TERRA ENVIRONMENTAL, LLC
PLANNING | CONSULTING | MANAGEMENT | REMEDIATION

NOTICE OF INTENT FOR DISCHARGE PURSUANT TO US EPA REMEDIATION GENERAL PERMIT MAG9100000

PROJECT:
City of Chelsea
Broadway Water and Sewer Improvements
Contract No. 2020-200

Owner:
City of Chelsea, Massachusetts
City Hall, 500 Broadway
Chelsea, MA 02150

Prepared for:
Aqua Line Utility, Inc.
1283 Washington Street
Weymouth, MA 02171

Prepared by:
TERRA Environmental, LLC
159 Haven Street, Second Floor
Reading, MA 01867

February 19, 2021

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February 19, 2021

United States Environmental Protection Agency
Office of Ecosystem Protection
EPA RGP Applications Coordinator
5 Post Office Square, Suite 100 (Mail Code OEP06-01)
Boston, MA 02109-3912

RE: Notice of Intent for Remediation General Permit
Temporary Construction Dewatering Discharge
Broadway Water and Sewer Improvements Project
Chelsea, Massachusetts

Dear Sir/Madam:

On behalf of Aqua Line Utility, Inc. (Aqua Line), TERRA Environmental, LLC (TERRA) has submitted this Notice of Intent (NOI) to the U.S. Environmental Protection Agency (EPA) for authorization to discharge treated groundwater under the National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) MAG910000 for the Broadway Water and Sewer Improvements Project, located on Broadway Street in Chelsea, Massachusetts (the Project). The temporary discharge of construction dewatering will occur as part of the proposed water and sewer utility improvements, which is being conducted by the City of Chelsea. The dewatered groundwater will be treated to meet requirements of this NOI and RGP and will be discharged to a stormwater drainage line that discharges to an outfall at Mill Creek, which is a tributary to the Chelsea River. A site locus is shown in **Figure 1.**

A copy of the NOI form contained in the RGP permit is included in **Appendix B**, and supporting information is included in **Appendix C**. This project is considered Activity Category III-G, as defined in the RGP. Category III-G is defined as Contaminated Site Dewatering from Sites with Know Contamination. Contaminants of concern (COC) in soil and groundwater are inorganics, non-halogenated VOCs, non-halogenated SVOCs, and fuels parameters. Additional information is presented in later sections of this Letter. Thus, Technology Based Effluent Limitations (TBELs) for all parameters classified as “Type A,” “Type B,” “Type D,” and “Type F” apply.

The following is a summary of site and groundwater quality information in support of the NOI for temporary discharge of groundwater to Mill Creek. This letter and supporting documentation were prepared in accordance with the US EPA guidance for construction dewatering under the RGP program.

1.0 GENERAL SITE INFORMATION

Owner
City of Chelsea, Massachusetts
City Hall, 500 Broadway
Chelsea, MA 02150
Contact: Fidel Maltez
Phone: 617-466-4200
Email: fmaltez@chelseama.gov

Applicant/Operator

Aqua Line Utility, Inc.
1283 Washington Street
Weymouth, MA 02171
Contact: Helder Barroso
Phone: 508-690-9611
Email: Helder@aqualineutility.com

Consultant/LSP

TERRA Environmental, LLC
159 Haven Street, Second Floor
Reading, MA 01867
Contact: Philip Peterson, LSP
Phone: 781-944-6851
Email: ppeterson@terra-env.com

2.0 PROPOSED SCOPE OF WORK AND EXISTING CONDITIONS

The General scope of work to be performed under this contract is for Aqua Line, and their subcontractors who furnish labor, materials, and equipment, to complete water and sewer improvements in conformance with Drawings and Specifications developed for the Project.

The scope of work includes utility construction on Broadway between City Hall Mall at 500 Broadway and Broadway's intersection with Eastern Avenue near 999 Broadway, in the City of Chelsea, Massachusetts. Utility construction shall include installation of approximately 4,935 linear feet of 8-inch, 12-inch, 15-inch, 18-inch, and 24-inch PVC sewer with building connections and manholes; 1,700 linear feet of 8-inch underdrain, along with cleanouts, and manholes; 5,350-feet of 4-, 6-inch, 8-inch, 10-inch, 12-inch, and 16-inch ductile iron water main, fittings, and water services. Work shall also include construction zone safety and traffic management, handling and disposal of excavated materials in accordance with regulations, and coordination of work. The limits of work where groundwater dewatering is anticipated is confined to an area approximately 400-feet in length at the northern extent of Project work. Approximate limits of work where dewatering is anticipated is shown in **Figure 2**.

3.0 SITE ENVIRONMENTAL SETTING AND SURROUNDING HISTORICAL PLACES

Per the Massachusetts Department of Environmental Protection (MassDEP) Phase I Site Assessment Maps, the limits of the Project are located within 500-feet of residentially zoned properties, saltwater wetlands, and Protected Open Space. No preschools, daycares, or schools are located within 500 feet of the site. The Project area is not located within a MassDEP-approved Wellhead Protection Area (Zone II Area), MassDEP Interim Wellhead Protection Area (IWPA), or potentially productive aquifer (PPA), and no public water supplies, or private drinking water wells are located within 500 feet of the Site. A MassDEP Phase 1 Site Assessment Map is included in **Appendix C**.

Further, there are no Areas of Critical Environmental Concern, no fish habitats, no habitats of Species of Special Concern or Threatened or Endangered Species within 500 feet of the Project area.

A review of the online Massachusetts Cultural Resource Information System (MACRIS) and the National Register of Historical Places for Suffolk County in Boston, Massachusetts, identified several addresses of historical places adjacent to the Project area on Broadway in Chelsea. However, since the Project work is confined to the boundary of the right-of-way, discharges do not have the potential to affect historic properties outside the Project area. Therefore, the Project work is categorized as Criterion A. Documentation of MACRIS search results as well is a figure from the National Register of Historical Places web-based map are provided in **Appendix C**.

3.1 SITE AND RELEASE HISTORY

There are nine (9) disposal sites, as defined by the Massachusetts Contingency Plan (MCP) at 310 Code of Massachusetts Regulations (CMR) 40.0000 located adjacent to the Project limits. **Figure 2** shows the limits of each disposal site and associated Release Tracking Number (RTN) in relation to the Project. Detailed descriptions of each disposal site are presented below.

3.1.1 American Finishing Company at 1012 Broadway: RTN 3-34446, 3-26912, 3-2069

The RTN 3-3-2069 is located at 1012 Broadway and was later linked with RTN's 3-34446 and 3-26912. According to an Immediate Response Action (IRA) Completion Statement submitted by CDW Consultants, Inc., the Site was previously occupied by the American Finish and Chemical Company (AFCC) which operated from 1940 until 1989. AFCC manufactured custom emulsion-based coatings, glues, and adhesives. A gasoline filling station also operated on the Site from the 1930's until 1986 when associated gasoline USTs were removed. The Site is currently occupied by a hotel which was finished constructing in June 2018.

The Site was first listed on April 15, 1989 and assigned RTN 3-2069. Site assessments identified reportable concentrations of volatile petroleum hydrocarbons (VPH), trichloroethylene (TCE), chlorinated volatile organic compounds (CVOCs), and volatile organic compounds (VOCs) in soil and groundwater. After extensive remediation, a Method 3 Risk Characterization determined a condition of no significant risk with an Activity and Use Limitation (AUL). Additional information is available from the Massachusetts Department of Environmental Protection (MassDEP) Data Portal: https://eeaonline.eea.state.ma.us/Portal/#!/wastesite/3-0002069

Contaminants associated with RTN 3-26912 include VOCs reported by a photoionization detector (PID) with headspace readings exceeding 100 ppm following gasoline UST removal activities. An IRA was performed to remove the gasoline contaminated soil. Additional information is available from the Massachusetts Department of Environmental Protection (MassDEP) Data Portal: https://eeaonline.eea.state.ma.us/Portal/#!/wastesite/3-0026912

Contaminants associated with RTN 3-34446 include dense non-aqueous phase liquid (DNAPL) identified in several on Site ground water monitoring wells. CDM Smith performed periodic vacuum recovery removing a total of 13,665 gallons of combined groundwater and DNAPL, 251 gallons of which was DNAPL. Additional information is available from the Massachusetts Department of Environmental Protection (MassDEP) Data Portal: https://eeaonline.eea.state.ma.us/portal#!/wastesite/3-0034446

3.1.2 Former Exxon Facility at 978 Broadway: RTN 3-19662, 3-12859, 3-1004

The former Exxon Mobil filling station located at 978 Broadway in Chelsea, Massachusetts has been the subject of both Preliminary and Comprehensive Response Actions between 1987 and 2002 under 3 separate Site related RTNs.

On January 15, 1992, the Site was assigned RTN 3-1004 as a result of historical assessment conducted in 1987 reporting the presence of petroleum impacted soil and groundwater at the property, as well as the presence of a NAPL in groundwater. Response actions included soil excavation, abandonment of an on-site oil/water separator, and soil vapor mitigation work at the nearby property located at 471 Eastern Avenue. In November 1998, a Class C Response Action Outcome (RAO) was filed and in May 2002 a Class A-2 RAO statement was filed. On April 5th, 2016, additional work was performed under a RAM Plan to remove a 550-gallon heating oil UST and associated system. The Site is currently closed under a condition of no significant risk as a result of a Method 3 Risk Characterization. Additional information is available from the Massachusetts Department of Environmental Protection (MassDEP) Data Portal https://eeaonline.eea.state.ma.us/portal#!/wastesite/3-0001004

In November 1995, the Site was assigned RTN 3-12859 due to a threat of release associated with a gasoline UST failing a tightness test. Excavation activities to remove a 550-gallon used oil UST and an orphan 4,000-gallon UST were conducted as part of an IRA. This RTN was linked to RTN 3-1004 at the completion of the IRA. Additional information is available from the Massachusetts Department of Environmental Protection (MassDEP) Data Portal: https://eeaonline.eea.state.ma.us/portal#!/wastesite/3-0012859

On June 23, 2000, the Site was assigned RTN-3-19662 in response to PID readings greater than 100 ppm following a 25-gallon underground hydraulic oil UST removal, constituting a 72-hour reporting condition. Soil samples collected following UST removal detected the presence of VOCs indicating that the soil may represent co-mingling releases and not only a release of hydraulic oil. At the completion of the IRA, this RTN was linked to RTN 3-1004. Additional information is available from the Massachusetts Department of Environmental Protection (MassDEP) Data Portal: https://eeaonline.eea.state.ma.us/portal#!/wastesite/3-0019662

3.1.2 IBE Realty Trust at 1001-1005 Broadway: RTN 3-34009

RTN 3-34009 is located at 1001-1005 Broadway. According to a Phase II Comprehensive Site Assessment performed by Irwin Engineers, the RTN is associated with PID readings greater than 100 ppm following a UST removal, constituting a 72-hour reporting condition. During remediation, various heavy metals and semi-volatile organic compounds (SVOCs) were detected in soil above applicable cleanup standards. Additional information is available from the Massachusetts Department of Environmental Protection (MassDEP) Data Portal: https://eeaonline.eea.state.ma.us/EEA/fileviewer/Rtn.aspx?rtn=3-0034009

3.1.3 Vacant Building at 980 Broadway: RTN 3-11620

RTN 3-19429 located at 980 Broadway. According to a RAM conducted in 1994 by Ground Water Associates, Inc., a UST containing #2 fuel oil was found to be leaking during removal. A total of 1,200 cubic yards of potentially contaminated soil was stockpiled for off-site disposal. Sub-surface soil investigations identified non-fuel related VOCs, believed to be associated with a separate release. Additional information is available from the Massachusetts Department of Environmental Protection (MassDEP) Data Portal: https://eeaonline.eea.state.ma.us/portal#!/wastesite/3-0011620

3.1.4 Eastern Avenue and Cabot Street: RTN 3-19429

RTN 3-19429 is located on Eastern Avenue and Cabot Street. According to a Utility-Related Abatement Measure (URAM) conducted by Haley & Aldrich on behalf of the Massachusetts Water Resources Authority (MWRA), several RCS-1 exceedances were reported in excess soil stockpiles excavated during utility improvements. RCS-1 exceedances included several metals, VOCs, PAHs, and total petroleum hydrocarbons (TPH). During construction, a total of 29,516 cubic yards were excavated, and close to 14,000 cubic yards of which were transported as Remediation Waste. Contaminants in the soil were attributed to urban fill. Additional information is available from the Massachusetts Department of Environmental Protection (MassDEP) Data Portal: https://eeaonline.eea.state.ma.us/EEA/fileviewer/Rtn.aspx?rtn=3-0019429

4.0 CONSTRUCTION SITE DEWATERING

Excavations for utility construction will be required to depths of 12-feet below surface grade (bsg). Project specifications require the contractor to maintain the groundwater level below the bottom of the excavation at all times. It is anticipated that during site construction, excavations will extend below groundwater and the estimated dewatering discharge will likely be in order of up to 100 gallons per minute (gpm). These estimates do not include surface run-off which will be removed from the excavation during periods of precipitation.

During groundwater sampling performed by TERRA, groundwater was observed in MW-101 at approximately 2.8-feet bsg and in MW-103 at approximately 4.1-feet bsg. Given the shallow groundwater, temporary on-site collection and recharge of groundwater may not be feasible during construction. As a result, groundwater encountered during construction will be pumped to catch basin “CB-12967”, which leads to separated stormwater lines that discharges to Mill Creek via the outfall identified as “Clark”, under the requested Remediation General Permit. A figure identifying CB-12967 and outfall Clark is provided in **Figure 3**.

4.1 GROUNDWATER AND SURFACE WATER ANALYSIS

On December 4 and 7, 2020, TERRA collected samples from on-site monitoring wells and surface waters to characterize groundwater (source water) and the receiving water, concurrently. Groundwater samples were collected from two monitoring wells (MW-101 and MW-103) located within the Project limits. The receiving water sample was collected in close proximity to the separated storm drain outfall discharging to Mill Creek. Groundwater and receiving water sample locations are shown in **Figure 3**. The samples were analyzed for various parameters in accordance with the NPDES RGP Activity Category III-G.

Laboratory analysis detected several metals, VOCs, and SVOCs above laboratory detection limits. No detections were above the applicable RCGW-2 Standards with the exception of total cyanide in MW-103, which was reported at 0.042-mg/L and 0.045-mg/L (RCGW-2 Standard of 0.03-mg/L). A summary of analytical data is provided in **Table 1** (Groundwater) and **Table 2** (Surface Water). Dilution factor and effluent limit calculations in accordance with Appendix V is provided in **Table 3**. Copies of laboratory analytical results are included in **Appendix D**.

4.2 TREATMENT SYSTEM

Based on the results of groundwater testing performed at the subject site, the treatment of dewatered groundwater during construction will be necessary to meet the applicable RGP Discharge Effluent Criteria. Prior to discharge to storm drains and Mill Creek, dewatering effluent will be routed to a 21,000-gallon capacity sedimentation tank and bag filters (in series) to settle and filter out suspended soil particles. Following treatment, dewatered groundwater will be pumped to catch basin "CB-12967", which leads to separated stormwater lines that discharges to Mill Creek via the outfall identified as "Clark". If petroleum impacted groundwater is encountered during excavation as typically seen by a sheen, a granular activated carbon (GAC) filter will be required to treat petroleum constituents prior to discharge. A schematic of the treatment system is shown on **Figure 4**.

5.0 CONCLUSION

On behalf of Aqua Line, TERRA is submitting this application and supporting information to the EPA to request coverage under the NPDES RGP for discharge of treated groundwater to Mill Creek in support of construction dewatering activities at the Project.

The enclosed NOI form and supporting documents provide the required information about the Site, discharge, treatment system, receiving water, and consultation with state and federal agencies.

Please feel free to contact us if you wish to discuss the information contained in this application, or if any additional information is needed.

Sincerely,
TERRA Environmental, LLC

Jesse Vaughan	Christopher M. Ragnelli, EIT	Philip M. Peterson, LSP
Environmental Scientist	Project Engineer	Principal / LSP

FIGURES

Figure 1 – Site Locus

TERRA ENVIRONMENTAL, LLC
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Site Address:	Broadway, Chelsea, MA
MassDEP RTN:	N/A
Base Map:	USGS National Map
Prepared by:	TERRA Environmental, LLC

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FIGURE 2

ENVIRONMENTAL INVESTIGATION PLAN
Broadway Water & Sewer Improvements Project
Chelsea, Massachusetts

August 2020

PROJECT
Aqualine - Broadway, Chelsea , MA

TITLE:
Sampling, Catch Basin, and Drainage Line Locations

DRAWN BY:	AG
CHECKED BY:	PP
DATE:	December 23, 2020

FIGURE 3

159 Haven Street, 2nd Floor
Reading, MA 01867
781-944-6851

TERRA ENVIRONMENTAL, LLC
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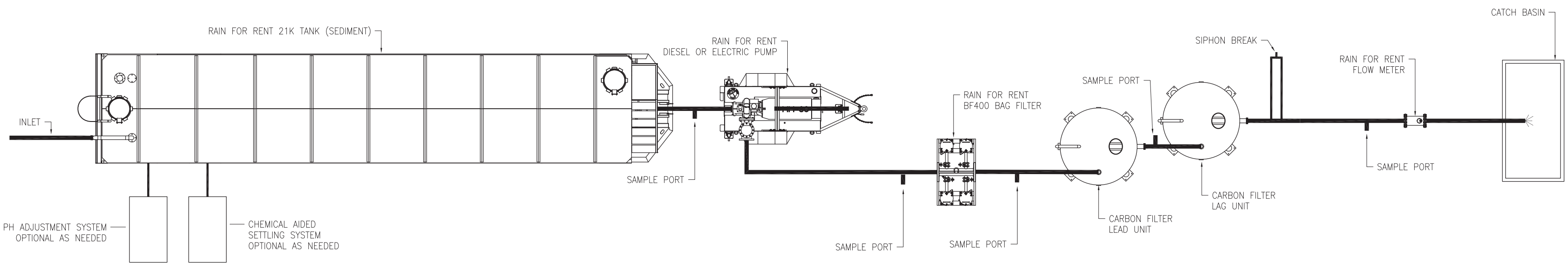
REV.NO.	DESCRIPTION	PREVIOUS DWG	BY	DATE

ITEM	QTY.	REF.	DESCRIPTION

Figure 4: Treatment Schematic



PLAN VIEW

CONFIDENTIAL

DATE: 1/29/21
SCALE: NOT TO SCALE
DESIGNED: N. GAMACHE
CHECKED:
DRAWN: T. HARMENING

100 GPM FILTRATION SYSTEM

CONCEPTUAL FILTRATION SETUP

TERRA ENVIRONMENTAL

Rain for Rent Engineering

3404 STATE ROAD, P.O. BOX 2248 BAKERSFIELD, CA 93303

RAIN FOR RENT ENGINEERING DOCUMENT & DRAWING NUMBER
01-9142-02-01

SHEET 2 OF 2

RAIN FOR RENT INFORMATION NUMBER(S)
- | - | 10-054-5B1696

TABLES

Table 1: Summary of Analytical Data - Groundwater

TERRA Environmental, LLC Project: BROADWAY CHELSEA Client: AQUALINE	Lab Sample Id Collection Date Client Id Matrix			CH25416 12/3/2020 MW-103A Ground Water		CH26131 12/7/2020 MW103B Ground Water		CH27135 12/7/2020 MW-101 Ground Water	
	CAS	Units	MassDEP RC GW-2	Result	RL	Result	RL	Result	RL
Miscellaneous/Inorganics									
Chloride	16887-00-6	mg/L		190	6.0	389	30.0	3,760	150
Chlorine Residual	7782-50-5	mg/L		< 0.02	0.02	< 0.02	0.02	< 0.02	0.02
1,2-Dibromoethane (EDB)	106-93-4	ug/L	2	< 0.02	0.02	< 0.02	0.02	< 0.02	0.02
Ethanol	64-17-5	ug/L	10,000	< 400	400	< 400	400	< 400	400
Ammonia as Nitrogen	7664-41-7	mg/L	10	< 0.10	0.10	< 0.10	0.10	1.74	0.25
Phenolics	64743-03-9	mg/L		< 0.015	0.015	< 0.015	0.015	< 0.015	0.015
pH	PHNX - PH	pH Units		8.07	1.00	7.75	1.00	7.55	1.00
Tert-amyl-methyl-ether	994-05-8	ug/L		< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
Tert-butyl alcohol	75-65-0	ug/L	10,000	< 50	50	100	50	< 50	50
Total Cyanide	57-12-5	mg/L	0.03	0.045	0.010	0.042	0.010	< 0.010	0.010
O&G, Non-polar Material	PHNX - OIL-GREASE-NP	mg/L		< 1.4	1.4	< 1.5	1.5	< 1.4	1.4
Total Suspended Solids	PHNX - TOTSUSPENDSOL	mg/L		31	5.0	17	5.0	75	4.5
Salinity	7647-14-5	ppt		NT		NT		NT	
Metals, Total									
Antimony	7440-36-0	mg/L	8	< 0.005	0.005	0.019	0.005	< 0.003	0.003
Arsenic	7440-38-2	mg/L	0.9	0.013	0.004	0.009	0.004	0.003	0.002
Barium	7440-39-3	mg/L	50	0.016	0.002	0.033	0.002	0.133	0.001
Cadmium	7440-43-9	mg/L	0.004	< 0.001	0.001	< 0.001	0.001	< 0.001	0.001
Chromium	7440-47-3	mg/L	0.3	0.004	0.001	0.005	0.001	0.001	0.001
Chromium, Hexavalent	18540-29-9	mg/L	0.3	< 0.01	0.01	< 0.01	0.01	< 0.01	0.01
Copper	7440-50-8	mg/L	100	0.02	0.005	0.029	0.005	0.004	0.003
Hardness (CaCO3)	PHNX - HARDNESS	mg/L		125	0.1	278	0.1	1,980	0.1
Iron	7439-89-6	mg/L		1.73	0.010	0.992	0.010	1.96	0.005
Lead	7439-92-1	mg/L	0.01	0.007	0.002	0.007	0.002	0.003	0.001
Mercury	7439-97-6	mg/L	0.02	< 0.0002	0.0002	< 0.0002	0.0002	< 0.0002	0.0002
Nickel	7440-02-0	mg/L	0.2	0.003	0.001	0.003	0.001	0.009	0.001
Selenium	7782-49-2	mg/L	0.1	< 0.010	0.010	< 0.010	0.010	0.009	0.005
Silver	7440-22-4	mg/L	0.007	< 0.001	0.001	< 0.001	0.001	0.004	0.001
Trivalent Chromium	16065-83-1	mg/L	0.6	0.004	0.001	0.005	0.001	< 0.001	0.001
Zinc	7440-66-6	mg/L	0.9	0.079	0.004	0.098	0.004	0.011	0.002
Metals, Dissolved									
Antimony (Dissolved)	7440-36-0	mg/L	8	NT		NT		< 0.005	0.005
Arsenic (Dissolved)	7440-38-2	mg/L	0.9	NT		NT		0.004	0.004
Barium (Dissolved)	7440-39-3	mg/L	50	NT		NT		0.127	0.002
Cadmium (Dissolved)	7440-43-9	mg/L	0.004	NT		NT		< 0.001	0.001
Chromium (Dissolved)	7440-47-3	mg/L	0.3	NT		NT		< 0.001	0.001
Copper (Dissolved)	7440-50-8	mg/L	100	NT		NT		0.007	0.005
Diss. Hexavalent Chromium	18540-29-9	mg/L	0.3	NT		NT		< 0.01	0.01
Iron (Dissolved)	7439-89-6	mg/L		NT		NT		0.018	0.011
Lead (Dissolved)	7439-92-1	mg/L	0.01	NT		NT		0.004	0.002
Mercury (Dissolved)	7439-97-6	mg/L	0.02	NT		NT		< 0.0002	0.0002
Nickel (Dissolved)	7440-02-0	mg/L	0.2	NT		NT		0.009	0.001
Selenium (Dissolved)	7782-49-2	mg/L	0.1	NT		NT		< 0.011	0.011
Silver (Dissolved)	7440-22-4	mg/L	0.007	NT		NT		0.003	0.001
Zinc (Dissolved)	7440-66-6	mg/L	0.9	NT		NT		0.005	0.002
PCBs By SW8082A									
PCB-1016	12674-11-2	ug/L	5	< 0.047	0.047	< 0.054	0.054	< 0.050	0.050
PCB-1221	11104-28-2	ug/L	5	< 0.047	0.047	< 0.054	0.054	< 0.050	0.050
PCB-1232	11141-16-5	ug/L	5	< 0.047	0.047	< 0.054	0.054	< 0.050	0.050
PCB-1242	53469-21-9	ug/L	5	< 0.047	0.047	< 0.054	0.054	< 0.050	0.050
PCB-1248	12672-29-6	ug/L	5	< 0.047	0.047	< 0.054	0.054	< 0.050	0.050
PCB-1254	11097-69-1	ug/L	5	< 0.047	0.047	< 0.054	0.054	< 0.050	0.050
PCB-1260	11096-82-5	ug/L	5	< 0.047	0.047	< 0.054	0.054	< 0.050	0.050
PCB-1262	37324-23-5	ug/L		< 0.047	0.047	< 0.054	0.054	< 0.050	0.050
PCB-1268	11100-14-4	ug/L		< 0.047	0.047	< 0.054	0.054	< 0.050	0.050
Total PCBs				**ND**		**ND**		**ND**	

TERRA Environmental, LLC Project: BROADWAY CHELSEA Client: AQUALINE	Lab Sample Id Collection Date Client Id Matrix			CH25416 12/3/2020 MW-103A Ground Water		CH26131 12/7/2020 MW103B Ground Water		CH27135 12/7/2020 MW-101 Ground Water	
	CAS	Units	MassDEP RC GW-2	Result	RL	Result	RL	Result	RL
Volatiles By SW8260C									
1,1,1,2-Tetrachloroethane	630-20-6	ug/L	10	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
1,1,1-Trichloroethane	71-55-6	ug/L	4,000	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
1,1,2,2-Tetrachloroethane	79-34-5	ug/L	9	< 0.50	0.50	< 0.50	0.50	< 0.50	0.50
1,1,2-Trichloroethane	79-00-5	ug/L	900	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
1,1-Dichloroethane	75-34-3	ug/L	2,000	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
1,1-Dichloroethene	75-35-4	ug/L	80	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
1,1-Dichloropropene	563-58-6	ug/L		< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
1,2,3-Trichlorobenzene	87-61-6	ug/L		< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
1,2,3-Trichloropropane	96-18-4	ug/L	10,000	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
1,2,4-Trichlorobenzene	120-82-1	ug/L	200	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
1,2,4-Trimethylbenzene	95-63-6	ug/L	100,000	88	1.0	42	1.0	7.1	1.0
1,2-Dibromo-3-chloropropane	96-12-8	ug/L	1,000	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
1,2-Dibromoethane	106-93-4	ug/L	2	< 0.50	0.50	< 0.50	0.50	< 0.50	0.50
1,2-Dichlorobenzene	95-50-1	ug/L	2,000	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
1,2-Dichloroethane	107-06-2	ug/L	5	< 0.60	0.60	< 0.60	0.60	< 0.60	0.60
1,2-Dichloropropane	78-87-5	ug/L	3	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
1,3,5-Trimethylbenzene	108-67-8	ug/L	1,000	4	1.0	1.1	1.0	1.7	1.0
1,3-Dichlorobenzene	541-73-1	ug/L	2,000	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
1,3-Dichloropropane	142-28-9	ug/L	50,000	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
1,4-Dichlorobenzene	106-46-7	ug/L	200	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
2,2-Dichloropropane	594-20-7	ug/L		< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
2-Chlorotoluene	95-49-8	ug/L	10,000	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
2-Hexanone	591-78-6	ug/L	10,000	< 5.0	5.0	< 5.0	5.0	< 5.0	5.0
2-Isopropyltoluene	527-84-4	ug/L		< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
4-Chlorotoluene	106-43-4	ug/L		< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
4-Methyl-2-pentanone	108-10-1	ug/L	50,000	< 5.0	5.0	< 5.0	5.0	< 5.0	5.0
Acetone	67-64-1	ug/L	50,000	< 25	25	< 25	25	< 25	25
Acrylonitrile	107-13-1	ug/L	10,000	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
Benzene	71-43-2	ug/L	1,000	< 0.70	0.70	< 0.70	0.70	< 0.70	0.70
Bromobenzene	108-86-1	ug/L	10,000	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
Bromochloromethane	74-97-5	ug/L		< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
Bromodichloromethane	75-27-4	ug/L	6	< 0.50	0.50	< 0.50	0.50	< 0.50	0.50
Bromoform	75-25-2	ug/L	700	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
Bromomethane	74-83-9	ug/L	7	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
Carbon Disulfide	75-15-0	ug/L	10,000	< 5.0	5.0	< 5.0	5.0	< 5.0	5.0
Carbon tetrachloride	56-23-5	ug/L	2	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
Chlorobenzene	108-90-7	ug/L	200	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
Chloroethane	75-00-3	ug/L	10,000	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
Chloroform	67-66-3	ug/L	50	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
Chloromethane	74-87-3	ug/L	10,000	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
cis-1,2-Dichloroethene	156-59-2	ug/L	20	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
cis-1,3-Dichloropropene	10061-01-5	ug/L	5	< 0.40	0.40	< 0.40	0.40	< 0.40	0.40
Dibromochloromethane	124-48-1	ug/L	20	< 0.50	0.50	< 0.50	0.50	< 0.50	0.50
Dibromomethane	74-95-3	ug/L	50,000	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
Dichlorodifluoromethane	75-71-8	ug/L	100,000	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
Ethylbenzene	100-41-4	ug/L	5,000	10	1.0	5.6	1.0	< 1.0	1.0
Hexachlorobutadiene	87-68-3	ug/L	1	< 0.40	0.40	< 0.40	0.40	< 0.40	0.40
Isopropylbenzene	98-82-8	ug/L	100,000	3.4	1.0	1.5	1.0	< 1.0	1.0
m&p-Xylene	179601-23-1	ug/L		1.3	1.0	< 1.0	1.0	< 1.0	1.0
Methyl ethyl ketone	78-93-3	ug/L	5,000	< 5.0	5.0	< 5.0	5.0	< 5.0	5.0
Methyl t-butyl ether (MTBE)	1634-04-4	ug/L	5,000	1.5	1.0	3.1	1.0	< 1.0	1.0
Methylene chloride	75-09-2	ug/L	2,000	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
Naphthalene	91-20-3	ug/L	700	8.6	1.0	< 1.0	1.0	6.8	1.0
n-Butylbenzene	104-51-8	ug/L		2.6	1.0	1.4	1.0	< 1.0	1.0
n-Propylbenzene	103-65-1	ug/L	10,000	9.9	1.0	3.7	1.0	< 1.0	1.0
o-Xylene	95-47-6	ug/L	6,000	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
p-Isopropyltoluene	99-87-6	ug/L	10,000	3.5	1.0	2.1	1.0	< 1.0	1.0
sec-Butylbenzene	135-98-8	ug/L		2.2	1.0	1.1	1.0	< 1.0	1.0
Styrene	100-42-5	ug/L	100	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
tert-Butylbenzene	98-06-6	ug/L	10,000	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
Tetrachloroethene	127-18-4	ug/L	50	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
Tetrahydrofuran (THF)	109-99-9	ug/L	50,000	< 2.5	2.5	< 2.5	2.5	< 2.5	2.5
Toluene	108-88-3	ug/L	40,000	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
Total Xylenes	1330-20-7	ug/L	3,000	1.3	1.0	< 1.0	1.0	< 1.0	1.0
trans-1,2-Dichloroethene	156-60-5	ug/L	80	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
trans-1,3-Dichloropropene	10061-02-6	ug/L	5	< 0.40	0.40	< 0.40	0.40	< 0.40	0.40
trans-1,4-dichloro-2-butene	110-57-6	ug/L	1,000	< 5.0	5.0	< 5.0	5.0	< 5.0	5.0
Trichloroethene	79-01-6	ug/L	5	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
Trichlorofluoromethane	75-69-4	ug/L	100,000	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
Trichlorotrifluoroethane	76-13-1	ug/L		< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
Vinyl chloride	75-01-4	ug/L	2	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
Total VOCs		mg/L		**0.14**		**0.06**		**0.02**	

TERRA Environmental, LLC Project: BROADWAY CHELSEA Client: AQUALINE	Lab Sample Id Collection Date Client Id Matrix			CH25416 12/3/2020 MW-103A Ground Water		CH26131 12/7/2020 MW103B Ground Water		CH27135 12/7/2020 MW-101 Ground Water	
	CAS	Units	MassDEP RC GW-2	Result	RL	Result	RL	Result	RL
Semivolatiles By SW8270D									
1,2,4,5-Tetrachlorobenzene	95-94-3	ug/L	100,000	< 3.5	3.5	< 5.6	5.6	< 3.4	3.4
1,2,4-Trichlorobenzene	120-82-1	ug/L	200	< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
1,2-Dichlorobenzene	95-50-1	ug/L	2,000	< 2.5	2.5	< 4.0	4.0	< 2.4	2.4
1,2-Diphenylhydrazine	122-66-7	ug/L	5,000	< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
1,3-Dichlorobenzene	541-73-1	ug/L	2,000	< 2.5	2.5	< 4.0	4.0	< 2.4	2.4
1,4-Dichlorobenzene	106-46-7	ug/L	200	< 2.5	2.5	< 4.0	4.0	< 2.4	2.4
2,4,5-Trichlorophenol	95-95-4	ug/L	3,000	< 0.99	0.99	< 1.6	1.6	< 0.96	0.96
2,4,6-Trichlorophenol	88-06-2	ug/L	500	< 0.99	0.99	< 1.6	1.6	< 0.96	0.96
2,4-Dichlorophenol	120-83-2	ug/L	2,000	< 0.99	0.99	< 1.6	1.6	< 0.96	0.96
2,4-Dimethylphenol	105-67-9	ug/L	40,000	< 0.99	0.99	< 1.6	1.6	< 0.96	0.96
2,4-Dinitrophenol	51-28-5	ug/L	20,000	< 0.99	0.99	< 1.6	1.6	< 0.96	0.96
2,4-Dinitrotoluene	121-14-2	ug/L	20,000	< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
2,6-Dinitrotoluene	606-20-2	ug/L	10,000	< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
2-Chloronaphthalene	91-58-7	ug/L	100,000	< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
2-Chlorophenol	95-57-8	ug/L	7,000	< 0.99	0.99	< 1.6	1.6	< 0.96	0.96
2-Methylphenol (o-cresol)	95-48-7	ug/L	50,000	< 0.99	0.99	< 1.6	1.6	< 0.96	0.96
2-Nitroaniline	88-74-4	ug/L		< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
2-Nitrophenol	88-75-5	ug/L	10,000	< 0.99	0.99	< 1.6	1.6	< 0.96	0.96
3&4-Methylphenol (m&p-cresol)	PHNX - M&P CRESOL	ug/L		< 9.9	9.9	< 16	16	< 9.6	9.6
3,3'-Dichlorobenzidine	91-94-1	ug/L	2,000	< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
3-Nitroaniline	99-09-2	ug/L		< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
4,6-Dinitro-2-methylphenol	534-52-1	ug/L	5,000	< 0.99	0.99	< 1.6	1.6	< 0.96	0.96
4-Bromophenyl phenyl ether	101-55-3	ug/L	10,000	< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
4-Chloro-3-methylphenol	59-50-7	ug/L	100,000	< 0.99	0.99	< 1.6	1.6	< 0.96	0.96
4-Chloroaniline	106-47-8	ug/L	300	< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
4-Chlorophenyl phenyl ether	7005-72-3	ug/L	100,000	< 0.99	0.99	< 1.6	1.6	< 0.96	0.96
4-Nitroaniline	100-01-6	ug/L	100,000	< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
4-Nitrophenol	100-02-7	ug/L	10,000	< 0.99	0.99	< 1.6	1.6	< 0.96	0.96
Acetophenone	98-86-2	ug/L	100,000	< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
Aniline	62-53-3	ug/L	100,000	< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
Benzidine	92-87-5	ug/L	1,000	< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
Benzoic acid	65-85-0	ug/L	100,000	< 50	50	< 80	80	< 48	48
Benzyl butyl phthalate	85-68-7	ug/L	10,000	< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
Bis(2-chloroethoxy)methane	111-91-1	ug/L	50,000	< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
Bis(2-chloroethyl)ether	111-44-4	ug/L	30	< 0.99	0.99	< 1.6	1.6	< 0.96	0.96
Bis(2-chloroisopropyl)ether	108-60-1	ug/L	100	< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
Bis(2-ethylhexyl)phthalate	117-81-7	ug/L	50,000	< 0.99	0.99	< 1.6	1.6	< 0.96	0.96
Carbazole	86-74-8	ug/L		< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
Dibenzofuran	132-64-9	ug/L	10,000	< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
Diethyl phthalate	84-66-2	ug/L	9,000	< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
Dimethylphthalate	131-11-3	ug/L	50,000	< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
Di-n-butylphthalate	84-74-2	ug/L	5,000	< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
Di-n-octylphthalate	117-84-0	ug/L	100,000	< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
Hexachloroethane	67-72-1	ug/L	100	< 0.99	0.99	< 1.6	1.6	< 0.96	0.96
Isophorone	78-59-1	ug/L	10,000	< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
N-Nitrosodi-n-propylamine	621-64-7	ug/L	5,000	< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
N-Nitrosodiphenylamine	86-30-6	ug/L	10,000	< 5.0	5.0	< 8.0	8.0	< 4.8	4.8
Pentachloronitrobenzene	82-68-8	ug/L	10,000	< 2.5	2.5	< 4.0	4.0	< 2.4	2.4
Phenol	108-95-2	ug/L	2,000	< 0.99	0.99	< 1.6	1.6	< 0.96	0.96
Total SVOCs		mg/L		**ND**		**ND**		**ND**	
Semivolatiles (SIM) By SW8270D (SIM)									
2-Methylnaphthalene	91-57-6	ug/L	2,000	< 0.50	0.50	< 0.80	0.80	1.6	0.48
Acenaphthene	83-32-9	ug/L	6,000	< 0.50	0.50	< 0.80	0.80	< 0.48	0.48
Acenaphthylene	208-96-8	ug/L	40	< 0.10	0.10	< 0.16	0.16	< 0.10	0.10
Anthracene	120-12-7	ug/L	30	< 0.09	0.09	< 0.15	0.15	< 0.09	0.09
Benz(a)anthracene	56-55-3	ug/L	1,000	< 0.10	0.10	0.27	0.16	< 0.10	0.10
Benzo(a)pyrene	50-32-8	ug/L	500	< 0.20	0.20	< 0.20	0.20	< 0.19	0.19
Benzo(b)fluoranthene	205-99-2	ug/L	400	< 0.10	0.10	0.27	0.16	< 0.10	0.10
Benzo(ghi)perylene	191-24-2	ug/L	20	< 0.02	0.02	0.24	0.03	0.02	0.02
Benzo(b)fluoranthene	205-99-2	ug/L	400	< 0.10	0.10	0.27	0.16	< 0.10	0.10
Chrysene	218-01-9	ug/L	70	< 0.05	0.05	0.27	0.08	< 0.05	0.05
Dibenz(a,h)anthracene	53-70-3	ug/L	40	< 0.02	0.02	0.05	0.03	< 0.02	0.02
Fluoranthene	206-44-0	ug/L	200	< 0.50	0.50	0.98	0.80	< 0.48	0.48
Fluorene	86-73-7	ug/L	40	< 0.10	0.10	0.22	0.16	< 0.10	0.10
Hexachlorobenzene	118-74-1	ug/L	1	< 0.50	0.50	< 0.80	0.80	< 0.48	0.48
Hexachlorobutadiene	87-68-3	ug/L	1	< 0.50	0.50	< 0.6	0.6	< 0.48	0.48
Hexachlorocyclopentadiene	77-47-4	ug/L	5,000	< 0.50	0.50	< 0.80	0.80	< 0.48	0.48
Indeno(1,2,3-cd)pyrene	193-39-5	ug/L	100	< 0.10	0.10	0.22	0.16	< 0.10	0.10
Naphthalene	91-20-3	ug/L	700	< 0.50	0.50	0.98	0.80	2.6	0.48
Nitrobenzene	98-95-3	ug/L	50,000	< 0.50	0.50	< 0.80	0.80	< 0.48	0.48
N-Nitrosodimethylamine	62-75-9	ug/L	5,000	< 0.50	0.50	< 0.80	0.80	< 0.48	0.48
Pentachlorophenol	87-86-5	ug/L	200	< 0.50	0.50	< 0.80	0.80	< 0.48	0.48
Phenanthrene	85-01-8	ug/L	10,000	< 0.50	0.50	< 0.80	0.80	< 0.48	0.48
Pyrene	129-00-0	ug/L	20	< 0.07	0.07	1	0.11	0.07	0.07
Pyridine	110-86-1	ug/L	50,000	< 0.50	0.50	< 0.80	0.80	< 0.48	0.48
Total SVOCs		mg/L		**ND**		**4.77**		**4.29**	
Oxygenates & Dioxane By SW8260C (OXY)									
1,4-Dioxane	123-91-1	ug/L	6,000	< 100	100	< 100	100	< 100	100
Diethyl ether	60-29-7	ug/L	10,000	< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
Di-isopropyl ether	108-20-3	ug/L	10,000	< 1.0	1.0	1.2	1.0	< 1.0	1.0
Ethyl tert-butyl ether	637-92-3	ug/L		< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
tert-amyl methyl ether	994-05-8	ug/L		< 1.0	1.0	< 1.0	1.0	< 1.0	1.0
1,4-dioxane By SW8270DSIM									
1,4-dioxane	123-91-1	ug/l	6,000	< 0.20	0.20	< 0.20	0.20	< 0.20	0.20

