill Workers Housing	40-46 Lower High St	Northbridge	c 1864
NBD.119	Whitin Mill Workers Housing	48-52 Lower High St	Northbridge	c 1864
NBD.120	Whitin Mill Workers Housing	60-62 Lower High St	Northbridge	c 1845
NBD.53	Whitin Machine Works Factory	Main St	Northbridge	1847
NBD.328	Northbridge Fire Department	Main St	Northbridge	
NBD.936	Northbridge Vietnam War Monument	Main St	Northbridge	

Inv. No.	Property Name	Street	Town	Year
NBD.938	Northbridge Contingent In The Nations Monument	Main St	Northbridge	1955
NBD.27	Northbridge Town Hall	7 Main St	Northbridge	1872
NBD.329	Whitin Community Gym	60 Main St	Northbridge	
NBD.103	Whitin Mill Workers Housing	128-132 Main St	Northbridge	r 1850
NBD.124	Whitin Mill Workers Housing	190 Main St	Northbridge	c 1864
NBD.125	Whitin Mill Workers Housing	202 Main St	Northbridge	c 1847
NBD.327		205 Main St	Northbridge	
NBD.126	Whitin Mill Workers Housing	208 Main St	Northbridge	c 1847
NBD.151	Whitin Mill Workers Housing	211-213 Main St	Northbridge	c 1889
NBD.127	Whitin Mill Workers Housing	216 Main St	Northbridge	c 1847
NBD.129	Whitin Mill Workers Housing	223-225 Main St	Northbridge	c 1864
NBD.150	Whitin Mill Workers Housing	223-225 Main St	Northbridge	c 1889
NBD.149	Whitin Mill Workers Housing	231-233 Main St	Northbridge	c 1889
NBD.146	Whitin Mill Workers Housing	240-242 Main St	Northbridge	c 1889
NBD.148	Whitin Mill Workers Housing	243-245 Main St	Northbridge	c 1889
NBD.145	Whitin Mill Workers Housing	252-254 Main St	Northbridge	c 1889
NBD.147	Whitin Mill Workers Housing	253-255 Main St	Northbridge	c 1889
NBD.144	Whitin Mill Workers Housing	258-260 Main St	Northbridge	c 1889
NBD.187		270 Main St	Northbridge	
NBD.137	Whitin Mill Workers Housing	1-3 Maple St	Northbridge	c 1889
NBD.136	Whitin Mill Workers Housing	2-4 Maple St	Northbridge	c 1889
NBD.138	Whitin Mill Workers Housing	5-7 Maple St	Northbridge	c 1889
NBD.135	Whitin Mill Workers Housing	6-8 Maple St	Northbridge	c 1889
NBD.139	Whitin Mill Workers Housing	9-11 Maple St	Northbridge	c 1889
NBD.134	Whitin Mill Workers Housing	10-12 Maple St	Northbridge	c 1889
NBD.140	Whitin Mill Workers Housing	13-15 Maple St	Northbridge	c 1889
NBD.133	Whitin Mill Workers Housing	14-16 Maple St	Northbridge	c 1889
NBD.141	Whitin Mill Workers Housing	17-19 Maple St	Northbridge	c 1889
NBD.132	Whitin Mill Workers Housing	18-20 Maple St	Northbridge	c 1889
NBD.142	Whitin Mill Workers Housing	21-23 Maple St	Northbridge	c 1889
NBD.131	Whitin Mill Workers Housing	22-24 Maple St	Northbridge	c 1889
NBD.143	Whitin Mill Workers Housing	25-27 Maple St	Northbridge	c 1889
NBD.130	Whitin Mill Workers Housing	26-28 Maple St	Northbridge	c 1889
NBD.348		108 North Main St	Northbridge	
NBD.152	Whitin Mill Workers Housing	1-3 Oak St	Northbridge	c 1889
NBD.158	Whitin Mill Workers Housing	2-4 Oak St	Northbridge	c 1889
NBD.153	Whitin Mill Workers Housing	5-7 Oak St	Northbridge	c 1889

