

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

**January 2019
Revised July 2019**

Prepared for:

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DEPARTMENT OF ENVIRONMENTAL REMEDIATION
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List of Abbreviations and Acronyms

AS	air sparge
bgs	below ground surface
BTEX	benzene, toluene, ethyl benzene, and xylene
CATOX	catalytic oxidizer
cis-1,2-DCE	cis-1,2-dichloroethene
cVOC	chlorinated 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.
EEEPCC	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
mg/L	milligrams per liter
MS/MSD	matrix spike/matrix spike duplicate
ng/L	nanograms per liter
NYSDEC	New York State Department of Environmental Conservation
O&M	operations and maintenance
OM&M	operations, maintenance, and monitoring
ORP	Oxidation Reduction Potential
PAH	polycyclic aromatic hydrocarbon
PCE	perchloroethylene or tetrachloroethene
PPE	personal protective equipment
PRR	Periodic Review Report

List of Abbreviations and Acronyms (cont.)

QA/QC	quality assurance/quality control
ROD	record of decision
RSO	Remedial Site Optimization
SCGs	standards, criteria, and guidance values
Site	former Davis-Howland Oil Corporation (DHOC) Remediation Site
SMP	Site Management Plan
SSD	sub-slab depressurization
SVE	soil vapor extraction
SVOC	semivolatile organic compound
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 No. 828088

Site Details

Box 1

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, 2017 to December 31, 2018

	YES	NO
1. Is the information above correct?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. To your knowledge has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Box 2

	YES	NO
6. Is the current site use consistent with the use(s) listed below? Restricted-Residential, Commercial, and Industrial	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Are all ICs/ECs in place and functioning as designed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

No corrective actions are needed as the groundwater treatment system and AS/SVE system were decommissioned in 2018 at the request of NYSDEC. A summary of the decommissioning is included in Section 7 of the PRR.

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

Description of Institutional Controls

ParcelOwnerInstitutional 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

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

106.84-1-6

John Nacca

Monitoring Plan
Site Management Plan

Ground Water Use Restriction
Landuse Restriction
IC/EC Plan

An Environmental Notice was filed with Monroe County clerk on 8/15/2013 in Book 11290, pages 171-176 as miscellaneous record. 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 water unless properly treated.

106.84-1-7

Anderson Acquisitions, llc

Soil Management Plan
Site Management Plan
O&M Plan

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

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

Groundwater Treatment System
Air Sparging/Soil Vapor Extraction
Monitoring Wells

The engineering control on this site parcel is a dual-phase groundwater system with air sparge below the watertable, shallow groundwater pumping, and soil-vapor extraction. PW-1, a top-of-bedrock pumping well installed in a vault is located on this parcel.

106.84-1-4.002

Groundwater Treatment System
Air Sparging/Soil Vapor Extraction
Monitoring Wells

The engineering control on this site parcel is a dual-phase groundwater system with air sparge below the watertable, shallow groundwater pumping, and soil-vapor extraction.

106.84-1-5

Air Sparging/Soil Vapor Extraction

The engineering control on this site parcel is a dual-phase groundwater system with air sparge below the watertable, and soil-vapor extraction.

106.84-1-6

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 treatment systems were shutdown and decommissioned in 2018. Groundwater monitoring wells are the only remaining engineering control.

106.84-1-7

Groundwater Treatment System
Air Sparging/Soil Vapor Extraction

The engineering control on this site parcel is a dual-phase groundwater system with air sparge below the watertable, shallow groundwater pumping, and soil-vapor extraction.

107.77-1-28.1

Groundwater Treatment System
Air Sparging/Soil Vapor Extraction
Monitoring Wells

The engineering control on this site parcel is a dual-phase groundwater system with air sparge below the watertable, shallow groundwater pumping, and soil-vapor extraction.

Monitoring wells and piezometers are also located on the parcel.

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 complete.

YES NO

☒ ☐

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.

YES NO

☒ ☐

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

IC/EC CERTIFICATIONS

Professional Engineer Signature

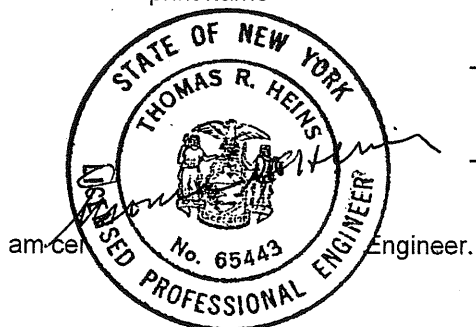
I certify that all information in Boxes 2 through 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Thomas Heins at Ecology and Environment Engineering and Geology, P.C.
print name

368 Pleasant View Drive

Lancaster, NY 14086

(print business address)



Signature of Professional Engineer

Stamp
(Required for PE)

2/1/2019
Date

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 2018. This PRR also provides information concerning the institutional and engineering controls (ICs/ECs) facilitating the remedial cleanup of the Site.

This PRR was prepared by Ecology and Environment Engineering and Geology, P.C. (E & E) in accordance with the requirements in the *Site Management Plan, Former Davis-Howland Oil Corporation Site, NYSDEC Site No. 8-28-088* (EEEEPC 2014).

Between July and September 2018, under the direction of the New York State Department of Environmental Conservation (NYSDEC), the air sparge/soil vapor extraction (AS/SVE) system and the groundwater treatment system at the Site were decommissioned. A summary of the decommissioning is included in Section 7 of this report.

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 all 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 now 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 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.

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. Groundwater and soil vapor at the Site are treated via multiple systems. A detailed description of each process and treatment system is provided below.

1.3 Air Sparge/Soil Vapor Extraction System

The AS/SVE system was a shallow groundwater remedy that also contributed to the cleanup of volatile organic compound (VOC) contamination in the site soils. The AS/SVE system was installed in shallow soils under an asphalt cap in the area to the north of the Site buildings and also under the Site building. The AS components of the system utilized a low-pressure compressor designed to operate on a continuous basis to inject air into the soil via sparge points located around the Site. Forty-seven air sparging points were installed approximately 12 feet below ground surface (bgs) inside and outside the buildings located at 200 Anderson Avenue. The SVE system extracted soil vapor under negative pressure from the air-sparging treatment zone via a network of outdoor and indoor underground collection piping. The collection piping consisted of lateral collection slot-drains (primarily outdoor) or collection points (indoor). The soil vapors were collected at a central location (treatment trailer) and discharged to the atmosphere. Three pumping wells (P-1, P-2, and P-3) were also associated with this system to maintain groundwater levels at the site at 4 feet below the ground surface. These pumping wells were also part of the groundwater pump-and-treat system and pumped to the air stripper, which removed VOCs from the groundwater.

1.4 Groundwater Remediation System

The groundwater treatment system consisted of five pumping wells (see Figure 1-2), which were capable of processing a combined flow of up to 30 gallons of water per minute on a continuous basis. Groundwater wells PW-1 and PW-2

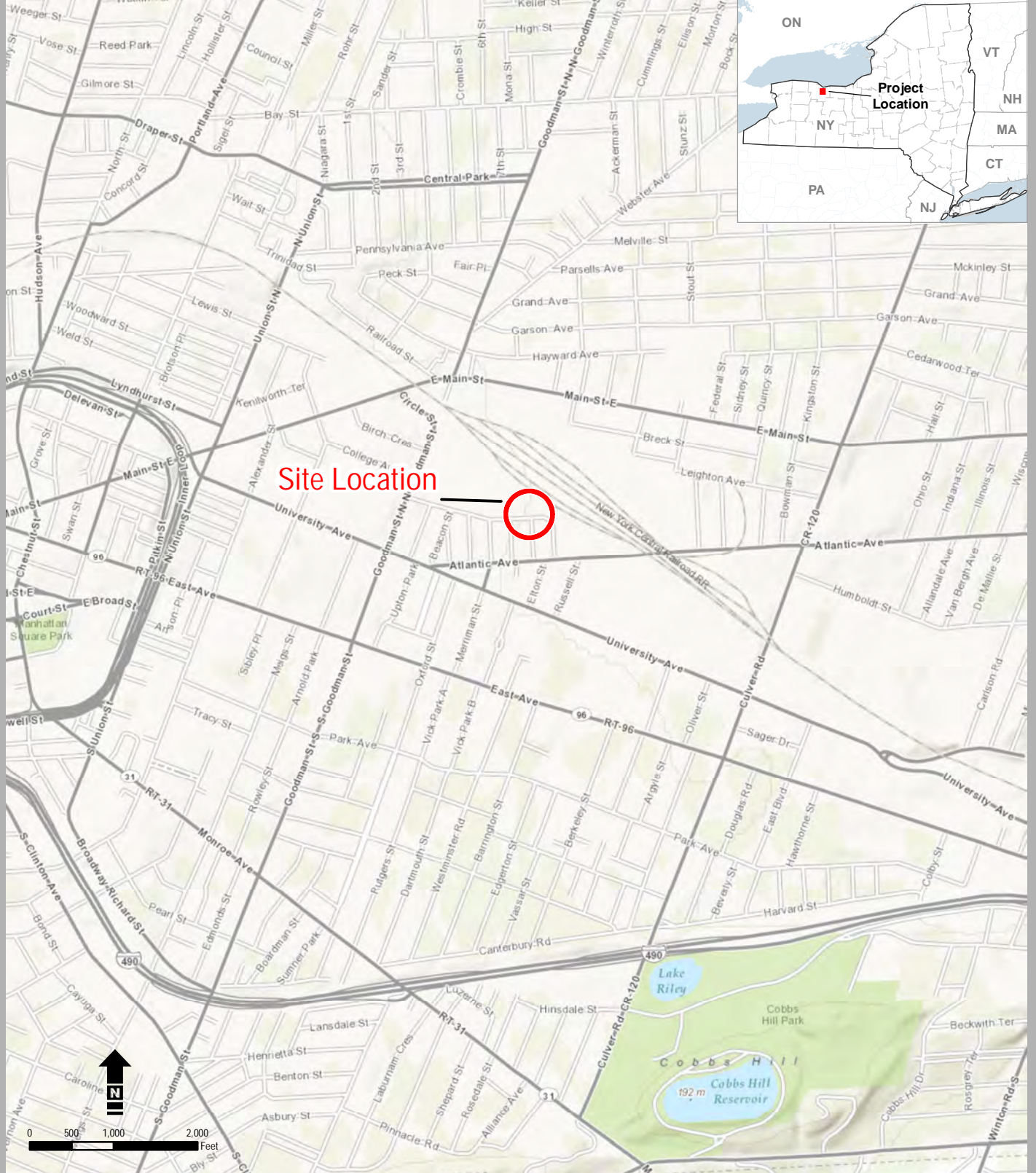
1 Introduction and Background

were installed as deep bedrock groundwater pumping wells to extract groundwater from the bedrock aquifer. Overburden pumping wells P-1, P-2, and P-3 were installed to keep the shallow aquifer groundwater levels below the elevation of the SVE lines and also remove VOC contamination in the overburden groundwater. All of the groundwater pumping wells cycled on and off at preset water levels within each well.

The groundwater VOC treatment system in the treatment trailer consisted of influent meters; a 500-gallon equalization tank; a sequestering agent feed tank; a feed pump; a five-tray, low-profile air stripper with air blower; an effluent pump; an effluent meter; and an effluent discharge line to the main trunk sewer under Anderson Avenue.

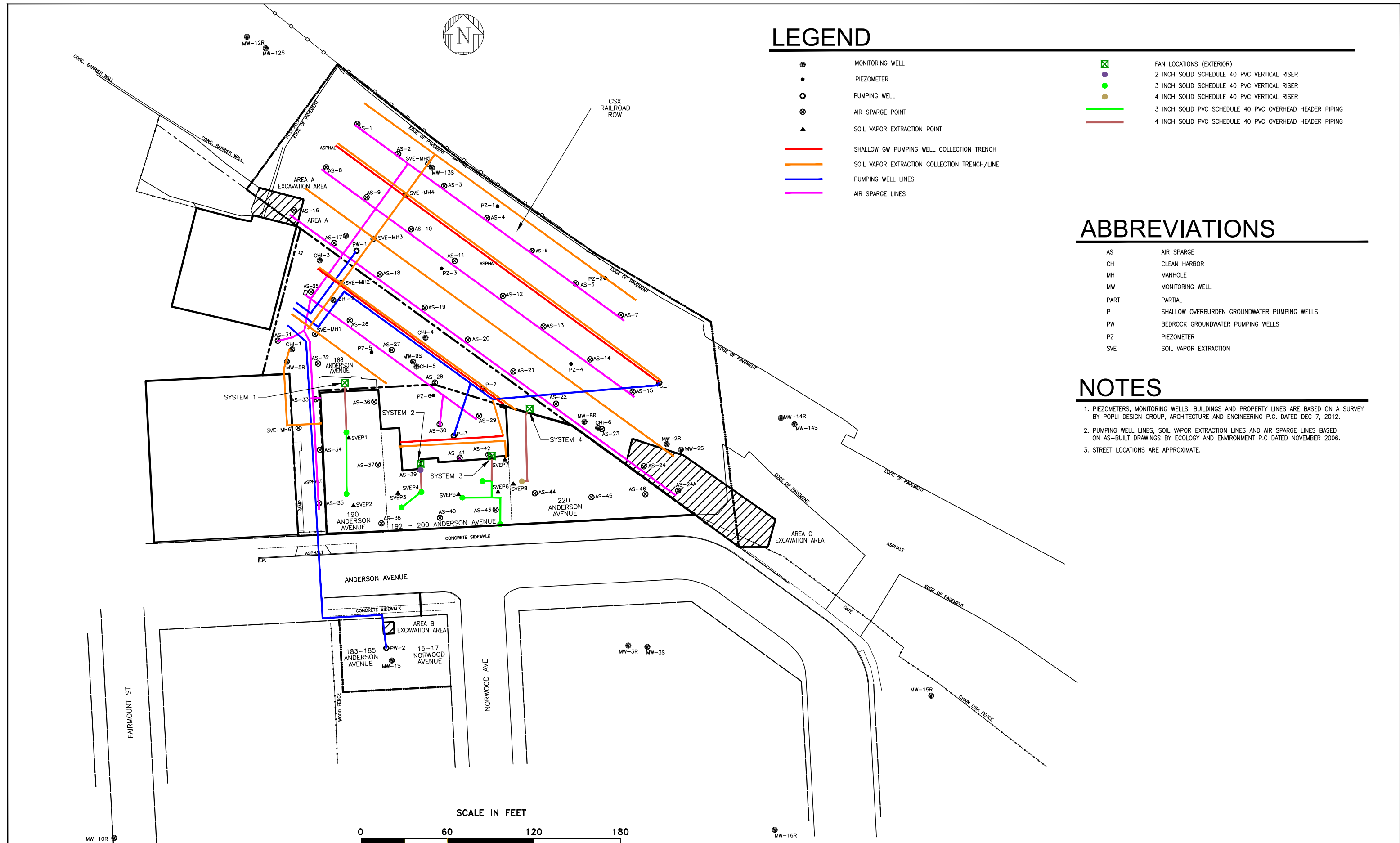
Groundwater was pumped from the shallow and bedrock-level extraction wells to the equalization tank, where it was then pumped to the air stripper on a batch basis. Contaminated groundwater from the top of the air stripper tower drained down over a series of five stacked orifice trays in the column. A fan forced air countercurrent to the water flow and volatilized the VOCs in the groundwater. The air discharged from the air stripper was vented to the atmosphere. A sump at the bottom of the tower collected the treated groundwater, which was discharged in batches to the Monroe County sewer system under Monroe County Sewer Use Permit No. 864.

Six piezometers (PZ-1 through PZ-6) associated with the shallow overburden groundwater pumping wells (P-1, P-2, and P-3) were used to monitor the depth to groundwater under the paved AS/SVE area on a weekly basis.



Source: ESRI 2012.

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



2

Remedial Systems Compliance

2.1 Groundwater Treatment

Treated groundwater was discharged from the Site to the Monroe County sewer system under Monroe County Sewer Use Permit No. 864, which was effective from May 29, 2016, through May 31, 2019. The permit was modified as of January 28, 2019, from a continuous discharge permit to a batch discharge permit for future groundwater sampling events. Table 2-1 presents the permit criteria currently in place.

Table 2-1 Effluent Discharge Criteria, Former Davis-Howland Oil Corporation Site

Parameter	Analytical Method	Permit Criterion
Acetone	40 CFR 136-625	Monitor only
pH (s.u.)	MCAWW 150.1	5.0 to 12.0
Purgeable halocarbons	40 CFR 136-625	The analytical summation of this group of contaminants shall not exceed 2.13 ppm in the effluent discharge.
Purgeable aromatics		

Key:

- CFR = Code of Federal Regulations
- gpm = gallons per minute
- MCAWW = (U.S. Environmental Protection Agency) Methods for Chemical Analysis of Water and Wastes
- ppm = parts per million
- s.u. = standard units

In 2018, the analytical results for effluent discharges from the groundwater treatment system were in compliance with the permit criteria. Analytical data for the treated groundwater was provided in the monthly operations, maintenance, and monitoring (OM&M) reports submitted to NYSDEC.

2.2 Air purge/oil apor xtraction

In accordance with the Final Site Management Plan (SMP; EEEPC 2014), soil vapors from the AS/SVE system were monitored when requested by NYSDEC. No soil vapor sampling was performed in 2018 due to the system being offline for the first half of the year and then being decommissioned starting in July 2018.

3

Evaluation of Site Institutional and Engineering Controls

Institutional controls (ICs) and engineering controls (ECs) are employed on the Site to support remedial operations. In 2018, all ICs and ECs were in place and functioning as designed except for the groundwater pump-and-treat system and the AS/SVE system. These systems were decommissioned as described below in section 3.2 and in Section 7.