Result Detected
RL Exceeds Criteria
Result Exceeds Criteria

Table 2: Summary of Analytical Data - Surface Water

TERRA Environmental, LLC Project: BROADWAY CHELSEA Client: AQUALINE	Lab Sample Id Collection Date Client Id Matrix CAS	Units	MassDEP RC GW-2	CH25415 12/3/2020 MILL CREEK Surface Water Result	RL	CH51816 1/25/2021 MILL CREEK Surface Water Result	RL
Miscellaneous/Inorganics							
Chloride	16887-00-6	mg/L		2,120	60.0	NT	
Chlorine Residual	7782-50-5	mg/L		0.15	0.02	NT	
1,2-Dibromoethane (EDB)	106-93-4	ug/L	2	< 0.02	0.02	NT	
Ethanol	64-17-5	ug/L	10,000	< 400	400	NT	
Ammonia as Nitrogen	7664-41-7	mg/L	10	0.57	0.05	NT	
Phenolics	64743-03-9	mg/L		< 0.015	0.015	NT	
pH	PHNX - PH	pH Units		8.05	1.00	NT	
Tert-amyl-methyl-ether	994-05-8	ug/L		< 1.0	1.0	NT	
Tert-butyl alcohol	75-65-0	ug/L	10,000	< 50	50	NT	
Total Cyanide	57-12-5	mg/L	0.03	0.011	0.010	NT	
O&G, Non-polar Material	PHNX - OIL-GREASE-NP	mg/L		< 1.5	1.5	NT	
Total Suspended Solids	PHNX - TOTSUSPENDSOL	mg/L		64	5.0	NT	
Salinity	7647-14-5	ppt		NT		13.4	0.5
Metals, Total							
Antimony	7440-36-0	mg/L	8	< 0.005	0.005	NT	
Arsenic	7440-38-2	mg/L	0.9	< 0.004	0.004	NT	
Barium	7440-39-3	mg/L	50	0.043	0.002	NT	
Cadmium	7440-43-9	mg/L	0.004	< 0.001	0.001	NT	
Chromium	7440-47-3	mg/L	0.3	< 0.001	0.001	NT	
Chromium, Hexavalent	18540-29-9	mg/L	0.3	0.01	0.01	NT	
Copper	7440-50-8	mg/L	100	0.01	0.005	NT	
Hardness (CaCO3)	PHNX - HARDNESS	mg/L		646	0.1	NT	
Iron	7439-89-6	mg/L		0.669	0.010	NT	
Lead	7439-92-1	mg/L	0.01	0.002	0.002	NT	
Mercury	7439-97-6	mg/L	0.02	< 0.0002	0.0002	NT	
Nickel	7440-02-0	mg/L	0.2	< 0.001	0.001	NT	
Selenium	7782-49-2	mg/L	0.1	< 0.010	0.010	NT	
Silver	7440-22-4	mg/L	0.007	< 0.001	0.001	NT	
Trivalent Chromium	16065-83-1	mg/L	0.6	< 0.001	0.001	NT	
Zinc	7440-66-6	mg/L	0.9	0.015	0.004	NT	
Metals, Dissolved							
Antimony (Dissolved)	7440-36-0	mg/L	8	NT		NT	
Arsenic (Dissolved)	7440-38-2	mg/L	0.9	NT		NT	
Barium (Dissolved)	7440-39-3	mg/L	50	NT		NT	
Cadmium (Dissolved)	7440-43-9	mg/L	0.004	NT		NT	
Chromium (Dissolved)	7440-47-3	mg/L	0.3	NT		NT	
Copper (Dissolved)	7440-50-8	mg/L	100	NT		NT	
Diss. Hexavalent Chromium	18540-29-9	mg/L	0.3	NT		NT	
Iron (Dissolved)	7439-89-6	mg/L		NT		NT	
Lead (Dissolved)	7439-92-1	mg/L	0.01	NT		NT	
Mercury (Dissolved)	7439-97-6	mg/L	0.02	NT		NT	
Nickel (Dissolved)	7440-02-0	mg/L	0.2	NT		NT	
Selenium (Dissolved)	7782-49-2	mg/L	0.1	NT		NT	
Silver (Dissolved)	7440-22-4	mg/L	0.007	NT		NT	
Zinc (Dissolved)	7440-66-6	mg/L	0.9	NT		NT	
PCBs By SW8082A							
PCB-1016	12674-11-2	ug/L	5	< 0.047	0.047	NT	
PCB-1221	11104-28-2	ug/L	5	< 0.047	0.047	NT	
PCB-1232	11141-16-5	ug/L	5	< 0.047	0.047	NT	
PCB-1242	53469-21-9	ug/L	5	< 0.047	0.047	NT	
PCB-1248	12672-29-6	ug/L	5	< 0.047	0.047	NT	
PCB-1254	11097-69-1	ug/L	5	< 0.047	0.047	NT	
PCB-1260	11096-82-5	ug/L	5	< 0.047	0.047	NT	
PCB-1262	37324-23-5	ug/L		< 0.047	0.047	NT	
PCB-1268	11100-14-4	ug/L		< 0.047	0.047	NT	
Total PCBs				**ND**		NT	

TERRA Environmental, LLC Project: BROADWAY CHELSEA Client: AQUALINE	Lab Sample Id Collection Date Client Id Matrix			CH25415 12/3/2020 MILL CREEK Surface Water		CH51816 1/25/2021 MILL CREEK Surface Water	
	CAS	Units	MassDEP RC GW-2	Result	RL	Result	RL
Volatiles By SW8260C							
1,1,1,2-Tetrachloroethane	630-20-6	ug/L	10	< 1.0	1.0	NT	
1,1,1-Trichloroethane	71-55-6	ug/L	4,000	< 1.0	1.0	NT	
1,1,2,2-Tetrachloroethane	79-34-5	ug/L	9	< 0.50	0.50	NT	
1,1,2-Trichloroethane	79-00-5	ug/L	900	< 1.0	1.0	NT	
1,1-Dichloroethane	75-34-3	ug/L	2,000	< 1.0	1.0	NT	
1,1-Dichloroethene	75-35-4	ug/L	80	< 1.0	1.0	NT	
1,1-Dichloropropene	563-58-6	ug/L		< 1.0	1.0	NT	
1,2,3-Trichlorobenzene	87-61-6	ug/L		< 1.0	1.0	NT	
1,2,3-Trichloropropane	96-18-4	ug/L	10,000	< 1.0	1.0	NT	
1,2,4-Trichlorobenzene	120-82-1	ug/L	200	< 1.0	1.0	NT	
1,2,4-Trimethylbenzene	95-63-6	ug/L	100,000	< 1.0	1.0	NT	
1,2-Dibromo-3-chloropropane	96-12-8	ug/L	1,000	< 1.0	1.0	NT	
1,2-Dibromoethane	106-93-4	ug/L	2	< 0.50	0.50	NT	
1,2-Dichlorobenzene	95-50-1	ug/L	2,000	< 1.0	1.0	NT	
1,2-Dichloroethane	107-06-2	ug/L	5	< 0.60	0.60	NT	
1,2-Dichloropropane	78-87-5	ug/L	3	< 1.0	1.0	NT	
1,3,5-Trimethylbenzene	108-67-8	ug/L	1,000	< 1.0	1.0	NT	
1,3-Dichlorobenzene	541-73-1	ug/L	2,000	< 1.0	1.0	NT	
1,3-Dichloropropane	142-28-9	ug/L	50,000	< 1.0	1.0	NT	
1,4-Dichlorobenzene	106-46-7	ug/L	200	< 1.0	1.0	NT	
2,2-Dichloropropane	594-20-7	ug/L		< 1.0	1.0	NT	
2-Chlorotoluene	95-49-8	ug/L	10,000	< 1.0	1.0	NT	
2-Hexanone	591-78-6	ug/L	10,000	< 5.0	5.0	NT	
2-Isopropyltoluene	527-84-4	ug/L		< 1.0	1.0	NT	
4-Chlorotoluene	106-43-4	ug/L		< 1.0	1.0	NT	
4-Methyl-2-pentanone	108-10-1	ug/L	50,000	< 5.0	5.0	NT	
Acetone	67-64-1	ug/L	50,000	< 25	25	NT	
Acrylonitrile	107-13-1	ug/L	10,000	< 1.0	1.0	NT	
Benzene	71-43-2	ug/L	1,000	< 0.70	0.70	NT	
Bromobenzene	108-86-1	ug/L	10,000	< 1.0	1.0	NT	
Bromochloromethane	74-97-5	ug/L		< 1.0	1.0	NT	
Bromodichloromethane	75-27-4	ug/L	6	< 0.50	0.50	NT	
Bromoform	75-25-2	ug/L	700	< 1.0	1.0	NT	
Bromomethane	74-83-9	ug/L	7	< 1.0	1.0	NT	
Carbon Disulfide	75-15-0	ug/L	10,000	< 5.0	5.0	NT	
Carbon tetrachloride	56-23-5	ug/L	2	< 1.0	1.0	NT	
Chlorobenzene	108-90-7	ug/L	200	< 1.0	1.0	NT	
Chloroethane	75-00-3	ug/L	10,000	< 1.0	1.0	NT	
Chloroform	67-66-3	ug/L	50	< 1.0	1.0	NT	
Chloromethane	74-87-3	ug/L	10,000	< 1.0	1.0	NT	
cis-1,2-Dichloroethene	156-59-2	ug/L	20	< 1.0	1.0	NT	
cis-1,3-Dichloropropene	10061-01-5	ug/L	5	< 0.40	0.40	NT	
Dibromochloromethane	124-48-1	ug/L	20	< 0.50	0.50	NT	
Dibromomethane	74-95-3	ug/L	50,000	< 1.0	1.0	NT	
Dichlorodifluoromethane	75-71-8	ug/L	100,000	< 1.0	1.0	NT	
Ethylbenzene	100-41-4	ug/L	5,000	< 1.0	1.0	NT	
Hexachlorobutadiene	87-68-3	ug/L	1	< 0.40	0.40	NT	
Isopropylbenzene	98-82-8	ug/L	100,000	< 1.0	1.0	NT	
m&p-Xylene	179601-23-1	ug/L		< 1.0	1.0	NT	
Methyl ethyl ketone	78-93-3	ug/L	5,000	< 5.0	5.0	NT	
Methyl t-butyl ether (MTBE)	1634-04-4	ug/L	5,000	< 1.0	1.0	NT	
Methylene chloride	75-09-2	ug/L	2,000	< 1.0	1.0	NT	
Naphthalene	91-20-3	ug/L	700	< 1.0	1.0	NT	
n-Butylbenzene	104-51-8	ug/L		< 1.0	1.0	NT	
n-Propylbenzene	103-65-1	ug/L	10,000	< 1.0	1.0	NT	
o-Xylene	95-47-6	ug/L	6,000	< 1.0	1.0	NT	
p-Isopropyltoluene	99-87-6	ug/L	10,000	< 1.0	1.0	NT	
sec-Butylbenzene	135-98-8	ug/L		< 1.0	1.0	NT	
Styrene	100-42-5	ug/L	100	< 1.0	1.0	NT	
tert-Butylbenzene	98-06-6	ug/L	10,000	< 1.0	1.0	NT	
Tetrachloroethene	127-18-4	ug/L	50	< 1.0	1.0	NT	
Tetrahydrofuran (THF)	109-99-9	ug/L	50,000	< 2.5	2.5	NT	
Toluene	108-88-3	ug/L	40,000	< 1.0	1.0	NT	
Total Xylenes	1330-20-7	ug/L	3,000	< 1.0	1.0	NT	
trans-1,2-Dichloroethene	156-60-5	ug/L	80	< 1.0	1.0	NT	
trans-1,3-Dichloropropene	10061-02-6	ug/L	5	< 0.40	0.40	NT	
trans-1,4-dichloro-2-butene	110-57-6	ug/L	1,000	< 5.0	5.0	NT	
Trichloroethene	79-01-6	ug/L	5	< 1.0	1.0	NT	
Trichlorofluoromethane	75-69-4	ug/L	100,000	< 1.0	1.0	NT	
Trichlorotrifluoroethane	76-13-1	ug/L		< 1.0	1.0	NT	
Vinyl chloride	75-01-4	ug/L	2	< 1.0	1.0	NT	
Total VOCs		mg/L		**ND**		NT	

TERRA Environmental, LLC Project: BROADWAY CHELSEA Client: AQUALINE	Lab Sample Id Collection Date Client Id Matrix			CH25415 12/3/2020 MILL CREEK Surface Water		CH51816 1/25/2021 MILL CREEK Surface Water	
	CAS	Units	MassDEP RC GW-2	Result	RL	Result	RL
Semivolatiles By SW8270D							
1,2,4,5-Tetrachlorobenzene	95-94-3	ug/L	100,000	< 3.5	3.5	NT	
1,2,4-Trichlorobenzene	120-82-1	ug/L	200	< 5.0	5.0	NT	
1,2-Dichlorobenzene	95-50-1	ug/L	2,000	< 2.5	2.5	NT	
1,2-Diphenylhydrazine	122-66-7	ug/L	5,000	< 5.0	5.0	NT	
1,3-Dichlorobenzene	541-73-1	ug/L	2,000	< 2.5	2.5	NT	
1,4-Dichlorobenzene	106-46-7	ug/L	200	< 2.5	2.5	NT	
2,4,5-Trichlorophenol	95-95-4	ug/L	3,000	< 1.0	1.0	NT	
2,4,6-Trichlorophenol	88-06-2	ug/L	500	< 1.0	1.0	NT	
2,4-Dichlorophenol	120-83-2	ug/L	2,000	< 1.0	1.0	NT	
2,4-Dimethylphenol	105-67-9	ug/L	40,000	< 1.0	1.0	NT	
2,4-Dinitrophenol	51-28-5	ug/L	20,000	< 1.0	1.0	NT	
2,4-Dinitrotoluene	121-14-2	ug/L	20,000	< 5.0	5.0	NT	
2,6-Dinitrotoluene	606-20-2	ug/L	10,000	< 5.0	5.0	NT	
2-Chloronaphthalene	91-58-7	ug/L	100,000	< 5.0	5.0	NT	
2-Chlorophenol	95-57-8	ug/L	7,000	< 1.0	1.0	NT	
2-Methylphenol (o-cresol)	95-48-7	ug/L	50,000	< 1.0	1.0	NT	
2-Nitroaniline	88-74-4	ug/L		< 5.0	5.0	NT	
2-Nitrophenol	88-75-5	ug/L	10,000	< 1.0	1.0	NT	
3&4-Methylphenol (m&p-cresol)	PHNX - M&P CRESOL	ug/L		< 10	10	NT	
3,3'-Dichlorobenzidine	91-94-1	ug/L	2,000	< 5.0	5.0	NT	
3-Nitroaniline	99-09-2	ug/L		< 5.0	5.0	NT	
4,6-Dinitro-2-methylphenol	534-52-1	ug/L	5,000	< 1.0	1.0	NT	
4-Bromophenyl phenyl ether	101-55-3	ug/L	10,000	< 5.0	5.0	NT	
4-Chloro-3-methylphenol	59-50-7	ug/L	100,000	< 1.0	1.0	NT	
4-Chloroaniline	106-47-8	ug/L	300	< 5.0	5.0	NT	
4-Chlorophenyl phenyl ether	7005-72-3	ug/L	100,000	< 1.0	1.0	NT	
4-Nitroaniline	100-01-6	ug/L	100,000	< 5.0	5.0	NT	
4-Nitrophenol	100-02-7	ug/L	10,000	< 1.0	1.0	NT	
Acetophenone	98-86-2	ug/L	100,000	< 5.0	5.0	NT	
Aniline	62-53-3	ug/L	100,000	< 5.0	5.0	NT	
Benzidine	92-87-5	ug/L	1,000	< 5.0	5.0	NT	
Benzoic acid	65-85-0	ug/L	100,000	< 50	50	NT	
Benzyl butyl phthalate	85-68-7	ug/L	10,000	< 5.0	5.0	NT	
Bis(2-chloroethoxy)methane	111-91-1	ug/L	50,000	< 5.0	5.0	NT	
Bis(2-chloroethyl)ether	111-44-4	ug/L	30	< 1.0	1.0	NT	
Bis(2-chloroisopropyl)ether	108-60-1	ug/L	100	< 5.0	5.0	NT	
Bis(2-ethylhexyl)phthalate	117-81-7	ug/L	50,000	< 1.0	1.0	NT	
Carbazole	86-74-8	ug/L		< 5.0	5.0	NT	
Dibenzofuran	132-64-9	ug/L	10,000	< 5.0	5.0	NT	
Diethyl phthalate	84-66-2	ug/L	9,000	< 5.0	5.0	NT	
Dimethylphthalate	131-11-3	ug/L	50,000	< 5.0	5.0	NT	
Di-n-butylphthalate	84-74-2	ug/L	5,000	< 5.0	5.0	NT	
Di-n-octylphthalate	117-84-0	ug/L	100,000	< 5.0	5.0	NT	
Hexachloroethane	67-72-1	ug/L	100	< 1.0	1.0	NT	
Isophorone	78-59-1	ug/L	10,000	< 5.0	5.0	NT	
N-Nitrosodi-n-propylamine	621-64-7	ug/L	5,000	< 5.0	5.0	NT	
N-Nitrosodiphenylamine	86-30-6	ug/L	10,000	< 5.0	5.0	NT	
Pentachloronitrobenzene	82-68-8	ug/L	10,000	< 2.5	2.5	NT	
Phenol	108-95-2	ug/L	2,000	< 1.0	1.0	NT	
Total SVOCs		mg/L		**ND**		NT	
Semivolatiles (SIM) By SW8270D (SIM)							
2-Methylnaphthalene	91-57-6	ug/L	2,000	< 0.50	0.50	NT	
Acenaphthene	83-32-9	ug/L	6,000	< 0.50	0.50	NT	
Acenaphthylene	208-96-8	ug/L	40	< 0.10	0.10	NT	
Anthracene	120-12-7	ug/L	30	< 0.10	0.10	NT	
Benz(a)anthracene	56-55-3	ug/L	1,000	< 0.10	0.10	NT	
Benzo(a)pyrene	50-32-8	ug/L	500	< 0.20	0.20	NT	
Benzo(b)fluoranthene	205-99-2	ug/L	400	< 0.10	0.10	NT	
Benzo(ghi)perylene	191-24-2	ug/L	20	< 0.02	0.02	NT	
Benzo(b)fluoranthene	205-99-2	ug/L	400	< 0.10	0.10	NT	
Chrysene	218-01-9	ug/L	70	< 0.05	0.05	NT	
Dibenz(a,h)anthracene	53-70-3	ug/L	40	< 0.02	0.02	NT	
Fluoranthene	206-44-0	ug/L	200	< 0.50	0.50	NT	
Fluorene	86-73-7	ug/L	40	< 0.10	0.10	NT	
Hexachlorobenzene	118-74-1	ug/L	1	< 0.50	0.50	NT	
Hexachlorobutadiene	87-68-3	ug/L	1	< 0.50	0.50	NT	
Hexachlorocyclopentadiene	77-47-4	ug/L	5,000	< 0.50	0.50	NT	
Indeno(1,2,3-cd)pyrene	193-39-5	ug/L	100	< 0.10	0.10	NT	
Naphthalene	91-20-3	ug/L	700	< 0.50	0.50	NT	
Nitrobenzene	98-95-3	ug/L	50,000	< 0.50	0.50	NT	
N-Nitrosodimethylamine	62-75-9	ug/L	5,000	< 0.50	0.50	NT	
Pentachlorophenol	87-86-5	ug/L	200	< 0.50	0.50	NT	
Phenanthrene	85-01-8	ug/L	10,000	< 0.50	0.50	NT	
Pyrene	129-00-0	ug/L	20	< 0.07	0.07	NT	
Pyridine	110-86-1	ug/L	50,000	< 0.50	0.50	NT	
Total SVOCs		mg/L		**ND**		NT	
Oxygenates & Dioxane By SW8260C (OXY)							
1,4-Dioxane	123-91-1	ug/L	6,000	< 100	100	NT	
Diethyl ether	60-29-7	ug/L	10,000	< 1.0	1.0	NT	
Di-isopropyl ether	108-20-3	ug/L	10,000	< 1.0	1.0	NT	
Ethyl tert-butyl ether	637-92-3	ug/L		< 1.0	1.0	NT	
tert-amyl methyl ether	994-05-8	ug/L		< 1.0	1.0	NT	
1,4-dioxane By SW8270DSIM							
1,4-dioxane	123-91-1	ug/l	6,000	< 0.20	0.20	NT	

Result Detected
RL Exceeds Criteria
Result Exceeds Criteria

Table 3: Dilution Factor and Effluent Limit Calculations

Enter number values in green boxes below

Enter values in the units specified

↓		
0	Q_R = Enter upstream flow in **MGD**	Freshwater: Q_R equal to the 7Q10; enter alternate Q_R if approved by the State; enter 0 if no dilution factor approv
0.144	Q_P = Enter discharge flow in **MGD**	Saltwater (estuarine and marine): enter Q_R if approved by the State; enter 0 if no entry
0	Downstream 7Q10	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

Enter a dilution factor, if other than zero

↓	
0	

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

Enter values in the units specified

↓	
1980	C_d = Enter influent hardness in **mg/L** $CaCO_3$
646	C_s = Enter receiving water hardness in **mg/L** $CaCO_3$

Freshwater only

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

↓	
8.05	pH in **Standard Units**
	Temperature in **°C**
0	Ammonia in **mg/L**
0.57	Hardness in **mg/L** $CaCO_3$
13.4	Salinity in **ppt**
0	Antimony in **µg/L**
0	Arsenic in **µg/L**
0	Cadmium in **µg/L**
0	Chromium III in **µg/L**
10	Chromium VI in **µg/L**
10	Copper in **µg/L**
669	Iron in **µg/L**
2	Lead in **µg/L**
0	Mercury in **µg/L**
0	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
15	Zinc in **µg/L**

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

↓	
0	TRC in **µg/L**
1.74	Ammonia in **mg/L**
19	Antimony in **µg/L**
13	Arsenic in **µg/L**
0	Cadmium in **µg/L**
5	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
29	Copper in **µg/L**
1960	Iron in **µg/L**
7	Lead in **µg/L**
0	Mercury in **µg/L**
9	Nickel in **µg/L**
9	Selenium in **µg/L**
4	Silver in **µg/L**
98	Zinc in **µg/L**
45	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**
0.27	Benzo(a)anthracene in **µg/L**
0	Benzo(a)pyrene in **µg/L**
0.27	Benzo(b)fluoranthene in **µg/L**
0.22	Benzo(k)fluoranthene in **µg/L**
0.27	Chrysene in **µg/L**
0.05	Dibenzo(a,h)anthracene in **µg/L**
0.22	Indeno(1,2,3-cd)pyrene in **µg/L**
3.1	Methyl-tert butyl ether in **µg/L**

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

Dilution Factor	0.0					
A. Inorganics	TBEL applies if bolded		WQBEL applies if bolded		Compliance Level applies if shown	
Ammonia	**Report**	mg/L	---			
Chloride	**Report**	µg/L	---			
Total Residual Chlorine	0.2	mg/L	**7.5**	µg/L	50	µg/L
Total Suspended Solids	**30**	mg/L	---			
Antimony	**206**	µg/L	640	µg/L		
Arsenic	**104**	µg/L	36	µg/L		
Cadmium	**10.2**	µg/L	8.9	µg/L		
Chromium III	**323**	µg/L	100.0	µg/L		
Chromium VI	**323**	µg/L	50	µg/L		
Copper	242	µg/L	**3.7**	µg/L		
Iron	**5000**	µg/L	---	µg/L		
Lead	**160**	µg/L	8.5	µg/L		
Mercury	**0.739**	µg/L	1.11	µg/L		
Nickel	1450	µg/L	**8.3**	µg/L		
Selenium	**235.8**	µg/L	71	µg/L		
Silver	35.1	µg/L	**2.2**	µg/L		
Zinc	420	µg/L	**86**	µg/L		
Cyanide	178	mg/L	**1.0**	µg/L	5	µg/L
B. Non-Halogenated VOCs						
Total BTEX	**100**	µg/L	---			
Benzene	**5.0**	µg/L	---			
1,4 Dioxane	**200**	µg/L	---			
Acetone	**7.97**	mg/L	---			
Phenol	**1,080**	µg/L	300	µg/L		
C. Halogenated VOCs						
Carbon Tetrachloride	**4.4**		1.6	µg/L		
1,2 Dichlorobenzene	**600**	µg/L	---			
1,3 Dichlorobenzene	**320**	µg/L	---			
1,4 Dichlorobenzene	**5.0**	µg/L	---			
Total dichlorobenzene	**---**	µg/L	---			
1,1 Dichloroethane	**70**	µg/L	---			
1,2 Dichloroethane	**5.0**	µg/L	---			
1,1 Dichloroethylene	**3.2**	µg/L	---			
Ethylene Dibromide	**0.05**	µg/L	---			
Methylene Chloride	**4.6**	µg/L	---			
1,1,1 Trichloroethane	**200**	µg/L	---			
1,1,2 Trichloroethane	**5.0**	µg/L	---			
Trichloroethylene	**5.0**	µg/L	---			
Tetrachloroethylene	**5.0**	µg/L	3.3	µg/L		
cis-1,2 Dichloroethylene	**70**	µg/L	---			
Vinyl Chloride	**2.0**	µg/L	---			
D. Non-Halogenated SVOCs						
Total Phthalates	**190**	µg/L	---	µg/L		
Diethylhexyl phthalate	**101**	µg/L	2.2	µg/L		
Total Group I Polycyclic Aromatic Hydrocarbons	**1.0**	µg/L	---			
Benzo(a)anthracene	1.0	µg/L	**0.0038**	µg/L	0.1	µg/L
Benzo(a)pyrene	**1.0**	µg/L	0.0038	µg/L	---	µg/L
Benzo(b)fluoranthene	1.0	µg/L	**0.0038**	µg/L	0.1	µg/L
Benzo(k)fluoranthene	1.0	µg/L	**0.0038**	µg/L	0.1	µg/L
Chrysene	1.0	µg/L	**0.0038**	µg/L	0.1	µg/L
Dibenzo(a,h)anthracene	1.0	µg/L	**0.0038**	µg/L	0.1	µg/L
Indeno(1,2,3-cd)pyrene	1.0	µg/L	**0.0038**	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	20	µg/L		
tert-Butyl Alcohol	**120**	µg/L	---			
tert-Amyl Methyl Ether	**90**	µg/L	---			

APPENDIX A

LIMITATIONS

The purpose of this report is to present a summary of environmental conditions, including the results of testing of groundwater samples obtained from groundwater monitoring wells within the Broadway Water and Sewer Improvements Project, in Chelsea, Massachusetts in support of an application for approval of temporary construction dewatering discharge of groundwater into surface waters of the Commonwealth of Massachusetts under EPA's Massachusetts Remediation General Permit MAG910000.

The observations were made under the conditions stated in this report. The conclusions presented above were based on these observations. If variations in the nature and extent of subsurface conditions between the spaced subsurface explorations become evident in the future, it will be necessary to re-evaluate the conclusions presented herein after performing on-site observations and noting the characteristics of any variations. The conclusions submitted in this report are based in part upon analytical data obtained from analysis of groundwater samples and are contingent upon their validity. The data have been reviewed, and interpretations have been made in the text. It should also be noted that fluctuations in the types and levels of contaminants and variations in their flow paths may occur due to changes in seasonal water table, past practices used in disposal, and other factors.

Laboratory analyses have been performed for specific constituents during the course of this assessment, as described in the text. However, it should be noted that additional constituents not searched for during the current study may be present in soil and groundwater at the Site.

This report and application have been prepared on behalf of, and for the exclusive use of Aqua line Utility, Inc. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party, other than the submission to relevant governmental agencies, nor used in whole or in part by any other party without prior written consent of TERRA Environmental, LLC.

APPENDIX B

NOTICE OF INTENT – NPDES REMEDIATION GENERAL PERMIT

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:
Broadway, Chelsea</td><td colspan="3">Site address:
Street: 1001 - 1009 Broadway</td></tr>
<tr><td>City: Chelsea</td><td>State: MA</td><td>Zip: 02150</td></tr>
<tr><td rowspan="4">2. Site owner
City of Chelsea

Owner is (check one): ☐ Federal ■ State/Tribal ☐ Private
☐ Other; if so, specify:</td><td colspan="3">Contact Person: Fidel Maltez</td></tr>
<tr><td colspan="2">Telephone: 617-466-4200</td><td>Email: fmaltez@chelseama.gov</td></tr>
<tr><td colspan="3">Mailing address:
Street: 500 Broadway</td></tr>
<tr><td>City: Chelsea</td><td>State: MA</td><td>Zip: 02150</td></tr>
<tr><td rowspan="4">3. Site operator, if different than owner
Aqua Line Utility, Inc</td><td colspan="3">Contact Person: Helder Barroso</td></tr>
<tr><td colspan="2">Telephone: 774-644-9611</td><td>Email: helder@aqualineutility.com</td></tr>
<tr><td colspan="3">Mailing address:
Street: 1283 Washington Street</td></tr>
<tr><td>City: Weymouth</td><td>State: MA</td><td>Zip: 02189</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):
☐ 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):
Mill Creek	MA71-08	Class SA

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: The Mill Creek contains tidal flats and salt marshes adjacent to site

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. Category 5: Cause Unknown (Contaminants in Fish and/or Shellfich, Fecal Coliform, PCBs in Fish Tissue

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.	0.128 Ft^3/S
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.	1:1

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: NA

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: Ammonia, Chloride, Total Cyanide, TSS, RCRA 8 Metals, VOCs, SVOCs	
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): Drainage manholes on Broadway to outfall off Broadway which discharges into Mill Creek	Outfall location(s): (Latitude, Longitude) 42.403069, -71.018290
Discharges enter the receiving water(s) via (check any that apply): ☐ Direct discharge to the receiving water ■ Indirect discharge, if so, specify: Drainage manholes on Broadway to outfall off Broadway which discharges into Mill Creek ☐ A private storm sewer system ■ A municipal storm sewer system If the discharge enters the receiving water via a private or municipal storm sewer system: Has notification been provided to the owner of this system? (check one): ■ Yes ☐ No Has the operator has received permission from the owner to use such system for discharges? (check one): ■ Yes ☐ No, if so, explain, with an estimated timeframe for obtaining permission: Has the operator attached a summary of any additional requirements the owner of this system has specified? (check one): ☐ Yes ■ No	
Provide the expected start and end dates of discharge(s) (month/year): April 2021 through March 2022 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		✓	4	E350.1	250	1740	1740	Report mg/L	---
Chloride		✓	4	SM4500C	150000	3760000	1446	Report µg/l	---
Total Residual Chlorine	✓		4	SM4500CL	20	ND	ND	0.2 mg/L	7.5
Total Suspended Solids		✓	4	SM2540D	4500	75000	41	30 mg/L	---
Antimony		✓	4	E200.7	5	19	19	206 µg/L	640
Arsenic		✓	4	E200.7	4	13	8	104 µg/L	36
Cadmium	✓		4	E200.7	1	ND	ND	10.2 µg/L	8.9
Chromium III		✓	4	E200.7	1	5	5	323 µg/L	100
Chromium VI	✓		4	E200.7	10	ND	ND	323 µg/L	50
Copper		✓	4	E200.7	5	29	18	242 µg/L	3.7
Iron		✓	4	E200.7	5	1960	1561	5,000 µg/L	--
Lead		✓	4	E200.7	2	7	6	160 µg/L	8.5
Mercury	✓		4	E245.1	0.2	ND	ND	0.739 µg/L	1.11
Nickel		✓	4	E200.7	1	9	5	1,450 µg/L	8.3
Selenium		✓	4	E200.7	5	9	9	235.8 µg/L	71
Silver		✓	4	E200.7	1	4	4	35.1 µg/L	2.2
Zinc		✓	4	E200.7	4	98	63	420 µg/L	86
Cyanide		✓	4	E335.4	10	45	44	178 mg/L	1.0
B. Non-Halogenated VOCs									
Total BTEX		✓	4	E624.1		11.3	5.6	100 µg/L	---
Benzene	✓		4	E624.1	700	ND	ND	5.0 µg/L	---
1,4 Dioxane	✓		4	SW8260C	200	ND	ND	200 µg/L	---
Acetone	✓		4	E624.1	25000	ND	ND	7.97 mg/L	---
Phenol	✓		4	E625.1	960	ND	ND	1,080 µg/L	300

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
C. Halogenated VOCs									
Carbon Tetrachloride	✓		4	E624.1	1	ND	ND	4.4 µg/L	1.6
1,2 Dichlorobenzene	✓		4	E624.1	1	ND	ND	600 µg/L	---
1,3 Dichlorobenzene	✓		4	E624.1	1	ND	ND	320 µg/L	---
1,4 Dichlorobenzene	✓		4	E624.1	1	ND	ND	5.0 µg/L	---
Total dichlorobenzene	✓		4	E624.1	4	ND	ND	763 µg/L in NH	---
1,1 Dichloroethane	✓		4	E624.1	1	ND	ND	70 µg/L	---
1,2 Dichloroethane	✓		4	E624.1	0.60	ND	ND	5.0 µg/L	---
1,1 Dichloroethylene	✓		4	E624.1	1	ND	ND	3.2 µg/L	---
Ethylene Dibromide	✓		4	E624.1	0.50	ND	ND	0.05 µg/L	---
Methylene Chloride	✓		4	E624.1	1	ND	ND	4.6 µg/L	---
1,1,1 Trichloroethane	✓		4	E624.1	1	ND	ND	200 µg/L	---
1,1,2 Trichloroethane	✓		4	E624.1	1	ND	ND	5.0 µg/L	---
Trichloroethylene	✓		4	E624.1	1	ND	ND	5.0 µg/L	---
Tetrachloroethylene	✓		4	E624.1	1	ND	ND	5.0 µg/L	3.3
cis-1,2 Dichloroethylene	✓		4	E624.1	1	ND	ND	70 µg/L	---
Vinyl Chloride	✓		4	E624.1	1	ND	ND	2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates	✓		4	E625.1		ND	ND	190 µg/L	--
Diethylhexyl phthalate	✓		4	E625.1	0.96	ND	ND	101 µg/L	2.2
Total Group I PAHs		✓	4	625(SIM)		1.35	.23	1.0 µg/L	---
Benzo(a)anthracene		✓	4	625(SIM)	0.16	0.27	.27	As Total PAHs	0.0038
Benzo(a)pyrene	✓		4	625(SIM)	0.20	ND	ND		0.0038
Benzo(b)fluoranthene		✓	4	625(SIM)	0.16	0.27	.27		0.0038
Benzo(k)fluoranthene		✓	4	625(SIM)	0.16	0.22	0.22		0.0038
Chrysene		✓	4	625(SIM)	0.08	0.27	.027		0.0038
Dibenzo(a,h)anthracene		✓	4	625(SIM)	0.03	0.05	0.05		0.0038
Indeno(1,2,3-cd)pyrene		✓	4	625(SIM)	0.16	0.22	0.22		0.0038

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		✓	4	625(SIM)		3.42	0.76	100 µg/L	---
Naphthalene		✓	4	625(SIM)	0.48	8.6	7.7	20 µg/L	---
E. Halogenated SVOCs									
Total PCBs	✓		4	E.608.3	0.047	ND	ND	0.000064 µg/L	---
Pentachlorophenol	✓		4	625(SIM)	0.48	ND	ND	1.0 µg/L	---
F. Fuels Parameters									
Total Petroleum Hydrocarbons	✓		4	E1664A				5.0 mg/L	---
Ethanol	✓		4	SW8260C	400	ND	ND	Report mg/L	---
Methyl-tert-Butyl Ether		✓	4	SW8260C	1.0	3.1	2.3	70 µg/L	20
tert-Butyl Alcohol		✓	4	SW8260C	50	100	100	120 µg/L in MA 40 µg/L in NH	---
tert-Amyl Methyl Ether	✓		4	SW8260C	1.0	ND	ND	90 µg/L in MA 140 µg/L in NH	---
Other (i.e., pH, temperature, hardness, salinity, LC_{50}, additional pollutants present); if so, specify:									
pH		✓	4	SM4500	1	8.07	7.79		
Hardness		✓	4	E200.7	0.1	1980	794.33		
Salinity		✓	1	SM2520B	0.5	13.4	13.4		

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:
Granular Activated Carbon (GAC) filter, if needed

2. Provide a written description of all treatment system(s) or processes that will be applied to the effluent prior to discharge.
Settling tank and felt sediment bags, if necessary Granular Activated Carbon (GAC) filter

Identify each major treatment component (check any that apply):
■ Fractionation tanks☐ Equalization tank ☐ Oil/water separator ☐ Mechanical filter ■ Media filter
☐ Chemical feed tank ☐ Air stripping unit ■ Bag filter ☐ Other; if so, specify:

Indicate if either of the following will occur (check any that apply):
☐ Chlorination ☐ De-chlorination

3. Provide the **design flow capacity** in gallons per minute (gpm) of the most limiting component. Indicate the most limiting component: Frac Tank Is use of a flow meter feasible? (check one): ■ Yes ☐ No, if so, provide justification:	100
Provide the proposed maximum effluent flow in gpm.	100
Provide the average effluent flow in gpm.	50
If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:	

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

F. Chemical and additive information

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

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

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

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

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

G. Endangered Species Act eligibility determination

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

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

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

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

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

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

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

H. National Historic Preservation Act eligibility determination

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

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

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

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

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

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

I. Supplemental information

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

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

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

J. Certification requirement

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

BMPP certification statement:	A BMPP meeting the requirements of this general permit will be developed and implemented prior to the initiation of 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: [signature]	Date: 2/19/2021
Print Name and Title: HELDER BARROSO	SR. PROJECT MANAGER

APPENDIX C

MassDEP Priority Resource Map

USGS Streamflow Statistics Report

USFWS Consultation

IPaC Resource List

MACRIS Search Results

National Register of Historic Places Web Based Map

MassDEP Consultation

MassDEP - Bureau of Waste Site Cleanup

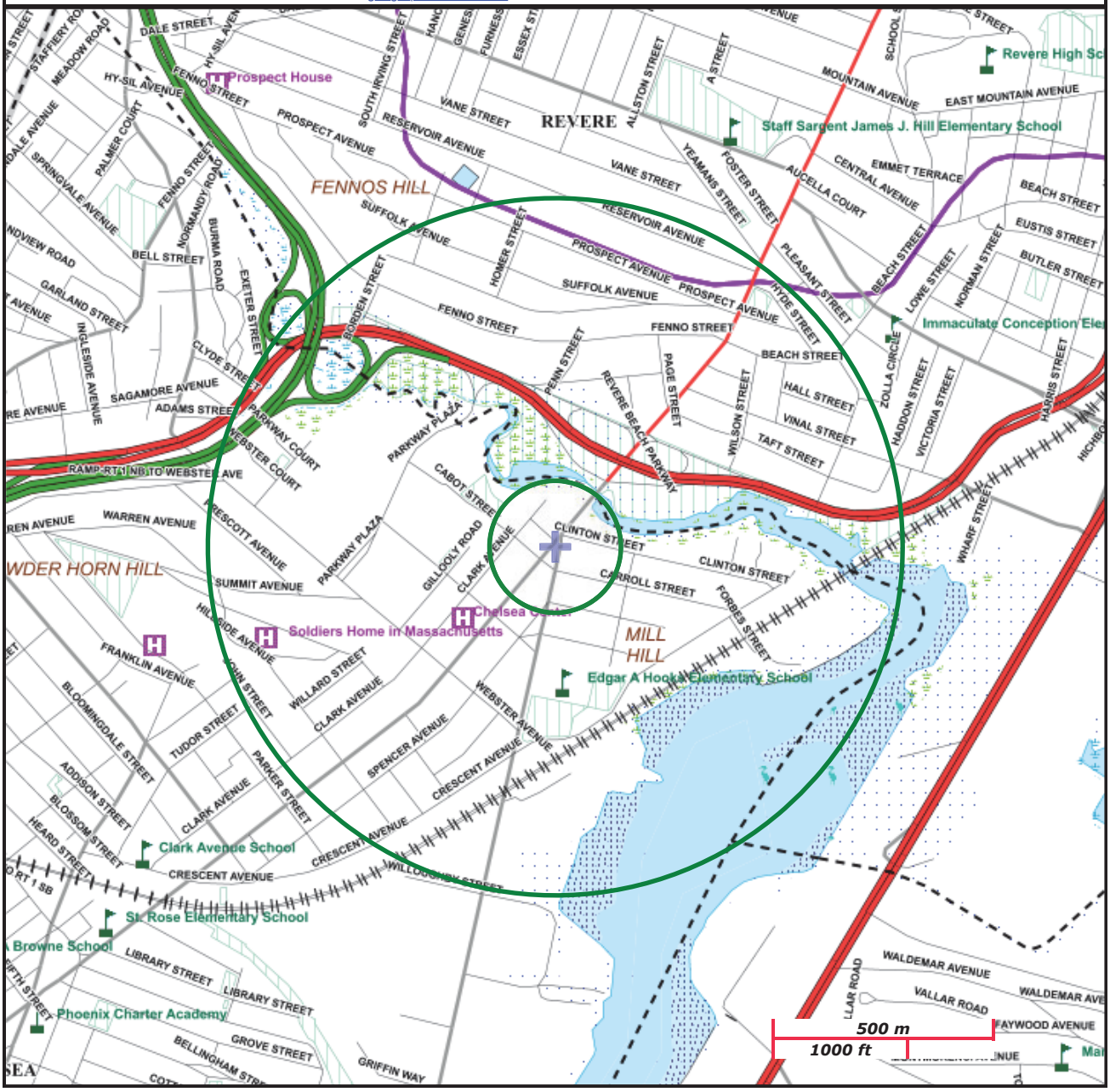
Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii

Site Information:
BROADWAY WATER AND SEWER IMPROVEMENTS, CITY OF CHELSEA
BROADWAY AND EASTERN AVE CHELSEA, MA

NAD83 UTM Meters:
4696411mN , 333818mE (Zone: 19)
July 21, 2020

The information shown is the best available at the date of printing. However, it may be incomplete. The responsible party and LSP are ultimately responsible for ascertaining the true conditions surrounding the site. Metadata for data layers shown on this map can be found at: https://www.mass.gov/orgs/massgis-bureau-of-geographic-information.

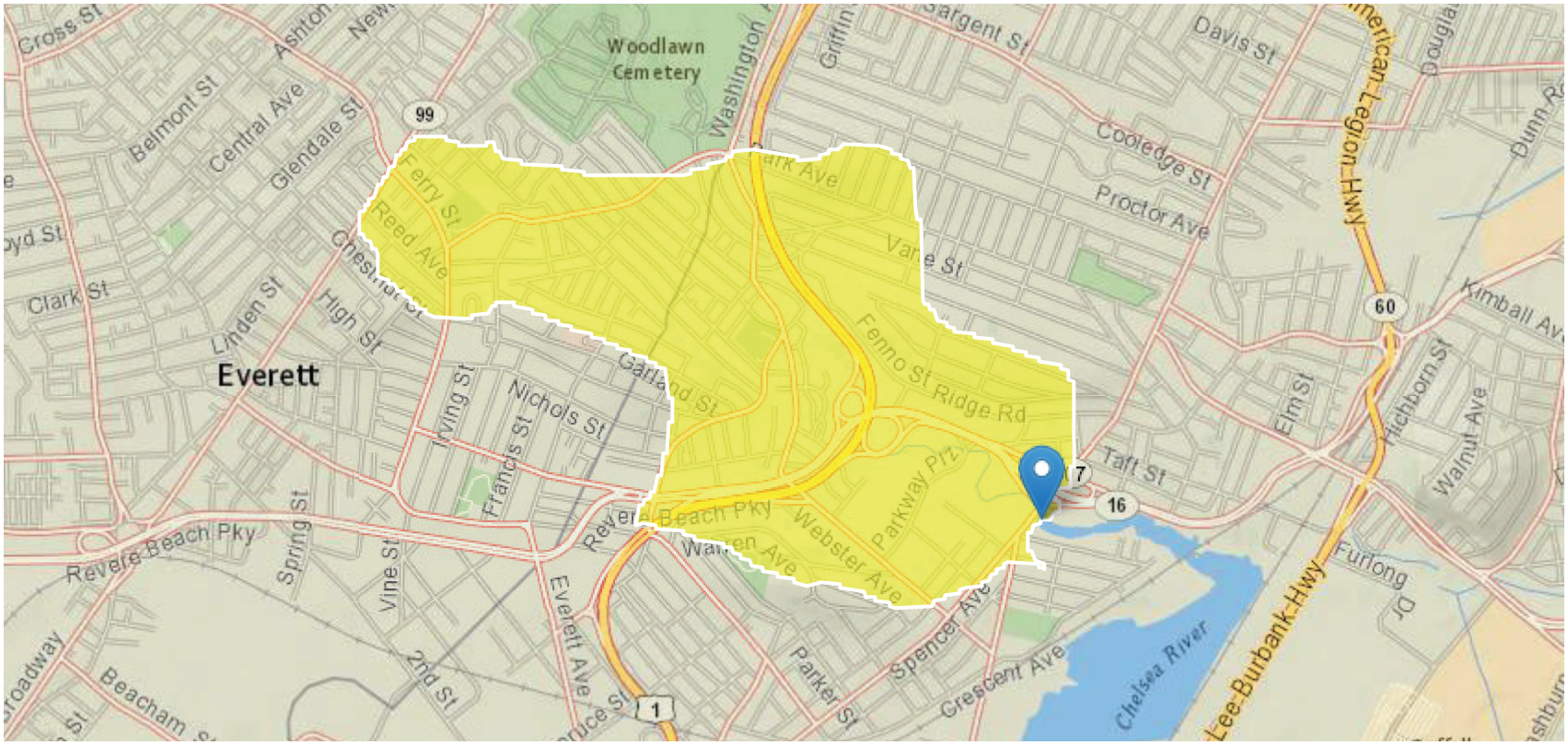
MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection



Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail
Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct
Basins: Major, PWS; Streams: Perennial, Intermittent, Man Made Shore, Dam
Aquifers: Medium Yield, High Yield, EPA Sole Source
Non Potential Drinking Water Source Area: Medium, High (Yield)
PWS Protection Areas: Zone II, IWPA, Zone A
Hydrography: Open Water, PWS Reservoir, Tidal Flat
Wetlands: Freshwater, Saltwater, Cranberry Bog
FEMA 100yr Floodplain; Protected Open Space; ACEC
Est. Rare Wetland Wildlife Hab; Vernal Pool: Cert., Potential
Solid Waste Landfill; PWS: Com.GW,SW, Emerg., Non-Com.