Inv. No.	Property Name	Street	Town	Year
NBD.157	Whitin Mill Workers Housing	6-8 Oak St	Northbridge	c 1889
NBD.154	Whitin Mill Workers Housing	9-11 Oak St	Northbridge	c 1889
NBD.156	Whitin Mill Workers Housing	10-12 Oak St	Northbridge	c 1889
NBD.155	Whitin Mill Workers Housing	14-16 Oak St	Northbridge	c 1889
NBD.54	Taft - Whitin House	28 Pine St	Northbridge	r 1800
NBD.55	Whitin House	31-33 Pine St	Northbridge	c 1875
NBD.168	Christian Reform Church	Pleasant St	Northbridge	1929
NBD.205		6 Pleasant St	Northbridge	
NBD.170		10 Pleasant St	Northbridge	c 1890
NBD.171		16 Pleasant St	Northbridge	
NBD.172		20 Pleasant St	Northbridge	c 1890
NBD.167		21 Pleasant St	Northbridge	c 1890
NBD.166		25-27 Pleasant St	Northbridge	c 1890
NBD.173		28 Pleasant St	Northbridge	c 1890
NBD.165		33 Pleasant St	Northbridge	c 1890
NBD.164		37-39 Pleasant St	Northbridge	c 1890
NBD.56	Whitin, Charles P. House	27 Prospect St	Northbridge	c 1875
NBD.57	Brown, R. K. House	39 Prospect St	Northbridge	c 1885
NBD.58		50 Prospect St	Northbridge	c 1895
NBD.59	Prentice, Luke House	62 Prospect St	Northbridge	c 1880
NBD.60	Sproat, R. S. House	73 Prospect St	Northbridge	1876
NBD.61	Crichton, James House	74 Prospect St	Northbridge	c 1870
NBD.62	Prentice, Jerome V. House	9 Spring St	Northbridge	c 1900
NBD.379		1 Summit St	Northbridge	
NBD.378		2 Summit St	Northbridge	
NBD.381		3 Summit St	Northbridge	
NBD.380		4 Summit St	Northbridge	
NBD.382		5-7 Summit St	Northbridge	
NBD.383		9-11 Summit St	Northbridge	
NBD.384		10 Summit St	Northbridge	
NBD.386		13-15 Summit St	Northbridge	
NBD.385		18 Summit St	Northbridge	
NBD.388		19 Summit St	Northbridge	
NBD.387		24 Summit St	Northbridge	
NBD.353		10-16 Water St	Northbridge	
NBD.352		18 Water St	Northbridge	
NBD.351		22-28 Water St	Northbridge	
NBD.350		30-32 Water St	Northbridge	

Inv. No.	Property Name	Street	Town	Year
NBD.349		36 Water St	Northbridge	
NBD.347		82 Water St	Northbridge	
NBD.159	Whitin Mill Workers Housing	1-3 West St	Northbridge	c 1889
NBD.162	Whitin Mill Workers Housing	2-4 West St	Northbridge	c 1889
NBD.160	Whitin Mill Workers Housing	5-7 West St	Northbridge	c 1889
NBD.163	Whitin Mill Workers Housing	6-8 West St	Northbridge	c 1889
NBD.161	Whitin Mill Workers Housing	9-11 West St	Northbridge	c 1889
NBD.63	Whitin Machine Works Workers Housing	10-12 Whitin Ave	Northbridge	c 1850
NBD.64	Whitin Machine Works Worker Housing	14-16 Whitin Ave	Northbridge	c 1850
NBD.65	Whitin, Charles E. Carriage House	22 Whitin Ave	Northbridge	c 1855
NBD.215	Northbridge Junior - Senior High School Annex	Willow St	Northbridge	
NBD.206		9 Willow St	Northbridge	
NBD.207		15 Willow St	Northbridge	
NBD.214		16 Willow St	Northbridge	
NBD.208		19-21 Willow St	Northbridge	
NBD.213		20 Willow St	Northbridge	
NBD.66	McAllister, J. House	23-25 Willow St	Northbridge	c 1900
NBD.212		24 Willow St	Northbridge	
NBD.211		28 Willow St	Northbridge	
NBD.198		29 Willow St	Northbridge	
NBD.209		31 Willow St	Northbridge	
NBD.210		33 Willow St	Northbridge	
NBD.293		1-3 Woodland St	Northbridge	
NBD.292		4 Woodland St	Northbridge	
NBD.294		5-7 Woodland St	Northbridge	
NBD.291		8 Woodland St	Northbridge	
NBD.295		9 Woodland St	Northbridge	
NBD.290		10 Woodland St	Northbridge	
NBD.289		12-14 Woodland St	Northbridge	
NBD.296		15-17 Woodland St	Northbridge	
NBD.288		18 Woodland St	Northbridge	
NBD.287		22 Woodland St	Northbridge	
NBD.297		23 Woodland St	Northbridge	
NBD.286		24 Woodland St	Northbridge	

