2019
Periodic Review Report
Former Davis-Howland Oil Corporation Site
NYSDEC Site No. 8-28-088
City of Rochester
Monroe County, New York

March 2020

Prepared for:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DEPARTMENT OF ENVIRONMENTAL REMEDIATION
625 Broadway, 12th FLOOR
Albany, New York 12233-7013

Prepared by:

ECOLOGY AND ENVIRONMENT ENGINEERING AND GEOLOGY, P.C.
368 Pleasant View Drive
Lancaster, New York 14086

Table of Contents

Table of Contents (cont.)

List of Tables

List of Figures

Figure **Page**

List of Abbreviations and Acronyms

AOC	area of concern
AS	air sparge
BTEX	benzene, toluene, ethyl benzene, and xylene
cis-1,2-DCE	cis-1,2-dichloroethylene
cVOC	chlorinated aliphatic (straight-chained) volatile organic compound
DHOC	Former Davis-Howland Oil Corporation Site
DUSR	Data Usability Summary Report
E & E	Ecology and Environment Engineering and Geology, P.C., in association with Ecology and Environment, Inc., member of WSP
EEEPC	Ecology and Environment Engineering, P.C.
EC	Engineering Controls
EPA	(United States) Environmental Protection Agency
HDPE	high-density polyethylene
IC	institutional controls
IDW	investigation-derived waste
µg/L	micrograms per liter
MS/MSD	matrix spike/matrix spike duplicate
NYCRR	New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
O&M	operations and management
OM&M	operations, maintenance, and monitoring
PCE	perchloroethylene or tetrachloroethylene
PPE	personal protective equipment
PRR	Periodic Review Report
QA/QC	quality assurance/quality control
ROD	record of decision

List of Abbreviations and Acronyms (cont.)

RSO	Remedial Site Optimization
SCG	standards, criteria, and guidance value
Site	former Davis-Howland Oil Corporation (DHOC) Remediation Site
SMP	Site Management Plan
SSD	sub-slab depressurization
SVE	soil vapor extraction
TCE	trichloroethene
VOC	volatile organic compound

Enclosure 1

Engineering Controls – Engineering Standby Contractor Certification Form

Former Davis-Howland Oil Corporation Site
NYSDEC Site No. 8-28-088

Enclosure 1
Engineering Controls - Standby Consultant/Contractor Certification Form

Site Details **Box 1**

Site No. 828088

Site Name Davis-Howland Oil Corporation

Site Address: 200 ANDERSON AVENUE Zip Code: 14607
City/Town: Rochester
County: Monroe
Site Acreage: 2.0

Reporting Period: December 31, 2018 to December 31, 2019

	YES	NO
1. Is the information above correct?	X	
If NO, include handwritten above or on a separate sheet.		
2. To your knowledge has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?		X
3. To your knowledge has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?	X	

During groundwater sampling in October 2019, E&E noted furniture in the building located at 190 Anderson Ave. On a call with E&E on 12-2-2019, the owner, Tom Gangemi, confirmed that the tenant is a furniture repair business. E&E reported this information to NYSDEC in an email dated 12-2-2019.

4. To your knowledge have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?	X	

County of Monroe discharge permit is attached.

If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.

5. To your knowledge is the site currently undergoing development?		X

Box 2

	YES	NO
6. Is the current site use consistent with the use(s) listed below? Restricted-Residential, Commercial, and Industrial	X	
7. Are all ICs/ECs in place and functioning as designed?	X	

E&E's ICs/ECs certification does not include the sub-slab depressurization systems (SSDSs). Pursuant to the 2017 Consent Orders, the Department has no obligation to maintain the SSDS in each building; therefore, E&E cannot, and does not, certify that the vapor mitigation systems are in place and functioning as designed.

IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and contact the DEC PM regarding the development of a Corrective Measures Work Plan to address these issues.

Signature of Standby Consultant/Contractor Date

SITE NO. 828088 **Box 3**

Description of Institutional Controls

Parcel	Owner	Institutional Control
106.84-1-11	Goodman Yard LLC	
		Soil Management Plan Monitoring Plan Site Management Plan O&M Plan

The site has two records of decision (RODs) dating from March 1997 and March 1998.

106.84-1-4.002	Gary I & Marcia Stern	
		Soil Management Plan Monitoring Plan Site Management Plan O&M Plan

The site has two records of decision (RODs) dating from March 1997 and March 1998.

106.84-1-5	John Nacca, Esq.	
		Soil Management Plan Site Management Plan O&M Plan
		Ground Water Use Restriction Landuse Restriction Monitoring Plan IC/EC Plan

An Environmental Easement was signed on 5/11/2018. The Controls requires:

No disturbance that threatens the integrity of the Engineering controls, no disturbance of the engineering controls, adherence to the Site Management Plan, allowance of access by the NYSDEC, land use is to be used for industrial use only, and no groundwater water is to be used for drinking wate unless properly treated.

106.84-1-6	John Nacca	
		Ground Water Use Restriction Landuse Restriction IC/EC Plan
		Monitoring Plan Site Management Plan

An Environmental Easement was signed on 5/11/2018. The Controls requires:

No disturbance that threatens the integrity of the Engineering controls, no distrubance of the engineering controls, adherence to the Site Management Plan, allowance of access by the NYSDEC, land use is to be used for industrial use only, and no groundwater water is to be used for drinking wate unless properly treated.

106.84-1-7	Anderson Acquisitions, llc	
		Soil Management Plan Site Management Plan O&M Plan
		Ground Water Use Restriction Landuse Restriction Monitoring Plan IC/EC Plan

Environmental Easement originally signed on July 27, 2017. Updated on Feb. 4, 2019.

107.77-1-28.1 New York Central Lines, CSXT

The site has two records of decision (RODs) dating from March 1997 and March 1998.

121.28-2-4 Allan Stern

Monitoring Plan
Site Management Plan
O&M Plan

The site has two records of decision (RODs) dating from March 1997 and March 1998.

121.28-2-5 Allan Stern

Monitoring Plan
Site Management Plan
O&M Plan

The site has two records of decision (RODs) dating from March 1997 and March 1998.

Box 4

Description of Engineering Controls

Parcel	Engineering Control

106.84-1-11

Monitoring Wells

In 2018, it was shown that the groundwater treatment system and the air sparge/soil vapor extraction system had reached their performance limits whereby they were no longer cleaning up the groundwater. The treatme systems were shutdown and decommissioned in 2018. Groundwater monitoring wells are the only remaining engineering control.

106.84-1-4.002

Monitoring Wells

In 2018, it was shown that the groundwater treatment system and the air sparge/soil vapor extraction system had reached their performance limits whereby they were no longer cleaning up the groundwater. The treatme systems were shutdown and decommissioned in 2018. Groundwater monitoring wells are the only remaining engineering control.

106.84-1-5

Vapor Mitigation

A sub-slab depressurization system is the only remaining engineering control.

106.84-1-6

Vapor Mitigation
Monitoring Wells

Groundwater monitoring wells and a sub-slab depressurization system are the only remaining engineering control.

106.84-1-7

Vapor Mitigation

A sub-slab depressurization system is the only remaining engineering control.

107.77-1-28.1

Monitoring Wells

In 2018, it was shown that the groundwater treatment system and the air sparge/soil vapor extraction system had reached their performance limits whereby they were no longer cleaning up the groundwater. The treatme systems were shutdown and decommissioned in 2018. Groundwater monitoring wells and piezometers are th only remaining engineering control.

121.28-2-5

Monitoring Wells

Monitoring wells are the only engineering control on this property.

Box 5

Periodic Review Report (PRR) Certification Statements

1. I certify by checking "YES" below that:

   a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the certification, including data and material prepared by previous contractors for the current certifying period, if any;

   b) to the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and the information presented is accurate and compete.

YES	NO
X	☐

2. If this site has an IC/EC Plan (or equivalent as required in the Decision Document), for each Institutional or Engineering control listed in Boxes 3 and/or 4, I certify by checking "YES" below that all of the following statements are true:

   (a) the Institutional Control and/or Engineering Control(s) employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

   (b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;

   (c) nothing has occurred that would constitute a failure to comply with the Site Management Plan, or equivalent if no Site Management Plan exists.

E&E's ICs/ECs certification does not include the sub-slab depressurization systems (SSDSs). Pursuant to the 2017 Consent Orders, the Department has no obligation to maintain the SSDS in each building; therefore, E&E cannot, and does not, certify that the vapor mitigation systems are in place and functioning as designed.

YES	NO
X	☐

IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and contact the DEC PM regarding the development of a Corrective Measures Work Plan to address these issues.

_____ _____

Signature of Standby Consultant/Contractor Date

Box 6

IC/EC CERTIFICATIONS

Professional Engineer Signature

I certify that all information in Boxes 2 through 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I David P. Albers at Ecology and Environment Engineering and Geology, P.C.
print name

368 Pleasant View Drive

Lancaster, NY 14086,
(print business address)

2-6-2020

Signature of Professional Engineer | Stamp (Required for PE) | Date

CR# 01000 1-188

COUNTY OF MONROE
SEWER USE PERMIT RENEWAL

Firm Name:	NYSDEC Division of Environmental Remediation 200 Anderson (Davis Howland)Avenue	Permit Number: Fee: Expires:	IWC-864 $ 75.00 May 31, 2022
Mailing Addr:	625 Broadway, 12th Floor Albany, NY 12233-7013	W/C Expire: District No:	~~N/A~~ 9/1/2020 8575
Business Type:	Pretreatment		

Has there been any revision to the plant sewer system or any change in industrial wastes discharged to the public sewer in the past twelve months

Yes: __ No: X If yes, please explain in a separate letter.

Average monthly consumption for the past twelve (12) months:

Water Account No.(s) N/A (cu ft/gal) N/A

In consideration of the granting of this renewal permit the undersigned agrees to comply with all the requirements in the Initial Permit as listed under II.

Name of person to be contacted for inspection & sampling purposes:

Jill Gulczewski

Type or Print: Ecology and Environment Phone No: 716-684-8060

YOUR PERMIT MUST BE SIGNED AS FOLLOWS:

1. For a corporation: by a responsible corporate officer. A corporate officer means:
   (a) A president, secretary, treasurer or vice - president of the corporation in charge of a principal business function, or any other person who performs similar policy - or decision - making functions for the corporation: or
   (b) The manager of one or more manufacturing, production, or operation facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second - quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

2. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

3. By a duly authorized representative of the individual designated in items (1) or (2) above if:

   (a) The authorization is made in writing by the individual described in items (1) or (2);
   (b) The authorization specifies either an individual or a position having responsibility for the overall operation of the facility from which the Industrial Discharge originates such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company; (A duly authorized representative may thus be either a named individual or any individual occupying named position), and
   (c) The written authorization is submitted to this Department.

Print or Type: Jenelle Gaylord Phone No: 518-402-9813

Signature: [signature] Date: 9/27/19

Title: NYSDEC Project Manager

Renewal Approved by: [signature] Issued this 24 day of Oct 2019

Michael J. Garland, P.E.
Director of Environmental Services-PureWaters
Monroe County

1 Introduction and Background

1.1 Introduction

This Periodic Review Report (PRR) provides information on the operations, maintenance, monitoring, compliance, operating costs, and active treatment system decommissioning at the former Davis-Howland Oil Corporation (DHOC) Remediation Site (hereinafter referred to as the "Site") during calendar year 2019. This PRR also provides information concerning the institutional controls (ICs) and engineering controls (ECs) facilitating the remedial cleanup of the Site.

This PRR was prepared by Ecology and Environment Engineering and Geology, P.C., in association with Ecology and Environment, Inc., member of WSP (hereafter collectively referred to as E & E) in accordance with the requirements in the *Site Management Plan, Former Davis-Howland Oil Corporation Site, NYSDEC Site No. 8-28-088* (Ecology and Environment Engineering, P.C. [EEEPC] 2014).

1.2 Site Description

The Site was used from 1942 to 1972 to produce industrial chemicals, oils, greases, and other lubricants. From 1972 to 1994, the Site was used by DHOC to process and recycle waste oil, grease, and other lubricants. In 1994, DHOC closed and manufacturing and product-processing operations ceased.

Between 1974 and the early 1990s, NYSDEC received reports of releases of materials at the Site, including waste oil, mineral oil, hydrochloric acid, and sulfuric acid. However, no single incident has been identified that can account for a majority of the contamination found at the Site. NYSDEC inspected the Site in June 1991 and found several hundred drums of oils, solvents, and other materials. Some of the drums were leaking, and several areas with stained surficial soil were identified.

In 1993, the Site was listed on the New York State Inactive Hazardous Waste Disposal Site Remedial Program Registry as a Class 2 Site. The Site was defined as a single parcel (ID No. 106.84-1-6) located at 192 through 200 Anderson Avenue in the city of Rochester, Monroe County, New York (see Figure 1-1). Documentation in NYSDEC's Environmental Site Remediation Database defines the Site as encompassing the parcels described as 190 through 220 Anderson Avenue and the portion of 176 Anderson Avenue immediately north and west of 190 through 220 Anderson Avenue. After site boundary modifications in 2017, the site now

includes these additional parcels: 183 through 185 Anderson Avenue, 188 Anderson Avenue, 15 through 17 Norwood Avenue, 360 North Goodman, and 406 Atlantic Avenue.

Remedial actions have been performed and remedial systems (AS/SVE and groundwater treatment systems) were installed at the Site, specifically at the parcel located at 192 through 200 Anderson Avenue, the adjacent parcels at 190 and 220 Anderson Avenue, the portion of 176 Anderson Avenue immediately north and west of 190 through 220 Anderson Avenue, a portion of the CSX Railroad right-of-way to the north of 188 Anderson Avenue, and a small area south of Anderson Avenue encompassing the northern portions of 183 through 185 Anderson Avenue and 15 through 17 Norwood Avenue.

In 2018, the groundwater treatment and AS/SVE systems were decommissioned and sub-slab depressurization (SSD) systems were installed at 190 Anderson Avenue, 192 through 200 Anderson Avenue, and 220 Anderson Avenue. These SSD systems were intended to mitigate potential sub-slab soil vapors that may enter each building via soil vapor intrusion, while also reducing operation costs by switching from AS/SVE systems to SSD systems. These SSD systems were installed between August 6 and August 13, 2018, in accordance with the *NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York* dated October 2006, as well as subsequent updates and the SSD system Work Plan dated April 2018. Following installation, indoor and outdoor air sampling was performed on December 11, 2018. These samples did not detect volatile organic compound (VOC) concentrations in indoor air that exceed the NYSDOH Air Guidance Values nor the United States Environmental Protection Agency (EPA) Building Assessment and Survey Evaluation Database 90th percentile values.

The approximately 2-acre Site is located in an area that includes residences and commercial and industrial facilities. Figure 1-2 presents the general Site layout following decommissioning of the treatment systems. No significant surface water is located in the immediate vicinity of the Site.

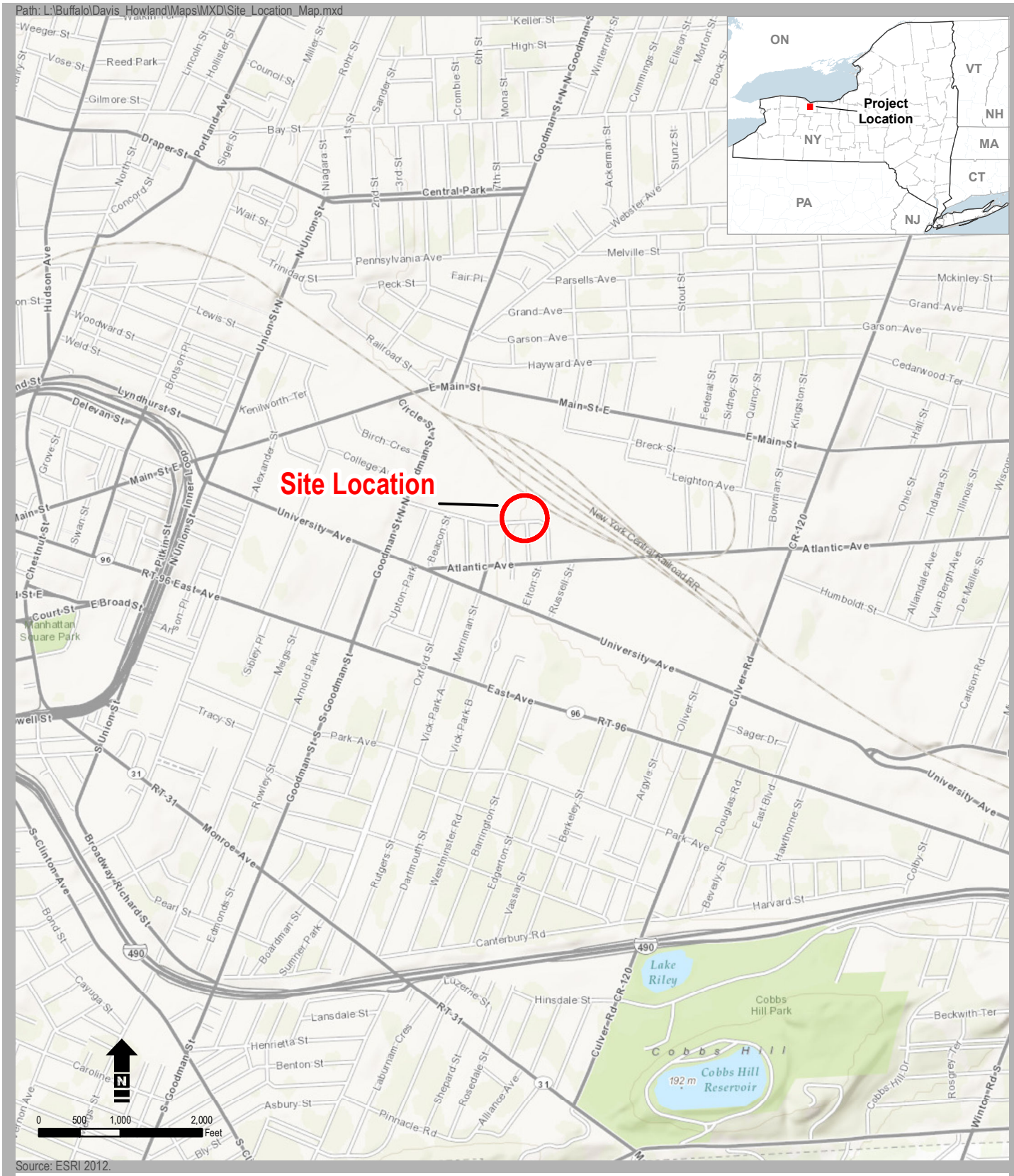
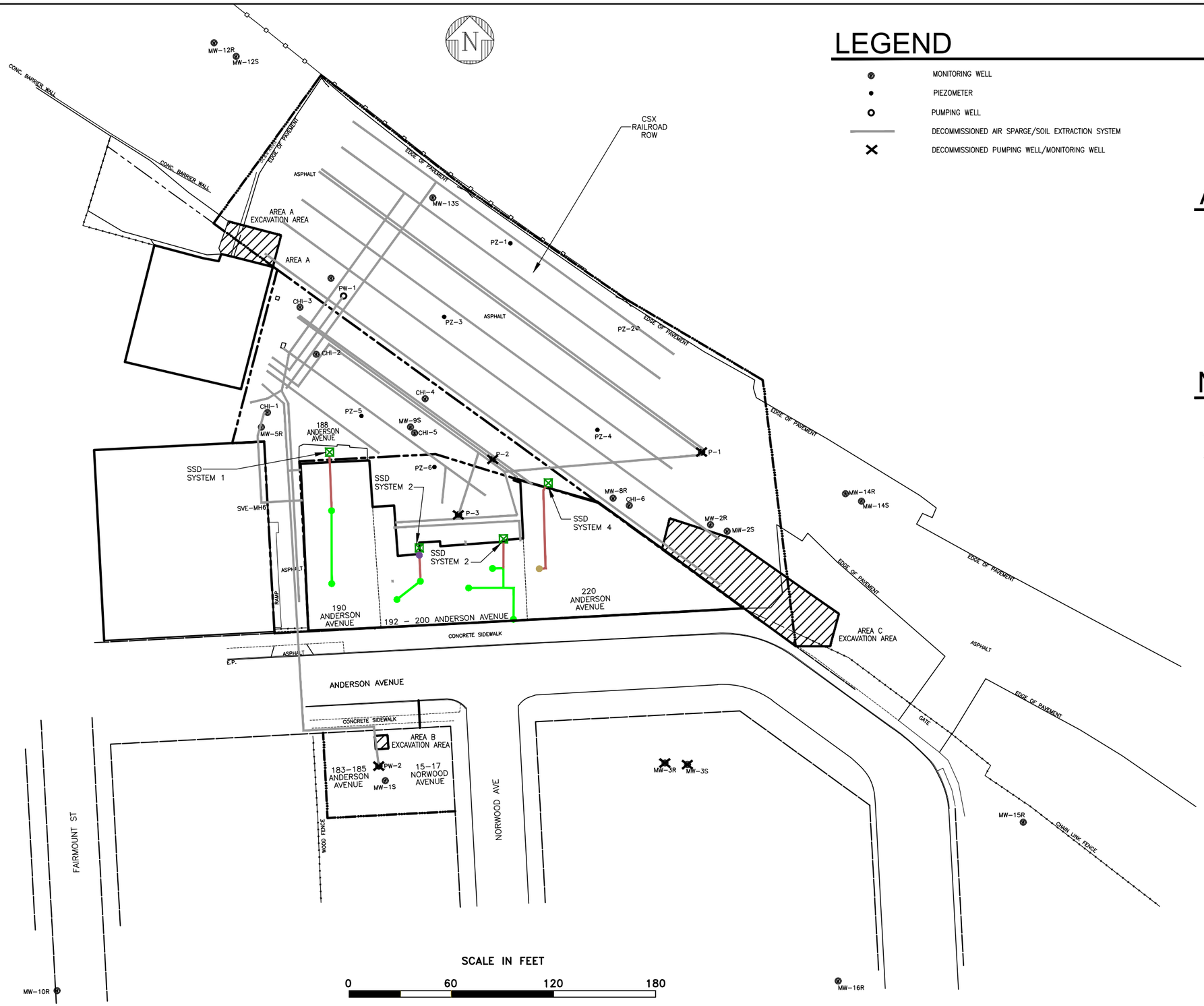


Figure 1-1
Site Location Map
Former Davis-Howland Oil Corporation
Rochester, NY



LEGEND

- MONITORING WELL
- PIEZOMETER
- PUMPING WELL
- DECOMMISSIONED AIR SPARGE/SOIL EXTRACTION SYSTEM
- DECOMMISSIONED PUMPING WELL/MONITORING WELL
- FAN LOCATIONS (EXTERIOR)
- 2 INCH SOLID SCHEDULE 40 PVC VERTICAL RISER
- 3 INCH SOLID SCHEDULE 40 PVC VERTICAL RISER
- 4 INCH SOLID SCHEDULE 40 PVC VERTICAL RISER
- 3 INCH SOLID PVC SCHEDULE 40 PVC OVERHEAD HEADER PIPING
- 4 INCH SOLID PVC SCHEDULE 40 PVC OVERHEAD HEADER PIPING

ABBREVIATIONS

CH	CLEAN HARBOR
MH	MANHOLE
MW	MONITORING WELL
PART	PARTIAL
P	SHALLOW OVERBURDEN GROUNDWATER PUMPING WELLS
PW	BEDROCK GROUNDWATER PUMPING WELLS
PZ	PIEZOMETER
SSD	SUB–SLAB DEPRESSURIZATION

NOTES

1. PIEZOMETERS, MONITORING WELLS, BUILDINGS AND PROPERTY LINES ARE BASED ON A SURVEY BY POPLI DESIGN GROUP, ARCHITECTURE AND ENGINEERING P.C. DATED DEC 7, 2012.
2. PUMPING WELL LINES, SOIL VAPOR EXTRACTION LINES AND AIR SPARGE LINES BASED ON AS–BUILT DRAWINGS BY ECOLOGY AND ENVIRONMENT P.C DATED NOVEMBER 2006.
3. STREET LOCATIONS ARE APPROXIMATE.

FIGURE 1–2 SITE PLAN
FORMER DAVIS HOWLAND OIL CORPORATION SITE
MONROE COUNTY, ROCHESTER, NY

2 Evaluation of Site Institutional and Engineering Controls

2.1 Institutional Controls

No ICs were required by the two records of decision (RODs) issued for the Site; however, in accordance with 6 New York Codes, Rules, and Regulations (NYCRR) Part 375 regulations, NYSDEC required that ICs be applied to the DHOC Site. Programmatically, the ICs that are necessary to provide for the effectiveness of this phase of the remedial action include a Site Management Plan (SMP) and environmental easements. The following are currently listed as ICs for the Site on Enclosure 1 – Institutional Controls – Standby Consultant/Contractor Certification Form included with this report:

- SMP
- Soils Management Plan
- Monitoring Plan
- Operations and Management (O&M) Plan
- Ground Water Use Restriction
- Land Use Restriction
- IC/EC Plan

The current SMP (EEEPC 2014) includes a soils management plan, monitoring plan, and O&M plan.