StreamStats Report

Region ID: MA
Workspace ID: MA20210115194033821000
Clicked Point (Latitude, Longitude): 42.40297, -71.01799
Time: 2021-01-15 14:40:52 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1.06	square miles
ELEV	Mean Basin Elevation	58.5	feet
LC06STOR	Percentage of water bodies and wetlands determined from the NLCD 2006	0	percent
BSLDEM250	Mean basin slope computed from 1:250K DEM	4.08	percent
DRFTPERSTR	Area of stratified drift per unit of stream length	0.66	square mile per mile
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless
BSLDEM10M	Mean basin slope computed from 10 m DEM	8.373	percent
PCTSNDGRV	Percentage of land surface underlain by sand and gravel deposits	31.6	percent
FOREST	Percentage of area covered by forest	0.68	percent

Peak-Flow Statistics Parameters[Peak Statewide 2016 5156]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.06	square miles	0.16	512
ELEV	Mean Basin Elevation	58.5	feet	80.6	1948
LC06STOR	Percent Storage from NLCD2006	0	percent	0	32.3

Peak-Flow Statistics Disclaimers[Peak Statewide 2016 5156]

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

Peak-Flow Statistics Flow Report[Peak Statewide 2016 5156]

Statistic	Value	Unit

Statistic	Value	Unit
50_percent_AEP_flood	45.9	ft^3/s
20_percent_AEP_flood	76.3	ft^3/s
10_percent_AEP_flood	NaN	ft^3/s
4_percent_AEP_flood	135	ft^3/s
2_percent_AEP_flood	164	ft^3/s
1_percent_AEP_flood	195	ft^3/s
0_5_percent_AEP_flood	228	ft^3/s
0_2_percent_AEP_flood	277	ft^3/s

Peak-Flow Statistics Citations

Zarriello, P.J.,2017, Magnitude of flood flows at selected annual exceedance probabilities for streams in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2016–5156, 99 p. (https://dx.doi.org/10.3133/sir20165156)

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

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.06	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	4.08	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0.66	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	0.214	ft^3/s
7 Day 10 Year Low Flow	0.128	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/)

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

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.06	square miles	1.61	149
DRFTPERSTR	Stratified Drift per Stream Length	0.66	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1
BSLDEM250	Mean Basin Slope from 250K DEM	4.08	percent	0.32	24.6

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

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

Statistic	Value	Unit
50 Percent Duration	1.01	ft^3/s
60 Percent Duration	0.784	ft^3/s

Statistic	Value	Unit
70 Percent Duration	0.586	ft^3/s
75 Percent Duration	0.481	ft^3/s
80 Percent Duration	0.583	ft^3/s
85 Percent Duration	0.453	ft^3/s
90 Percent Duration	0.467	ft^3/s
95 Percent Duration	0.264	ft^3/s
98 Percent Duration	0.167	ft^3/s
99 Percent Duration	0.12	ft^3/s

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/)

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

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.06	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	4.08	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0.66	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	0.464	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/)

Bankfull Statistics Parameters[Bankfull Statewide SIR2013 5155]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.06	square miles	0.6	329
BSLDEM10M	Mean Basin Slope from 10m DEM	8.373	percent	2.2	23.9

Bankfull Statistics Flow Report[Bankfull Statewide SIR2013 5155]

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

Statistic	Value	Unit	SEp
Bankfull Width	15.8	ft	21.3
Bankfull Depth	0.987	ft	19.8
Bankfull Area	15.4	ft^2	29
Bankfull Streamflow	43.9	ft^3/s	55

Bankfull Statistics Citations

Bent, G.C., and Waite, A.M.,2013, Equations for estimating bankfull channel geometry and discharge for streams in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2013–5155, 62 p., (http://pubs.usgs.gov/sir/2013/5155/)

Probability Statistics Parameters[Perennial Flow Probability]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.06	square miles	0.01	1.99
PCTSNDGRV	Percent Underlain By Sand And Gravel	31.6	percent	0	100
FOREST	Percent Forest	0.68	percent	0	100
MAREGION	Massachusetts Region	0	dimensionless	0	1

Probability Statistics Flow Report[Perennial Flow Probability]

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

Statistic	Value	Unit	PC
Probability Stream Flowing Perennially	0.961	dim	71

Probability Statistics Citations

Bent, G.C., and Steeves, P.A.,2006, A revised logistic regression equation and an automated procedure for mapping the probability of a stream flowing perennially in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2006–5031, 107 p. (http://pubs.usgs.gov/sir/2006/5031/pdfs/SIR_2006-5031rev.pdf)

Application Version: 4.4.0

United States Department of the Interior

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

In Reply Refer To:
Consultation Code: 05E1NE00-2021-SLI-1075
Event Code: 05E1NE00-2021-E-03389
Project Name: Broadway Chelsea

January 21, 2021

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

To Whom It May Concern:

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

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

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

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

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

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

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

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

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

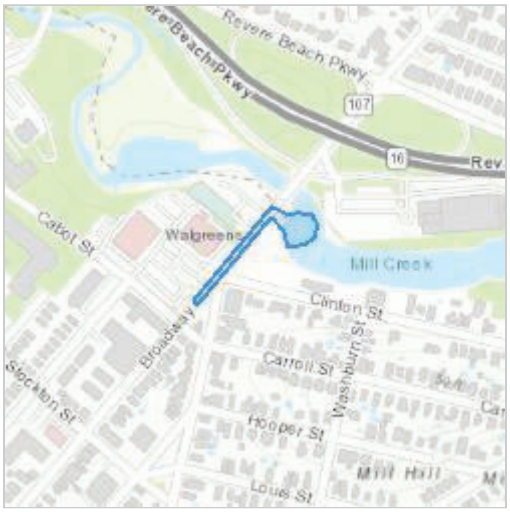
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2021-SLI-1075
Event Code: 05E1NE00-2021-E-03389
Project Name: Broadway Chelsea
Project Type: ** OTHER **
Project Description: Applying for NPDES RGP Permit. The project will be dewatering during utility improvements down Broadway Street. The groundwater encountered will be discharged into a direct drainage line with outflow to Mill Creek.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.402690199999995,-71.01893744251345,14z



Counties: Suffolk County, Massachusetts

Endangered Species Act Species

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

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

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

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

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

Critical habitats

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

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

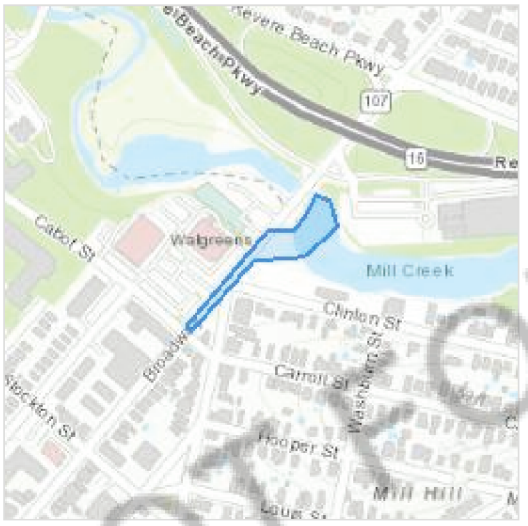
IPaC resource list

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

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

Location

Suffolk County, Massachusetts



Local office

New England Ecological Services Field Office

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

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

http://www.fws.gov/newengland

Endangered species

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

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

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

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

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

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

THERE ARE NO ENDANGERED SPECIES EXPECTED TO OCCUR AT THIS LOCATION.

Migratory birds

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

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee

that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
American Oystercatcher Haematopus palliatus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8935	Breeds Apr 15 to Aug 31
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31

Black Skimmer Rynchops niger — Breeds May 20 to Sep 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/5234

Bobolink Dolichonyx oryzivorus — Breeds May 20 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Buff-breasted Sandpiper Calidris subruficollis — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9488

Canada Warbler Cardellina canadensis — Breeds May 20 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Dunlin Calidris alpina arcticola — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

King Rail Rallus elegans — Breeds May 1 to Sep 5
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8936

Least Tern Sterna antillarum — Breeds Apr 20 to Sep 10
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Long-eared Owl *asio otus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3631	Breeds elsewhere
Nelson's Sparrow *Ammodramus nelsoni* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Sep 5
Prairie Warbler *Dendroica discolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Purple Sandpiper *Calidris maritima* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Red-throated Loon *Gavia stellata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Ruddy Turnstone *Arenaria interpres morinella* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere

Rusty Blackbird Euphagus carolinus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Seaside Sparrow Ammodramus maritimus — Breeds May 10 to Aug 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Semipalmated Sandpiper Calidris pusilla — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Short-billed Dowitcher Limnodromus griseus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9480

Snowy Owl Bubo scandiacus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Whimbrel Numenius phaeopus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9483

Willet Tringa semipalmata — Breeds Apr 20 to Aug 5
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wood Thrush Hylocichla mustelina

Breeds May 10 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

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

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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

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

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

ESTUARINE AND MARINE WETLAND

E2USN

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

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

result in revision of the wetland boundaries or classification established through image analysis.

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

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

Data exclusions

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

Data precautions

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

Massachusetts Cultural Resource Information System
MACRIS

MACRIS Search Results

Search Criteria: Town(s): Chelsea; Street Name: Broadway; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year
CLS.901	Broadway Bridge	Broadway	Chelsea	c 1917
CLS.930	Columbus, Christopher Monument	Broadway	Chelsea	1938
CLS.190	Gardner, Abel House	26-28 Broadway	Chelsea	c 1805
CLS.189		51 Broadway	Chelsea	r 1850
CLS.188		53 Broadway	Chelsea	r 1850
CLS.187		55 Broadway	Chelsea	r 1850
CLS.186		57 Broadway	Chelsea	r 1850
CLS.185		59 Broadway	Chelsea	r 1850
CLS.184		61 Broadway	Chelsea	r 1850
CLS.183		63 Broadway	Chelsea	r 1850
CLS.182		65 Broadway	Chelsea	r 1850
CLS.181		67 Broadway	Chelsea	r 1850
CLS.180		69 Broadway	Chelsea	r 1850
CLS.179		73 Broadway	Chelsea	r 1880
CLS.178		75 Broadway	Chelsea	r 1880
CLS.177		81 Broadway	Chelsea	1912
CLS.336	Bernstein, Anna House	85 Broadway	Chelsea	c 1876
CLS.337	Britt, William B. House	87 Broadway	Chelsea	c 1876
CLS.175	Imperial, The	100 Broadway	Chelsea	c 1890
CLS.176		103 Broadway	Chelsea	c 1870
CLS.338		120 Broadway	Chelsea	
CLS.339		120 Broadway	Chelsea	
CLS.163	Lenox Hotel	160 Broadway	Chelsea	c 1898
CLS.913	Chelsea Conversation	171 Broadway	Chelsea	c 1978
CLS.931	Crab Bricks	171 Broadway	Chelsea	1977
CLS.932	Pulaski, Gen. Casimir Monument	171 Broadway	Chelsea	1931
CLS.912	Stebbins Fountain	171 Broadway	Chelsea	c 1896

Inv. No.	Property Name	Street	Town	Year
CLS.152	Wheeler Building	186 Broadway	Chelsea	c 1874
CLS.154	Stebbins Block	210 Broadway	Chelsea	c 1840
CLS.167	Stebbins Block	218 Broadway	Chelsea	c 1860
CLS.583	Exchange Building	227 Broadway	Chelsea	r 1909
CLS.340		232-236 Broadway	Chelsea	c 1935
CLS.174	Panonia Building	233 Broadway	Chelsea	r 1900
CLS.1	Wesson, Charles Building	251 Broadway	Chelsea	1910
CLS.87		260 Broadway	Chelsea	1912
CLS.3	Chelsea Savings Bank	267 Broadway	Chelsea	1909
CLS.86	Detorres Building	270 Broadway	Chelsea	1911
CLS.4	Bernstein, Fannie Building	275 Broadway	Chelsea	1909
CLS.85	Gould, Jesse - Willis Building	276 Broadway	Chelsea	1910
CLS.5	Bernstein - Lerman Building	279 Broadway	Chelsea	1920
CLS.6	Whittlesey, C. M. Building	287 Broadway	Chelsea	1908
CLS.84		288 Broadway	Chelsea	1909
CLS.83		290 Broadway	Chelsea	1911
CLS.82	Nelson - Dykeman Building	296 Broadway	Chelsea	1908
CLS.7	Bernstein - Lerman Building	297 Broadway	Chelsea	1919
CLS.81	Cushon, F. K. Building	302-306 Broadway	Chelsea	1908
CLS.8	Chelsea Masonic Temple	307 Broadway	Chelsea	1910
CLS.80	Hersom Brothers Building	308-312 Broadway	Chelsea	1908
CLS.9	Currier General Store	313-317 Broadway	Chelsea	1910
CLS.79		320 Broadway	Chelsea	1911
CLS.10	Baer, Hyman D. Building	327 Broadway	Chelsea	c 1908
CLS.11	Baer, Hyman D. Building	331 Broadway	Chelsea	1908
CLS.12	Bernstein, Nathan - Lerman, David Building	339 Broadway	Chelsea	1920
CLS.13	Slosberg, Robert Building	343-349 Broadway	Chelsea	1909
CLS.77	Richmond, Moses Building	350 Broadway	Chelsea	1915
CLS.14	Slade, H. A. Building	351 Broadway	Chelsea	1908
CLS.76		360 Broadway	Chelsea	1915
CLS.15	Executive Building, The	361 Broadway	Chelsea	r 1915
CLS.75		376 Broadway	Chelsea	1964
CLS.74	Emerson, Fred Building	380 Broadway	Chelsea	1908
CLS.73	Mann, A. K. Building	388 Broadway	Chelsea	1909
CLS.72	Drake, Dr. Willard Building	394 Broadway	Chelsea	1908
CLS.71	Slade, George F. Building	396 Broadway	Chelsea	1912
CLS.16	Weinstein, Nathan - Gordon, Morris Building	399 Broadway	Chelsea	1913
CLS.70	Sevinor, R. Building	400 Broadway	Chelsea	1919

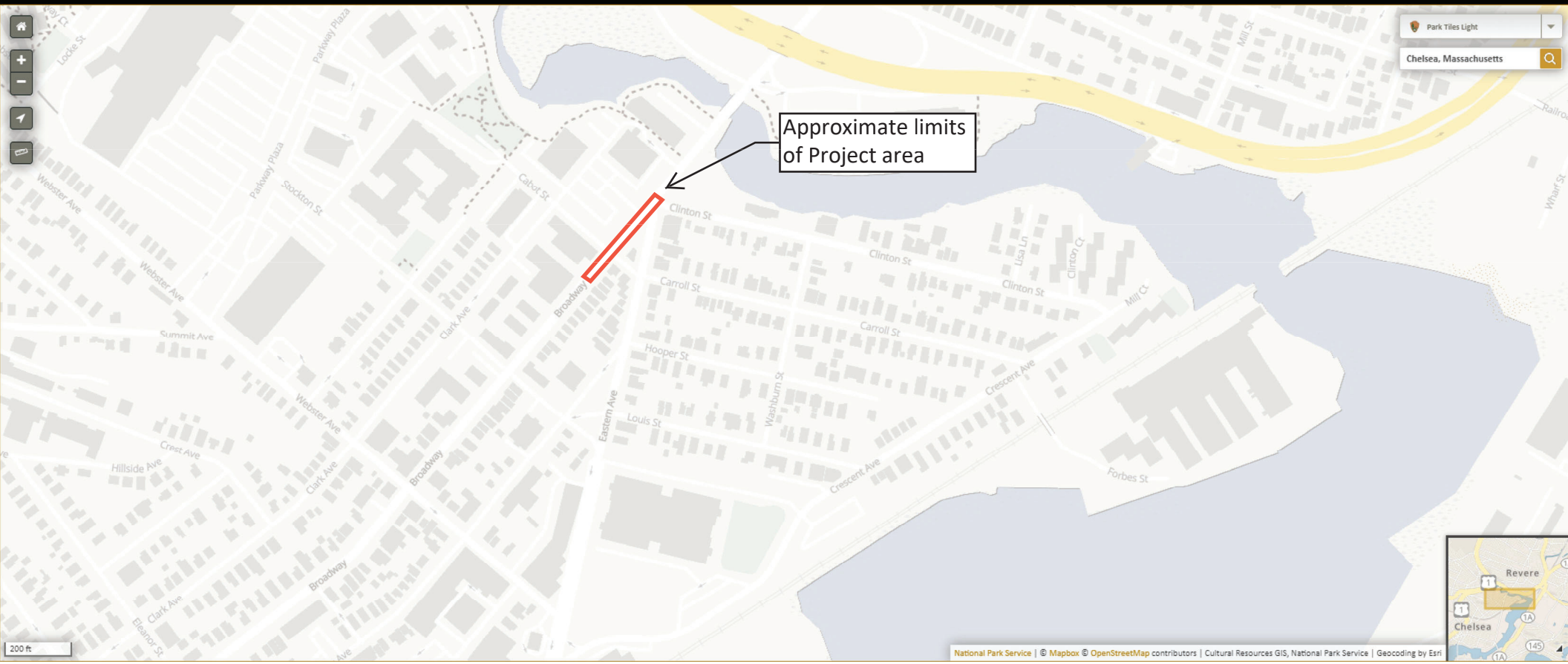
Inv. No.	Property Name	Street	Town	Year
CLS.17	Mann, A. K. Building	403 Broadway	Chelsea	1908
CLS.69	Anthony, George Building	404 Broadway	Chelsea	1915
CLS.18	Jones, Robert Building	407 Broadway	Chelsea	1909
CLS.68	Strauss, Henry Building	408 Broadway	Chelsea	1908
CLS.19	Douglass, Ella Building	411 Broadway	Chelsea	1908
CLS.21	Wentworth, Henry Building	413 Broadway	Chelsea	1911
CLS.20	Wentworth, Royal General Store	413 Broadway	Chelsea	1910
CLS.67		416 Broadway	Chelsea	1909
CLS.914	Chelsea Walk	418-420 Broadway	Chelsea	1978
CLS.65		422 Broadway	Chelsea	1908
CLS.64		426 Broadway	Chelsea	1912
CLS.63		434 Broadway	Chelsea	1912
CLS.22	County Savings Bank Building	435 Broadway	Chelsea	1910
CLS.62		440 Broadway	Chelsea	1915
CLS.23	Loud, Julia M. Building	443 Broadway	Chelsea	1909
CLS.25	Broadway National Bank	449 Broadway	Chelsea	1969
CLS.61	Freeman Building	458 Broadway	Chelsea	r 1908
CLS.60	DeDomenico Building	466 Broadway	Chelsea	r 1908
CLS.26	Callahan, N. M. Building	469 Broadway	Chelsea	1922
CLS.27	Wheeler, Herbert - Lawrence, Abbott Building	475 Broadway	Chelsea	1910
CLS.48	DeDomenico, S. Building	478 Broadway	Chelsea	r 1908
CLS.28	Cohen, Julius Apartments	481 Broadway	Chelsea	1910
CLS.36	Chelsea City Hall	500 Broadway	Chelsea	1910
CLS.910	Soldiers and Sailors Monument	501 Broadway	Chelsea	c 1867
CLS.29	Chelsea Public Library	569 Broadway	Chelsea	1910
CLS.30	Eisenberg - Shapiro Building	571 Broadway	Chelsea	1929
CLS.34	Saint Rose Roman Catholic School	580 Broadway	Chelsea	1911
CLS.31	McGlinckey, Elizabeth V. Building	583 Broadway	Chelsea	1911
CLS.32	Klein, Joseph Row House	585 Broadway	Chelsea	1908
CLS.33	Saint Rose Roman Catholic Church	598 Broadway	Chelsea	1866
CLS.1003	Chelsea Engine #3 Fire Station	883 Broadway	Chelsea	1887
CLS.632	American Finish and Chemical Company Shed	960 Broadway	Chelsea	c 1970
CLS.630	Chelsea Wire Fabric Rubber Factory	960 Broadway	Chelsea	c 1890
CLS.631	United Indigo and Chemical Company Brick Addition	960 Broadway	Chelsea	r 1915
CLS.636	American Finish and Chemical Office	1010 Broadway	Chelsea	1964
CLS.635	American Finish and Chemical Sheds	1016 Broadway	Chelsea	r 1965
CLS.634	Raffi-Swanson Lacquer Factory - South Building	1016 Broadway	Chelsea	c 1928

Inv. No.	Property Name	Street	Town	Year
CLS.633	Suffolk Varnish Factory - North Building	1016 Broadway	Chelsea	c 1910
CLS.584	Boston Naval Hospital - Quarters A	50 Commandants Way	Chelsea	c 1856

National Register of Historic Places

Public, non-restricted data depicting National Register spatial data processed by the Cultural Resources GIS facility. Last minor update, September 2020.

National Park Service
U.S. Department of the Interior



Jesse Vaughan

From: Vakalopoulos, Catherine (DEP) <catherine.vakalopoulos@state.ma.us>
Sent: Thursday, February 11, 2021 4:01 PM
To: Jesse Vaughan
Subject: Re: NPDES Permit for Chelsea, MA

Hi Jesse,
Thanks for bringing this back to the top of my inbox, it has been a busy time for us. I agree that there is no dilution for this proposed discharge to Mill Creek in Chelsea for two reasons (1) tidally influenced and (2) wetlands. I also tried delineating using StreamStats at Mill Creek and Broadway and couldn't get it to work. I know the program gets finicky when it has trouble calculating low 7Q10s.

Here is some water quality information to assist you with filling out the NOI:

Waterbody and ID: Mill Creek (MA71-08) within the Mystic River Watershed
Classification: Listed as SA here: https://www.mass.gov/doc/mystic-river-watershed-2004-2008-water-quality-assessment-report-0/download, however, based on other work I've done in the area, this appears to be an error and it should be listed as SB like Chelsea Creek. For the purposes of the NOI, just list SA since that is the "official" classification.
Outstanding Resource Water?: no
For the causes of impairments, go to: https://www.epa.gov/sites/production/files/2020-01/documents/2016-ma-303d-list-report.pdf, and search for "MA71-08"
TMDLs: there is one approved TMDL for pathogens, https://www.mass.gov/doc/final-pathogen-tmdl-report-for-the-boston-harbor-weymouth-weir-and-mystic-watersheds/download

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

Please let me know if you have any questions.

Cathy

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

From: Jesse Vaughan <jvaughan@terra-env.com>
Date: Thursday, February 11, 2021 at 1:05 PM
To: "Vakalopoulos, Catherine (DEP)" <catherine.vakalopoulos@mass.gov>
Subject: RE: NPDES Permit for Chelsea, MA

Good Afternoon Catherine,

Just checking in to see if you have has a chance to review my inquiry. Please let me know.

Thank you!
-Jesse

Jesse T. Vaughan, Environmental Scientist
TERRA Environmental, LLC
159 Haven Street, 2nd Floor
Reading, MA 01867
Cell: 774-293-0852
Office: 781-944-6851
Website: www.terra-env.com

TERRA ENVIRONMENTAL, LLC
PLANNING | CONSULTING | MANAGEMENT | REMEDIATION

From: Jesse Vaughan
Sent: Wednesday, February 3, 2021 12:20 PM
To: Catherine.Vakalopoulos@state.ma.us
Subject: NPDES Permit for Chelsea, MA

Good Afternoon Catherine,

I am working on a NOI submittal for dewatering that will be required during utility improvements down Broadway in Chelsea, MA. Our discharge is to Mill Creek. I determined that Mill Creek would be considered a salt water discharge based on the MassDEP Phase 1 Assessment Map indicating “saltwater wetlands” on the banks surrounding the discharge area. Our treatment system will operate at a maximum of 100 gallons per minute. StreamStats gave me a 7Q10 of 0.128-ft3/s, and using the Appendix V fillable (attached) I determined that my dilution factor is 1:1. Could you please verify my methods and results are correct?

Should you require additional information please do not hesitate to contact me directly using my cell # below.

Thank you,
Jesse

Jesse T. Vaughan, Environmental Scientist
TERRA Environmental, LLC
159 Haven Street, 2nd Floor
Reading, MA 01867
Cell: 774-293-0852
Office: 781-944-6851
Website: www.terra-env.com

APPENDIX D

LABORATORY ANALYTICAL REPORTS

PHOENIX
Environmental Laboratories, Inc.

Wednesday, January 27, 2021

Attn: Jesse Vaughan
Terra Environmental LLC
P.O. Box 473
Reading, MA 01867

Project ID: 20-111
SDG ID: GCH51816
Sample ID#s: CH51816

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Sincerely yours,

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
UT Lab Registration #CT00007
VT Lab Registration #VT11301

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

SDG Comments

January 27, 2021

SDG I.D.: GCH51816

Phoenix reporting levels may exceed those referenced in the CAM protocol. Please refer to criteria sheet for comparisons to requested MCP standards.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Sample Id Cross Reference

January 27, 2021

SDG I.D.: GCH51816

Project ID: 20-111

Client Id	Lab Id	Matrix
MILL CREEK	CH51816	SURFACE WATER

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

January 27, 2021

FOR: Attn: Jesse Vaughan
Terra Environmental LLC
P.O. Box 473
Reading, MA 01867

Sample Information		Custody Information		Date	Time
Matrix:	SURFACE WATER	Collected by:		01/25/21	7:00
Location Code:	TERRA-ENV	Received by:	B	01/25/21	14:50
Rush Request:	24 Hour	Analyzed by:	see "By" below		
P.O.#:	20-111				

Laboratory Data

SDG ID: GCH51816
Phoenix ID: CH51816

Project ID: 20-111
Client ID: MILL CREEK

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Salinity	13.4	0.5	ppt	1	01/25/21	AP	SM2520B-10

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
January 27, 2021
Reviewed and Released by: Rashmi Makol, Project Manager

Wednesday, January 27, 2021

Criteria: MA: CAM

State: MA

Sample Criteria Exceedances Report

GCH51816 - TERRA-ENV

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units

*** No Data to Display ***

Phoenix Laboratories does not assume responsibility for the data contained in this exceedance report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

Analysis Comments

January 27, 2021 SDG I.D.: GCH51816

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report: None.

Cooler: Yes [X] No [ ]
Coolant: IPK [X] ICE [ ] No [ ]

CHAIN OF CUSTODY RECORD

Temp 1.8 °C Pg of

PHOENIX
Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email: info@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-8726

Data Delivery/Contact Options:
[ ] Fax:
[ ] Phone:
[ ] Email:

Customer: Terra Environmental, LLC
Address: 159 Haven St, Reading, MA 01867

Project: 20-111
Report to: Terra - Jesse
Invoice to: Terra
QUOTE #

Project P.O: 20-111

This section MUST be completed with Bottle Quantities.

Client Sample - Information - Identification

Sampler's Signature: [signature] Date: 1/25/21

Matrix Code:
DW=Drinking Water **GW**=Ground Water **SW**=Surface Water **WW**=Waste Water
RW=Raw Water **SE**=Sediment **SL**=Sludge **S**=Soil **SD**=Solid **W**=Wipe **OIL**=Oil
B=Bulk **L**=Liquid **X** = _____(Other)

Analysis Request

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	Salinity	GL Amber 8 oz. w/H3PO4	Soil VOA Vials [ ] methanol [ ] H2O	GL Soil container ( ) oz	GL Soil container ( ) oz	40 ml VOA Vial [ ] As is [ ] HCl	GL Amber 1000ml [ ] As is [ ] H2SO4	PL As is [ ] 250ml [X] 500ml [ ] 1000ml	PL H2SO4 [ ] 250ml [ ] 500ml	PL HNO3 250ml	PL NaOH 250ml	Bacteria Bottle w/thio	Bacteria Bottle as is
51814	Mill Creek	SW	1/25/21	0700	X							1					

Relinquished by:	Accepted by:	Date:	Time:
[signature]	[signature]	1-25-21	11:55
[signature]	[signature]	1-25-21	1450

Comments, Special Requirements or Regulations:

Turnaround Time:
[X] 1 Day*
[ ] 2 Days*
[ ] 3 Days*
[ ] Standard
[ ] Other
* SURCHARGE APPLIES

RI
[ ] (Residential) Direct Exposure
[ ] (Comm/Industrial) Direct Exposure
[ ] GA Leachability
[ ] GB Leachability
[ ] GA-GW Objectives
[ ] GB-GW Objectives

CT
[ ] RCP Cert
[ ] GW Protection
[ ] SW Protection
[ ] GA Mobility
[ ] GB Mobility
[ ] Residential DEC
[ ] I/C DEC
[ ] Other

MA
[X] MCP Certification
[ ] GW-1 [ ] MWRA eSMART
[ ] GW-2
[ ] GW-3
[ ] S-1 GW-1 [ ] S-1 GW-2 [ ] S-1 GW-3
[ ] S-2 GW-1 [ ] S-2 GW-2 [ ] S-2 GW-3
[ ] S-3 GW-1 [ ] S-3 GW-2 [ ] S-3 GW-3
[ ] SW Protection

State where samples were collected: MA

Data Format
[ ] Excel
[ ] PDF
[ ] GIS/Key
[ ] EQuIS
[ ] Other

Data Package
[ ] Tier II Checklist
[ ] Full Data Package*
[ ] Phoenix Std Report
[ ] Other
* SURCHARGE APPLIES

PHOENIX
Environmental Laboratories, Inc.

Thursday, December 17, 2020

Attn:
Terra Environmental LLC
P.O. Box 473
Reading, MA 01867

Project ID: **BROADWAY-AQUALINE**
SDG ID: **GCH27135**
Sample ID#s: **CH27135 - CH27136**

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Sincerely yours,

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
UT Lab Registration #CT00007
VT Lab Registration #VT11301

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

NY # 11301

SDG Comments

December 17, 2020

SDG I.D.: GCH27135

8260 Analysis:
1,2-Dibromoethane doesn't meet GW-1 criteria, this compound is analyzed by GC/FID to achieve this criteria.

8260 Analysis:
1,4-Dioxane doesn't meet GW-1 criteria, this compound is analyzed by 8270SIM to achieve this criteria.

Phoenix reporting levels may exceed those referenced in the CAM protocol. Please refer to criteria sheet for comparisons to requested MCP standards.
Sample CH27135 was received past hold time for Diss. Hexavalent Chromium (SM3500CRD).
Sample CH27135 was received past hold time for Chromium, Hexavalent (SM3500CRB).

Environmental Laboratories, Inc.
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Sample Id Cross Reference

December 17, 2020

SDG I.D.: GCH27135

Project ID: BROADWAY-AQUALINE

Client Id	Lab Id	Matrix
MW-101	CH27135	GW DISCHARGE
TRIP BLANK	CH27136	GW DISCHARGE

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

December 17, 2020

FOR: Attn:
Terra Environmental LLC
P.O. Box 473
Reading, MA 01867

Sample Information		Custody Information		Date	Time
Matrix:	GW DISCHARGE	Collected by:		12/07/20	11:30
Location Code:	TERRA-ENV	Received by:	SW	12/08/20	15:42
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20-111				

Laboratory Data

SDG ID: GCH27135
Phoenix ID: CH27135

Project ID: BROADWAY-AQUALINE
Client ID: MW-101

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	0.004	0.001	mg/L	1	12/11/20	TH	E200.7
Arsenic	0.003	0.002	mg/L	1	12/11/20	CPP	E200.7
Barium	0.133	0.001	mg/L	1	12/11/20	CPP	E200.7
Cadmium	< 0.001	0.001	mg/L	1	12/11/20	CPP	E200.7
Chromium	0.001	0.001	mg/L	1	12/11/20	CPP	E200.7
Copper	0.004	0.003	mg/L	1	12/11/20	CPP	E200.7
Silver (Dissolved)	0.003	0.001	mg/L	1	12/12/20	TH	E200.7
Arsenic (Dissolved)	0.004	0.004	mg/L	1	12/12/20	TH	E200.7
Barium (Dissolved)	0.127	0.002	mg/L	1	12/12/20	TH	E200.7
Cadmium (Dissolved)	< 0.001	0.001	mg/L	1	12/12/20	TH	E200.7
Chromium (Dissolved)	< 0.001	0.001	mg/L	1	12/12/20	TH	E200.7
Copper (Dissolved)	0.007	0.005	mg/L	1	12/12/20	TH	E200.7
Iron (Dissolved)	0.018	0.011	mg/L	1	12/12/20	TH	E200.7
Mercury (Dissolved)	< 0.0002	0.0002	mg/L	1	12/11/20	RS	E245.1
Nickel (Dissolved)	0.009	0.001	mg/L	1	12/15/20	TH	E200.7
Lead (Dissolved)	0.004	0.002	mg/L	1	12/12/20	TH	E200.7
Antimony (Dissolved)	< 0.005	0.005	mg/L	1	12/15/20	TH	E200.7
Selenium (Dissolved)	< 0.011	0.011	mg/L	1	12/12/20	TH	E200.7
Zinc (Dissolved)	0.005	0.002	mg/L	1	12/12/20	TH	E200.7
Iron	1.96	0.005	mg/L	1	12/11/20	CPP	E200.7
Hardness (CaCO3)	1980	0.1	mg/L	1	12/16/20		E200.7
Mercury	< 0.0002	0.0002	mg/L	1	12/09/20	RS	E245.1
Nickel	0.009	0.001	mg/L	1	12/11/20	CPP	E200.7
Lead	0.003	0.001	mg/L	1	12/11/20	CPP	E200.7
Antimony	< 0.003	0.003	mg/L	1	12/11/20	CPP	E200.7
Selenium	0.009	0.005	mg/L	1	12/11/20	TH	E200.7
Trivalent Chromium	< 0.001	0.001	mg/L	1	12/11/20		Calculation
Zinc	0.011	0.002	mg/L	1	12/11/20	CPP	E200.7

Ver 1

Project ID: BROADWAY-AQUALINE
Client ID: MW-101

Phoenix I.D.: CH27135

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Chloride	3760	150	mg/L	50	12/12/20	TB	SM4500CLE-11
Chlorine Residual	< 0.02	0.02	mg/L	1	12/08/20 18:04	MW	SM4500Cl-G-00
Diss. Hexavalent Chromium	< 0.01	0.01	mg/L	1	12/08/20 17:47	MW	SM3500CRD-09
Chromium, Hexavalent	< 0.01	0.01	mg/L	1	12/08/20 17:46	MW	SM3500CRB-11
Ammonia as Nitrogen	1.74	0.25	mg/L	5	12/11/20	KDB	E350.1
Phenolics	< 0.015	0.015	mg/L	1	12/14/20	ARG	E420.4
pH	7.55	1.00	pH Units	1	12/08/20 22:54	AP/KDB	SM4500-H B-00
Total Cyanide	< 0.010	0.010	mg/L	1	12/11/20	LS	E335.4
O&G, Non-polar Material	< 1.4	1.4	mg/L	1	12/11/20	MSF	E1664A
Total Suspended Solids	75	4.5	mg/L	0.9	12/09/20	LS/QH	SM 2540D-11
Filtration	Completed				12/09/20	AG	0.45um Filter
Dissolved Mercury Digestion	Completed				12/10/20	VT/ARW	E245.1
Mercury Digestion	Completed				12/09/20	VT/ARW	E245.1
PCB Extraction (LDL)	Completed				12/09/20	C/N	E608.3
Semi-Volatile Extraction	Completed				12/08/20	P/CG	SW3520C
Dissolved Metals Preparation	Completed				12/09/20	AG	SW3005A
Total Metals Digestion	Completed				12/09/20	AG	
Polychlorinated Biphenyls							
PCB-1016	ND	0.050	ug/L	1	12/10/20	SC	E608.3
PCB-1221	ND	0.050	ug/L	1	12/10/20	SC	E608.3
PCB-1232	ND	0.050	ug/L	1	12/10/20	SC	E608.3
PCB-1242	ND	0.050	ug/L	1	12/10/20	SC	E608.3
PCB-1248	ND	0.050	ug/L	1	12/10/20	SC	E608.3
PCB-1254	ND	0.050	ug/L	1	12/10/20	SC	E608.3
PCB-1260	ND	0.050	ug/L	1	12/10/20	SC	E608.3
PCB-1262	ND	0.050	ug/L	1	12/10/20	SC	E608.3
PCB-1268	ND	0.050	ug/L	1	12/10/20	SC	E608.3
QA/QC Surrogates							
% DCBP (Surrogate Rec)	93		%	1	12/10/20	SC	30 - 150 %
% DCBP (Surrogate Rec) (Confirmation)	61		%	1	12/10/20	SC	30 - 150 %
% TCMX (Surrogate Rec)	90		%	1	12/10/20	SC	30 - 150 %
% TCMX (Surrogate Rec) (Confirmation)	66		%	1	12/10/20	SC	30 - 150 %
1,2-Dibromoethane (EDB)	ND	0.02	ug/L	1	12/15/20	CG	SW8011
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,1,1-Trichloroethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	12/09/20	MH	E624.1
1,1,2-Trichloroethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,1-Dichloroethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,1-Dichloroethene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,1-Dichloropropene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,2,3-Trichloropropane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,2,4-Trimethylbenzene	7.1	1.0	ug/L	1	12/09/20	MH	E624.1
1,2-Dibromo-3-chloropropane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,2-Dibromoethane	ND	0.50	ug/L	1	12/09/20	MH	E624.1

Ver 1

Project ID: BROADWAY-AQUALINE
Client ID: MW-101

Phoenix I.D.: CH27135

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,2-Dichlorobenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,2-Dichloroethane	ND	0.60	ug/L	1	12/09/20	MH	E624.1
1,2-Dichloropropane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,3,5-Trimethylbenzene	1.7	1.0	ug/L	1	12/09/20	MH	E624.1
1,3-Dichlorobenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,3-Dichloropropane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,4-Dichlorobenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
2,2-Dichloropropane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
2-Chlorotoluene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
2-Hexanone	ND	5.0	ug/L	1	12/09/20	MH	E624.1
2-Isopropyltoluene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
4-Chlorotoluene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
4-Methyl-2-pentanone	ND	5.0	ug/L	1	12/09/20	MH	E624.1
Acetone	ND	25	ug/L	1	12/09/20	MH	E624.1
Acrylonitrile	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Benzene	ND	0.70	ug/L	1	12/09/20	MH	E624.1
Bromobenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Bromochloromethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Bromodichloromethane	ND	0.50	ug/L	1	12/09/20	MH	E624.1
Bromoform	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Bromomethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Carbon Disulfide	ND	5.0	ug/L	1	12/09/20	MH	E624.1
Carbon tetrachloride	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Chlorobenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Chloroethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Chloroform	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Chloromethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	12/09/20	MH	E624.1
Dibromochloromethane	ND	0.50	ug/L	1	12/09/20	MH	E624.1
Dibromomethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Dichlorodifluoromethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Ethylbenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Hexachlorobutadiene	ND	0.40	ug/L	1	12/09/20	MH	E624.1
Isopropylbenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
m&p-Xylene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Methyl ethyl ketone	ND	5.0	ug/L	1	12/09/20	MH	E624.1
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Methylene chloride	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Naphthalene	6.8	1.0	ug/L	1	12/09/20	MH	E624.1
n-Butylbenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
n-Propylbenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
o-Xylene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
p-Isopropyltoluene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
sec-Butylbenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Styrene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
tert-Butylbenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Tetrachloroethene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	12/09/20	MH	E624.1

Project ID: BROADWAY-AQUALINE
Client ID: MW-101

Phoenix I.D.: CH27135

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Toluene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Total Xylenes	ND	1.0	ug/L	1	12/09/20	MH	E624.1
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	12/09/20	MH	E624.1
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	12/09/20	MH	E624.1
Trichloroethene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Trichlorofluoromethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Trichlorotrifluoroethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Vinyl chloride	ND	1.0	ug/L	1	12/09/20	MH	E624.1
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	102		%	1	12/09/20	MH	70 - 130 %
% Bromofluorobenzene	99		%	1	12/09/20	MH	70 - 130 %
% Dibromofluoromethane	106		%	1	12/09/20	MH	70 - 130 %
% Toluene-d8	99		%	1	12/09/20	MH	70 - 130 %
Oxygenates & Dioxane							
1,4-Dioxane	ND	100	ug/L	1	12/09/20	MH	SW8260C (OXY)
Diethyl ether	ND	1.0	ug/L	1	12/09/20	MH	SW8260C (OXY)
Di-isopropyl ether	ND	1.0	ug/L	1	12/09/20	MH	SW8260C (OXY)
Ethyl tert-butyl ether	ND	1.0	ug/L	1	12/09/20	MH	SW8260C (OXY)
tert-amyl methyl ether	ND	1.0	ug/L	1	12/09/20	MH	SW8260C (OXY)
Ethanol	ND	400	ug/L	1	12/09/20	MH	SW8260C
Tert-amyl-methyl-ether	ND	1.0	ug/L	1	12/09/20	MH	SW8260C
Tert-butyl alcohol	ND	50	ug/L	1	12/09/20	MH	SW8260C
Semivolatiles							
1,2,4,5-Tetrachlorobenzene	ND	3.4	ug/L	1	12/11/20	WB	E625.1
1,2,4-Trichlorobenzene	ND	4.8	ug/L	1	12/11/20	WB	E625.1
1,2-Dichlorobenzene	ND	2.4	ug/L	1	12/11/20	WB	E625.1
1,2-Diphenylhydrazine	ND	4.8	ug/L	1	12/11/20	WB	E625.1
1,3-Dichlorobenzene	ND	2.4	ug/L	1	12/11/20	WB	E625.1
1,4-Dichlorobenzene	ND	2.4	ug/L	1	12/11/20	WB	E625.1
2,4,5-Trichlorophenol	ND	0.96	ug/L	1	12/11/20	WB	E625.1
2,4,6-Trichlorophenol	ND	0.96	ug/L	1	12/11/20	WB	E625.1
2,4-Dichlorophenol	ND	0.96	ug/L	1	12/11/20	WB	E625.1
2,4-Dimethylphenol	ND	0.96	ug/L	1	12/11/20	WB	E625.1
2,4-Dinitrophenol	ND	0.96	ug/L	1	12/11/20	WB	E625.1
2,4-Dinitrotoluene	ND	4.8	ug/L	1	12/11/20	WB	E625.1
2,6-Dinitrotoluene	ND	4.8	ug/L	1	12/11/20	WB	E625.1
2-Chloronaphthalene	ND	4.8	ug/L	1	12/11/20	WB	E625.1
2-Chlorophenol	ND	0.96	ug/L	1	12/11/20	WB	E625.1
2-Methylphenol (o-cresol)	ND	0.96	ug/L	1	12/11/20	WB	E625.1
2-Nitroaniline	ND	4.8	ug/L	1	12/11/20	WB	E625.1
2-Nitrophenol	ND	0.96	ug/L	1	12/11/20	WB	E625.1
3&4-Methylphenol (m&p-cresol)	ND	9.6	ug/L	1	12/11/20	WB	E625.1
3,3'-Dichlorobenzidine	ND	4.8	ug/L	1	12/11/20	WB	E625.1
3-Nitroaniline	ND	4.8	ug/L	1	12/11/20	WB	E625.1
4,6-Dinitro-2-methylphenol	ND	0.96	ug/L	1	12/11/20	WB	E625.1
4-Bromophenyl phenyl ether	ND	4.8	ug/L	1	12/11/20	WB	E625.1

Project ID: BROADWAY-AQUALINE
Client ID: MW-101

Phoenix I.D.: CH27135

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
4-Chloro-3-methylphenol	ND	0.96	ug/L	1	12/11/20	WB	E625.1
4-Chloroaniline	ND	4.8	ug/L	1	12/11/20	WB	E625.1
4-Chlorophenyl phenyl ether	ND	0.96	ug/L	1	12/11/20	WB	E625.1
4-Nitroaniline	ND	4.8	ug/L	1	12/11/20	WB	E625.1
4-Nitrophenol	ND	0.96	ug/L	1	12/11/20	WB	E625.1
Acetophenone	ND	4.8	ug/L	1	12/11/20	WB	E625.1
Aniline	ND	4.8	ug/L	1	12/11/20	WB	E625.1
Benzidine	ND	4.8	ug/L	1	12/11/20	WB	E625.1
Benzoic acid	ND	48	ug/L	1	12/11/20	WB	E625.1
Benzyl butyl phthalate	ND	4.8	ug/L	1	12/11/20	WB	E625.1
Bis(2-chloroethoxy)methane	ND	4.8	ug/L	1	12/11/20	WB	E625.1
Bis(2-chloroethyl)ether	ND	0.96	ug/L	1	12/11/20	WB	E625.1
Bis(2-chloroisopropyl)ether	ND	4.8	ug/L	1	12/11/20	WB	E625.1
Bis(2-ethylhexyl)phthalate	ND	0.96	ug/L	1	12/11/20	WB	E625.1
Carbazole	ND	4.8	ug/L	1	12/11/20	WB	E625.1
Dibenzofuran	ND	4.8	ug/L	1	12/11/20	WB	E625.1
Diethyl phthalate	ND	4.8	ug/L	1	12/11/20	WB	E625.1
Dimethylphthalate	ND	4.8	ug/L	1	12/11/20	WB	E625.1
Di-n-butylphthalate	ND	4.8	ug/L	1	12/11/20	WB	E625.1
Di-n-octylphthalate	ND	4.8	ug/L	1	12/11/20	WB	E625.1
Hexachloroethane	ND	0.96	ug/L	1	12/11/20	WB	E625.1
Isophorone	ND	4.8	ug/L	1	12/11/20	WB	E625.1
N-Nitrosodi-n-propylamine	ND	4.8	ug/L	1	12/11/20	WB	E625.1
N-Nitrosodiphenylamine	ND	4.8	ug/L	1	12/11/20	WB	E625.1
Pentachloronitrobenzene	ND	2.4	ug/L	1	12/11/20	WB	E625.1
Phenol	ND	0.96	ug/L	1	12/11/20	WB	E625.1
QA/QC Surrogates							
% 2,4,6-Tribromophenol	82		%	1	12/11/20	WB	15 - 110 %
% 2-Fluorobiphenyl	73		%	1	12/11/20	WB	30 - 130 %
% 2-Fluorophenol	48		%	1	12/11/20	WB	15 - 110 %
% Nitrobenzene-d5	70		%	1	12/11/20	WB	30 - 130 %
% Phenol-d5	46		%	1	12/11/20	WB	15 - 110 %
% Terphenyl-d14	50		%	1	12/11/20	WB	30 - 130 %
Semivolatiles (SIM)							
2-Methylnaphthalene	1.6	0.48	ug/L	1	12/10/20	WB	625(SIM)
Acenaphthene	ND	0.48	ug/L	1	12/10/20	WB	625(SIM)
Acenaphthylene	ND	0.10	ug/L	1	12/10/20	WB	625(SIM)
Anthracene	ND	0.09	ug/L	1	12/10/20	WB	625(SIM)
Benz(a)anthracene	ND	0.10	ug/L	1	12/10/20	WB	625(SIM)
Benzo(a)pyrene	ND	0.19	ug/L	1	12/10/20	WB	625(SIM)
Benzo(b)fluoranthene	ND	0.10	ug/L	1	12/10/20	WB	625(SIM)
Benzo(ghi)perylene	0.02	0.02	ug/L	1	12/10/20	WB	625(SIM)
Benzo(k)fluoranthene	ND	0.10	ug/L	1	12/10/20	WB	625(SIM)
Chrysene	ND	0.05	ug/L	1	12/10/20	WB	625(SIM)
Dibenz(a,h)anthracene	ND	0.02	ug/L	1	12/10/20	WB	625(SIM)
Fluoranthene	ND	0.48	ug/L	1	12/10/20	WB	625(SIM)
Fluorene	ND	0.10	ug/L	1	12/10/20	WB	625(SIM)
Hexachlorobenzene	ND	0.48	ug/L	1	12/10/20	WB	625(SIM)
Hexachlorobutadiene	ND	0.48	ug/L	1	12/10/20	WB	625(SIM)

Project ID: BROADWAY-AQUALINE
Client ID: MW-101

Phoenix I.D.: CH27135

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Hexachlorocyclopentadiene	ND	0.48	ug/L	1	12/10/20	WB	625(SIM)
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L	1	12/10/20	WB	625(SIM)
Naphthalene	2.6	0.48	ug/L	1	12/10/20	WB	625(SIM)
Nitrobenzene	ND	0.48	ug/L	1	12/10/20	WB	625(SIM)
N-Nitrosodimethylamine	ND	0.48	ug/L	1	12/10/20	WB	625(SIM)
Pentachlorophenol	ND	0.48	ug/L	1	12/10/20	WB	625(SIM)
Phenanthrene	ND	0.48	ug/L	1	12/10/20	WB	625(SIM)
Pyrene	0.07	0.07	ug/L	1	12/10/20	WB	625(SIM)
Pyridine	ND	0.48	ug/L	1	12/10/20	WB	625(SIM)
QA/QC Surrogates							
% 2,4,6-Tribromophenol	98		%	1	12/10/20	WB	15 - 110 %
% 2-Fluorobiphenyl	69		%	1	12/10/20	WB	40 - 140 %
% 2-Fluorophenol	61		%	1	12/10/20	WB	15 - 110 %
% Nitrobenzene-d5	78		%	1	12/10/20	WB	40 - 140 %
% Phenol-d5	62		%	1	12/10/20	WB	15 - 110 %
% Terphenyl-d14	62		%	1	12/10/20	WB	40 - 140 %
1,4-dioxane							
1,4-dioxane	ND	0.20	ug/l	1	12/14/20	AW	SW8270DSIM
QA/QC Surrogates							
% 1,4-dioxane-d8	68		%	1	12/14/20	AW	40 - 140 %
Extraction for 1,4-Dioxane	Completed				12/13/20	G/G	

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

The regulatory hold time for Chlorine is immediately. This Chlorine was performed in the laboratory and may be considered outside of hold-time.