Massachusetts Cultural Resource Information System

Scanned Record Cover Page

Inventory No:	NBD.A
Historic Name:	Whitinsville Historic District
Common Name:	
Address:	
City/Town:	Northbridge
Village/Neighborhood:	Whitinsville
Local No:	
Year Constructed:	
Architect(s):	
Architectural Style(s):	
Use(s):	Workers Housing
Significance:	Archaeology, Historic; Architecture; Community Planning; Economics; Engineering; Industry; Invention; Social History
Area(s):	
Designation(s):	Nat'l Register District (04/09/1983)
Building Materials(s):	

Commonwealth of Massachusetts
Massachusetts Historical Commission
220 Morrissey Boulevard, Boston, Massachusetts 02125
www.sec.state.ma.us/mhc

FORM A - AREA SURVEY 4 NRDs 4/9/83

MASSACHUSETTS HISTORICAL COMMISSION
Office of the Secretary, State House, Boston

Form numbers in this area	Area no.
1-75, 900-1	A

NBD. A

1. Town NORTH BRIDGE

Name of area (if any) WHITINSVILLE Historic District

2. Photo (3x3" or 3x5")
Staple to left side of form
Photo number _____

3. General date or period _____

4. Is area uniform (explain):

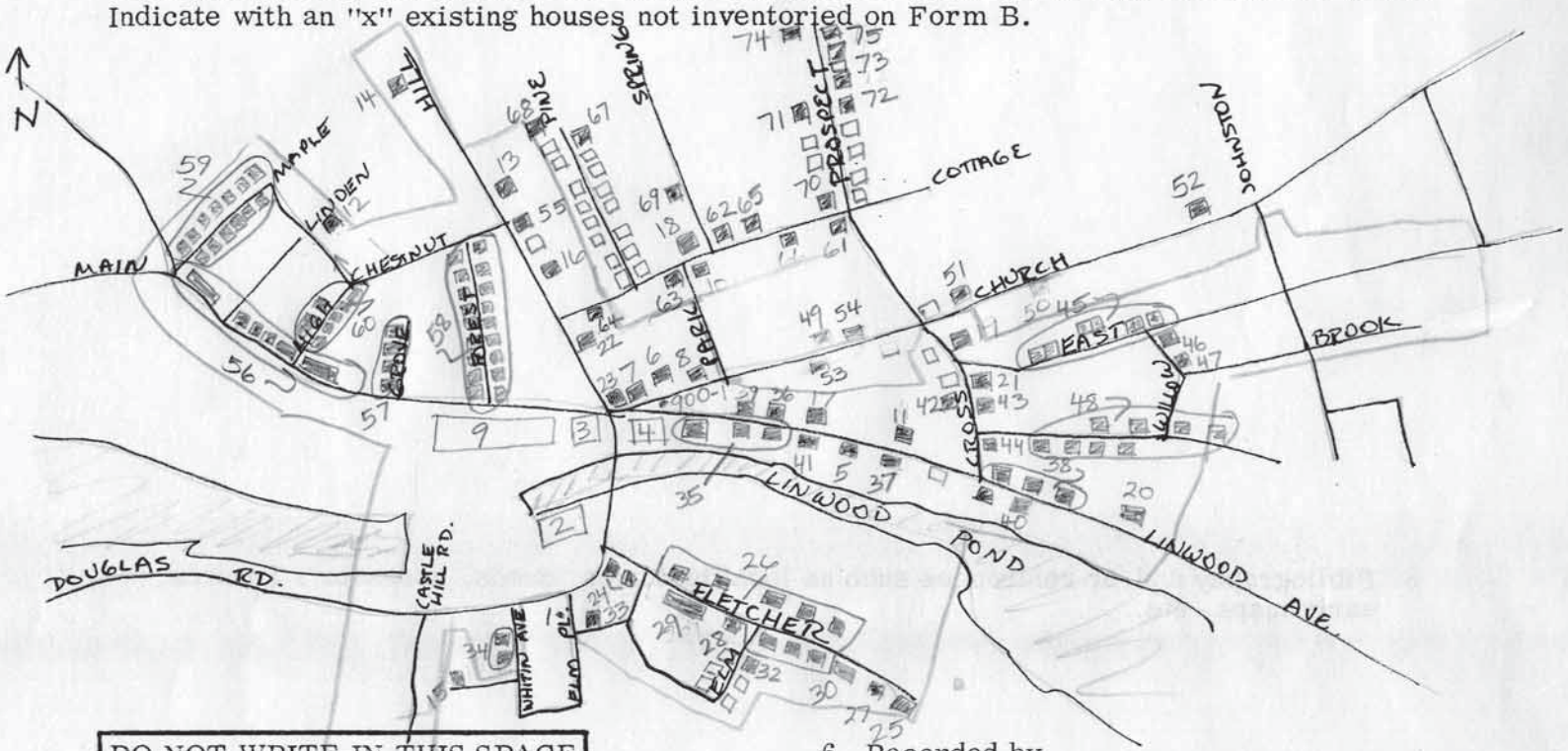
in style? _____

in condition? _____

in type of ownership? _____

in use? _____

5. Map. Use space below to draw a general map of the area involved. Indicate any historic properties for which individual reports are completed on Forms B thru F, using corresponding numbers. Show street names (including route numbers, if any) and indicate north. Indicate with an "x" existing houses not inventoried on Form B.



DO NOT WRITE IN THIS SPACE
USGS Quadrant _____

MHC Photo no. _____

6. Recorded by _____

Organization _____

Date _____

(over)

5M-5-73-075074

NBD.A

7. **Historical data. Explain the historical/architectural importance of this area.**

8. Bibliography and/or references such as local histories, deeds, assessor's records, early maps, etc.

Introduction

The architectural skeleton of Whitinsville reflects the frame of a once thriving paternalistic industrial community which was based on the textile and textile machine industry.

The demographic orientation of the village is reminiscent of bygone days when small self sufficient industrial communities were commonplace. Much of the architecture and demography has been left undisturbed from the way it was left by the Whitin family.