An environmental notice was filed and recorded with the Monroe County Clerk on August 15, 2013, in Book 11290, pages 171-176, as a record that informs future owners of development restrictions on the property due to environmental concerns. The ICs require that there be no disturbance that threatens the integrity of the ECs, no disturbance of the ECs, adherence to the SMP, allowance of access by NYSDEC, that land be used for industrial use only, and that no groundwater is to be used for drinking water unless properly treated. A copy of the environmental notice for the Site is provided in Appendix D of the SMP.

An environmental easement for 190 Anderson Avenue (parcel 106.84-1-7) was filed and recorded with the Monroe County Clerk on July 27, 2017, and updated

on February 4, 2019. An environmental easement for 192 through 220 Anderson Avenue (parcels 106.84-1-6 and 106-84-1-5) was filed and recorded with the Monroe County Clerk on May 3, 2018. Copies of the environmental easements for the Site are provided in Appendix D of the SMP.

Access agreements are currently under negotiation between the NYSDEC and property owners of 183 through 185 Anderson Avenue, 15 through 17 Norwood Avenue, 360 North Goodman, and 406 Atlantic Avenue.

The ICs at the Site restrict disturbance of residual contaminated material. Current and future Site owners are required to perform soil characterization and disposal/reuse activities in accordance with NYSDEC regulations if residual contaminated soil is disturbed or excavated.

In 2019, the Site was in compliance with the ICs required by the SMP:

- The ICs employed at the Site are unchanged from the date the control was put in place and are compliant with NYSDEC-approved modifications;
- Nothing has occurred that would impair the ability of the ICs to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with Site-specific requirements of the SMP;
- Access to the Site will continue to be provided to NYSDEC to evaluate the remedy, including access to evaluate the continued maintenance of the ICs; and
- Use of the Site is in compliance with the environmental easements.

2.2 Engineering Controls

The ECs that support remedial operations at the Site are consistent with the SMP regarding operations, maintenance, and monitoring (OM&M) of the Site. The following are currently listed as ECs for the Site on Enclosure 1 – Engineering Controls – Standby Consultant/Contractor Certification Form included with this report:

- A groundwater monitoring well network consisting of both overburden and bedrock monitoring wells; and
- SSD systems were installed in three buildings: 190 Anderson Avenue, 192-220 Anderson Avenue, and 220 Anderson Avenue.

The decision to shut down and decommission the active treatment systems was made by NYSDEC on February 26, 2018 (NYSDEC 2018). This decision was made based on the results of the RSO evaluations performed in 2016 and 2017, which indicated that the remedial systems, as installed, were no longer effective in removing the remaining contamination at the Site. The groundwater treatment

system (treatment trailer) and AS/SVE system (interior piping and AS/SVE points) were decommissioned between July and September 2018. The monitoring well system and piezometers remain in place and operational. The groundwater pumping wells, exterior below-grade AS points, lines, and trenches remain in place but are no longer operational. Further discussion regarding the decommissioning of the treatment systems is provided in Section 5.2. Long-term groundwater monitoring of the well system will continue in order to evaluate the remaining VOC contamination.

Following the decommissioning of the active remedial systems, SSD systems were installed at 190 Anderson Avenue, 192 through 200 Anderson Avenue, and 220 Anderson Avenue in 2018. Locations of these systems are shown on Figure 1-2. These SSD systems were intended to mitigate potential sub-slab soil vapors that may enter each building via soil vapor intrusion, while also reducing operation costs by switching from AS/SVE systems to SSD systems. These SSD systems were installed between August 6 and August 13, 2018, in accordance with the *NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York* dated October 2006, as well as subsequent updates and the SSD system Work Plan dated April 2018. Following installation, indoor and outdoor air sampling was performed on December 11, 2018. These samples did not detect VOC concentrations in indoor air that exceed the NYSDOH Air Guidance Values nor the EPA Building Assessment and Survey Evaluation Database 90th percentile values.

3 General Status of Remedial Systems

3.1 SSD Systems

As part of E & E's scope of work for the Site, monitoring of the SSD systems was not required. Therefore, conclusions as to their operation and effectiveness can not be made for the reporting year of 2019.

3.2 Groundwater Monitoring Well Network Inspection

Between October 18 and 22, 2019, E & E conducted inspections of overburden and bedrock groundwater monitoring wells. The purpose of these inspections was to document the physical condition of the wells and identify maintenance actions required to keep the groundwater monitoring well network operational for sampling purposes. A summary of the monitoring well inspection findings is presented in Table 3-1.

Table 3-1 Summary of October 2019 Well Inspection, Former Davis-Howland Oil Corporation Site

Well Identification	Date Inspected	Well Casing ID (inches)	Inspection Observations
MW-1S	10/21/2019	2	No issues
MW-2S	10/18/2019	2	No issues
MW-9S	10/18/2019	2	No issues
MW-12S	10/18/2019	2	The well could not be located
MW-13S	10/18/2019	2	Could not be sampled; covered with jersey barrier
MW-14S	10/18/2019	2	No issues
MW-2R	10/21/2019	4	No issues
MW-5R	10/18/2019	4	No issues
MW-8R	10/18/2019	4	No issues
MW-10R	10/21/2019	4	No issues
MW-12R	10/18/2019	4	The well could not be located
MW-14R	10/18/2019	4	No issues
MW-15R	10/22/2019	4	No issues
MW-16R	10/22/2019	4	No issues
PZ-1	10/21/2019	1	Could not be sampled; covered with jersey barrier

Table 3-1 Summary of October 2019 Well Inspection, Former Davis-Howland Oil Corporation Site

Well Identification	Date Inspected	Well Casing ID (inches)	Inspection Observations
PZ-2	10/21/2019	1	Could not be sampled; covered with jersey barrier
PZ-3	10/21/2019	1	No issues
PZ-4	10/21/2019	1	Could not be sampled; covered with debris

Key:
ID = inner diameter

4 2019 Groundwater Sampling Event Summary

This section discusses the groundwater monitoring activities performed at the Site in October 2019 and compares the results to historical data. Field activities were conducted according to the Groundwater Monitoring and Long-term Well Sampling Procedures included as Appendix J of the Final SMP (EEEPC 2014). Sampling locations are identified on Figure 1-2.

4.1 Field Activities

4.1.1 Monitoring Well Sampling

Groundwater samples were collected from 11 monitoring wells and one piezometer at the Site from October 18 through 22, 2019, and the samples were analyzed for VOCs. Samples could not be collected from monitoring wells12S and 12R because they could not be located. Monitoring wells MW-13S, PZ-1, and PZ-2 were not sampled because jersey barriers were located on top of the wells, and PZ-4 was not sampled because a debris pile was on top of it. Monitoring wells MW-3S and MW-3R were decommissioned in February 2016 by Leader Professional Services, Inc., as part of property redevelopment at 10 Norwood Avenue. Pumping wells P-1, P-2, P-3, and PW-2 were disconnected from the treatment system in 2018 as part of the system decommissioning and could not be sampled because the well heads were sealed with a steel cover.

Prior to purging, static water levels were measured to the nearest 0.01 foot in each monitoring well using an electronic water-level indicator. The water level and total depth of each well were recorded (see Table 4-1). The suffix “R” in a monitoring well designation (for example, MW-2R) denotes a bedrock well, and the suffix “S” denotes a monitoring well that is screened in the shallow overburden groundwater zone.

Table 4-1 October 2019 Groundwater Elevations, Former Davis-Howland Oil Corporation Site

Well ID	Measurement Date	Measured Total Depth (feet TOIC)	Ground Elevation (feet AMSL)	TOIC Elevation (feet AMSL)	Depth to Water (feet TOIC)	Groundwater Elevation (feet AMSL)
Shallow Overburden Wells						
MW-1S	10/21/2019	17.99	500.23	499.72	12.62	487.10
MW-2S	10/18/2019	14.02	496.03	497.48	5.01	492.47
MW-9S	10/18/2019	15.94	497.94	498.01	4.84	493.17
MW-14S	10/18/2019	12.94	495.48	495.16	1.36	493.80
PZ-3	10/21/2019	13.50	497.87	497.56	4.10	493.46
Deep Bedrock Wells						
MW-2R	10/21/2019	30.50	496.14	497.54	15.04	482.50
MW-5R	10/18/2019	34.70	501.32	498.23	11.62	486.61
MW-8R	10/18/2019	35.18	499.63	497.64	17.51	480.13
MW-10R	10/21/2019	35.52	497.89	497.44	19.01	478.43
MW-14R	10/18/2019	33.93	495.6	495.18	5.89	489.29
MW-15R	10/22/2019	30.33	495.6	494.14	15.66	478.48
MW-16R	10/22/2019	31.15	493.48	493.04	17.64	475.40

Key:
AMSL = above mean sea level
L = liters
MW = monitoring well
NS = not sampled
TOIC = top of inner casing
-- = Data not applicable or not obtained for these wells.

Monitoring wells were sampled using the EPA low-flow sampling procedure (EPA 1998) with a QED bladder pump with new high-density polyethylene (HDPE) tubing. Each well was considered adequately purged and ready for sampling when water level and water quality parameters stabilized, indicating fresh aquifer water was being removed from the well. The piezometer was sampled using standard three-volume purge methods with a peristaltic pump and new HDPE tubing. Well purging was considered adequate when a minimum of three to five volumes was removed, or if the well was purged dry, after the well had sufficiently recharged to allow sample collection. Measurements of temperature, pH, conductivity, turbidity, dissolved oxygen, and oxidation-reduction potential were recorded at regular intervals throughout the well-purging process and immediately prior to sampling. The final groundwater quality field measurements are presented in Table 4-2. Appendix A presents copies of the monitoring well purge and sample records for the August sampling events.

Non-dedicated sampling equipment was decontaminated in accordance with the Groundwater Monitoring and Long-term Well Sampling Procedures included as Appendix J of the SMP. The bladder in the QED bladder pump was replaced between each well. Purged and decontamination water were handled according to procedures outlined in Section 4.1.3.

Table 4-2 2019 Summary of Groundwater Quality Field Measurements, Former Davis-Howland Oil Corporation Site

Well ID	Sample Date	pH (s.u.)	Temperature (°F)	ORP (mV)	Conductivity (mS/cm)	DO (mg/L)	Unfiltered Turbidity (NTU)	Water Level (feet)
Overburden Wells								
MW-1S	10/21/2019	7.05	15.08	83	1.20	0.70	12.80	12.83
MW-2S	10/18/2019	6.83	15.49	-48	1.36	0.41	0.80	6.82
MW-9S	10/18/2019	7.55	16.7	193	0.74	7.95	9.90	5.60
MW-14S	10/18/2019	6.94	15.63	56	0.40	0.80	5.60	1.96
PZ-3	10/21/2019	6.7	18	5	2.47	0.39	1.30	5.81
Bedrock Wells								
MW-2R	10/21/2019	7.31	14.69	-69	0.59	1.27	0.90	23.46
MW-5R	10/18/2019	7.52	14	-57	0.96	10.14	5.20	11.72
MW-8R	10/18/2019	7.49	13.1	-99	1.58	7.60	2.10	17.18
MW-10R	10/21/2019	7.2	14	78	1.10	0.00	1.00	19.42
MW-14R	10/18/2019	7.01	13.91	-82	0.90	1.64	7.50	6.45
MW-15R	10/22/2019	6.96	13.4	42	1.03	2.52	0.00	17.14
MW-16R	10/22/2019	7.08	15	-158	1.04	1.03	0.00	21.99

Key:
°C = degrees Celsius
DO = dissolved oxygen
mV = millivolts
µS/cm = microsiemens per centimeter
NS = not sampled
NTU = nephelometric turbidity unit
ORP = oxygen reduction potential
s.u. = standard units

Upon collection, samples were labeled and immediately placed in a cooler maintained with ice at approximately 4°C. The groundwater samples were delivered directly to TestAmerica Laboratories, Inc., in Amherst, New York, by the E & E field team with chain-of-custody documents. Groundwater samples were submitted for analysis of VOCs by EPA Method 624.1 (all wells).

4.1.2 Quality Assurance/Quality Control Review

In addition to the normal field samples, quality assurance/quality control (QA/QC) samples were collected. Trip blanks for VOC analysis accompanied each shipment to check for the possible introduction of VOCs from the time the samples were collected to the time they were analyzed. One field (equipment/rinsate) blank (RB102219) was collected for VOC analysis. The sample consisted of contaminant-free distilled water that was poured over a decontaminated bladder pump to check the thoroughness of decontamination procedures and to identify any cross-contamination of samples.

To check consistency in sample collection, one duplicate sample was collected from monitoring well MW-14S. The sample consisted of aliquots of sample media placed in separate sample containers and labeled as separate samples (MW-14S-101819 and MW-14S-101819-Q). Additionally, extra volume for matrix spike/matrix spike duplicate (MS/MSD) analyses was collected from monitoring

well MW-1S to simulate the background effect and interferences found in the actual samples. The calculated percent recovery of the spike is used as a measure of the accuracy of the analytical method in the sample matrix, and the relative percent deviation between the recoveries of each spiked sample is used to measure the precision of the analytical method. Field duplicates and MS/MSD samples are typically collected at a rate of one per 20 field samples per the Master Quality Assurance Project Plan (EEEPC 2011). For this event, one duplicate sample and one MS/MSD sample were collected for 12 wells. This collection rate is considered acceptable and has no impact on data usability due to the routine nature of this sampling.

QA/QC data were reviewed by an E & E chemist and a Data Usability Summary Report (DUSR) was prepared (see Appendix B). Data qualifiers were applied as described in the DUSRs and incorporated into the data summary tables. No significant issues were identified, and analytical data is considered usable for the intended purpose.

4.1.3 Investigation-Derived Waste Management

Investigation-derived waste (IDW) generated during this investigation was handled according to procedures outlined in E & E's Groundwater Sampling Procedures. Three types of IDW were generated: purged groundwater, decontamination water, and expendable materials, including personal protective equipment (PPE). Purged and decontamination water was stored on-site in a 250-gallon poly tank until approval was granted by Monroe County to discharge the purge and decontamination water into a sewer discharge location inside the building at 220 Anderson Avenue, Rochester, New York. Approval was received from Monroe County for discharge of the purge water on November 15, 2019, and discharge occurred on December 3, 2019 (see Appendix C). Analytical results from the purge water samples collected prior to discharge are provided in Appendix A.

Expendable PPE generated during the investigation (including gloves and plastic sheeting) was bagged and removed from the site for disposal as non-hazardous solid waste.

4.2 Site Hydrogeology

The Site is situated on alluvial organic silt and sand overlaying glacial till deposits and lacustrine sand and silt of varying thickness. Bedrock beneath the Site is the Penfield Dolostone of the Middle Silurian Lockport Group and is encountered at depths of about 15 to 27 feet.

Two groundwater aquifers have been identified beneath the Site: a shallow overburden aquifer and an upper bedrock aquifer. These aquifers are not listed by the EPA as sole-source aquifers (Lawler, Matusky & Skelly Engineers, LLP, and Galson/Lozier Engineers 1996). A summary description of each water-bearing zone is provided below.

4.2.1 Overburden Aquifer

Historically, groundwater flow direction at the Site has been observed to be highly variable. In 1997, a flow divide existed near the railroad tracks, resulting in groundwater flow to the northeast, southeast, southwest, and south. In 2004, groundwater flow was observed to travel northeast across the Site, while in 2007 it was observed to travel southwest from a high area along the railroad tracks (EEEPC 2007). The overburden groundwater flow in 2009 through 2011 was observed to be primarily toward the south and west (EEEPC 2009, 2010, 2013). From 2012 through 2016, the flow was primarily to the southwest, with localized groundwater sinks in the middle of the Site, indicative of capture primarily by pumping well P-2 and, to a lesser extent, P-3 (EEEPC 2015, 2016a, 2017).

Overburden groundwater flow in November 2017 and August 2018 was primarily to the southwest, with localized variation in the northern portion of the site and without the localized sinks due to pumping well capture noted in prior years due to the shutdown of the groundwater extraction system (EEEPC 2018; EEEGPC 2019).

In October 2019, the overburden groundwater flow was primarily to the southwest (see Figure 4-1).

4.2.2 Bedrock Aquifer

Historically, the bedrock groundwater flow direction at the Site has generally been more consistent than that in the overburden. In 1997 and 2004, groundwater flow was observed to be radially outward from a groundwater mound beneath the Site, with the primary flow directions to the northeast and southeast (EEEPC 2004). In 2007, 2009, 2010, and 2011, groundwater flow in the bedrock aquifer appeared to be more variable, with radial flow from high areas on the west (near MW-5R) and east (near MW-14R/MW-15R) sides of the Site and a groundwater sink near MW-2R (EEEPC 2007, 2009, 2010, 2013). From 2012 through 2015, similar outward radial flow from MW-5R and MW-14R was observed, with radial capture at pumping wells PW-1 and PW-2. Groundwater capture was enhanced beginning in 2012, likely the result of routine well maintenance producing higher flow rates (EEEPC 2015, 2016a).

In October 2019, the primary bedrock groundwater flow direction was to the south (see Figure 4-1). There is evidence of slight mounding (higher elevations) at MW-14R, as depicted on Figure 4-1.

4.3 Analytical Results

This section presents the analytical results for the October 2019 groundwater samples collected at the DHOC Site and compares them to historical results. The laboratory results for VOCs detected in overburden monitoring well and piezometer samples are presented in Table 4-3, and the laboratory results for VOCs detected in bedrock monitoring well and pumping well samples are presented in Table 4-4. Groundwater sample results discussed below were compared to the NYSDEC

Class GA groundwater standards and guidance values (NYSDEC 1998). The complete laboratory report for the sampling event is provided in Appendix D.

4.3.1 Overburden Groundwater Results

Volatile Organic Compounds

Seven VOCs were detected in one or more groundwater samples collected from overburden wells. The majority of these compounds are chlorinated aliphatic (straight-chained) VOCs (cVOCs), including tetrachloroethylene (PCE); trichloroethene (TCE); 1,1-trichloroethane, and their degradation by-products. Chloroform was also detected in one well at low concentrations.

Six VOCs were detected in one or more overburden monitoring wells at concentrations exceeding NYSDEC Class GA groundwater standards. These compounds are shaded in Table 4-3. The concentrations of cVOCs in overburden groundwater were highest in MW-9S. The total concentration of cVOCs was approximately 164 micrograms per liter (µg/L) in MW-9S. The primary contributors to this total concentration were cis-1,2-dichloroethylene (cis-1,2-DCE), 1,1-dichloroethane, PCE, and TCE. The overburden VOC analytical results are presented in Table 4-3.

The October 2019 concentration isopleths of cVOCs in the overburden groundwater samples are presented on Figure 4-2.

4.3.2 Bedrock Groundwater Results

Volatile Organic Compounds

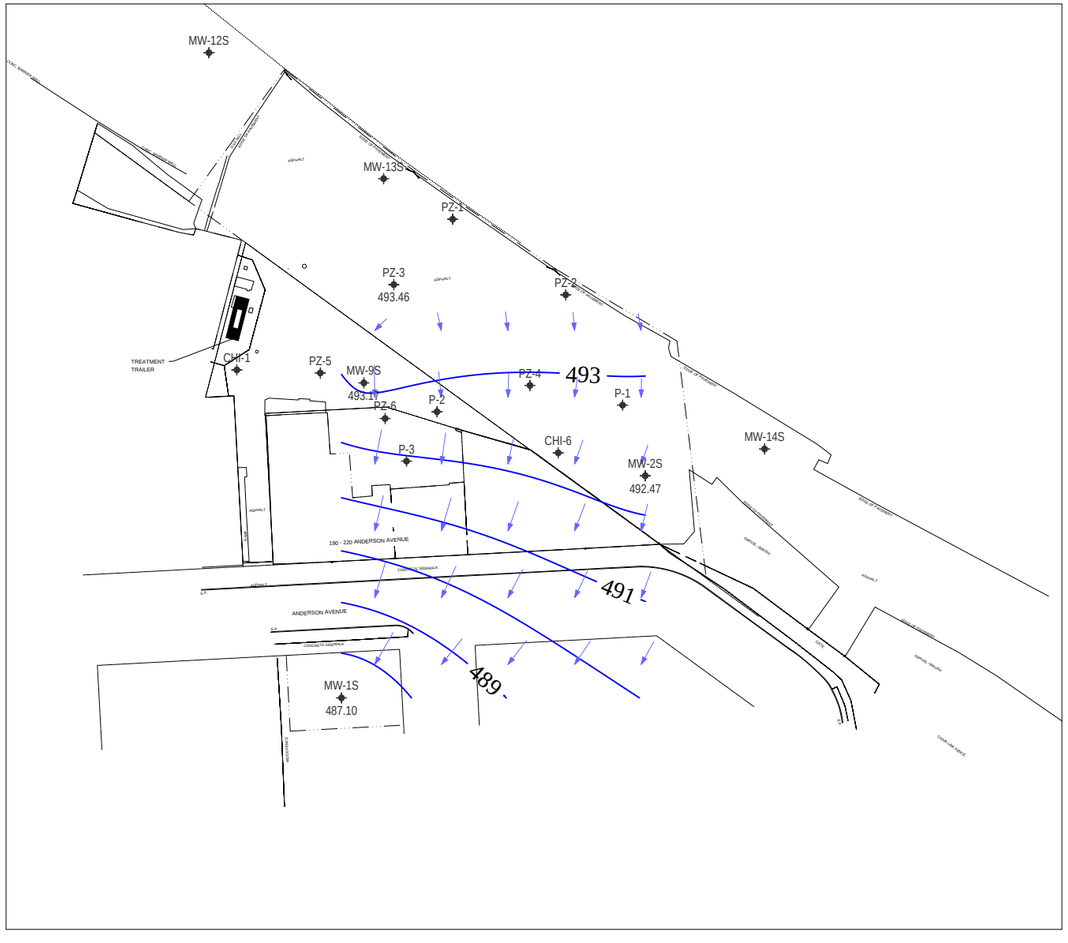
Five VOCs were detected in one or more of the groundwater samples collected from bedrock monitoring and pumping wells, including cVOCs (TCE and its degradation by-products). The concentrations of four detected VOCs exceeded NYSDEC Class GA groundwater standards in at least one well. The highest concentrations of VOCs were detected in samples from MW-8R, with the total sum of cVOCs reaching approximately 4,590 µg/L. The primary compounds detected in this well were 1,1-dichloroethane, cis-1,2-dichloroethylene (DCE), and vinyl chloride. These compounds are shaded in Table 4-4.

The October 2019 concentration isopleths of cVOCs in the bedrock groundwater samples are presented on Figure 4-3.

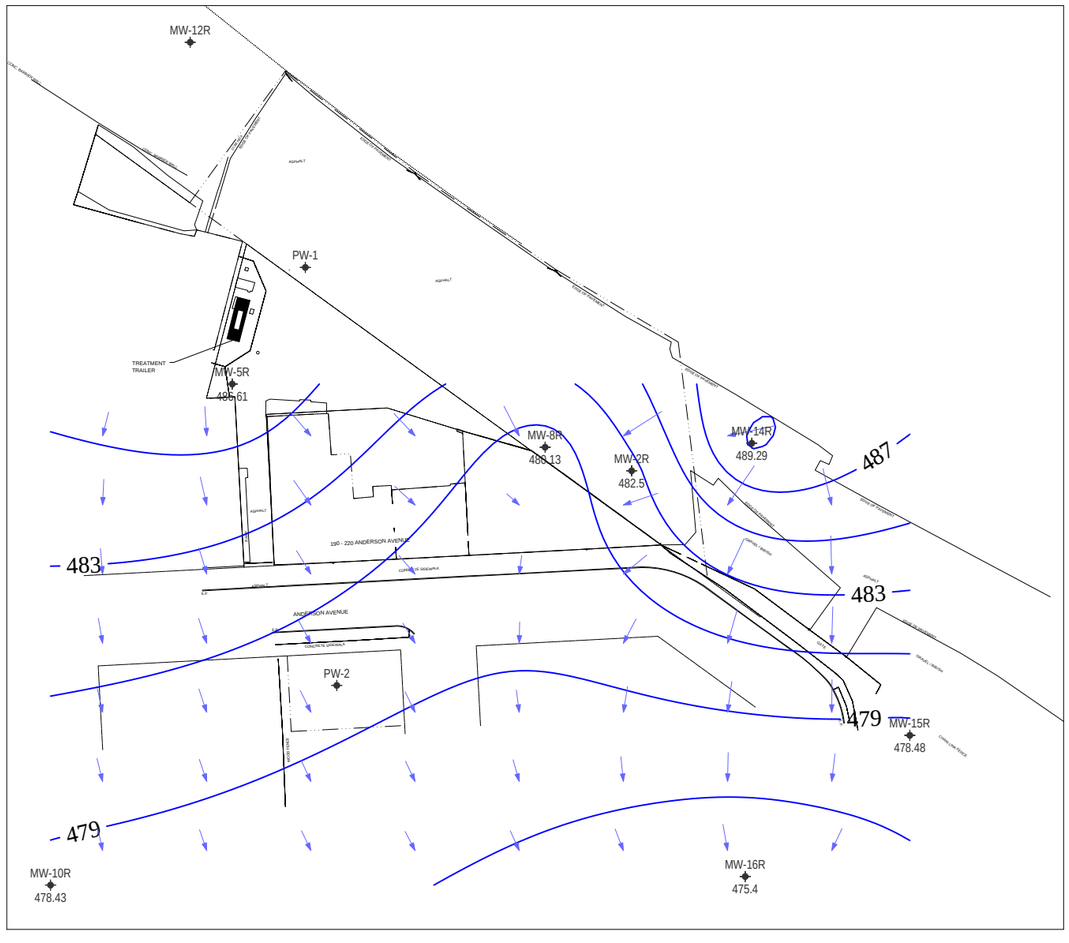
1703074.0012.12
DavisHowland_GW_Elev_2019.srf - 12/9/2019

N

Groundwater Elevation Isopleths
Overburden Monitoring Wells



Groundwater Elevation Isopleths
Bedrock Monitoring Wells



Notes:
1) Groundwater elevations measured October 18 - 22, 2019.