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

8260 Analysis:
1,4-Dioxane doesn't meet GW-1 criteria, this compound is analyzed by 8270SIM to achieve this criteria.

Total Cyanide:
Chlorine was present; Sample was de-chlorinated prior to digestion/analysis. (EPA requires dechlorination at time of sampling.) A sample bias can not be ruled out.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
December 17, 2020
Reviewed and Released by: Rashmi Makol, Project Manager

Ver 1

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

December 17, 2020

FOR: Attn:
Terra Environmental LLC
P.O. Box 473
Reading, MA 01867

Sample Information		Custody Information		Date	Time
Matrix:	GW DISCHARGE	Collected by:		12/07/20	
Location Code:	TERRA-ENV	Received by:	SW	12/08/20	15:42
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20-111				

Laboratory Data

SDG ID: GCH27135
Phoenix ID: CH27136

Project ID: BROADWAY-AQUALINE
Client ID: TRIP BLANK

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,1,1-Trichloroethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	12/09/20	MH	E624.1
1,1,2-Trichloroethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,1-Dichloroethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,1-Dichloroethene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,1-Dichloropropene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,2,3-Trichloropropane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,2-Dibromo-3-chloropropane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,2-Dibromoethane	ND	0.50	ug/L	1	12/09/20	MH	E624.1
1,2-Dichlorobenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,2-Dichloroethane	ND	0.60	ug/L	1	12/09/20	MH	E624.1
1,2-Dichloropropane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,3-Dichlorobenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,3-Dichloropropane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,4-Dichlorobenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
2,2-Dichloropropane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
2-Chlorotoluene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
2-Hexanone	ND	5.0	ug/L	1	12/09/20	MH	E624.1
2-Isopropyltoluene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
4-Chlorotoluene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
4-Methyl-2-pentanone	ND	5.0	ug/L	1	12/09/20	MH	E624.1

Project ID: BROADWAY-AQUALINE
Client ID: TRIP BLANK

Phoenix I.D.: CH27136

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Acetone	ND	25	ug/L	1	12/09/20	MH	E624.1
Acrylonitrile	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Benzene	ND	0.70	ug/L	1	12/09/20	MH	E624.1
Bromobenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Bromochloromethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Bromodichloromethane	ND	0.50	ug/L	1	12/09/20	MH	E624.1
Bromoform	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Bromomethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Carbon Disulfide	ND	5.0	ug/L	1	12/09/20	MH	E624.1
Carbon tetrachloride	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Chlorobenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Chloroethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Chloroform	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Chloromethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	12/09/20	MH	E624.1
Dibromochloromethane	ND	0.50	ug/L	1	12/09/20	MH	E624.1
Dibromomethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Dichlorodifluoromethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Ethylbenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Hexachlorobutadiene	ND	0.40	ug/L	1	12/09/20	MH	E624.1
Isopropylbenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
m&p-Xylene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Methyl ethyl ketone	ND	5.0	ug/L	1	12/09/20	MH	E624.1
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Methylene chloride	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Naphthalene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
n-Butylbenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
n-Propylbenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
o-Xylene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
p-Isopropyltoluene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
sec-Butylbenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Styrene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
tert-Butylbenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Tetrachloroethene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	12/09/20	MH	E624.1
Toluene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Total Xylenes	ND	1.0	ug/L	1	12/09/20	MH	E624.1
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	12/09/20	MH	E624.1
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	12/09/20	MH	E624.1
Trichloroethene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Trichlorofluoromethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Trichlorotrifluoroethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Vinyl chloride	ND	1.0	ug/L	1	12/09/20	MH	E624.1
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	104		%	1	12/09/20	MH	70 - 130 %
% Bromofluorobenzene	96		%	1	12/09/20	MH	70 - 130 %
% Dibromofluoromethane	107		%	1	12/09/20	MH	70 - 130 %

Ver 1

Project ID: BROADWAY-AQUALINE
Client ID: TRIP BLANK

Phoenix I.D.: CH27136

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
% Toluene-d8	97		%	1	12/09/20	MH	70 - 130 %
Oxygenates & Dioxane							
1,4-Dioxane	ND	100	ug/L	1	12/09/20	MH	SW8260C (OXY)
Diethyl ether	ND	1.0	ug/L	1	12/09/20	MH	SW8260C (OXY)
Di-isopropyl ether	ND	1.0	ug/L	1	12/09/20	MH	SW8260C (OXY)
Ethyl tert-butyl ether	ND	1.0	ug/L	1	12/09/20	MH	SW8260C (OXY)
tert-amyl methyl ether	ND	1.0	ug/L	1	12/09/20	MH	SW8260C (OXY)

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

TRIP BLANK INCLUDED.

8260 Analysis:
1,4-Dioxane doesn't meet GW-1 criteria, this compound is analyzed by 8270SIM to achieve this criteria.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
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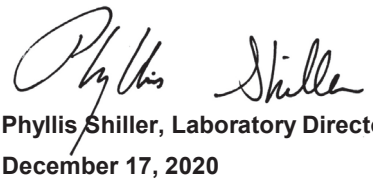

Phyllis Shiller, Laboratory Director
December 17, 2020
Reviewed and Released by: Rashmi Makol, Project Manager

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

December 17, 2020

QA/QC Data

SDG I.D.: GCH27135

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 555954 (mg/L), QC Sample No: CH27292 (CH27135)													
Mercury - Water	BRL	0.0002	<0.0002	<0.0002	NC	102			99.6			75 - 125	30
Comment:													
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 75-125%													
QA/QC Batch 556145 (mg/L), QC Sample No: CH27910 (CH27135)													
Mercury (Dissolved)	BRL	0.0002	<0.0002	<0.0002	NC	102			98.0			75 - 125	30
Comment:													
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 75-125%													
QA/QC Batch 556039 (mg/L), QC Sample No: CH27409 (CH27135)													
ICP Metals - Dissolved													
Antimony	BRL	0.005	<0.005	<0.005	NC	94.8	93.3	1.6	93.7			80 - 120	20
Arsenic	BRL	0.004	<0.004	<0.004	NC	96.5	95.4	1.1	95.9			80 - 120	20
Barium	BRL	0.002	0.010	0.011	9.50	96.7	95.6	1.1	95.0			80 - 120	20
Cadmium	BRL	0.001	<0.001	<0.001	NC	98.4	97.0	1.4	96.6			80 - 120	20
Chromium	BRL	0.001	<0.001	<0.001	NC	95.4	94.4	1.1	94.7			80 - 120	20
Copper	BRL	0.005	<0.005	<0.005	NC	90.9	89.7	1.3	91.7			80 - 120	20
Iron	BRL	0.011	0.071	0.070	1.40	93.5	92.5	1.1	91.8			80 - 120	20
Lead	BRL	0.002	<0.002	<0.002	NC	94.8	93.1	1.8	93.2			80 - 120	20
Nickel	BRL	0.001	0.001	<0.001	NC	93.5	92.6	1.0	91.8			80 - 120	20
Selenium	BRL	0.011	<0.011	<0.011	NC	97.2	96.3	0.9	96.2			80 - 120	20
Silver	BRL	0.001	<0.001	<0.001	NC	87.7	87.3	0.5	87.6			80 - 120	20
Zinc	BRL	0.002	<0.002	<0.002	NC	92.2	91.1	1.2	91.6			80 - 120	20
Comment:													
Additional: LCS acceptance range is 80-120% MS acceptance range 75-125%.													
QA/QC Batch 556037 (mg/L), QC Sample No: CH27495 (CH27135)													
ICP Metals - Aqueous													
Antimony	BRL	0.0025	<0.003	<0.0025	NC	95.6	95.7	0.1	99.7			80 - 120	20
Arsenic	BRL	0.0020	<0.002	<0.0020	NC	98.0	98.6	0.6	109			80 - 120	20
Barium	BRL	0.0010	0.038	0.0387	1.80	95.4	96.2	0.8	97.1			80 - 120	20
Cadmium	BRL	0.0005	<0.001	<0.0005	NC	98.2	99.5	1.3	97.1			80 - 120	20
Chromium	BRL	0.0005	0.005	0.0051	2.00	99.0	99.9	0.9	98.0			80 - 120	20
Copper	BRL	0.0025	0.013	0.0061	NC	103	103	0.0	113			80 - 120	20
Iron	BRL	0.0050	0.304	0.311	2.30	102	102	0.0	99.2			80 - 120	20
Lead	BRL	0.0010	<0.001	<0.0010	NC	100	101	1.0	97.2			80 - 120	20
Nickel	BRL	0.0005	0.004	0.0042	NC	99.1	99.1	0.0	93.5			80 - 120	20
Selenium	BRL	0.0050	<0.005	<0.0050	NC	94.8	94.8	0.0	110			80 - 120	20
Silver	BRL	0.0005	<0.001	<0.0005	NC	98.2	99.5	1.3	118			80 - 120	20
Zinc	BRL	0.0020	0.047	0.0441	6.40	96.4	97.1	0.7	104			80 - 120	20
Comment:													
Additional: LCS acceptance range is 80-120% MS acceptance range 75-125%.													

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

December 17, 2020

QA/QC Data

SDG I.D.: GCH27135

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 556085 (mg/L), QC Sample No: CH26872 (CH27135)													
Total Cyanide	BRL	0.010	<0.010	<0.010	NC	104			105			90 - 110	30
Comment:													
Additional soil criteria LCS acceptance range is 80-120% MS acceptance range 75-125%.													
QA/QC Batch 556328 (mg/L), QC Sample No: CH26808 (CH27135)													
O&G, Non-polar Material	BRL	1.4	<1.4	<1.4	NC	95.0			89.0			85 - 115	20
Comment:													
Additional: LCS acceptance range is 85-115% MS acceptance range 75-125%.													
QA/QC Batch 555962 (pH), QC Sample No: CH27040 (CH27135)													
pH			7.52	7.48	0.50	98.3						85 - 115	20
Comment:													
Additional: LCS acceptance range is 85-115% MS acceptance range 75-125%.													
QA/QC Batch 555984 (mg/L), QC Sample No: CH27103 (CH27135)													
Total Suspended Solids	BRL	2.5	<3.3	<3.3	NC	96.0						85 - 115	
QA/QC Batch 555879 (mg/L), QC Sample No: CH26873 (CH27135)													
Chromium, Hexavalent	BRL	0.01	<0.01	<0.01	NC	96.0			94.8			90 - 110	30
Comment:													
Additional Hexavalent Chromium criteria: LCS acceptance range for waters is 90-110% and MS acceptance range is 85-115%.													
QA/QC Batch 556501 (mg/L), QC Sample No: CH27392 (CH27135)													
Chloride	BRL	3.0	57.7	58.1	0.70	96.6			101			90 - 110	20
QA/QC Batch 556263 (mg/L), QC Sample No: CH26540 (CH27135)													
Ammonia as Nitrogen	BRL	0.05	<0.10	<0.10	NC	99.0			99.0			90 - 110	20
QA/QC Batch 556325 (mg/L), QC Sample No: CH27073 (CH27135)													
Phenolics	BRL	0.015	<0.015	<0.015	NC	91.9			96.0			90 - 110	20
QA/QC Batch 555880 (mg/L), QC Sample No: CH26630 (CH27135)													
Chlorine Residual	BRL	0.02	<0.02	<0.02	NC	108							

PHOENIX

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QA/QC Report

December 17, 2020

QA/QC Data

SDG I.D.: GCH27135

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 556554 (ug/L), QC Sample No: CH30505 (CH27135)										
EDB and DBCP Analysis										
1,2-Dibromoethane (EDB)	ND	0.01	100	102	2.0	109	100	8.6	70 - 130	25
QA/QC Batch 556103 (ug/L), QC Sample No: CH28127 (CH27135)										
Polychlorinated Biphenyls										
PCB-1016	ND	0.050	88	103	15.7				40 - 140	20
PCB-1221	ND	0.050							40 - 140	20
PCB-1232	ND	0.050							40 - 140	20
PCB-1242	ND	0.050							40 - 140	20
PCB-1248	ND	0.050							40 - 140	20
PCB-1254	ND	0.050							40 - 140	20
PCB-1260	ND	0.050	95	110	14.6				40 - 140	20
PCB-1262	ND	0.050							40 - 140	20
PCB-1268	ND	0.050							40 - 140	20
% DCBP (Surrogate Rec)	88	%	88	96	8.7				30 - 150	20
% DCBP (Surrogate Rec) (Confirm	102	%	98	112	13.3				30 - 150	20
% TCMX (Surrogate Rec)	77	%	95	105	10.0				30 - 150	20
% TCMX (Surrogate Rec) (Confirm	76	%	87	104	17.8				30 - 150	20
QA/QC Batch 555888 (ug/L), QC Sample No: CH26480 (CH27135)										
Semivolatiles										
1,2,4,5-Tetrachlorobenzene	ND	3.5	79	75	5.2				40 - 140	20
1,2,4-Trichlorobenzene	ND	3.5	77	71	8.1				40 - 140	20
1,2-Dichlorobenzene	ND	1.0	72	65	10.2				40 - 140	20
1,2-Diphenylhydrazine	ND	1.6	81	83	2.4				40 - 140	20
1,3-Dichlorobenzene	ND	1.0	70	64	9.0				40 - 140	20
1,4-Dichlorobenzene	ND	1.0	71	67	5.8				40 - 140	20
2,4,5-Trichlorophenol	ND	1.0	92	88	4.4				30 - 130	20
2,4,6-Trichlorophenol	ND	1.0	95	89	6.5				30 - 130	20
2,4-Dichlorophenol	ND	1.0	91	83	9.2				30 - 130	20
2,4-Dimethylphenol	ND	1.0	89	85	4.6				30 - 130	20
2,4-Dinitrophenol	ND	1.0	96	92	4.3				30 - 130	20
2,4-Dinitrotoluene	ND	3.5	114	110	3.6				40 - 140	20
2,6-Dinitrotoluene	ND	3.5	112	105	6.5				40 - 140	20
2-Chloronaphthalene	ND	3.5	81	82	1.2				40 - 140	20
2-Chlorophenol	ND	1.0	81	73	10.4				30 - 130	20
2-Methylphenol (o-cresol)	ND	1.0	83	73	12.8				30 - 130	20
2-Nitroaniline	ND	3.5	107	106	0.9				40 - 140	20
2-Nitrophenol	ND	1.0	98	89	9.6				30 - 130	20
3&4-Methylphenol (m&p-cresol)	ND	1.0	91	79	14.1				30 - 130	20
3,3'-Dichlorobenzidine	ND	5.0	66	56	16.4				40 - 140	20
3-Nitroaniline	ND	5.0	100	91	9.4				40 - 140	20
4,6-Dinitro-2-methylphenol	ND	1.0	93	89	4.4				30 - 130	20

QA/QC Data

SDG I.D.: GCH27135

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
4-Bromophenyl phenyl ether	ND	3.5	96	85	12.2				40 - 140	20	
4-Chloro-3-methylphenol	ND	1.0	99	91	8.4				30 - 130	20	
4-Chloroaniline	ND	3.5	68	47	36.5				40 - 140	20	r
4-Chlorophenyl phenyl ether	ND	1.0	87	85	2.3				40 - 140	20	
4-Nitroaniline	ND	5.0	86	83	3.6				40 - 140	20	
4-Nitrophenol	ND	1.0	95	94	1.1				30 - 130	20	
Acetophenone	ND	3.5	77	71	8.1				40 - 140	20	
Aniline	ND	3.5	54	17	104.2				40 - 140	20	l,r
Benzidine	ND	4.5	<10	<10	NC				40 - 140	20	l
Benzoic acid	ND	10	29	48	49.4				30 - 130	20	l,r
Benzyl butyl phthalate	ND	1.5	96	92	4.3				40 - 140	20	
Bis(2-chloroethoxy)methane	ND	3.5	84	77	8.7				40 - 140	20	
Bis(2-chloroethyl)ether	ND	1.0	62	61	1.6				40 - 140	20	
Bis(2-chloroisopropyl)ether	ND	1.0	69	62	10.7				40 - 140	20	
Bis(2-ethylhexyl)phthalate	ND	1.5	99	94	5.2				40 - 140	20	
Carbazole	ND	5.0	88	88	0.0				40 - 140	20	
Dibenzofuran	ND	3.5	81	83	2.4				40 - 140	20	
Diethyl phthalate	ND	1.5	92	92	0.0				40 - 140	20	
Dimethylphthalate	ND	1.5	90	89	1.1				40 - 140	20	
Di-n-butylphthalate	ND	1.5	88	91	3.4				40 - 140	20	
Di-n-octylphthalate	ND	1.5	100	95	5.1				40 - 140	20	
Hexachloroethane	ND	3.5	77	69	11.0				40 - 140	20	
Isophorone	ND	3.5	82	78	5.0				40 - 140	20	
N-Nitrosodi-n-propylamine	ND	3.5	85	76	11.2				40 - 140	20	
N-Nitrosodiphenylamine	ND	3.5	77	77	0.0				40 - 140	20	
Pentachloronitrobenzene	ND	5.0	100	88	12.8				40 - 140	20	
Phenol	ND	1.0	67	60	11.0				30 - 130	20	
% 2,4,6-Tribromophenol	77	%	92	87	5.6				15 - 110	20	
% 2-Fluorobiphenyl	85	%	74	76	2.7				30 - 130	20	
% 2-Fluorophenol	68	%	64	58	9.8				15 - 110	20	
% Nitrobenzene-d5	78	%	81	73	10.4				30 - 130	20	
% Phenol-d5	68	%	64	57	11.6				15 - 110	20	
% Terphenyl-d14	90	%	88	90	2.2				30 - 130	20	

Comment:

Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

QA/QC Batch 556549 (ug/l), QC Sample No: CH27135 (CH27135)

1,4dioxane

1,4-dioxane	ND	0.20	88	87	1.1	91			40 - 140	30	
% 1,4-dioxane-d8	71	%	72	72	0.0	75			40 - 140	30	

QA/QC Batch 555888 (ug/L), QC Sample No: CH26480 (CH27135)

Semivolatiles (SIM)

2-Methylnaphthalene	ND	0.50	79	77	2.6				40 - 140	20	
Acenaphthene	ND	0.50	97	92	5.3				40 - 140	20	
Acenaphthylene	ND	0.50	85	81	4.8				40 - 140	20	
Anthracene	ND	0.50	100	90	10.5				40 - 140	20	
Benz(a)anthracene	ND	0.50	102	95	7.1				40 - 140	20	
Benzo(a)pyrene	ND	0.50	109	103	5.7				40 - 140	20	
Benzo(b)fluoranthene	ND	0.50	144	139	3.5				40 - 140	20	l
Benzo(ghi)perylene	ND	0.50	122	112	8.5				40 - 140	20	
Benzo(k)fluoranthene	ND	0.50	91	86	5.6				40 - 140	20	
Chrysene	ND	0.50	103	96	7.0				40 - 140	20	

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Dibenz(a,h)anthracene	ND	0.50	110	102	7.5				40 - 140	20	
Fluoranthene	ND	0.50	131	119	9.6				40 - 140	20	
Fluorene	ND	0.50	103	97	6.0				40 - 140	20	
Hexachlorobenzene	ND	0.50	105	100	4.9				40 - 140	20	
Hexachlorobutadiene	ND	0.50	85	78	8.6				40 - 140	20	
Hexachlorocyclopentadiene	ND	0.50	40	43	7.2				40 - 140	20	
Indeno(1,2,3-cd)pyrene	ND	0.50	104	95	9.0				40 - 140	20	
Naphthalene	ND	0.50	89	83	7.0				40 - 140	20	
Nitrobenzene	ND	0.50	85	79	7.3				40 - 140	20	
N-Nitrosodimethylamine	ND	0.05	73	65	11.6				40 - 140	20	
Pentachlorophenol	ND	0.50	90	90	0.0				40 - 140	20	
Phenanthrene	ND	0.50	107	99	7.8				40 - 140	20	
Pyrene	ND	0.50	106	100	5.8				40 - 140	20	
Pyridine	ND	0.50	56	24	80.0				40 - 140	20	l,r
% 2,4,6-Tribromophenol	99	%	133	127	4.6				15 - 110	20	l
% 2-Fluorobiphenyl	76	%	90	85	5.7				40 - 140	20	
% 2-Fluorophenol	81	%	70	59	17.1				15 - 110	20	
% Nitrobenzene-d5	85	%	98	94	4.2				40 - 140	20	
% Phenol-d5	86	%	89	80	10.7				15 - 110	20	
% Terphenyl-d14	109	%	127	121	4.8				40 - 140	20	

Comment:

Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

QA/QC Batch 556242 (ug/L), QC Sample No: CH27136 (CH27135, CH27136)

Volatiles

1,1,1,2-Tetrachloroethane	ND	1.0	97	96	1.0				70 - 130	20	
1,1,1-Trichloroethane	ND	1.0	98	92	6.3				70 - 130	20	
1,1,2,2-Tetrachloroethane	ND	0.50	100	102	2.0				70 - 130	20	
1,1,2-Trichloroethane	ND	1.0	96	93	3.2				70 - 130	20	
1,1-Dichloroethane	ND	1.0	100	95	5.1				70 - 130	20	
1,1-Dichloroethene	ND	1.0	100	93	7.3				70 - 130	20	
1,1-Dichloropropene	ND	1.0	97	91	6.4				70 - 130	20	
1,2,3-Trichlorobenzene	ND	1.0	100	99	1.0				70 - 130	20	
1,2,3-Trichloropropane	ND	1.0	94	92	2.2				70 - 130	20	
1,2,4-Trichlorobenzene	ND	1.0	98	97	1.0				70 - 130	20	
1,2,4-Trimethylbenzene	ND	1.0	103	101	2.0				70 - 130	20	
1,2-Dibromo-3-chloropropane	ND	1.0	99	100	1.0				70 - 130	20	
1,2-Dibromoethane	ND	1.0	97	93	4.2				70 - 130	20	
1,2-Dichlorobenzene	ND	1.0	98	96	2.1				70 - 130	20	
1,2-Dichloroethane	ND	1.0	97	93	4.2				70 - 130	20	
1,2-Dichloropropane	ND	1.0	98	92	6.3				70 - 130	20	
1,3,5-Trimethylbenzene	ND	1.0	103	99	4.0				70 - 130	20	
1,3-Dichlorobenzene	ND	1.0	101	99	2.0				70 - 130	20	
1,3-Dichloropropane	ND	1.0	99	97	2.0				70 - 130	20	
1,4-Dichlorobenzene	ND	1.0	99	98	1.0				70 - 130	20	
1,4-dioxane	ND	100	119	118	0.8				40 - 160	30	
2,2-Dichloropropane	ND	1.0	102	95	7.1				70 - 130	20	
2-Chlorotoluene	ND	1.0	102	96	6.1				70 - 130	20	
2-Hexanone	ND	5.0	96	98	2.1				40 - 160	30	
2-Isopropyltoluene	ND	1.0	101	98	3.0				70 - 130	20	
4-Chlorotoluene	ND	1.0	99	98	1.0				70 - 130	20	
4-Methyl-2-pentanone	ND	5.0	102	98	4.0				40 - 160	30	

QA/QC Data

SDG I.D.: GCH27135

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
Acetone	ND	5.0	97	95	2.1				40 - 160	30
Acrylonitrile	ND	5.0	99	97	2.0				70 - 130	20
Benzene	ND	0.70	98	92	6.3				70 - 130	20
Bromobenzene	ND	1.0	95	95	0.0				70 - 130	20
Bromochloromethane	ND	1.0	99	98	1.0				70 - 130	20
Bromodichloromethane	ND	0.50	99	93	6.3				70 - 130	20
Bromoform	ND	1.0	95	91	4.3				70 - 130	20
Bromomethane	ND	1.0	84	82	2.4				40 - 160	30
Carbon Disulfide	ND	1.0	104	98	5.9				70 - 130	20
Carbon tetrachloride	ND	1.0	88	84	4.7				70 - 130	20
Chlorobenzene	ND	1.0	98	94	4.2				70 - 130	20
Chloroethane	ND	1.0	96	94	2.1				70 - 130	20
Chloroform	ND	1.0	99	96	3.1				70 - 130	20
Chloromethane	ND	1.0	97	93	4.2				40 - 160	30
cis-1,2-Dichloroethene	ND	1.0	93	88	5.5				70 - 130	20
cis-1,3-Dichloropropene	ND	0.40	97	92	5.3				70 - 130	20
Dibromochloromethane	ND	0.50	102	97	5.0				70 - 130	20
Dibromomethane	ND	1.0	94	90	4.3				70 - 130	20
Dichlorodifluoromethane	ND	1.0	111	106	4.6				40 - 160	30
Di-isopropyl ether	ND	1.0	102	101	1.0				70 - 130	20
Ethyl ether	ND	1.0	100	96	4.1				70 - 130	20
Ethyl tert-butyl ether	ND	1.0	102	98	4.0				70 - 130	20
Ethylbenzene	ND	1.0	101	96	5.1				70 - 130	20
Hexachlorobutadiene	ND	0.40	97	95	2.1				70 - 130	20
Isopropylbenzene	ND	1.0	104	100	3.9				70 - 130	20
m&p-Xylene	ND	1.0	103	99	4.0				70 - 130	20
Methyl ethyl ketone	ND	5.0	107	104	2.8				40 - 160	30
Methyl t-butyl ether (MTBE)	ND	1.0	109	109	0.0				70 - 130	20
Methylene chloride	ND	1.0	92	86	6.7				70 - 130	20
Naphthalene	ND	1.0	108	106	1.9				70 - 130	20
n-Butylbenzene	ND	1.0	108	104	3.8				70 - 130	20
n-Propylbenzene	ND	1.0	102	99	3.0				70 - 130	20
o-Xylene	ND	1.0	100	98	2.0				70 - 130	20
p-Isopropyltoluene	ND	1.0	107	104	2.8				70 - 130	20
sec-Butylbenzene	ND	1.0	112	110	1.8				70 - 130	20
Styrene	ND	1.0	103	101	2.0				70 - 130	20
tert-amyl methyl ether	ND	1.0	98	93	5.2				70 - 130	20
tert-Butylbenzene	ND	1.0	104	101	2.9				70 - 130	20
Tetrachloroethene	ND	1.0	100	92	8.3				70 - 130	20
Tetrahydrofuran (THF)	ND	2.5	98	93	5.2				70 - 130	20
Toluene	ND	1.0	100	94	6.2				70 - 130	20
trans-1,2-Dichloroethene	ND	1.0	97	96	1.0				70 - 130	20
trans-1,3-Dichloropropene	ND	0.40	97	94	3.1				70 - 130	20
trans-1,4-dichloro-2-butene	ND	5.0	107	101	5.8				70 - 130	20
Trichloroethene	ND	1.0	94	91	3.2				70 - 130	20
Trichlorofluoromethane	ND	1.0	90	85	5.7				70 - 130	20
Trichlorotrifluoroethane	ND	1.0	90	86	4.5				70 - 130	20
Vinyl chloride	ND	1.0	102	96	6.1				70 - 130	20
% 1,2-dichlorobenzene-d4	102	%	100	101	1.0				70 - 130	20
% Bromofluorobenzene	97	%	101	98	3.0				70 - 130	20
% Dibromofluoromethane	105	%	100	100	0.0				70 - 130	20
% Toluene-d8	98	%	100	98	2.0				70 - 130	20

QA/QC Data

SDG I.D.: GCH27135

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
Comment:										
A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.										
Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%. The RPD criteria for the LCS/LCSD is 20%, The MS/MSD RPD criteria is listed above.										
QA/QC Batch 556384 (ug/L), QC Sample No: CH27135 (CH27135)										
Oxygenates										
Ethanol	ND	200	118	121	2.5	107	117	8.9	70 - 130	30
tert-amyl methyl ether	ND	10	99	94	5.2	96	97	1.0	70 - 130	30
tert-butyl alcohol	ND	25	109	114	4.5	102	100	2.0	70 - 130	30
Comment:										
A blank MS/MSD was analyzed with this batch.										

l = This parameter is outside laboratory LCS/LCSD specified recovery limits.
r = This parameter is outside laboratory RPD specified recovery limits.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference

Phyllis Shiller, Laboratory Director
December 17, 2020

Thursday, December 17, 2020

Criteria: MA: CAM, GW1, GW2

State: MA

Sample Criteria Exceedances Report

GCH27135 - TERRA-ENV

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units
CH27135	$8260GWR	Acetone	MA / CAM Protocol / VOA AQ RL	ND	25		10	ug/L
CH27135	$8260GWR	Carbon Disulfide	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CH27135	$8260GWR	Tetrahydrofuran (THF)	MA / CAM Protocol / VOA AQ RL	ND	2.5		2	ug/L
CH27135	$8260GWR	trans-1,4-dichloro-2-butene	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CH27135	$8260GWR	1,2-Dibromoethane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	0.50	0.02	0.02	ug/L
CH27135	$8260GWR	1,2-Dibromoethane	MA / GROUNDWATER STANDARDS / GW-1	ND	0.50	0.02	0.02	ug/L
CH27135	$8270-SIMFSR	Benzoic acid	MA / CAM Protocol / SVOA AQ RL	ND	48		10	ug/L
CH27135	NH3-WM	Ammonia as Nitrogen	MA / CMR 310.40.1600 / GW-1 (mg/l)	1.74	0.25	1	1	mg/L
CH27136	$8260GWR	Acetone	MA / CAM Protocol / VOA AQ RL	ND	25		10	ug/L
CH27136	$8260GWR	Carbon Disulfide	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CH27136	$8260GWR	Tetrahydrofuran (THF)	MA / CAM Protocol / VOA AQ RL	ND	2.5		2	ug/L
CH27136	$8260GWR	trans-1,4-dichloro-2-butene	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CH27136	$8260GWR	1,2-Dibromoethane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	0.50	0.02	0.02	ug/L
CH27136	$8260GWR	1,2-Dibromoethane	MA / GROUNDWATER STANDARDS / GW-1	ND	0.50	0.02	0.02	ug/L
CH27136	$MCPADD-WM	1,4-Dioxane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	100	3	3	ug/L
CH27136	$MCPADD-WM	1,4-Dioxane	MA / GROUNDWATER STANDARDS / GW-1	ND	100	0.3	0.3	ug/L

MassDEP Analytical Protocol Certification Form

Laboratory Name: Phoenix Environmental Laboratories, Inc. **Project #:**

Project Location: BROADWAY-AQUALINE **RTN:**

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

CH27135, CH27136

Matrices: ☐ Groundwater/Surface Water ☐ Soil/Sediment ☐ Drinking Water ☐ Air ☑ Other: GW DISCH

CAM Protocol (check all that apply below)

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 V1 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 with method holding times? (* see narrative)	☐ 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 speified 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)? (refer to the individual method(s) for a list of significant modifications). 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 is required for "Presumptive Certainty" status

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

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? See Sections: SVOA, SVOASIM Narrations .	☐ Yes ☑ No
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☐ Yes ☑ No

All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Authorized Signature: Rashmi Makol

Date: Thursday, December 17, 2020

Printed Name: Rashmi Makol

Position: Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

MCP Certification Report

December 17, 2020

SDG I.D.: GCH27135

SDG Comments

Metals Analysis:
The client requested a shorter list of elements which is non 6010 MCP list.

The client requested volatiles by 624 and semi-volatiles by 625. The MCP narrative is provided at the request of the client.

8260 Analysis:
1,2-Dibromoethane doesn't meet GW-1 criteria, this compound is analyzed by GC/FID to achieve this criteria.

1,4-Dioxane doesn't meet GW-1 criteria, this compound is analyzed by 8270SIM to achieve this criteria.

Phoenix reporting levels may exceed those referenced in the CAM protocol. Please refer to criteria sheet for comparisons to requested MCP standards.

504.1

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

CHEM35 12/15/20-1 Chelsey Guerette, Chemist 12/15/20

CH27135 (1X)

The initial calibration (CHEM35/504tcp_1214): RSD for the compound list was less than 20% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 15% except for the following compounds:None.

QC (Batch Specific):

Batch 556554 (CH30505)

CH27135

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 25% with the following exceptions: None.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Cyanide Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

LACHAT 12/11/20-1 Linnea Skoglund, Chemist 12/11/20

CH27135

The samples were distilled in accordance with the method.
The initial calibration met criteria.

The calibration check standards (ICV,CCV) were within 15% of true value and were analyzed at a frequencey of one per ten samples.
The continuing calibration blanks (ICB,CCB) had concentrations less than the reporting level.

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

MCP Certification Report

December 17, 2020

SDG I.D.: GCH27135

Cyanide Narration

The method blank, laboratory control sample (LCS), and matrix spike were distilled with the samples.

QC (Batch Specific):

Batch 556085 (CH26872)

CH27135

All LCS recoveries were within 90 - 110 with the following exceptions: None.
Additional soil criteria LCS acceptance range is 80-120% MS acceptance range 75-125%.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Hexavalent Chromium (Aqueous)

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

BECKMAN DU720 12/08/20-2 Meredith Weigert, Chemist 12/08/20

CH27135

The initial calibration met all criteria including a standard run at the reporting level.
All calibration verification standards (ICV, CCV) met criteria.
All calibration blank verification standards (ICB, CCB) met criteria.

QC (Batch Specific):

Batch 555879 (CH26873)

CH27135

All LCS recoveries were within 90 - 110 with the following exceptions: None.
Additional Hexavalent Chromium criteria: LCS acceptance range for waters is 90-110% and MS acceptance range is 85-115%.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Mercury Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

Instrument:

MERLIN 12/09/20 07:56 Rick Schweitzer, Chemist 12/09/20

CH27135

The method preparation blank, ICB, and CCBs contain all of the acids and reagents as the samples.
The initial calibration met all criteria including a standard run at or below the reporting level.
All calibration verification standards (ICV, CCV) met criteria.
All calibration blank verification standards (ICB, CCB) met criteria.

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Certification Report

December 17, 2020

SDG I.D.: GCH27135

Mercury Narration

The matrix spike sample is used to identify spectral interference for each batch of samples, if within 85-115%, no interference is observed and no further action is taken.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.

MERLIN 12/11/20 08:01 Rick Schweitzer, Chemist 12/11/20

CH27135

The method preparation blank, ICB, and CCBs contain all of the acids and reagents as the samples.
The initial calibration met all criteria including a standard run at or below the reporting level.
All calibration verification standards (ICV, CCV) met criteria.
All calibration blank verification standards (ICB, CCB) met criteria.
The matrix spike sample is used to identify spectral interference for each batch of samples, if within 85-115%, no interference is observed and no further action is taken.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.

QC (Batch Specific):

Batch 555954 (CH27292)

CH27135

All LCS recoveries were within 75 - 125 with the following exceptions: None.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 75-125%

Batch 556145 (CH27910)

CH27135

All LCS recoveries were within 75 - 125 with the following exceptions: None.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 75-125%

ICP Metals Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

Instrument:

BLUE 12/10/20 17:00 Cindy Pearce, Tina Hall, Chemist 12/10/20

CH27135

The initial calibration met criteria.
The continuing calibration standards met criteria for all the elements reported. The linear range is defined daily by the calibration range.
The continuing calibration blanks were less than the reporting level for the elements reported.
The ICSA and ICSAB were analyzed at the beginning and end of the run and were within criteria.The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

BLUE 12/11/20 09:47 Cindy Pearce, Tina Hall, Chemist 12/11/20

CH27135

The initial calibration met criteria.
The continuing calibration standards met criteria for all the elements reported. The linear range is defined daily by the calibration

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Certification Report

December 17, 2020

SDG I.D.: GCH27135

ICP Metals Narration

range.
The continuing calibration blanks were less than the reporting level for the elements reported.
The ICSA and ICSAB were analyzed at the beginning and end of the run and were within criteria.The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

BLUE 12/14/20 09:50 Cindy Pearce, Tina Hall, Chemist 12/14/20

CH27135

The initial calibration met criteria.
The continuing calibration standards met criteria for all the elements reported. The linear range is defined daily by the calibration range.
The continuing calibration blanks were less than the reporting level for the elements reported.
The ICSA and ICSAB were analyzed at the beginning and end of the run and were within criteria.The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

QC (Batch Specific):

Batch 556037 (CH27495)

CH27135

All LCS recoveries were within 80 - 120 with the following exceptions: None.
All LCSD recoveries were within 80 - 120 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
Additional: LCS acceptance range is 80-120% MS acceptance range 75-125%.

Batch 556039 (CH27409)

CH27135

All LCS recoveries were within 80 - 120 with the following exceptions: None.
All LCSD recoveries were within 80 - 120 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
Additional: LCS acceptance range is 80-120% MS acceptance range 75-125%.

LACHAT

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

LACHAT 12/11/20-3 Thomas Budz, Chemist 12/11/20

CH27135

The initial calibration met all criteria including a standard run at the reporting level.
All method verification standards and blanks met criteria.

QC (Batch Specific):

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MCP Certification Report

December 17, 2020

SDG I.D.: GCH27135

LACHAT

Batch 556501 (CH27392)

CH27135

All LCS recoveries were within 90 - 110 with the following exceptions: None.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

NITROGEN

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

LACHAT 12/11/20-1 Kandi Della Bella, Chemist 12/11/20

CH27135

The initial calibration met all criteria including a standard run at the reporting level.
All method verification standards and blanks met criteria.

QC (Batch Specific):

Batch 556263 (CH26540)

CH27135

All LCS recoveries were within 85 - 115 with the following exceptions: None.
Additional criteria: LCS acceptance range for waters is 85-115% and for soils is 75-125%. MS acceptance range is 75-125%.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

PCB Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

AU-ECD24 12/10/20-1 Saadia Chudary, Chemist 12/10/20

CH27135 (1X)

The initial calibration (PC1110AI) RSD for the compound list was less than 20% except for the following compounds: None.
The initial calibration (PC1110BI) RSD for the compound list was less than 20% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 15% except for the following compounds:None.

QC (Batch Specific):

Batch 556103 (CH28127)

CH27135

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.