3.1 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 an SMP and a deed restriction/environmental notice. 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 (EEEEPC 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

3 Evaluation of Site Institutional and Engineering Controls

by NYSDEC, that land be used for industrial use only, and that no groundwater is to be used for drinking water unless properly treated.

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. 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 A.

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 2018, the Site was in compliance with all 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 any 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;
- Use of the Site is in compliance with the environmental notice; and
- The information presented in this report is accurate and complete.

3.2 Engineering Controls

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

- A groundwater treatment system consisting of bedrock groundwater pumping wells and an air stripper;
- An AS/SVE system consisting of piezometers, shallow overburden groundwater pumping wells, AS points, SVE points, lines and trenches, and air-handling components of the on-site treatment plant; and

3 Evaluation of Site Institutional and Engineering Controls

- A groundwater monitoring well network consisting of both overburden and bedrock monitoring wells.

The ECs for the outdoor portion of the Site consisted of shallow overburden groundwater pumping wells P-1, P-2, and P-3, deep bedrock groundwater pumping wells PW-1 and PW-2, the water treatment system, AS/SVE points, and controls. The ECs for the indoor portion of the Site consisted of 14 AS points and eight SVE points. The AS/SVE points beneath the asphalt cover had been shut down since 2004 to focus the VOC extraction process on soils beneath and near the buildings located at 190 through 220 Anderson Avenue.

Operational changes were implemented in November 2013 as a result of recommendations made in the 2012 PRR. These changes included turning off overburden pumping well P-1. The treatment systems were shut down on July 14, 2016, as a result of one of the recommendations made in the Remedial Site Optimization (RSO) Alternatives Report (EEEP 2016a), which was approved by NYSDEC on June 10, 2016. However, the treatment systems were put back into service on December 14, 2016, for further data collection as outlined in the Sampling Work Plan and Equipment Repairs (EEEP 2016b) before eventual decommissioning of the plant at the request of NYSDEC. Further details regarding the additional sampling performed in 2017 were provided in the Remedial System Evaluation Report (EEEP 2018a).

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 7. 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, sub-slab depressurization (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,

3 *Evaluation of Site Institutional and Engineering Controls*

indoor and outdoor air sampling was performed on December 11, 2018. In all of these samples, the concentrations of detected VOCs in indoor air did not exceed the NYSDOH Air Guidance Values nor the USEPA Building Assessment and Survey Evaluation Database 90th percentile values.

4

Evaluation of Remedial Treatment Operations

4.1 System Operational Uptime in 2018

The groundwater treatment system was operational only in January and February 2018. In February 2018 the system was shut down due to an issue with the transfer pump between the equalization tank and the air stripper. Following the decision to decommission the system made in February 2018, the groundwater treatment system remained offline until decommissioning began in July 2018.

The AS/SVE system was in operation from January 2018 through June 2018, when it was shutdown in preparation for decommissioning of the treatment systems. During this time period, the AS/SVE system was 100% operational.

Additional details regarding the operation and maintenance of the treatment system were presented in the monthly OM&M reports submitted to NYSDEC (E & E 2018a through 2018h).

4.2 Groundwater Processed and Discharged through the Remedial Treatment System in 2018

The amount of groundwater processed and discharged is read directly from the effluent discharge meter located after the air-stripper unit. Readings are taken weekly at the master discharge meter and then calculated for each monthly reporting period.

The remedial treatment system processed and discharged approximately 112,400 gallons of treated groundwater to the Monroe County sewer system from December 29, 2017, to February 22, 2018 (see Table 4-1). The average effluent flow rate while the system was in operation in 2018 was approximately 1.42 gallons per minute.

Table 4-1 Groundwater Processed and Discharged by the Groundwater Treatment System in 2018

Month	Actual Period	Gallons Treated
January 2018	December 29, 2017, to January 27, 2018	96,800
February 2018*	January 27, 2018, to February 22, 2018	15,600
Total Gallons Treated in 2018		112,400

* System was shut down due to an issue with transfer pump.

4 Evaluation of Remedial Treatment Operations

4.3 Volatile Organic Compounds Removed from Groundwater in 2018 (Air Stripping Operations)

The amount of VOCs removed from the groundwater was estimated based on the influent and effluent analytical results and the amount of groundwater processed through the treatment system. Based on calculations prepared by E & E on the operation of the remedial treatment unit from December 29, 2017, to February 22, 2018, approximately 0.39 pounds of VOCs were removed from the groundwater by the air stripper system in 2018. Total VOCs removed from the Site also included 0.09 pounds of VOCs not removed from the groundwater by the air stripper that were discharged to the Monroe County sewer system. Thus, a total of approximately 0.48 pounds of VOCs were removed from the Site by the groundwater pumping and treatment system during 2018. Additional VOC results are presented in the monthly OM&M reports (E & E 2018a through 2018h).

4.4 Groundwater Treatment - 2018

The effluent from the remedial treatment system met the discharge permit requirements (see Appendix B) for each month the system was in operation in 2018. Table 4-2 presents a summary of the monthly analytical results for the treated effluent and compares them to the Monroe County discharge permit criteria.

Table 4-2 2018 Monthly Compliance Results for Treated Groundwater Effluent, Former Davis-Howland Oil Corporation Site

Month	Average Effluent (gpm)	pH (s.u.)	Purgeable Halocarbons and Purgeable Aromatics (ppm)	Permit Compliance
Discharge Permit Limits	28	5.0-12.0	2.13	-
January	2.24	N/A*	N/A*	Yes
February	0.90	8.10	0.739	Yes

*Malfunction of transfer pump prevented sampling.

Key:

gpm = gallons per minute

s.u. = standard units

ppm = parts per million

5

General Status of Remedial Treatment Equipment

5.1 Remedial Treatment Systems

The active remedial systems, including the groundwater treatment system and the AS/SVE system, were decommissioned in 2018 based on RSO evaluations performed in 2017 and recommendations made in the 2017 PRR (EEEPC 2018b). Details regarding the decommissioning of the systems are provided in Section 7.

5.2 Groundwater Monitoring Well Network Inspection

Between August 7 and 14, 2018, 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. Based on the inspection, it was determined that the groundwater monitoring wells were generally in good condition. A summary of the monitoring well inspection findings is presented in Table 5-1.

Table 5-1 Summary of August 2018 Well Inspection, Former Davis-Howland Oil Corporation Site

Well Identification	Date Inspected	Well Casing ID (inches)	Inspection Observations
MW-1S	8/13/2018	2	No issues
MW-2S	8/10/2018	2	No issues
MW-9S	8/9/2018	2	No issues
MW-12S	8/9/2018	2	Debris was excavated in the vicinity of well, but the well could not be located.
MW-13S	8/9/2018	2	No issues
MW-14S	8/18/2018	2	No issues
MW-2R	8/9/2018	4	No issues
MW-5R	8/10/2018	4	No issues
MW-8R	8/7/2018	4	No issues
MW-10R	8/14/2018	4	No issues
MW-12R	8/9/2018	4	Debris was excavated in the vicinity of well, but the well could not be located.
MW-14R	8/10/2018	4	No issues
MW-15R	8/14/2018	4	No issues

5 General Status of Remedial Treatment Equipment

Table 5-1 Summary of August 2018 Well Inspection, Former Davis-Howland Oil Corporation Site

Well Identification	Date Inspected	Well Casing ID (inches)	Inspection Observations
MW-16R	8/13/2018	4	No issues
PZ-1	8/10/2018	1	No issues
PZ-2	8/10/2018	1	Could not be sampled; covered with jersey barrier.
PZ-3	8/10/2018	1	No issues
PZ-4	8/13/2018	1	No issues

Key:

ID = inner diameter

6

2018 Groundwater Sampling Event Summary

This section discusses the groundwater monitoring activities performed at the Site in August 2018 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 (EEEP 2014). Sampling locations are identified on Figure 1-2.

6.1 Field Activities

6.1.1 Monitoring Well Sampling

Groundwater samples were collected from 12 monitoring wells, three piezometers, and one former extraction well at the Site from August 7 through 14, 2018, and the samples were analyzed for VOCs, 1,4-dioxane, per- and polyfluoroalkyl substances (PFAS), metals, and general chemistry parameters. Samples could not be collected from monitoring wells CHI-1 and CHI-6 because they were dry. Monitoring wells MW-12S and MW-12R were not sampled because they could not be located. An excavator was used in the general area of the MW-12 monitoring well cluster to remove debris, but the wells were not found. 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. Piezometer PZ-2 could not be sampled because it was covered by jersey barriers. Three monitoring wells (MW-2R, MW-13S, and MW-9S) were resampled between August 30 and 31, 2018, for PFAS due to the samples being lost in transit after shipping.

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 6-1). 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.

6 2018 Groundwater Sampling Event Summary

Table 6-1 August 2018 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	8/13/2018	17.73	500.23	499.72	12.91	486.81
MW-2S	8/10/2018	13.80	496.03	497.48	5.35	492.13
MW-9S	8/9/2018	16.00	497.94	498.01	4.90	493.11
MW-13S	8/9/2018	13.45	496.24	496.95	3.09	493.86
MW-14S	8/10/2018	12.70	495.48	495.16	2.06	493.10
PZ-1	8/10/2018	12.10	497.21	496.92	3.45	493.47
PZ-3	8/10/2018	13.30	497.87	497.56	4.52	493.04
PZ-4	8/13/2018	11.35	497.76	497.22	4.00	493.22
Deep Bedrock Wells						
MW-2R	8/9/2018	27.95	496.14	497.54	20.64	476.90
MW-5R	8/10/2018	35.38	501.32	498.23	11.70	486.53
MW-8R	8/7/2018	37.60	499.63	497.64	20.05	477.59
MW-10R	8/14/2018	37.10	497.89	497.44	18.98	478.46
MW-14R	8/10/2018	24.12	496.86	495.18	6.12	489.06
MW-15R	8/14/2018	32.20	495.60	494.14	15.00	479.14
MW-16R	8/13/2018	33.40	494.68	493.04	19.66	473.38
PW-1	8/13/2018	29.00	493.48	494.41	7.90	486.51

Key:

- amsl = Above mean sea level
- MW = Monitoring well
- TOIC = Top of inner casing
- = Data not applicable or not obtained for these wells.

Monitoring wells and the former extraction well were sampled using the U.S. Environmental Protection Agency (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. Piezometers were 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 (ORP) were recorded at regular intervals throughout the well-purging process and immediately prior to sampling. The final water quality measurements are presented in Table 6-2. Piezometer PZ-4 was purged dry and sampled after sufficient recharge had occurred. Appendix C presents copies of the monitoring well purge and sample records for the August sampling events.

6 2018 Groundwater Sampling Event Summary

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. Purge and decontamination water were handled according to procedures outlined in Section 6.1.3.

Table 6-2 Summary of Groundwater Quality Field Measurements, Former Davis-Howland Oil Corporation Site

Well ID	Sample Date	pH (s.u.)	Temperature (°C)	ORP (mV)	Conductivity (mS/cm)	DO (mg/L)	Unfiltered Turbidity (NTU)
Overburden Wells							
MW-1S	08/13/2018	7.08	15.7	2.5	1.49	0.35	1.54
MW-2S	08/10/2018	6.65	17.1	-12.6	1.53	0.11	0.54
MW-9S	08/09/2018	7.48	21.3	161.8	0.68	0.54	4.88
MW-13S	08/09/2018	7.14	21.4	167.2	0.77	0.20	1.88
MW-14S	08/10/2018	6.87	23.4	3.4	0.499	0.64	0.91
PZ-1	08/10/2018	7.36	18.5	-80.3	0.57	0.15	14.6
PZ-3	08/10/2018	6.69	21.3	11.7	2.75	0.10	1.32
PZ-4	08/13/2018	8.79	22.8	-91.6	0.78	3.77	3.77
Bedrock Wells							
MW-2R	08/09/2018	7.21	17.8	-49.4	1.55	0.48	3.11
MW-5R	08/10/2018	7.36	15.4	-56.6	1.54	0.14	3.22
MW-8R	08/07/2018	7.29	13.8	-75.0	1.61	2.82	0.85
MW-10R	08/14/2018	7.42	15.5	27.3	0.22	0.22	0.64
MW-14R	08/10/2018	7.69	16.3	-54.3	1.19	0.14	2.19
MW-15R	08/14/2018	7.38	14.1	95.3	1.16	0.16	1.01
MW-16R	08/13/2018	7.90	16.0	-224.4	1.99	0.08	2.84
PW-1	08/13/2018	8.40	14.7	-56.2	1.54	0.72	1.26

Key:

- °C = degrees Celsius
- mg/L = milligrams per liter
- mV = millivolts
- µS/cm = microsiemens per centimeter
- NTU = nephelometric turbidity unit
- 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 the following analyses:

- VOCs by EPA Method 624.1 (all wells);
- Semivolatile organic compounds (SVOCs) by EPA Method 8270D SIM (1,4-dioxane only [at monitoring wells MW-1S, MW-9S, MW-13S, PZ-04, MW-2R, MW-8R, and MW-16R]);

6 2018 Groundwater Sampling Event Summary

- Metals by EPA Method 6010C (at monitoring wells MW-1S, MW-2S, MW-9S, PZ-04, MW-2R, MW-8R, and MW-14R);
- General chemistry parameters including alkalinity (EPA Method 310.2); dissolved gases (Method RSK 175); sulfate (EPA Method 300.0); nitrate (EPA Method 353.2); chemical oxygen demand (EPA Method 410.4); biochemical oxygen demand (Standard Method 5210B); total organic carbon (EPA Method 9060) (at monitoring wells MW-1S, MW-2S, MW-9S, MW-2R, MW-8R, and MW-14R); and
- PFAS by modified EPA method 537 (at monitoring wells MW-1S, MW-9S, MW-13S, MW-2R, MW-8R, MW-16R, and PZ-04).

PFAS samples were shipped by TestAmerica Laboratories in Amherst, New York, to TestAmerica's Burlington, Vermont, laboratory.

6.1.2 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. Sample portions for VOCs collected on a single day were transported in the same cooler. One field (equipment) blank was collected for VOC analysis. In addition, one field blank was collected each day that a sample for PFAS analysis was collected. Each sample consisted of contaminant-free water that was poured over a decontaminated sampling 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-2R. The sample consisted of aliquots of sample media placed in separate sample containers and labeled as separate samples (MW-2R-08312018 and MW-2R-08312018-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 (EEPC 2011). For this event, one duplicate sample and one MS/MSD sample were collected for 17 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 D). Data qualifiers were applied as

described in the DUSRs and incorporated into the data summary tables. No significant issues were identified, and all analytical data are considered usable for the intended purpose.

6.1.3 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 550-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 26, 2018, and discharge occurred on November 28, 2018. Analytical results from the purge water samples collected prior to discharge are provided in Appendix C.

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.

6.2 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.

6.2.1 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, 2016c, 2017).

Overburden groundwater flow in November 2017 was once again primarily to the southwest, and in August 2018, overburden groundwater flow was toward 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 (see Figure 6-1).

6.2.2 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, 2016c).

In November 2016, 2017, and 2018, the primary bedrock groundwater flow direction was to the south (see Figure 6-1). There is evidence of slight mounding (higher elevations) at MW-14R, as depicted on Figure 6-1.

6.3 Analytical Results

This section presents the analytical results for the August 2018 groundwater samples collected at the DHOC Site and compares them to historical results. The laboratory results for VOCs and SVOCs detected in overburden monitoring well and piezometer samples are presented in Table 6-3, and the laboratory results for VOCs and SVOCs detected in bedrock monitoring well and pumping well samples are presented in Table 6-4. The laboratory results for PFAS for both aquifers are presented in Table 6-5. The laboratory results for metals and general chemistry for both aquifers are presented in Table 6-6. Groundwater sample results discussed below were compared to the NYSDEC Class GA groundwater standards and guidance values (NYSDEC 1998) and the EPA's *PFOA & PFOS Drinking Water Health Advisories* (EPA 2016) where applicable. The complete laboratory report for the sampling event is provided in Appendix E.