Legend

Groundwater Flow Direction and Relative Magnitude of Gradient

Groundwater elevation isopleth

0 100 200 300
SCALE IN FEET

ecology and environment engineering and geology, p.c.
Global Environmental Specialists

FIGURE 4-1
Groundwater Elevation Isopleths
Overburden and Bedrock Monitoring Wells
October 2019
Former Davis-Howland Oil Corporation Site
Rochester, NY

Table 4-3 Summary of Positive VOC Analytical Results for Groundwater Samples from Overburden Monitoring Wells, Former Davis-Howland Oil Corporation Site, Rochester, NY

Analyte	Screening Criteria[1]	Notes	Location ID: / Depth: / Date: MW-1S 13 - 18 ft 10/21/19	MW-2S 5.4 - 14 ft 10/18/19	MW-9S 4.9 - 16 ft 10/18/19	MW-14S 2.1 - 13 ft 10/18/19	MW-14S FD 2.1 - 13 ft 10/18/19	PZ-03 4.5 - 13 ft 10/21/19
Volatile Organic Compounds by Method E624.1 (µg/L)								
1,1,1-Trichloroethane (TCA)	5		**1.9 J**	3.9 U	**6.7**	0.39 U	0.39 U	**7.5 J**
1,1-Dichloroethane	5		**1.2 J**	5.9 U	**36**	0.59 U	0.59 U	**27 J**
Chloroform	7		0.54 U	5.4 U	**0.66 J**	0.54 U	0.54 U	5.4 U
Cis-1,2-Dichloroethylene	5		**33**	5.7 U	**47**	0.57 U	0.57 U	**16 J**
Tetrachloroethylene (PCE)	5		**3.8 J**	3.4 U	**35**	0.34 U	0.34 U	3.4 U
Trans-1,2-Dichloroethene	5		0.59 U	5.9 U	**5.4**	0.59 U	0.59 U	5.9 U
Trichloroethylene (TCE)	5		**23**	6.0 U	**34**	0.60 U	0.60 U	6.0 U

Key:
ft = feet
µg/L = micrograms per liter

Qualifiers:
J = estimated value
U = not detected (method detection limit shown)

Notes:

1. New York State Department of Environmental Conservation, Technical and Operational Guidance Series Memorandum #1.1.1: *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations*, 1998 (with updates), Class GA Groundwater Standards and Guidance Values
2. Bold values denote positive detections.
3. Shaded cells exceed NYSDEC groundwater standard or guidance value.

Table 4-4 Summary of Positive VOC Analytical Results for Groundwater Samples from Bedrock Monitoring Wells, Former Davis-Howland Oil Corporation Site, Rochester, NY

Analyte	Screening Criteria [1]	Notes	Location ID: MW-2R Depth: 21 - 28 ft Date: 10/21/19	MW-5R 12 - 35 ft 10/18/19	MW-8R 20 - 38 ft 10/18/19	MW-10R 19 - 37 ft 10/21/19	MW-14R 6.1 - 24 ft 10/18/19	MW-15R 15 - 32 ft 10/22/19	MW-16R 20 - 33 ft 10/22/19	PW-1 7.9 - 29 ft 10/21/19
Volatile Organic Compounds by Method E624.1 (µg/L)										
1,1-Dichloroethane	5		5.9 U	**10 J**	**120 J**	12 U	0.59 U	0.59 U	5.9 U	2.4 U
cis-1,2-Dichloroethylene	5		**220**	**360**	**3,900**	11 U	**9.2**	**11**	**180**	**6.4 J**
Trans-1,2-Dichloroethene	5		5.9 U	5.9 U	47 U	12 U	**4.3 J**	**1.1 J**	5.9 U	2.4 U
Trichloroethylene	5		6.0 U	**7.9 J**	48 U	**480**	**18**	**1.9 J**	6.0 U	2.4 U
Vinyl Chloride	2		**130**	**55**	**570**	15 U	**0.82 J**	**1.3 J**	**74**	3.0 U

Key:
µg/L = micrograms per liter
ft = feet

Qualifiers:
J = estimated value
U = not detected (method detection limit shown)

Notes:

1. New York State Department of Environmental Conservation, Technical and Operational Guidance Series Memorandum #1.1.1: *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations*, 1998 (with updates), Class GA Groundwater Standards and Guidance Values.
2. Bold values denote positive detections.
3. Shaded cells exceed NYSDEC groundwater standard or guidance value.

4.3.3 Comparison with Historical Analytical Data

Table 4-5 and Table 4-6 present historical benzene, toluene, ethyl benzene, and xylene (BTEX) and cVOC and results, respectively. The following is a summary of the findings:

- In 1997 and 1998, significant concentrations of BTEX compounds were detected in overburden wells MW-9S (1,420 µg/L and 4,700 µg/L) and MW-13S (10,600 µg/L and 9,440 µg/L). However, since 1998, total BTEX concentrations in the overburden groundwater have decreased significantly. During the few years in which BTEX compounds were detected in the overburden after 1998, detections were primarily limited to MW-9S (ranging from 0.12 µg/L to 2.5 µg/L). BTEX compounds were present in pumping wells at low estimated concentrations of 0.55 µg/L of benzene in pumping well P-2 and 0.77 µg/L of ethylbenzene in pumping well P-3 in 2017. These wells were not sampled in 2018 and no BTEX compounds were detected in the other overburden monitoring wells sampled; therefore, the 2019 groundwater sampling event did not include BTEX analyses.
- Concentrations of BTEX compounds in the bedrock groundwater have decreased since 1997. Total BTEX had been detected in six of the nine bedrock wells at the Site since 1997, and in just two bedrock wells since 2015, with the highest concentrations occurring in 1997 at MW-5R (200 µg/L) and MW-8R (126 µg/L). Since 1997, BTEX concentrations have decreased to the point where there were no detections in 2018; therefore, the 2019 groundwater sampling event did not include BTEX analyses.
- Overall, cVOC concentrations in the overburden wells have decreased significantly since 1997 and 1998. The highest concentrations of cVOCs were detected in 1998 (15,000 µg/L in MW-9S and 40,000 µg/L in MW-13S). Total cVOC concentrations decreased significantly between 1998 and 2004. Following the significant decrease in concentrations between 1998 and 2004, the most significant cVOC concentrations are detected in MW-9S. Since 2004, cVOCs have remained relatively consistent, with the exception of a significant decrease in cVOC concentration at MW-1S between 2004 and 2007 (410 µg/L to 98 µg/L) and an increase in concentrations of cVOCs in MW-9S between 2012 and 2013 (140 µg/L to 240 µg/L). The cVOC concentration at MW-9S fell back to levels consistent with those observed in 2010 and 2011 by 2015. By 2015 and with the introduction of sampling in PZ-04, the highest concentrations of cVOCs detected in the overburden occurred in MW-1S, MW-9S and PZ-04. The detected concentrations in the overburden have remained consistent since 2015, with the highest concentrations found in MW-1S (ranging from 37 to 76 µg/L), MW-9S (ranging from 110 µg/L to 165 µg/L), and PZ-04 (ranging from 400 µg/L to 590 µg/L). The cVOC concentration in MW-9S increased from 111 µg/L in 2018 to 165 µg/L in 2019; PZ-04 was not sampled in 2019 because debris covered the well.
- Overall, cVOC concentrations in most bedrock wells have decreased since 1997 or 1998, when significant concentrations (>1,000 µg/L) were detected in six of the nine wells (MW-2R, MW-3R, MW-5R, MW-8R, MW-10R, and

MW-16R). The cVOC concentrations generally decreased until 2010 and have remained relatively consistent since 2010 (all less than 2,000 µg/L except in MW-8R). The total cVOC concentration in MW-8R increased to a maximum of approximately 14,000 µg/L in 2010 and has since decreased, but this well continues to exhibit the highest cVOC concentrations (4,590 µg/L in 2019) of the wells at the Site, due primarily to cis-1,2-DCE and vinyl chloride. In 2019, the cVOC concentrations detected at MW-5R and MW-8R were higher than those detected in 2018. The cVOC concentration in MW-10R decreased to 480 µg/L (TCE) in 2019, diverging from the previously noted upward trend from 910 µg/L in 2015 to 1,364 µg/L in 2018.

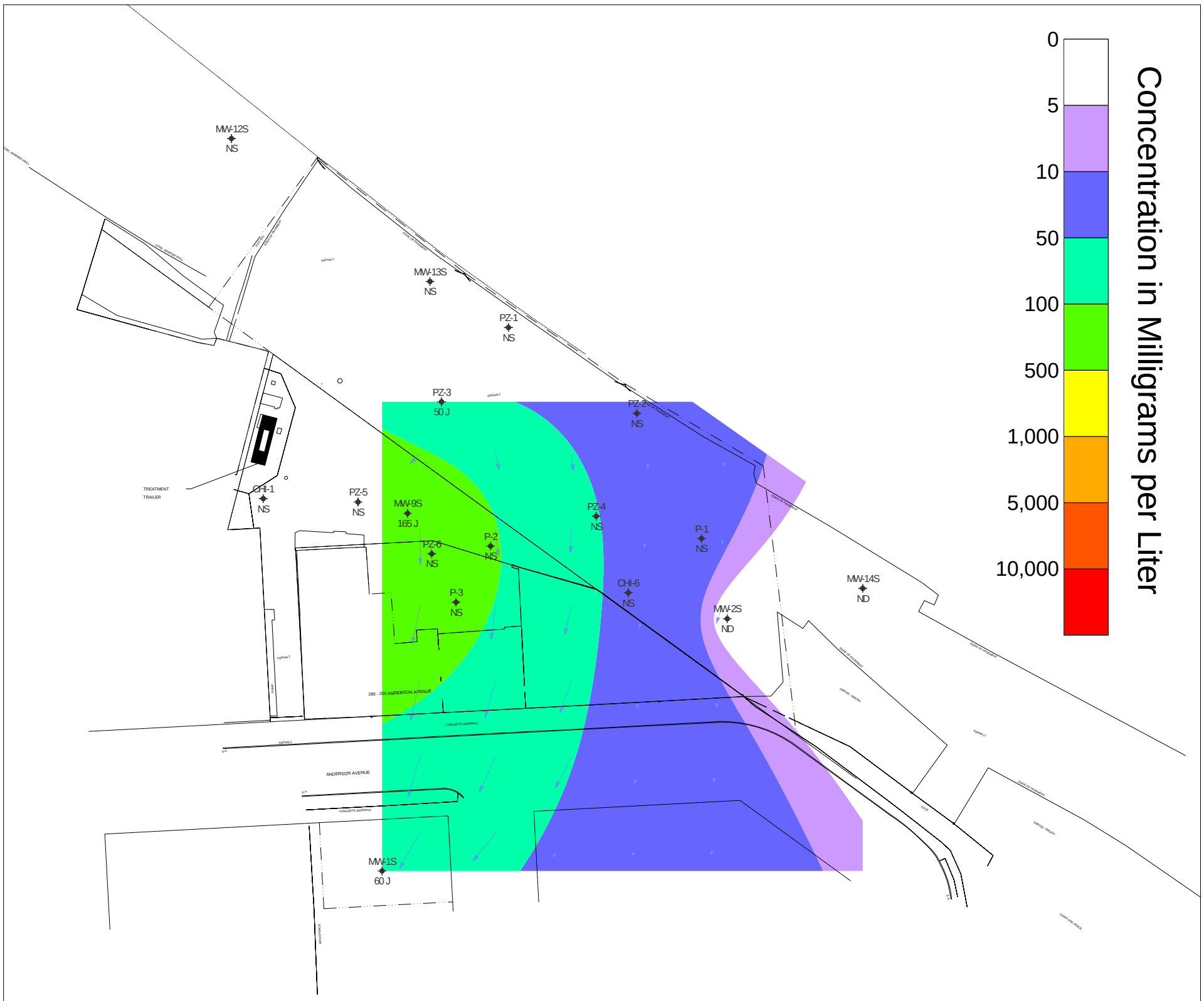
1703074.0012.12
DavisHowland_CHEMISTRY_ovr_2019.srf - 01/13/2020

N

Total Chlorinated VOC Concentrations (µg/L)

Scale in Feet

0 70 140 210 280



Notes:
1) VOC = volatile organic compound.
2) Chlorinated VOCs include all chlorinated aliphatic hydrocarbons detected.
3) ND = not detected.
4) NS = not sampled.

Legend

Groundwater Flow Direction
and Relative Magnitude of Gradient

ecology and environment engineering, p.c.
Global Environmental Specialists

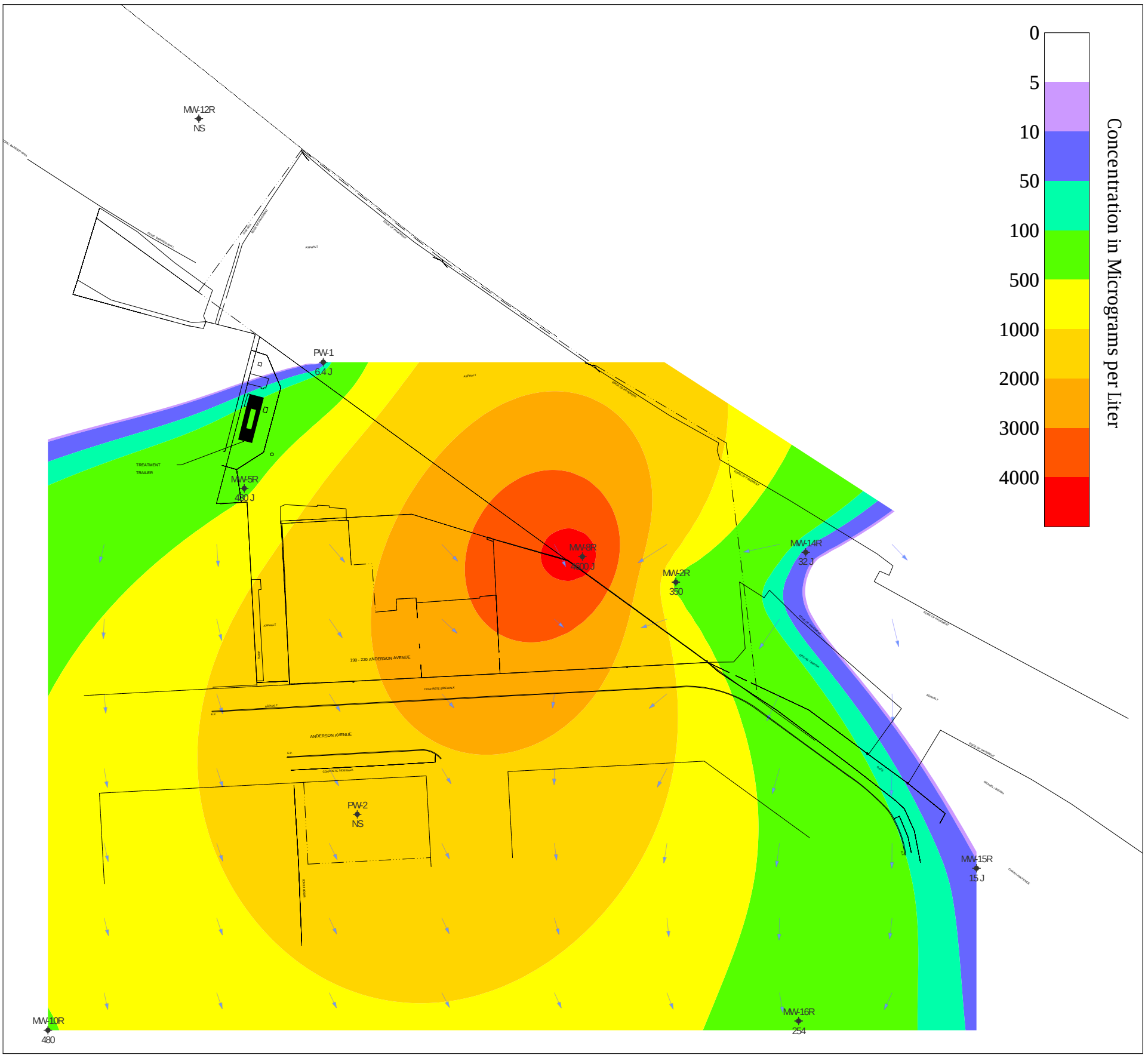
FIGURE 4-2
Total Chlorinated VOCs
in Overburden Groundwater, October 2019
Former Davis-Howland Oil Corporation Site
Rochester, New York

N

Total Chlorinated VOC Concentrations (µg/L)

Scale in Feet

0 70 140 210 280



Notes:
1) VOC = volatile organic compound.
2) Chlorinated VOCs include all chlorinated aliphatic hydrocarbons detected.
3) ND = not detected
4) NS = not sampled

Legend

Groundwater Flow Direction
and Relative Magnitude of Gradient

ecology and environment engineering, p.c.
Global Environmental Specialists

FIGURE 4-3
Total Chlorinated VOCs
in Bedrock Groundwater, October 2019
Former Davis-Howland Oil Corporation Site
Rochester, New York

Table 4-5 Historical Total BTEX Results for Monitoring Wells

Well ID	Sample Date													
	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2007	2004	1998	1997
Overburden Monitoring Wells														
MW-1S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-2S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-3S	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2.0**
MW-9S	ND	ND	ND	ND	**0.12 J**	**0.88 J**	ND	ND	ND	ND	**2.5**	**1.5**	**4,700**	**1,420**
MW-12S	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-13S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.34**	**9,440**	**10,600**
MW-14S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bedrock Monitoring Wells														
MW-2R	NA	ND	ND	ND	ND	ND	ND	**4.7**	ND	ND	NA	**1.2**	NA	ND
MW-3R	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**20**	ND	ND
MW-5R	ND	**12**	**1.7**	**3.9**	**2.3**	**4.6**	**32**	**45**	**45**	**3.1**	**15**	**71**	**42**	**200**
MW-8R	ND	ND	ND	**8.3**	**12 J**	**16**	ND	ND	ND	ND	**21**	**18**	NA	**126**
MW-10R	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-12R	NA	ND	ND	ND	**0.14 J**	ND	ND	ND	ND	ND	ND	ND	NA	**4.0**
MW-14R	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-15R	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND
MW-16R	ND	ND	**0.31**	ND	**0.11 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:
Analytical results are all in micrograms per liter (µg/L).

Key:
BTEX = sum of benzene, toluene, ethylbenzene, and xylene concentrations
J = value is estimated
NA = not analyzed
ND = Not detected

Table 4-6 Historical Total Chlorinated VOCs Results for Monitoring Wells

Well ID	Sample Date														
	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2007	2004	1998	1997
Overburden Monitoring Wells															
MW-1S	**63**	**45**	**32**	**76**	**37**	**38**	**41**	**68**	**67**	NA	**45**	**98**	**410**	**120**	**19**
MW-2S	ND	ND	**2**	**4.6**	**7.0**	**6.3**	**2.5**	**1.7**	**1.9**	**1.3**	ND	**1.4**	ND	NA	**3.0**
MW-3S	NA	NA	NA	NA	ND	**0.30**	**0.68**	ND	ND	ND	ND	**4.6**	ND	ND	ND
MW-9S	**164**	**111**	**121**	**110**	**140**	**180**	**240**	**140**	**140**	**140**	**92**	**48**	**32**	**15,000**	**6,300**
MW-12S	NA	NA	NA	NA	ND	**0.30**	**0.36**	**13**	ND	ND	ND	**4.4**	ND	**6.0**	**29**
MW-13S	NA	**10**	NA	**7.8**	**12**	**9.9**	**12**	**33**	ND	**19**	**3.7**	**69**	**41**	**40,000**	**36,000**
MW-14S	ND	ND	ND	ND	ND	ND	ND	**4.2**	ND	ND	ND	**0.36**	ND	**2.0**	**4.0**
PZ-01	NA	**12**	NA	NA	**11**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ-02	NA	NA	**5**	**6.9**	**8.6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ-03	**51**	**36**	**20**	**20**	**29**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ-04	NA	**505**	**400**	**590**	**430**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bedrock Monitoring Wells															
MW-2R	**350**	**770**	**2,670**	**1,500**	**1,100**	**350**	**31**	**940**	**1,200**	**240**	NA	NA	**940**	NA	**2,100**
MW-3R	NA	NA	NA	NA	**1,800**	**1,700**	**1,400**	**530**	**960**	**410**	**1,600**	**3,300**	**1,200**	**4,300**	**3,200**
MW-5R	**433**	**410**	**786**	**500**	**550**	**650**	**340**	**1,200**	**160**	**1,400**	**210**	**2,700**	**1,100**	**4,200**	**5,200**
MW-8R	**4,590**	**3,618**	**6,175**	**4,200**	**3,400**	**5,400**	**4,600**	**5,600**	**5,700**	**14,000**	**5,800**	**4,300**	**3,800**	NA	**2,600**
MW-10R	**480**	**1,364**	**951**	**910**	**990**	**1,200**	**1,400**	**1,500**	**1,400**	**160**	**1,200**	**1,600**	**1,200**	**3,000**	**2,300**
MW-12R	NA	NA	NA	NA	**26**	**41**	**34**	ND	**45**	**35**	**66**	**75**	**22**	NA	**270**
MW-14R	**27**	**35**	**43**	**59**	**45**	**59**	**72**	**59**	**61**	**54**	**45**	**67**	**17**	**50**	**22**
MW-15R	**11**	**12**	NA	NA	**10**	**12**	**11**	**11**	**11**	**6.4**	**4.7**	**7.4**	**7.7**	NA	**35**
MW-16R	NA	**420**	**203**	**720**	**200**	**230**	**180**	**210**	**220**	**48**	**320**	**250**	**260**	**2,400**	**1,100**

Notes:
Analytical results are all in micrograms per liter (µg/L).

Key:
ND = not detected
NA = not analyzed
Chlorinated VOCs = sum of chlorinated aliphatic hydrocarbon concentrations (does not include dichlorobenzenes)

5 Actions to Support Eventual Site Closure

The overall project goals identified in the ROD are to: (1) eliminate the potential for direct human contact with the contaminated soils onsite; (2) mitigate the impacts of contaminated groundwater on the environment to the extent practicable; (3) prevent, to the extent practicable, the migration of soil contaminants to groundwater; and (4) provide for attainment of standards, criteria, and guidance values (SCGs) for groundwater quality at the limits of the area of concern (AOC), to the extent practicable. Attaining these goals will allow for the eventual closure of the site.

The ICs described previously in this report were put in place to prevent human exposure to the remaining contaminated site soils. Since remedial construction at the site was completed, contaminant concentrations in the site soils have been reduced and now meet Part 375 soil cleanup objectives for restricted residential use.

Contaminant concentrations in the site groundwater had decreased since installation of the remedial treatment systems. However, evaluations completed as part of the 2016 Remedial Site Optimization (RSO) described in Section 5.1 led to the determination that the active treatment systems were no longer effective in the removal of VOCs from the site groundwater and that the systems should be decommissioned. Further details regarding the decommissioning of the systems are provided in Section 5.2 and recommendations for continued site management activities at the site are provided in Section 5.3.

5.1 Remedial System Optimization

In June 2016, E & E submitted an RSO Alternatives Report to NYSDEC (EEEPC 2016b). This report noted that contaminant removal by the pump-and-treat system had been declining over time andVOC contamination in the groundwater remained above the SCGs. Recommendations in the RSO indicated that there was no single alternative that would result in optimization of the system. It was recommended that soil vapor mitigation systems be installed in on-site buildings impacted by soil vapor intrusion and a pilot bioremediation study be performed to evaluate the effectiveness of bioengineered materials injected into the overburden aquifer. Additionally, the groundwater monitoring network would be optimized by decommissioning damaged and unneeded wells, installing new wells, and re-

ducing the groundwater monitoring program based on historical results from annual sampling. The final recommendation was to implement a monitored natural attenuation pilot program to quantify the time frame in which attainment of the remedial action objectives is expected, and discontinue operation of the groundwater pump-and-treat system and the AS/SVE system.