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December 17, 2020

SDG I.D.: GCH27135

PCB Narration

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

PHENOLS

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

LACHAT 12/14/20-1 Ashley Griffith, Chemist 12/14/20

CH27135

The initial calibration met all criteria including a standard run at the reporting level.
All method verification standards and blanks met criteria.

QC (Batch Specific):

Batch 556325 (CH27073)

CH27135

All LCS recoveries were within 90 - 110 with the following exceptions: None.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

SVOA Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? No.

QC Batch 555888 (Samples: CH27135): -----

One or more analytes is below the method criteria. A low bias for these analytes is possible. (Benzidine)

The LCS and/or the LCSD recovery is below the method criteria. All of the other QC is acceptable, therefore no significant bias is suspected. (Aniline, Benzoic acid)

The LCS/LCSD RPD exceeds the method criteria for one or more analytes, but these analytes were not reported in the sample(s) so no variability is suspected. (4-Chloroaniline, Aniline, Benzoic acid)

Instrument:

CHEM29 12/10/20-1 Matt Richard, Chemist 12/10/20

CH27135 (1X)

For 8270 full list, the DDT breakdown and pentachlorophenol & benzidine peak tailing were evaluated in the DFTPP tune and were found to be in control.
For 8270 BN list, benzidine peak tailing was evaluated in the DFTPP tune and was found to be in control.

Initial Calibration Evaluation (CHEM29/29_SPLIT_1209):
100% of target compounds met criteria.

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December 17, 2020

SDG I.D.: GCH27135

SVOA Narration

The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: 2-Nitrophenol 0.068 (0.1)
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM29/1210_06-29_SPLIT_1209) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: 2-Nitrophenol 0.073 (0.1)
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 555888 (CH26480)

CH27135

All LCS recoveries were within 40 - 140 with the following exceptions: Benzidine(<10%), Benzoic acid(29%)
All LCSD recoveries were within 40 - 140 with the following exceptions: Aniline(17%), Benzidine(<10%)
All LCS/LCSD RPDs were less than 20% with the following exceptions: 4-Chloroaniline(36.5%), Aniline(104.2%), Benzoic acid(49.4%)
Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

SVOA-Dioxane

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

CHEM22 12/14/20-1 Adam Werner, Chemist 12/14/20

CH27135 (1X)

Initial Calibration Evaluation (CHEM22/DIOX_1203):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM22/1214_06-DIOX_1203) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

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MCP Certification Report

December 17, 2020

SDG I.D.: GCH27135

SVOA-Dioxane

Batch 556549 (CH27135)

CH27135

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

SVOASIM Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? No.

QC Batch 555888 (Samples: CH27135): -----

One or more surrogates is outside of criteria. (% 2,4,6-Tribromophenol)

The LCS and/or the LCSD recovery is above the upper range for one or more analytes that were not reported in the sample(s), therefore no significant bias is suspected. (Benzo(b)fluoranthene)

The LCS and/or the LCSD recovery is below the method criteria. All of the other QC is acceptable, therefore no significant bias is suspected. (Pyridine)

The LCS/LCSD RPD exceeds the method criteria for one or more analytes, but these analytes were not reported in the sample(s) so no variability is suspected. (Pyridine)

Instrument:

CHEM25 12/10/20-1 Wes Bryon, Chemist 12/10/20

CH27135 (1X)

For 8270 BN list, benzidine peak tailing was evaluated in the DFTPP tune and was found to be in control.

Initial Calibration Evaluation (CHEM25/25_SIM18_1002):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM25/1210_03-25_SIM18_1002) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 555888 (CH26480)

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MCP Certification Report

December 17, 2020

SDG I.D.: GCH27135

SVOASIM Narration

CH27135

All LCS recoveries were within 40 - 140 with the following exceptions: % 2,4,6-Tribromophenol(133%), Benzo(b)fluoranthene(144%)
All LCSD recoveries were within 40 - 140 with the following exceptions: % 2,4,6-Tribromophenol(127%), Pyridine(24%)
All LCS/LCSD RPDs were less than 20% with the following exceptions: Pyridine(80.0%)
Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

VOA Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

CHEM23 12/09/20-1 Michael Hahn, Chemist 12/09/20

CH27135 (1X), CH27136 (1X)

Initial Calibration Evaluation (CHEM23/VOA23_120720):
98% of target compounds met criteria.
The following compounds had %RSDs >20%: Bromomethane 26% (20%)
The following compounds did not meet Table 4 recommended minimum response factors: Acetone 0.098 (0.1)
The following compounds did not meet the minimum response factor of 0.05: None.

Continuing Calibration Verification (CHEM23/1209_03-VOA23_120720) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
99% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet Table 4 recommended minimum response factors: Acetone 0.099 (0.1)
The following compounds did not meet the minimum MCP response factor of 0.05: None.

QC (Batch Specific):

Batch 556242 (CH27136) CHEM23 12/9/2020-1

CH27135(1X), CH27136(1X)

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.
Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.
The RPD criteria for the LCS/LCSD is 20%,
The MS/MSD RPD criteria is listed above.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

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MCP Certification Report

December 17, 2020

SDG I.D.: GCH27135

VOA-OXY Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

CHEM23 12/09/20-1 Michael Hahn, Chemist 12/09/20

CH27135 (1X)

Initial Calibration Evaluation (CHEM23/OXY120720):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM23/1209_02-OXY120720) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 556384 (CH27135) CHEM23 12/9/2020-1

CH27135(1X)

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
A blank MS/MSD was analyzed with this batch.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Cooler: Yes [X] No [ ]
Coolant: IPK [X] ICE [ ] No [ ]

CHAIN OF CUSTODY RECORD

Temp 1.7 °C Pg of

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Email: info@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-8726

Data Delivery/Contact Options:
[ ] Fax: _____
[ ] Phone: _____
[ ] Email: _____

Customer: Terra Environmental
Address: 159 Haven St.
Reading, MA
01867

Project: Broadway - Aqualine
Report to: Terra
Invoice to: Terra
QUOTE #

Project P.O: 20-111

This section MUST be completed with Bottle Quantities.

Client Sample - Information - Identification

Sampler's Signature _____ Date: 12/8/20

Matrix Code:
DW=Drinking Water **GW**=Ground Water **SW**=Surface Water **WW**=Waste Water
RW=Raw Water **SE**=Sediment **SL**=Sludge **S**=Soil **SD**=Solid **W**=Wipe **OIL**=Oil
B=Bulk **L**=Liquid **X** = _____(Other)

Analysis Request

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	NJDES RGP Phenol	MS/MSD*	GL Amber 8 oz. w/H3PO4	Soil VOA Vials [ ] methanol [ ] H2O	GL Soil container ( ) oz	GL Soil container ( ) oz	40 ml VOA Vial	GL Amber 1000ml	PL As is [ ] 250ml	PL H2SO4	PL HNO3 250ml	PL NaOH 250ml	Bacteria Bottle w/thio	Bacteria Bottle as is
27135	MW-101	GW	12/7	1130AM	X	X					6	7	1	1	1	1		
27136	TRIP BLANK										2							

Relinquished by:	Accepted by:	Date:	Time:
		12/8/20	11:10
		12/8	1542

Comments, Special Requirements or Regulations:
Samples were not filtered during sampling - Please filter

**MS/MSD are considered site samples and will be billed as such in accordance with the prices quoted.*

Turnaround Time:
[ ] 1 Day*
[ ] 2 Days*
[ ] 3 Days*
[X] Standard
[ ] Other
* SURCHARGE APPLIES

RI
[ ] (Residential) Direct Exposure
[ ] (Comm/Industrial) Direct Exposure
[ ] GA Leachability
[ ] GB Leachability
[ ] GA-GW Objectives
[ ] GB-GW Objectives

CT
[ ] RCP Cert
[ ] GW Protection
[ ] SW Protection
[ ] GA Mobility
[ ] GB Mobility
[ ] Residential DEC
[ ] I/C DEC
[ ] Other

MA
[X] MCP Certification
[X] GW-1 [ ] MWRA eSMART
[X] GW-2 [ ] S-1 10% CALC
[ ] GW-3
[ ] S-1 GW-1 [ ] S-1 GW-2 [ ] S-1 GW-3
[ ] S-2 GW-1 [ ] S-2 GW-2 [ ] S-2 GW-3
[ ] S-3 GW-1 [ ] S-3 GW-2 [ ] S-3 GW-3
[ ] SW Protection

State where samples were collected: MA

Data Format
[X] Excel
[X] PDF
[ ] GIS/Key
[ ] EQuIS
[ ] Other

Data Package
[ ] Tier II Checklist
[ ] Full Data Package*
[ ] Phoenix Std Report
[ ] Other

* SURCHARGE APPLIES

PEL-126 REV. 06/20

Makrina Nolan

From: Makrina Nolan
Sent: Thursday, December 10, 2020 5:45 PM
To: ppeterson@terra-env.com; jmcmullen@terra-env.com; Christopher M. Ragnelli; jvaughan@terra-env.com; Andres Gallego; jfmcmullen@terra-env.com
Cc: Makrina Nolan
Subject: Broadway- Aqualine
Attachments: GCH27135-ChainofCustody-1.pdf

Good Afternoon,

We received your sample, with regards to the attached chain. Unfortunately, this sample was received past hold and analyzed for Dissolved HexChrome and HexChrome. These sample results will be reported to you past hold with a comment on the report.

Please let me know if you have any questions.

Thank you,

Makrina Nolan
Client Services –Project Manager
Drinking Water Specialist
Phoenix Environmental Labs
587 Middle Turnpike East
Manchester, CT
Direct Line: 860-645-3219
Website: www.phoenixlabs.com

PHOENIX
Environmental Laboratories, Inc.

Wednesday, January 20, 2021

Attn:
Terra Environmental LLC
P.O. Box 473
Reading, MA 01867

Project ID: **BROADWAY AQUALIVE**
SDG ID: **GCH25415**
Sample ID#s: **CH25415 - CH25417**

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

Enclosed are revised Analysis Report pages. Please replace and discard the original pages. If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Sincerely yours,

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
UT Lab Registration #CT00007
VT Lab Registration #VT11301

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Tel. (860) 645-1102 Fax (860) 645-0823

NY # 11301

SDG Comments

January 20, 2021

SDG I.D.: GCH25415

8260 Analysis:
1,2-Dibromoethane doesn't meet GW-1 criteria, this compound is analyzed by GC/FID to achieve this criteria.

8260 Analysis:
1,4-Dioxane doesn't meet GW-1 criteria, this compound is analyzed by 8270SIM to achieve this criteria.

Phoenix reporting levels may exceed those referenced in the CAM protocol. Please refer to criteria sheet for comparisons to requested MCP standards.
Sample CH25415 was received past hold time for Chromium, Hexavalent (SM3500CRB).
Sample CH25416 was received past hold time for Chromium, Hexavalent (SM3500CRB).

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Sample Id Cross Reference

January 20, 2021

SDG I.D.: GCH25415

Project ID: BROADWAY AQUALIVE

Client Id	Lab Id	Matrix
MILL CREEK	CH25415	GW DISCHARGE
MW-103A	CH25416	GW DISCHARGE
TRIP BLANK	CH25417	GW DISCHARGE

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

January 20, 2021

FOR: Attn:
Terra Environmental LLC
P.O. Box 473
Reading, MA 01867

Sample Information		Custody Information		Date	Time
Matrix:	GW DISCHARGE	Collected by:		12/03/20	7:45
Location Code:	TERRA-ENV	Received by:	CP	12/04/20	14:14
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20-111				

Laboratory Data

SDG ID: GCH25415
Phoenix ID: CH25415

Project ID: BROADWAY AQUALIVE
Client ID: MILL CREEK

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.001	0.001	mg/L	1	12/09/20	TH	E200.7
Arsenic	< 0.004	0.004	mg/L	1	12/09/20	TH	E200.7
Barium	0.043	0.002	mg/L	1	12/09/20	TH	E200.7
Cadmium	< 0.001	0.001	mg/L	1	12/09/20	TH	E200.7
Chromium	< 0.001	0.001	mg/L	1	12/09/20	TH	E200.7
Copper	0.010	0.005	mg/L	1	12/09/20	TH	E200.7
Iron	0.669	0.010	mg/L	1	12/09/20	TH	E200.7
Hardness (CaCO3)	646	0.1	mg/L	1	12/11/20		E200.7
Mercury	< 0.0002	0.0002	mg/L	1	12/08/20	RS	E245.1
Nickel	< 0.001	0.001	mg/L	1	12/09/20	TH	E200.7
Lead	0.002	0.002	mg/L	1	12/09/20	TH	E200.7
Antimony	< 0.005	0.005	mg/L	1	12/09/20	TH	E200.7
Selenium	< 0.010	0.010	mg/L	1	12/09/20	TH	E200.7
Trivalent Chromium	< 0.001	0.001	mg/L	1	12/10/20		Calculation
Zinc	0.015	0.004	mg/L	1	12/09/20	TH	E200.7
Chloride	2120	60.0	mg/L	20	12/04/20	TB	SM4500CLE-11
Chlorine Residual	0.15	0.02	mg/L	1	12/04/20 16:51	MW	SM4500Cl-G-00
Chromium, Hexavalent	0.01	0.01	mg/L	1	12/04/20 16:35	MW	SM3500CRB-11
Ammonia as Nitrogen	0.57	0.05	mg/L	1	12/10/20	KDB	E350.1
Phenolics	< 0.015	0.015	mg/L	1	12/07/20	ARG	E420.4
pH	8.05	1.00	pH Units	1	12/04/20 21:25	AP/EG	SM4500-H B-00
Total Cyanide	0.011	0.010	mg/L	1	12/07/20	LS	E335.4
O&G, Non-polar Material	< 1.5	1.5	mg/L	1.1	12/09/20	MSF	E1664A
Total Suspended Solids	64	5.0	mg/L	1	12/07/20	LS/QH	SM 2540D-11
Mercury Digestion	Completed				12/07/20	ARW/VT	E245.1
PCB Extraction (LDL)	Completed				12/04/20	C/C	E608.3
Semi-Volatile Extraction	Completed				12/04/20	P/D/D	SW3520C
Total Metals Digestion	Completed				12/08/20	AG	

Ver 2

Project ID: BROADWAY AQUALIVE
Client ID: MILL CREEK

Phoenix I.D.: CH25415

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Polychlorinated Biphenyls							
PCB-1016	ND	0.047	ug/L	1	12/07/20	SC	E608.3
PCB-1221	ND	0.047	ug/L	1	12/07/20	SC	E608.3
PCB-1232	ND	0.047	ug/L	1	12/07/20	SC	E608.3
PCB-1242	ND	0.047	ug/L	1	12/07/20	SC	E608.3
PCB-1248	ND	0.047	ug/L	1	12/07/20	SC	E608.3
PCB-1254	ND	0.047	ug/L	1	12/07/20	SC	E608.3
PCB-1260	ND	0.047	ug/L	1	12/07/20	SC	E608.3
PCB-1262	ND	0.047	ug/L	1	12/07/20	SC	E608.3
PCB-1268	ND	0.047	ug/L	1	12/07/20	SC	E608.3
QA/QC Surrogates							
% DCBP (Surrogate Rec)	64		%	1	12/07/20	SC	30 - 150 %
% DCBP (Surrogate Rec) (Confirmation)	64		%	1	12/07/20	SC	30 - 150 %
% TCMX (Surrogate Rec)	71		%	1	12/07/20	SC	30 - 150 %
% TCMX (Surrogate Rec) (Confirmation)	70		%	1	12/07/20	SC	30 - 150 %
1,2-Dibromoethane (EDB)	ND	0.02	ug/L	1	12/09/20	CG	SW8011
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,1,1-Trichloroethane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	12/05/20	MH	E624.1
1,1,2-Trichloroethane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,1-Dichloroethane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,1-Dichloroethene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,1-Dichloropropene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,2,3-Trichloropropane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,2-Dibromo-3-chloropropane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,2-Dibromoethane	ND	0.50	ug/L	1	12/05/20	MH	E624.1
1,2-Dichlorobenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,2-Dichloroethane	ND	0.60	ug/L	1	12/05/20	MH	E624.1
1,2-Dichloropropane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,3-Dichlorobenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,3-Dichloropropane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,4-Dichlorobenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
2,2-Dichloropropane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
2-Chlorotoluene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
2-Hexanone	ND	5.0	ug/L	1	12/05/20	MH	E624.1
2-Isopropyltoluene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
4-Chlorotoluene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
4-Methyl-2-pentanone	ND	5.0	ug/L	1	12/05/20	MH	E624.1
Acetone	ND	25	ug/L	1	12/05/20	MH	E624.1
Acrylonitrile	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Benzene	ND	0.70	ug/L	1	12/05/20	MH	E624.1
Bromobenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1

Project ID: BROADWAY AQUALIVE
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Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Bromochloromethane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Bromodichloromethane	ND	0.50	ug/L	1	12/05/20	MH	E624.1
Bromoform	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Bromomethane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Carbon Disulfide	ND	5.0	ug/L	1	12/05/20	MH	E624.1
Carbon tetrachloride	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Chlorobenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Chloroethane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Chloroform	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Chloromethane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	12/05/20	MH	E624.1
Dibromochloromethane	ND	0.50	ug/L	1	12/05/20	MH	E624.1
Dibromomethane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Dichlorodifluoromethane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Ethylbenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Hexachlorobutadiene	ND	0.40	ug/L	1	12/05/20	MH	E624.1
Isopropylbenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
m&p-Xylene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Methyl ethyl ketone	ND	5.0	ug/L	1	12/05/20	MH	E624.1
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Methylene chloride	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Naphthalene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
n-Butylbenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
n-Propylbenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
o-Xylene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
p-Isopropyltoluene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
sec-Butylbenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Styrene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
tert-Butylbenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Tetrachloroethene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	12/05/20	MH	E624.1
Toluene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Total Xylenes	ND	1.0	ug/L	1	12/05/20	MH	E624.1
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	12/05/20	MH	E624.1
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	12/05/20	MH	E624.1
Trichloroethene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Trichlorofluoromethane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Trichlorotrifluoroethane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Vinyl chloride	ND	1.0	ug/L	1	12/05/20	MH	E624.1
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	103		%	1	12/05/20	MH	70 - 130 %
% Bromofluorobenzene	100		%	1	12/05/20	MH	70 - 130 %
% Dibromofluoromethane	108		%	1	12/05/20	MH	70 - 130 %
% Toluene-d8	101		%	1	12/05/20	MH	70 - 130 %
Oxygenates & Dioxane							
1,4-Dioxane	ND	100	ug/L	1	12/05/20	MH	SW8260C (OXY)
Diethyl ether	ND	1.0	ug/L	1	12/05/20	MH	SW8260C (OXY)

Ver 2

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Di-isopropyl ether	ND	1.0	ug/L	1	12/05/20	MH	SW8260C (OXY)
Ethyl tert-butyl ether	ND	1.0	ug/L	1	12/05/20	MH	SW8260C (OXY)
tert-amyl methyl ether	ND	1.0	ug/L	1	12/05/20	MH	SW8260C (OXY)
Ethanol	ND	400	ug/L	1	12/05/20	MH	SW8260C
Tert-amyl-methyl-ether	ND	1.0	ug/L	1	12/05/20	MH	SW8260C
Tert-butyl alcohol	ND	50	ug/L	1	12/05/20	MH	SW8260C

Semivolatiles

1,2,4,5-Tetrachlorobenzene	ND	3.5	ug/L	1	12/08/20	AW	E625.1
1,2,4-Trichlorobenzene	ND	5.0	ug/L	1	12/08/20	AW	E625.1
1,2-Dichlorobenzene	ND	2.5	ug/L	1	12/08/20	AW	E625.1
1,2-Diphenylhydrazine	ND	5.0	ug/L	1	12/08/20	AW	E625.1
1,3-Dichlorobenzene	ND	2.5	ug/L	1	12/08/20	AW	E625.1
1,4-Dichlorobenzene	ND	2.5	ug/L	1	12/08/20	AW	E625.1
2,4,5-Trichlorophenol	ND	1.0	ug/L	1	12/08/20	AW	E625.1
2,4,6-Trichlorophenol	ND	1.0	ug/L	1	12/08/20	AW	E625.1
2,4-Dichlorophenol	ND	1.0	ug/L	1	12/08/20	AW	E625.1
2,4-Dimethylphenol	ND	1.0	ug/L	1	12/08/20	AW	E625.1
2,4-Dinitrophenol	ND	1.0	ug/L	1	12/08/20	AW	E625.1
2,4-Dinitrotoluene	ND	5.0	ug/L	1	12/08/20	AW	E625.1
2,6-Dinitrotoluene	ND	5.0	ug/L	1	12/08/20	AW	E625.1
2-Chloronaphthalene	ND	5.0	ug/L	1	12/08/20	AW	E625.1
2-Chlorophenol	ND	1.0	ug/L	1	12/08/20	AW	E625.1
2-Methylphenol (o-cresol)	ND	1.0	ug/L	1	12/08/20	AW	E625.1
2-Nitroaniline	ND	5.0	ug/L	1	12/08/20	AW	E625.1
2-Nitrophenol	ND	1.0	ug/L	1	12/08/20	AW	E625.1
3&4-Methylphenol (m&p-cresol)	ND	10	ug/L	1	12/08/20	AW	E625.1
3,3'-Dichlorobenzidine	ND	5.0	ug/L	1	12/08/20	AW	E625.1
3-Nitroaniline	ND	5.0	ug/L	1	12/08/20	AW	E625.1
4,6-Dinitro-2-methylphenol	ND	1.0	ug/L	1	12/08/20	AW	E625.1
4-Bromophenyl phenyl ether	ND	5.0	ug/L	1	12/08/20	AW	E625.1
4-Chloro-3-methylphenol	ND	1.0	ug/L	1	12/08/20	AW	E625.1
4-Chloroaniline	ND	5.0	ug/L	1	12/08/20	AW	E625.1
4-Chlorophenyl phenyl ether	ND	1.0	ug/L	1	12/08/20	AW	E625.1
4-Nitroaniline	ND	5.0	ug/L	1	12/08/20	AW	E625.1
4-Nitrophenol	ND	1.0	ug/L	1	12/08/20	AW	E625.1
Acetophenone	ND	5.0	ug/L	1	12/08/20	AW	E625.1
Aniline	ND	5.0	ug/L	1	12/08/20	AW	E625.1
Benzidine	ND	5.0	ug/L	1	12/08/20	AW	E625.1
Benzoic acid	ND	50	ug/L	1	12/08/20	AW	E625.1
Benzyl butyl phthalate	ND	5.0	ug/L	1	12/08/20	AW	E625.1
Bis(2-chloroethoxy)methane	ND	5.0	ug/L	1	12/08/20	AW	E625.1
Bis(2-chloroethyl)ether	ND	1.0	ug/L	1	12/08/20	AW	E625.1
Bis(2-chloroisopropyl)ether	ND	5.0	ug/L	1	12/08/20	AW	E625.1
Bis(2-ethylhexyl)phthalate	ND	1.0	ug/L	1	12/08/20	AW	E625.1
Carbazole	ND	5.0	ug/L	1	12/08/20	AW	E625.1
Dibenzofuran	ND	5.0	ug/L	1	12/08/20	AW	E625.1
Diethyl phthalate	ND	5.0	ug/L	1	12/08/20	AW	E625.1
Dimethylphthalate	ND	5.0	ug/L	1	12/08/20	AW	E625.1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Di-n-butylphthalate	ND	5.0	ug/L	1	12/08/20	AW	E625.1
Di-n-octylphthalate	ND	5.0	ug/L	1	12/08/20	AW	E625.1
Hexachloroethane	ND	1.0	ug/L	1	12/08/20	AW	E625.1
Isophorone	ND	5.0	ug/L	1	12/08/20	AW	E625.1
N-Nitrosodi-n-propylamine	ND	5.0	ug/L	1	12/08/20	AW	E625.1
N-Nitrosodiphenylamine	ND	5.0	ug/L	1	12/08/20	AW	E625.1
Pentachloronitrobenzene	ND	2.5	ug/L	1	12/08/20	AW	E625.1
Phenol	ND	1.0	ug/L	1	12/08/20	AW	E625.1
QA/QC Surrogates							
% 2,4,6-Tribromophenol	87		%	1	12/08/20	AW	15 - 110 %
% 2-Fluorobiphenyl	67		%	1	12/08/20	AW	30 - 130 %
% 2-Fluorophenol	58		%	1	12/08/20	AW	15 - 110 %
% Nitrobenzene-d5	70		%	1	12/08/20	AW	30 - 130 %
% Phenol-d5	60		%	1	12/08/20	AW	15 - 110 %
% Terphenyl-d14	91		%	1	12/08/20	AW	30 - 130 %

Semivolatiles (SIM)

2-Methylnaphthalene	ND	0.50	ug/L	1	12/07/20	WB	625(SIM)
Acenaphthene	ND	0.50	ug/L	1	12/07/20	WB	625(SIM)
Acenaphthylene	ND	0.10	ug/L	1	12/07/20	WB	625(SIM)
Anthracene	ND	0.10	ug/L	1	12/07/20	WB	625(SIM)
Benz(a)anthracene	ND	0.10	ug/L	1	12/07/20	WB	625(SIM)
Benzo(a)pyrene	ND	0.20	ug/L	1	12/07/20	WB	625(SIM)
Benzo(b)fluoranthene	ND	0.10	ug/L	1	12/07/20	WB	625(SIM)
Benzo(ghi)perylene	ND	0.02	ug/L	1	12/07/20	WB	625(SIM)
Benzo(k)fluoranthene	ND	0.10	ug/L	1	12/07/20	WB	625(SIM)
Chrysene	ND	0.05	ug/L	1	12/07/20	WB	625(SIM)
Dibenz(a,h)anthracene	ND	0.02	ug/L	1	12/07/20	WB	625(SIM)
Fluoranthene	ND	0.50	ug/L	1	12/07/20	WB	625(SIM)
Fluorene	ND	0.10	ug/L	1	12/07/20	WB	625(SIM)
Hexachlorobenzene	ND	0.50	ug/L	1	12/07/20	WB	625(SIM)
Hexachlorobutadiene	ND	0.50	ug/L	1	12/07/20	WB	625(SIM)
Hexachlorocyclopentadiene	ND	0.50	ug/L	1	12/07/20	WB	625(SIM)
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L	1	12/07/20	WB	625(SIM)
Naphthalene	ND	0.50	ug/L	1	12/07/20	WB	625(SIM)
Nitrobenzene	ND	0.50	ug/L	1	12/07/20	WB	625(SIM)
N-Nitrosodimethylamine	ND	0.50	ug/L	1	12/07/20	WB	625(SIM)
Pentachlorophenol	ND	0.50	ug/L	1	12/07/20	WB	625(SIM)
Phenanthrene	ND	0.50	ug/L	1	12/07/20	WB	625(SIM)
Pyrene	ND	0.07	ug/L	1	12/07/20	WB	625(SIM)
Pyridine	ND	0.50	ug/L	1	12/07/20	WB	625(SIM)
QA/QC Surrogates							
% 2,4,6-Tribromophenol	76		%	1	12/07/20	WB	15 - 110 %
% 2-Fluorobiphenyl	58		%	1	12/07/20	WB	40 - 140 %
% 2-Fluorophenol	64		%	1	12/07/20	WB	15 - 110 %
% Nitrobenzene-d5	63		%	1	12/07/20	WB	40 - 140 %
% Phenol-d5	59		%	1	12/07/20	WB	15 - 110 %
% Terphenyl-d14	69		%	1	12/07/20	WB	40 - 140 %

Project ID: BROADWAY AQUALIVE
Client ID: MILL CREEK

Phoenix I.D.: CH25415

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,4-dioxane							
1,4-dioxane	ND	0.20	ug/l	1	12/09/20	AW	SW8270DSIM
QA/QC Surrogates							
% 1,4-dioxane-d8	72		%	1	12/09/20	AW	40 - 140 %
Extraction for 1,4-Dioxane	Completed				12/08/20	G/G	

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

8260 Analysis:
1,4-Dioxane doesn't meet GW-1 criteria, this compound is analyzed by 8270SIM to achieve this criteria.

The regulatory hold time for Chlorine is immediately. This Chlorine was performed in the laboratory and may be considered outside of hold-time.

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
January 20, 2021
Reviewed and Released by: Sarah Bell, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

January 20, 2021

FOR: Attn:
Terra Environmental LLC
P.O. Box 473
Reading, MA 01867

Sample Information		Custody Information		Date	Time
Matrix:	GW DISCHARGE	Collected by:		12/03/20	7:45
Location Code:	TERRA-ENV	Received by:	CP	12/04/20	14:14
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20-111				

Laboratory Data

SDG ID: GCH25415
Phoenix ID: CH25416

Project ID: BROADWAY AQUALIVE
Client ID: MW-103A

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.001	0.001	mg/L	1	12/09/20	TH	E200.7
Arsenic	0.013	0.004	mg/L	1	12/09/20	TH	E200.7
Barium	0.016	0.002	mg/L	1	12/09/20	TH	E200.7
Cadmium	< 0.001	0.001	mg/L	1	12/09/20	TH	E200.7
Chromium	0.004	0.001	mg/L	1	12/09/20	TH	E200.7
Copper	0.020	0.005	mg/L	1	12/09/20	TH	E200.7
Iron	1.73	0.010	mg/L	1	12/09/20	TH	E200.7
Hardness (CaCO3)	125	0.1	mg/L	1	12/10/20		E200.7
Mercury	< 0.0002	0.0002	mg/L	1	12/08/20	RS	E245.1
Nickel	0.003	0.001	mg/L	1	12/09/20	TH	E200.7
Lead	0.007	0.002	mg/L	1	12/09/20	TH	E200.7
Antimony	< 0.005	0.005	mg/L	1	12/09/20	TH	E200.7
Selenium	< 0.010	0.010	mg/L	1	12/09/20	TH	E200.7
Trivalent Chromium	0.004	0.001	mg/L	1	12/10/20		Calculation
Zinc	0.079	0.004	mg/L	1	12/09/20	TH	E200.7
Chloride	190	6.0	mg/L	2	12/04/20	TB	SM4500CLE-11
Chlorine Residual	< 0.02	0.02	mg/L	1	12/04/20 16:52	MW	SM4500Cl-G-00
Chromium, Hexavalent	< 0.01	0.01	mg/L	1	12/04/20 16:36	MW	SM3500CRB-11
Ammonia as Nitrogen	< 0.10	0.10	mg/L	2	12/10/20	KDB	E350.1
Phenolics	< 0.015	0.015	mg/L	1	12/07/20	ARG	E420.4
pH	8.07	1.00	pH Units	1	12/04/20 21:27	AP/EG	SM4500-H B-00
Total Cyanide	0.045	0.010	mg/L	1	12/07/20	LS	E335.4
O&G, Non-polar Material	< 1.4	1.4	mg/L	1	12/09/20	MSF	E1664A
Total Suspended Solids	31	5.0	mg/L	1	12/07/20	LS/QH	SM 2540D-11
Mercury Digestion	Completed				12/07/20	ARW/VT	E245.1
PCB Extraction (LDL)	Completed				12/04/20	C/C	E608.3
Semi-Volatile Extraction	Completed				12/04/20	P/D/D	SW3520C
Total Metals Digestion	Completed				12/08/20	AG	

Ver 2

Project ID: BROADWAY AQUALIVE
Client ID: MW-103A

Phoenix I.D.: CH25416

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Polychlorinated Biphenyls							
PCB-1016	ND	0.047	ug/L	1	12/07/20	SC	E608.3
PCB-1221	ND	0.047	ug/L	1	12/07/20	SC	E608.3
PCB-1232	ND	0.047	ug/L	1	12/07/20	SC	E608.3
PCB-1242	ND	0.047	ug/L	1	12/07/20	SC	E608.3
PCB-1248	ND	0.047	ug/L	1	12/07/20	SC	E608.3
PCB-1254	ND	0.047	ug/L	1	12/07/20	SC	E608.3
PCB-1260	ND	0.047	ug/L	1	12/07/20	SC	E608.3
PCB-1262	ND	0.047	ug/L	1	12/07/20	SC	E608.3
PCB-1268	ND	0.047	ug/L	1	12/07/20	SC	E608.3
QA/QC Surrogates							
% DCBP (Surrogate Rec)	67		%	1	12/07/20	SC	30 - 150 %
% DCBP (Surrogate Rec) (Confirmation)	63		%	1	12/07/20	SC	30 - 150 %
% TCMX (Surrogate Rec)	71		%	1	12/07/20	SC	30 - 150 %
% TCMX (Surrogate Rec) (Confirmation)	68		%	1	12/07/20	SC	30 - 150 %
1,2-Dibromoethane (EDB)	ND	0.02	ug/L	1	12/15/20	CG	SW8011
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,1,1-Trichloroethane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	12/08/20	MH	E624.1
1,1,2-Trichloroethane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,1-Dichloroethane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,1-Dichloroethene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,1-Dichloropropene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,2,3-Trichloropropane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,2,4-Trimethylbenzene	88	1.0	ug/L	1	12/08/20	MH	E624.1
1,2-Dibromo-3-chloropropane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,2-Dibromoethane	ND	0.50	ug/L	1	12/08/20	MH	E624.1
1,2-Dichlorobenzene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,2-Dichloroethane	ND	0.60	ug/L	1	12/08/20	MH	E624.1
1,2-Dichloropropane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,3,5-Trimethylbenzene	4.0	1.0	ug/L	1	12/08/20	MH	E624.1
1,3-Dichlorobenzene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,3-Dichloropropane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,4-Dichlorobenzene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
2,2-Dichloropropane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
2-Chlorotoluene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
2-Hexanone	ND	5.0	ug/L	1	12/08/20	MH	E624.1
2-Isopropyltoluene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
4-Chlorotoluene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
4-Methyl-2-pentanone	ND	5.0	ug/L	1	12/08/20	MH	E624.1
Acetone	ND	25	ug/L	1	12/08/20	MH	E624.1
Acrylonitrile	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Benzene	ND	0.70	ug/L	1	12/08/20	MH	E624.1
Bromobenzene	ND	1.0	ug/L	1	12/08/20	MH	E624.1

Project ID: BROADWAY AQUALIVE
Client ID: MW-103A

Phoenix I.D.: CH25416

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Bromochloromethane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Bromodichloromethane	ND	0.50	ug/L	1	12/08/20	MH	E624.1
Bromoform	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Bromomethane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Carbon Disulfide	ND	5.0	ug/L	1	12/08/20	MH	E624.1
Carbon tetrachloride	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Chlorobenzene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Chloroethane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Chloroform	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Chloromethane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	12/08/20	MH	E624.1
Dibromochloromethane	ND	0.50	ug/L	1	12/08/20	MH	E624.1
Dibromomethane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Dichlorodifluoromethane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Ethylbenzene	10	1.0	ug/L	1	12/08/20	MH	E624.1
Hexachlorobutadiene	ND	0.40	ug/L	1	12/08/20	MH	E624.1
Isopropylbenzene	3.4	1.0	ug/L	1	12/08/20	MH	E624.1
m&p-Xylene	1.3	1.0	ug/L	1	12/08/20	MH	E624.1
Methyl ethyl ketone	ND	5.0	ug/L	1	12/08/20	MH	E624.1
Methyl t-butyl ether (MTBE)	1.5	1.0	ug/L	1	12/08/20	MH	E624.1
Methylene chloride	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Naphthalene	8.6	1.0	ug/L	1	12/08/20	MH	E624.1
n-Butylbenzene	2.6	1.0	ug/L	1	12/08/20	MH	E624.1
n-Propylbenzene	9.9	1.0	ug/L	1	12/08/20	MH	E624.1
o-Xylene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
p-Isopropyltoluene	3.5	1.0	ug/L	1	12/08/20	MH	E624.1
sec-Butylbenzene	2.2	1.0	ug/L	1	12/08/20	MH	E624.1
Styrene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
tert-Butylbenzene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Tetrachloroethene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	12/08/20	MH	E624.1
Toluene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Total Xylenes	1.3	1.0	ug/L	1	12/08/20	MH	E624.1
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	12/08/20	MH	E624.1
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	12/08/20	MH	E624.1
Trichloroethene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Trichlorofluoromethane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Trichlorotrifluoroethane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Vinyl chloride	ND	1.0	ug/L	1	12/08/20	MH	E624.1
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	102		%	1	12/08/20	MH	70 - 130 %
% Bromofluorobenzene	99		%	1	12/08/20	MH	70 - 130 %
% Dibromofluoromethane	101		%	1	12/08/20	MH	70 - 130 %
% Toluene-d8	100		%	1	12/08/20	MH	70 - 130 %
Oxygenates & Dioxane							
1,4-Dioxane	ND	100	ug/L	1	12/08/20	MH	SW8260C (OXY)
Diethyl ether	ND	1.0	ug/L	1	12/08/20	MH	SW8260C (OXY)

Ver 2

Project ID: BROADWAY AQUALIVE
Client ID: MW-103A

Phoenix I.D.: CH25416

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Di-isopropyl ether	ND	1.0	ug/L	1	12/08/20	MH	SW8260C (OXY)
Ethyl tert-butyl ether	ND	1.0	ug/L	1	12/08/20	MH	SW8260C (OXY)
tert-amyl methyl ether	ND	1.0	ug/L	1	12/08/20	MH	SW8260C (OXY)
Ethanol	ND	400	ug/L	1	12/08/20	MH	SW8260C
Tert-amyl-methyl-ether	ND	1.0	ug/L	1	12/08/20	MH	SW8260C
Tert-butyl alcohol	ND	50	ug/L	1	12/08/20	MH	SW8260C

Semivolatiles

1,2,4,5-Tetrachlorobenzene	ND	3.5	ug/L	1	12/08/20	AW	E625.1
1,2,4-Trichlorobenzene	ND	5.0	ug/L	1	12/08/20	AW	E625.1
1,2-Dichlorobenzene	ND	2.5	ug/L	1	12/08/20	AW	E625.1
1,2-Diphenylhydrazine	ND	5.0	ug/L	1	12/08/20	AW	E625.1
1,3-Dichlorobenzene	ND	2.5	ug/L	1	12/08/20	AW	E625.1
1,4-Dichlorobenzene	ND	2.5	ug/L	1	12/08/20	AW	E625.1
2,4,5-Trichlorophenol	ND	0.99	ug/L	1	12/08/20	AW	E625.1
2,4,6-Trichlorophenol	ND	0.99	ug/L	1	12/08/20	AW	E625.1
2,4-Dichlorophenol	ND	0.99	ug/L	1	12/08/20	AW	E625.1
2,4-Dimethylphenol	ND	0.99	ug/L	1	12/08/20	AW	E625.1
2,4-Dinitrophenol	ND	0.99	ug/L	1	12/08/20	AW	E625.1
2,4-Dinitrotoluene	ND	5.0	ug/L	1	12/08/20	AW	E625.1
2,6-Dinitrotoluene	ND	5.0	ug/L	1	12/08/20	AW	E625.1
2-Chloronaphthalene	ND	5.0	ug/L	1	12/08/20	AW	E625.1
2-Chlorophenol	ND	0.99	ug/L	1	12/08/20	AW	E625.1
2-Methylphenol (o-cresol)	ND	0.99	ug/L	1	12/08/20	AW	E625.1
2-Nitroaniline	ND	5.0	ug/L	1	12/08/20	AW	E625.1
2-Nitrophenol	ND	0.99	ug/L	1	12/08/20	AW	E625.1
3&4-Methylphenol (m&p-cresol)	ND	9.9	ug/L	1	12/08/20	AW	E625.1
3,3'-Dichlorobenzidine	ND	5.0	ug/L	1	12/08/20	AW	E625.1
3-Nitroaniline	ND	5.0	ug/L	1	12/08/20	AW	E625.1
4,6-Dinitro-2-methylphenol	ND	0.99	ug/L	1	12/08/20	AW	E625.1
4-Bromophenyl phenyl ether	ND	5.0	ug/L	1	12/08/20	AW	E625.1
4-Chloro-3-methylphenol	ND	0.99	ug/L	1	12/08/20	AW	E625.1
4-Chloroaniline	ND	5.0	ug/L	1	12/08/20	AW	E625.1
4-Chlorophenyl phenyl ether	ND	0.99	ug/L	1	12/08/20	AW	E625.1
4-Nitroaniline	ND	5.0	ug/L	1	12/08/20	AW	E625.1
4-Nitrophenol	ND	0.99	ug/L	1	12/08/20	AW	E625.1
Acetophenone	ND	5.0	ug/L	1	12/08/20	AW	E625.1
Aniline	ND	5.0	ug/L	1	12/08/20	AW	E625.1
Benzidine	ND	5.0	ug/L	1	12/08/20	AW	E625.1
Benzoic acid	ND	50	ug/L	1	12/08/20	AW	E625.1
Benzyl butyl phthalate	ND	5.0	ug/L	1	12/08/20	AW	E625.1
Bis(2-chloroethoxy)methane	ND	5.0	ug/L	1	12/08/20	AW	E625.1
Bis(2-chloroethyl)ether	ND	0.99	ug/L	1	12/08/20	AW	E625.1
Bis(2-chloroisopropyl)ether	ND	5.0	ug/L	1	12/08/20	AW	E625.1
Bis(2-ethylhexyl)phthalate	ND	0.99	ug/L	1	12/08/20	AW	E625.1
Carbazole	ND	5.0	ug/L	1	12/08/20	AW	E625.1
Dibenzofuran	ND	5.0	ug/L	1	12/08/20	AW	E625.1
Diethyl phthalate	ND	5.0	ug/L	1	12/08/20	AW	E625.1
Dimethylphthalate	ND	5.0	ug/L	1	12/08/20	AW	E625.1

Project ID: BROADWAY AQUALIVE
Client ID: MW-103A

Phoenix I.D.: CH25416

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Di-n-butylphthalate	ND	5.0	ug/L	1	12/08/20	AW	E625.1
Di-n-octylphthalate	ND	5.0	ug/L	1	12/08/20	AW	E625.1
Hexachloroethane	ND	0.99	ug/L	1	12/08/20	AW	E625.1
Isophorone	ND	5.0	ug/L	1	12/08/20	AW	E625.1
N-Nitrosodi-n-propylamine	ND	5.0	ug/L	1	12/08/20	AW	E625.1
N-Nitrosodiphenylamine	ND	5.0	ug/L	1	12/08/20	AW	E625.1
Pentachloronitrobenzene	ND	2.5	ug/L	1	12/08/20	AW	E625.1
Phenol	ND	0.99	ug/L	1	12/08/20	AW	E625.1
QA/QC Surrogates							
% 2,4,6-Tribromophenol	76		%	1	12/08/20	AW	15 - 110 %
% 2-Fluorobiphenyl	66		%	1	12/08/20	AW	30 - 130 %
% 2-Fluorophenol	53		%	1	12/08/20	AW	15 - 110 %
% Nitrobenzene-d5	68		%	1	12/08/20	AW	30 - 130 %
% Phenol-d5	57		%	1	12/08/20	AW	15 - 110 %
% Terphenyl-d14	83		%	1	12/08/20	AW	30 - 130 %
Semivolatiles (SIM)							
2-Methylnaphthalene	ND	0.50	ug/L	1	12/07/20	WB	625(SIM)
Acenaphthene	ND	0.50	ug/L	1	12/07/20	WB	625(SIM)
Acenaphthylene	ND	0.10	ug/L	1	12/07/20	WB	625(SIM)
Anthracene	ND	0.09	ug/L	1	12/07/20	WB	625(SIM)
Benz(a)anthracene	ND	0.10	ug/L	1	12/07/20	WB	625(SIM)
Benzo(a)pyrene	ND	0.20	ug/L	1	12/07/20	WB	625(SIM)
Benzo(b)fluoranthene	ND	0.10	ug/L	1	12/07/20	WB	625(SIM)
Benzo(ghi)perylene	ND	0.02	ug/L	1	12/07/20	WB	625(SIM)
Benzo(k)fluoranthene	ND	0.10	ug/L	1	12/07/20	WB	625(SIM)
Chrysene	ND	0.05	ug/L	1	12/07/20	WB	625(SIM)
Dibenz(a,h)anthracene	ND	0.02	ug/L	1	12/07/20	WB	625(SIM)
Fluoranthene	ND	0.50	ug/L	1	12/07/20	WB	625(SIM)
Fluorene	ND	0.10	ug/L	1	12/07/20	WB	625(SIM)
Hexachlorobenzene	ND	0.50	ug/L	1	12/07/20	WB	625(SIM)
Hexachlorobutadiene	ND	0.50	ug/L	1	12/07/20	WB	625(SIM)
Hexachlorocyclopentadiene	ND	0.50	ug/L	1	12/07/20	WB	625(SIM)
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L	1	12/07/20	WB	625(SIM)
Naphthalene	ND	0.50	ug/L	1	12/07/20	WB	625(SIM)
Nitrobenzene	ND	0.50	ug/L	1	12/07/20	WB	625(SIM)
N-Nitrosodimethylamine	ND	0.50	ug/L	1	12/07/20	WB	625(SIM)
Pentachlorophenol	ND	0.50	ug/L	1	12/07/20	WB	625(SIM)
Phenanthrene	ND	0.50	ug/L	1	12/07/20	WB	625(SIM)
Pyrene	ND	0.07	ug/L	1	12/07/20	WB	625(SIM)
Pyridine	ND	0.50	ug/L	1	12/07/20	WB	625(SIM)
QA/QC Surrogates							
% 2,4,6-Tribromophenol	73		%	1	12/07/20	WB	15 - 110 %
% 2-Fluorobiphenyl	58		%	1	12/07/20	WB	40 - 140 %
% 2-Fluorophenol	62		%	1	12/07/20	WB	15 - 110 %
% Nitrobenzene-d5	68		%	1	12/07/20	WB	40 - 140 %
% Phenol-d5	57		%	1	12/07/20	WB	15 - 110 %
% Terphenyl-d14	64		%	1	12/07/20	WB	40 - 140 %

Project ID: BROADWAY AQUALIVE
Client ID: MW-103A

Phoenix I.D.: CH25416

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,4-dioxane							
1,4-dioxane	ND	0.20	ug/l	1	12/09/20	AW	SW8270DSIM
QA/QC Surrogates							
% 1,4-dioxane-d8	75		%	1	12/09/20	AW	40 - 140 %
Extraction for 1,4-Dioxane	Completed				12/08/20	G/G	

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

8260 Analysis:
1,4-Dioxane doesn't meet GW-1 criteria, this compound is analyzed by 8270SIM to achieve this criteria.

The regulatory hold time for Chlorine is immediately. This Chlorine was performed in the laboratory and may be considered outside of hold-time.