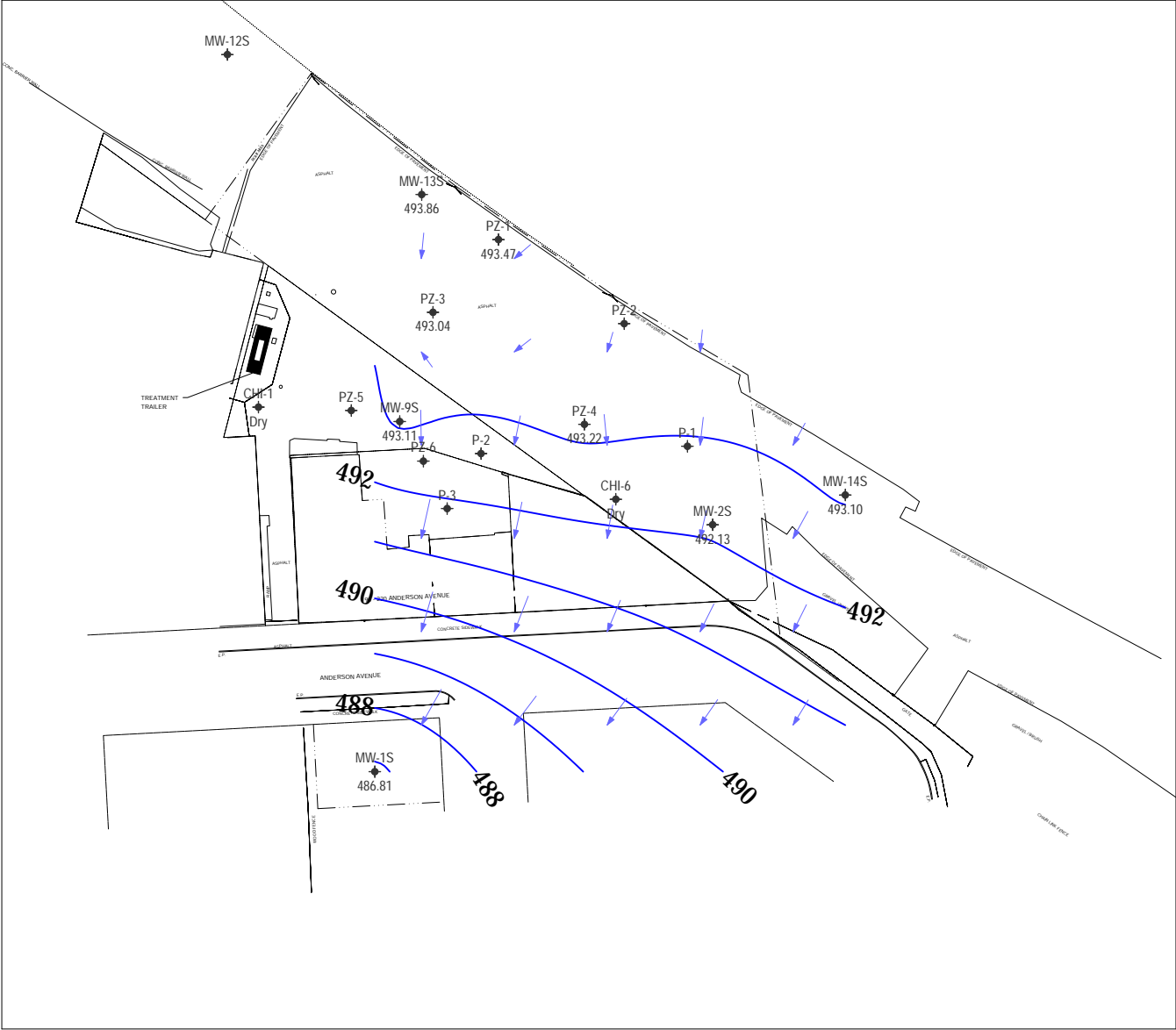
6.3.1 Overburden Groundwater Results

Volatile Organic Compounds

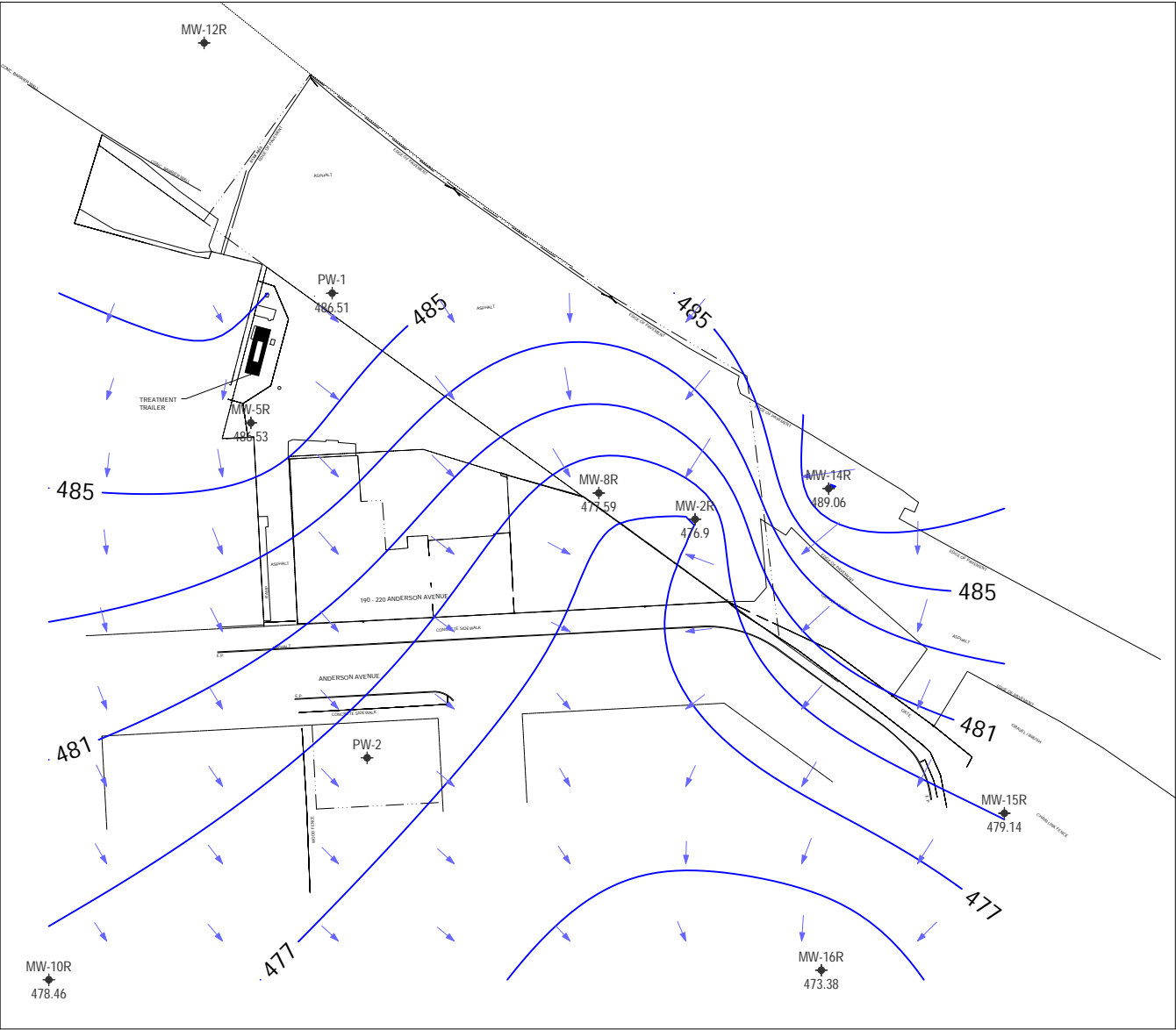
Nine VOCs were detected in one or more groundwater samples collected from overburden wells. The majority of these compounds are chlorinated aliphatic (straight-chained) VOCs (cVOCs), including perchloroethylene (PCE); trichloroethene (TCE); 1,1-trichloroethane, and their degradation by-products. 1,2-Dichlorobenzene and acetone were also detected in one well each at low concentrations.



Groundwater Elevation Isopleths
Overburden Monitoring Wells



Groundwater Elevation Isopleths
Bedrock Monitoring Wells



Notes:
1) Groundwater elevations measured August 7 - 14, 2018.

Legend

- Groundwater Flow Direction and Relative Magnitude of Gradient
- Groundwater elevation isopleth



FIGURE 6-1
Groundwater Elevation Isopleths
Overburden and Bedrock Monitoring Wells
August 2018
Former Davis-Howland Oil Corporation Site
Rochester, NY

Table 6-3 Summary of Positive VOC and SVOC Results for Groundwater Samples from Overburden Monitoring Wells, Former Davis-Howland Oil Corporation Site, Rochester, NY

Analyte	Location ID:		MW-1S	MW-2S	MW-9S	MW-13S	MW-14S	PZ-01	PZ-03	PZ-04
	Depth:		13 - 18 ft	5.4 - 14 ft	4.9 - 16 ft	3.1 - 13 ft	2.1 - 13 ft	3.5 - 12 ft	4.5 - 13 ft	4 - 11 ft
	Date:		08/13/18	08/10/18	08/09/18	08/09/18	08/10/18	08/10/18	08/10/18	08/13/18
	Screening Criteria ⁽¹⁾	Notes								
Volatile Organic Compounds by Method E624.1 (µg/L)										
1,1,1-Trichloroethane	5		1.7 J	3.9 U	0.94 J	0.48 J	0.39 U	0.39 U	5.3	16 J
1,1-Dichloroethane	5		0.79 J	5.9 U	7.9	0.72 J	0.59 U	0.59 U	16	7.8 J
1,2-Dichlorobenzene	3		0.44 U	4.4 U	0.54 J	0.44 U	0.44 U	0.44 U	0.44 U	4.4 U
Acetone	50	G	2.0 U	20 U	2.0 U	2.0 U	3.5 J	2.0 U	2.0 U	20 U
Cis-1,2-Dichloroethylene	5		20	5.7 U	29	6.8	0.57 U	6.7	11	200
Tetrachloroethylene (PCE)	5		3.0 J	3.4 U	39	0.54 J	0.34 U	0.34 U	0.34 U	11 J
Trans-1,2-Dichloroethene	5		0.59 U	5.9 U	2.8 J	0.59 U	0.59 U	0.59 U	0.59 U	5.9 U
Trichloroethylene (TCE)	5		19 J	6.0 U	31	1.7 J	0.60 U	5.1	2.6 J	270
Vinyl Chloride	2		0.75 U	7.5 U	0.75 U	0.75 U	0.75 U	0.75 U	1.1 J	7.5 U
Semivolittle Organic Compounds by Method SW8270D SIM (µg/L)										
1,4-Dioxane (P-Dioxane)	1 ⁽⁴⁾		0.68	--	0.93	0.4	--	--	--	0.52

Key:

Qualifiers

J = Estimated value

U = Not detected (method detection limit shown)

Other

G = Guidance value (no standard available)

µg/L = Micrograms per liter

-- = Analyte not analyzed for

N/A = No standard or guidance value available

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. NYSDEC 2019 internal screening level

Table 6-4 Summary of Positive VOC and SVOC 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	MW-5R	MW-8R	MW-10R	MW-14R	MW-15R	MW-16R	PW-1
			Sample Name:	08092018	08102018	08072018	08142018	08102018	08142018	08132018	PW-1-08132018
			Depth:	21 - 28 ft	12 - 35 ft	20 - 38 ft	19 - 37 ft	6.1 - 24 ft	15 - 32 ft	20 - 33 ft	7.9 - 29 ft
			Date:	08/09/18	08/10/18	08/07/18	08/14/18	08/10/18	08/14/18	08/13/18	08/13/18
Volatile Organic Compounds by Method E624.1 (µg/L)											
1,1,1-Trichloroethane	5		3.9 U	3.9 U	3.9 U	5.7 J	0.39 U	0.39 U	3.9 U	0.77 U	
1,1-Dichloroethane	5		20 J	9.6 J	110	5.9 U	0.59 U	0.59 U	14 J	22	
1,1-Dichloroethene	5		8.5 U	8.5 U	38 J	10 J	0.85 U	0.85 U	8.5 U	3.3 J	
Cis-1,2-Dichloroethylene	5		500	330	3000	33 J	7.1	8.0	310	210	
Tetrachloroethylene (PCE)	5		3.4 U	3.4 U	3.4 U	4.6 J	0.34 U	0.34 U	3.4 U	0.68 U	
Trans-1,2-Dichloroethene	5		5.9 U	5.9 U	5.9 U	11 J	3.9 J	0.72 J	5.9 U	3.3 J	
Trichloroethylene (TCE)	5		6.0 U	15 J	6.0 U	1300 J	24	2.1 J	6.0 U	16	
Vinyl Chloride	2		250	55	470	7.5 U	0.75 U	0.99 J	96	72	
Semivolitle Organic Compounds by Method SW8270D SIM (µg/L)											
1,4-Dioxane (P-Dioxane)	1 ⁽⁴⁾		39	--	97	--	--	--	41	--	

Key:

Qualifiers

J = Estimated value

U = Not detected (method detection limit shown)

Other

µg/L = Micrograms per liter

-- = Analyte not analyzed for

N/A = No standard or guidance value available

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. NYSDEC 2019 internal screening level

Table 6-5 Summary of Positive PFAS Results for Groundwater Samples,
Former Davis-Howland Oil Corporation Site, Rochester, NY

Location ID: Depth: Date: Screening Criteria ⁽¹⁾ Notes			Overburden				Bedrock		
			MW-1S	MW-9S	MW-13S	PZ-04	MW-2R	MW-8R	MW-16R
			13 - 18 ft	4.9 - 16 ft	3.1 - 13 ft	2.1 - 13 ft	21 - 28 ft	20 - 38 ft	20 - 33 ft
			08/13/18	08/31/18	08/31/18	08/10/18	08/09/18	08/07/18	08/31/18
Analyte									
Per- and Polyfluoroalkyl Substances by Method E537-LL (ng/L)									
1H,1H,2H,2H-Perfluorooctane Sulfonate (6:2)	N/A		0.83 U	1.7 U	1.8 U	0.91 J	1.7 UJ	0.81 U	0.87 U
Perfluorobutanesulfonic acid (PFBS)	N/A		0.91 J	2.8	1.9	1.9	3.1 J	7.6	1.8
Perfluorobutanoic Acid	N/A		17	13	13	14	8	240 J	46 J
Perfluorodecanoic acid (PFDA)	N/A		0.32 U	0.57 J	2.4	1.2 J	1.7	0.31 U	0.33 U
Perfluorododecanoic acid (PFDoA)	N/A		0.29 U	0.50 J	0.51 U	0.29 U	0.46 U	0.28 U	0.48 J
Perfluoroheptanoic acid (PFHpA)	N/A		0.84 J	17	4.1	3.1	2.5	0.49 J	1.6 J
Perfluorohexanesulfonic acid (PFHxS)	N/A		0.69 J	1.7	0.95 U	0.51 J	0.73 U	3.2	0.98 J
Perfluorohexanoic acid (PFHxA)	N/A		1.3 J	24	7.6	5.6	18	3.7	3.4
Perfluorononanoic acid (PFNA)	N/A		0.32 U	3.6	2.5	1.2 J	1.1 J	0.43 J	0.48 J
Perfluorooctane Sulfonamide (FOSA)	N/A		0.46 U	0.29 U	0.32 U	0.46 U	0.29 J	0.45 U	0.48 UJ
Perfluorooctanesulfonic acid (PFOS)	70	G	2.0	5.5	4.4	3.3	2.2	4.2	2.0
Perfluorooctanoic acid (PFOA)	70	G	1.6 U	36	6.9	3.6	4.4	2.6	2.4
Perfluoropentanoic Acid (PFPeA)	N/A		1.8	25	8.4	3.1	12	33 J	2.8
Perfluoroundecanoic Acid (PFUnA)	N/A		0.21 U	0.92 U	1.0 U	0.35 U	0.91 U	0.23 J	0.22 U
Sum of PFOS and PFOA	70	G	3.6 J	41.5	11.3	6.9	6.6	6.8	4.4

Key:

Qualifiers

J = Estimated value

U = Not detected (method detection limit shown)

UJ = Estimated not detected (method detection limit shown)

Other

G = Guidance value (no standard available)

ng/L = Nanograms per liter

N/A = No standard or guidance value available

- Notes:**
1. United States Environmental Protection Agency, PFOA & PFOS Drinking Water Health Advisories [Fact Sheet].
 2. Bold values denote positive detections.
 3. Shaded cells exceed NYSDEC groundwater standard or guidance value.
 4. Sum of PFOS and PFOA includes method detection limit if applicable.

Table 6-6 Summary of Metals and General Chemistry Results for Groundwater Samples
Former Davis Howland Oil Corporation, Rochester, New York

Location ID: Depth: Date: Screening Criteria ⁽¹⁾ Notes			Overburden				Bedrock		
			MW-1S	MW-2S	MW-9S	PZ-04	MW-2R	MW-8R	MW-14R
			13 - 18 ft	5.4 - 14 ft	4.9 - 16 ft	4 - 11 ft	21 - 28 ft	20 - 38 ft	6.1 - 24 ft
			08/13/18	08/10/18	08/09/18	08/13/18	08/09/18	08/07/18	08/10/18
Analyte									
Metals by EPA Method 6010C (mg/L)									
Iron (Total)	0.3		0.038 J	2.1	0.019 U	0.93	0.44 J	2.1	0.19
Iron (Dissolved)	0.3		0.019 U	2.2	0.088	0.15	1.1 J	1.9	0.12
Manganese (Total)	0.3		0.0049	3.1	0.00040 U	0.49	0.078	0.2	0.14
Manganese (Dissolved)	0.3		0.00074 U	3.3	0.011	0.4	0.073	0.19	0.14
General Chemistry									
Sulfate (As SO4) (µg/L)	250		50.8	443	98.3	--	122	275	91.2
Alkalinity, Total (As CaCO3) (mg/L)	N/A		486	395	286	--	225	327	306
Nitrogen, Nitrate (As N) (mg/L)	10		0.28	0.041 J	0.45	--	0.18	0.020 U	0.032 J
Carbon Dioxide (µg/L)	N/A		87000	140000	22000 J	--	19000 J	46000 J	19000
Methane (µg/L)	N/A		1.0 U	2.9 J	1.0 U	--	440 J	410	65
Biochemical Oxygen Demand (BOD) (mg/L)	N/A		2.0 UJ	2.0 U	2.0 U	--	2.0 U	2.0 U	2.0 U
COD - Chemical Oxygen Demand (mg/L)	N/A		9.1 J	18.8	7.0 J	--	13.5	13.2	5.2 J
Total Organic Carbon (µg/L)	N/A		0.43 U	9.2	2.9	--	3.9	4.6	0.43 U

Key:

Qualifiers

J = Estimated value

U = Not detected (method detection limit shown)

Other

µg/L = Micrograms per liter

-- = Analyte not analyzed for

N/A = No standard or guidance value available

- 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.

Five VOCs were detected in one or more overburden monitoring or pumping wells at concentrations exceeding NYSDEC Class GA groundwater standards. These compounds are highlighted in Table 6-3. The concentrations of cVOCs in overburden groundwater were highest in PZ-04 and MW-9S. The total concentration of cVOCs was approximately 500 micrograms per liter ($\mu\text{g/L}$) in PZ-04 and approximately 110 $\mu\text{g/L}$ in MW-9S. At both locations, the primary contributors to these total concentrations were cis-1,2-dichloroethylene (cis-1,2-DCE) and TCE. 1,2-Dichlorobenzene was detected in MW-9S at 0.54 $\mu\text{g/L}$. Acetone was detected at 3.5 $\mu\text{g/L}$ in MW-14S. No BTEX compounds (benzene, toluene, ethyl benzene, and xylene) were detected in any of the sampled overburden wells in 2018. The overburden VOC and SVOC analytical results are presented in Table 6-3.