Following submission of this report, NYSDEC made the determination to shut down the treatment systems on July 13, 2016, and to continue with long-term groundwater monitoring of the site. Following further review of site data and NYSDEC *DER-10/Technical Guidance for Site Investigation and Remediation* requirements, NYSDEC requested on September 14, 2016, that the treatment systems be restarted and additional sampling of the systems be performed, including a pulsed pumping evaluation and additional sampling of the AS/SVE system.

5.2 System Decommissioning

Following the completion of the pulse pumping evaluation of the groundwater treatment system and additional sampling of the AS/SVE system in 2017, the decision was made in February 2018 to decommission the active treatment systems at the site. An additional discussion was held in June 2018 to discuss the decommissioning and the remaining contamination at the site. Decommissioning of the system was scheduled to move forward, and additional sampling was to be performed during the long-term groundwater monitoring event for monitored natural attenuation parameters to determine the applicability of performing bioremediation or chemical oxidation at the site in the bedrock groundwater.

On July 30, 2018, Groundwater Environmental Services, Inc., began decommissioning of the active treatment systems. Removal of the air piping and AS/SVE points from the site buildings was completed on August 7, 2018. The disconnect from the Monroe County sewer system was performed on August 6, 2018, under the supervision of a representative from Monroe County. All discharge lines, influent lines, and electrical lines to the treatment trailer were disconnected and the trailer was hauled off-site on September 7, 2018 and delivered to the American Thermostat Site (No. 420006) as requested by NYSDEC.

5.3 Recommendations

Following the 2019 groundwater sampling, E & E recommends the following for the Site:

- Continue the long-term monitoring program. Continued long-term groundwater monitoring should occur on an annual basis to monitor VOC contamination at the site. The monitoring well network should be evaluated to determine whether some of the existing wells can be abandoned and whether new wells should be installed to better monitor the extent of the remaining contamination.
- As recommended in the 2018 PRR, a cost-benefit analysis is currently being conducted to determine the appropriateness of completing a bioremediation or

chemical oxidation pilot study at the site to address residual VOC contamination in the bedrock. Elevated levels of VOCs remain in the bedrock groundwater, specifically in the vicinity of MW-8R. A focused application of bioremediation or chemical oxidation compounds in this area may provide further reduction of the VOC concentrations.

6 Annual Remedial Action Costs

The total 2019 costs of monitoring at the Site was approximately $49,000, including E & E subcontracted services. The cost breakdown is presented in Table 6-1.

Table 6-1 2019 Monitoring Costs for the Former Davis-Howland Oil Corporation Site

Description	WA D007617-12
E & E Admin, Management, and Reporting	$12,838
E & E Cost-Benefit Analysis	$5,358
E & E Long-term Groundwater Monitoring Program	$25,390
Subcontracted Analytical Services (Groundwater Monitoring)	$5,297
2019 Total	**$48,883**

7 Department or Local Public Reporting

7.1 NYSDEC Fact Sheet

The most recent information regarding the DHOC Site can be found on the Environmental Site Remediation Database Search online at:

http://www.dec.ny.gov/cfmx/extapps/derexternal/index.cfm?pageid=3.

7.2 Local Public Reporting

No local public reporting of the Site or remedial Site operations were brought to the attention of E & E in 2019. The local reporting newspaper in Rochester, New York, is the *Democrat and Chronicle*.

8 References

Ecology and Environment Engineering, P.C. (EEEPC). 2004. *Davis-Howland Oil Corporation Site, Groundwater Sampling Draft Data Summary Report 2004, Rochester, New York.* Prepared for New York State Department of Environmental Conservation, Albany, New York.

_____. 2007. *Groundwater Sampling and Data Summary Report, Davis-Howland Oil Corporation Site.*

_____. 2009. *Former Davis-Howland Oil Corporation Site 2009 Groundwater Sampling Draft Data Summary Report, Rochester, New York.* July 2009. Prepared for New York State Department of Environmental Conservation, Albany, New York.

_____. 2010. *Former Davis-Howland Oil Corporation Site 2010 Groundwater Sampling Draft Data Summary Report, Rochester, New York.* July 2010. Prepared for New York State Department of Environmental Conservation, Albany, New York.

_____. 2011. *Master Quality Assurance Project Plan (QAPP) for New York State Department of Environmental Conservation Projects.* Prepared for New York State Department of Environmental Conservation, Albany, New York, April 2011.

_____. 2013. *Periodic Review Report, Former Davis-Howland Oil Corporation Site, NYSDEC Site No. 8-28-088, City of Rochester, Monroe County, New York.* July 2013.

_____. 2014. *Final Site Management Plan, Former Davis-Howland Oil Corporation Site, NYSDEC Site No. 8-28-088, City of Rochester, Monroe County, New York.*

_____. 2015. *2014 Periodic Review Report, Former Davis-Howland Oil Corporation Site, NYSDEC Site No. 8-28-088, City of Rochester, Monroe County, New York.* January 2015.

_____. 2016a. *2015 Periodic Review Report, Former Davis-Howland Oil Corporation Site, NYSDEC Site No. 8-28-088, City of Rochester, Monroe County, New York.* January 2016.

_____. 2016b. *Remedial Site Optimization Alternatives Report, Former Davis-Howland Oil Corporation Site, NYSDEC Site No. 8-28-088, City of Rochester, Monroe County, New York.* June 2016.

_____. 2017. *2016 Periodic Review Report, Former Davis-Howland Oil Corporation Site, NYSDEC Site No. 8-28-088, City of Rochester, Monroe County, New York.* January 2017.

_____. 2018. *2017 Periodic Review Report,Former Davis-Howland Oil Corporation Site, NYSDEC Site No. 8-28-088, City of Rochester, Monroe County, New York.* January 2018.

Ecology and Environment Engineering and Geology, P.C. (EEEGPC). 2019. *2018 Periodic Review Report,Former Davis-Howland Oil Corporation Site, NYSDEC Site No. 8-28-088, City of Rochester, Monroe County, New York.* January 2018.

Lawler, Matusky Skelly Engineers, LLP and Galson/Lozier Engineers. 1996. *New York State Superfund Contract, Remedial Investigation Report, Davis-Howland Oil Corporation Remedial Investigation/Feasibility Study*. Vol. I. October 1996.

New York State Department of Environmental Conservation (NYSDEC). 1998 (with updates). Division of Water Technical and Operational Guidance Series (1.1.1): *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations.* Albany, New York: Division of Water.

_____. 2018. Site Management (SM) Periodic Review Report (PRR) Response Letter, Davis-Howland Oil Corporation, Rochester, Monroe County, Site No. 828088, February 26, 2018.

United States Environmental Protection Agency (EPA). 1998. *Standard Operating Procedure Low-Stress (Low Flow)/Minimal Drawdown Ground-Water Sample Collection.* Accessed online at: https://www.epa.gov/quality/standard-operating-procedure-low-stress-low-flow-minimal-drawdown-ground-water-sample

A October 2019 Groundwater Monitoring Event Purge Water Analytical Data

ecology and environment engineering and geology, p.c.
Environmental Specialists

BUFFALO CORPORATE CENTER
368 Pleasant View Drive
Lancaster, New York 14086
Tel: (716) 684-8060, Fax: (716) 684-0844

November 14, 2019

Donald Wolf
Industrial Waste Engineer
Monroe County Department of Environmental Services
Office of Industrial Waste
145 Paul Road, Bldg. 1
Rochester, NY 14624

Dear Mr. Wolf,

Ecology and Environment Engineering and Geology, P.C. (E&E) is pleased to provide the attached analytical results for the purge water collected during the groundwater sampling event for the Former Davis Howland Oil Company (DHOC) Site (No. 8-28-088), located in Rochester, New York. The annual groundwater sampling event was performed at the site in October 2019. The groundwater monitoring wells are purged prior to sampling. This purge water was containerized onsite in a 250-gallon poly tank. The total amount of purge water in the tank is approximately 100 gallons.

Samples were collected in accordance with the County of Monroe Sewer Use Permit #IWC-864 for the aforementioned site, and analyses performed in accordance with the parameters listed in the permit including purgeable aromatics, purgeable halocarbons, acetone, and pH. The analytical data report is included as Attachment 1 to this letter. Total VOC concentration in the purge water was 71 µg/L and pH was 7.6 su.

E&E is requesting to batch discharge the sampling purge water to the previously agreed upon discharge point, located inside the building at 20 Anderson Avenue, upon approval by Monroe County Division of Pure Waters.

If you have any questions regarding this letter or the attached analytical results, please call me at 716-684-8060.

Sincerely,
Ecology and Environment Engineering and Geology, P. C.

Jill Gulczewski
Project Manager

cc: Jenelle Gaylord – NYSDEC Project Manager

November 14, 2019

Attachment 1
Analytical Results

Eurofins TestAmerica, Buffalo, NY
October 2019

Laboratory Submission: 480-161353-1

Lab Sample ID: 480-161353-5

Detection Summary

Client: Ecology and Environment, Inc.
Job ID: 480-161353-1
Project/Site: Davis Howland Oil Company - NYSDEC

Client Sample ID: TANK102219
Lab Sample ID: 480-161353-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	60		50	5.7	ug/L	10		624.1	Total/NA
Trichloroethylene	11	J	50	6.0	ug/L	10		624.1	Total/NA
pH	7.6	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Temperature	19.9	HF	0.001	0.001	Degrees C	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: TANK102219
Lab Sample ID: 480-161353-5
Date Collected: 10/22/19 14:05
Matrix: Water
Date Received: 10/22/19 17:00

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	50	U	50	3.9	ug/L			10/24/19 00:33	10
1,1,2,2-Tetrachloroethane	50	U	50	2.6	ug/L			10/24/19 00:33	10
1,1,2-Trichloroethane	50	U	50	4.8	ug/L			10/24/19 00:33	10
1,1-Dichloroethane	50	U	50	5.9	ug/L			10/24/19 00:33	10
1,1-Dichloroethene	50	U	50	8.5	ug/L			10/24/19 00:33	10
1,2-Dichlorobenzene	50	U	50	4.4	ug/L			10/24/19 00:33	10
1,2-Dichloroethane	50	U	50	6.0	ug/L			10/24/19 00:33	10
1,2-Dichloropropane	50	U	50	6.1	ug/L			10/24/19 00:33	10

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland Oil Company - NYSDEC

Job ID: 480-161353-1

Client Sample ID: TANK102219
Date Collected: 10/22/19 14:05
Date Received: 10/22/19 17:00

Lab Sample ID: 480-161353-5
Matrix: Water

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	50	U	50	5.4	ug/L			10/24/19 00:33	10
1,4-Dichlorobenzene	50	U	50	5.1	ug/L			10/24/19 00:33	10
2-Chloroethyl vinyl ether	250	U	250	19	ug/L			10/24/19 00:33	10
Acetone	250	U	250	20	ug/L			10/24/19 00:33	10
Benzene	50	U	50	6.0	ug/L			10/24/19 00:33	10
Bromoform	50	U	50	4.7	ug/L			10/24/19 00:33	10
Bromomethane	50	U	50	12	ug/L			10/24/19 00:33	10
Carbon tetrachloride	50	U	50	5.1	ug/L			10/24/19 00:33	10
Chlorobenzene	50	U	50	4.8	ug/L			10/24/19 00:33	10
Dibromochloromethane	50	U	50	4.1	ug/L			10/24/19 00:33	10
Chloroethane	50	U	50	8.7	ug/L			10/24/19 00:33	10
Chloroform	50	U	50	5.4	ug/L			10/24/19 00:33	10
Chloromethane	50	U	50	6.4	ug/L			10/24/19 00:33	10
cis-1,2-Dichloroethene	**60**		50	5.7	ug/L			10/24/19 00:33	10
cis-1,3-Dichloropropene	50	U	50	3.3	ug/L			10/24/19 00:33	10
Bromodichloromethane	50	U	50	5.4	ug/L			10/24/19 00:33	10
Ethylbenzene	50	U	50	4.6	ug/L			10/24/19 00:33	10
m-Xylene & p-Xylene	100	U	100	11	ug/L			10/24/19 00:33	10
Methylene Chloride	50	U	50	8.1	ug/L			10/24/19 00:33	10
o-Xylene	50	U	50	4.3	ug/L			10/24/19 00:33	10
Tetrachloroethylene	50	U	50	3.4	ug/L			10/24/19 00:33	10
Toluene	50	U	50	4.5	ug/L			10/24/19 00:33	10
trans-1,2-Dichloroethene	50	U	50	5.9	ug/L			10/24/19 00:33	10
trans-1,3-Dichloropropene	50	U	50	4.4	ug/L			10/24/19 00:33	10
Trichloroethylene	**11**	**J**	50	6.0	ug/L			10/24/19 00:33	10
Trichlorofluoromethane	50	U	50	4.5	ug/L			10/24/19 00:33	10
Vinyl chloride	50	U	50	7.5	ug/L			10/24/19 00:33	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*68 - 130*		*10/24/19 00:33*	*10*
4-Bromofluorobenzene (Surr)	*99*		*76 - 123*		*10/24/19 00:33*	*10*
Toluene-d8 (Surr)	*96*		*77 - 120*		*10/24/19 00:33*	*10*
Dibromofluoromethane (Surr)	*98*		*75 - 123*		*10/24/19 00:33*	*10*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.6**	**HF**	0.1	0.1	SU			11/04/19 21:49	1
Temperature	**19.9**	**HF**	0.001	0.001	Degrees C			11/04/19 21:49	1

B Data Usability Summary Report

Data Usability Summary Report	Project: Davis Howland Oil Company
Date Completed: December 2, 2019	Completed by: Eridania Marte

The analytical data provided by the laboratory were reviewed for precision, accuracy, and completeness based on applicable sections of the following guidance:

- NYSDEC Division of Environmental Remediation Guidance for Data Deliverables and the Development of Data Usability Summary Reports (in DER-10, May 2010);
- EPA Region 2 Data Validation Standard Operating Procedures.

Specific criteria for QC limits were obtained from EEEPC's Master QAPP for NYSDEC projects. Compliance with the project QA program is indicated in the checklist and tables below. Any major or minor concerns affecting data usability are listed below. The checklist and tables also indicate whether data qualification is required and/or the type of qualifier assigned.

Reference:

Project ID	Lab Work Order	Laboratory
1703074.0012.08	480-161249-1 480-161353-1	Test America; Buffalo

Table 1 Sample Listing Summary

Work Order	Matrix	Sample ID	Lab ID	Sample Date	Field QC	Name Corrections
480-161249-1	WG	MW10R102119	480-161249-12	10/21/2019 14:35		MW-10R-102119
480-161249-1	WG	MW14R101819	480-161249-6	10/18/2019 13:15		MW-14R-101819
480-161249-1	WG	MW14S101819 Q	480-161249-4	10/18/2019 11:15		MW-14S-Q-101819
480-161249-1	WG	MW14S101819	480-161249-3	10/18/2019 11:15		MW-14S-101819
480-161249-1	WG	MW1S102119	480-161249-13	10/21/2019 14:20	MS/MSD	MW-1S-102119
480-161249-1	WG	MW2R102119	480-161249-9	10/21/2019 12:35		MW-2R-102119
480-161249-1	WG	MW2S101819	480-161249-8	10/18/2019 15:20		MW-2S-101819
480-161249-1	WG	MW5R101819	480-161249-2	10/18/2019 11:15		MW-5R-101819
480-161249-1	WG	MW8101819	480-161249-7	10/18/2019 15:15		MW-8R-101819
480-161249-1	WG	MW9S101819	480-161249-5	10/18/2019 13:00		MW-9S-101819
480-161249-1	WG	PW1102119	480-161249-10	10/21/2019 10:00		PW-1-102119
480-161249-1	WG	PZ3102119	480-161249-11	10/21/2019 12:30		PZ-03-102119
480-161249-1	WQ	TB101819	480-161249-1	10/18/2019 09:30		
480-161353-1	WG	MW15R102219	480-161353-3	10/22/2019 12:40		MW-15R-102219
480-161353-1	WG	MW16R102219	480-161353-2	10/22/2019 12:00		MW-16R-102219
480-161353-1	WH	RB102219	480-161353-4	10/22/2019 13:00		
480-161353-1	WW	TANK102219	480-161353-5	10/22/2019 14:05		TANK-01-102219
480-161353-1	WQ	TB102219	480-161353-1	10/22/2019 09:30		

Data Usability Summary Report	Project: Davis Howland Oil Company
Date Completed: December 2, 2019	Completed by: Eridania Marte

Table 1A Sample Test Summary

Work Orders	Matrix	Test Method	Method Name	Number of Samples	Sample Type
480-161249-1	WG	E624.1	Volatile Organic Compounds (GC/MS)	11	N
480-161249-1	WQ	E624.1	Volatile Organic Compounds (GC/MS)	1	TB
480-161249-1	WG	E624.1	Volatile Organic Compounds (GC/MS)	1	FD
480-161353-1	WG	E624.1	Volatile Organic Compounds (GC/MS)	3	N
480-161353-1	WQ	E624.1	Volatile Organic Compounds (GC/MS)	1	TB
480-161353-1	WH	E624.1	Volatile Organic Compounds (GC/MS)	1	RB
480-161353-1	WG	SM 4500 H+ B	pH	1	N

Data Usability Summary Report	Project: Davis Howland Oil Company
Date Completed: December 2, 2019	Completed by: Eridania Marte

General Sample Information	
Do Samples and Analyses on COC check against Lab Sample Tracking Form?	Several sample names were revised to match previous naming nomenclature.
Did coolers arrive at lab between 2 and 6°C and in good condition as indicated on COC and Cooler Receipt Form?	Yes.
Frequency of Field QC Samples Correct? Field Duplicate - 1/20 samples MS/MSD – 1/20 samples Trip Blank - Every cooler with VOCs waters only Equipment Blank - 1/ 20 samples?	Yes.
Case narrative present and complete?	Yes.
Any holding time violations?	pH was analyzed outside of recommended 15 minute hold time. The associated sample result was J qualified as estimated.

The following tables are presented at the end of this DUSR and provided summaries of results outside QC criteria:

- Method Blanks Results (Table 2)
- Surrogates Outside Limits (Table 3)
- MS/MSD Outside Limits (Table 4)
- LCS Outside Limits (Table 5)
- Re-analysis Results (Table 6)
- Field Duplicate Results (Table 7)

Go to Tables List

Volatile Organic Compounds by GC/MS – Method E624.1	
Description	**Notes and Qualifiers**
Any compounds present in method, trip, or, field blanks (see Table 2)?	Yes.
For samples, if results are < 5 times the blank or < 10 times the blank for common laboratory contaminants, then "U" flag data. Qualification also applies to TICs.	Methylene chloride was detected in trip blanks collected on 10/18 and 10/22. Associated sample results were not detected; therefore, no qualification was made.
Are surrogates for method blanks and LCS within limits?	Yes.
Are surrogates for samples and MS/MSD within limits? (See Table 3). If not, were all samples reanalyzed for VOCs? Matrix effects should be established.	Yes.
Is Laboratory QC frequency at least one blank and LCS with each batch and one set of MS/MSD per 20 samples?	Yes.
Is MS/MSD within QC criteria (see Table 4)? If out and LCS is compliant, then “J” flag positive data in original sample due to matrix.	Carbon tetrachloride, o-xylene, and m-xylene & p-xylene were recovered outside the acceptance criteria. The results in the parent sample were non-detect. No qualification was made.
Is LCS within QC criteria (see Table 5)? If out, and the recovery is high with no positive values, then no data qualification is required.	Yes.

Volatile Organic Compounds by GC/MS – Method E624.1	
Description	**Notes and Qualifiers**
Do internal standards areas and retention time meet criteria? If not was sample re-analyzed to establish matrix (see Table 6)?	Yes.
Is initial calibration for target compounds <20 %RSD or curve fit? Is ICV 80-120%? Is LCV 70-130%?	Yes.
Is %D in the continuing calibration for target compounds less than method specifications?	Yes.
Does each target compound have a minimum response factor of 0.05 for the lowest calibration standard and for the average RF? Qualifications do not apply to ketones, alcohols and dioxanes due to poor purging efficiency.	Yes.
Were any samples reanalyzed or diluted (see Table 6)? For any sample reanalysis or dilutions, is only one reportable result flagged?	Samples MW2S101819, PZ3102119, MW16R102219, and TANK102219 were diluted by 10X due to foaming during purging. Elevated reporting limits provided for non-detect results. Various analytes MDL were elevated above the screening criteria and analytes may or may not be present below the screening limits. Samples MW2R102119 and MW5R101819 were diluted at a 10X dilution to bring the concentration of target analytes within the calibration range. Elevated reporting limits provided for non-detect results. Various analytes MDL were elevated above the screening criteria and analytes may or may not be present below the screening limits. Sample PW1102119 was diluted at a 4X dilution due to foaming during purging. Elevated reporting limits provided for non-detect results. Various analytes MDL were elevated above the screening criteria and analytes may or may not be present below the screening limits. Sample MW10R102119 was diluted at a 20X dilution to bring the concentration of target analytes within the calibration range. Elevated reporting limits provided for non-detect results. Various analytes MDL were elevated above the screening criteria and analytes may or may not be present below the screening limits. Sample MW8101819 was diluted at a 80X dilution to bring the concentration of target analytes within the calibration range. Elevated reporting limits provided for non-detect results. Various analytes MDL were elevated above the screening criteria and analytes may or may not be present below the screening limits.
Do field duplicate results show good precision for all compounds (see Table 7)?	All sample pair results were non-detect. Therefore, no field duplicate result evaluation could be made.

Data Usability Summary Report	Project: Davis Howland Oil Company
Date Completed: December 2, 2019	Completed by: Eridania Marte

Summary of Findings
• Samples MW2S101819, PZ3102119, MW16R102219, TANK102219, and PW1102119 were diluted due to foaming during purging. Samples MW2R102119, MW5R101819, MW10R102119, and MW8101819 were diluted to bring the concentration of target analytes within the calibration range. Various analytes MDL were elevated above the screening criteria and analytes may or may not be present below the screening limits.

Table 2 - List of Positive Results for Blank Samples

Method	Sample ID	Sample Type	Analyte	Result	Lab Qualifier	Units	MDL	PQL
E624.1	TB101819	TB	Methylene Chloride	1.3	J	µg/L	0.81	5.0
E624.1	TB102219	TB	Methylene Chloride	1.3	J	µg/L	0.81	5.0

Table 2A - List of Samples Qualified for Method Blank Contamination
None.

Table 2B – List of Samples Qualified for Field Blank Contamination
None.

Table 3 – List of Samples with Surrogates outside Control Limits
None.

Table 4 - List MS/MSD Recoveries and RPDs outside Control Limits

Method	Sample ID	Sample Type	Analyte	Orig. Result	Spike Amount	MS	MSD	Low Limit	High Limit	Sample Qualifier
E624.1	MW1S102119	MS/MSD	Carbon tetrachloride	ND	20	148	146	70	140	None: High & ND
E624.1	MW1S102119	MS/MSD	m-Xylene & p-Xylene	ND	20	129	129	79	120	None: High & ND
E624.1	MW1S102119	MS/MSD	o-Xylene	ND	20	126	125	79	120	None: High & ND

Table 5 - List LCS Recoveries outside Control Limits
None.