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

Oil and Grease:
This sample was received with a pH>=2; pH was adjusted to <2 (EPA requires preservation at time of sampling to a pH of <2.) A sample bias can not be ruled out.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
January 20, 2021
Reviewed and Released by: Sarah Bell, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

January 20, 2021

FOR: Attn:
Terra Environmental LLC
P.O. Box 473
Reading, MA 01867

Sample Information		Custody Information		Date	Time
Matrix:	GW DISCHARGE	Collected by:		12/03/20	7:45
Location Code:	TERRA-ENV	Received by:	CP	12/04/20	14:14
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20-111				

Laboratory Data

SDG ID: GCH25415
Phoenix ID: CH25417

Project ID: BROADWAY AQUALIVE
Client ID: TRIP BLANK

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,1,1-Trichloroethane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	12/05/20	MH	E624.1
1,1,2-Trichloroethane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,1-Dichloroethane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,1-Dichloroethene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,1-Dichloropropene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,2,3-Trichloropropane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,2-Dibromo-3-chloropropane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,2-Dibromoethane	ND	0.50	ug/L	1	12/05/20	MH	E624.1
1,2-Dichlorobenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,2-Dichloroethane	ND	0.60	ug/L	1	12/05/20	MH	E624.1
1,2-Dichloropropane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,3-Dichlorobenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,3-Dichloropropane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
1,4-Dichlorobenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
2,2-Dichloropropane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
2-Chlorotoluene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
2-Hexanone	ND	5.0	ug/L	1	12/05/20	MH	E624.1
2-Isopropyltoluene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
4-Chlorotoluene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
4-Methyl-2-pentanone	ND	5.0	ug/L	1	12/05/20	MH	E624.1

Project ID: BROADWAY AQUALIVE
Client ID: TRIP BLANK

Phoenix I.D.: CH25417

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Acetone	ND	25	ug/L	1	12/05/20	MH	E624.1
Acrylonitrile	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Benzene	ND	0.70	ug/L	1	12/05/20	MH	E624.1
Bromobenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Bromochloromethane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Bromodichloromethane	ND	0.50	ug/L	1	12/05/20	MH	E624.1
Bromoform	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Bromomethane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Carbon Disulfide	ND	5.0	ug/L	1	12/05/20	MH	E624.1
Carbon tetrachloride	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Chlorobenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Chloroethane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Chloroform	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Chloromethane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	12/05/20	MH	E624.1
Dibromochloromethane	ND	0.50	ug/L	1	12/05/20	MH	E624.1
Dibromomethane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Dichlorodifluoromethane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Ethylbenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Hexachlorobutadiene	ND	0.40	ug/L	1	12/05/20	MH	E624.1
Isopropylbenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
m&p-Xylene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Methyl ethyl ketone	ND	5.0	ug/L	1	12/05/20	MH	E624.1
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Methylene chloride	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Naphthalene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
n-Butylbenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
n-Propylbenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
o-Xylene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
p-Isopropyltoluene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
sec-Butylbenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Styrene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
tert-Butylbenzene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Tetrachloroethene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	12/05/20	MH	E624.1
Toluene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Total Xylenes	ND	1.0	ug/L	1	12/05/20	MH	E624.1
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	12/05/20	MH	E624.1
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	12/05/20	MH	E624.1
Trichloroethene	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Trichlorofluoromethane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Trichlorotrifluoroethane	ND	1.0	ug/L	1	12/05/20	MH	E624.1
Vinyl chloride	ND	1.0	ug/L	1	12/05/20	MH	E624.1
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	102		%	1	12/05/20	MH	70 - 130 %
% Bromofluorobenzene	102		%	1	12/05/20	MH	70 - 130 %
% Dibromofluoromethane	106		%	1	12/05/20	MH	70 - 130 %

Project ID: BROADWAY AQUALIVE
Client ID: TRIP BLANK

Phoenix I.D.: CH25417

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
% Toluene-d8	99		%	1	12/05/20	MH	70 - 130 %
Oxygenates & Dioxane							
1,4-Dioxane	ND	100	ug/L	1	12/05/20	MH	SW8260C (OXY)
Diethyl ether	ND	1.0	ug/L	1	12/05/20	MH	SW8260C (OXY)
Di-isopropyl ether	ND	1.0	ug/L	1	12/05/20	MH	SW8260C (OXY)
Ethyl tert-butyl ether	ND	1.0	ug/L	1	12/05/20	MH	SW8260C (OXY)
tert-amyl methyl ether	ND	1.0	ug/L	1	12/05/20	MH	SW8260C (OXY)

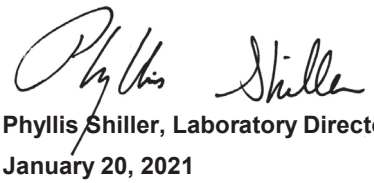
RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

TRIP BLANK INCLUDED.

8260 Analysis:
1,4-Dioxane doesn't meet GW-1 criteria, this compound is analyzed by 8270SIM to achieve this criteria.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.



Phyllis Shiller, Laboratory Director
January 20, 2021
Reviewed and Released by: Sarah Bell, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

January 20, 2021

QA/QC Data

SDG I.D.: GCH25415

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 555624 (mg/L), QC Sample No: CH25347 (CH25415, CH25416)													
Mercury - Water	BRL	0.0002	<0.0002	<0.0002	NC	86.2			94.2			75 - 125	30
Comment:													
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 75-125%													
QA/QC Batch 555870 (mg/L), QC Sample No: CH26585 (CH25415, CH25416)													
ICP Metals - Aqueous													
Antimony	BRL	0.005	<0.005	<0.005	NC	98.2	100	1.8	95.6			80 - 120	20
Arsenic	BRL	0.004	<0.004	<0.004	NC	97.2	100	2.8	94.5			80 - 120	20
Barium	BRL	0.002	0.030	0.030	0	95.5	97.0	1.6	89.9			80 - 120	20
Cadmium	BRL	0.001	<0.001	<0.001	NC	97.1	98.7	1.6	91.4			80 - 120	20
Chromium	BRL	0.001	<0.001	<0.001	NC	99.6	102	2.4	95.3			80 - 120	20
Copper	BRL	0.005	<0.005	<0.005	NC	100	101	1.0	98.1			80 - 120	20
Iron	BRL	0.010	0.266	0.239	10.7	98.2	100	1.8	90.8			80 - 120	20
Lead	BRL	0.002	<0.002	<0.002	NC	97.6	99.7	2.1	93.6			80 - 120	20
Nickel	BRL	0.001	<0.001	<0.001	NC	96.5	98.6	2.2	91.3			80 - 120	20
Selenium	BRL	0.010	<0.010	<0.010	NC	93.1	93.7	0.6	89.9			80 - 120	20
Silver	BRL	0.001	<0.001	<0.001	NC	98.2	99.6	1.4	95.4			80 - 120	20
Zinc	BRL	0.004	0.005	<0.004	NC	95.9	97.7	1.9	91.3			80 - 120	20
Comment:													
Additional: LCS acceptance range is 80-120% MS acceptance range 75-125%.													

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January 20, 2021

QA/QC Data

SDG I.D.: GCH25415

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 555559 (mg/L), QC Sample No: CH25415 (CH25415, CH25416)													
Total Cyanide	BRL	0.010	0.011	0.011	NC	102			98.2			90 - 110	30
Comment:													
Additional soil criteria LCS acceptance range is 80-120% MS acceptance range 75-125%.													
QA/QC Batch 555943 (mg/L), QC Sample No: CH24467 (CH25415, CH25416)													
O&G, Non-polar Material	BRL	1.4				95.0	92.0	3.2				85 - 115	20
Comment:													
Additional: LCS acceptance range is 85-115% MS acceptance range 75-125%.													
QA/QC Batch 555641 (mg/L), QC Sample No: CH25214 (CH25415, CH25416)													
Total Suspended Solids	BRL	2.5	<3.3	<3.3	NC	96.0						85 - 115	
QA/QC Batch 555648 (pH), QC Sample No: CH25268 (CH25415, CH25416)													
pH			7.17	7.17	0	99.0						85 - 115	20
Comment:													
Additional: LCS acceptance range is 85-115% MS acceptance range 75-125%.													
QA/QC Batch 555529 (mg/L), QC Sample No: CH25416 (CH25415, CH25416)													
Chromium, Hexavalent	BRL	0.01	<0.01	0.01	NC	97.9			105			90 - 110	30
Comment:													
Additional Hexavalent Chromium criteria: LCS acceptance range for waters is 90-110% and MS acceptance range is 85-115%.													
QA/QC Batch 555576 (mg/L), QC Sample No: CH25292 (CH25415, CH25416)													
Chloride	BRL	3.0	8.0	7.8	NC	97.0			102			90 - 110	20
QA/QC Batch 555989 (mg/L), QC Sample No: CH24993 (CH25415, CH25416)													
Ammonia as Nitrogen	BRL	0.05	5.00	5.40	7.70	102			105			90 - 110	20
QA/QC Batch 555613 (mg/L), QC Sample No: CH25415 (CH25415, CH25416)													
Phenolics	BRL	0.015	<0.015	<0.015	NC	97.4			95.0			90 - 110	20
QA/QC Batch 555530 (mg/L), QC Sample No: CH25153 (CH25415, CH25416)													
Chlorine Residual	BRL	0.02	<0.02	<0.02	NC	106							

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QA/QC Report

January 20, 2021

QA/QC Data

SDG I.D.: GCH25415

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 555946 (ug/L), QC Sample No: CH25541 (CH25415)										
EDB and DBCP Analysis										
1,2-Dibromoethane (EDB)	ND	0.01	100	97	3.0	97	97	0.0	70 - 130	25
QA/QC Batch 556554 (ug/L), QC Sample No: CH30505 (CH25416)										
EDB and DBCP Analysis										
1,2-Dibromoethane (EDB)	ND	0.01	100	102	2.0	109	100	8.6	70 - 130	25
QA/QC Batch 555534 (ug/L), QC Sample No: CH25415 (CH25415, CH25416)										
Polychlorinated Biphenyls										
PCB-1016	ND	0.050	88	88	0.0				40 - 140	20
PCB-1221	ND	0.050							40 - 140	20
PCB-1232	ND	0.050							40 - 140	20
PCB-1242	ND	0.050							40 - 140	20
PCB-1248	ND	0.050							40 - 140	20
PCB-1254	ND	0.050							40 - 140	20
PCB-1260	ND	0.050	93	94	1.1				40 - 140	20
PCB-1262	ND	0.050							40 - 140	20
PCB-1268	ND	0.050							40 - 140	20
% DCBP (Surrogate Rec)	88	%	96	98	2.1				30 - 150	20
% DCBP (Surrogate Rec) (Confirm	86	%	98	100	2.0				30 - 150	20
% TCMX (Surrogate Rec)	72	%	90	86	4.5				30 - 150	20
% TCMX (Surrogate Rec) (Confirm	67	%	91	87	4.5				30 - 150	20
QA/QC Batch 555545 (ug/L), QC Sample No: CH25548 (CH25415, CH25416)										
Semivolatiles										
1,2,4,5-Tetrachlorobenzene	ND	3.5	76	78	2.6				40 - 140	20
1,2,4-Trichlorobenzene	ND	3.5	76	74	2.7				40 - 140	20
1,2-Dichlorobenzene	ND	1.0	66	60	9.5				40 - 140	20
1,2-Diphenylhydrazine	ND	1.6	88	92	4.4				40 - 140	20
1,3-Dichlorobenzene	ND	1.0	68	60	12.5				40 - 140	20
1,4-Dichlorobenzene	ND	1.0	67	59	12.7				40 - 140	20
2,4,5-Trichlorophenol	ND	1.0	90	91	1.1				30 - 130	20
2,4,6-Trichlorophenol	ND	1.0	89	94	5.5				30 - 130	20
2,4-Dichlorophenol	ND	1.0	80	83	3.7				30 - 130	20
2,4-Dimethylphenol	ND	1.0	80	74	7.8				30 - 130	20
2,4-Dinitrophenol	ND	1.0	92	90	2.2				30 - 130	20
2,4-Dinitrotoluene	ND	3.5	93	99	6.3				40 - 140	20
2,6-Dinitrotoluene	ND	3.5	91	95	4.3				40 - 140	20
2-Chloronaphthalene	ND	3.5	82	87	5.9				40 - 140	20
2-Chlorophenol	ND	1.0	69	68	1.5				30 - 130	20
2-Methylphenol (o-cresol)	ND	1.0	76	78	2.6				30 - 130	20
2-Nitroaniline	ND	3.5	110	110	0.0				40 - 140	20
2-Nitrophenol	ND	1.0	80	82	2.5				30 - 130	20
3&4-Methylphenol (m&p-cresol)	ND	1.0	82	84	2.4				30 - 130	20

QA/QC Data

SDG I.D.: GCH25415

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
3,3'-Dichlorobenzidine	ND	5.0	78	69	12.2				40 - 140	20	
3-Nitroaniline	ND	5.0	88	86	2.3				40 - 140	20	
4,6-Dinitro-2-methylphenol	ND	1.0	88	91	3.4				30 - 130	20	
4-Bromophenyl phenyl ether	ND	3.5	95	98	3.1				40 - 140	20	
4-Chloro-3-methylphenol	ND	1.0	90	94	4.3				30 - 130	20	
4-Chloroaniline	ND	3.5	79	49	46.9				40 - 140	20	r
4-Chlorophenyl phenyl ether	ND	1.0	89	92	3.3				40 - 140	20	
4-Nitroaniline	ND	5.0	81	82	1.2				40 - 140	20	
4-Nitrophenol	ND	1.0	104	106	1.9				30 - 130	20	
Acetophenone	ND	3.5	78	79	1.3				40 - 140	20	
Aniline	ND	3.5	69	16	124.7				40 - 140	20	l,r
Benzidine	ND	4.5	75	<10	NC				40 - 140	20	l
Benzoic acid	ND	10	67	70	4.4				30 - 130	20	
Benzyl butyl phthalate	ND	1.5	99	99	0.0				40 - 140	20	
Bis(2-chloroethoxy)methane	ND	3.5	81	83	2.4				40 - 140	20	
Bis(2-chloroethyl)ether	ND	1.0	63	62	1.6				40 - 140	20	
Bis(2-chloroisopropyl)ether	ND	1.0	64	61	4.8				40 - 140	20	
Bis(2-ethylhexyl)phthalate	ND	1.5	100	102	2.0				40 - 140	20	
Carbazole	ND	5.0	90	96	6.5				40 - 140	20	
Dibenzofuran	ND	3.5	82	87	5.9				40 - 140	20	
Diethyl phthalate	ND	1.5	97	100	3.0				40 - 140	20	
Dimethylphthalate	ND	1.5	92	96	4.3				40 - 140	20	
Di-n-butylphthalate	ND	1.5	102	105	2.9				40 - 140	20	
Di-n-octylphthalate	ND	1.5	103	105	1.9				40 - 140	20	
Hexachloroethane	ND	3.5	72	64	11.8				40 - 140	20	
Isophorone	ND	3.5	79	83	4.9				40 - 140	20	
N-Nitrosodi-n-propylamine	ND	3.5	85	86	1.2				40 - 140	20	
N-Nitrosodiphenylamine	ND	3.5	78	84	7.4				40 - 140	20	
Pentachloronitrobenzene	ND	5.0	88	96	8.7				40 - 140	20	
Phenol	ND	1.0	68	72	5.7				30 - 130	20	
% 2,4,6-Tribromophenol	64	%	97	104	7.0				15 - 110	20	
% 2-Fluorobiphenyl	62	%	78	82	5.0				30 - 130	20	
% 2-Fluorophenol	46	%	57	55	3.6				15 - 110	20	
% Nitrobenzene-d5	55	%	72	73	1.4				30 - 130	20	
% Phenol-d5	52	%	64	65	1.6				15 - 110	20	
% Terphenyl-d14	86	%	103	109	5.7				30 - 130	20	

Comment:

Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

QA/QC Batch 555862 (ug/l), QC Sample No: CH25415 (CH25415, CH25416)

1,4dioxane

1,4-dioxane	ND	0.20	98	93	5.2	97			40 - 140	30	
% 1,4-dioxane-d8	73	%	78	73	6.6	77			40 - 140	30	

QA/QC Batch 555545 (ug/L), QC Sample No: CH25548 (CH25415, CH25416)

Semivolatiles (SIM)

2-Methylnaphthalene	ND	0.50	61	65	6.3				40 - 140	20	
Acenaphthene	ND	0.50	71	73	2.8				40 - 140	20	
Acenaphthylene	ND	0.50	67	69	2.9				40 - 140	20	
Anthracene	ND	0.50	67	69	2.9				40 - 140	20	
Benz(a)anthracene	ND	0.50	81	88	8.3				40 - 140	20	
Benzo(a)pyrene	ND	0.50	94	96	2.1				40 - 140	20	
Benzo(b)fluoranthene	ND	0.50	102	104	1.9				40 - 140	20	

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Benzo(ghi)perylene	ND	0.50	85	83	2.4				40 - 140	20	
Benzo(k)fluoranthene	ND	0.50	70	72	2.8				40 - 140	20	
Chrysene	ND	0.50	76	77	1.3				40 - 140	20	
Dibenz(a,h)anthracene	ND	0.50	95	93	2.1				40 - 140	20	
Fluoranthene	ND	0.50	71	73	2.8				40 - 140	20	
Fluorene	ND	0.50	70	73	4.2				40 - 140	20	
Hexachlorobenzene	ND	0.50	65	67	3.0				40 - 140	20	
Hexachlorobutadiene	ND	0.50	60	58	3.4				40 - 140	20	
Hexachlorocyclopentadiene	ND	0.50	37	43	15.0				40 - 140	20	I
Indeno(1,2,3-cd)pyrene	ND	0.50	91	90	1.1				40 - 140	20	
Naphthalene	ND	0.50	61	62	1.6				40 - 140	20	
Nitrobenzene	ND	0.50	72	75	4.1				40 - 140	20	
N-Nitrosodimethylamine	ND	0.05	54	48	11.8				40 - 140	20	
Pentachlorophenol	ND	0.50	77	79	2.6				40 - 140	20	
Phenanthrene	ND	0.50	61	61	0.0				40 - 140	20	
Pyrene	ND	0.50	74	75	1.3				40 - 140	20	
Pyridine	ND	0.50	44	32	31.6				40 - 140	20	I,r
% 2,4,6-Tribromophenol	53	%	79	82	3.7				15 - 110	20	
% 2-Fluorobiphenyl	54	%	62	64	3.2				40 - 140	20	
% 2-Fluorophenol	54	%	52	50	3.9				15 - 110	20	
% Nitrobenzene-d5	52	%	66	67	1.5				40 - 140	20	
% Phenol-d5	51	%	58	62	6.7				15 - 110	20	
% Terphenyl-d14	70	%	78	77	1.3				40 - 140	20	

Comment:

Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

QA/QC Batch 555718 (ug/L), QC Sample No: CH25400 (CH25415, CH25417)

Volatiles

1,1,1,2-Tetrachloroethane	ND	1.0	99	98	1.0				70 - 130	20	
1,1,1-Trichloroethane	ND	1.0	106	106	0.0				70 - 130	20	
1,1,2,2-Tetrachloroethane	ND	0.50	108	108	0.0				70 - 130	20	
1,1,2-Trichloroethane	ND	1.0	99	102	3.0				70 - 130	20	
1,1-Dichloroethane	ND	1.0	105	106	0.9				70 - 130	20	
1,1-Dichloroethene	ND	1.0	101	101	0.0				70 - 130	20	
1,1-Dichloropropene	ND	1.0	95	97	2.1				70 - 130	20	
1,2,3-Trichlorobenzene	ND	1.0	89	91	2.2				70 - 130	20	
1,2,3-Trichloropropane	ND	1.0	104	101	2.9				70 - 130	20	
1,2,4-Trichlorobenzene	ND	1.0	86	85	1.2				70 - 130	20	
1,2,4-Trimethylbenzene	ND	1.0	95	94	1.1				70 - 130	20	
1,2-Dibromo-3-chloropropane	ND	1.0	98	99	1.0				70 - 130	20	
1,2-Dibromoethane	ND	1.0	96	98	2.1				70 - 130	20	
1,2-Dichlorobenzene	ND	1.0	92	93	1.1				70 - 130	20	
1,2-Dichloroethane	ND	1.0	106	106	0.0				70 - 130	20	
1,2-Dichloropropane	ND	1.0	98	98	0.0				70 - 130	20	
1,3,5-Trimethylbenzene	ND	1.0	95	95	0.0				70 - 130	20	
1,3-Dichlorobenzene	ND	1.0	91	92	1.1				70 - 130	20	
1,3-Dichloropropane	ND	1.0	100	100	0.0				70 - 130	20	
1,4-Dichlorobenzene	ND	1.0	89	90	1.1				70 - 130	20	
1,4-dioxane	ND	100	149	131	12.9				40 - 160	30	
2,2-Dichloropropane	ND	1.0	113	111	1.8				70 - 130	20	
2-Chlorotoluene	ND	1.0	91	94	3.2				70 - 130	20	
2-Hexanone	ND	5.0	92	93	1.1				40 - 160	30	

QA/QC Data

SDG I.D.: GCH25415

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
2-Isopropyltoluene	ND	1.0	95	96	1.0				70 - 130	20
4-Chlorotoluene	ND	1.0	91	91	0.0				70 - 130	20
4-Methyl-2-pentanone	ND	5.0	96	97	1.0				40 - 160	30
Acetone	ND	5.0	99	98	1.0				40 - 160	30
Acrylonitrile	ND	5.0	111	108	2.7				70 - 130	20
Benzene	ND	0.70	98	97	1.0				70 - 130	20
Bromobenzene	ND	1.0	89	89	0.0				70 - 130	20
Bromochloromethane	ND	1.0	105	101	3.9				70 - 130	20
Bromodichloromethane	ND	0.50	106	103	2.9				70 - 130	20
Bromoform	ND	1.0	100	101	1.0				70 - 130	20
Bromomethane	ND	1.0	86	85	1.2				40 - 160	30
Carbon Disulfide	ND	1.0	97	96	1.0				70 - 130	20
Carbon tetrachloride	ND	1.0	118	102	14.5				70 - 130	20
Chlorobenzene	ND	1.0	95	96	1.0				70 - 130	20
Chloroethane	ND	1.0	101	99	2.0				70 - 130	20
Chloroform	ND	1.0	106	105	0.9				70 - 130	20
Chloromethane	ND	1.0	95	95	0.0				40 - 160	30
cis-1,2-Dichloroethene	ND	1.0	95	94	1.1				70 - 130	20
cis-1,3-Dichloropropene	ND	0.40	99	96	3.1				70 - 130	20
Dibromochloromethane	ND	0.50	107	106	0.9				70 - 130	20
Dibromomethane	ND	1.0	99	97	2.0				70 - 130	20
Dichlorodifluoromethane	ND	1.0	106	104	1.9				40 - 160	30
Di-isopropyl ether	ND	1.0	101	101	0.0				70 - 130	20
Ethyl ether	ND	1.0	102	99	3.0				70 - 130	20
Ethyl tert-butyl ether	ND	1.0	101	99	2.0				70 - 130	20
Ethylbenzene	ND	1.0	96	99	3.1				70 - 130	20
Hexachlorobutadiene	ND	0.40	83	83	0.0				70 - 130	20
Isopropylbenzene	ND	1.0	90	94	4.3				70 - 130	20
m&p-Xylene	ND	1.0	97	99	2.0				70 - 130	20
Methyl ethyl ketone	ND	5.0	114	118	3.4				40 - 160	30
Methyl t-butyl ether (MTBE)	ND	1.0	112	111	0.9				70 - 130	20
Methylene chloride	ND	1.0	91	89	2.2				70 - 130	20
Naphthalene	ND	1.0	97	97	0.0				70 - 130	20
n-Butylbenzene	ND	1.0	96	99	3.1				70 - 130	20
n-Propylbenzene	ND	1.0	92	94	2.2				70 - 130	20
o-Xylene	ND	1.0	96	96	0.0				70 - 130	20
p-Isopropyltoluene	ND	1.0	93	96	3.2				70 - 130	20
sec-Butylbenzene	ND	1.0	101	101	0.0				70 - 130	20
Styrene	ND	1.0	96	97	1.0				70 - 130	20
tert-amyl methyl ether	ND	1.0	94	92	2.2				70 - 130	20
tert-Butylbenzene	ND	1.0	91	93	2.2				70 - 130	20
Tetrachloroethene	ND	1.0	91	93	2.2				70 - 130	20
Tetrahydrofuran (THF)	ND	2.5	108	105	2.8				70 - 130	20
Toluene	ND	1.0	99	99	0.0				70 - 130	20
trans-1,2-Dichloroethene	ND	1.0	104	101	2.9				70 - 130	20
trans-1,3-Dichloropropene	ND	0.40	97	95	2.1				70 - 130	20
trans-1,4-dichloro-2-butene	ND	5.0	105	102	2.9				70 - 130	20
Trichloroethene	ND	1.0	94	94	0.0				70 - 130	20
Trichlorofluoromethane	ND	1.0	103	104	1.0				70 - 130	20
Trichlorotrifluoroethane	ND	1.0	100	102	2.0				70 - 130	20
Vinyl chloride	ND	1.0	96	98	2.1				70 - 130	20
% 1,2-dichlorobenzene-d4	102	%	102	99	3.0				70 - 130	20
% Bromofluorobenzene	98	%	105	103	1.9				70 - 130	20

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
% Dibromofluoromethane	105	%	103	102	1.0				70 - 130	20
% Toluene-d8	101	%	100	101	1.0				70 - 130	20

Comment:

A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.

Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.
The RPD criteria for the LCS/LCSD is 20%,
The MS/MSD RPD criteria is listed above.

QA/QC Batch 556010 (ug/L), QC Sample No: CH26132 (CH25416)

Volatiles

1,1,1,2-Tetrachloroethane	ND	1.0	88	88	0.0				70 - 130	20
1,1,1-Trichloroethane	ND	1.0	86	85	1.2				70 - 130	20
1,1,2,2-Tetrachloroethane	ND	0.50	89	88	1.1				70 - 130	20
1,1,2-Trichloroethane	ND	1.0	88	87	1.1				70 - 130	20
1,1-Dichloroethane	ND	1.0	91	89	2.2				70 - 130	20
1,1-Dichloroethene	ND	1.0	85	89	4.6				70 - 130	20
1,1-Dichloropropene	ND	1.0	84	85	1.2				70 - 130	20
1,2,3-Trichlorobenzene	ND	1.0	91	89	2.2				70 - 130	20
1,2,3-Trichloropropane	ND	1.0	87	82	5.9				70 - 130	20
1,2,4-Trichlorobenzene	ND	1.0	87	86	1.2				70 - 130	20
1,2,4-Trimethylbenzene	ND	1.0	92	92	0.0				70 - 130	20
1,2-Dibromo-3-chloropropane	ND	1.0	91	87	4.5				70 - 130	20
1,2-Dibromoethane	ND	1.0	87	84	3.5				70 - 130	20
1,2-Dichlorobenzene	ND	1.0	87	87	0.0				70 - 130	20
1,2-Dichloroethane	ND	1.0	88	86	2.3				70 - 130	20
1,2-Dichloropropane	ND	1.0	87	86	1.2				70 - 130	20
1,3,5-Trimethylbenzene	ND	1.0	91	89	2.2				70 - 130	20
1,3-Dichlorobenzene	ND	1.0	93	90	3.3				70 - 130	20
1,3-Dichloropropane	ND	1.0	90	89	1.1				70 - 130	20
1,4-Dichlorobenzene	ND	1.0	89	88	1.1				70 - 130	20
1,4-dioxane	ND	100	109	110	0.9				40 - 160	30
2,2-Dichloropropane	ND	1.0	89	91	2.2				70 - 130	20
2-Chlorotoluene	ND	1.0	90	90	0.0				70 - 130	20
2-Hexanone	ND	5.0	85	82	3.6				40 - 160	30
2-Isopropyltoluene	ND	1.0	90	89	1.1				70 - 130	20
4-Chlorotoluene	ND	1.0	88	89	1.1				70 - 130	20
4-Methyl-2-pentanone	ND	5.0	86	84	2.4				40 - 160	30
Acetone	ND	5.0	90	88	2.2				40 - 160	30
Acrylonitrile	ND	5.0	87	87	0.0				70 - 130	20
Benzene	ND	0.70	88	86	2.3				70 - 130	20
Bromobenzene	ND	1.0	87	87	0.0				70 - 130	20
Bromochloromethane	ND	1.0	90	92	2.2				70 - 130	20
Bromodichloromethane	ND	0.50	89	87	2.3				70 - 130	20
Bromoform	ND	1.0	88	87	1.1				70 - 130	20
Bromomethane	ND	1.0	86	87	1.2				40 - 160	30
Carbon Disulfide	ND	1.0	94	99	5.2				70 - 130	20
Carbon tetrachloride	ND	1.0	78	78	0.0				70 - 130	20
Chlorobenzene	ND	1.0	88	87	1.1				70 - 130	20
Chloroethane	ND	1.0	93	97	4.2				70 - 130	20
Chloroform	ND	1.0	90	87	3.4				70 - 130	20
Chloromethane	ND	1.0	94	94	0.0				40 - 160	30
cis-1,2-Dichloroethene	ND	1.0	82	83	1.2				70 - 130	20
cis-1,3-Dichloropropene	ND	0.40	89	84	5.8				70 - 130	20

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Dibromochloromethane	ND	0.50	93	92	1.1				70 - 130	20	
Dibromomethane	ND	1.0	87	85	2.3				70 - 130	20	
Dichlorodifluoromethane	ND	1.0	110	110	0.0				40 - 160	30	
Di-isopropyl ether	ND	1.0	90	93	3.3				70 - 130	20	
Ethyl ether	ND	1.0	90	93	3.3				70 - 130	20	
Ethyl tert-butyl ether	ND	1.0	91	91	0.0				70 - 130	20	
Ethylbenzene	ND	1.0	89	86	3.4				70 - 130	20	
Hexachlorobutadiene	ND	0.40	87	84	3.5				70 - 130	20	
Isopropylbenzene	ND	1.0	91	91	0.0				70 - 130	20	
m&p-Xylene	ND	1.0	93	90	3.3				70 - 130	20	
Methyl ethyl ketone	ND	5.0	93	96	3.2				40 - 160	30	
Methyl t-butyl ether (MTBE)	ND	1.0	119	118	0.8				70 - 130	20	
Methylene chloride	ND	1.0	82	87	5.9				70 - 130	20	
Naphthalene	ND	1.0	96	93	3.2				70 - 130	20	
n-Butylbenzene	ND	1.0	96	91	5.3				70 - 130	20	
n-Propylbenzene	ND	1.0	90	89	1.1				70 - 130	20	
o-Xylene	ND	1.0	92	90	2.2				70 - 130	20	
p-Isopropyltoluene	ND	1.0	95	93	2.1				70 - 130	20	
sec-Butylbenzene	ND	1.0	97	95	2.1				70 - 130	20	
Styrene	ND	1.0	94	93	1.1				70 - 130	20	
tert-amyl methyl ether	ND	1.0	88	90	2.2				70 - 130	20	
tert-Butylbenzene	ND	1.0	92	89	3.3				70 - 130	20	
Tetrachloroethene	ND	1.0	84	83	1.2				70 - 130	20	
Tetrahydrofuran (THF)	ND	2.5	87	80	8.4				70 - 130	20	
Toluene	ND	1.0	88	87	1.1				70 - 130	20	
trans-1,2-Dichloroethene	ND	1.0	87	95	8.8				70 - 130	20	
trans-1,3-Dichloropropene	ND	0.40	86	87	1.2				70 - 130	20	
trans-1,4-dichloro-2-butene	ND	5.0	97	97	0.0				70 - 130	20	
Trichloroethene	ND	1.0	84	84	0.0				70 - 130	20	
Trichlorofluoromethane	ND	1.0	86	89	3.4				70 - 130	20	
Trichlorotrifluoroethane	ND	1.0	81	86	6.0				70 - 130	20	
Vinyl chloride	ND	1.0	96	101	5.1				70 - 130	20	
% 1,2-dichlorobenzene-d4	102	%	100	100	0.0				70 - 130	20	
% Bromofluorobenzene	96	%	103	99	4.0				70 - 130	20	
% Dibromofluoromethane	107	%	102	101	1.0				70 - 130	20	
% Toluene-d8	100	%	99	100	1.0				70 - 130	20	

Comment:

A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.

Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.
The RPD criteria for the LCS/LCSD is 20%,
The MS/MSD RPD criteria is listed above.

QA/QC Batch 555730 (ug/L), QC Sample No: CH25415 (CH25415)

Oxygenates

Ethanol	ND	200	133	135	1.5	91	139	41.7	70 - 130	30	l,m,r
tert-amyl methyl ether	ND	10	99	97	2.0	97	96	1.0	70 - 130	30	
tert-butyl alcohol	ND	25	117	118	0.9	118	122	3.3	70 - 130	30	

Comment:

A blank MS/MSD was analyzed with this batch.

QA/QC Batch 556011 (ug/L), QC Sample No: CH26132 (CH25416)

Oxygenates

Ethanol	ND	200	110	123	11.2	116	131	12.1	70 - 130	30	m

QA/QC Data

SDG I.D.: GCH25415

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
tert-amyl methyl ether	ND	10	89	90	1.1	114	88	25.7	70 - 130	30	
tert-butyl alcohol	ND	25	101	90	11.5	123	87	34.3	70 - 130	30	r

Comment:

A blank MS/MSD was analyzed with this batch.

l = This parameter is outside laboratory LCS/LCSD specified recovery limits.
m = This parameter is outside laboratory MS/MSD specified recovery limits.
r = This parameter is outside laboratory RPD specified recovery limits.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference

Phyllis Shiller, Laboratory Director
January 20, 2021

Wednesday, January 20, 2021

Criteria: MA: CAM, GW1, GW2

State: MA

Sample Criteria Exceedances Report

GCH25415 - TERRA-ENV

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units
CH25415	$8260GWR	Acetone	MA / CAM Protocol / VOA AQ RL	ND	25		10	ug/L
CH25415	$8260GWR	Carbon Disulfide	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CH25415	$8260GWR	Tetrahydrofuran (THF)	MA / CAM Protocol / VOA AQ RL	ND	2.5		2	ug/L
CH25415	$8260GWR	trans-1,4-dichloro-2-butene	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CH25415	$8260GWR	1,2-Dibromoethane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	0.50	0.02	0.02	ug/L
CH25415	$8260GWR	1,2-Dibromoethane	MA / GROUNDWATER STANDARDS / GW-1	ND	0.50	0.02	0.02	ug/L
CH25415	$8270-SIMFSR	Benzoic acid	MA / CAM Protocol / SVOA AQ RL	ND	50		10	ug/L
CH25416	$8260GWR	trans-1,4-dichloro-2-butene	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CH25416	$8260GWR	Acetone	MA / CAM Protocol / VOA AQ RL	ND	25		10	ug/L
CH25416	$8260GWR	Carbon Disulfide	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CH25416	$8260GWR	Tetrahydrofuran (THF)	MA / CAM Protocol / VOA AQ RL	ND	2.5		2	ug/L
CH25416	$8260GWR	1,2-Dibromoethane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	0.50	0.02	0.02	ug/L
CH25416	$8260GWR	1,2-Dibromoethane	MA / GROUNDWATER STANDARDS / GW-1	ND	0.50	0.02	0.02	ug/L
CH25416	$8270-SIMFSR	Benzoic acid	MA / CAM Protocol / SVOA AQ RL	ND	50		10	ug/L
CH25416	AS-WM	Arsenic	MA / CMR 310.40.1600 / GW-1 (mg/l)	0.013	0.004	0.01	0.01	mg/L
CH25416	AS-WM	Arsenic	MA / GROUNDWATER STANDARDS / GW-1	0.013	0.004	0.01	0.01	mg/L
CH25416	TCN-WM	Total Cyanide	MA / CMR 310.40.1600 / GW-1 (mg/l)	0.045	0.010	0.03	0.03	mg/L
CH25416	TCN-WM	Total Cyanide	MA / CMR 310.40.1600 / GW-2 (mg/l)	0.045	0.010	0.03	0.03	mg/L
CH25417	$8260GWR	Acetone	MA / CAM Protocol / VOA AQ RL	ND	25		10	ug/L
CH25417	$8260GWR	Carbon Disulfide	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CH25417	$8260GWR	Tetrahydrofuran (THF)	MA / CAM Protocol / VOA AQ RL	ND	2.5		2	ug/L
CH25417	$8260GWR	trans-1,4-dichloro-2-butene	MA / CAM Protocol / VOA AQ RL	ND	5.0		2	ug/L
CH25417	$8260GWR	1,2-Dibromoethane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	0.50	0.02	0.02	ug/L
CH25417	$8260GWR	1,2-Dibromoethane	MA / GROUNDWATER STANDARDS / GW-1	ND	0.50	0.02	0.02	ug/L
CH25417	$MCPADD-WM	1,4-Dioxane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	100	3	3	ug/L
CH25417	$MCPADD-WM	1,4-Dioxane	MA / GROUNDWATER STANDARDS / GW-1	ND	100	0.3	0.3	ug/L

MassDEP Analytical Protocol Certification Form

Laboratory Name: Phoenix Environmental Laboratories, Inc. **Project #:**

Project Location: BROADWAY AQUALIVE **RTN:**

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

CH25415, CH25416, CH25417

Matrices: ☑ Groundwater/Surface Water ☐ Soil/Sediment ☐ Drinking Water ☐ Air ☐ Other:

CAM Protocol (check all that apply below)

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 V1 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 with method holding times? (* see narrative)	☐ 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 speified 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)? (refer to the individual method(s) for a list of significant modifications). 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 is required for "Presumptive Certainty" status

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

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? See Sections: SVOA, SVOASIM, VOA-OXY Narrations .	☐ Yes ☑ No
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☐ Yes ☑ No

All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Authorized Signature: Rashmi Makol

Date: Wednesday, January 20, 2021

Printed Name: Rashmi Makol

Position: Project Manager

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ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

MCP Certification Report

January 20, 2021

SDG I.D.: GCH25415

SDG Comments

Metals Analysis:
The client requested a shorter list of elements than the 6010 MCP list.

8260 Analysis:
1,2-Dibromoethane doesn't meet GW-1 criteria, this compound is analyzed by GC/FID to achieve this criteria.

1,4-Dioxane doesn't meet GW-1 criteria, this compound is analyzed by 8270SIM to achieve this criteria.

Phoenix reporting levels may exceed those referenced in the CAM protocol. Please refer to criteria sheet

504.1

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

CHEM35 12/09/20-1 Chelsey Guerette, Chemist 12/09/20

CH25415 (1X)

The initial calibration (CHEM35/504tcp_1209): RSD for the compound list was less than 20% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 15% except for the following compounds:None.

CHEM35 12/15/20-1 Chelsey Guerette, Chemist 12/15/20

CH25416 (1X)

The initial calibration (CHEM35/504tcp_1214): RSD for the compound list was less than 20% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 15% except for the following compounds:None.

QC (Batch Specific):

Batch 555946 (CH25541)

CH25415

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 25% with the following exceptions: None.

Batch 556554 (CH30505)

CH25416

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 25% with the following exceptions: None.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Cyanide Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

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MCP Certification Report

January 20, 2021

SDG I.D.: GCH25415

Cyanide Narration

LACHAT 12/07/20-1 Linnea Skoglund, Chemist 12/07/20

CH25415 , CH25416

The samples were distilled in accordance with the method.
The initial calibration met criteria.

The calibration check standards (ICV,CCV) were within 15% of true value and were analyzed at a frequencey of one per ten samples.
The continuing calibration blanks (ICB,CCB) had concentrations less than the reporting level.

The method blank, laboratory control sample (LCS), and matrix spike were distilled with the samples.

QC (Batch Specific):

Batch 555559 (CH25415)

CH25415, CH25416

All LCS recoveries were within 90 - 110 with the following exceptions: None.
Additional soil criteria LCS acceptance range is 80-120% MS acceptance range 75-125%.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Hexavalent Chromium (Aqueous)

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

BECKMAN DU720 12/04/20-1 Meredith Weigert, Chemist 12/04/20

CH25415 , CH25416

The initial calibration met all criteria including a standard run at the reporting level.
All calibration verification standards (ICV, CCV) met criteria.
All calibration blank verification standards (ICB, CCB) met criteria.

QC (Batch Specific):

Batch 555529 (CH25416)

CH25415, CH25416

All LCS recoveries were within 90 - 110 with the following exceptions: None.
Additional Hexavalent Chromium criteria: LCS acceptance range for waters is 90-110% and MS acceptance range is 85-115%.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Mercury Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

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Certification Report

January 20, 2021

SDG I.D.: GCH25415

Mercury Narration

Instrument:

MERLIN 12/08/20 07:18 Rick Schweitzer, Chemist 12/08/20

CH25415, CH25416

The method preparation blank, ICB, and CCBs contain all of the acids and reagents as the samples.
The initial calibration met all criteria including a standard run at or below the reporting level.
All calibration verification standards (ICV, CCV) met criteria.
All calibration blank verification standards (ICB, CCB) met criteria.
The matrix spike sample is used to identify spectral interference for each batch of samples, if within 85-115%, no interference is observed and no further action is taken.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.