The August 2018 concentration isopleths of cVOCs in the overburden groundwater samples are presented on Figure 6-2.

Semivolatile Organic Compounds

In 2018, 1,4-dioxane was detected in samples from three overburden monitoring wells: MW-9S (0.93 $\mu\text{g/L}$), MW-13S (0.4 $\mu\text{g/L}$), and PZ-04 (0.52 $\mu\text{g/L}$).

Per- and Polyfluoralkyl Substances

In 2018, samples were collected from three overburden wells and one piezometer and analyzed for PFAS, with detections occurring in each of the locations sampled. A summary letter report of the PFAS and 1,4-dioxane sampling was provided to NYSDEC on December 3, 2018 (E & E 2018i). None of the detections exceeded the EPA Drinking Water Health Advisory of 70 nanograms per liter (ng/L). The highest concentrations were detected in MW-9S, where the sum of PFOS and PFOA equaled 41.5 ng/L . The second highest concentrations were detected in MW-13S, where the sum of PFOS and PFOA equaled 11.3 ng/L . The sums of PFOS and PFOA at the remaining two wells and piezometer (MW-1S, MW-14S, and PZ-04) were below 10 ng/L . PFAS results in the overburden aquifer are presented in Table 6-5.

General Chemistry

The highest concentrations of metals, anions, and dissolved gasses were detected in the overburden, with exceedances of at least one compound occurring in MW-2S and PZ-04. In MW-2S, total iron (2.1 mg/L), dissolved iron (2.2 mg/L), total manganese (3.1 mg/L), dissolved manganese (3.3 mg/L), and sulfate (443 $\mu\text{g/L}$) exceeded groundwater standards. In PZ-04, total iron (0.93 mg/L), total manganese (0.49 mg/L), and dissolved manganese (0.4 mg/L) exceeded groundwater standards. The highest concentrations of carbon dioxide and total alkalinity were also detected in the overburden aquifer.

6.3.2 Bedrock Groundwater Results

Volatile Organic Compounds

Eight VOCs were detected in one or more of the groundwater samples collected from bedrock monitoring and pumping wells, including cVOCs (PCE; TCE; 1,1,1-trichloroethane; and their degradation by-products). The concentrations of seven 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 and MW-10R, with the total sum of cVOCs reaching approximately 3,600 µg/L in MW-8R and 1,350 µg/L in MW-10R. Similar to previous years, the primary compounds detected in these wells were cis-1,2-dichloroethylene, TCE, and vinyl chloride. No BTEX compounds were detected in any of the sampled bedrock wells in 2018. These compounds are highlighted in Table 6-4.

The August 2018 concentration isopleths of cVOCs in the bedrock groundwater samples are presented on Figure 6-3.

Semivolatile Organic Compounds

In 2018, 1,4-dioxane was detected at higher concentrations in samples from the bedrock aquifer than in samples from the overburden aquifer. 1,4-Dioxane was detected in samples from three bedrock monitoring wells: MW-2R (39 µg/L), MW-8R (97 µg/L), and MW-16R (41 µg/L).

Per- and Polyfluoralkyl Substances

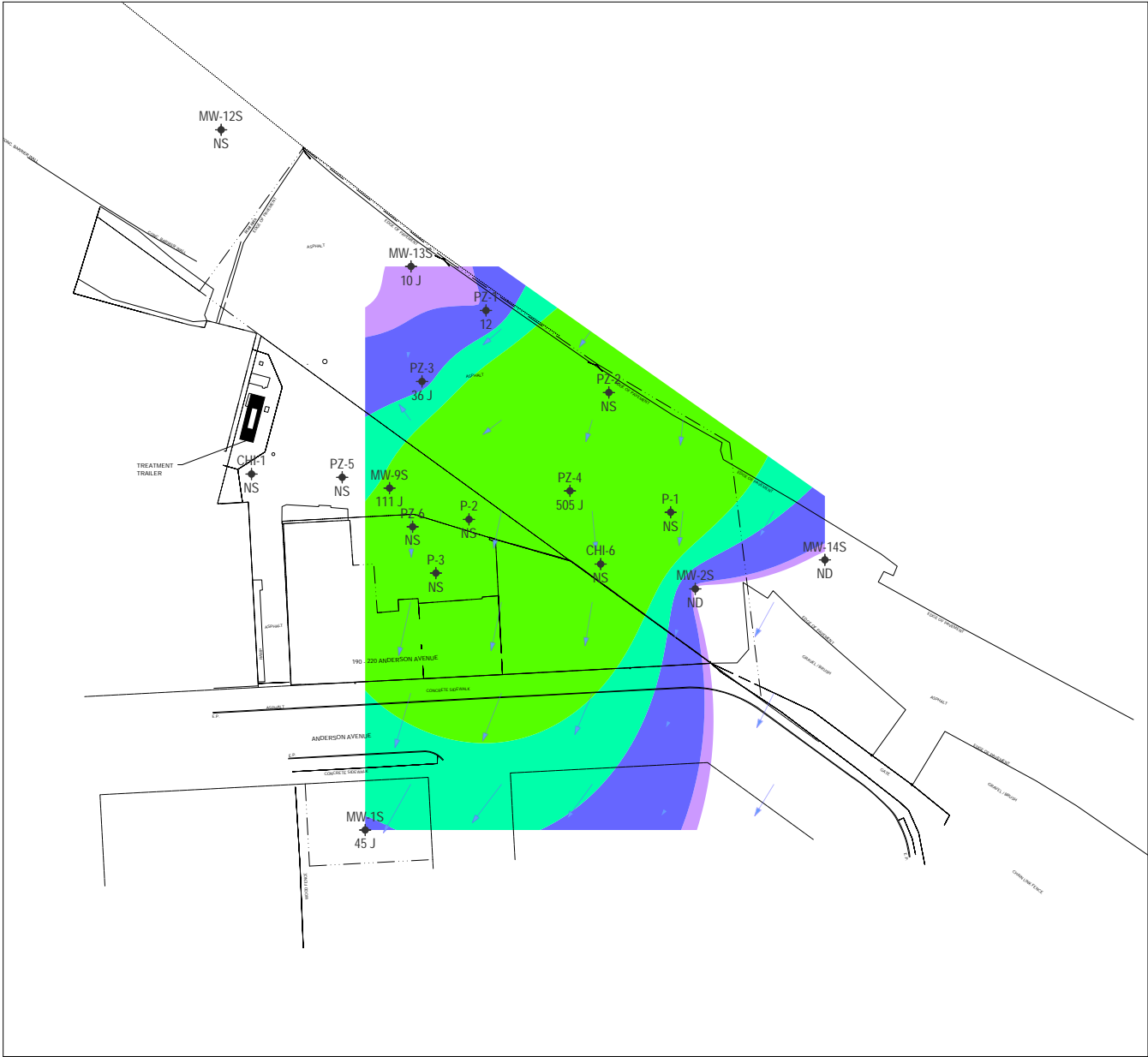
PFAS sampling occurred in MW-2R, MW-8R, and MW-16R in the bedrock aquifer. A summary letter report of the PFAS and 1,4-dioxane sampling was provided to NYSDEC on December 3, 2018 (E & E 2018i). There were no exceedances of the EPA Drinking Water Health Advisory in any of the wells sampled in 2018. The sum of PFOS and PFOA equaled 6.6 ng/L in MW-2R, 6.8 ng/L in MW-8R, and 4.4 ng/L in MW-16R. In MW-8R, perfluorobutanoic acid was detected at 240 J ng/L.

General Chemistry

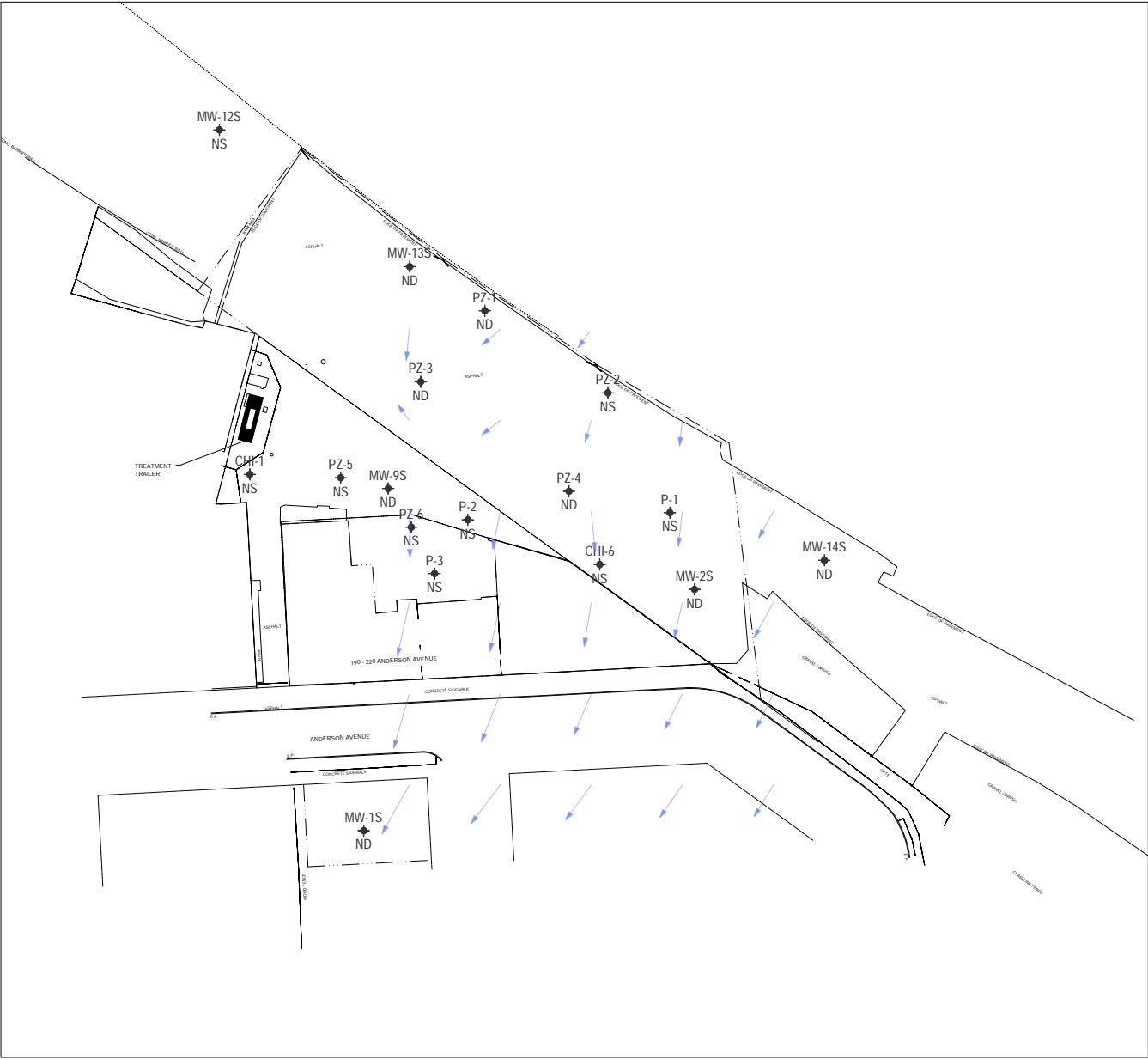
The highest concentrations of total and dissolved iron and sulfate were detected in the bedrock aquifer, with at least one exceedance of the groundwater standards occurring in samples from MW-2R and MW-8R. In MW-2R, total and dissolved iron exceeded groundwater standards at 0.44 J mg/L and 1.1 J mg/L, respectively. In MW-8R, total iron, dissolved iron, and sulfate exceeded groundwater standards at 2.1 mg/L, 1.9 mg/L, and 275 µg/L, respectively.



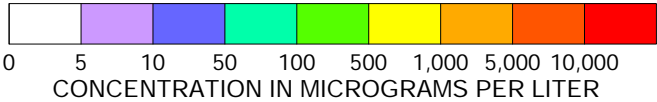
Total Chlorinated VOC Concentrations (µg/L)



Total BTEX Concentrations (µg/L)



- Notes:
- 1) BTEX = sum of benzene, toluene, ethylbenzene, and xylene isomers.
 - 2) VOC = volatile organic compound.
 - 3) Chlorinated VOCs include all chlorinated aliphatic hydrocarbons detected. Other VOCs detected but not presented on this figure include 1,2-dichlorobenzene in MW-9S (0.54 J µg/L) and acetone in MW-14S (3.5 J µg/L).
 - 4) ND = not detected.
 - 5) NS = not sampled.