Table 6 –Samples that were Re-analyzed

Sample ID	Lab ID	Method	Sample Type	Action
MW2S101819	480-161249-8	E624.1	N	10X: diluted due to foaming at the time of purging during the original sample analysis
PW1102119	480-161249-10	E624.1	N	4X: diluted due to foaming at the time of purging during the original sample analysis
PZ3102119	480-161249-11	E624.1	N	10X: diluted due to foaming at the time of purging during the original sample analysis
MW2R102119	480-161249-9	E624.1	N	10X: diluted to bring the concentration of target analytes within the calibration range
MW10R102119	480-161249-12	E624.1	N	20X: diluted to bring the concentration of target analytes within the calibration range
MW5R101819	480-161249-2	E624.1	N	10X: diluted to bring the concentration of target analytes within the calibration range
MW8101819	480-161249-7	E624.1	N	80X: diluted to bring the concentration of target analytes within the calibration range
MW16R102219	480-161353-2	E624.1	N	10X: diluted due to foaming at the time of purging during the original sample analysis
TANK102219	480-161353-5	E624.1	N	10X: diluted due to foaming at the time of purging during the original sample analysis

Table 7 – Summary of Field Duplicate Results
N/A

Acronym List and Table Key:

COC	=	chain of custody
DUSR	=	data usability summary report
FD	=	Field duplicate sample
GC/MS	=	gas chromatography / mass spectrometry
LCS	=	laboratory control sample
LCSD	=	laboratory control sample duplicate
MBLK	=	method blank
MS	=	matrix spike
MSD	=	matrix spike duplicate
N	=	Normal field sample
NC	=	not calculated
ND	=	not detected
NYSDEC	=	New York State Department of Environmental Conservation
PQL	=	practical quantitation limit
QA	=	quality assurance
QAPP	=	quality assurance project plan
QC	=	quality control
RB	=	Rinsate blank sample
RPD	=	relative percent difference
SDG	=	sample delivery group
TB	=	Trip blank sample
TRG	=	Target analyte
µg/l	=	Micrograms per liter
VOC	=	volatile organic compound
WG	=	Groundwater (matrix)

C County of Monroe Discharge Permit

CR# 01000 1-188

COUNTY OF MONROE
SEWER USE PERMIT RENEWAL

Firm Name:	NYSDEC Division of Environmental Remediation 200 Anderson (Davis Howland)Avenue	Permit Number: Fee: Expires:	IWC-864 $ 75.00 May 31, 2022
Mailing Addr:	625 Broadway, 12th Floor Albany, NY 12233-7013	W/C Expire: District No:	~~N/A~~ 9/1/2020 8575
Business Type:	Pretreatment		

Has there been any revision to the plant sewer system or any change in industrial wastes discharged to the public sewer in the past twelve months

Yes: __ No: X If yes, please explain in a separate letter.

Average monthly consumption for the past twelve (12) months:

Water Account No.(s) N/A (cu ft/gal) N/A

In consideration of the granting of this renewal permit the undersigned agrees to comply with all the requirements in the Initial Permit as listed under II.

Name of person to be contacted for inspection & sampling purposes:

Jill Gulczewski

Type or Print: Ecology and Environment Phone No: 716-684-8060

YOUR PERMIT MUST BE SIGNED AS FOLLOWS:

1. For a corporation: by a responsible corporate officer. A corporate officer means:
   (a) A president, secretary, treasurer or vice - president of the corporation in charge of a principal business function, or any other person who performs similar policy - or decision - making functions for the corporation: or
   (b) The manager of one or more manufacturing, production, or operation facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second - quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

2. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

3. By a duly authorized representative of the individual designated in items (1) or (2) above if:

   (a) The authorization is made in writing by the individual described in items (1) or (2);
   (b) The authorization specifies either an individual or a position having responsibility for the overall operation of the facility from which the Industrial Discharge originates such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company; (A duly authorized representative may thus be either a named individual or any individual occupying named position), and
   (c) The written authorization is submitted to this Department.

Print or Type: Jenelle Gaylord Phone No: 518-402-9813

Signature: [signature] Date: 9/27/19

Title: NYSDEC Project Manager

Renewal Approved by: [signature] Issued this 24 day of Oct 2019

Michael J. Garland, P.E.
Director of Environmental Services-PureWaters
Monroe County

COUNTY OF MONROE
SEWER USE PERMIT ENCLOSURE

NYSDEC Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, NY 12233-7013

PERMIT NUMBER: 864
DISTRICT NUMBER: 8575

TYPE OF BUSINESS: Groundwater Remediation
LOCATION: Davis Howland Oil Co. Site – 200 Anderson Ave.
Rochester, NY

SAMPLE POINT: IWC-864.2 – Monitoring Well Purge Water

REQUIRED MONITORING & EFFLUENT LIMITS

SAMPLE POINT: IWC-864.2 – Monitoring Well Purge Water

SELF-MONITORING FREQUENCY: **Each and Every Batch Discharge**

SAMPLING PROTOCOL: Sampling and analysis shall be performed in accordance with the techniques prescribed in 40CFR part 136 and amendments thereto. In the absence of 40 CFR Part 136 testing methodology, a New York State Department of Health, approved method is acceptable. A grab sample, collected from the above noted sample point shall be analyzed for the following:

Parameter	Sewer Use Limit	Action Level
Purgeable Aromatics		2.13 mg/L*
Purgeable Halocarbons		2.13 mg/L*
Acetone	(monitor only)	

DISCHARGE LIMITATIONS: The summation of purgeable aromatics and purgeable halocarbons greater than 10 µg/L shall not exceed 2.13 mg/L.

SPECIAL CONDITION:

Quarterly flow summaries shall be submitted for billing purposes. It is imperative these summaries are submitted in a timely manner. If there is no discharge for a given quarter, then a letter must be submitted stating so.

TERMS AND CONDITIONS

GENERAL REQUIRMENTS:

A. The permittee agrees to accept and abide by all provisions of the Sewer Use Law of Monroe County (MCSUL) and of all pertinent rules or regulations now in force or shall be adopted in the future.

B. In addition to the parameters/limits outlined, the total facility discharge shall meet all other concentration values listed within the MCSUL and as described in Article III, Section 3.3(d) of the Law.

C. Included in Article II, Section 2.1 of the MCSUL, is the definition of "Normal Sewage". "Normal Sewage" may be discharged to the sewer system in excess of the concentrations outlined in the definition, however, the facility will be subject to the imposition of a sewer surcharge and possible self-monitoring requirements as a result. Surcharging procedures are outlined in Article X of the MCSUL.

D. Regulatory sampling for analytes not specified under "required monitoring" shall be conducted by Monroe County at a minimum frequency of once every three (3) years.

E. This permit is not assignable or transferable. The permit is issued to a specific user and location.

F. Per Article IX, section 9.9 of the MCSUL, a violation by the permittee of the permit conditions may be cause for revocation or suspension of the permit after a Hearing by the Administrative Board, or if the violation is found to be within the emergency powers of the Director under Section 9.6. The revocation is immediate upon receipt of notice to the Industrial User. If the revocation or suspension is issued under Section 9.6, a Hearing shall be held as soon as possible.

G. As provided under Article VI, Section 6.1 of the MCSUL, the Director and/or his duly authorized representatives shall gain entry on to private lands by permission or duly issued warrant for the purpose of inspection, observation, measurement sampling and testing in accordance with the provisions of this law and its implementing Rules and Regulations. The Director or his representatives shall not have authority to inquire into any processes used in any industrial operation beyond that information having a direct bearing on the kind and source of discharge to the sewers or the on-site facilities for waste treatment. While performing the necessary work on private lands, referred to above, the Director or his duly authorized representative shall observe all safety rules applicable to the premises as established by the owner and/or occupant.

H. All required monitoring shall be analyzed by a New York State Department of Health certified laboratory. All sampling and analysis must be performed in accordance with Title 40 Code of Federal Regulations Part 136.

I. The pH range for this permit is 5.0 – 12.0 su. This range is specifically permitted by the Director as allowed under Article III, Section 3.3(b) of the MCSUL. pH must be analyzed within 15 minutes of the time of collection as specified in 40 CFR, part 136.

J. Discharges of wax, fats, oil or grease shall not exceed 100 mg/L as imposed by the Director under Article III, Section 3.3 of the MCSUL.

SURCHARGE CONCENTRATIONS:

Concentration and/or characteristics of normal sewage:
"Normal Sewage" shall mean sewage, industrial wastes or other wastes, which when analyzed, show concentration values with the following characteristics based on daily maximum limits:

a. B. O. D.	300 mg/L
b. Total Suspended Solids	300 mg/L
c. Total Phosphorus, as P	10 mg/L

Annual average concentrations above normal sewage are subject to surcharge as defined in Article X, section 10.7 of the MCSUL.

DISCHARGE LIMITATIONS (SEWER USE LIMITS)

Permissible concentrations of toxic substances and/or substances the Department wishes to control:
The concentration in sewage of any of the following toxic substances and/or substances the Department wishes to control shall not exceed the concentration limits specified when discharged into the County Sewer System; metal pollutants are expressed as <u>total</u> metals in mg/L (ppm): the following pollutant limits are based on daily maximum values:

a. Antimony (Sb)	1.0 mg/L
b. Arsenic (As)	0.5 mg/L
c. Barium (Ba)	2.0 mg/L
d. Beryllium (Be)	5.0 mg/L
e. Cadmium (Cd)	1.0 mg/L
f. Chromium (Cr)	3.0 mg/L
g. Copper (Cu)	3.0 mg/L
h. Cyanide (CN)	1.0 mg/L
i. Iron (Fe)	5.0 mg/L
j. Lead (Pb)	1.0 mg/L
k. Manganese (Mn)	5.0 mg/L
l. Mercury (Hg)	0.05 mg/L
m. Nickel (Ni)	3.0 mg/L
n. Selenium (Se)	2.0 mg/L
o. Silver (Ag)	2.0 mg/L
p. Thallium (Tl)	1.0 mg/L
q. Zinc (Zn)	5.0 mg/L

REPORTING REQUIREMENTS:

A. Per the requirements of 40 CFR, Part 403.12, Significant Industrial Users must submit Periodic Reports on Continued Compliance to the Control Authority on a biannual (2/yr) basis. Deadline dates of submission for these reports will be August 15 and February 15, respectively.

B. Discharge monitoring reports shall be submitted to the Control Authority upon receipt from the permittee's testing laboratory. Reports submitted from industrial users identified as Significant Industrial Users (SIU) must be accompanied by a certification statement as required by 40 CFR part 403 and the MCSUL, Article VI, section 6.12.

C. Any Industrial User subject to the reporting requirements of the General Pretreatment Regulations shall maintain records of all information resulting from any monitoring activities required by 40 CFR, part 403.12 for a minimum of three (3) years. These records shall be available for inspection and copying by the Control Authority. This period of retention shall be extended during the course

of any unresolved litigation regarding the discharge of pollutants by the Industrial User or the operation of the POTW Pretreatment Program or when requested by the Director or the Regional Administrator.

D. Pursuant to Article VI, Section 6.10 (4) of the MCSUL and the reporting requirements of the Code of Federal Regulations 40 CFR part 403.12, if a permitted user elects to perform monitoring at compliance monitoring locations more often than required and uses approved laboratory procedures, the results of all such additional monitoring and any additional flow measurements shall be reported to the Director on a timely basis and shall be included in reports as outlined in the MCSUL section 6.10(1)-(4).

NOTIFICATION REQUIREMENTS:

A. Pursuant to Article VI, Section 6.10(5), the permittee shall notify the Department within 24 hours of becoming aware that discharge monitoring is in violation of any permit limit. This notification shall be directed to the Industrial Waste Section at 585-753-7600 Option 4. The User shall also repeat sampling and analysis for the analyte in non-compliance and submit the results of the repeat analysis to Monroe County within 30 days after becoming aware of the violation.

B. Notify the Director in writing when considering a revision to the plant sewer system or any change in industrial waste discharges to the public sewers. The later encompasses either an increase or decrease in average daily volume or strength of waste or new wastes.

C. Notify the Director immediately of any accident, negligence, breakdown of pretreatment equipment or other occurrence that occasions discharge to the public sewer of any waste or process waters not covered by this permit.

SLUG CONTROL

An Industrial User shall be required to report any/all slug discharges to the Monroe County sewer system by calling 585-753-7600 option 4. For the purpose of this permit enclosure, a slug discharge shall be identified as any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge. Following a review process, the Control Authority (Monroe County) shall determine the applicability of a facility slug control plan. If the Control Authority decides that a Slug Discharge Control Plan (SDCP) is needed, the plan shall contain, at a minimum, the following elements:

1. Description of discharge practices, including non-routine batch discharges.
2. Description of stored chemicals.
3. Procedures for immediately notifying the Control Authority of slug discharges, including any discharge that would violate a prohibition under 40 CFR 403.5 (b), with procedures for follow up written notification within five (5) days.
4. If necessary, procedures to prevent adverse impact from accidental spills, including, but not limited to, inspection and maintenance of storage areas, handling and transfer of materials, loading and unloading operations, control of plant site run-off, worker training, building of containment structures or equipment, measures for containing toxic organic pollutants (including solvents) and/or measures and equipment for emergency purposes.

SNC DEFINITION:

In accordance with 40 CFR 403.8 (f) (vii), an Industrial User is in significant noncompliance (SNC) if its violations meet one or more of the following criteria:

A. Chronic violations of wastewater discharge limits – defined as those which 66% or more of all the measurements taken during a six-month period exceed (by any magnitude) the daily maximum limit or the average limit for the same pollutant parameter (ref. Article IX, section 9.19 – MCSUL). This criteria does NOT apply to the following Monroe County surchargeable parameters: Biochemical Oxygen Demand, Total Suspended Solids, Chlorine Demand and Total Phosphorus.

B. Technical review criteria (TRC) violations – defined as those in which 33% or more of all the measurements for each pollutant parameter taken during a six month period equal or exceed the product of the daily maximum limit or the average limit times the applicable TRC (ref. Article IX, section 9.19 – MCSUL). This criteria does NOT apply to the following Monroe County surchargeable parameters: Biochemical Oxygen Demand, Total Suspended Solids, Chlorine Demand and Total Phosphorus.

C. Any other violation of a pretreatment effluent limit (daily maximum or longer-term average) that the Control Authority determines has caused, alone or in combination with other discharges, interference or pass-through (including endangering the health or POTW personnel or the general public).

D. Any discharge of a pollutant that has caused imminent endangerment to human health, welfare or the environment or has resulted in the POTW's exercise of its emergency authority under paragraph (t)(1)(vi)(8) of 40 CFR part 403 to prevent such a discharge.

E. Failure to meet, within 90 days after the scheduled date, a compliance schedule milestone contained in a local control mechanism or enforcement order, for starting construction, completing construction or attaining final compliance.

F. Failure to provide, within 30 days after the due date, required reports such as BMRs, 90 day compliance reports, periodic reports on continued compliance.

G. Failure to accurately report noncompliance.

H. Any other violation or group of violations that the Control Authority determines will adversely affect the operation and implementation of the local Pretreatment Program.

PENALTIES

Should the facility be considered in Significant Non-Compliance (SNC), based on the above mentioned criteria, the minimum enforcement response by Monroe County will be the publication of the company name in the Gannett Rochester newspaper. The company will be published as an Industrial User in Significant Non-Compliance (SNC). Fines and criminal penalties may follow this publication (ref. Article IX – MCSUL).

Nothing in this permit shall be construed to relieve the permittees from civil/criminal penalties for noncompliance under Article IX, Section 9.7(a)(5) MCSUL. Article IX provides that any person who violates a permit condition is subject to a civil penalty not to exceed $25,000 for any one case and an additional penalty not to exceed $25,000 for each day of continued violation.

ACORD

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 09/19/2019

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Willis Towers Watson Northeast, Inc. fka Willis of New York, Inc. c/o 26 Century Blvd P.O. Box 305191 Nashville, TN 372305191 USA	CONTACT NAME: PHONE (A/C, No, Ext): 1-877-945-7378 FAX (A/C, No): 1-888-467-2378 E-MAIL ADDRESS: certificates@willis.com
INSURED Ecology and Environment Engineering and Geology, P.C. 368 Pleasant View Drive Lancaster, NY 14086	INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A: Great Divide Insurance Company — 25224 INSURER B: Federal Insurance Company — 20281 INSURER C: INSURER D: INSURER E: INSURER F:

COVERAGES **CERTIFICATE NUMBER:** W12738705 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	[X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS-MADE [X] OCCUR [X] Blanket Contractual Liability GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [X] PRO-JECT [X] LOC [ ] OTHER:			GLP2005977-17	08/01/2019	08/01/2020	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG [ ]	$ 3,000,000 $ 1,000,000 $ 30,000 $ 3,000,000 $ 3,000,000 $ 3,000,000 $
A	AUTOMOBILE LIABILITY [X] ANY AUTO [ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS [ ] HIRED AUTOS ONLY [ ] NON-OWNED AUTOS ONLY			BAP2005983-17	08/01/2019	08/01/2020	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) [ ]	$ 1,000,000 $ $ $ $
B	[ ] UMBRELLA LIAB [X] OCCUR [X] EXCESS LIAB [ ] CLAIMS-MADE [ ] DED [ ] RETENTION $			7987-27-63	08/01/2019	08/01/2020	EACH OCCURRENCE AGGREGATE Prod/Compl Ops.	$ 15,000,000 $ 15,000,000 $ 15,000,000
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBEREXCLUDED? (Mandatory in NH) Y/N: No If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		WCA2005979-17	08/01/2019	08/01/2020	[X] PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000
A	Consultants Poll & Prof Liab (Pollution - Occurrence) (Professional - Claims-made)			CCP2005976-17	08/01/2019	08/01/2020	Aggregate Limit Each Poll. Condition Each Prof. Claim	$11,000,000 $11,000,000 $11,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Re: Former Davis Howland Oil Corporation Site, Site 8-28-088, NYSDEC Contract D007617, WA#12

Excess Liability policy is following form and supports all listed coverages except Pollution and Professional Liability.

CERTIFICATE HOLDER

County of Monroe: Department of Environmental Services
145 Paul Road, Bldg. 1
Rochester, NY 14624

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

SR ID: 18544376 BATCH: 1375087

D

October 2019 Groundwater Monitoring Event Analytical Data

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

Laboratory Job ID: 480-161249-1
Client Project/Site: Davis Howland Oil Company - NYSDEC
Revision: 1

For:
Ecology and Environment, Inc.
368 Pleasant View Drive
Lancaster, New York 14086

Attn: Ashlee Patnode

Authorized for release by:
12/5/2019 5:15:30 PM

John Schove, Project Manager II
(716)504-9838
john.schove@testamericainc.com

Table of Contents

Definitions/Glossary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland Oil Company - NYSDEC

Job ID: 480-161249-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 480-161249-1

Laboratory: Eurofins TestAmerica, Buffalo

Narrative

Job Narrative
480-161249-1

Revision
This report has been revised to include additional compounds in the QC recovery section.

Comments
No additional comments.

Receipt
The samples were received on 10/21/2019 4:35 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.4° C.

GC/MS VOA
Method 624.1: The following volatiles sample was diluted due to foaming at the time of purging during the original sample analysis: MW2S101819 (480-161249-8). Elevated reporting limits (RLs) are provided.

Method 624.1: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW8101819 (480-161249-7). Elevated reporting limits (RLs) are provided.

Method 624.1: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW2R102119 (480-161249-9) and MW10R102119 (480-161249-12). Elevated reporting limits (RLs) are provided.

Method 624.1: The following volatiles samples were diluted due to foaming at the time of purging during the original sample analysis: PW1102119 (480-161249-10) and PZ3102119 (480-161249-11). Elevated reporting limits (RLs) are provided.

Method 624.1: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW5R101819 (480-161249-2). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland Oil Company - NYSDEC

Job ID: 480-161249-1

Client Sample ID: TB101819 — Lab Sample ID: 480-161249-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methylene Chloride	1.3	J	5.0	0.81	ug/L	1		624.1	Total/NA

Client Sample ID: MW5R101819 — Lab Sample ID: 480-161249-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	10	J	50	5.9	ug/L	10		624.1	Total/NA
cis-1,2-Dichloroethene	360		50	5.7	ug/L	10		624.1	Total/NA
Trichloroethylene	7.9	J	50	6.0	ug/L	10		624.1	Total/NA
Vinyl chloride	55		50	7.5	ug/L	10		624.1	Total/NA

Client Sample ID: MW14S101819 — Lab Sample ID: 480-161249-3

No Detections.

Client Sample ID: MW14S101819 Q — Lab Sample ID: 480-161249-4

No Detections.

Client Sample ID: MW9S101819 — Lab Sample ID: 480-161249-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	6.7		5.0	0.39	ug/L	1		624.1	Total/NA
1,1-Dichloroethane	36		5.0	0.59	ug/L	1		624.1	Total/NA
Chloroform	0.66	J	5.0	0.54	ug/L	1		624.1	Total/NA
cis-1,2-Dichloroethene	47		5.0	0.57	ug/L	1		624.1	Total/NA
Tetrachloroethylene	35		5.0	0.34	ug/L	1		624.1	Total/NA
trans-1,2-Dichloroethene	5.4		5.0	0.59	ug/L	1		624.1	Total/NA
Trichloroethylene	34		5.0	0.60	ug/L	1		624.1	Total/NA

Client Sample ID: MW14R101819 — Lab Sample ID: 480-161249-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	9.2		5.0	0.57	ug/L	1		624.1	Total/NA
trans-1,2-Dichloroethene	4.3	J	5.0	0.59	ug/L	1		624.1	Total/NA
Trichloroethylene	18		5.0	0.60	ug/L	1		624.1	Total/NA
Vinyl chloride	0.82	J	5.0	0.75	ug/L	1		624.1	Total/NA

Client Sample ID: MW8101819 — Lab Sample ID: 480-161249-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	120	J	400	47	ug/L	80		624.1	Total/NA
cis-1,2-Dichloroethene	3900		400	46	ug/L	80		624.1	Total/NA
Vinyl chloride	570		400	60	ug/L	80		624.1	Total/NA

Client Sample ID: MW2S101819 — Lab Sample ID: 480-161249-8

No Detections.

Client Sample ID: MW2R102119 — Lab Sample ID: 480-161249-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	220		50	5.7	ug/L	10		624.1	Total/NA
Vinyl chloride	130		50	7.5	ug/L	10		624.1	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland Oil Company - NYSDEC

Job ID: 480-161249-1

Client Sample ID: PW1102119 — Lab Sample ID: 480-161249-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	6.4	J	20	2.3	ug/L	4		624.1	Total/NA

Client Sample ID: PZ3102119 — Lab Sample ID: 480-161249-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	7.5	J	50	3.9	ug/L	10		624.1	Total/NA
1,1-Dichloroethane	27	J	50	5.9	ug/L	10		624.1	Total/NA
cis-1,2-Dichloroethene	16	J	50	5.7	ug/L	10		624.1	Total/NA

Client Sample ID: MW10R102119 — Lab Sample ID: 480-161249-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethylene	480		100	12	ug/L	20		624.1	Total/NA

Client Sample ID: MW1S102119 — Lab Sample ID: 480-161249-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	1.9	J	5.0	0.39	ug/L	1		624.1	Total/NA
1,1-Dichloroethane	1.2	J	5.0	0.59	ug/L	1		624.1	Total/NA
cis-1,2-Dichloroethene	33		5.0	0.57	ug/L	1		624.1	Total/NA
Tetrachloroethylene	3.8	J	5.0	0.34	ug/L	1		624.1	Total/NA
Trichloroethylene	23		5.0	0.60	ug/L	1		624.1	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland Oil Company - NYSDEC

Job ID: 480-161249-1

Client Sample ID: TB101819

Lab Sample ID: 480-161249-1

Date Collected: 10/18/19 09:30

Matrix: Water

Date Received: 10/21/19 16:35

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	5.0	U	5.0	0.39	ug/L			10/22/19 15:09	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			10/22/19 15:09	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			10/22/19 15:09	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			10/22/19 15:09	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			10/22/19 15:09	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			10/22/19 15:09	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			10/22/19 15:09	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			10/22/19 15:09	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			10/22/19 15:09	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			10/22/19 15:09	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			10/22/19 15:09	1
Acetone	25	U	25	2.0	ug/L			10/22/19 15:09	1
Benzene	5.0	U	5.0	0.60	ug/L			10/22/19 15:09	1
Bromoform	5.0	U	5.0	0.47	ug/L			10/22/19 15:09	1
Bromomethane	5.0	U	5.0	1.2	ug/L			10/22/19 15:09	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			10/22/19 15:09	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			10/22/19 15:09	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			10/22/19 15:09	1
Chloroethane	5.0	U	5.0	0.87	ug/L			10/22/19 15:09	1
Chloroform	5.0	U	5.0	0.54	ug/L			10/22/19 15:09	1
Chloromethane	5.0	U	5.0	0.64	ug/L			10/22/19 15:09	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			10/22/19 15:09	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			10/22/19 15:09	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			10/22/19 15:09	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			10/22/19 15:09	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			10/22/19 15:09	1
Methylene Chloride	**1.3**	**J**	5.0	0.81	ug/L			10/22/19 15:09	1
o-Xylene	5.0	U	5.0	0.43	ug/L			10/22/19 15:09	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			10/22/19 15:09	1
Toluene	5.0	U	5.0	0.45	ug/L			10/22/19 15:09	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			10/22/19 15:09	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			10/22/19 15:09	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			10/22/19 15:09	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			10/22/19 15:09	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			10/22/19 15:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*68 - 130*		*10/22/19 15:09*	*1*
4-Bromofluorobenzene (Surr)	*106*		*76 - 123*		*10/22/19 15:09*	*1*
Toluene-d8 (Surr)	*101*		*77 - 120*		*10/22/19 15:09*	*1*
Dibromofluoromethane (Surr)	*107*		*75 - 123*		*10/22/19 15:09*	*1*

Client Sample ID: MW5R101819

Lab Sample ID: 480-161249-2

Date Collected: 10/18/19 11:15

Matrix: Water

Date Received: 10/21/19 16:35

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	50	U	50	3.9	ug/L			10/24/19 15:08	10
1,1,2,2-Tetrachloroethane	50	U	50	2.6	ug/L			10/24/19 15:08	10