QC (Batch Specific):

Batch 555624 (CH25347)

CH25415, CH25416

All LCS recoveries were within 75 - 125 with the following exceptions: None.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 75-125%

ICP Metals Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

Instrument:

BLUE 12/09/20 10:31 Tina Hall, Chemist 12/09/20

CH25415, CH25416

The initial calibration met criteria.
The continuing calibration standards met criteria for all the elements reported. The linear range is defined daily by the calibration range.
The continuing calibration blanks were less than the reporting level for the elements reported.
The ICSA and ICSAB were analyzed at the beginning and end of the run and were within criteria.The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

QC (Batch Specific):

Batch 555870 (CH26585)

CH25415, CH25416

All LCS recoveries were within 80 - 120 with the following exceptions: None.
All LCSD recoveries were within 80 - 120 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
Additional: LCS acceptance range is 80-120% MS acceptance range 75-125%.

LACHAT

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January 20, 2021

SDG I.D.: GCH25415

LACHAT

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

LACHAT 12/04/20-3 Thomas Budz, Chemist 12/04/20

CH25415 , CH25416

The initial calibration met all criteria including a standard run at the reporting level.
All method verification standards and blanks met criteria.

QC (Batch Specific):

Batch 555576 (CH25292)

CH25415, CH25416

All LCS recoveries were within 90 - 110 with the following exceptions: None.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

NITROGEN

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

LACHAT 12/10/20-1 Kandi Della Bella, Chemist 12/10/20

CH25415 , CH25416

The initial calibration met all criteria including a standard run at the reporting level.
All method verification standards and blanks met criteria.

QC (Batch Specific):

Batch 555989 (CH24993)

CH25415, CH25416

All LCS recoveries were within 85 - 115 with the following exceptions: None.
Additional criteria: LCS acceptance range for waters is 85-115% and for soils is 75-125%. MS acceptance range is 75-125%.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

PCB Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

AU-ECD6 12/07/20-1 Saadia Chudary, Chemist 12/07/20

CH25415 (1X), CH25416 (1X)

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January 20, 2021

SDG I.D.: GCH25415

PCB Narration

The initial calibration (PC1102AI) RSD for the compound list was less than 20% except for the following compounds: None.
The initial calibration (PC1102BI) RSD for the compound list was less than 20% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 15% except for the following compounds:None.

QC (Batch Specific):

Batch 555534 (CH25415)

CH25415, CH25416

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

PHENOLS

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

LACHAT 12/07/20-1 Ashley Griffith, Chemist 12/07/20

CH25415 , CH25416

The initial calibration met all criteria including a standard run at the reporting level.
All method verification standards and blanks met criteria.

QC (Batch Specific):

Batch 555613 (CH25415)

CH25415, CH25416

All LCS recoveries were within 90 - 110 with the following exceptions: None.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

SVOA Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? No.

QC Batch 555545 (Samples: CH25415, CH25416): -----

The LCS and/or the LCSD recovery is below the method criteria. All of the other QC is acceptable, therefore no significant bias is suspected. (Aniline, Benzidine)

The LCS/LCSD RPD exceeds the method criteria for one or more analytes, but these analytes were not reported in the sample(s) so no variability is suspected. (4-Chloroaniline, Aniline)

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MCP Certification Report

January 20, 2021

SDG I.D.: GCH25415

SVOA Narration

Instrument:

CHEM36 12/07/20-1 Matt Richard, Chemist 12/07/20

CH25415 (1X), CH25416 (1X)

Initial Calibration Evaluation (CHEM36/36_SPLIT_1118):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: 2-Nitrophenol 0.082 (0.1)
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM36/1207_06-36_SPLIT_1118) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
98% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: 2-Nitrophenol 0.090 (0.1)
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 555545 (CH25548)

CH25415, CH25416

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: Aniline(16%), Benzidine(<10%)
All LCS/LCSD RPDs were less than 20% with the following exceptions: 4-Chloroaniline(46.9%), Aniline(124.7%)
Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

SVOA-Dioxane

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

CHEM22 12/09/20-1 Adam Werner, Chemist 12/09/20

CH25415 (1X), CH25416 (1X)

Initial Calibration Evaluation (CHEM22/DIOX_1203):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM22/1209_06-DIOX_1203) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.

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MCP Certification Report

January 20, 2021

SDG I.D.: GCH25415

SVOA-Dioxane

The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 555862 (CH25415)

CH25415, CH25416

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

SVOASIM Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? No.

QC Batch 555545 (Samples: CH25415, CH25416): -----

The LCS and/or the LCSD recovery is below the method criteria. All of the other QC is acceptable, therefore no significant bias is suspected. (Hexachlorocyclopentadiene, Pyridine)

The LCS/LCSD RPD exceeds the method criteria for one or more analytes, but these analytes were not reported in the sample(s) so no variability is suspected. (Pyridine)

Instrument:

CHEM27 12/07/20-1 Wes Bryon, Chemist 12/07/20

CH25415 (1X), CH25416 (1X)

For 8270 BN list, benzidine peak tailing was evaluated in the DFTPP tune and was found to be in control.

Initial Calibration Evaluation (CHEM27/27_SIM18_1130):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM27/1207_03-27_SIM18_1130) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
97% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

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MCP Certification Report

January 20, 2021

SDG I.D.: GCH25415

SVOASIM Narration

Batch 555545 (CH25548)

CH25415, CH25416

All LCS recoveries were within 40 - 140 with the following exceptions: Hexachlorocyclopentadiene(37%)
All LCSD recoveries were within 40 - 140 with the following exceptions: Pyridine(32%)
All LCS/LCSD RPDs were less than 20% with the following exceptions: Pyridine(31.6%)
Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

VOA Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

CHEM23 12/05/20-1 Michael Hahn, Chemist 12/05/20

CH25415 (1X), CH25417 (1X)

Initial Calibration Evaluation (CHEM23/VOA23_112320):
98% of target compounds met criteria.
The following compounds had %RSDs >20%: Methylene chloride 25% (20%), Hexachlorobutadiene 23% (20%)
The following compounds did not meet Table 4 recommended minimum response factors: Acetone 0.094 (0.1)
The following compounds did not meet the minimum response factor of 0.05: None.

Continuing Calibration Verification (CHEM23/1205_02-VOA23_112320) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
99% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet Table 4 recommended minimum response factors: None.
The following compounds did not meet the minimum MCP response factor of 0.05: None.

CHEM23 12/08/20-1 Michael Hahn, Chemist 12/08/20

CH25416 (1X)

Initial Calibration Evaluation (CHEM23/VOA23_120720):
98% of target compounds met criteria.
The following compounds had %RSDs >20%: Bromomethane 26% (20%)
The following compounds did not meet Table 4 recommended minimum response factors: Acetone 0.098 (0.1)
The following compounds did not meet the minimum response factor of 0.05: None.

Continuing Calibration Verification (CHEM23/1208_02-VOA23_120720) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet Table 4 recommended minimum response factors: None.
The following compounds did not meet the minimum MCP response factor of 0.05: None.

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MCP Certification Report

January 20, 2021

SDG I.D.: GCH25415

VOA Narration

QC (Batch Specific):

Batch 555718 (CH25400) CHEM23 12/5/2020-1

CH25415(1X), CH25417(1X)

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.
Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.
The RPD criteria for the LCS/LCSD is 20%,
The MS/MSD RPD criteria is listed above.

Batch 556010 (CH26132) CHEM23 12/8/2020-1

CH25416(1X)

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.
Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.
The RPD criteria for the LCS/LCSD is 20%,
The MS/MSD RPD criteria is listed above.

We attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

VOA-OXY Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? No.

QC Batch 555730 (Samples: CH25415): -----

The QC recovery for one or more analytes is above the upper range but were not reported in the sample(s), therefore no significant bias is suspected. (Ethanol)

Instrument:

CHEM23 12/05/20-1 Michael Hahn, Chemist 12/05/20

CH25415 (1X)

Initial Calibration Evaluation (CHEM23/OXY112320):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM23/1205_02-OXY112320) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.

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January 20, 2021

SDG I.D.: GCH25415

VOA-OXY Narration

The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

CHEM23 12/08/20-1 Michael Hahn, Chemist 12/08/20

CH25416 (1X)

Initial Calibration Evaluation (CHEM23/OXY120720):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM23/1208_02-OXY120720) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 555730 (CH25415) CHEM23 12/5/2020-1

CH25415(1X)

All LCS recoveries were within 70 - 130 with the following exceptions: Ethanol(133%)
All LCSD recoveries were within 70 - 130 with the following exceptions: Ethanol(135%)
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
A blank MS/MSD was analyzed with this batch.

Batch 556011 (CH26132) CHEM23 12/8/2020-1

CH25416(1X)

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
A blank MS/MSD was analyzed with this batch.

We attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Cooler: Yes [X] No [ ]
Coolant: IPK [X] ICE [ ] No [ ]

CHAIN OF CUSTODY RECORD

Temp 2.2 °C Pg of

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Email: info@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-8726

Data Delivery/Contact Options:
[ ] Fax:
[ ] Phone:
[ ] Email:

Customer: Terra environmental
Address: 159 Haven St.
Reading, MA
01867

Project: Broadway - Aqualine
Report to: Terra
Invoice to: Terra
QUOTE #

Project P.O: 20-111

This section MUST be completed with Bottle Quantities.

Client Sample - Information - Identification

Sampler's Signature: [signature] Date: 12/3/20

Matrix Code:
DW=Drinking Water **GW**=Ground Water **SW**=Surface Water **WW**=Waste Water
RW=Raw Water **SE**=Sediment **SL**=Sludge **S**=Soil **SD**=Solid **W**=Wipe **OIL**=Oil
B=Bulk **L**=Liquid **X** = _____(Other)

Analysis Request

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	NPDES RGP Phenol	MS/MSD*	GL Amber 8 oz. w/H3PO4	Soil VOA Vials [ ] methanol [ ] H2O	GL Soil container ( ) oz	GL Soil container ( ) oz	40 ml VOA Vial [2] As is [6] HCL	GL Amber 1000ml [2] As is [ ] H2SO4	PL As is [ ] 250ml [ ] 500ml [ ] 1000ml	PL H2SO4 [1] 250ml [ ] 500ml	PL HNO3 250ml	PL NaOH 250ml	Bacteria Bottle w/thio	Bacteria Bottle as is	Total
25415	Mill Creek	GW	12/3	0745	X	X					8	8	1	1	1	1			18
	~~MW-101~~	~~GW~~	~~12/3~~								c	4							
25416	MW-103A	GW	12/3		X	X					4	3	1	1	1	1			
25417	TRIP BLANK										2								

Relinquished by:	Accepted by:	Date:	Time:
[signature]	[signature]	12/4	12:00
[signature]	[signature]	12/4	1414

Comments, Special Requirements or Regulations:

*MS/MSD are considered site samples and will be billed as such in accordance with the prices quoted.

Turnaround Time:
[ ] 1 Day*
[ ] 2 Days*
[ ] 3 Days*
[X] Standard
[ ] Other
* SURCHARGE APPLIES

RI
[ ] (Residential) Direct Exposure
[ ] (Comm/Industrial) Direct Exposure
[ ] GA Leachability
[ ] GB Leachability
[ ] GA-GW Objectives
[ ] GB-GW Objectives

CT
[ ] RCP Cert
[ ] GW Protection
[ ] SW Protection
[ ] GA Mobility
[ ] GB Mobility
[ ] Residential DEC
[ ] I/C DEC
[ ] Other

MA
[X] MCP Certification
[X] GW-1 [ ] MWRA eSMART
[X] GW-2 [ ] S-1 10% CALC
[ ] GW-3
[ ] S-1 GW-1 [ ] S-1 GW-2 [ ] S-1 GW-3
[ ] S-2 GW-1 [ ] S-2 GW-2 [ ] S-2 GW-3
[ ] S-3 GW-1 [ ] S-3 GW-2 [ ] S-3 GW-3
[ ] SW Protection

State where samples were collected: MA

Data Format
[X] Excel
[X] PDF
[ ] GIS/Key
[ ] EQuIS
[ ] Other

Data Package
[ ] Tier II Checklist
[ ] Full Data Package*
[ ] Phoenix Std Report
[ ] Other
* SURCHARGE APPLIES

PEL-126 REV. 06/20

Makrina Nolan

From: Makrina Nolan
Sent: Monday, December 7, 2020 6:45 PM
To: ppeterson@terra-env.com; jmcmullen@terra-env.com; Christopher M. Ragnelli; jvaughan@terra-env.com; Andres Gallego; jfmcmullen@terra-env.com
Cc: Makrina Nolan
Subject: Samples received Friday
Attachments: GCH25415-ChainofCustody-1.pdf

Good Afternoon,

We received your samples, with regards to the attached chain. Unfortunately, both of these samples were received past hold for HexChrome. These samples have been analyzed for HexChrome and the results will be reported to you past hold with a comment on the report.

Please let me know if you have any questions.

Thank you,

Makrina Nolan
Client Services –Project Manager
Drinking Water Specialist
Phoenix Environmental Labs
587 Middle Turnpike East
Manchester, CT
Direct Line: 860-645-3219
Website: www.phoenixlabs.com

PHOENIX
Environmental Laboratories, Inc.

Wednesday, January 20, 2021

Attn:
Terra Environmental LLC
P.O. Box 473
Reading, MA 01867

Project ID: **BROADWAY AQUALINE**
SDG ID: **GCH26131**
Sample ID#s: **CH26131 - CH26132**

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

Enclosed are revised Analysis Report pages. Please replace and discard the original pages. If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Sincerely yours,

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
UT Lab Registration #CT00007
VT Lab Registration #VT11301

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

NY # 11301

SDG Comments

January 20, 2021

SDG I.D.: GCH26131

8260 Analysis:
1,2-Dibromoethane doesn't meet GW-1 criteria, this compound is analyzed by GC/FID to achieve this criteria.

8260 Analysis:
1,4-Dioxane doesn't meet GW-1 criteria, this compound is analyzed by 8270SIM to achieve this criteria.

Phoenix reporting levels may exceed those referenced in the CAM protocol. Please refer to criteria sheet for comparisons to requested MCP standards.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Sample Id Cross Reference

January 20, 2021

SDG I.D.: GCH26131

Project ID: BROADWAY AQUALINE

Client Id	Lab Id	Matrix
MW103B	CH26131	GW DISCHARGE
TRIP BLANK	CH26132	GW DISCHARGE

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

January 20, 2021

FOR: Attn:
Terra Environmental LLC
P.O. Box 473
Reading, MA 01867

Sample Information		Custody Information		Date	Time
Matrix:	GW DISCHARGE	Collected by:		12/07/20	9:00
Location Code:	TERRA-ENV	Received by:	B	12/07/20	14:43
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20-111				

Laboratory Data

SDG ID: GCH26131
Phoenix ID: CH26131

Project ID: BROADWAY AQUALINE
Client ID: MW103B

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.001	0.001	mg/L	1	12/11/20	TH	E200.7
Arsenic	0.009	0.004	mg/L	1	12/11/20	TH	E200.7
Barium	0.033	0.002	mg/L	1	12/11/20	TH	E200.7
Cadmium	< 0.001	0.001	mg/L	1	12/11/20	TH	E200.7
Chromium	0.005	0.001	mg/L	1	12/11/20	TH	E200.7
Copper	0.029	0.005	mg/L	1	12/11/20	TH	E200.7
Iron	0.992	0.010	mg/L	1	12/11/20	TH	E200.7
Hardness (CaCO3)	278	0.1	mg/L	1	12/12/20		E200.7
Mercury	< 0.0002	0.0002	mg/L	1	12/09/20	RS	E245.1
Nickel	0.003	0.001	mg/L	1	12/11/20	TH	E200.7
Lead	0.007	0.002	mg/L	1	12/11/20	TH	E200.7
Antimony	0.019	0.005	mg/L	1	12/11/20	TH	E200.7
Selenium	< 0.010	0.010	mg/L	1	12/11/20	TH	E200.7
Trivalent Chromium	0.005	0.001	mg/L	1	12/12/20		Calculation
Zinc	0.098	0.004	mg/L	1	12/11/20	TH	E200.7
Chloride	389	30.0	mg/L	10	12/15/20	BS/GD	E300.0
Chlorine Residual	< 0.02	0.02	mg/L	1	12/07/20 16:14	MW	SM4500Cl-G-00
Chromium, Hexavalent	< 0.01	0.01	mg/L	1	12/07/20 16:37	MW	SM3500CRB-11
Ammonia as Nitrogen	< 0.10	0.10	mg/L	2	12/10/20	KDB	E350.1
Phenolics	< 0.015	0.015	mg/L	1	12/08/20	ARG	E420.4
pH	7.75	1.00	pH Units	1	12/07/20 19:48	AP/EG	SM4500-H B-00
Total Cyanide	0.042	0.010	mg/L	1	12/10/20	LS	E335.4
O&G, Non-polar Material	< 1.5	1.5	mg/L	1.1	12/10/20	MSF	E1664A
Total Suspended Solids	17	5.0	mg/L	1	12/08/20	LS/QH	SM 2540D-11
Mercury Digestion	Completed				12/09/20	ARW/VT	E245.1
PCB Extraction (LDL)	Completed				12/07/20	C/C	E608.3
Semi-Volatile Extraction	Completed				12/10/20	AT/AT	SW3520C
Total Metals Digestion	Completed				12/09/20	AG	

Ver 2

Project ID: BROADWAY AQUALINE
Client ID: MW103B

Phoenix I.D.: CH26131

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Polychlorinated Biphenyls							
PCB-1016	ND	0.054	ug/L	1	12/08/20	SC	E608.3
PCB-1221	ND	0.054	ug/L	1	12/08/20	SC	E608.3
PCB-1232	ND	0.054	ug/L	1	12/08/20	SC	E608.3
PCB-1242	ND	0.054	ug/L	1	12/08/20	SC	E608.3
PCB-1248	ND	0.054	ug/L	1	12/08/20	SC	E608.3
PCB-1254	ND	0.054	ug/L	1	12/08/20	SC	E608.3
PCB-1260	ND	0.054	ug/L	1	12/08/20	SC	E608.3
PCB-1262	ND	0.054	ug/L	1	12/08/20	SC	E608.3
PCB-1268	ND	0.054	ug/L	1	12/08/20	SC	E608.3
QA/QC Surrogates							
% DCBP (Surrogate Rec)	63		%	1	12/08/20	SC	30 - 150 %
% DCBP (Surrogate Rec) (Confirmation)	63		%	1	12/08/20	SC	30 - 150 %
% TCMX (Surrogate Rec)	70		%	1	12/08/20	SC	30 - 150 %
% TCMX (Surrogate Rec) (Confirmation)	70		%	1	12/08/20	SC	30 - 150 %
1,2-Dibromoethane (EDB)	ND	0.02	ug/L	1	12/15/20	CG	SW8011
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,1,1-Trichloroethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	12/09/20	MH	E624.1
1,1,2-Trichloroethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,1-Dichloroethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,1-Dichloroethene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,1-Dichloropropene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,2,3-Trichloropropane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,2,4-Trimethylbenzene	42	1.0	ug/L	1	12/09/20	MH	E624.1
1,2-Dibromo-3-chloropropane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,2-Dibromoethane	ND	0.50	ug/L	1	12/09/20	MH	E624.1
1,2-Dichlorobenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,2-Dichloroethane	ND	0.60	ug/L	1	12/09/20	MH	E624.1
1,2-Dichloropropane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,3,5-Trimethylbenzene	1.1	1.0	ug/L	1	12/09/20	MH	E624.1
1,3-Dichlorobenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,3-Dichloropropane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
1,4-Dichlorobenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
2,2-Dichloropropane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
2-Chlorotoluene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
2-Hexanone	ND	5.0	ug/L	1	12/09/20	MH	E624.1
2-Isopropyltoluene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
4-Chlorotoluene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
4-Methyl-2-pentanone	ND	5.0	ug/L	1	12/09/20	MH	E624.1
Acetone	ND	25	ug/L	1	12/09/20	MH	E624.1
Acrylonitrile	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Benzene	ND	0.70	ug/L	1	12/09/20	MH	E624.1
Bromobenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1

Project ID: BROADWAY AQUALINE
Client ID: MW103B

Phoenix I.D.: CH26131

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Bromochloromethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Bromodichloromethane	ND	0.50	ug/L	1	12/09/20	MH	E624.1
Bromoform	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Bromomethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Carbon Disulfide	ND	5.0	ug/L	1	12/09/20	MH	E624.1
Carbon tetrachloride	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Chlorobenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Chloroethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Chloroform	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Chloromethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	12/09/20	MH	E624.1
Dibromochloromethane	ND	0.50	ug/L	1	12/09/20	MH	E624.1
Dibromomethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Dichlorodifluoromethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Ethylbenzene	5.6	1.0	ug/L	1	12/09/20	MH	E624.1
Hexachlorobutadiene	ND	0.40	ug/L	1	12/09/20	MH	E624.1
Isopropylbenzene	1.5	1.0	ug/L	1	12/09/20	MH	E624.1
m&p-Xylene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Methyl ethyl ketone	ND	5.0	ug/L	1	12/09/20	MH	E624.1
Methyl t-butyl ether (MTBE)	3.1	1.0	ug/L	1	12/09/20	MH	E624.1
Methylene chloride	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Naphthalene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
n-Butylbenzene	1.4	1.0	ug/L	1	12/09/20	MH	E624.1
n-Propylbenzene	3.7	1.0	ug/L	1	12/09/20	MH	E624.1
o-Xylene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
p-Isopropyltoluene	2.1	1.0	ug/L	1	12/09/20	MH	E624.1
sec-Butylbenzene	1.1	1.0	ug/L	1	12/09/20	MH	E624.1
Styrene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
tert-Butylbenzene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Tetrachloroethene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	12/09/20	MH	E624.1
Toluene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Total Xylenes	ND	1.0	ug/L	1	12/09/20	MH	E624.1
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	12/09/20	MH	E624.1
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	12/09/20	MH	E624.1
Trichloroethene	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Trichlorofluoromethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Trichlorotrifluoroethane	ND	1.0	ug/L	1	12/09/20	MH	E624.1
Vinyl chloride	ND	1.0	ug/L	1	12/09/20	MH	E624.1
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	102		%	1	12/09/20	MH	70 - 130 %
% Bromofluorobenzene	102		%	1	12/09/20	MH	70 - 130 %
% Dibromofluoromethane	105		%	1	12/09/20	MH	70 - 130 %
% Toluene-d8	101		%	1	12/09/20	MH	70 - 130 %

Oxygenates & Dioxane

1,4-Dioxane	ND	100	ug/L	1	12/09/20	MH	SW8260C (OXY)
Diethyl ether	ND	1.0	ug/L	1	12/09/20	MH	SW8260C (OXY)

Project ID: BROADWAY AQUALINE
Client ID: MW103B

Phoenix I.D.: CH26131

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Di-isopropyl ether	1.2	1.0	ug/L	1	12/09/20	MH	SW8260C (OXY)
Ethyl tert-butyl ether	ND	1.0	ug/L	1	12/09/20	MH	SW8260C (OXY)
tert-amyl methyl ether	ND	1.0	ug/L	1	12/09/20	MH	SW8260C (OXY)
Ethanol	ND	400	ug/L	1	12/09/20	MH	SW8260C
Tert-amyl-methyl-ether	ND	1.0	ug/L	1	12/09/20	MH	SW8260C
Tert-butyl alcohol	100	50	ug/L	1	12/09/20	MH	SW8260C
Semivolatiles							
1,2,4,5-Tetrachlorobenzene	ND	5.6	ug/L	1	12/11/20	WB	E625.1
1,2,4-Trichlorobenzene	ND	8.0	ug/L	1	12/11/20	WB	E625.1
1,2-Dichlorobenzene	ND	4.0	ug/L	1	12/11/20	WB	E625.1
1,2-Diphenylhydrazine	ND	8.0	ug/L	1	12/11/20	WB	E625.1
1,3-Dichlorobenzene	ND	4.0	ug/L	1	12/11/20	WB	E625.1
1,4-Dichlorobenzene	ND	4.0	ug/L	1	12/11/20	WB	E625.1
2,4,5-Trichlorophenol	ND	1.6	ug/L	1	12/11/20	WB	E625.1
2,4,6-Trichlorophenol	ND	1.6	ug/L	1	12/11/20	WB	E625.1
2,4-Dichlorophenol	ND	1.6	ug/L	1	12/11/20	WB	E625.1
2,4-Dimethylphenol	ND	1.6	ug/L	1	12/11/20	WB	E625.1
2,4-Dinitrophenol	ND	1.6	ug/L	1	12/11/20	WB	E625.1
2,4-Dinitrotoluene	ND	8.0	ug/L	1	12/11/20	WB	E625.1
2,6-Dinitrotoluene	ND	8.0	ug/L	1	12/11/20	WB	E625.1
2-Chloronaphthalene	ND	8.0	ug/L	1	12/11/20	WB	E625.1
2-Chlorophenol	ND	1.6	ug/L	1	12/11/20	WB	E625.1
2-Methylphenol (o-cresol)	ND	1.6	ug/L	1	12/11/20	WB	E625.1
2-Nitroaniline	ND	8.0	ug/L	1	12/11/20	WB	E625.1
2-Nitrophenol	ND	1.6	ug/L	1	12/11/20	WB	E625.1
3&4-Methylphenol (m&p-cresol)	ND	16	ug/L	1	12/11/20	WB	E625.1
3,3'-Dichlorobenzidine	ND	8.0	ug/L	1	12/11/20	WB	E625.1
3-Nitroaniline	ND	8.0	ug/L	1	12/11/20	WB	E625.1
4,6-Dinitro-2-methylphenol	ND	1.6	ug/L	1	12/11/20	WB	E625.1
4-Bromophenyl phenyl ether	ND	8.0	ug/L	1	12/11/20	WB	E625.1
4-Chloro-3-methylphenol	ND	1.6	ug/L	1	12/11/20	WB	E625.1
4-Chloroaniline	ND	8.0	ug/L	1	12/11/20	WB	E625.1
4-Chlorophenyl phenyl ether	ND	1.6	ug/L	1	12/11/20	WB	E625.1
4-Nitroaniline	ND	8.0	ug/L	1	12/11/20	WB	E625.1
4-Nitrophenol	ND	1.6	ug/L	1	12/11/20	WB	E625.1
Acetophenone	ND	8.0	ug/L	1	12/11/20	WB	E625.1
Aniline	ND	8.0	ug/L	1	12/11/20	WB	E625.1
Benzidine	ND	8.0	ug/L	1	12/11/20	WB	E625.1
Benzoic acid	ND	80	ug/L	1	12/11/20	WB	E625.1
Benzyl butyl phthalate	ND	8.0	ug/L	1	12/11/20	WB	E625.1
Bis(2-chloroethoxy)methane	ND	8.0	ug/L	1	12/11/20	WB	E625.1
Bis(2-chloroethyl)ether	ND	1.6	ug/L	1	12/11/20	WB	E625.1
Bis(2-chloroisopropyl)ether	ND	8.0	ug/L	1	12/11/20	WB	E625.1
Bis(2-ethylhexyl)phthalate	ND	1.6	ug/L	1	12/11/20	WB	E625.1
Carbazole	ND	8.0	ug/L	1	12/11/20	WB	E625.1
Dibenzofuran	ND	8.0	ug/L	1	12/11/20	WB	E625.1
Diethyl phthalate	ND	8.0	ug/L	1	12/11/20	WB	E625.1
Dimethylphthalate	ND	8.0	ug/L	1	12/11/20	WB	E625.1

Project ID: BROADWAY AQUALINE
Client ID: MW103B

Phoenix I.D.: CH26131

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Di-n-butylphthalate	ND	8.0	ug/L	1	12/11/20	WB	E625.1
Di-n-octylphthalate	ND	8.0	ug/L	1	12/11/20	WB	E625.1
Hexachloroethane	ND	1.6	ug/L	1	12/11/20	WB	E625.1
Isophorone	ND	8.0	ug/L	1	12/11/20	WB	E625.1
N-Nitrosodi-n-propylamine	ND	8.0	ug/L	1	12/11/20	WB	E625.1
N-Nitrosodiphenylamine	ND	8.0	ug/L	1	12/11/20	WB	E625.1
Pentachloronitrobenzene	ND	4.0	ug/L	1	12/11/20	WB	E625.1
Phenol	ND	1.6	ug/L	1	12/11/20	WB	E625.1
QA/QC Surrogates							
% 2,4,6-Tribromophenol	92		%	1	12/11/20	WB	15 - 110 %
% 2-Fluorobiphenyl	56		%	1	12/11/20	WB	30 - 130 %
% 2-Fluorophenol	31		%	1	12/11/20	WB	15 - 110 %
% Nitrobenzene-d5	80		%	1	12/11/20	WB	30 - 130 %
% Phenol-d5	25		%	1	12/11/20	WB	15 - 110 %
% Terphenyl-d14	87		%	1	12/11/20	WB	30 - 130 %
Semivolatiles (SIM)							
2-Methylnaphthalene	ND	0.80	ug/L	1	12/11/20	WB	625(SIM)
Acenaphthene	ND	0.80	ug/L	1	12/11/20	WB	625(SIM)
Acenaphthylene	ND	0.16	ug/L	1	12/11/20	WB	625(SIM)
Anthracene	ND	0.15	ug/L	1	12/11/20	WB	625(SIM)
Benz(a)anthracene	0.27	0.16	ug/L	1	12/11/20	WB	625(SIM)
Benzo(a)pyrene	ND	0.20	ug/L	1	12/11/20	WB	625(SIM)
Benzo(b)fluoranthene	0.27	0.16	ug/L	1	12/11/20	WB	625(SIM)
Benzo(ghi)perylene	0.24	0.03	ug/L	1	12/11/20	WB	625(SIM)
Benzo(k)fluoranthene	0.22	0.16	ug/L	1	12/11/20	WB	625(SIM)
Chrysene	0.27	0.08	ug/L	1	12/11/20	WB	625(SIM)
Dibenz(a,h)anthracene	0.05	0.03	ug/L	1	12/11/20	WB	625(SIM)
Fluoranthene	0.98	0.80	ug/L	1	12/11/20	WB	625(SIM)
Fluorene	0.22	0.16	ug/L	1	12/11/20	WB	625(SIM)
Hexachlorobenzene	ND	0.80	ug/L	1	12/11/20	WB	625(SIM)
Hexachlorobutadiene	ND	0.6	ug/L	1	12/11/20	WB	625(SIM)
Hexachlorocyclopentadiene	ND	0.80	ug/L	1	12/11/20	WB	625(SIM)
Indeno(1,2,3-cd)pyrene	0.22	0.16	ug/L	1	12/11/20	WB	625(SIM)
Naphthalene	0.98	0.80	ug/L	1	12/11/20	WB	625(SIM)
Nitrobenzene	ND	0.80	ug/L	1	12/11/20	WB	625(SIM)
N-Nitrosodimethylamine	ND	0.80	ug/L	1	12/11/20	WB	625(SIM)
Pentachlorophenol	ND	0.80	ug/L	1	12/11/20	WB	625(SIM)
Phenanthrene	ND	0.80	ug/L	1	12/11/20	WB	625(SIM)
Pyrene	1.0	0.11	ug/L	1	12/11/20	WB	625(SIM)
Pyridine	ND	0.80	ug/L	1	12/11/20	WB	625(SIM)
QA/QC Surrogates							
% 2,4,6-Tribromophenol	92		%	1	12/11/20	WB	15 - 110 %
% 2-Fluorobiphenyl	55		%	1	12/11/20	WB	40 - 140 %
% 2-Fluorophenol	60		%	1	12/11/20	WB	15 - 110 %
% Nitrobenzene-d5	57		%	1	12/11/20	WB	40 - 140 %
% Phenol-d5	21		%	1	12/11/20	WB	15 - 110 %
% Terphenyl-d14	92		%	1	12/11/20	WB	40 - 140 %

Project ID: BROADWAY AQUALINE
Client ID: MW103B

Phoenix I.D.: CH26131

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
1,4-dioxane							
1,4-dioxane	ND	0.20	ug/l	1	12/09/20	AW	SW8270DSIM
QA/QC Surrogates							
% 1,4-dioxane-d8	74		%	1	12/09/20	AW	40 - 140 %
Extraction for 1,4-Dioxane	Completed				12/08/20	G/G	

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

The regulatory hold time for Chlorine is immediately. This Chlorine was performed in the laboratory and may be considered outside of hold-time.

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

8260 Analysis:
1,4-Dioxane doesn't meet GW-1 criteria, this compound is analyzed by 8270SIM to achieve this criteria.

Total Cyanide:
This sample was received with a pH<12; pH was adjusted to >12 (EPA requires preservation at time of sampling to a pH of >12.)
A sample bias can not be ruled out.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director
January 20, 2021
Reviewed and Released by: Sarah Bell, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

January 20, 2021

FOR: Attn:
Terra Environmental LLC
P.O. Box 473
Reading, MA 01867

Sample Information		Custody Information		Date	Time
Matrix:	GW DISCHARGE	Collected by:		12/07/20	
Location Code:	TERRA-ENV	Received by:	B	12/07/20	14:43
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	20-111				

Laboratory Data

SDG ID: GCH26131
Phoenix ID: CH26132

Project ID: BROADWAY AQUALINE
Client ID: TRIP BLANK

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,1,1-Trichloroethane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	12/08/20	MH	E624.1
1,1,2-Trichloroethane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,1-Dichloroethane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,1-Dichloroethene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,1-Dichloropropene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,2,3-Trichloropropane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,2-Dibromo-3-chloropropane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,2-Dibromoethane	ND	0.50	ug/L	1	12/08/20	MH	E624.1
1,2-Dichlorobenzene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,2-Dichloroethane	ND	0.60	ug/L	1	12/08/20	MH	E624.1
1,2-Dichloropropane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,3-Dichlorobenzene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,3-Dichloropropane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
1,4-Dichlorobenzene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
2,2-Dichloropropane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
2-Chlorotoluene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
2-Hexanone	ND	5.0	ug/L	1	12/08/20	MH	E624.1
2-Isopropyltoluene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
4-Chlorotoluene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
4-Methyl-2-pentanone	ND	5.0	ug/L	1	12/08/20	MH	E624.1

Project ID: BROADWAY AQUALINE
Client ID: TRIP BLANK

Phoenix I.D.: CH26132

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Acetone	ND	25	ug/L	1	12/08/20	MH	E624.1
Acrylonitrile	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Benzene	ND	0.70	ug/L	1	12/08/20	MH	E624.1
Bromobenzene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Bromochloromethane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Bromodichloromethane	ND	0.50	ug/L	1	12/08/20	MH	E624.1
Bromoform	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Bromomethane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Carbon Disulfide	ND	5.0	ug/L	1	12/08/20	MH	E624.1
Carbon tetrachloride	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Chlorobenzene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Chloroethane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Chloroform	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Chloromethane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	12/08/20	MH	E624.1
Dibromochloromethane	ND	0.50	ug/L	1	12/08/20	MH	E624.1
Dibromomethane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Dichlorodifluoromethane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Ethylbenzene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Hexachlorobutadiene	ND	0.40	ug/L	1	12/08/20	MH	E624.1
Isopropylbenzene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
m&p-Xylene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Methyl ethyl ketone	ND	5.0	ug/L	1	12/08/20	MH	E624.1
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Methylene chloride	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Naphthalene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
n-Butylbenzene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
n-Propylbenzene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
o-Xylene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
p-Isopropyltoluene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
sec-Butylbenzene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Styrene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
tert-Butylbenzene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Tetrachloroethene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	12/08/20	MH	E624.1
Toluene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Total Xylenes	ND	1.0	ug/L	1	12/08/20	MH	E624.1
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	12/08/20	MH	E624.1
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	12/08/20	MH	E624.1
Trichloroethene	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Trichlorofluoromethane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Trichlorotrifluoroethane	ND	1.0	ug/L	1	12/08/20	MH	E624.1
Vinyl chloride	ND	1.0	ug/L	1	12/08/20	MH	E624.1
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	102		%	1	12/08/20	MH	70 - 130 %
% Bromofluorobenzene	97		%	1	12/08/20	MH	70 - 130 %
% Dibromofluoromethane	107		%	1	12/08/20	MH	70 - 130 %

Ver 2

Project ID: BROADWAY AQUALINE
Client ID: TRIP BLANK

Phoenix I.D.: CH26132

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
% Toluene-d8	101		%	1	12/08/20	MH	70 - 130 %
Oxygenates & Dioxane							
1,4-Dioxane	ND	100	ug/L	1	12/08/20	MH	SW8260C (OXY)
Diethyl ether	ND	1.0	ug/L	1	12/08/20	MH	SW8260C (OXY)
Di-isopropyl ether	ND	1.0	ug/L	1	12/08/20	MH	SW8260C (OXY)
Ethyl tert-butyl ether	ND	1.0	ug/L	1	12/08/20	MH	SW8260C (OXY)
tert-amyl methyl ether	ND	1.0	ug/L	1	12/08/20	MH	SW8260C (OXY)
Ethanol	ND	400	ug/L	1	12/08/20	MH	SW8260C
Tert-amyl-methyl-ether	ND	1.0	ug/L	1	12/08/20	MH	SW8260C
Tert-butyl alcohol	ND	50	ug/L	1	12/08/20	MH	SW8260C

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

TRIP BLANK INCLUDED.

8260 Analysis:
1,4-Dioxane doesn't meet GW-1 criteria, this compound is analyzed by 8270SIM to achieve this criteria.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
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Phyllis Shiller, Laboratory Director
January 20, 2021
Reviewed and Released by: Sarah Bell, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

January 20, 2021

QA/QC Data

SDG I.D.: GCH26131

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 555953 (mg/L), QC Sample No: CH27181 (CH26131)													
Mercury - Water	BRL	0.0002	<0.0002	<0.0002	NC	87.2			82.6	76.9	7.1	75 - 125	30
Comment:													
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 75-125%													
QA/QC Batch 556034 (mg/L), QC Sample No: CH27181 (CH26131)													
ICP Metals - Aqueous													
Antimony	BRL	0.005	<0.005	<0.005	NC	102	104	1.9	107	107	0.0	80 - 120	20
Arsenic	BRL	0.004	<0.004	<0.004	NC	104	105	1.0	107	107	0.0	80 - 120	20
Barium	BRL	0.002	0.039	0.038	2.60	105	106	0.9	108	108	0.0	80 - 120	20
Cadmium	BRL	0.001	<0.001	<0.001	NC	105	107	1.9	106	107	0.9	80 - 120	20
Chromium	BRL	0.001	<0.001	<0.001	NC	103	104	1.0	105	105	0.0	80 - 120	20
Copper	BRL	0.005	0.056	0.056	0	97.9	98.7	0.8	104	103	1.0	80 - 120	20
Iron	BRL	0.010	0.094	0.089	5.50	101	102	1.0	103	103	0.0	80 - 120	20
Lead	BRL	0.002	<0.002	<0.002	NC	101	103	2.0	104	105	1.0	80 - 120	20
Nickel	BRL	0.001	0.038	0.037	2.70	101	103	2.0	103	104	1.0	80 - 120	20
Selenium	BRL	0.010	<0.010	<0.010	NC	105	107	1.9	107	108	0.9	80 - 120	20
Silver	BRL	0.001	<0.001	<0.001	NC	94.7	96.0	1.4	98.7	98.2	0.5	80 - 120	20
Zinc	BRL	0.004	0.469	0.460	1.90	99.5	101	1.5	103	103	0.0	80 - 120	20
Comment:													
Additional: LCS acceptance range is 80-120% MS acceptance range 75-125%.													

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QA/QC Report

January 20, 2021

QA/QC Data

SDG I.D.: GCH26131

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 556071 (mg/L), QC Sample No: CH27752 (CH26131)													
Total Cyanide	BRL	0.010	<0.010	<0.010	NC	105			92.5			90 - 110	30
Comment:													
Additional soil criteria LCS acceptance range is 80-120% MS acceptance range 75-125%.													
QA/QC Batch 556133 (mg/L), QC Sample No: CH24312 (CH26131)													
O&G, Non-polar Material	BRL	1.4	<1.4	<1.4	NC	93.0			90.0			85 - 115	20
Comment:													
Additional: LCS acceptance range is 85-115% MS acceptance range 75-125%.													
QA/QC Batch 555803 (mg/L), QC Sample No: CH25533 (CH26131)													
Total Suspended Solids	BRL	2.5	11	11	NC	92.0						85 - 115	
QA/QC Batch 555793 (pH), QC Sample No: CH25967 (CH26131)													
pH			7.04	7.04	0	98.5						85 - 115	20
Comment:													
Additional: LCS acceptance range is 85-115% MS acceptance range 75-125%.													
QA/QC Batch 555736 (mg/L), QC Sample No: CH26179 (CH26131)													
Chromium, Hexavalent	BRL	0.01	<0.01	<0.01	NC	98.5			109			90 - 110	30
Comment:													
Additional Hexavalent Chromium criteria: LCS acceptance range for waters is 90-110% and MS acceptance range is 85-115%.													
QA/QC Batch 556778 (mg/L), QC Sample No: CH29032 (CH26131)													
Chloride	BRL	3.0	77.9	78.8	1.10	93.1			103			90 - 110	20
QA/QC Batch 555989 (mg/L), QC Sample No: CH24993 (CH26131)													
Ammonia as Nitrogen	BRL	0.05	5.00	5.40	7.70	102			105			90 - 110	20
QA/QC Batch 555779 (mg/L), QC Sample No: CH26179 (CH26131)													
Phenolics	BRL	0.015	0.063	0.064	NC	100			102			90 - 110	20
QA/QC Batch 555727 (mg/L), QC Sample No: CH25999 (CH26131)													
Chlorine Residual	BRL	0.02	0.02	<0.02	NC	94.5							

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QA/QC Report

January 20, 2021

QA/QC Data

SDG I.D.: GCH26131

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
QA/QC Batch 556554 (ug/L), QC Sample No: CH30505 (CH26131)											
EDB and DBCP Analysis											
1,2-Dibromoethane (EDB)	ND	0.01	100	102	2.0	109	100	8.6	70 - 130	25	
QA/QC Batch 555733 (ug/L), QC Sample No: CH25816 (CH26131)											
Polychlorinated Biphenyls											
PCB-1016	ND	0.050	80	74	7.8				40 - 140	20	
PCB-1221	ND	0.050							40 - 140	20	
PCB-1232	ND	0.050							40 - 140	20	
PCB-1242	ND	0.050							40 - 140	20	
PCB-1248	ND	0.050							40 - 140	20	
PCB-1254	ND	0.050							40 - 140	20	
PCB-1260	ND	0.050	80	59	30.2				40 - 140	20	r
PCB-1262	ND	0.050							40 - 140	20	
PCB-1268	ND	0.050							40 - 140	20	
% DCBP (Surrogate Rec)	85	%	98	67	37.6				30 - 150	20	r
% DCBP (Surrogate Rec) (Confirm	82	%	96	66	37.0				30 - 150	20	r
% TCMX (Surrogate Rec)	73	%	87	82	5.9				30 - 150	20	
% TCMX (Surrogate Rec) (Confirm	70	%	89	84	5.8				30 - 150	20	
QA/QC Batch 556237 (ug/L), QC Sample No: CH26131 (CH26131)											
Semivolatiles											
1,2,4,5-Tetrachlorobenzene	ND	3.5	57	57	0.0				40 - 140	20	
1,2,4-Trichlorobenzene	ND	3.5	54	56	3.6				40 - 140	20	
1,2-Dichlorobenzene	ND	1.0	47	49	4.2				40 - 140	20	
1,2-Diphenylhydrazine	ND	1.6	74	74	0.0				40 - 140	20	
1,3-Dichlorobenzene	ND	1.0	47	48	2.1				40 - 140	20	
1,4-Dichlorobenzene	ND	1.0	48	50	4.1				40 - 140	20	
2,4,5-Trichlorophenol	ND	1.0	79	82	3.7				30 - 130	20	
2,4,6-Trichlorophenol	ND	1.0	79	81	2.5				30 - 130	20	
2,4-Dichlorophenol	ND	1.0	66	68	3.0				30 - 130	20	
2,4-Dimethylphenol	ND	1.0	69	71	2.9				30 - 130	20	
2,4-Dinitrophenol	ND	1.0	97	106	8.9				30 - 130	20	
2,4-Dinitrotoluene	ND	3.5	104	108	3.8				40 - 140	20	
2,6-Dinitrotoluene	ND	3.5	94	102	8.2				40 - 140	20	
2-Chloronaphthalene	ND	3.5	65	68	4.5				40 - 140	20	
2-Chlorophenol	ND	1.0	53	56	5.5				30 - 130	20	
2-Methylphenol (o-cresol)	ND	1.0	54	56	3.6				30 - 130	20	
2-Nitroaniline	ND	3.5	106	103	2.9				40 - 140	20	
2-Nitrophenol	ND	1.0	73	86	16.4				30 - 130	20	
3&4-Methylphenol (m&p-cresol)	ND	1.0	54	56	3.6				30 - 130	20	
3,3'-Dichlorobenzidine	ND	5.0	115	111	3.5				40 - 140	20	
3-Nitroaniline	ND	5.0	97	103	6.0				40 - 140	20	
4,6-Dinitro-2-methylphenol	ND	1.0	99	101	2.0				30 - 130	20	

QA/QC Data

SDG I.D.: GCH26131

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
4-Bromophenyl phenyl ether	ND	3.5	75	76	1.3				40 - 140	20	
4-Chloro-3-methylphenol	ND	1.0	77	77	0.0				30 - 130	20	
4-Chloroaniline	ND	3.5	67	66	1.5				40 - 140	20	
4-Chlorophenyl phenyl ether	ND	1.0	72	72	0.0				40 - 140	20	
4-Nitroaniline	ND	5.0	91	101	10.4				40 - 140	20	
4-Nitrophenol	ND	1.0	39	42	7.4				30 - 130	20	
Acetophenone	ND	3.5	56	57	1.8				40 - 140	20	
Aniline	ND	3.5	60	61	1.7				40 - 140	20	
Benzidine	ND	4.5	70	74	5.6				40 - 140	20	
Benzoic acid	ND	10	11	<10	NC				30 - 130	20	I
Benzyl butyl phthalate	ND	1.5	96	93	3.2				40 - 140	20	
Bis(2-chloroethoxy)methane	ND	3.5	62	64	3.2				40 - 140	20	
Bis(2-chloroethyl)ether	ND	1.0	50	51	2.0				40 - 140	20	
Bis(2-chloroisopropyl)ether	ND	1.0	47	48	2.1				40 - 140	20	
Bis(2-ethylhexyl)phthalate	ND	1.5	95	90	5.4				40 - 140	20	
Carbazole	ND	5.0	81	82	1.2				40 - 140	20	
Dibenzofuran	ND	3.5	69	71	2.9				40 - 140	20	
Diethyl phthalate	ND	1.5	79	78	1.3				40 - 140	20	
Dimethylphthalate	ND	1.5	76	77	1.3				40 - 140	20	
Di-n-butylphthalate	ND	1.5	87	84	3.5				40 - 140	20	
Di-n-octylphthalate	ND	1.5	103	97	6.0				40 - 140	20	
Hexachloroethane	ND	3.5	50	50	0.0				40 - 140	20	
Isophorone	ND	3.5	63	63	0.0				40 - 140	20	
N-Nitrosodi-n-propylamine	ND	3.5	62	63	1.6				40 - 140	20	
N-Nitrosodiphenylamine	ND	3.5	75	75	0.0				40 - 140	20	
Pentachloronitrobenzene	ND	5.0	91	92	1.1				40 - 140	20	
Phenol	ND	1.0	25	27	7.7				30 - 130	20	I
% 2,4,6-Tribromophenol	55	%	87	90	3.4				15 - 110	20	
% 2-Fluorobiphenyl	60	%	60	64	6.5				30 - 130	20	
% 2-Fluorophenol	35	%	30	33	9.5				15 - 110	20	
% Nitrobenzene-d5	48	%	62	73	16.3				30 - 130	20	
% Phenol-d5	24	%	23	25	8.3				15 - 110	20	
% Terphenyl-d14	77	%	87	86	1.2				30 - 130	20	

Comment:

A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.

Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

QA/QC Batch 555862 (ug/l), QC Sample No: CH25415 (CH26131)

1,4dioxane

1,4-dioxane	ND	0.20	98	93	5.2	97			40 - 140	30	
% 1,4-dioxane-d8	73	%	78	73	6.6	77			40 - 140	30	

QA/QC Batch 556237 (ug/L), QC Sample No: CH26131 (CH26131)

Semivolatiles (SIM)

2-Methylnaphthalene	ND	0.50	49	56	13.3				40 - 140	20	
Acenaphthene	ND	0.50	63	70	10.5				40 - 140	20	
Acenaphthylene	ND	0.50	55	61	10.3				40 - 140	20	
Anthracene	ND	0.50	71	78	9.4				40 - 140	20	
Benz(a)anthracene	ND	0.50	74	80	7.8				40 - 140	20	
Benzo(a)pyrene	ND	0.50	85	93	9.0				40 - 140	20	
Benzo(b)fluoranthene	ND	0.50	103	107	3.8				40 - 140	20	
Benzo(ghi)perylene	ND	0.50	84	92	9.1				40 - 140	20	

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Benzo(k)fluoranthene	ND	0.50	65	67	3.0				40 - 140	20	
Chrysene	ND	0.50	73	80	9.2				40 - 140	20	
Dibenz(a,h)anthracene	ND	0.50	78	85	8.6				40 - 140	20	
Fluoranthene	ND	0.50	77	86	11.0				40 - 140	20	
Fluorene	ND	0.50	69	76	9.7				40 - 140	20	
Hexachlorobenzene	ND	0.50	71	79	10.7				40 - 140	20	
Hexachlorobutadiene	ND	0.50	49	54	9.7				40 - 140	20	
Hexachlorocyclopentadiene	ND	0.50	43	53	20.8				40 - 140	20	r
Indeno(1,2,3-cd)pyrene	ND	0.50	76	81	6.4				40 - 140	20	
Naphthalene	ND	0.50	50	56	11.3				40 - 140	20	
Nitrobenzene	ND	0.50	55	54	1.8				40 - 140	20	
N-Nitrosodimethylamine	ND	0.05	30	34	12.5				40 - 140	20	l
Pentachlorophenol	ND	0.50	52	63	19.1				40 - 140	20	
Phenanthrene	ND	0.50	69	77	11.0				40 - 140	20	
Pyrene	ND	0.50	76	84	10.0				40 - 140	20	
Pyridine	ND	0.50	36	32	11.8				40 - 140	20	l
% 2,4,6-Tribromophenol	92	%	87	100	13.9				15 - 110	20	
% 2-Fluorobiphenyl	56	%	56	64	13.3				40 - 140	20	
% 2-Fluorophenol	67	%	25	29	14.8				15 - 110	20	
% Nitrobenzene-d5	66	%	55	65	16.7				40 - 140	20	
% Phenol-d5	30	%	23	27	16.0				15 - 110	20	
% Terphenyl-d14	98	%	89	100	11.6				40 - 140	20	

Comment:

A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.

Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

QA/QC Batch 556010 (ug/L), QC Sample No: CH26132 (CH26132)

Volatiles

1,1,1,2-Tetrachloroethane	ND	1.0	88	88	0.0				70 - 130	20	
1,1,1-Trichloroethane	ND	1.0	86	85	1.2				70 - 130	20	
1,1,2,2-Tetrachloroethane	ND	0.50	89	88	1.1				70 - 130	20	
1,1,2-Trichloroethane	ND	1.0	88	87	1.1				70 - 130	20	
1,1-Dichloroethane	ND	1.0	91	89	2.2				70 - 130	20	
1,1-Dichloroethene	ND	1.0	85	89	4.6				70 - 130	20	
1,1-Dichloropropene	ND	1.0	84	85	1.2				70 - 130	20	
1,2,3-Trichlorobenzene	ND	1.0	91	89	2.2				70 - 130	20	
1,2,3-Trichloropropane	ND	1.0	87	82	5.9				70 - 130	20	
1,2,4-Trichlorobenzene	ND	1.0	87	86	1.2				70 - 130	20	
1,2,4-Trimethylbenzene	ND	1.0	92	92	0.0				70 - 130	20	
1,2-Dibromo-3-chloropropane	ND	1.0	91	87	4.5				70 - 130	20	
1,2-Dibromoethane	ND	1.0	87	84	3.5				70 - 130	20	
1,2-Dichlorobenzene	ND	1.0	87	87	0.0				70 - 130	20	
1,2-Dichloroethane	ND	1.0	88	86	2.3				70 - 130	20	
1,2-Dichloropropane	ND	1.0	87	86	1.2				70 - 130	20	
1,3,5-Trimethylbenzene	ND	1.0	91	89	2.2				70 - 130	20	
1,3-Dichlorobenzene	ND	1.0	93	90	3.3				70 - 130	20	
1,3-Dichloropropane	ND	1.0	90	89	1.1				70 - 130	20	
1,4-Dichlorobenzene	ND	1.0	89	88	1.1				70 - 130	20	
1,4-dioxane	ND	100	109	110	0.9				40 - 160	30	
2,2-Dichloropropane	ND	1.0	89	91	2.2				70 - 130	20	
2-Chlorotoluene	ND	1.0	90	90	0.0				70 - 130	20	
2-Hexanone	ND	5.0	85	82	3.6				40 - 160	30	

QA/QC Data

SDG I.D.: GCH26131

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
2-Isopropyltoluene	ND	1.0	90	89	1.1				70 - 130	20
4-Chlorotoluene	ND	1.0	88	89	1.1				70 - 130	20
4-Methyl-2-pentanone	ND	5.0	86	84	2.4				40 - 160	30
Acetone	ND	5.0	90	88	2.2				40 - 160	30
Acrylonitrile	ND	5.0	87	87	0.0				70 - 130	20
Benzene	ND	0.70	88	86	2.3				70 - 130	20
Bromobenzene	ND	1.0	87	87	0.0				70 - 130	20
Bromochloromethane	ND	1.0	90	92	2.2				70 - 130	20
Bromodichloromethane	ND	0.50	89	87	2.3				70 - 130	20
Bromoform	ND	1.0	88	87	1.1				70 - 130	20
Bromomethane	ND	1.0	86	87	1.2				40 - 160	30
Carbon Disulfide	ND	1.0	94	99	5.2				70 - 130	20
Carbon tetrachloride	ND	1.0	78	78	0.0				70 - 130	20
Chlorobenzene	ND	1.0	88	87	1.1				70 - 130	20
Chloroethane	ND	1.0	93	97	4.2				70 - 130	20
Chloroform	ND	1.0	90	87	3.4				70 - 130	20
Chloromethane	ND	1.0	94	94	0.0				40 - 160	30
cis-1,2-Dichloroethene	ND	1.0	82	83	1.2				70 - 130	20
cis-1,3-Dichloropropene	ND	0.40	89	84	5.8				70 - 130	20
Dibromochloromethane	ND	0.50	93	92	1.1				70 - 130	20
Dibromomethane	ND	1.0	87	85	2.3				70 - 130	20
Dichlorodifluoromethane	ND	1.0	110	110	0.0				40 - 160	30
Di-isopropyl ether	ND	1.0	90	93	3.3				70 - 130	20
Ethyl ether	ND	1.0	90	93	3.3				70 - 130	20
Ethyl tert-butyl ether	ND	1.0	91	91	0.0				70 - 130	20
Ethylbenzene	ND	1.0	89	86	3.4				70 - 130	20
Hexachlorobutadiene	ND	0.40	87	84	3.5				70 - 130	20
Isopropylbenzene	ND	1.0	91	91	0.0				70 - 130	20
m&p-Xylene	ND	1.0	93	90	3.3				70 - 130	20
Methyl ethyl ketone	ND	5.0	93	96	3.2				40 - 160	30
Methyl t-butyl ether (MTBE)	ND	1.0	119	118	0.8				70 - 130	20
Methylene chloride	ND	1.0	82	87	5.9				70 - 130	20
Naphthalene	ND	1.0	96	93	3.2				70 - 130	20
n-Butylbenzene	ND	1.0	96	91	5.3				70 - 130	20
n-Propylbenzene	ND	1.0	90	89	1.1				70 - 130	20
o-Xylene	ND	1.0	92	90	2.2				70 - 130	20
p-Isopropyltoluene	ND	1.0	95	93	2.1				70 - 130	20
sec-Butylbenzene	ND	1.0	97	95	2.1				70 - 130	20
Styrene	ND	1.0	94	93	1.1				70 - 130	20
tert-amyl methyl ether	ND	1.0	88	90	2.2				70 - 130	20
tert-Butylbenzene	ND	1.0	92	89	3.3				70 - 130	20
Tetrachloroethene	ND	1.0	84	83	1.2				70 - 130	20
Tetrahydrofuran (THF)	ND	2.5	87	80	8.4				70 - 130	20
Toluene	ND	1.0	88	87	1.1				70 - 130	20
trans-1,2-Dichloroethene	ND	1.0	87	95	8.8				70 - 130	20
trans-1,3-Dichloropropene	ND	0.40	86	87	1.2				70 - 130	20
trans-1,4-dichloro-2-butene	ND	5.0	97	97	0.0				70 - 130	20
Trichloroethene	ND	1.0	84	84	0.0				70 - 130	20
Trichlorofluoromethane	ND	1.0	86	89	3.4				70 - 130	20
Trichlorotrifluoroethane	ND	1.0	81	86	6.0				70 - 130	20
Vinyl chloride	ND	1.0	96	101	5.1				70 - 130	20
% 1,2-dichlorobenzene-d4	102	%	100	100	0.0				70 - 130	20
% Bromofluorobenzene	96	%	103	99	4.0				70 - 130	20

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
% Dibromofluoromethane	107	%	102	101	1.0				70 - 130	20
% Toluene-d8	100	%	99	100	1.0				70 - 130	20

Comment:

A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.

Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.
The RPD criteria for the LCS/LCSD is 20%,
The MS/MSD RPD criteria is listed above.

QA/QC Batch 556242 (ug/L), QC Sample No: CH27136 (CH26131)

Volatiles

1,1,1,2-Tetrachloroethane	ND	1.0	97	96	1.0				70 - 130	20
1,1,1-Trichloroethane	ND	1.0	98	92	6.3				70 - 130	20
1,1,2,2-Tetrachloroethane	ND	0.50	100	102	2.0				70 - 130	20
1,1,2-Trichloroethane	ND	1.0	96	93	3.2				70 - 130	20
1,1-Dichloroethane	ND	1.0	100	95	5.1				70 - 130	20
1,1-Dichloroethene	ND	1.0	100	93	7.3				70 - 130	20
1,1-Dichloropropene	ND	1.0	97	91	6.4				70 - 130	20
1,2,3-Trichlorobenzene	ND	1.0	100	99	1.0				70 - 130	20
1,2,3-Trichloropropane	ND	1.0	94	92	2.2				70 - 130	20
1,2,4-Trichlorobenzene	ND	1.0	98	97	1.0				70 - 130	20
1,2,4-Trimethylbenzene	ND	1.0	103	101	2.0				70 - 130	20
1,2-Dibromo-3-chloropropane	ND	1.0	99	100	1.0				70 - 130	20
1,2-Dibromoethane	ND	1.0	97	93	4.2				70 - 130	20
1,2-Dichlorobenzene	ND	1.0	98	96	2.1				70 - 130	20
1,2-Dichloroethane	ND	1.0	97	93	4.2				70 - 130	20
1,2-Dichloropropane	ND	1.0	98	92	6.3				70 - 130	20
1,3,5-Trimethylbenzene	ND	1.0	103	99	4.0				70 - 130	20
1,3-Dichlorobenzene	ND	1.0	101	99	2.0				70 - 130	20
1,3-Dichloropropane	ND	1.0	99	97	2.0				70 - 130	20
1,4-Dichlorobenzene	ND	1.0	99	98	1.0				70 - 130	20
1,4-dioxane	ND	100	119	118	0.8				40 - 160	30
2,2-Dichloropropane	ND	1.0	102	95	7.1				70 - 130	20
2-Chlorotoluene	ND	1.0	102	96	6.1				70 - 130	20
2-Hexanone	ND	5.0	96	98	2.1				40 - 160	30
2-Isopropyltoluene	ND	1.0	101	98	3.0				70 - 130	20
4-Chlorotoluene	ND	1.0	99	98	1.0				70 - 130	20
4-Methyl-2-pentanone	ND	5.0	102	98	4.0				40 - 160	30
Acetone	ND	5.0	97	95	2.1				40 - 160	30
Acrylonitrile	ND	5.0	99	97	2.0				70 - 130	20
Benzene	ND	0.70	98	92	6.3				70 - 130	20
Bromobenzene	ND	1.0	95	95	0.0				70 - 130	20
Bromochloromethane	ND	1.0	99	98	1.0				70 - 130	20
Bromodichloromethane	ND	0.50	99	93	6.3				70 - 130	20
Bromoform	ND	1.0	95	91	4.3				70 - 130	20
Bromomethane	ND	1.0	84	82	2.4				40 - 160	30
Carbon Disulfide	ND	1.0	104	98	5.9				70 - 130	20
Carbon tetrachloride	ND	1.0	88	84	4.7				70 - 130	20
Chlorobenzene	ND	1.0	98	94	4.2				70 - 130	20
Chloroethane	ND	1.0	96	94	2.1				70 - 130	20
Chloroform	ND	1.0	99	96	3.1				70 - 130	20
Chloromethane	ND	1.0	97	93	4.2				40 - 160	30
cis-1,2-Dichloroethene	ND	1.0	93	88	5.5				70 - 130	20
cis-1,3-Dichloropropene	ND	0.40	97	92	5.3				70 - 130	20

QA/QC Data

SDG I.D.: GCH26131

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Dibromochloromethane	ND	0.50	102	97	5.0				70 - 130	20	
Dibromomethane	ND	1.0	94	90	4.3				70 - 130	20	
Dichlorodifluoromethane	ND	1.0	111	106	4.6				40 - 160	30	
Di-isopropyl ether	ND	1.0	102	101	1.0				70 - 130	20	
Ethyl ether	ND	1.0	100	96	4.1				70 - 130	20	
Ethyl tert-butyl ether	ND	1.0	102	98	4.0				70 - 130	20	
Ethylbenzene	ND	1.0	101	96	5.1				70 - 130	20	
Hexachlorobutadiene	ND	0.40	97	95	2.1				70 - 130	20	
Isopropylbenzene	ND	1.0	104	100	3.9				70 - 130	20	
m&p-Xylene	ND	1.0	103	99	4.0				70 - 130	20	
Methyl ethyl ketone	ND	5.0	107	104	2.8				40 - 160	30	
Methyl t-butyl ether (MTBE)	ND	1.0	109	109	0.0				70 - 130	20	
Methylene chloride	ND	1.0	92	86	6.7				70 - 130	20	
Naphthalene	ND	1.0	108	106	1.9				70 - 130	20	
n-Butylbenzene	ND	1.0	108	104	3.8				70 - 130	20	
n-Propylbenzene	ND	1.0	102	99	3.0				70 - 130	20	
o-Xylene	ND	1.0	100	98	2.0				70 - 130	20	
p-Isopropyltoluene	ND	1.0	107	104	2.8				70 - 130	20	
sec-Butylbenzene	ND	1.0	112	110	1.8				70 - 130	20	
Styrene	ND	1.0	103	101	2.0				70 - 130	20	
tert-amyl methyl ether	ND	1.0	98	93	5.2				70 - 130	20	
tert-Butylbenzene	ND	1.0	104	101	2.9				70 - 130	20	
Tetrachloroethene	ND	1.0	100	92	8.3				70 - 130	20	
Tetrahydrofuran (THF)	ND	2.5	98	93	5.2				70 - 130	20	
Toluene	ND	1.0	100	94	6.2				70 - 130	20	
trans-1,2-Dichloroethene	ND	1.0	97	96	1.0				70 - 130	20	
trans-1,3-Dichloropropene	ND	0.40	97	94	3.1				70 - 130	20	
trans-1,4-dichloro-2-butene	ND	5.0	107	101	5.8				70 - 130	20	
Trichloroethene	ND	1.0	94	91	3.2				70 - 130	20	
Trichlorofluoromethane	ND	1.0	90	85	5.7				70 - 130	20	
Trichlorotrifluoroethane	ND	1.0	90	86	4.5				70 - 130	20	
Vinyl chloride	ND	1.0	102	96	6.1				70 - 130	20	
% 1,2-dichlorobenzene-d4	102	%	100	101	1.0				70 - 130	20	
% Bromofluorobenzene	97	%	101	98	3.0				70 - 130	20	
% Dibromofluoromethane	105	%	100	100	0.0				70 - 130	20	
% Toluene-d8	98	%	100	98	2.0				70 - 130	20	

Comment:

A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.

Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.
The RPD criteria for the LCS/LCSD is 20%,
The MS/MSD RPD criteria is listed above.

QA/QC Batch 556011 (ug/L), QC Sample No: CH26132 (CH26132)

Oxygenates

Ethanol	ND	200	110	123	11.2	116	131	12.1	70 - 130	30	m
tert-amyl methyl ether	ND	10	89	90	1.1	114	88	25.7	70 - 130	30	
tert-butyl alcohol	ND	25	101	90	11.5	123	87	34.3	70 - 130	30	r

Comment:

A blank MS/MSD was analyzed with this batch.

QA/QC Batch 556384 (ug/L), QC Sample No: CH27135 (CH26131)

Oxygenates

Ethanol	ND	200	118	121	2.5	107	117	8.9	70 - 130	30	

QA/QC Data

SDG I.D.: GCH26131

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
tert-amyl methyl ether	ND	10	99	94	5.2	96	97	1.0	70 - 130	30
tert-butyl alcohol	ND	25	109	114	4.5	102	100	2.0	70 - 130	30

Comment:

A blank MS/MSD was analyzed with this batch.

l = This parameter is outside laboratory LCS/LCSD specified recovery limits.
m = This parameter is outside laboratory MS/MSD specified recovery limits.
r = This parameter is outside laboratory RPD specified recovery limits.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference

Phyllis Shiller, Laboratory Director
January 20, 2021

Wednesday, January 20, 2021

Criteria: MA: GW1, GW2

State: MA

Sample Criteria Exceedances Report

GCH26131 - TERRA-ENV

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units
CH26131	$8260GWR	1,2-Dibromoethane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	0.50	0.02	0.02	ug/L
CH26131	$8260GWR	1,2-Dibromoethane	MA / GROUNDWATER STANDARDS / GW-1	ND	0.50	0.02	0.02	ug/L
CH26131	SB-WM	Antimony	MA / CMR 310.40.1600 / GW-1 (mg/l)	0.019	0.005	0.006	0.006	mg/L
CH26131	SB-WM	Antimony	MA / GROUNDWATER STANDARDS / GW-1	0.019	0.005	0.006	0.006	mg/L
CH26131	TCN-WM	Total Cyanide	MA / CMR 310.40.1600 / GW-1 (mg/l)	0.042	0.010	0.03	0.03	mg/L
CH26131	TCN-WM	Total Cyanide	MA / CMR 310.40.1600 / GW-2 (mg/l)	0.042	0.010	0.03	0.03	mg/L
CH26132	$8260GWR	1,2-Dibromoethane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	0.50	0.02	0.02	ug/L
CH26132	$8260GWR	1,2-Dibromoethane	MA / GROUNDWATER STANDARDS / GW-1	ND	0.50	0.02	0.02	ug/L
CH26132	$MCPADD-WM	1,4-Dioxane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	100	3	3	ug/L
CH26132	$MCPADD-WM	1,4-Dioxane	MA / GROUNDWATER STANDARDS / GW-1	ND	100	0.3	0.3	ug/L

MassDEP Analytical Protocol Certification Form

Laboratory Name: Phoenix Environmental Laboratories, Inc. **Project #:**

Project Location: BROADWAY AQUALINE **RTN:**

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

CH26131, CH26132

Matrices: ☑ Groundwater/Surface Water ☐ Soil/Sediment ☐ Drinking Water ☐ Air ☐ Other:

CAM Protocol (check all that apply below)

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 V1 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 with method holding times? (* see narrative)	☑ 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 speified 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)? (refer to the individual method(s) for a list of significant modifications). 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 is required for "Presumptive Certainty" status

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

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? See Sections: PCB, SVOA, SVOASIM Narrations .	☐ Yes ☑ No
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☐ Yes ☑ No

All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Authorized Signature: Rashmi Makol

Date: Wednesday, January 20, 2021

Printed Name: Rashmi Makol

Position: Project Manager

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ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

MCP Certification Report

January 20, 2021

SDG I.D.: GCH26131

SDG Comments

Metals Analysis:
The client requested a shorter list of elements than the 6010 MCP list.

8260 Analysis:
1,2-Dibromoethane doesn't meet GW-1 criteria, this compound is analyzed by GC/FID to achieve this criteria.

1,4-Dioxane doesn't meet GW-1 criteria, this compound is analyzed by 8270SIM to achieve this criteria.

Phoenix reporting levels may exceed those referenced in the CAM protocol. Please refer to criteria sheet for comparisons to requested MCP standards

504.1

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

CHEM35 12/15/20-1 Chelsey Guerette, Chemist 12/15/20

CH26131 (1X)

The initial calibration (CHEM35/504tcp_1214): RSD for the compound list was less than 20% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 15% except for the following compounds:None.

QC (Batch Specific):

Batch 556554 (CH30505)

CH26131

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 25% with the following exceptions: None.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Cyanide Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

LACHAT 12/10/20-1 Linnea Skoglund, Chemist 12/10/20

CH26131

The samples were distilled in accordance with the method.
The initial calibration met criteria.

The calibration check standards (ICV,CCV) were within 15% of true value and were analyzed at a frequencey of one per ten samples.
The continuing calibration blanks (ICB,CCB) had concentrations less than the reporting level.

The method blank, laboratory control sample (LCS), and matrix spike were distilled with the samples.

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MCP Certification Report

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SDG I.D.: GCH26131

Cyanide Narration

QC (Batch Specific):

Batch 556071 (CH27752)

CH26131

All LCS recoveries were within 90 - 110 with the following exceptions: None.
Additional soil criteria LCS acceptance range is 80-120% MS acceptance range 75-125%.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Hexavalent Chromium (Aqueous)

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

BECKMAN DU720 12/07/20-1 Meredith Weigert, Chemist 12/07/20

CH26131

The initial calibration met all criteria including a standard run at the reporting level.
All calibration verification standards (ICV, CCV) met criteria.
All calibration blank verification standards (ICB, CCB) met criteria.

QC (Batch Specific):

Batch 555736 (CH26179)

CH26131

All LCS recoveries were within 90 - 110 with the following exceptions: None.
Additional Hexavalent Chromium criteria: LCS acceptance range for waters is 90-110% and MS acceptance range is 85-115%.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Mercury Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

Instrument:

MERLIN 12/09/20 07:56 Rick Schweitzer, Chemist 12/09/20

CH26131

The method preparation blank, ICB, and CCBs contain all of the acids and reagents as the samples.
The initial calibration met all criteria including a standard run at or below the reporting level.
All calibration verification standards (ICV, CCV) met criteria.
All calibration blank verification standards (ICB, CCB) met criteria.
The matrix spike sample is used to identify spectral interference for each batch of samples, if within 85-115%, no interference is observed and no further action is taken.

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SDG I.D.: GCH26131

Mercury Narration

The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.

QC (Batch Specific):

Batch 555953 (CH27181)

CH26131

All LCS recoveries were within 75 - 125 with the following exceptions: None.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 75-125%

IC

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

IC 12/14/20-1 Brian Sheriden, Greg Danielewski, Chemist 12/14/20

CH26131

The initial calibration met all criteria including a standard run at the reporting level.
All method verification standards and blanks met criteria.

QC (Batch Specific):

Batch 556778 (CH29032)

CH26131

All LCS recoveries were within 90 - 110 with the following exceptions: None.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

ICP Metals Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

Instrument:

BLUE 12/11/20 09:47 Tina Hall, Chemist 12/11/20

CH26131

The initial calibration met criteria.
The continuing calibration standards met criteria for all the elements reported. The linear range is defined daily by the calibration range.
The continuing calibration blanks were less than the reporting level for the elements reported.
The ICSA and ICSAB were analyzed at the beginning and end of the run and were within criteria.The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

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Certification Report

January 20, 2021

SDG I.D.: GCH26131

ICP Metals Narration

QC (Batch Specific):

Batch 556034 (CH27181)

CH26131

All LCS recoveries were within 80 - 120 with the following exceptions: None.
All LCSD recoveries were within 80 - 120 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
Additional: LCS acceptance range is 80-120% MS acceptance range 75-125%.

NITROGEN

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

LACHAT 12/10/20-1 Kandi Della Bella, Chemist 12/10/20

CH26131

The initial calibration met all criteria including a standard run at the reporting level.
All method verification standards and blanks met criteria.

QC (Batch Specific):

Batch 555989 (CH24993)

CH26131

All LCS recoveries were within 85 - 115 with the following exceptions: None.
Additional criteria: LCS acceptance range for waters is 85-115% and for soils is 75-125%. MS acceptance range is 75-125%.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

PCB Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? No.

QC Batch 555733 (Samples: CH26131): -----

The LCS/LCSD RPD exceeds the method criteria for one or more analytes, but these analytes were not reported in the sample(s) so no variability is suspected. (PCB-1260)

The LCS/LCSD RPD exceeds the method criteria for one or more surrogates, therefore there may be variability in the reported result. (% DCBP (Surrogate Rec), % DCBP (Surrogate Rec) (Confirmation))

Instrument:

AU-ECD29 12/08/20-1 Saadia Chudary, Chemist 12/08/20

CH26131 (1X)

The initial calibration (PC1201AI) RSD for the compound list was less than 20% except for the following compounds: None.
The initial calibration (PC1201BI) RSD for the compound list was less than 20% except for the following compounds: None.

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MCP Certification Report

January 20, 2021

SDG I.D.: GCH26131

PCB Narration

The continuing calibration %D for the compound list was less than 15% except for the following compounds:None.

QC (Batch Specific):

Batch 555733 (CH25816)

CH26131

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: % DCBP (Surrogate Rec)(37.6%), % DCBP (Surrogate Rec) (Confirmation)(37.0%), PCB-1260(30.2%)

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

PHENOLS

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

LACHAT 12/08/20-1 Ashley Griffith, Chemist 12/08/20

CH26131

The initial calibration met all criteria including a standard run at the reporting level.
All method verification standards and blanks met criteria.

QC (Batch Specific):

Batch 555779 (CH26179)

CH26131

All LCS recoveries were within 90 - 110 with the following exceptions: None.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

SVOA Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? No.

QC Batch 556237 (Samples: CH26131): -----

One or more analytes is below the method criteria. A low bias for these analytes is possible. (Benzoic acid, Phenol)

Instrument:

CHEM07 12/11/20-1 Wes Bryon, Chemist 12/11/20

CH26131 (1X)

For 8270 full list, the DDT breakdown and pentachlorophenol & benzidine peak tailing were evaluated in the DFTPP tune and were found to be in control.

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MCP Certification Report

January 20, 2021

SDG I.D.: GCH26131

SVOA Narration

For 8270 BN list, benzidine peak tailing was evaluated in the DFTPP tune and was found to be in control.

Initial Calibration Evaluation (CHEM07/7_SPLIT_1210):
99% of target compounds met criteria.
The following compounds had %RSDs >20%: 4-Nitroaniline 24% (20%)
The following compounds did not meet recommended response factors: 2-Nitrophenol 0.033 (0.1)
The following compounds did not meet a minimum response factors: 2-Nitrophenol 0.033 (0.05)

Continuing Calibration Verification (CHEM07/1211_03-7_SPLIT_1210) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
98% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: 2-Nitrophenol 0.034 (0.1)
The following compounds did not meet minimum response factors: 2-Nitrophenol 0.033 (0.05)

QC (Batch Specific):

Batch 556237 (CH26131)

CH26131

All LCS recoveries were within 40 - 140 with the following exceptions: Benzoic acid(11%), Phenol(25%)
All LCSD recoveries were within 40 - 140 with the following exceptions: Benzoic acid(<10%), Phenol(27%)
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.
Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

SVOA-Dioxane

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

CHEM22 12/09/20-1 Adam Werner, Chemist 12/09/20

CH26131 (1X)

Initial Calibration Evaluation (CHEM22/DIOX_1203):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM22/1209_06-DIOX_1203) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.

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MCP Certification Report

January 20, 2021

SDG I.D.: GCH26131

SVOA-Dioxane

The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 555862 (CH25415)

CH26131

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

SVOASIM Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? No.

QC Batch 556237 (Samples: CH26131): -----

One or more analytes is below the method criteria. A low bias for these analytes is possible. (N-Nitrosodimethylamine, Pyridine)

The LCS/LCSD RPD exceeds the method criteria for one or more analytes, but these analytes were not reported in the sample(s) so no variability is suspected. (Hexachlorocyclopentadiene)

Instrument:

CHEM25 12/10/20-2 Matt Richard, Chemist 12/10/20

CH26131 (1X, 10X)

For 8270 BN list, benzidine peak tailing was evaluated in the DFTPP tune and was found to be in control.

Initial Calibration Evaluation (CHEM25/25_SIM18_1002):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM25/1210_34-25_SIM18_1002) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
97% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 556237 (CH26131)

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MCP Certification Report

January 20, 2021

SDG I.D.: GCH26131

SVOASIM Narration

CH26131

All LCS recoveries were within 40 - 140 with the following exceptions: N-Nitrosodimethylamine(30%), Pyridine(36%)
All LCSD recoveries were within 40 - 140 with the following exceptions: N-Nitrosodimethylamine(34%), Pyridine(32%)
All LCS/LCSD RPDs were less than 20% with the following exceptions: Hexachlorocyclopentadiene(20.8%)
A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.
Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

VOA Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

CHEM23 12/08/20-1 Michael Hahn, Chemist 12/08/20

CH26132 (1X)

Initial Calibration Evaluation (CHEM23/VOA23_120720):
98% of target compounds met criteria.
The following compounds had %RSDs >20%: Bromomethane 26% (20%)
The following compounds did not meet Table 4 recommended minimum response factors: Acetone 0.098 (0.1)
The following compounds did not meet the minimum response factor of 0.05: None.

Continuing Calibration Verification (CHEM23/1208_02-VOA23_120720) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet Table 4 recommended minimum response factors: None.
The following compounds did not meet the minimum MCP response factor of 0.05: None.

CHEM23 12/09/20-1 Michael Hahn, Chemist 12/09/20

CH26131 (1X)

Initial Calibration Evaluation (CHEM23/VOA23_120720):
98% of target compounds met criteria.
The following compounds had %RSDs >20%: Bromomethane 26% (20%)
The following compounds did not meet Table 4 recommended minimum response factors: Acetone 0.098 (0.1)
The following compounds did not meet the minimum response factor of 0.05: None.

Continuing Calibration Verification (CHEM23/1209_03-VOA23_120720) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
99% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet Table 4 recommended minimum response factors: Acetone 0.099 (0.1)
The following compounds did not meet the minimum MCP response factor of 0.05: None.

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MCP Certification Report

January 20, 2021

SDG I.D.: GCH26131

VOA Narration

QC (Batch Specific):

Batch 556010 (CH26132) CHEM23 12/8/2020-1

CH26132(1X)

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.
Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.
The RPD criteria for the LCS/LCSD is 20%,
The MS/MSD RPD criteria is listed above.

Batch 556242 (CH27136) CHEM23 12/9/2020-1

CH26131(1X)

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.
Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.
The RPD criteria for the LCS/LCSD is 20%,
The MS/MSD RPD criteria is listed above.

We attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

VOA-OXY Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

CHEM23 12/08/20-1 Michael Hahn, Chemist 12/08/20

CH26132 (1X)

Initial Calibration Evaluation (CHEM23/OXY120720):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM23/1208_02-OXY120720) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

CHEM23 12/09/20-1 Michael Hahn, Chemist 12/09/20

CH26131 (1X)

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MCP Certification Report

January 20, 2021

SDG I.D.: GCH26131

VOA-OXY Narration

Initial Calibration Evaluation (CHEM23/OXY120720):
100% of target compounds met criteria.
The following compounds had %RSDs >20%: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM23/1209_02-OXY120720) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
100% of target compounds met criteria.
The following compounds did not meet % deviation criteria: None.
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 556011 (CH26132) CHEM23 12/8/2020-1

CH26132(1X)

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
A blank MS/MSD was analyzed with this batch.

Batch 556384 (CH27135) CHEM23 12/9/2020-1

CH26131(1X)

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
A blank MS/MSD was analyzed with this batch.

We attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Cooler: Yes ☐ No ☐
Coolant: IPK ☐ ICE ☐ No ☐

CHAIN OF CUSTODY RECORD

Temp 2 - 0 °C Pg of

PHOENIX
Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email: info@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-8726

Data Delivery/Contact Options:
☐ Fax:
☐ Phone:
☐ Email:

Customer: Terra environmental
Address: 159 Haven ST
Reading, MA
01867

Project: Broadway Aqualine
Report to: Terra
Invoice to: Terra
QUOTE #

Project P.O: 20-111

This section MUST be completed with Bottle Quantities.

Sampler's Signature: [signature] Date: 12/7/20

Client Sample - Information - Identification

Matrix Code:
DW=Drinking Water **GW**=Ground Water **SW**=Surface Water **WW**=Waste Water
RW=Raw Water **SE**=Sediment **SL**=Sludge **S**=Soil **SD**=Solid **W**=Wipe **OIL**=Oil
B=Bulk **L**=Liquid **X** = _____(Other)

Analysis Request

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	NPDES EGP Phase I	MS/MSD *	GL Amber 8 oz. w/H3PO4	Soil VOA Vials [ ] methanol [ ] H2O	GL Soil container ( ) oz	GL Soil container ( ) oz	40 ml VOA Vial [2] As is [2] HCL	GL Amber 1000ml [2] As is [1] H2SO4	PL As is [ ] 250ml [ ] 500ml [ ] 1000ml	PL H2SO4 [ ] 250ml [ ] 500ml	PL HNO3 250ml	PL NaOH 250ml	Bacteria Bottle w/thio	Bacteria Bottle as is
20131	MW103B	GW	12/7	0900	X	X							4	3				
20132	TRIP BLANK												2					

Relinquished by:	Accepted by:	Date:	Time:
[signature]	[signature]	12-7-20	12:05
[signature]	[signature]	12/7/20	14:43

Comments, Special Requirements or Regulations:

**MS/MSD are considered site samples and will be billed as such in accordance with the prices quoted.*

Turnaround Time:
☐ 1 Day*
☐ 2 Days*
☐ 3 Days*
☒ Standard
☐ Other
*** SURCHARGE APPLIES**

RI
☐ (Residential) Direct Exposure
☐ (Comm/Industrial) Direct Exposure
☐ GA Leachability
☐ GB Leachability
☐ GA-GW Objectives
☐ GB-GW Objectives

CT
☐ RCP Cert
☐ GW Protection
☐ SW Protection
☐ GA Mobility
☐ GB Mobility
☐ Residential DEC
☐ I/C DEC
☐ Other

MA
☒ MCP Certification
☒ GW-1 ☐ MWRA eSMART
☒ GW-2 ☐ S-1 10% CALC
☐ GW-3
☐ S-1 GW-1 ☐ S-1 GW-2 ☐ S-1 GW-3
☐ S-2 GW-1 ☐ S-2 GW-2 ☐ S-2 GW-3
☐ S-3 GW-1 ☐ S-3 GW-2 ☐ S-3 GW-3
☐ SW Protection

State where samples were collected: MA

Data Format
☒ Excel
☒ PDF
☐ GIS/Key
☐ EQuIS
☐ Other

Data Package
☐ Tier II Checklist
☐ Full Data Package*
☐ Phoenix Std Report
☐ Other

*** SURCHARGE APPLIES**

PEL-126 REV. 06/20

APPENDIX E

BEST MANAGEMENT PLAN

A Notice of Intent for a Remediation General Permit (RGP) under the National Pollutant Discharge Elimination System (NPDES) has been submitted to the U.S. Environmental Protection Agency (EPA) in anticipation of temporary construction dewatering that will occur during the Broadway Water and Sewer Improvements Project in Chelsea, Massachusetts. This Best Management Practices Plan (BMPP) has been prepared as an Appendix to the RGP and will be posted at the site during the time period that temporary construction dewatering is occurring at the site.

Water Treatment and Management

During construction of the proposed utility improvements, dewatering effluent is anticipated to be pumped from localized sumps and trenches within the excavation directly into a settling tank. The effluent will then flow through the necessary treatment systems and discharge through felt sediment bags into an on-Site drainage basin. Dewatering effluent treatment will consist of a settling tank and felt sediment bags to remove suspended soil particulates. If further treatment is necessary, effluent discharge will be passed through ion resin media vessels prior to on-Site discharge to lower concentrations of metals below applicable TBELs. pH adjustment will be conducted, if necessary, through the addition of hydrochloric acid, caustic soda, or carbon dioxide.

Discharge Monitoring and Compliance

Sampling and testing will be conducted at the influent to the system and the treated effluent as required by the RGP. During the first week of discharge, the operator must sample the untreated influent and treated effluent two times: one (1) sample of untreated influent and one (1) sample of treated effluent be collected on the first day of discharge, and one (1) sample of untreated influent and one (1) sample of treated effluent must be collected on one additional non-consecutive day within the first week of discharge. Samples must be analyzed in accordance with 40 CFR §136 unless otherwise specified by the RGP, with a maximum 5-day turnaround time and results must be reviewed no more than 48 hours from receipt of the results of each sampling event. After the first week, samples may be analyzed with up to a ten (10)-day turnaround time and results must be reviewed no more than 72 hours from receipt of the results. If the treatment system is operating as designed and achieving the effluent limitations outlined in the RGP, on-going sampling shall be conducted weekly for three (3) additional weeks beginning no earlier than 24 hours following initial sampling, and monthly as described below. Any adjustments/reductions in monitoring frequency must be approved by EPA in writing.

In accordance with Part 4.1 of the RGP, the operator will perform routine monthly monitoring for both influent and effluent beginning no more than 30 days following the completion of the sampling requirements for new discharges or discharges that have been interrupted. The routine monthly monitoring is to be conducted through the end of the scheduled discharge. The routine monthly monitoring must continue for five (5) consecutive months prior to submission of any request for modification of monitoring frequency.

Dewatering activity for the Site is classified as Category III-G: Sites with Known Contamination. Monitoring shall include analysis of influent and effluent for contaminates specified by the EPA.

Monitoring will include checking the condition of the treatment system, assessing the need for treatment system adjustments based on monitoring data, observing, and recording daily flow rates and discharge quantities, and verifying the flow path of the discharged effluent. The total monthly flow will be monitored by checking and documenting the flow through the flow meter to be installed on the system. Flow will be maintained below the "system design flow" by regularly monitoring flow and adjusting the amount of construction dewatering as needed. Monthly monitoring reports will be compiled and maintained at the site.

System Maintenance

Schedule regular maintenance and periodic cleaning of the treatment system will be conducted to verify proper operation and shall be conducted in accordance with the project earthwork specifications. Regular maintenance will include checking the condition of the treatment system equipment such as the settling tanks, bag filters, hoses, pumps, and flow meters. Equipment will be monitored daily for potential issues and unscheduled maintenance requirements.

Employees who have direct or indirect responsibility for ensuring compliance with the RGP will be trained by the Contractor.

Miscellaneous Items

It is anticipated that the erosion control measures and the nature of the site will minimize potential runoff to or from the site. The project specifications also include requirements for erosion control. Site security for the treatment system will be addressed within the overall site security plan.

No adverse effects on designated uses of surrounding surface water bodies are anticipated. The nearest surface water body is Mill Creek which is adjacent to the south west extent of the Project Site. Dewatering effluent will be pumped into a settling tank. Water within the settling tank will pumped through felt sediment bags and, if necessary, ion exchange chambers prior to discharge into the storm drains.

Management of Treatment System Materials

Dewatering effluent will be pumped directly into the treatment system from the excavation with use of hoses and localized sumps to minimize handling. The Contractor will establish staging areas for equipment or materials storage that may be possible sources of pollution away from any dewatering activities, to the extent practicable.

Sediment from the tank used in the treatment system will be characterized and removed from the Site to an appropriate receiving facility, in accordance with applicable laws and regulations. Bags will be replaced/disposed of as necessary.