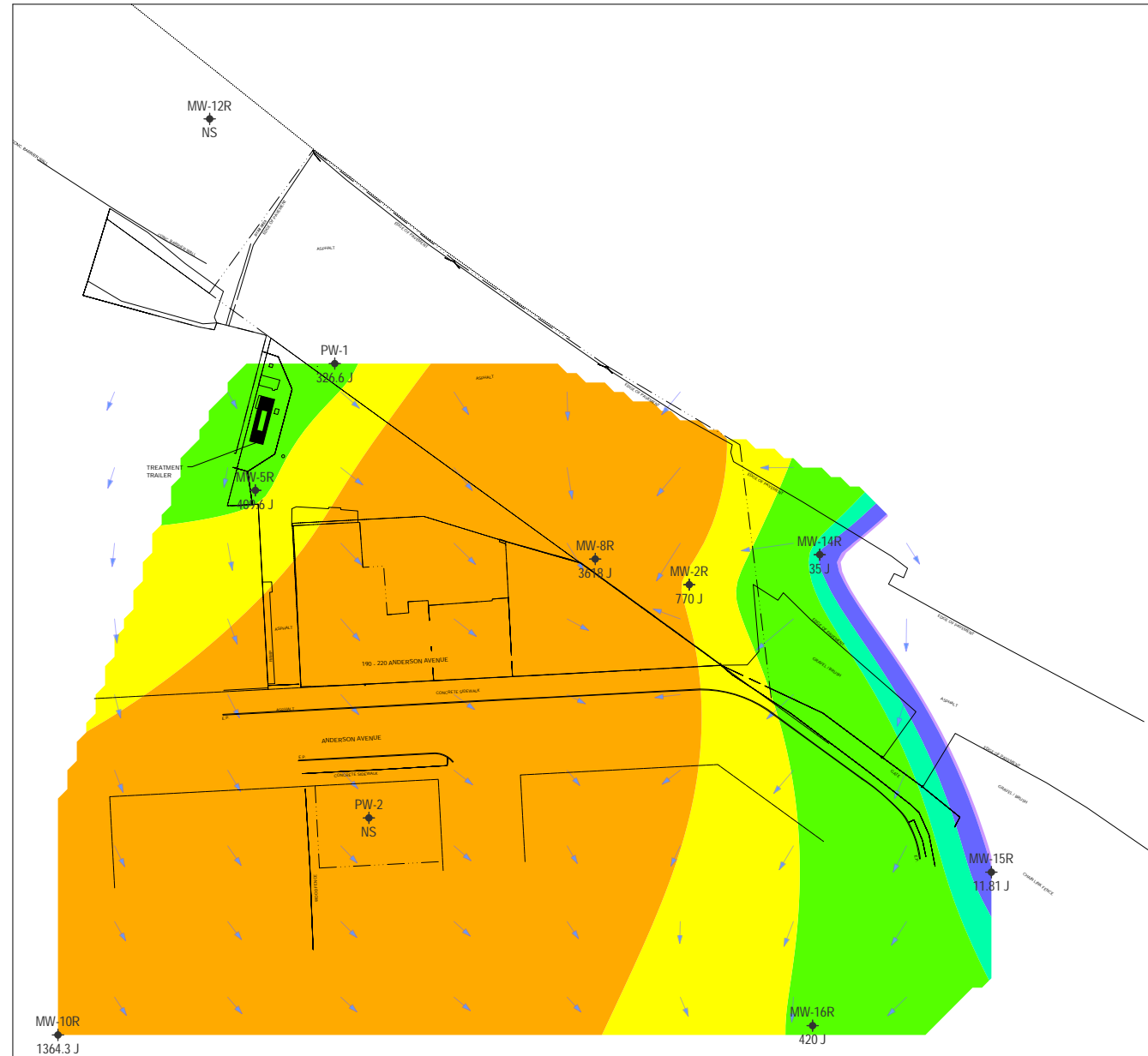
Legend

→ Groundwater Flow Direction and Relative Magnitude of Gradient

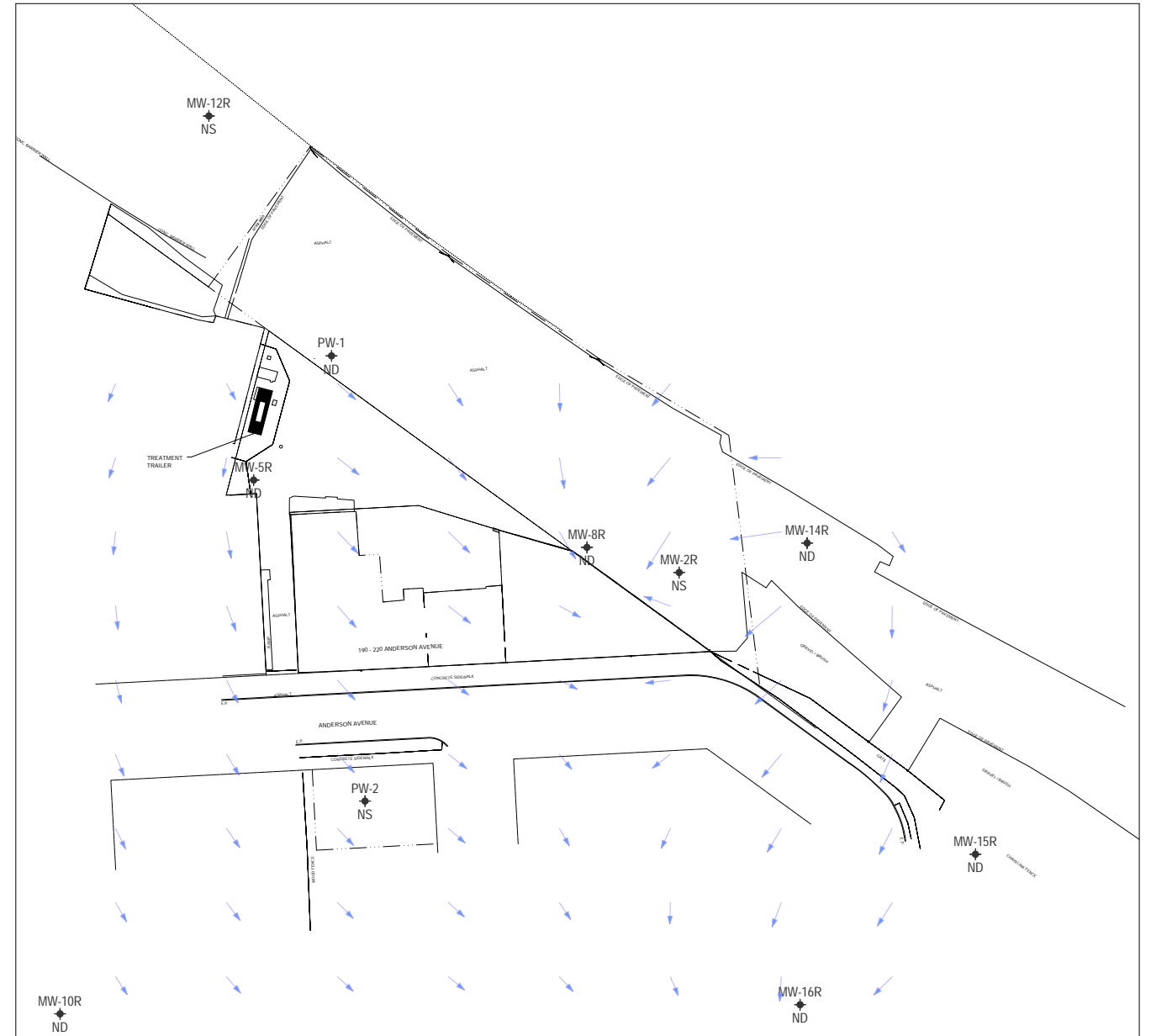
FIGURE 6-2
Total Chlorinated VOCs and BTEX
in Overburden Groundwater, August 2018
Former Davis-Howland Oil Corporation Site
Rochester, New York



Total Chlorinated VOC Concentrations (µg/L)

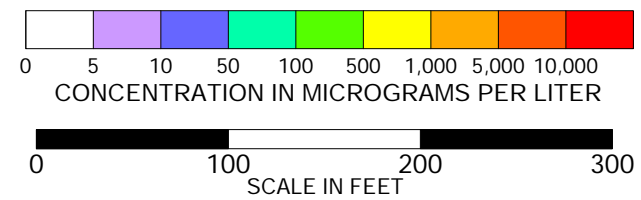


Total BTEX Concentrations (µg/L)



Notes:

- 1) BTEX = sum of benzene, toluene, ethylbenzene, and xylene isomers.
- 2) VOC = volatile organic compound.
- 3) Chlorinated VOCs include all chlorinated aliphatic hydrocarbons detected.
No other VOCs, including dichlorobenzenes, were detected.
- 4) ND = not detected
- 5) NS = not sampled



Legend

- Blue arrow: Groundwater Flow Direction and Relative Magnitude of Gradient

FIGURE 6-3
Total Chlorinated VOCs and BTEX
in Bedrock Groundwater, August 2018
Former Davis-Howland Oil Corporation Site
Rochester, New York

6.3.3 Comparison with Historical Analytical Data

Tables 6-7 and 6-8 present historical 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 monitoring wells sampled.
- Concentrations of BTEX compounds in the bedrock groundwater have decreased since 1997. Total BTEX has been detected in five of the nine bedrock wells at the Site since 1997, 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. MW-5R had consistently contained some BTEX since 1997, but in 2018, no BTEX compounds were detected. In 2015, BTEX compounds were detected in only two of the nine bedrock wells (MW-5R and MW-8R) at very low concentrations (3.9 µg/L and 8.3 µg/L, respectively). In 2016, BTEX was again detected in only two monitoring wells (MW-5R and MW-16R) at very low concentrations (1.7 µg/L and 10 µg/L, respectively). BTEX (ethylbenzene only) was detected in pumping well PW-2 at a 10 µg/L in 2016. In 2017, BTEX (benzene only) was detected in only one monitoring well (MW-5R) at 12 µg/L. BTEX (benzene only) was detected in pumping well PW-1 at 0.59 µg/L in 2017, but it was not detected in 2018.
- 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

6 2018 Groundwater Sampling Event Summary

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 140 µg/L), and PZ-04 (ranging from 400 µg/L to 590 µg/L).

- 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 (3,618 µg/L in 2018) of the wells at the Site, due primarily to cis-1,2-DCE. In 2018, the cVOC concentrations detected at MW-10R and MW-16R were higher than those detected in 2017. The cVOC concentrations in MW-10R have trended upward since 2015 (from 910 µg/L in 2015 to 1,364 µg/L in 2018), due primarily to high concentrations of TCE. High concentrations of cVOCs observed in MW-2R, MW-5R, MW-8R, and MW-16R are due primarily by high concentrations of cis-1,2-DCE, and in MW-8R, also to vinyl chloride.

Table 6-7 Historical Total BTEX Results for Monitoring Wells

Well ID	Sample Date												
	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2007	2004	1998
Overburden Monitoring Wells													
MW-1S	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
MW-3S	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-9S	ND	ND	ND	ND	0.12 J	0.88 J	ND	ND	ND	ND	2.5	1.5	4,700
MW-12S	NA	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
MW-14S	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
MW-3R	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20	ND
MW-5R	ND	12	1.7	3.9	2.3	4.6	32	45	45	3.1	15	71	42
MW-8R	ND	ND	ND	8.3	12 J	16	ND	ND	ND	ND	21	18	NA
MW-10R	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
MW-14R	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
MW-16R	ND	ND	0.31	ND	0.11 J	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 6-8 Historical Total Chlorinated VOCs 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	45	32	76	37	38	41	68	67	NA	45	98	410	120	19
MW-2S	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	ND	0.30	0.68	ND	ND	ND	ND	4.6	ND	ND	ND
MW-9S	111	121	110	140	180	240	140	140	140	92	48	32	15,000	6,300
MW-12S	NA	NA	NA	ND	0.30	0.36	13	ND	ND	ND	4.4	ND	6.0	29
MW-13S	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	4.2	ND	ND	ND	0.36	ND	2.0	4.0
PZ-01	12	NA	NA	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ-02	NA	5	6.9	8.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ-03	36	20	20	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ-04	505	400	590	430	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bedrock Monitoring Wells														
MW-2R	770	2,670	1,500	1,100	350	31	940	1,200	240	NA	NA	940	NA	2,100
MW-3R	NA	NA	NA	1,800	1,700	1,400	530	960	410	1,600	3,300	1,200	4,300	3,200
MW-5R	410	786	500	550	650	340	1,200	160	1,400	210	2,700	1,100	4,200	5,200
MW-8R	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	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	26	41	34	ND	45	35	66	75	22	NA	270
MW-14R	35	43	59	45	59	72	59	61	54	45	67	17	50	22
MW-15R	12	NA	NA	10	12	11	11	11	6.4	4.7	7.4	7.7	NA	35
MW-16R	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)

7

Actions to Support Eventual Site Closure

The overall project goals identified in the Record of Decision (ROD) are to (1) eliminate the potential for direct human contact with the contaminated soils on-site; (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, contaminate 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 have decreased since installation of the remedial treatment systems. However, evaluations completed as part of the RSO described below (Section 7.1) have 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 7.2. Recommendations for continued site management activities at the site are provided in Section 7.3.

7.1 Remedial System Optimization

In June 2016, EEEPC submitted an RSO Alternatives Report (EEEPC 2016a) to NYSDEC. This report summarized the results of the additional sampling performed at the site in 2015, including results from the extraction well pulsed-pumping sampling and additional soil boring sample collected from the site. The report also analyzed remedial alternatives for the site and provided recommendations for various changes to the system to improve system performance and reduce the costs of system operation.

The RSO Report noted that contaminant removal by the pump-and-treat system had been declining over time. Sampling from pulsed pumping of the wells did not indicate increased removal of VOC contamination from the site. Results from

7 Actions to Support Eventual Site Closure

the soil boring sampling completed in November 2015 indicated that the remaining contamination at the Site meets part 375 soil cleanup objectives for restricted-residential use. VOC contamination in the groundwater remains 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 reducing 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 DER-10 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.

7.1.1 Pulse Pumping Evaluation

For the pulsed pumping, all operational pumping wells (PW-1, PW-2, P-2, and P-3) were pulsed on a set schedule as described in the Remedial Systems Evaluation report (EEEPC 2018a). Regular sampling of influent and effluent of the treatment system and at the beginning and end of the pulsed pumping efforts was performed to analyze changes in the treatment system concentrations of VOCs and concentration of VOCs at each pumping well to evaluate whether greater removal of VOCs is achievable.

Statistical analysis of the influent VOC concentrations of the pumping well system was performed to determine whether the treatment system had reached an asymptotic state despite pulsed pumping efforts. The analytical results from the pulse pumping well samples collected indicated that the cumulative pounds of VOCs removed from the groundwater has remained statistically the same, indicating that the treatment system is no longer efficiently removing VOCs from the site. The sampling indicated that asymptotic conditions have been achieved and the mass of contaminants extracted over time is not dependent on continued operation of the system.

Analytical results from individual pumping well samples collected pre- and post-shutdown of the wells indicated that removal concentrations of PCE, TCE, and vi-

7 Actions to Support Eventual Site Closure

nyl chloride were consistent, demonstrating the discontinued efficiency of continued pumping. Concentrations of cis-1,2-DCE were variable but showed no correlation between operation or shutdown of the pumping wells.

7.1.2 AS/SVE System Sampling

Since decommissioning of the CATOX system in 2008, effluent air samples from the AS/SVE system have not been collected. As part of system optimization sampling, additional effluent samples were analyzed for VOCs. Pursuant to Section 6.4 of DER-10, effluent air quality and air flow-rate data were collected once per week over a 10-week period (EEPC 2018a).

Statistical analysis of the VOC concentrations in the effluent air from the AS/SVE system indicated that the cumulative pounds of VOCs removed by the system has remained statistically the same, indicating that the treatment system has reached an asymptotic state and is no longer efficiently removing VOCs from the site. The sample results indicate that asymptotic conditions have been achieved and the mass of contaminants extracted over time is not dependent on continued operation of the system.

7.2 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.

7.3 Recommendations

Following the decommissioning of the active treatment systems in 2018, E & E has the following recommendations 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. Polycyclic aromatic hydrocarbons (PAHs) and SVOCs were removed from the sampling program following recommendations in the 2016

7 Actions to Support Eventual Site Closure

PRR. Sampling should continue every other year for two more rounds of sampling, and if these compounds remain non-detect, they can be removed from the monitoring program. 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.

- Determine 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.

8

Annual Remedial Action Costs

The 2018 costs of OM&M of the remedial treatment system at the Site, including equipment in the treatment trailer, the groundwater pumping system, long-term groundwater monitoring network, E & E oversight, subcontracted services, replacement equipment, and utilities, are presented in Table 8-1.

The total 2018 cost for OM&M of the remedial treatment system at the Site was \$123,303.

Table 8-1 2018 Remedial Action Costs for the Former Davis-Howland Oil Corporation Site

Description	WA D007617-12
E & E OM&M Admin, Management, and Reporting	\$44,353
E & E RSO Evaluations and Reporting	\$6,722
E & E Long-term Monitoring Program	\$42,776
Sub – OM&M Services	\$14,374
Sub – Analytical Services (O&M)	\$582
Sub – Analytical Services (GW Monitoring)	\$9,771
Utilities – Electric	\$4,458
Utilities – Telephone	\$267
2018 Total	\$123,303

9

Department or Local Public Reporting

9.1 NYSDEC Fact Sheet

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

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

9.2 Local Public Reporting

No local public reporting of the Site or remedial Site operations were brought to the attention of E & E in 2018. The local reporting newspaper in Rochester, New York, is the *Democrat and Chronicle*.

10

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A

Environmental Easements

**ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36
OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW**

THIS INDENTURE made this 27th day of July, 2017, between Owner(s) Anderson Acquisitions, LLC, having an office at 501 South Clinton Avenue, Rochester, New York 14620, County of Monroe, State of New York (the "Grantor"), and The People of the State of New York (the "Grantee."), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233,

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties ("sites") that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of Environmental Easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that Environmental Easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and

WHEREAS, Grantor, is the owner of real property located at the address of 190 Anderson Avenue in the City of Rochester, County of Monroe and State of New York, known and designated on the tax map of the County Clerk of Monroe as tax map parcel numbers: Section 106.840 Block 0001 Lot 007.00, being the same as that property conveyed to Grantor by deed dated February 16, 2017 and recorded in the Monroe County Clerk's Office in Liber and Page 11822/429, and by correction deed dated April 7, 2017 and recorded in the Monroe County Clerk's Office in Liber and Page 11845/69. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 0.200 +/- acres, and is hereinafter more fully described in the Land Title Survey dated March 1, 2017 prepared by Gary L. Dutton, L.L.S., which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A; and

WHEREAS, the Department accepts this Environmental Easement in order to ensure the protection of public health and the environment and to achieve the requirements for remediation

established for the Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of Order on Consent Index Number: R8-20161104-114, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

1. Purposes. Grantor and Grantee acknowledge that the Purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The controls and requirements listed in the Department approved Site Management Plan ("SMP") including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the Controlled Property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

A. (1) The Controlled Property may be used for:

Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

(2) All Engineering Controls must be operated and maintained as specified in the Site Management Plan (SMP);

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;

(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Monroe County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;

(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(6) Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

(7) All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;

(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;

(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by this Environmental Easement.

B. The Controlled Property shall not be used for Residential, Restricted Residential or Commercial purposes as defined in 6NYCRR 375-1.8(g)(i), (ii) and (iii), and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

C. The SMP describes obligations that the Grantor assumes on behalf of Grantor, its successors and assigns. The Grantor's assumption of the obligations contained in the SMP which may include sampling, monitoring, and/or operating a treatment system, and providing certified reports to the NYSDEC, is and remains a fundamental element of the Department's determination that the Controlled Property is safe for a specific use, but not all uses. The SMP may be modified in accordance with the Department's statutory and regulatory authority. The Grantor and all successors and assigns, assume the burden of complying with the SMP and obtaining an up-to-date version of the SMP from:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, New York 12233
Phone: (518) 402-9553

D. Grantor must provide all persons who acquire any interest in the Controlled Property a true and complete copy of the SMP that the Department approves for the Controlled Property and all Department-approved amendments to that SMP.

E. Grantor covenants and agrees that until such time as the Environmental Easement is extinguished in accordance with the requirements of ECL Article 71, Title 36 of the ECL, the property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen-point bold-faced type:

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the Environmental Conservation

Law.

F. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

G. Grantor covenants and agrees that it shall, at such time as NYSDEC may require, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury, in such form and manner as the Department may require, that:

(1) the inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

(2) the institutional controls and/or engineering controls employed at such site:

(i) are in-place;

(ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved by the NYSDEC and that all controls are in the Department-approved format; and

(iii) that nothing has occurred that would impair the ability of such control to protect the public health and environment;

(3) the owner will continue to allow access to such real property to evaluate the continued maintenance of such controls;

(4) nothing has occurred that would constitute a violation or failure to comply with any site management plan for such controls;

(5) the report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

(6) to the best of his/her 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

(7) the information presented is accurate and complete.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Property, all rights as fee owner of the Property, including:

A. Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement;

B. The right to give, sell, assign, or otherwise transfer part or all of the underlying fee interest to the Controlled Property, subject and subordinate to this Environmental Easement;

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against

the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person violates this Environmental Easement, the Grantee may revoke the Certificate of Completion with respect to the Controlled Property.

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach, and Grantee may take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement, including the commencement of any proceedings in accordance with applicable law.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar any enforcement rights.

6. Notice. Whenever notice to the Grantee (other than the annual certification) or approval from the Grantee is required, the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing the following information:

County, NYSDEC Site Number, NYSDEC Brownfield Cleanup Agreement, State Assistance Contract or Order Number, and the County tax map number or the Liber and Page or computerized system identification number.

Parties shall address correspondence to: Site Number: 828088
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to: Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, NY 12233

All notices and correspondence shall be delivered by hand, by registered mail or by Certified mail and return receipt requested. The Parties may provide for other means of receiving and communicating notices and responses to requests for approval.

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the

recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. Any amendment to this Environmental Easement may only be executed by the Commissioner of the New York State Department of Environmental Conservation or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This Environmental Easement may be extinguished only by a release by the Commissioner of the New York State Department of Environmental Conservation, or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. Joint Obligation. If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

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IN WITNESS WHEREOF, Grantor has caused this instrument to be signed in its name.