The Whitin community centered itself around the Whitin Machine Works and the Whitinsville Cotton Mills. Both industries got their start in the little brick mill in 1826 when Paul Whitin Sr. and his sons initiated textiles in the mill. The old brick mill still stands today, well intact.

In 1831, Paul Whitin Sr., after whom Whitinsville is named, died leaving the business to his wife, Betsy, and sons. Paul Sr's original homestead, built in 1800, today stands on Linwood Avenue where it was moved from the site of the present town hall.

As the Whitin industry grew, new facilities had to be built. In 1845, sons of Charles P. had the granite Whitin Cotton mill built across the street for the sole purpose of textile production. In 1847, John C. Whitin built Shop number 1 of what is now the present Whitin Machine Works to hold his expanding textile machine business. Both shops remained under the name Paul Whitin and Sons. These two factories still stand intact today.

It was mainly these two factories that the whole town was based upon. To house the growing population, the whitins had built for the workers the many tenement houses which stand today as a reminder of the past when Whitin industries flourished. Most of the tenements were within walking distance of the mills as in most industrial communities. For upper echelon employees larger single dwelling homes were built and streets separated from the tenement homes. In yet another area, were the Whitin mansions for family members themselves. One can distinguish this in the survey.

The Whitin family took care of the entire needs of the community. The Castle Hill farm was purchased to supply the farm and dairy needs of the workers. Schools were built to educate the village children. Churches, of many denominations, were built to satisfy the religeous needs of the community. Social and civic organizations were started and housed by the Whitins. Police and fire departments were financed by the Whitins for community protection. Recreational areas were established for community enjoyment.

Even though parts of the village were not tied in with the Whitin family, they also were in some way reached by the benefits from the Whitins.

As one brouses through this survey of the town's architectural history, one can gain an appreciation for what once was. The architectural skeleton remains even though the inner workings have all changed.

Kenneth Warchol