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland Oil Company - NYSDEC

Job ID: 480-161249-1

Client Sample ID: MW5R101819

Lab Sample ID: 480-161249-2

Date Collected: 10/18/19 11:15

Matrix: Water

Date Received: 10/21/19 16:35

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	50	U	50	4.8	ug/L			10/24/19 15:08	10
1,1-Dichloroethane	**10**	**J**	50	5.9	ug/L			10/24/19 15:08	10
1,1-Dichloroethene	50	U	50	8.5	ug/L			10/24/19 15:08	10
1,2-Dichlorobenzene	50	U	50	4.4	ug/L			10/24/19 15:08	10
1,2-Dichloroethane	50	U	50	6.0	ug/L			10/24/19 15:08	10
1,2-Dichloropropane	50	U	50	6.1	ug/L			10/24/19 15:08	10
1,3-Dichlorobenzene	50	U	50	5.4	ug/L			10/24/19 15:08	10
1,4-Dichlorobenzene	50	U	50	5.1	ug/L			10/24/19 15:08	10
2-Chloroethyl vinyl ether	250	U	250	19	ug/L			10/24/19 15:08	10
Acetone	250	U	250	20	ug/L			10/24/19 15:08	10
Benzene	50	U	50	6.0	ug/L			10/24/19 15:08	10
Bromoform	50	U	50	4.7	ug/L			10/24/19 15:08	10
Bromomethane	50	U	50	12	ug/L			10/24/19 15:08	10
Carbon tetrachloride	50	U	50	5.1	ug/L			10/24/19 15:08	10
Chlorobenzene	50	U	50	4.8	ug/L			10/24/19 15:08	10
Dibromochloromethane	50	U	50	4.1	ug/L			10/24/19 15:08	10
Chloroethane	50	U	50	8.7	ug/L			10/24/19 15:08	10
Chloroform	50	U	50	5.4	ug/L			10/24/19 15:08	10
Chloromethane	50	U	50	6.4	ug/L			10/24/19 15:08	10
cis-1,2-Dichloroethene	**360**		50	5.7	ug/L			10/24/19 15:08	10
cis-1,3-Dichloropropene	50	U	50	3.3	ug/L			10/24/19 15:08	10
Bromodichloromethane	50	U	50	5.4	ug/L			10/24/19 15:08	10
Ethylbenzene	50	U	50	4.6	ug/L			10/24/19 15:08	10
m-Xylene & p-Xylene	100	U	100	11	ug/L			10/24/19 15:08	10
Methylene Chloride	50	U	50	8.1	ug/L			10/24/19 15:08	10
o-Xylene	50	U	50	4.3	ug/L			10/24/19 15:08	10
Tetrachloroethylene	50	U	50	3.4	ug/L			10/24/19 15:08	10
Toluene	50	U	50	4.5	ug/L			10/24/19 15:08	10
trans-1,2-Dichloroethene	50	U	50	5.9	ug/L			10/24/19 15:08	10
trans-1,3-Dichloropropene	50	U	50	4.4	ug/L			10/24/19 15:08	10
Trichloroethylene	**7.9**	**J**	50	6.0	ug/L			10/24/19 15:08	10
Trichlorofluoromethane	50	U	50	4.5	ug/L			10/24/19 15:08	10
Vinyl chloride	**55**		50	7.5	ug/L			10/24/19 15:08	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*87*		*68 - 130*		*10/24/19 15:08*	*10*
4-Bromofluorobenzene (Surr)	*88*		*76 - 123*		*10/24/19 15:08*	*10*
Toluene-d8 (Surr)	*86*		*77 - 120*		*10/24/19 15:08*	*10*
Dibromofluoromethane (Surr)	*89*		*75 - 123*		*10/24/19 15:08*	*10*

Client Sample ID: MW14S101819

Lab Sample ID: 480-161249-3

Date Collected: 10/18/19 11:15

Matrix: Water

Date Received: 10/21/19 16:35

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	5.0	U	5.0	0.39	ug/L			10/22/19 15:57	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			10/22/19 15:57	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			10/22/19 15:57	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			10/22/19 15:57	1

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland Oil Company - NYSDEC

Job ID: 480-161249-1

Client Sample ID: MW14S101819

Lab Sample ID: 480-161249-3

Date Collected: 10/18/19 11:15

Matrix: Water

Date Received: 10/21/19 16:35

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			10/22/19 15:57	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			10/22/19 15:57	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			10/22/19 15:57	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			10/22/19 15:57	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			10/22/19 15:57	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			10/22/19 15:57	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			10/22/19 15:57	1
Acetone	25	U	25	2.0	ug/L			10/22/19 15:57	1
Benzene	5.0	U	5.0	0.60	ug/L			10/22/19 15:57	1
Bromoform	5.0	U	5.0	0.47	ug/L			10/22/19 15:57	1
Bromomethane	5.0	U	5.0	1.2	ug/L			10/22/19 15:57	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			10/22/19 15:57	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			10/22/19 15:57	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			10/22/19 15:57	1
Chloroethane	5.0	U	5.0	0.87	ug/L			10/22/19 15:57	1
Chloroform	5.0	U	5.0	0.54	ug/L			10/22/19 15:57	1
Chloromethane	5.0	U	5.0	0.64	ug/L			10/22/19 15:57	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			10/22/19 15:57	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			10/22/19 15:57	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			10/22/19 15:57	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			10/22/19 15:57	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			10/22/19 15:57	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			10/22/19 15:57	1
o-Xylene	5.0	U	5.0	0.43	ug/L			10/22/19 15:57	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			10/22/19 15:57	1
Toluene	5.0	U	5.0	0.45	ug/L			10/22/19 15:57	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			10/22/19 15:57	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			10/22/19 15:57	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			10/22/19 15:57	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			10/22/19 15:57	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			10/22/19 15:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*68 - 130*		*10/22/19 15:57*	*1*
4-Bromofluorobenzene (Surr)	*108*		*76 - 123*		*10/22/19 15:57*	*1*
Toluene-d8 (Surr)	*100*		*77 - 120*		*10/22/19 15:57*	*1*
Dibromofluoromethane (Surr)	*111*		*75 - 123*		*10/22/19 15:57*	*1*

Client Sample ID: MW14S101819 Q

Lab Sample ID: 480-161249-4

Date Collected: 10/18/19 11:15

Matrix: Water

Date Received: 10/21/19 16:35

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	5.0	U	5.0	0.39	ug/L			10/22/19 18:14	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			10/22/19 18:14	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			10/22/19 18:14	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			10/22/19 18:14	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			10/22/19 18:14	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			10/22/19 18:14	1

Client Sample ID: MW14S101819 Q
Lab Sample ID: 480-161249-4
Date Collected: 10/18/19 11:15
Matrix: Water
Date Received: 10/21/19 16:35

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			10/22/19 18:14	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			10/22/19 18:14	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			10/22/19 18:14	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			10/22/19 18:14	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			10/22/19 18:14	1
Acetone	25	U	25	2.0	ug/L			10/22/19 18:14	1
Benzene	5.0	U	5.0	0.60	ug/L			10/22/19 18:14	1
Bromoform	5.0	U	5.0	0.47	ug/L			10/22/19 18:14	1
Bromomethane	5.0	U	5.0	1.2	ug/L			10/22/19 18:14	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			10/22/19 18:14	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			10/22/19 18:14	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			10/22/19 18:14	1
Chloroethane	5.0	U	5.0	0.87	ug/L			10/22/19 18:14	1
Chloroform	5.0	U	5.0	0.54	ug/L			10/22/19 18:14	1
Chloromethane	5.0	U	5.0	0.64	ug/L			10/22/19 18:14	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			10/22/19 18:14	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			10/22/19 18:14	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			10/22/19 18:14	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			10/22/19 18:14	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			10/22/19 18:14	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			10/22/19 18:14	1
o-Xylene	5.0	U	5.0	0.43	ug/L			10/22/19 18:14	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			10/22/19 18:14	1
Toluene	5.0	U	5.0	0.45	ug/L			10/22/19 18:14	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			10/22/19 18:14	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			10/22/19 18:14	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			10/22/19 18:14	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			10/22/19 18:14	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			10/22/19 18:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*68 - 130*		*10/22/19 18:14*	*1*
4-Bromofluorobenzene (Surr)	*107*		*76 - 123*		*10/22/19 18:14*	*1*
Toluene-d8 (Surr)	*101*		*77 - 120*		*10/22/19 18:14*	*1*
Dibromofluoromethane (Surr)	*112*		*75 - 123*		*10/22/19 18:14*	*1*

Client Sample ID: MW9S101819
Lab Sample ID: 480-161249-5
Date Collected: 10/18/19 13:00
Matrix: Water
Date Received: 10/21/19 16:35

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**6.7**		5.0	0.39	ug/L			10/22/19 17:50	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			10/22/19 17:50	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			10/22/19 17:50	1
1,1-Dichloroethane	**36**		5.0	0.59	ug/L			10/22/19 17:50	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			10/22/19 17:50	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			10/22/19 17:50	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			10/22/19 17:50	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			10/22/19 17:50	1

Client Sample ID: MW9S101819
Lab Sample ID: 480-161249-5
Date Collected: 10/18/19 13:00
Matrix: Water
Date Received: 10/21/19 16:35

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			10/22/19 17:50	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			10/22/19 17:50	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			10/22/19 17:50	1
Acetone	25	U	25	2.0	ug/L			10/22/19 17:50	1
Benzene	5.0	U	5.0	0.60	ug/L			10/22/19 17:50	1
Bromoform	5.0	U	5.0	0.47	ug/L			10/22/19 17:50	1
Bromomethane	5.0	U	5.0	1.2	ug/L			10/22/19 17:50	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			10/22/19 17:50	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			10/22/19 17:50	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			10/22/19 17:50	1
Chloroethane	5.0	U	5.0	0.87	ug/L			10/22/19 17:50	1
Chloroform	**0.66**	**J**	5.0	0.54	ug/L			10/22/19 17:50	1
Chloromethane	5.0	U	5.0	0.64	ug/L			10/22/19 17:50	1
cis-1,2-Dichloroethene	**47**		5.0	0.57	ug/L			10/22/19 17:50	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			10/22/19 17:50	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			10/22/19 17:50	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			10/22/19 17:50	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			10/22/19 17:50	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			10/22/19 17:50	1
o-Xylene	5.0	U	5.0	0.43	ug/L			10/22/19 17:50	1
Tetrachloroethylene	**35**		5.0	0.34	ug/L			10/22/19 17:50	1
Toluene	5.0	U	5.0	0.45	ug/L			10/22/19 17:50	1
trans-1,2-Dichloroethene	**5.4**		5.0	0.59	ug/L			10/22/19 17:50	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			10/22/19 17:50	1
Trichloroethylene	**34**		5.0	0.60	ug/L			10/22/19 17:50	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			10/22/19 17:50	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			10/22/19 17:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*68 - 130*		*10/22/19 17:50*	*1*
4-Bromofluorobenzene (Surr)	*106*		*76 - 123*		*10/22/19 17:50*	*1*
Toluene-d8 (Surr)	*101*		*77 - 120*		*10/22/19 17:50*	*1*
Dibromofluoromethane (Surr)	*111*		*75 - 123*		*10/22/19 17:50*	*1*

Client Sample ID: MW14R101819
Lab Sample ID: 480-161249-6
Date Collected: 10/18/19 13:15
Matrix: Water
Date Received: 10/21/19 16:35

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	5.0	U	5.0	0.39	ug/L			10/22/19 17:27	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			10/22/19 17:27	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			10/22/19 17:27	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			10/22/19 17:27	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			10/22/19 17:27	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			10/22/19 17:27	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			10/22/19 17:27	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			10/22/19 17:27	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			10/22/19 17:27	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			10/22/19 17:27	1

Client Sample ID: MW14R101819
Lab Sample ID: 480-161249-6

Date Collected: 10/18/19 13:15
Matrix: Water
Date Received: 10/21/19 16:35

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			10/22/19 17:27	1
Acetone	25	U	25	2.0	ug/L			10/22/19 17:27	1
Benzene	5.0	U	5.0	0.60	ug/L			10/22/19 17:27	1
Bromoform	5.0	U	5.0	0.47	ug/L			10/22/19 17:27	1
Bromomethane	5.0	U	5.0	1.2	ug/L			10/22/19 17:27	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			10/22/19 17:27	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			10/22/19 17:27	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			10/22/19 17:27	1
Chloroethane	5.0	U	5.0	0.87	ug/L			10/22/19 17:27	1
Chloroform	5.0	U	5.0	0.54	ug/L			10/22/19 17:27	1
Chloromethane	5.0	U	5.0	0.64	ug/L			10/22/19 17:27	1
cis-1,2-Dichloroethene	**9.2**		5.0	0.57	ug/L			10/22/19 17:27	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			10/22/19 17:27	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			10/22/19 17:27	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			10/22/19 17:27	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			10/22/19 17:27	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			10/22/19 17:27	1
o-Xylene	5.0	U	5.0	0.43	ug/L			10/22/19 17:27	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			10/22/19 17:27	1
Toluene	5.0	U	5.0	0.45	ug/L			10/22/19 17:27	1
trans-1,2-Dichloroethene	**4.3**	**J**	5.0	0.59	ug/L			10/22/19 17:27	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			10/22/19 17:27	1
Trichloroethylene	**18**		5.0	0.60	ug/L			10/22/19 17:27	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			10/22/19 17:27	1
Vinyl chloride	**0.82**	**J**	5.0	0.75	ug/L			10/22/19 17:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*68 - 130*		*10/22/19 17:27*	*1*
4-Bromofluorobenzene (Surr)	*106*		*76 - 123*		*10/22/19 17:27*	*1*
Toluene-d8 (Surr)	*101*		*77 - 120*		*10/22/19 17:27*	*1*
Dibromofluoromethane (Surr)	*105*		*75 - 123*		*10/22/19 17:27*	*1*

Client Sample ID: MW8101819
Lab Sample ID: 480-161249-7

Date Collected: 10/18/19 15:15
Matrix: Water
Date Received: 10/21/19 16:35

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	400	U	400	31	ug/L			10/22/19 17:03	80
1,1,2,2-Tetrachloroethane	400	U	400	21	ug/L			10/22/19 17:03	80
1,1,2-Trichloroethane	400	U	400	39	ug/L			10/22/19 17:03	80
1,1-Dichloroethane	**120**	**J**	400	47	ug/L			10/22/19 17:03	80
1,1-Dichloroethene	400	U	400	68	ug/L			10/22/19 17:03	80
1,2-Dichlorobenzene	400	U	400	36	ug/L			10/22/19 17:03	80
1,2-Dichloroethane	400	U	400	48	ug/L			10/22/19 17:03	80
1,2-Dichloropropane	400	U	400	49	ug/L			10/22/19 17:03	80
1,3-Dichlorobenzene	400	U	400	43	ug/L			10/22/19 17:03	80
1,4-Dichlorobenzene	400	U	400	41	ug/L			10/22/19 17:03	80
2-Chloroethyl vinyl ether	2000	U	2000	150	ug/L			10/22/19 17:03	80
Acetone	2000	U	2000	160	ug/L			10/22/19 17:03	80

Client Sample ID: MW8101819
Lab Sample ID: 480-161249-7
Date Collected: 10/18/19 15:15
Matrix: Water
Date Received: 10/21/19 16:35

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	400	U	400	48	ug/L			10/22/19 17:03	80
Bromoform	400	U	400	37	ug/L			10/22/19 17:03	80
Bromomethane	400	U	400	95	ug/L			10/22/19 17:03	80
Carbon tetrachloride	400	U	400	41	ug/L			10/22/19 17:03	80
Chlorobenzene	400	U	400	38	ug/L			10/22/19 17:03	80
Dibromochloromethane	400	U	400	33	ug/L			10/22/19 17:03	80
Chloroethane	400	U	400	70	ug/L			10/22/19 17:03	80
Chloroform	400	U	400	43	ug/L			10/22/19 17:03	80
Chloromethane	400	U	400	51	ug/L			10/22/19 17:03	80
cis-1,2-Dichloroethene	**3900**		400	46	ug/L			10/22/19 17:03	80
cis-1,3-Dichloropropene	400	U	400	26	ug/L			10/22/19 17:03	80
Bromodichloromethane	400	U	400	43	ug/L			10/22/19 17:03	80
Ethylbenzene	400	U	400	37	ug/L			10/22/19 17:03	80
m-Xylene & p-Xylene	800	U	800	86	ug/L			10/22/19 17:03	80
Methylene Chloride	400	U	400	65	ug/L			10/22/19 17:03	80
o-Xylene	400	U	400	34	ug/L			10/22/19 17:03	80
Tetrachloroethylene	400	U	400	27	ug/L			10/22/19 17:03	80
Toluene	400	U	400	36	ug/L			10/22/19 17:03	80
trans-1,2-Dichloroethene	400	U	400	47	ug/L			10/22/19 17:03	80
trans-1,3-Dichloropropene	400	U	400	35	ug/L			10/22/19 17:03	80
Trichloroethylene	400	U	400	48	ug/L			10/22/19 17:03	80
Trichlorofluoromethane	400	U	400	36	ug/L			10/22/19 17:03	80
Vinyl chloride	**570**		400	60	ug/L			10/22/19 17:03	80

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*68 - 130*		*10/22/19 17:03*	*80*
4-Bromofluorobenzene (Surr)	*108*		*76 - 123*		*10/22/19 17:03*	*80*
Toluene-d8 (Surr)	*103*		*77 - 120*		*10/22/19 17:03*	*80*
Dibromofluoromethane (Surr)	*109*		*75 - 123*		*10/22/19 17:03*	*80*

Client Sample ID: MW2S101819
Lab Sample ID: 480-161249-8
Date Collected: 10/18/19 15:20
Matrix: Water
Date Received: 10/21/19 16:35

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	50	U	50	3.9	ug/L			10/22/19 16:39	10
1,1,2,2-Tetrachloroethane	50	U	50	2.6	ug/L			10/22/19 16:39	10
1,1,2-Trichloroethane	50	U	50	4.8	ug/L			10/22/19 16:39	10
1,1-Dichloroethane	50	U	50	5.9	ug/L			10/22/19 16:39	10
1,1-Dichloroethene	50	U	50	8.5	ug/L			10/22/19 16:39	10
1,2-Dichlorobenzene	50	U	50	4.4	ug/L			10/22/19 16:39	10
1,2-Dichloroethane	50	U	50	6.0	ug/L			10/22/19 16:39	10
1,2-Dichloropropane	50	U	50	6.1	ug/L			10/22/19 16:39	10
1,3-Dichlorobenzene	50	U	50	5.4	ug/L			10/22/19 16:39	10
1,4-Dichlorobenzene	50	U	50	5.1	ug/L			10/22/19 16:39	10
2-Chloroethyl vinyl ether	250	U	250	19	ug/L			10/22/19 16:39	10
Acetone	250	U	250	20	ug/L			10/22/19 16:39	10
Benzene	50	U	50	6.0	ug/L			10/22/19 16:39	10
Bromoform	50	U	50	4.7	ug/L			10/22/19 16:39	10

Client Sample ID: MW2S101819
Lab Sample ID: 480-161249-8

Date Collected: 10/18/19 15:20
Matrix: Water
Date Received: 10/21/19 16:35

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromomethane	50	U	50	12	ug/L			10/22/19 16:39	10
Carbon tetrachloride	50	U	50	5.1	ug/L			10/22/19 16:39	10
Chlorobenzene	50	U	50	4.8	ug/L			10/22/19 16:39	10
Dibromochloromethane	50	U	50	4.1	ug/L			10/22/19 16:39	10
Chloroethane	50	U	50	8.7	ug/L			10/22/19 16:39	10
Chloroform	50	U	50	5.4	ug/L			10/22/19 16:39	10
Chloromethane	50	U	50	6.4	ug/L			10/22/19 16:39	10
cis-1,2-Dichloroethene	50	U	50	5.7	ug/L			10/22/19 16:39	10
cis-1,3-Dichloropropene	50	U	50	3.3	ug/L			10/22/19 16:39	10
Bromodichloromethane	50	U	50	5.4	ug/L			10/22/19 16:39	10
Ethylbenzene	50	U	50	4.6	ug/L			10/22/19 16:39	10
m-Xylene & p-Xylene	100	U	100	11	ug/L			10/22/19 16:39	10
Methylene Chloride	50	U	50	8.1	ug/L			10/22/19 16:39	10
o-Xylene	50	U	50	4.3	ug/L			10/22/19 16:39	10
Tetrachloroethylene	50	U	50	3.4	ug/L			10/22/19 16:39	10
Toluene	50	U	50	4.5	ug/L			10/22/19 16:39	10
trans-1,2-Dichloroethene	50	U	50	5.9	ug/L			10/22/19 16:39	10
trans-1,3-Dichloropropene	50	U	50	4.4	ug/L			10/22/19 16:39	10
Trichloroethylene	50	U	50	6.0	ug/L			10/22/19 16:39	10
Trichlorofluoromethane	50	U	50	4.5	ug/L			10/22/19 16:39	10
Vinyl chloride	50	U	50	7.5	ug/L			10/22/19 16:39	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*68 - 130*		*10/22/19 16:39*	*10*
4-Bromofluorobenzene (Surr)	*107*		*76 - 123*		*10/22/19 16:39*	*10*
Toluene-d8 (Surr)	*102*		*77 - 120*		*10/22/19 16:39*	*10*
Dibromofluoromethane (Surr)	*108*		*75 - 123*		*10/22/19 16:39*	*10*

Client Sample ID: MW2R102119
Lab Sample ID: 480-161249-9

Date Collected: 10/21/19 12:35
Matrix: Water
Date Received: 10/21/19 16:35

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	50	U	50	3.9	ug/L			10/23/19 19:22	10
1,1,2,2-Tetrachloroethane	50	U	50	2.6	ug/L			10/23/19 19:22	10
1,1,2-Trichloroethane	50	U	50	4.8	ug/L			10/23/19 19:22	10
1,1-Dichloroethane	50	U	50	5.9	ug/L			10/23/19 19:22	10
1,1-Dichloroethene	50	U	50	8.5	ug/L			10/23/19 19:22	10
1,2-Dichlorobenzene	50	U	50	4.4	ug/L			10/23/19 19:22	10
1,2-Dichloroethane	50	U	50	6.0	ug/L			10/23/19 19:22	10
1,2-Dichloropropane	50	U	50	6.1	ug/L			10/23/19 19:22	10
1,3-Dichlorobenzene	50	U	50	5.4	ug/L			10/23/19 19:22	10
1,4-Dichlorobenzene	50	U	50	5.1	ug/L			10/23/19 19:22	10
2-Chloroethyl vinyl ether	250	U	250	19	ug/L			10/23/19 19:22	10
Acetone	250	U	250	20	ug/L			10/23/19 19:22	10
Benzene	50	U	50	6.0	ug/L			10/23/19 19:22	10
Bromoform	50	U	50	4.7	ug/L			10/23/19 19:22	10
Bromomethane	50	U	50	12	ug/L			10/23/19 19:22	10
Carbon tetrachloride	50	U	50	5.1	ug/L			10/23/19 19:22	10

Client Sample ID: MW2R102119
Lab Sample ID: 480-161249-9

Date Collected: 10/21/19 12:35
Matrix: Water
Date Received: 10/21/19 16:35

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	50	U	50	4.8	ug/L			10/23/19 19:22	10
Dibromochloromethane	50	U	50	4.1	ug/L			10/23/19 19:22	10
Chloroethane	50	U	50	8.7	ug/L			10/23/19 19:22	10
Chloroform	50	U	50	5.4	ug/L			10/23/19 19:22	10
Chloromethane	50	U	50	6.4	ug/L			10/23/19 19:22	10
cis-1,2-Dichloroethene	**220**		50	5.7	ug/L			10/23/19 19:22	10
cis-1,3-Dichloropropene	50	U	50	3.3	ug/L			10/23/19 19:22	10
Bromodichloromethane	50	U	50	5.4	ug/L			10/23/19 19:22	10
Ethylbenzene	50	U	50	4.6	ug/L			10/23/19 19:22	10
m-Xylene & p-Xylene	100	U	100	11	ug/L			10/23/19 19:22	10
Methylene Chloride	50	U	50	8.1	ug/L			10/23/19 19:22	10
o-Xylene	50	U	50	4.3	ug/L			10/23/19 19:22	10
Tetrachloroethylene	50	U	50	3.4	ug/L			10/23/19 19:22	10
Toluene	50	U	50	4.5	ug/L			10/23/19 19:22	10
trans-1,2-Dichloroethene	50	U	50	5.9	ug/L			10/23/19 19:22	10
trans-1,3-Dichloropropene	50	U	50	4.4	ug/L			10/23/19 19:22	10
Trichloroethylene	50	U	50	6.0	ug/L			10/23/19 19:22	10
Trichlorofluoromethane	50	U	50	4.5	ug/L			10/23/19 19:22	10
Vinyl chloride	**130**		50	7.5	ug/L			10/23/19 19:22	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*68 - 130*		*10/23/19 19:22*	*10*
4-Bromofluorobenzene (Surr)	*101*		*76 - 123*		*10/23/19 19:22*	*10*
Toluene-d8 (Surr)	*98*		*77 - 120*		*10/23/19 19:22*	*10*
Dibromofluoromethane (Surr)	*99*		*75 - 123*		*10/23/19 19:22*	*10*