Anderson Acquisitions, LLC:

By:

Print Name: _____

Title:

Date:

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF *Manroe*)


On the 19 day of July, in the year 2017, before me, the undersigned, personally appeared Thomas Gargano, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Notary Public - State of New York

CHARLES J. SANTOLI
Notary Public in the State of **New York**
Monroe County
Commission Expires 4/4/ 18

THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting By and Through the Department of Environmental Conservation as Designee of the Commissioner.

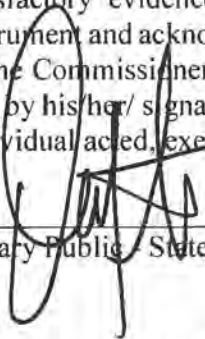
By:


Robert W. Schick, Director
Division of Environmental Remediation

Grantee's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF ALBANY)

On the 27 day of July, in the year 2017, before me, the undersigned, personally appeared Robert W. Schick, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.


Notary Public - State of New York

David J. Chiusano
Notary Public, State of New York
No. 01CH5032146
Qualified in Schenectady County
Commission Expires August 22, 2018

SCHEDULE "A" PROPERTY DESCRIPTION

LOT DESCRIPTION

ALL THAT TRACT OR PARCEL OF LAND situate in the City of Rochester County of Monroe, State of New York, and being more particularly bounded and described as follows:

Commencing at a point on the north right of way line of Anderson Avenue at its intersection with the east line of lands conveyed to GARY I by liber 8691 d. 380; said point also being the intersection of the west line of lot 184 with the north line of Anderson Avenue; thence

- 1) northerly along a east line of lands of Gary I, a distance of 100.00 feet to a point; thence***
- 2) Easterly, forming an interior angle of 90°-00'-00" , along a south line of said Gary I , a distance of 40.00 feet, to a point; thence***
- 3) Southerly, forming an interior angle of 90°-00'-00" , along a West line of lands conveyed to Samille Inc., a distance of 100.00 feet , to a point on the North right of way line of Anderson Avenue; thence***
- 4) Westerly, forming an interior angle of 90°-00'-00" , along the North right of way line of Anderson Avenue, a distance of 40.00 feet to the point of beginning.***

Intending to describe a parcel of land containing 4000 square feet of land

Notes

Tax Map Section 106.840 Block 0001 Lot 7.00 (106.840-0001-007.00)

**ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36
OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW**

THIS INDENTURE made this 3rd day of May, 2018, between Owner(s) 220 Anderson Ave LLC, having an office at 30 West Broad Street, Suite 406, Rochester, New York 14614, County of Monroe, State of New York (the "Grantor"), and The People of the State of New York (the "Grantee"), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233,

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties ("sites") that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of Environmental Easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that Environmental Easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and

WHEREAS, Grantor, is the owner of real property located at the address of 192-200 Anderson Avenue in the City of Rochester, County of Monroe and State of New York, known and designated on the tax map of the County Clerk of Monroe as tax map parcel number: Section 106.84 Block 1 Lot 6, being a portion of the property conveyed to Grantor by deed dated November 1, 2017 and recorded in the Monroe County Clerk's Office in Instrument No. 201711010740. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 0.1964 +/- acres, and is hereinafter more fully described in the Land Title Survey dated April 11, 2017 prepared by Gary L. Dutton, L.L.S., which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A; and

WHEREAS, Grantor, is the owner of real property located at the address of 220 Anderson Avenue in the City of Rochester, County of Monroe and State of New York, known and designated on the tax map of the County Clerk of Monroe as tax map parcel number: Section 106.84 Block

1 Lot 5, being a portion of the property conveyed to Grantor by deed dated November 1, 2017 and recorded in the Monroe County Clerk's Office in Instrument No. 201711010740. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 0.1375 +/- acres, and is hereinafter more fully described in the Land Title Survey dated April 11, 2017 prepared by Gary L. Dutton, L.L.S., which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A; and

WHEREAS, the Department accepts this Environmental Easement in order to ensure the protection of public health and the environment and to achieve the requirements for remediation established for the Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of Order on Consent Index Number: R8-20170905-104, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

1. Purposes. Grantor and Grantee acknowledge that the Purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The controls and requirements listed in the Department approved Site Management Plan ("SMP") including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the Controlled Property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

A. (1) The Controlled Property may be used for:

Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

(2) All Engineering Controls must be operated and maintained as specified in the Site Management Plan (SMP);

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;

(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Monroe County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;

(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(6) Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

(7) All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;

(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;

(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by this Environmental Easement.

B. The Controlled Property shall not be used for Residential, Restricted Residential or Commercial purposes as defined in 6NYCRR 375-1.8(g)(i), (ii) and (iii), and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

C. The SMP describes obligations that the Grantor assumes on behalf of Grantor, its successors and assigns. The Grantor's assumption of the obligations contained in the SMP which may include sampling, monitoring, and/or operating a treatment system, and providing certified reports to the NYSDEC, is and remains a fundamental element of the Department's determination that the Controlled Property is safe for a specific use, but not all uses. The SMP may be modified in accordance with the Department's statutory and regulatory authority. The Grantor and all successors and assigns, assume the burden of complying with the SMP and obtaining an up-to-date version of the SMP from:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, New York 12233
Phone: (518) 402-9553

D. Grantor must provide all persons who acquire any interest in the Controlled Property a true and complete copy of the SMP that the Department approves for the Controlled Property and all Department-approved amendments to that SMP.

E. Grantor covenants and agrees that until such time as the Environmental Easement is extinguished in accordance with the requirements of ECL Article 71, Title 36 of the ECL, the property deed and all subsequent instruments of conveyance relating to the Controlled Property

shall state in at least fifteen-point bold-faced type:

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the Environmental Conservation Law.

F. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

G. Grantor covenants and agrees that it shall, at such time as NYSDEC may require, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury, in such form and manner as the Department may require, that:

(1) the inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

(2) the institutional controls and/or engineering controls employed at such site:

(i) are in-place;

(ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved by the NYSDEC and that all controls are in the Department-approved format; and

(iii) that nothing has occurred that would impair the ability of such control to protect the public health and environment;

(3) the owner will continue to allow access to such real property to evaluate the continued maintenance of such controls;

(4) nothing has occurred that would constitute a violation or failure to comply with any site management plan for such controls;

(5) the report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

(6) to the best of his/her 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

(7) the information presented is accurate and complete.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Property, all rights as fee owner of the Property, including:

A. Use of the Controlled Property for all purposes not inconsistent with, or limited by

the terms of this Environmental Easement;

B. The right to give, sell, assign, or otherwise transfer part or all of the underlying fee interest to the Controlled Property, subject and subordinate to this Environmental Easement;

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person violates this Environmental Easement, the Grantee may revoke the Certificate of Completion with respect to the Controlled Property.

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach, and Grantee may take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement, including the commencement of any proceedings in accordance with applicable law.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar any enforcement rights.

6. Notice. Whenever notice to the Grantee (other than the annual certification) or approval from the Grantee is required, the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing the following information:

County, NYSDEC Site Number, NYSDEC Brownfield Cleanup Agreement, State Assistance Contract or Order Number, and the County tax map number or the Liber and Page or computerized system identification number.

Parties shall address correspondence to: Site Number: 828088
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to: Site Control Section
Division of Environmental Remediation

NYSDEC
625 Broadway
Albany, NY 12233

All notices and correspondence shall be delivered by hand, by registered mail or by Certified mail and return receipt requested. The Parties may provide for other means of receiving and communicating notices and responses to requests for approval.

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. Any amendment to this Environmental Easement may only be executed by the Commissioner of the New York State Department of Environmental Conservation or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This Environmental Easement may be extinguished only by a release by the Commissioner of the New York State Department of Environmental Conservation, or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. Joint Obligation. If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

11. Consistency with the SMP. To the extent there is any conflict or inconsistency between the terms of this Environmental Easement and the SMP, regarding matters specifically addressed by the SMP, the terms of the SMP will control.

Remainder of Page Intentionally Left Blank

SCHEDULE "A" PROPERTY DESCRIPTION

LEGAL DESCRIPTION 192-200 ANDERSON AVENUE

ALL THAT TRACT OR PARCEL OF LAND situate in the City of Rochester, County of Monroe, State of New York, being part of lots 185 & 186 of the Perry, Bly & Holmes Tract, being more particularly bounded and described as follows:

Commencing at a point on the north right of way line of Anderson Avenue at its intersection with the east line of lands conveyed to GARY I by liber 8691 d. 380; said point also being the southwest corner of lot 184; thence Easterly, along the north right of way line of Anderson Avenue, a distance of 130.00 feet to the southeast corner of lot 186, said point being the true point of beginning of the lands to be herein described; thence

- 1) Northerly, along the East line of lot 186, a distance of 82.18 feet to a point; thence
- 2) Northwesterly, forming an interior angle of $109^{\circ}-37'-10''$, along a southwesterly line of lands of Gary I., a distance of 53.08 feet to a point; thence
- 3) Westerly, forming an interior angle of $160^{\circ}-22'-50''$, along the south line of Gary I., a distance of 40.00 feet; thence
- 4) Southerly, forming an interior angle of $90^{\circ}-00'-00''$, along the West line of lot 185, a distance of 100.00 feet to a point on the North right of way line of Anderson Avenue; thence
- 5) Easterly, forming an interior angle of $90^{\circ}-00'-00''$, along the North Right of way line of Anderson Avenue, a distance of 90.00 feet to the point of beginning.

Course (5) forms an interior angle of $90^{\circ}-00'-00''$ with course (1)

Intending to describe a parcel of land containing 8554.4 square feet of land or 0.1964 acres more or less.

LEGAL DESCRIPTION 220 ANDERSON AVENUE

ALL THAT TRACT OR PARCEL OF LAND situate in the City of Rochester, County of Monroe, State of New York, being part of lot 187 of the Perry, Bly & Holmes Tract, bounded and described as follows:

Commencing at a point on the north right of way line of Anderson Avenue at its intersection with the east line of lands conveyed to GARY I by liber 8691 d. 380; said point also being the southwest corner of lot 184; thence Easterly, along the North right of way line of Anderson Avenue a distance of 130.00 feet to the Southwest corner of lot 187, said point being the true point of beginning of the lands to be herein described; thence

- 1) Easterly, along the north line of Anderson Avenue, a distance of 125.95 feet to a point; thence
- 2) Northwesterly, forming an interior angle of $39^{\circ}-00'-55''$, along a Southwesterly line of lands of Goodman Yard LLC, a distance of 105.74 feet to a point; thence
- 3) Northwesterly, forming an interior angle of $160^{\circ}-36'-15''$, along the Southwesterly Line of Gary I., a distance of 46.49 feet; thence
- 4) Southerly, forming an interior angle of $70^{\circ}-22'-50''$, along the west line of lot 187, a distance of 82.18 feet to a point on the North right of way line of Anderson Avenue and the point of beginning.

Course (4) forms an interior angle of $90^{\circ}-00'-00''$ with course (1)

Intending to describe a parcel of land containing 5991.36 square feet of land or 0.1375 acres more or less.

B

County of Monroe Discharge Permit

CK # 10000768

COUNTY OF MONROE
SEWER USE PERMIT RENEWAL

Firm Name: NYSDEC Div. of Env. Remed.
200 Anderson Avenue, Davis How

Permit Number: 864
Fee: \$ 75.00
Expires: May 31, 2019

Mailing Addr: 625 Broadway, 12th Floor
Albany, NY 12233-7013

W/C Expire: N/A
District No: 8575

Business Type: Groundwater Remediation

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) NA (cu ft/gal) NA

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:

Ashlee Patnode

Type or Print: Ecology & 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: William B. Welling

Phone No: 518-402-9813

Signature: William B. Welling

Date: May 24, 2016

Title: NYSDEC Project Manager

Renewal Approved by: Michael J. Garland

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

Issued this 10 day of JUNE 20 16

**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:

Purgeable Halocarbons
Purgeable Aromatics
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 CONDITIONS:

1. 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 REQUIREMENTS:

- 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.1** 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.
- B.2** Included in Article II, Section 2.1, 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.
- B.3** 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.
- C.** This permit is not assignable or transferable. The permit is issued to a specific user and location.
- D.** 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.
- E.** As provided under Article VI, Section 6.1, 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.

SPECIAL CONDITION:

- A.** 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.
- B.** 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.
- C.** The summation of all Total Toxic Organics(TTO) Compounds as defined in the Code of Federal Regulations (40 CFR part 433.11(e)) with detection levels above 10 ug/l shall not exceed 2.13 mg/l as imposed by the Director under Article III, Section 3.3 of the MCSUL unless Federal limits are more stringent under which the Federal limits will apply.
- D.** 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.
- E.** Discharges containing Phenolic compounds shall not exceed 2.13 mg/l as imposed by the Director under Article III, Section 3.3 of the MCSUL unless otherwise specified in the permit. These limits are applicable unless Federal limits are more stringent under which Federal limits will apply.

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 total 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 403.5, 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.

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.

C

October 2018 Groundwater Monitoring Event Purge Water Analytical Data

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-142576-1

Client Project/Site: Discharge Analysis

For:

Ecology and Environment, Inc.

368 Pleasant View Drive

Lancaster, New York 14086

Attn: Ashlee Patnode



Authorized for release by:

10/8/2018 3:43:15 PM

Rebecca Jones, Project Management Assistant I

rebecca.jones@testamericainc.com

Designee for

John Schove, Project Manager II

(716)504-9838

john.schove@testamericainc.com

LINKS

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results through

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Visit us at:

www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Ecology and Environment, Inc.
Project/Site: Discharge Analysis

TestAmerica Job ID: 480-142576-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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)

Case Narrative

Client: Ecology and Environment, Inc.
Project/Site: Discharge Analysis

TestAmerica Job ID: 480-142576-1

Job ID: 480-142576-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-142576-1

Comments

No additional comments.

Receipt

The sample was received on 9/29/2018 1:20 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.8° C.

GC/MS VOA

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

General Chemistry

Method(s) SM 4500 H+ B: This analysis is normally performed in the field and has a method-defined holding time of 15 minutes. The following sample has been qualified with the "HF" flag to indicate analysis was performed in the laboratory outside the 15 minute timeframe: TANK 01-092818 (480-142576-1).

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: Discharge Analysis

TestAmerica Job ID: 480-142576-1

Client Sample ID: TANK 01-092818

Lab Sample ID: 480-142576-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Acetone	4.3	J	25	2.0	ug/L	1			624.1	Total/NA
cis-1,2-Dichloroethene	0.82	J	5.0	0.57	ug/L	1			624.1	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil	Fac	D	Method	Prep Type
pH	10.4	HF	0.1	0.1	SU	1			SM 4500 H+ B	Total/NA
Temperature	24.8	HF	0.001	0.001	Degrees C	1			SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Client Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Discharge Analysis

TestAmerica Job ID: 480-142576-1

Client Sample ID: TANK 01-092818

Lab Sample ID: 480-142576-1

Date Collected: 09/28/18 00:00

Matrix: Water

Date Received: 09/29/18 13:20

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			10/02/18 12:11	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			10/02/18 12:11	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			10/02/18 12:11	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			10/02/18 12:11	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			10/02/18 12:11	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			10/02/18 12:11	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			10/02/18 12:11	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			10/02/18 12:11	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			10/02/18 12:11	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			10/02/18 12:11	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			10/02/18 12:11	1
Acetone	4.3	J	25	2.0	ug/L			10/02/18 12:11	1
Benzene	5.0	U	5.0	0.60	ug/L			10/02/18 12:11	1
Bromoform	5.0	U	5.0	0.47	ug/L			10/02/18 12:11	1
Bromomethane	5.0	U	5.0	1.2	ug/L			10/02/18 12:11	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			10/02/18 12:11	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			10/02/18 12:11	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			10/02/18 12:11	1
Chloroethane	5.0	U	5.0	0.87	ug/L			10/02/18 12:11	1
Chloroform	5.0	U	5.0	0.54	ug/L			10/02/18 12:11	1
Chloromethane	5.0	U	5.0	0.64	ug/L			10/02/18 12:11	1
cis-1,2-Dichloroethene	0.82	J	5.0	0.57	ug/L			10/02/18 12:11	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			10/02/18 12:11	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			10/02/18 12:11	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			10/02/18 12:11	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			10/02/18 12:11	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			10/02/18 12:11	1
o-Xylene	5.0	U	5.0	0.43	ug/L			10/02/18 12:11	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			10/02/18 12:11	1
Toluene	5.0	U	5.0	0.45	ug/L			10/02/18 12:11	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			10/02/18 12:11	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			10/02/18 12:11	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			10/02/18 12:11	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			10/02/18 12:11	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			10/02/18 12:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		68 - 130		10/02/18 12:11	1
4-Bromofluorobenzene (Surr)	104		76 - 123		10/02/18 12:11	1
Toluene-d8 (Surr)	97		77 - 120		10/02/18 12:11	1
Dibromofluoromethane (Surr)	112		75 - 123		10/02/18 12:11	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	10.4	HF	0.1	0.1	SU			10/03/18 10:35	1
Temperature	24.8	HF	0.001	0.001	Degrees C			10/03/18 10:35	1

TestAmerica Buffalo

Surrogate Summary

Client: Ecology and Environment, Inc.
Project/Site: Discharge Analysis

TestAmerica Job ID: 480-142576-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (68-130)	BFB (76-123)	TOL (77-120)	DBFM (75-123)
480-142576-1	TANK 01-092818	115	104	97	112
LCS 480-437204/5	Lab Control Sample	108	103	97	108
MB 480-437204/7	Method Blank	114	102	94	107

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

QC Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Discharge Analysis

TestAmerica Job ID: 480-142576-1

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

Lab Sample ID: MB 480-437204/7

Matrix: Water

Analysis Batch: 437204

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			10/02/18 11:07	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			10/02/18 11:07	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			10/02/18 11:07	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			10/02/18 11:07	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			10/02/18 11:07	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			10/02/18 11:07	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			10/02/18 11:07	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			10/02/18 11:07	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			10/02/18 11:07	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			10/02/18 11:07	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			10/02/18 11:07	1
Acetone	25	U	25	2.0	ug/L			10/02/18 11:07	1
Benzene	5.0	U	5.0	0.60	ug/L			10/02/18 11:07	1
Bromoform	5.0	U	5.0	0.47	ug/L			10/02/18 11:07	1
Bromomethane	5.0	U	5.0	1.2	ug/L			10/02/18 11:07	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			10/02/18 11:07	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			10/02/18 11:07	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			10/02/18 11:07	1
Chloroethane	5.0	U	5.0	0.87	ug/L			10/02/18 11:07	1
Chloroform	5.0	U	5.0	0.54	ug/L			10/02/18 11:07	1
Chloromethane	5.0	U	5.0	0.64	ug/L			10/02/18 11:07	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			10/02/18 11:07	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			10/02/18 11:07	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			10/02/18 11:07	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			10/02/18 11:07	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			10/02/18 11:07	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			10/02/18 11:07	1
o-Xylene	5.0	U	5.0	0.43	ug/L			10/02/18 11:07	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			10/02/18 11:07	1
Toluene	5.0	U	5.0	0.45	ug/L			10/02/18 11:07	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			10/02/18 11:07	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			10/02/18 11:07	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			10/02/18 11:07	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			10/02/18 11:07	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			10/02/18 11:07	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		68 - 130		10/02/18 11:07	1
4-Bromofluorobenzene (Surr)	102		76 - 123		10/02/18 11:07	1
Toluene-d8 (Surr)	94		77 - 120		10/02/18 11:07	1
Dibromofluoromethane (Surr)	107		75 - 123		10/02/18 11:07	1

Lab Sample ID: LCS 480-437204/5

Matrix: Water

Analysis Batch: 437204

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	20.6		ug/L		103	52 - 162

TestAmerica Buffalo

QC Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Discharge Analysis

TestAmerica Job ID: 480-142576-1

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

Lab Sample ID: LCS 480-437204/5

Matrix: Water

Analysis Batch: 437204

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	19.9		ug/L		100	46 - 157
1,1,2-Trichloroethane	20.0	19.6		ug/L		98	52 - 150
1,1-Dichloroethane	20.0	21.0		ug/L		105	59 - 155
1,1-Dichloroethene	20.0	19.7		ug/L		98	1 - 234
1,2-Dichlorobenzene	20.0	19.3		ug/L		96	18 - 190
1,2-Dichloroethane	20.0	22.6		ug/L		113	49 - 155
1,2-Dichloropropane	20.0	20.4		ug/L		102	1 - 210
1,3-Dichlorobenzene	20.0	19.1		ug/L		96	59 - 156
1,4-Dichlorobenzene	20.0	19.5		ug/L		98	18 - 190
2-Chloroethyl vinyl ether	20.0	20.7	J	ug/L		103	1 - 305
Benzene	20.0	20.6		ug/L		103	37 - 151
Bromoform	20.0	17.8		ug/L		89	45 - 169
Bromomethane	20.0	21.7		ug/L		108	1 - 242
Carbon tetrachloride	20.0	19.7		ug/L		99	70 - 140
Chlorobenzene	20.0	18.9		ug/L		94	37 - 160
Dibromochloromethane	20.0	19.0		ug/L		95	53 - 149
Chloroethane	20.0	20.1		ug/L		100	14 - 230
Chloroform	20.0	21.6		ug/L		108	51 - 138
Chloromethane	20.0	21.1		ug/L		105	1 - 273
cis-1,3-Dichloropropene	20.0	20.0		ug/L		100	1 - 227
Bromodichloromethane	20.0	21.4		ug/L		107	35 - 155
Ethylbenzene	20.0	18.7		ug/L		93	37 - 162
Methylene Chloride	20.0	20.9		ug/L		104	1 - 221
Tetrachloroethylene	20.0	18.3		ug/L		92	64 - 148
Toluene	20.0	18.4		ug/L		92	47 - 150
trans-1,2-Dichloroethene	20.0	20.3		ug/L		102	54 - 156
trans-1,3-Dichloropropene	20.0	19.3		ug/L		96	17 - 183
Trichloroethylene	20.0	20.5		ug/L		102	71 - 157
Trichlorofluoromethane	20.0	21.6		ug/L		108	17 - 181
Vinyl chloride	20.0	20.0		ug/L		100	1 - 251

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	108		68 - 130
4-Bromofluorobenzene (Surr)	103		76 - 123
Toluene-d8 (Surr)	97		77 - 120
Dibromofluoromethane (Surr)	108		75 - 123

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 480-437500/1

Matrix: Water

Analysis Batch: 437500

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	10.0	10.1		SU		101	99 - 101

TestAmerica Buffalo

QC Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Discharge Analysis

TestAmerica Job ID: 480-142576-1

Method: SM 4500 H+ B - pH (Continued)

Lab Sample ID: 480-142576-1 DU

Matrix: Water

Analysis Batch: 437500

Client Sample ID: TANK 01-092818

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	10.4	HF	10.4		SU		0.1	5
Temperature	24.8	HF	25.1		Degrees C		1	10

QC Association Summary

Client: Ecology and Environment, Inc.
Project/Site: Discharge Analysis

TestAmerica Job ID: 480-142576-1

GC/MS VOA

Analysis Batch: 437204

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-142576-1	TANK 01-092818	Total/NA	Water	624.1	
MB 480-437204/7	Method Blank	Total/NA	Water	624.1	
LCS 480-437204/5	Lab Control Sample	Total/NA	Water	624.1	

General Chemistry

Analysis Batch: 437500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-142576-1	TANK 01-092818	Total/NA	Water	SM 4500 H+ B	
LCS 480-437500/1	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
480-142576-1 DU	TANK 01-092818	Total/NA	Water	SM 4500 H+ B	

Lab Chronicle

Client: Ecology and Environment, Inc.
Project/Site: Discharge Analysis

TestAmerica Job ID: 480-142576-1

Client Sample ID: TANK 01-092818

Lab Sample ID: 480-142576-1

Date Collected: 09/28/18 00:00

Matrix: Water

Date Received: 09/29/18 13:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	437204	10/02/18 12:11	S1V	TAL BUF
Total/NA	Analysis	SM 4500 H+ B		1	437500	10/03/18 10:35	KEB	TAL BUF

Laboratory References:

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

Accreditation/Certification Summary

Client: Ecology and Environment, Inc.
Project/Site: Discharge Analysis

TestAmerica Job ID: 480-142576-1

Laboratory: TestAmerica Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10026	03-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
SM 4500 H+ B		Water	pH
SM 4500 H+ B		Water	Temperature

Method Summary

Client: Ecology and Environment, Inc.
Project/Site: Discharge Analysis

TestAmerica Job ID: 480-142576-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	40CFR136A	TAL BUF
SM 4500 H+ B	pH	SM	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.

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

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

Sample Summary

Client: Ecology and Environment, Inc.
Project/Site: Discharge Analysis

TestAmerica Job ID: 480-142576-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-142576-1	TANK 01-092818	Water	09/28/18 00:00	09/29/18 13:20

1

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14

15

1500 MILLER RD BUFFALO
10 Hazelwood Drive

Amherst, NY 14228
Phone: 716.691.2600 Fax: 716.691.7991

Chain of Custody Record

293225

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (07/13)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact Company Name: Ecology & Environment, Inc. Address: 360 Pleasantview City/State/Zip: Lancaster NY 14086 Phone: 716 694 8060 Fax: Project Name: Davis Highland Site: Rochester, NY PO#		Project Manager: Ashlee Patnode Tel/Fax: Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS TAT if different from Below <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day AS per contract		Site Contact: Alanna O'car Lab Contact: Date: 09/28/18 Carrier: By Hand		COC No: 1 of 1 COCs Sampler: For Lab Use Only: Walk-in Lab S: Job / S: 480-142576 COC Sample Specific Notes:			
Sample Identification TANK 01-092818		Sample Date 9-28-18	Sample Time G	Sample Type (C=Comp, G=Grab) G	Matrix GW	# of Cont. 4	Filtered Sample (Y/N) 31	Perform MS/MSD (Y/N) VOC 629.1 SM 4500 #1	09/28/18
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown									
Special Instructions/QC Requirements & Comments:									
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.: 630399		Cooler Temp. (°C): 318		Corr'd: #1		Therm ID No.:	
Relinquished by: An O'car		Company: Ecology and Environment		Date/Time: 09/28/18		Received by: YAB		Date/Time: 9/28/18 1320	
Relinquished by:		Company:		Date/Time:		Received by:		Date/Time:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Date/Time:	

Login Sample Receipt Checklist

Client: Ecology and Environment, Inc.

Job Number: 480-142576-1

Login Number: 142576

List Number: 1

Creator: Kolb, Chris M

List Source: 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	ECOLOGY & ENV.
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	NA: Check done at department level as required

D

Data Usability Summary Reports

Data Usability Summary Report	Project: Davis Howland Oil Company
Date Completed: November 16, 2018	Completed by: Shawn Kowal

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	480-140048-1 480-140175-1 480-140249-1 480-140310-1 480-140356-1 480-141135-1 480-142576-1	Test America; Buffalo Test America; Burlington Test America; Sacramento

Table 1 Sample Listing Summary

Work Order	Matrix	Sample ID	Lab ID	Sample Date	Field QC	Name Corrections
480-140048-1	WG	MW8R-872018	480-140048-2	08/07/2018		MW-8R-08072018
480-140048-1	WH	RB08072018	480-140048-3	08/07/2018		RB-08072018
480-140048-1	WQ	TB08072018	480-140048-1	08/07/2018		TB-08072018
480-140175-1	WG	MW13S-08082018	480-140175-5	08/09/2018		MW-13S-08092018
480-140175-1	WG	MW2R-08092018	480-140175-3	08/09/2018		MW-2R-08092018
480-140175-1	WG	MW2R-08092018Q	480-140175-4	08/09/2018		MW-2R-08092018-Q
480-140175-1	WG	MW9S-08082018	480-140175-2	08/09/2018		MW-9S-08092018
480-140175-1	WQ	TB-08092018	480-140175-1	08/09/2018		TB-08092018
480-140249-1	WG	MW14R-08102018	480-140249-3	08/10/2018		MW-14R-08102018
480-140249-1	WG	MW14S-08102018	480-140249-7	08/10/2018		MW-14S-08102018
480-140249-1	WG	MW2S-08102018	480-140249-4	08/10/2018		
480-140249-1	WG	MW5R-08102018	480-140249-5	08/10/2018		
480-140249-1	WG	PZ-1-08102018	480-140249-2	08/10/2018		PZ-01-08102018
480-140249-1	WG	PZ3-08102018	480-140249-6	08/10/2018		PZ-03-08102018
480-140249-1	WQ	TB-08102018	480-140249-1	08/10/2018		
480-140310-1	WG	MW16R-08132018	480-140310-4	08/13/2018		MW-16R-08132018
480-140310-1	WG	MW1S-08132018	480-140310-3	08/13/2018	MS/MSD	MW-1S-08132018
480-140310-1	WG	PW1-08132018	480-140310-5	08/13/2018		PW-1-08132018
480-140310-1	WG	PZ4-08132018	480-140310-2	08/13/2018		PZ-04-08132018
480-140310-1	WH	RB-08132018	480-140310-1	08/13/2018		
480-140310-1	WQ	TB-08132018	480-140310-4	08/13/2018		
480-140356-1	WG	ERB-08182018	480-140356-3	08/14/2018		RB-08142018
480-140356-1	WG	MW10R-08182018	480-140356-1	08/14/2018	MS/MSD	MW-10R-08142018
480-140356-1	WG	MW15R-08182018	480-140356-2	08/14/2018		MW-15R-08142018
480-140356-1	WQ	TB-08182018	480-140356-4	08/14/2018		TB-08142018
480-141135-1	WG	MW-13S-08312018	480-141135-4	08/31/2018		
480-141135-1	WG	MW-2R-08312018	480-141135-1	08/31/2018		
480-141135-1	WG	MW-2R-08312018-Q	480-141135-2	08/31/2018		
480-141135-1	WG	MW-9S-08302018	480-141135-3	08/30/2018		
480-141135-1	WH	RB-08312018	480-141135-5	08/31/2018		

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Work Order	Matrix	Sample ID	Lab ID	Sample Date	Field QC	Name Corrections
480-142576-1	WW	TANK 01-092818	480-142576-1	09/28/2018	LR	TANK 01-09282018

Table 1A Sample Test Summary

Work Orders	Matrix	Test Method	Method Name	Number of Samples	Sample Type
480-140048-1 480-140175-1 480-140249-1 480-140310-1 480-140356-1 480-142576-1	WG	E624.1	Purgeables by GC/MS	18	N
480-140048-1 480-140175-1 480-140249-1 480-140310-1 480-140356-1	WQ	E624.1	Purgeables by GC/MS	4	TB
480-140175-1	WH	E624.1	Purgeables by GC/MS	1	RB
480-140175-1	WG	E624.1	Purgeables by GC/MS	1	FD
480-140048-1 480-140175-1 480-140310-1	WG	8270D - SIM	Semivolatile Organic Compounds by GC/MS, 1,4-Dioxane	7	N
480-140175-1	WG	8270D - SIM	Semivolatile Organic Compounds by GC/MS, 1,4-Dioxane	1	FD
480-140048-1 480-140175-1 480-140249-1 480-140310-1	WG	RSK-175	Dissolved Gases	8	N
480-140175-1	WG	RSK-175	Dissolved Gases	1	FD
480-140048-1 480-140310-1 480-141135-1	WG	E537-LL	Perfluorinated Compounds by LC/MS/MS	6	N
480-141135-1	WQ	E537-LL	Perfluorinated Compounds by LC/MS/MS	1	FD
480-140048-1 480-140310-1 480-141135-1	WH	E537-LL	Perfluorinated Compounds by LC/MS/MS	3	RB
480-140048-1 480-140175-1 480-140249-1 480-140310-1	WG	6010C	Metals (ICP) Total and Dissolved Iron Total and Dissolved Manganese	7	N
480-140175-1	WG	6010C	Metals (ICP) Total and Dissolved Iron Total and Dissolved Manganese	1	FD
480-140048-1 480-140175-1 480-140249-1 480-140310-1	WG	E310.2	Alkalinity	6	N
480-140175-1	WG	E310.2	Alkalinity	1	FD
480-140048-1 480-140175-1 480-140249-1 480-140310-1	WG	E353.2	Nitrogen, Nitrate	6	N
480-140175-1	WG	E353.2	Nitrogen, Nitrate	1	FD
480-140048-1 480-140175-1 480-140249-1 480-140310-1	WG	E410.4	COD	6	N

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Work Orders	Matrix	Test Method	Method Name	Number of Samples	Sample Type
480-140175-1	WG	E410.4	COD	1	FD
480-140048-1 480-140175-1 480-140249-1 480-140310-1	WG	SM5210B	BOD	6	N
480-140175-1	WG	SM5210B	BOD	1	FD
480-140048-1 480-140175-1 480-140249-1 480-140310-1	WG	9060A	Organic Carbon, Total (TOC)	6	N
480-140175-1	WG	9060A	Organic Carbon, Total (TOC)	1	FD
480-140048-1 480-140175-1 480-140249-1 480-140310-1	WG	9056A	Sulfate	6	N
480-140175-1	WG	9056A	Sulfate	1	FD

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General Sample Information	
Do Samples and Analyses on COC check against Lab Sample Tracking Form?	<p>Several sample names were revised to match NYDEC requirements and correct log in errors.</p> <p>Sample two containers for sample MW-9S-0830108 were incorrectly labeled on the sample container as MS-9S-0832018 and MS-9S-08302018. Samples were run as MW-9S-0830108.</p>
Did coolers arrive at lab between 2 and 6°C and in good condition as indicated on COC and Cooler Receipt Form?	<p>The temperature of the coolers received on 8/10/2018 were 0.1° C and 1.0° C. There was no indication that the samples were frozen. No qualification was made.</p> <p>The temperature of two coolers received on 8/14/2018 were 1.1° C and 1.6° C. There was no indication that the samples were frozen. No qualification was made.</p> <p>Sample containers for TB-08072018, MW-8R-08072018 and TB-08132018 for method E624.1 were preserved with HCl. 2-Chlorethyl vinyl ether is an acid-labile compound. Samples were non-detect for the analyte and UJ qualified as estimated non-detects. Analyte is not a compound of concern for this project.</p>
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/ set of samples analyzed for perfluorinated compounds per day?	Yes.
Case narrative present and complete?	Yes.
Any holding time violations?	Due to FedEx shipping error, samples MW-9S-08082018, MW-2R-08092018 and MW-2R-08092018-Q were received outside the holding time for method RSK-175. Results for carbon dioxide were 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)
- ICV and CCV Outside Limits (Table 5A)
- Re-analysis Results (Table 6)
- Field Duplicate Results (Table 7)

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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.	Chloroform was detected in several trip blanks. Associated samples were non-detect for the analyte. No qualification was required. Methylene chloride was detected in TB-08092018. Associated sample results were greater than 10X the blank detection for the analyte. No qualification was made. Acetone was detected in RB-08142018. Associated samples were non-detect for the analyte. 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.	Trichloroethylene was recovered below acceptance criteria in the MS and MSD for sample MW-1S-08132018. Result was J qualified as estimated in the parent sample. Trichloroethylene was recovered below acceptance criteria in the MS and MSD for sample MW-10R-08142018. Result was J qualified as estimated in the parent sample. The RPD between the MS and MSD for sample MW-1S-08132018 was outside acceptance criteria for trichlorofluoromethane and vinyl chloride. 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.
Do internal standards areas and retention time meet criteria? If not was sample re-analyzed to establish matrix (see Table 6)?	Unable to be assessed. Category A report provided.
Is initial calibration for target compounds <20 %RSD or curve fit? Is ICV 80-120%? Is LCV 70-130%?	Unable to be assessed. Category A report provided.
Is %D in the continuing calibration for target compounds less than method specifications?	Unable to be assessed. Category A report provided.
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.	Unable to be assessed. Category A report provided.