Client Sample ID: PW1102119
Lab Sample ID: 480-161249-10

Date Collected: 10/21/19 10:00
Matrix: Water
Date Received: 10/21/19 16:35

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	20	U	20	1.5	ug/L			10/23/19 19:46	4
1,1,2,2-Tetrachloroethane	20	U	20	1.0	ug/L			10/23/19 19:46	4
1,1,2-Trichloroethane	20	U	20	1.9	ug/L			10/23/19 19:46	4
1,1-Dichloroethane	20	U	20	2.4	ug/L			10/23/19 19:46	4
1,1-Dichloroethene	20	U	20	3.4	ug/L			10/23/19 19:46	4
1,2-Dichlorobenzene	20	U	20	1.8	ug/L			10/23/19 19:46	4
1,2-Dichloroethane	20	U	20	2.4	ug/L			10/23/19 19:46	4
1,2-Dichloropropane	20	U	20	2.4	ug/L			10/23/19 19:46	4
1,3-Dichlorobenzene	20	U	20	2.2	ug/L			10/23/19 19:46	4
1,4-Dichlorobenzene	20	U	20	2.0	ug/L			10/23/19 19:46	4
2-Chloroethyl vinyl ether	100	U	100	7.4	ug/L			10/23/19 19:46	4
Acetone	100	U	100	7.9	ug/L			10/23/19 19:46	4
Benzene	20	U	20	2.4	ug/L			10/23/19 19:46	4
Bromoform	20	U	20	1.9	ug/L			10/23/19 19:46	4
Bromomethane	20	U	20	4.8	ug/L			10/23/19 19:46	4
Carbon tetrachloride	20	U	20	2.0	ug/L			10/23/19 19:46	4
Chlorobenzene	20	U	20	1.9	ug/L			10/23/19 19:46	4
Dibromochloromethane	20	U	20	1.7	ug/L			10/23/19 19:46	4

Client Sample ID: PW1102119
Lab Sample ID: 480-161249-10

Date Collected: 10/21/19 10:00
Matrix: Water
Date Received: 10/21/19 16:35

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroethane	20	U	20	3.5	ug/L			10/23/19 19:46	4
Chloroform	20	U	20	2.2	ug/L			10/23/19 19:46	4
Chloromethane	20	U	20	2.5	ug/L			10/23/19 19:46	4
cis-1,2-Dichloroethene	**6.4**	**J**	20	2.3	ug/L			10/23/19 19:46	4
cis-1,3-Dichloropropene	20	U	20	1.3	ug/L			10/23/19 19:46	4
Bromodichloromethane	20	U	20	2.1	ug/L			10/23/19 19:46	4
Ethylbenzene	20	U	20	1.9	ug/L			10/23/19 19:46	4
m-Xylene & p-Xylene	40	U	40	4.3	ug/L			10/23/19 19:46	4
Methylene Chloride	20	U	20	3.3	ug/L			10/23/19 19:46	4
o-Xylene	20	U	20	1.7	ug/L			10/23/19 19:46	4
Tetrachloroethylene	20	U	20	1.4	ug/L			10/23/19 19:46	4
Toluene	20	U	20	1.8	ug/L			10/23/19 19:46	4
trans-1,2-Dichloroethene	20	U	20	2.4	ug/L			10/23/19 19:46	4
trans-1,3-Dichloropropene	20	U	20	1.8	ug/L			10/23/19 19:46	4
Trichloroethylene	20	U	20	2.4	ug/L			10/23/19 19:46	4
Trichlorofluoromethane	20	U	20	1.8	ug/L			10/23/19 19:46	4
Vinyl chloride	20	U	20	3.0	ug/L			10/23/19 19:46	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*68 - 130*		*10/23/19 19:46*	*4*
4-Bromofluorobenzene (Surr)	*99*		*76 - 123*		*10/23/19 19:46*	*4*
Toluene-d8 (Surr)	*95*		*77 - 120*		*10/23/19 19:46*	*4*
Dibromofluoromethane (Surr)	*99*		*75 - 123*		*10/23/19 19:46*	*4*

Client Sample ID: PZ3102119
Lab Sample ID: 480-161249-11

Date Collected: 10/21/19 12:30
Matrix: Water
Date Received: 10/21/19 16:35

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**7.5**	**J**	50	3.9	ug/L			10/23/19 20:10	10
1,1,2,2-Tetrachloroethane	50	U	50	2.6	ug/L			10/23/19 20:10	10
1,1,2-Trichloroethane	50	U	50	4.8	ug/L			10/23/19 20:10	10
1,1-Dichloroethane	**27**	**J**	50	5.9	ug/L			10/23/19 20:10	10
1,1-Dichloroethene	50	U	50	8.5	ug/L			10/23/19 20:10	10
1,2-Dichlorobenzene	50	U	50	4.4	ug/L			10/23/19 20:10	10
1,2-Dichloroethane	50	U	50	6.0	ug/L			10/23/19 20:10	10
1,2-Dichloropropane	50	U	50	6.1	ug/L			10/23/19 20:10	10
1,3-Dichlorobenzene	50	U	50	5.4	ug/L			10/23/19 20:10	10
1,4-Dichlorobenzene	50	U	50	5.1	ug/L			10/23/19 20:10	10
2-Chloroethyl vinyl ether	250	U	250	19	ug/L			10/23/19 20:10	10
Acetone	250	U	250	20	ug/L			10/23/19 20:10	10
Benzene	50	U	50	6.0	ug/L			10/23/19 20:10	10
Bromoform	50	U	50	4.7	ug/L			10/23/19 20:10	10
Bromomethane	50	U	50	12	ug/L			10/23/19 20:10	10
Carbon tetrachloride	50	U	50	5.1	ug/L			10/23/19 20:10	10
Chlorobenzene	50	U	50	4.8	ug/L			10/23/19 20:10	10
Dibromochloromethane	50	U	50	4.1	ug/L			10/23/19 20:10	10
Chloroethane	50	U	50	8.7	ug/L			10/23/19 20:10	10
Chloroform	50	U	50	5.4	ug/L			10/23/19 20:10	10

Client Sample ID: PZ3102119
Lab Sample ID: 480-161249-11
Date Collected: 10/21/19 12:30
Matrix: Water
Date Received: 10/21/19 16:35

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	50	U	50	6.4	ug/L			10/23/19 20:10	10
cis-1,2-Dichloroethene	**16**	**J**	50	5.7	ug/L			10/23/19 20:10	10
cis-1,3-Dichloropropene	50	U	50	3.3	ug/L			10/23/19 20:10	10
Bromodichloromethane	50	U	50	5.4	ug/L			10/23/19 20:10	10
Ethylbenzene	50	U	50	4.6	ug/L			10/23/19 20:10	10
m-Xylene & p-Xylene	100	U	100	11	ug/L			10/23/19 20:10	10
Methylene Chloride	50	U	50	8.1	ug/L			10/23/19 20:10	10
o-Xylene	50	U	50	4.3	ug/L			10/23/19 20:10	10
Tetrachloroethylene	50	U	50	3.4	ug/L			10/23/19 20:10	10
Toluene	50	U	50	4.5	ug/L			10/23/19 20:10	10
trans-1,2-Dichloroethene	50	U	50	5.9	ug/L			10/23/19 20:10	10
trans-1,3-Dichloropropene	50	U	50	4.4	ug/L			10/23/19 20:10	10
Trichloroethylene	50	U	50	6.0	ug/L			10/23/19 20:10	10
Trichlorofluoromethane	50	U	50	4.5	ug/L			10/23/19 20:10	10
Vinyl chloride	50	U	50	7.5	ug/L			10/23/19 20:10	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*68 - 130*		*10/23/19 20:10*	*10*
4-Bromofluorobenzene (Surr)	*105*		*76 - 123*		*10/23/19 20:10*	*10*
Toluene-d8 (Surr)	*100*		*77 - 120*		*10/23/19 20:10*	*10*
Dibromofluoromethane (Surr)	*106*		*75 - 123*		*10/23/19 20:10*	*10*

Client Sample ID: MW10R102119
Lab Sample ID: 480-161249-12
Date Collected: 10/21/19 14:35
Matrix: Water
Date Received: 10/21/19 16:35

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	100	U	100	7.7	ug/L			10/23/19 20:34	20
1,1,2,2-Tetrachloroethane	100	U	100	5.2	ug/L			10/23/19 20:34	20
1,1,2-Trichloroethane	100	U	100	9.6	ug/L			10/23/19 20:34	20
1,1-Dichloroethane	100	U	100	12	ug/L			10/23/19 20:34	20
1,1-Dichloroethene	100	U	100	17	ug/L			10/23/19 20:34	20
1,2-Dichlorobenzene	100	U	100	8.9	ug/L			10/23/19 20:34	20
1,2-Dichloroethane	100	U	100	12	ug/L			10/23/19 20:34	20
1,2-Dichloropropane	100	U	100	12	ug/L			10/23/19 20:34	20
1,3-Dichlorobenzene	100	U	100	11	ug/L			10/23/19 20:34	20
1,4-Dichlorobenzene	100	U	100	10	ug/L			10/23/19 20:34	20
2-Chloroethyl vinyl ether	500	U	500	37	ug/L			10/23/19 20:34	20
Acetone	500	U	500	40	ug/L			10/23/19 20:34	20
Benzene	100	U	100	12	ug/L			10/23/19 20:34	20
Bromoform	100	U	100	9.4	ug/L			10/23/19 20:34	20
Bromomethane	100	U	100	24	ug/L			10/23/19 20:34	20
Carbon tetrachloride	100	U	100	10	ug/L			10/23/19 20:34	20
Chlorobenzene	100	U	100	9.5	ug/L			10/23/19 20:34	20
Dibromochloromethane	100	U	100	8.3	ug/L			10/23/19 20:34	20
Chloroethane	100	U	100	17	ug/L			10/23/19 20:34	20
Chloroform	100	U	100	11	ug/L			10/23/19 20:34	20
Chloromethane	100	U	100	13	ug/L			10/23/19 20:34	20
cis-1,2-Dichloroethene	100	U	100	11	ug/L			10/23/19 20:34	20

Client Sample ID: MW10R102119
Lab Sample ID: 480-161249-12

Date Collected: 10/21/19 14:35
Matrix: Water
Date Received: 10/21/19 16:35

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,3-Dichloropropene	100	U	100	6.6	ug/L			10/23/19 20:34	20
Bromodichloromethane	100	U	100	11	ug/L			10/23/19 20:34	20
Ethylbenzene	100	U	100	9.3	ug/L			10/23/19 20:34	20
m-Xylene & p-Xylene	200	U	200	22	ug/L			10/23/19 20:34	20
Methylene Chloride	100	U	100	16	ug/L			10/23/19 20:34	20
o-Xylene	100	U	100	8.6	ug/L			10/23/19 20:34	20
Tetrachloroethylene	100	U	100	6.8	ug/L			10/23/19 20:34	20
Toluene	100	U	100	9.1	ug/L			10/23/19 20:34	20
trans-1,2-Dichloroethene	100	U	100	12	ug/L			10/23/19 20:34	20
trans-1,3-Dichloropropene	100	U	100	8.8	ug/L			10/23/19 20:34	20
Trichloroethylene	**480**		100	12	ug/L			10/23/19 20:34	20
Trichlorofluoromethane	100	U	100	9.0	ug/L			10/23/19 20:34	20
Vinyl chloride	100	U	100	15	ug/L			10/23/19 20:34	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*68 - 130*		*10/23/19 20:34*	*20*
4-Bromofluorobenzene (Surr)	*102*		*76 - 123*		*10/23/19 20:34*	*20*
Toluene-d8 (Surr)	*99*		*77 - 120*		*10/23/19 20:34*	*20*
Dibromofluoromethane (Surr)	*103*		*75 - 123*		*10/23/19 20:34*	*20*

Client Sample ID: MW1S102119
Lab Sample ID: 480-161249-13

Date Collected: 10/21/19 14:20
Matrix: Water
Date Received: 10/21/19 16:35

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**1.9**	**J**	5.0	0.39	ug/L			10/23/19 20:58	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			10/23/19 20:58	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			10/23/19 20:58	1
1,1-Dichloroethane	**1.2**	**J**	5.0	0.59	ug/L			10/23/19 20:58	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			10/23/19 20:58	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			10/23/19 20:58	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			10/23/19 20:58	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			10/23/19 20:58	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			10/23/19 20:58	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			10/23/19 20:58	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			10/23/19 20:58	1
Acetone	25	U	25	2.0	ug/L			10/23/19 20:58	1
Benzene	5.0	U	5.0	0.60	ug/L			10/23/19 20:58	1
Bromoform	5.0	U	5.0	0.47	ug/L			10/23/19 20:58	1
Bromomethane	5.0	U	5.0	1.2	ug/L			10/23/19 20:58	1
Carbon tetrachloride	5.0	U F1	5.0	0.51	ug/L			10/23/19 20:58	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			10/23/19 20:58	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			10/23/19 20:58	1
Chloroethane	5.0	U	5.0	0.87	ug/L			10/23/19 20:58	1
Chloroform	5.0	U	5.0	0.54	ug/L			10/23/19 20:58	1
Chloromethane	5.0	U	5.0	0.64	ug/L			10/23/19 20:58	1
cis-1,2-Dichloroethene	**33**		5.0	0.57	ug/L			10/23/19 20:58	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			10/23/19 20:58	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			10/23/19 20:58	1

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland Oil Company - NYSDEC

Job ID: 480-161249-1

Client Sample ID: MW1S102119
Date Collected: 10/21/19 14:20
Date Received: 10/21/19 16:35

Lab Sample ID: 480-161249-13
Matrix: Water

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	5.0	U	5.0	0.46	ug/L			10/23/19 20:58	1
m-Xylene & p-Xylene	10	U F1	10	1.1	ug/L			10/23/19 20:58	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			10/23/19 20:58	1
o-Xylene	5.0	U F1	5.0	0.43	ug/L			10/23/19 20:58	1
Tetrachloroethylene	**3.8**	**J**	5.0	0.34	ug/L			10/23/19 20:58	1
Toluene	5.0	U	5.0	0.45	ug/L			10/23/19 20:58	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			10/23/19 20:58	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			10/23/19 20:58	1
Trichloroethylene	**23**		5.0	0.60	ug/L			10/23/19 20:58	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			10/23/19 20:58	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			10/23/19 20:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*68 - 130*		*10/23/19 20:58*	*1*
4-Bromofluorobenzene (Surr)	*102*		*76 - 123*		*10/23/19 20:58*	*1*
Toluene-d8 (Surr)	*99*		*77 - 120*		*10/23/19 20:58*	*1*
Dibromofluoromethane (Surr)	*102*		*75 - 123*		*10/23/19 20:58*	*1*

Surrogate Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland Oil Company - NYSDEC

Job ID: 480-161249-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(68-130)	(76-123)	(77-120)	(75-123)
480-161249-1	TB101819	105	106	101	107
480-161249-2	MW5R101819	87	88	86	89
480-161249-3	MW14S101819	107	108	100	111
480-161249-4	MW14S101819 Q	107	107	101	112
480-161249-5	MW9S101819	106	106	101	111
480-161249-6	MW14R101819	108	106	101	105
480-161249-7	MW8101819	108	108	103	109
480-161249-8	MW2S101819	104	107	102	108
480-161249-9	MW2R102119	100	101	98	99
480-161249-10	PW1102119	99	99	95	99
480-161249-11	PZ3102119	102	105	100	106
480-161249-12	MW10R102119	103	102	99	103
480-161249-13	MW1S102119	106	102	99	102
480-161249-13 MS	MW1S102119	100	99	95	97
480-161249-13 MSD	MW1S102119	91	95	94	95
LCS 480-499370/5	Lab Control Sample	109	104	99	104
LCS 480-499782/5	Lab Control Sample	105	107	107	108
LCS 480-499873/5	Lab Control Sample	84	86	84	88
MB 480-499370/7	Method Blank	103	106	102	111
MB 480-499782/7	Method Blank	109	108	105	110
MB 480-499873/7	Method Blank	85	86	83	87

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland Oil Company - NYSDEC

Job ID: 480-161249-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 480-499370/7
Matrix: Water
Analysis Batch: 499370

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	5.0	U	5.0	0.39	ug/L			10/22/19 11:03	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			10/22/19 11:03	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			10/22/19 11:03	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			10/22/19 11:03	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			10/22/19 11:03	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			10/22/19 11:03	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			10/22/19 11:03	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			10/22/19 11:03	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			10/22/19 11:03	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			10/22/19 11:03	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			10/22/19 11:03	1
Acetone	25	U	25	2.0	ug/L			10/22/19 11:03	1
Benzene	5.0	U	5.0	0.60	ug/L			10/22/19 11:03	1
Bromoform	5.0	U	5.0	0.47	ug/L			10/22/19 11:03	1
Bromomethane	5.0	U	5.0	1.2	ug/L			10/22/19 11:03	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			10/22/19 11:03	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			10/22/19 11:03	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			10/22/19 11:03	1
Chloroethane	5.0	U	5.0	0.87	ug/L			10/22/19 11:03	1
Chloroform	5.0	U	5.0	0.54	ug/L			10/22/19 11:03	1
Chloromethane	5.0	U	5.0	0.64	ug/L			10/22/19 11:03	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			10/22/19 11:03	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			10/22/19 11:03	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			10/22/19 11:03	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			10/22/19 11:03	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			10/22/19 11:03	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			10/22/19 11:03	1
o-Xylene	5.0	U	5.0	0.43	ug/L			10/22/19 11:03	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			10/22/19 11:03	1
Toluene	5.0	U	5.0	0.45	ug/L			10/22/19 11:03	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			10/22/19 11:03	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			10/22/19 11:03	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			10/22/19 11:03	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			10/22/19 11:03	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			10/22/19 11:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*68 - 130*		*10/22/19 11:03*	*1*
4-Bromofluorobenzene (Surr)	*106*		*76 - 123*		*10/22/19 11:03*	*1*
Toluene-d8 (Surr)	*102*		*77 - 120*		*10/22/19 11:03*	*1*
Dibromofluoromethane (Surr)	*111*		*75 - 123*		*10/22/19 11:03*	*1*

Lab Sample ID: LCS 480-499370/5
Matrix: Water
Analysis Batch: 499370

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,1,1-Trichloroethane			20.0	21.2		ug/L		106	52 - 162		

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 480-499370/5
Matrix: Water
Analysis Batch: 499370

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2,2-Tetrachloroethane	20.0	19.3		ug/L		96	46 - 157
1,1,2-Trichloroethane	20.0	19.6		ug/L		98	52 - 150
1,1-Dichloroethane	20.0	20.1		ug/L		100	59 - 155
1,1-Dichloroethene	20.0	20.1		ug/L		100	1 - 234
1,2-Dichlorobenzene	20.0	18.7		ug/L		93	18 - 190
1,2-Dichloroethane	20.0	19.8		ug/L		99	49 - 155
1,2-Dichloropropane	20.0	20.2		ug/L		101	1 - 210
1,3-Dichlorobenzene	20.0	18.8		ug/L		94	59 - 156
1,4-Dichlorobenzene	20.0	19.1		ug/L		95	18 - 190
2-Chloroethyl vinyl ether	20.0	21.3	J	ug/L		107	1 - 305
Acetone	100	107		ug/L		107	21 - 161
Benzene	20.0	20.0		ug/L		100	37 - 151
Bromoform	20.0	21.6		ug/L		108	45 - 169
Bromomethane	20.0	20.4		ug/L		102	1 - 242
Carbon tetrachloride	20.0	21.6		ug/L		108	70 - 140
Chlorobenzene	20.0	19.4		ug/L		97	37 - 160
Dibromochloromethane	20.0	21.3		ug/L		107	53 - 149
Chloroethane	20.0	20.7		ug/L		103	14 - 230
Chloroform	20.0	19.7		ug/L		99	51 - 138
Chloromethane	20.0	18.6		ug/L		93	1 - 273
cis-1,2-Dichloroethene	20.0	20.6		ug/L		103	50 - 150
cis-1,3-Dichloropropene	20.0	21.3		ug/L		106	1 - 227
Bromodichloromethane	20.0	20.6		ug/L		103	35 - 155
Ethylbenzene	20.0	19.3		ug/L		96	37 - 162
m-Xylene & p-Xylene	20.0	18.9		ug/L		95	79 - 120
Methylene Chloride	20.0	21.0		ug/L		105	1 - 221
o-Xylene	20.0	18.9		ug/L		95	79 - 120
Tetrachloroethylene	20.0	18.9		ug/L		95	64 - 148
Toluene	20.0	19.0		ug/L		95	47 - 150
trans-1,2-Dichloroethene	20.0	20.3		ug/L		102	54 - 156
trans-1,3-Dichloropropene	20.0	20.3		ug/L		101	17 - 183
Trichloroethylene	20.0	19.8		ug/L		99	71 - 157
Trichlorofluoromethane	20.0	20.9		ug/L		105	17 - 181
Vinyl chloride	20.0	19.4		ug/L		97	1 - 251

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*109*		*68 - 130*
4-Bromofluorobenzene (Surr)	*104*		*76 - 123*
Toluene-d8 (Surr)	*99*		*77 - 120*
Dibromofluoromethane (Surr)	*104*		*75 - 123*

Lab Sample ID: MB 480-499782/7
Matrix: Water
Analysis Batch: 499782

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	5.0	U	5.0	0.39	ug/L			10/23/19 17:46	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			10/23/19 17:46	1

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 480-499782/7
Matrix: Water
Analysis Batch: 499782

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			10/23/19 17:46	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			10/23/19 17:46	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			10/23/19 17:46	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			10/23/19 17:46	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			10/23/19 17:46	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			10/23/19 17:46	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			10/23/19 17:46	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			10/23/19 17:46	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			10/23/19 17:46	1
Acetone	25	U	25	2.0	ug/L			10/23/19 17:46	1
Benzene	5.0	U	5.0	0.60	ug/L			10/23/19 17:46	1
Bromoform	5.0	U	5.0	0.47	ug/L			10/23/19 17:46	1
Bromomethane	5.0	U	5.0	1.2	ug/L			10/23/19 17:46	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			10/23/19 17:46	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			10/23/19 17:46	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			10/23/19 17:46	1
Chloroethane	5.0	U	5.0	0.87	ug/L			10/23/19 17:46	1
Chloroform	5.0	U	5.0	0.54	ug/L			10/23/19 17:46	1
Chloromethane	5.0	U	5.0	0.64	ug/L			10/23/19 17:46	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			10/23/19 17:46	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			10/23/19 17:46	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			10/23/19 17:46	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			10/23/19 17:46	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			10/23/19 17:46	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			10/23/19 17:46	1
o-Xylene	5.0	U	5.0	0.43	ug/L			10/23/19 17:46	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			10/23/19 17:46	1
Toluene	5.0	U	5.0	0.45	ug/L			10/23/19 17:46	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			10/23/19 17:46	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			10/23/19 17:46	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			10/23/19 17:46	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			10/23/19 17:46	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			10/23/19 17:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*68 - 130*		*10/23/19 17:46*	*1*
4-Bromofluorobenzene (Surr)	*108*		*76 - 123*		*10/23/19 17:46*	*1*
Toluene-d8 (Surr)	*105*		*77 - 120*		*10/23/19 17:46*	*1*
Dibromofluoromethane (Surr)	*110*		*75 - 123*		*10/23/19 17:46*	*1*

Lab Sample ID: LCS 480-499782/5
Matrix: Water
Analysis Batch: 499782

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	20.0	24.3		ug/L		121	52 - 162
1,1,2,2-Tetrachloroethane	20.0	20.6		ug/L		103	46 - 157
1,1,2-Trichloroethane	20.0	20.9		ug/L		105	52 - 150

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 480-499782/5
Matrix: Water
Analysis Batch: 499782

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethane	20.0	22.1		ug/L		110	59 - 155
1,1-Dichloroethene	20.0	22.8		ug/L		114	1 - 234
1,2-Dichlorobenzene	20.0	21.0		ug/L		105	18 - 190
1,2-Dichloroethane	20.0	20.7		ug/L		104	49 - 155
1,2-Dichloropropane	20.0	21.0		ug/L		105	1 - 210
1,3-Dichlorobenzene	20.0	21.2		ug/L		106	59 - 156
1,4-Dichlorobenzene	20.0	21.3		ug/L		106	18 - 190
2-Chloroethyl vinyl ether	20.0	20.7	J	ug/L		104	1 - 305
Acetone	100	94.8		ug/L		95	21 - 161
Benzene	20.0	21.5		ug/L		108	37 - 151
Bromoform	20.0	23.9		ug/L		119	45 - 169
Bromomethane	20.0	23.1		ug/L		116	1 - 242
Carbon tetrachloride	20.0	24.2		ug/L		121	70 - 140
Chlorobenzene	20.0	21.3		ug/L		107	37 - 160
Dibromochloromethane	20.0	23.4		ug/L		117	53 - 149
Chloroethane	20.0	23.2		ug/L		116	14 - 230
Chloroform	20.0	21.8		ug/L		109	51 - 138
Chloromethane	20.0	23.5		ug/L		118	1 - 273
cis-1,2-Dichloroethene	20.0	22.3		ug/L		111	50 - 150
cis-1,3-Dichloropropene	20.0	22.0		ug/L		110	1 - 227
Bromodichloromethane	20.0	22.3		ug/L		112	35 - 155
Ethylbenzene	20.0	22.0		ug/L		110	37 - 162
m-Xylene & p-Xylene	20.0	21.4		ug/L		107	79 - 120
Methylene Chloride	20.0	22.8		ug/L		114	1 - 221
o-Xylene	20.0	21.6		ug/L		108	79 - 120
Tetrachloroethylene	20.0	21.9		ug/L		110	64 - 148
Toluene	20.0	21.4		ug/L		107	47 - 150
trans-1,2-Dichloroethene	20.0	23.0		ug/L		115	54 - 156
trans-1,3-Dichloropropene	20.0	22.0		ug/L		110	17 - 183
Trichloroethylene	20.0	21.6		ug/L		108	71 - 157
Trichlorofluoromethane	20.0	24.4		ug/L		122	17 - 181
Vinyl chloride	20.0	23.7		ug/L		119	1 - 251

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*105*		*68 - 130*
4-Bromofluorobenzene (Surr)	*107*		*76 - 123*
Toluene-d8 (Surr)	*107*		*77 - 120*
Dibromofluoromethane (Surr)	*108*		*75 - 123*

Lab Sample ID: 480-161249-13 MS
Matrix: Water
Analysis Batch: 499782

Client Sample ID: MW1S102119
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	1.9	J	20.0	29.4		ug/L		137	52 - 162
1,1,2,2-Tetrachloroethane	5.0	U	20.0	24.0		ug/L		120	46 - 157
1,1,2-Trichloroethane	5.0	U	20.0	24.6		ug/L		123	52 - 150
1,1-Dichloroethane	1.2	J	20.0	28.1		ug/L		135	59 - 155

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 480-161249-13 MS
Matrix: Water
Analysis Batch: 499782

Client Sample ID: MW1S102119
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	5.0	U	20.0	29.1		ug/L		145	1 - 234
1,2-Dichlorobenzene	5.0	U	20.0	23.8		ug/L		119	18 - 190
1,2-Dichloroethane	5.0	U	20.0	24.4		ug/L		122	49 - 155
1,2-Dichloropropane	5.0	U	20.0	25.2		ug/L		126	1 - 210
1,3-Dichlorobenzene	5.0	U	20.0	24.7		ug/L		123	59 - 156
1,4-Dichlorobenzene	5.0	U	20.0	24.5		ug/L		122	18 - 190
2-Chloroethyl vinyl ether	25	U	20.0	24.8	J	ug/L		124	1 - 305
Acetone	25	U	100	114		ug/L		114	21 - 161
Benzene	5.0	U	20.0	26.0		ug/L		130	37 - 151
Bromoform	5.0	U	20.0	26.4		ug/L		132	45 - 169
Bromomethane	5.0	U	20.0	28.0		ug/L		140	1 - 242
Carbon tetrachloride	5.0	U F1	20.0	29.6	F1	ug/L		148	70 - 140
Chlorobenzene	5.0	U	20.0	25.5		ug/L		127	37 - 160
Dibromochloromethane	5.0	U	20.0	26.7		ug/L		133	53 - 149
Chloroethane	5.0	U	20.0	27.8		ug/L		139	14 - 230
Chloroform	5.0	U	20.0	25.0		ug/L		125	51 - 138
Chloromethane	5.0	U	20.0	27.1		ug/L		135	1 - 273
cis-1,2-Dichloroethene	33		20.0	58.3		ug/L		125	50 - 150
cis-1,3-Dichloropropene	5.0	U	20.0	24.9		ug/L		124	1 - 227
Bromodichloromethane	5.0	U	20.0	25.4		ug/L		127	35 - 155
Ethylbenzene	5.0	U	20.0	26.2		ug/L		131	37 - 162
m-Xylene & p-Xylene	10	U F1	20.0	25.8	F1	ug/L		129	79 - 120
Methylene Chloride	5.0	U	20.0	25.9		ug/L		129	1 - 221
o-Xylene	5.0	U F1	20.0	25.3	F1	ug/L		126	79 - 120
Tetrachloroethylene	3.8	J	20.0	30.2		ug/L		132	64 - 148
Toluene	5.0	U	20.0	25.7		ug/L		129	47 - 150
trans-1,2-Dichloroethene	5.0	U	20.0	28.0		ug/L		140	54 - 156
trans-1,3-Dichloropropene	5.0	U	20.0	24.7		ug/L		124	17 - 183
Trichloroethylene	23		20.0	47.6		ug/L		124	71 - 157
Trichlorofluoromethane	5.0	U	20.0	27.9		ug/L		139	17 - 181
Vinyl chloride	5.0	U	20.0	29.6		ug/L		148	1 - 251

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*68 - 130*
4-Bromofluorobenzene (Surr)	*99*		*76 - 123*
Toluene-d8 (Surr)	*95*		*77 - 120*
Dibromofluoromethane (Surr)	*97*		*75 - 123*

Lab Sample ID: 480-161249-13 MSD
Matrix: Water
Analysis Batch: 499782

Client Sample ID: MW1S102119
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	1.9	J	20.0	29.5		ug/L		138	52 - 162	0	15
1,1,2,2-Tetrachloroethane	5.0	U	20.0	24.4		ug/L		122	46 - 157	2	15
1,1,2-Trichloroethane	5.0	U	20.0	24.3		ug/L		122	52 - 150	1	15
1,1-Dichloroethane	1.2	J	20.0	27.0		ug/L		129	59 - 155	4	15
1,1-Dichloroethene	5.0	U	20.0	28.6		ug/L		143	1 - 234	2	15

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 480-161249-13 MSD
Matrix: Water
Analysis Batch: 499782

Client Sample ID: MW1S102119
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dichlorobenzene	5.0	U	20.0	24.0		ug/L		120	18 - 190	1	15
1,2-Dichloroethane	5.0	U	20.0	23.8		ug/L		119	49 - 155	3	15
1,2-Dichloropropane	5.0	U	20.0	24.9		ug/L		124	1 - 210	1	15
1,3-Dichlorobenzene	5.0	U	20.0	24.6		ug/L		123	59 - 156	0	15
1,4-Dichlorobenzene	5.0	U	20.0	24.4		ug/L		122	18 - 190	0	15
2-Chloroethyl vinyl ether	25	U	20.0	25.4		ug/L		127	1 - 305	2	15
Acetone	25	U	100	114		ug/L		114	21 - 161	0	15
Benzene	5.0	U	20.0	25.6		ug/L		128	37 - 151	2	15
Bromoform	5.0	U	20.0	27.5		ug/L		138	45 - 169	4	15
Bromomethane	5.0	U	20.0	24.5		ug/L		123	1 - 242	13	15
Carbon tetrachloride	5.0	U F1	20.0	29.3	F1	ug/L		146	70 - 140	1	15
Chlorobenzene	5.0	U	20.0	25.1		ug/L		125	37 - 160	2	15
Dibromochloromethane	5.0	U	20.0	27.2		ug/L		136	53 - 149	2	15
Chloroethane	5.0	U	20.0	25.3		ug/L		127	14 - 230	9	15
Chloroform	5.0	U	20.0	25.1		ug/L		125	51 - 138	0	15
Chloromethane	5.0	U	20.0	23.4		ug/L		117	1 - 273	14	15
cis-1,2-Dichloroethene	33		20.0	57.8		ug/L		123	50 - 150	1	15
cis-1,3-Dichloropropene	5.0	U	20.0	25.0		ug/L		125	1 - 227	1	15
Bromodichloromethane	5.0	U	20.0	25.6		ug/L		128	35 - 155	1	15
Ethylbenzene	5.0	U	20.0	25.9		ug/L		129	37 - 162	1	15
m-Xylene & p-Xylene	10	U F1	20.0	25.7	F1	ug/L		129	79 - 120	0	15
Methylene Chloride	5.0	U	20.0	25.0		ug/L		125	1 - 221	3	15
o-Xylene	5.0	U F1	20.0	24.9	F1	ug/L		125	79 - 120	1	15
Tetrachloroethylene	3.8	J	20.0	30.7		ug/L		134	64 - 148	1	15
Toluene	5.0	U	20.0	25.7		ug/L		128	47 - 150	0	15
trans-1,2-Dichloroethene	5.0	U	20.0	27.1		ug/L		135	54 - 156	3	15
trans-1,3-Dichloropropene	5.0	U	20.0	25.4		ug/L		127	17 - 183	3	15
Trichloroethylene	23		20.0	48.0		ug/L		126	71 - 157	1	15
Trichlorofluoromethane	5.0	U	20.0	25.9		ug/L		130	17 - 181	7	15
Vinyl chloride	5.0	U	20.0	26.7		ug/L		133	1 - 251	10	15

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*91*		*68 - 130*
4-Bromofluorobenzene (Surr)	*95*		*76 - 123*
Toluene-d8 (Surr)	*94*		*77 - 120*
Dibromofluoromethane (Surr)	*95*		*75 - 123*

Lab Sample ID: MB 480-499873/7
Matrix: Water
Analysis Batch: 499873

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	5.0	U	5.0	0.39	ug/L			10/24/19 11:36	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			10/24/19 11:36	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			10/24/19 11:36	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			10/24/19 11:36	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			10/24/19 11:36	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			10/24/19 11:36	1

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 480-499873/7
Matrix: Water
Analysis Batch: 499873

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			10/24/19 11:36	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			10/24/19 11:36	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			10/24/19 11:36	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			10/24/19 11:36	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			10/24/19 11:36	1
Acetone	25	U	25	2.0	ug/L			10/24/19 11:36	1
Benzene	5.0	U	5.0	0.60	ug/L			10/24/19 11:36	1
Bromoform	5.0	U	5.0	0.47	ug/L			10/24/19 11:36	1
Bromomethane	5.0	U	5.0	1.2	ug/L			10/24/19 11:36	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			10/24/19 11:36	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			10/24/19 11:36	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			10/24/19 11:36	1
Chloroethane	5.0	U	5.0	0.87	ug/L			10/24/19 11:36	1
Chloroform	5.0	U	5.0	0.54	ug/L			10/24/19 11:36	1
Chloromethane	5.0	U	5.0	0.64	ug/L			10/24/19 11:36	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			10/24/19 11:36	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			10/24/19 11:36	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			10/24/19 11:36	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			10/24/19 11:36	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			10/24/19 11:36	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			10/24/19 11:36	1
o-Xylene	5.0	U	5.0	0.43	ug/L			10/24/19 11:36	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			10/24/19 11:36	1
Toluene	5.0	U	5.0	0.45	ug/L			10/24/19 11:36	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			10/24/19 11:36	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			10/24/19 11:36	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			10/24/19 11:36	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			10/24/19 11:36	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			10/24/19 11:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*85*		*68 - 130*		*10/24/19 11:36*	*1*
4-Bromofluorobenzene (Surr)	*86*		*76 - 123*		*10/24/19 11:36*	*1*
Toluene-d8 (Surr)	*83*		*77 - 120*		*10/24/19 11:36*	*1*
Dibromofluoromethane (Surr)	*87*		*75 - 123*		*10/24/19 11:36*	*1*

Lab Sample ID: LCS 480-499873/5
Matrix: Water
Analysis Batch: 499873

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	20.0	22.7		ug/L		113	52 - 162
1,1,2,2-Tetrachloroethane	20.0	20.2		ug/L		101	46 - 157
1,1,2-Trichloroethane	20.0	20.6		ug/L		103	52 - 150
1,1-Dichloroethane	20.0	21.6		ug/L		108	59 - 155
1,1-Dichloroethene	20.0	22.4		ug/L		112	1 - 234
1,2-Dichlorobenzene	20.0	20.1		ug/L		101	18 - 190
1,2-Dichloroethane	20.0	20.8		ug/L		104	49 - 155

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 480-499873/5
Matrix: Water
Analysis Batch: 499873

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloropropane	20.0	20.7		ug/L		104	1 - 210
1,3-Dichlorobenzene	20.0	20.1		ug/L		101	59 - 156
1,4-Dichlorobenzene	20.0	20.4		ug/L		102	18 - 190
2-Chloroethyl vinyl ether	20.0	22.0	J	ug/L		110	1 - 305
Acetone	100	115		ug/L		115	21 - 161
Benzene	20.0	21.2		ug/L		106	37 - 151
Bromoform	20.0	23.7		ug/L		119	45 - 169
Bromomethane	20.0	21.6		ug/L		108	1 - 242
Carbon tetrachloride	20.0	23.9		ug/L		120	70 - 140
Chlorobenzene	20.0	20.6		ug/L		103	37 - 160
Dibromochloromethane	20.0	23.2		ug/L		116	53 - 149
Chloroethane	20.0	22.5		ug/L		113	14 - 230
Chloroform	20.0	21.2		ug/L		106	51 - 138
Chloromethane	20.0	21.7		ug/L		109	1 - 273
cis-1,2-Dichloroethene	20.0	22.1		ug/L		110	50 - 150
cis-1,3-Dichloropropene	20.0	22.0		ug/L		110	1 - 227
Bromodichloromethane	20.0	21.9		ug/L		110	35 - 155
Ethylbenzene	20.0	21.0		ug/L		105	37 - 162
m-Xylene & p-Xylene	20.0	20.7		ug/L		104	79 - 120
Methylene Chloride	20.0	21.5		ug/L		107	1 - 221
o-Xylene	20.0	20.6		ug/L		103	79 - 120
Tetrachloroethylene	20.0	20.9		ug/L		104	64 - 148
Toluene	20.0	20.3		ug/L		102	47 - 150
trans-1,2-Dichloroethene	20.0	21.8		ug/L		109	54 - 156
trans-1,3-Dichloropropene	20.0	21.9		ug/L		109	17 - 183
Trichloroethylene	20.0	21.3		ug/L		107	71 - 157
Trichlorofluoromethane	20.0	23.0		ug/L		115	17 - 181
Vinyl chloride	20.0	22.7		ug/L		114	1 - 251

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*84*		*68 - 130*
4-Bromofluorobenzene (Surr)	*86*		*76 - 123*
Toluene-d8 (Surr)	*84*		*77 - 120*
Dibromofluoromethane (Surr)	*88*		*75 - 123*

QC Association Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland Oil Company - NYSDEC

Job ID: 480-161249-1

GC/MS VOA

Analysis Batch: 499370

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-161249-1	TB101819	Total/NA	Water	624.1	
480-161249-3	MW14S101819	Total/NA	Water	624.1	
480-161249-4	MW14S101819 Q	Total/NA	Water	624.1	
480-161249-5	MW9S101819	Total/NA	Water	624.1	
480-161249-6	MW14R101819	Total/NA	Water	624.1	
480-161249-7	MW8101819	Total/NA	Water	624.1	
480-161249-8	MW2S101819	Total/NA	Water	624.1	
MB 480-499370/7	Method Blank	Total/NA	Water	624.1	
LCS 480-499370/5	Lab Control Sample	Total/NA	Water	624.1	

Analysis Batch: 499782

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-161249-9	MW2R102119	Total/NA	Water	624.1	
480-161249-10	PW1102119	Total/NA	Water	624.1	
480-161249-11	PZ3102119	Total/NA	Water	624.1	
480-161249-12	MW10R102119	Total/NA	Water	624.1	
480-161249-13	MW1S102119	Total/NA	Water	624.1	
MB 480-499782/7	Method Blank	Total/NA	Water	624.1	
LCS 480-499782/5	Lab Control Sample	Total/NA	Water	624.1	
480-161249-13 MS	MW1S102119	Total/NA	Water	624.1	
480-161249-13 MSD	MW1S102119	Total/NA	Water	624.1	

Analysis Batch: 499873

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-161249-2	MW5R101819	Total/NA	Water	624.1	
MB 480-499873/7	Method Blank	Total/NA	Water	624.1	
LCS 480-499873/5	Lab Control Sample	Total/NA	Water	624.1	

Lab Chronicle

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland Oil Company - NYSDEC

Job ID: 480-161249-1

Client Sample ID: TB101819
Date Collected: 10/18/19 09:30
Date Received: 10/21/19 16:35

Lab Sample ID: 480-161249-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	499370	10/22/19 15:09	S1V	TAL BUF

Client Sample ID: MW5R101819
Date Collected: 10/18/19 11:15
Date Received: 10/21/19 16:35

Lab Sample ID: 480-161249-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		10	499873	10/24/19 15:08	LCH	TAL BUF

Client Sample ID: MW14S101819
Date Collected: 10/18/19 11:15
Date Received: 10/21/19 16:35

Lab Sample ID: 480-161249-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	499370	10/22/19 15:57	S1V	TAL BUF

Client Sample ID: MW14S101819 Q
Date Collected: 10/18/19 11:15
Date Received: 10/21/19 16:35

Lab Sample ID: 480-161249-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	499370	10/22/19 18:14	S1V	TAL BUF

Client Sample ID: MW9S101819
Date Collected: 10/18/19 13:00
Date Received: 10/21/19 16:35

Lab Sample ID: 480-161249-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	499370	10/22/19 17:50	S1V	TAL BUF

Client Sample ID: MW14R101819
Date Collected: 10/18/19 13:15
Date Received: 10/21/19 16:35

Lab Sample ID: 480-161249-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	499370	10/22/19 17:27	S1V	TAL BUF

Client Sample ID: MW8101819
Date Collected: 10/18/19 15:15
Date Received: 10/21/19 16:35

Lab Sample ID: 480-161249-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		80	499370	10/22/19 17:03	S1V	TAL BUF

Lab Chronicle

Client: Ecology and Environment, Inc.
Job ID: 480-161249-1
Project/Site: Davis Howland Oil Company - NYSDEC

Client Sample ID: MW2S101819
Lab Sample ID: 480-161249-8
Date Collected: 10/18/19 15:20
Matrix: Water
Date Received: 10/21/19 16:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		10	499370	10/22/19 16:39	S1V	TAL BUF

Client Sample ID: MW2R102119
Lab Sample ID: 480-161249-9
Date Collected: 10/21/19 12:35
Matrix: Water
Date Received: 10/21/19 16:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		10	499782	10/23/19 19:22	S1V	TAL BUF

Client Sample ID: PW1102119
Lab Sample ID: 480-161249-10
Date Collected: 10/21/19 10:00
Matrix: Water
Date Received: 10/21/19 16:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		4	499782	10/23/19 19:46	S1V	TAL BUF

Client Sample ID: PZ3102119
Lab Sample ID: 480-161249-11
Date Collected: 10/21/19 12:30
Matrix: Water
Date Received: 10/21/19 16:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		10	499782	10/23/19 20:10	S1V	TAL BUF

Client Sample ID: MW10R102119
Lab Sample ID: 480-161249-12
Date Collected: 10/21/19 14:35
Matrix: Water
Date Received: 10/21/19 16:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		20	499782	10/23/19 20:34	S1V	TAL BUF

Client Sample ID: MW1S102119
Lab Sample ID: 480-161249-13
Date Collected: 10/21/19 14:20
Matrix: Water
Date Received: 10/21/19 16:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	499782	10/23/19 20:58	S1V	TAL BUF

Laboratory References:

TAL BUF = Eurofins TestAmerica, Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Accreditation/Certification Summary

Client: Ecology and Environment, Inc.
Job ID: 480-161249-1
Project/Site: Davis Howland Oil Company - NYSDEC

Laboratory: Eurofins TestAmerica, Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	10026	03-31-20

Method Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland Oil Company - NYSDEC

Job ID: 480-161249-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	40CFR136A	TAL BUF

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

Laboratory References:

TAL BUF = Eurofins TestAmerica, Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Sample Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland Oil Company - NYSDEC

Job ID: 480-161249-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
480-161249-1	TB101819	Water	10/18/19 09:30	10/21/19 16:35	
480-161249-2	MW5R101819	Water	10/18/19 11:15	10/21/19 16:35	
480-161249-3	MW14S101819	Water	10/18/19 11:15	10/21/19 16:35	
480-161249-4	MW14S101819 Q	Water	10/18/19 11:15	10/21/19 16:35	
480-161249-5	MW9S101819	Water	10/18/19 13:00	10/21/19 16:35	
480-161249-6	MW14R101819	Water	10/18/19 13:15	10/21/19 16:35	
480-161249-7	MW8101819	Water	10/18/19 15:15	10/21/19 16:35	
480-161249-8	MW2S101819	Water	10/18/19 15:20	10/21/19 16:35	
480-161249-9	MW2R102119	Water	10/21/19 12:35	10/21/19 16:35	
480-161249-10	PW1102119	Water	10/21/19 10:00	10/21/19 16:35	
480-161249-11	PZ3102119	Water	10/21/19 12:30	10/21/19 16:35	
480-161249-12	MW10R102119	Water	10/21/19 14:35	10/21/19 16:35	
480-161249-13	MW1S102119	Water	10/21/19 14:20	10/21/19 16:35	

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information	Sampler: C.R. CP	Lab PM: Schove, John R	Carrier Tracking No(s): By Hand	COC No: 480-136343-30663.3
Client Contact: Ashlee Patnode	Phone: 716 684-8060	E-Mail: john.schove@testamericainc.com		Page: Page ~~3 of 4~~ 1 OF 2
Company: Ecology and Environment, Inc.		Analysis Requested		Job #: 1703074.0012.12
Address: 368 Pleasant View Drive	Due Date Requested: As per contract			Preservation Codes: A - HCL, B - NaOH, M - Hexane
City: Lancaster	TAT Requested (days):			
State, Zip: NY, 14086				
Phone: 716 684 8060	PO #: 1703074.0012.08			
Email: ~~APatnode@ene.com~~ or JGUczewski@eeve.com	WO #: 1703074.0012.08			480-161249 Chain of Custody
Project Name: Davis Howland Oil Company - NYSDEC	Project #: 48017485			Z - other (specify)
Site:	SSOW#:			Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	624.1_PREC - Custom List Volatiles	Total Number of con	Special Instructions/Note:
			Preservation Code:		X	X	N	X	
TB101819	10/18/19	9:30	G	Water			2		
MW5R101819	10/18/19	11:15	G	Water			3		
MW14S101819	10/18/19	10:15	G	Water			3		
MW14S101819Q	10/18/19	11:15	G	Water			3		
MW9S101819	10/18/19	1300	G	Water			3		
MW14R101819	10/18/19	1315	G	Water			3		
MW8101819	10/18/19	1515	G	Water			3		
MW2S101819	10/18/19	1520	G	Water			3		
MW2R102119	10/21/19	12:35	G	Water			3		
PW1102119	10/21/19	10:00	G	Water			3		
PZ3102119	10/21/19	12:30	G	Water			3		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) As per Contract

Special Instructions/QC Requirements: As per contract

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	10/21/19 16:35		[signature]	10/21/19 16:50	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.4 #1 ICE

Ver: 01/16/2019

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information	Sampler: LR/CP	Lab PM: Schove, John R	Carrier Tracking No(s): By Hand	COC No: 480-136343-30663.2
Client Contact: Ashlee Patnode	Phone: 716 684-8060	E-Mail: john.schove@testamericainc.com		Page: ~~Page 2 of 4~~ Page 2 of 2
Company: Ecology and Environment, Inc.				Job #: 10C3074:0012.12
Address: 368 Pleasant View Drive	Due Date Requested: As per contract			
City: Lancaster	TAT Requested (days): As per contract			
State, Zip: NY, 14086				
Phone: 716 684-8060	PO #: 1703074.0012.08			
Email: APatnode@ene.com JGulczewski@ENE.com	WO #: 1703074.0012.08			
Project Name: Davis Howland Oil Company - NYSDEC	Project #: 48017485			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	624.1_PREC - Custom List Volatiles	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
MW10R102119	10/21/19	14:35	G	Water			3		
MW1S102119	10/21/19	14:20	G	Water			3		
MW1S102119MS	10/21/19	14:20	G	Water			3		
MW1S102119MSD	10/21/19	14:20	G	Water			3		
				Water					
				Water					
				Water					
				Water					
				Water					
				Water					
				Water					

Lauren Ruel 10/21/19

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Lauren Ruel	10/21/19 1635			10/21/19 1635	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.4 #1 ICE

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Ecology and Environment, Inc.

Job Number: 480-161249-1

Login Number: 161249
List Number: 1
Creator: Wallace, Cameron

List Source: Eurofins TestAmerica, Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	False	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	