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Volatile Organic Compounds by GC/MS – Method E624.1	
Description	Notes and Qualifiers
Were any samples reanalyzed or diluted (see Table 6)? For any sample reanalysis or dilutions, is only one reportable result flagged?	<p>Sample MW-8R-08072018 was diluted by 10X due to foaming during purging. Elevated reporting limits provided for non-detect results. The sample was further diluted by 80X to bring the concentration of cis-1,2-dichloroethene within the calibration curve. Several other samples were diluted by a factor of 10X to bring the concentration of analytes within the calibration limits.</p> <p>The MDL for 1,1,2-trichloroethane, 1,2-dichlorobenzene, 1,2-dichloroethane, 1,2-dichloropropane, 1,4-dichlorobenzene, benzene, bromomethane, carbon tetrachloride, chloroethane, chloromethane, cis-1,3-dichloropropene, m,p-xylene, trans-1,2-dichloroethene and trans-1,3-dichloropropene were elevated above the screening limit. The analytes may be present in the sample greater than screening limits, but less than the method detection limit.</p> <p>Sample PW-1-0813208 was diluted by a factor of 2X to bring the concentration of analytes within the calibration range. The MDLs for 1,2-dichloroethane, 1,2-dichloropropane, benzene, cis-1,3-dichloropropene, and trans-1,3-dichloropropene were elevated above the screening limit. The analytes may be present in the sample greater than screening limits, but less than the method detection limit.</p>
Do field duplicate results show good precision for all compounds (see Table 7)?	Yes.

1,4-Dioxane by GC/MS – 8270D-SIM	
Description	Notes and Qualifiers
Any compounds present in method, trip, or, field blanks (see Table 2)?	No.
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.	Not applicable.
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.	Yes.
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.

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1,4-Dioxane by GC/MS – 8270D-SIM	
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.
Were any samples reanalyzed or diluted (see Table 6)? For any sample reanalysis or dilutions, is only one reportable result flagged?	Several samples were diluted to bring the concentration of 1,4-Dioxane within calibration limits. No impact to data usability.
Do field duplicate results show good precision for all compounds (see Table 7)?	Yes.

Dissolved Gases by GC/FID – Method RSK-175	
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.	Carbon dioxide was detected in MB 200-1327324/4. Associated sample results were greater than 5X the blank detect for the analyte. 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.	Yes.
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.
Do internal standards areas and retention time meet criteria? If not was sample re-analyzed to establish matrix (see Table 6)?	Unable to be assessed. Category A report provided.
Is initial calibration for target compounds <20 %RSD or curve fit?	Unable to be assessed. Category A report provided.
Is %D in the continuing calibration for target compounds less than method specifications?	Unable to be assessed. Category A report provided.
Were any samples reanalyzed or diluted (see Table 6)? For any sample reanalysis or dilutions, is only one reportable result flagged?	Several samples were diluted to bring the concentration of analytes within the calibration range. No impact to data usability.
For TICs are there any system related compounds that should not be reported?	N/A

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Dissolved Gases by GC/FID – Method RSK-175	
Description	Notes and Qualifiers
Do field duplicate results show good precision for all compounds (see Table 7)?	The RPD between the field duplicate pair MW-8R-08092018 and MW-8R-08092018-Q was outside acceptance limits for carbon dioxide and methane. Results for both samples were J qualified as estimated.

Perfluorinated Compounds by LC/MS/MS – Method E537-LL	
Description	Notes and Qualifiers
Any compounds present in method, trip, and field blanks (see Table 2)?	Yes.
For samples, if results are < 5 times the blank then "U" flag data.	<p>Perfluorohexanesulfonic acid (PFHxS) was detected in MB 200-132948/1-A. MW8R-08072018 was greater than 5X the blank detect. No qualification as made.</p> <p>Perfluorohexanesulfonic acid (PFHxS) was detected in MB 200-132948/1-A. RB-08072018 was less than 5X the blank detect. Result was U qualified as non-detect. Method detection limit was elevated to the sample detect concentration.</p> <p>Perfluorohexanesulfonic acid (PFHxS) was detected in MB 320-245408/1-A. Samples MW-13S-08312018, MW-2R-08312018, MS-2R-08312108 and RB-08312018 were less than 5X the blank detect. Results were U qualified as non-detect. Method detection limits were elevated to the sample detect concentrations.</p> <p>Perfluorobutanoic acid (PFBA) was detected in MB 320-245408/1-A. RB-08312018 was less than 5X the blank detect. Result was U qualified as non-detect. Method detection limit was elevated to the sample detect concentration.</p> <p>Perfluoroundecanoic acid (PFUnA) was detected in MB 200-133253/1-A. Samples PZ-04-08132018 and RB-08132018 was U qualified as non-detect. Method detection limits were elevated to the sample detect concentrations.</p> <p>Perfluorotertradecanoic acid (PFTeA) was detected in RB-08312018. Sample MW13S-08312018 was less than 5X the blank detect. Result was U qualified as non-detect. Method detection limit was elevated to the sample detect concentration.</p> <p>Perfluorooctanoic acid (PFOA) was detected in RB-08132018. Sample MW1S-08132018 was less than 5X the blank detect. Result was U qualified as non-detect. Method detection limit was elevated to the sample detect concentration.</p>
Surrogate for method blanks and LCS within limits?	Yes.

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Perfluorinated Compounds by LC/MS/MS – Method E537-LL	
Description	Notes and Qualifiers
Surrogate for samples and MS/MSD within limits? (See Table 3).	<p>¹³C₄-Perfluorobutanoic acid (13C4PFBA) and ¹³C₅-Perfluoropentanoic acid (13C5PFPeA) were recovered below acceptance criteria in sample MW-8R-08072018. Associated analytes were J qualified as estimated.</p> <p>¹³C₂-1H,1H,2H,2H-perfluorooctane sulfonate (M262FTS) and ¹³C₂-1H,1H,2H,2H-perfluorodecane sulfonate (M282FTS) were recovered above acceptance criteria in MW-8R-08072018. Associated analytes were non-detect.</p> <p>¹³C₂-1H,1H,2H,2H-perfluorooctane sulfonate (M262FTS) was recovered above acceptance criteria in PZ-04-08132018. Associated analyte was J qualified as estimated.</p> <p>13C2-1H,1H,2H,2H-perfluorodecane sulfonate (M282FTS) was recovered above acceptance criteria in PZ-04-08132018. Associated analyte was non-detect. No qualification was made.</p> <p>13C2-1H,1H,2H,2H-perfluorooctane sulfonate (M262FTS) was recovered above acceptance criteria in MW-1S-08132018. Associated analyte was non-detect. No qualification was made.</p> <p>¹³C₄-Perfluorobutanoic acid (13C4PFBA) and ¹³C₈-Perfluorooctanesulfonamide (13C8-PFOSA) were recovered below acceptance criteria in MW-16R-08132018. Associated analyte detects were J qualified as estimated. Non-detects were UJ qualified as estimated non-detects.</p> <p>¹³C₂-1H,1H,2H,2H-perfluorooctane sulfonate (M262FTS) and ¹³C₂-1H,1H,2H,2H-perfluorodecane sulfonate (M282FTS) were recovered above acceptance criteria in MW-16R-08132018. Associated analytes were non-detect. No qualification was made.</p> <p>¹³C₂-1H,1H,2H,2H-perfluorooctane sulfonate (M262FTS) was recovered high in the MS and MSD for MW-1S-0813208 and MW-16R-08132018. No qualification of MS/MSD is made based on surrogate recovery.</p>
Laboratory QC frequency one blank and LCS with each batch and one set of MS/MSD per 20 samples?	Yes.
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?	Yes.
LCS within QC criteria (see Table 5)? If out, and the recovery high with no positive values, then no data qualification is required.	Yes.

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Perfluorinated Compounds by LC/MS/MS – Method E537-LL	
Description	Notes and Qualifiers
Do internal standards areas and retention time meet criteria? Is the internal standard peak area within -50% to +50% of the ICAL injection standard average?	Yes.
Is initial calibration for compounds by isotope dilution <35 %RSD or curve fit; and compounds quantitated by isotope dilution analytes (IDA) <50% RSD? Is the initial calibration verification %D <40% for all natives quantitated by isotope dilution or <50 for natives quantitated by IDA	Yes.
Is continuing calibration %D for compounds by isotope dilution <40% for all natives quantitated by isotope dilution or <50% for natives quantitated by IDA.	1H,1H,2H,2H-perfluorodecanesulfonic acid was recovered outside acceptance criteria in CCVL 200-133262/7. Samples PZ-04-08132018, MW-1S-08132018 and MW-16R-08132018 were UJ qualified as estimated non-detect for the analyte. ¹³ C ₈ -perfluorooctanesulfonamide (13C8-FOSA) was recovered high (51%) in CCV 200-133229/15. The CCV was reanalyzed prior to the samples being injected; therefore, it did not directly bracket the samples.
Were any samples re-analyzed or diluted (see Table 6)? For any sample re-analysis and dilutions is only one reportable result by flagged?	No.
Do field duplicate results show good precision for all compounds except TICs (see Table 7)?	The RPD for the field duplicate pair MW-2R-08312018 was outside acceptance criteria for Perfluorobutanesulfonic acid. Parent samples result was J qualified as estimated.

Metals by ICP/AES – Method 6010C	
Description	Notes and Qualifiers
Are any compounds present in method and field blanks as noted on Table 2?	Yes.
For samples, if results are < 5 times the blank then "U" flag data.	Manganese was detected in MB 480-428652/1-A, 480-429575/1-A and 480-429772/1-A. Associated samples results were greater than 5X the blank detect for the analyte. No qualification was made. Manganese was detected in MB 480-429187/1-A. Sample MW-9S-08082018 was less than 5X the blank detect for the analyte. Result was U qualified as non-detect. Reporting limit was elevated to the sample detection concentration. Manganese was detected in MB 480-429822/1-A. Sample MW-1S-08132018 was less than 5X the blank detect for the analyte. Result was U qualified as non-detect. Method detection limit was elevated to the sample detect concentration.
Is laboratory QC frequency one blank and LCS with each batch and one set of MS/MSD per 20 samples?	Yes.

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Metals by ICP/AES – Method 6010C	
Description	Notes and Qualifiers
Are MS/MSD within QC criteria (see Table 3)? QC limits are not applicable to sample results greater than 4 times spike amount.	Yes.
Were elements recovered $\leq 30\%$? If so, "R" flag associated NDs.	Yes.
Is LCS within QC criteria (see Table 4)? If out, and the recovery high with no positive values, then no data qualification is required.	Yes.
Is there one serial dilution per 20 samples? Flag all data reported with an "E" as "J".	Yes.
Are serial dilution within QC criteria?	Unable to be assessed. Category A report provided.
Spot check ICS recoveries 80-120%. Contact lab if unacceptable.	Unable to be assessed. Category A report provided.
Spot check ICV 90-110%. Contact lab if unacceptable.	Unable to be assessed. Category A report provided.
Spot check CCV 90-110%. Contact lab if unacceptable.	Unable to be assessed. Category A report provided.
Spot check ICVL/CCVL 70-130%. Contact lab if unacceptable.	Unable to be assessed. Category A report provided.
Were samples re-analyzed or diluted? (see Table 6)	No.
Do field duplicate and laboratory replicate results show good precision for all compounds (see Table 7)?	The RPD between the MW-2R-08092018 and MW-2R-08092018-Q for total iron and dissolved iron were outside acceptance criteria. Samples results were J qualified as estimated.

Alkalinity by Colorimetric Analysis – Method 310.2	
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.	MB 480-430145/38, 480-430293/112 and 480-430519/127 had positive results for alkalinity. Associated sample results were greater than 5X the blank detect. No qualification was made.
Is Laboratory QC frequency at least one blank and LCS with each batch or 20 samples and one set of MS/MSD per 5 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.	The MS and MSD were below acceptance criteria for sample MW-1S-08132018. The native sample concentration was greater than 4X the spike amount. 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.
Is initial calibration for target compounds <20 %RSD or curve fit?	Unable to be assessed. Category A report provided.
Is initial calibration verification frequency once immediately following calibration?	Unable to be assessed. Category A report provided.
Is %D in the continuing calibration for target compounds less than method specifications?	Unable to be assessed. Category A report provided.
Were any samples reanalyzed or diluted (see Table 6)? For any sample reanalysis or dilutions, is only one reportable result flagged?	Several samples were diluted to bring alkalinity within the calibration range. There is no impact to data usability.

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Alkalinity by Colorimetric Analysis – Method 310.2	
Description	Notes and Qualifiers
Do field duplicate results show good precision for all compounds (see Table 7)?	Yes.

Nitrate by Colorimetric Analysis – Method 353.2	
Description	Notes and Qualifiers
Any compounds present in method, trip, or, field blanks (see Table 2)?	No.
For samples, if results are < 5 times the blank or < 10 times the blank for common laboratory contaminants, then "U" flag data.	N/A.
Is Laboratory QC frequency at least one blank, LCS, and MSD with each batch or per 20 samples and one set of MS per 10 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.	Yes.
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.
Is Laboratory calibration frequency at least one CCB, CCV per 10 samples?	Unable to be assessed. Category A report provided.
Is there one CCVL, ICV, and ICB immediately following calibration?	Unable to be assessed. Category A report provided.
Is initial calibration for target compounds <20 %RSD or curve fit?	Unable to be assessed. Category A report provided.
Is %D in the continuing calibration for target compounds less than method specifications?	Unable to be assessed. Category A report provided.
Were any samples reanalyzed or diluted (see Table 6)? For any sample reanalysis or dilutions, is only one reportable result flagged?	No.
Do field duplicate results show good precision for all compounds except TICs (see Table 7)?	Yes.

Sulfate by IC – Method 9056A	
Description	Notes and Qualifiers
Any compounds present in method, trip, or, field blanks (see Table 2)?	No.
For samples, if results are < 5 times the blank or < 10 times the blank for common laboratory contaminants, then "U" flag data.	N/A.
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.	Yes.
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.
Is initial calibration for target compounds <20 %RSD or curve fit?	Unable to be assessed. Category A report provided.
Is %D in the continuing calibration for target compounds less than method specifications?	Unable to be assessed. Category A report provided.

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Sulfate by IC – Method 9056A	
Description	Notes and Qualifiers
Were any samples reanalyzed or diluted (see Table 6)? For any sample reanalysis or dilutions, is only one reportable result flagged?	Several samples were diluted to bring the concentration of sulfate within calibration range.
Do field duplicate results show good precision for all compounds (see Table 7)?	Yes.

Chemical Oxygen Demand (COD) – Method E410.4	
Description	Notes and Qualifiers
Any compounds present in method, trip, or, field blanks (see Table 2)?	No.
For samples, if results are < 5 times the blank or < 10 times the blank for common laboratory contaminants, then "U" flag data.	Not applicable.
Is Laboratory QC frequency at least one blank, DU and LCS with each batch or per 20 samples and one set of MS per 10 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.	Yes.
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.
Is there one ICV and ICB once after calibration?	Unable to be assessed. Category A report provided.
Is Laboratory calibration frequency at least one CCB, CCV per 10 samples?	Unable to be assessed. Category A report provided.
Is initial calibration for target compounds <10 %RSD or curve fit?	Unable to be assessed. Category A report provided.
Is %D in the continuing calibration for target compounds less than method specifications?	Unable to be assessed. Category A report provided.
Were any samples reanalyzed or diluted (see Table 6)? For any sample reanalysis or dilutions, is only one reportable result flagged?	No.
Do field duplicate results show good precision for all compounds except TICs (see Table 7)?	Yes.

Biochemical Oxygen Demand (BOD) – Method 5210B	
Description	Notes and Qualifiers
Any compounds present in method, trip, or, field blanks (see Table 2)?	No.
For samples, if results are < 5 times the blank or < 10 times the blank for common laboratory contaminants, then "U" flag data.	N/A.
Is Laboratory QC frequency at least one unseeded dilution water, DU and MS/MSD with each batch or per 20 samples? At least three LCS 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.	Yes.
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.	Biochemical oxygen demand was recovered low in LCS 480-429621/2. Associated sample MW-1S-08132018 was non-detect. Result was UJ qualified as estimated non-detect.

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Biochemical Oxygen Demand (BOD) – Method 5210B	
Description	Notes and Qualifiers
Is DU for target compounds <20 % RPD?	Yes.
Is unseeded blank (USB) < the reporting limit?	Yes.
Is there one ICV and ICB immediately following calibration within 10%?	Unable to be assessed. Category A report provided.
Is initial calibration for target compounds <20 %RSD or curve fit?	Unable to be assessed. Category A report provided.
Is %D in the continuing calibration for target compounds less than method specifications?	Unable to be assessed. Category A report provided.
Were any samples reanalyzed or diluted (see Table 6)? For any sample reanalysis or dilutions, is only one reportable result flagged?	No.
Do field duplicate results show good precision for all compounds except TICs (see Table 7)?	Yes.

Total Organic Carbon – Method 9060A	
Description	Notes and Qualifiers
Are any compounds present in method and field blanks as noted on Table 2?	Yes.
For samples, if results are < 5 times the blank then "U" flag data.	TOC was detected in MB 480-430926/4. Samples MW-14R-08102018 and MW-1S-08132018 were less than 5X the blank detect. Results were U qualified as non-detect. Reporting limits were elevated to the sample detect concentrations.
Is laboratory QC frequency one blank and LCS with each batch per 20 samples and one set of MS/MSD per 20 samples?	Yes.
Are MS/MSD within QC criteria (see Table 4)? QC limits are not applicable to sample results greater than 4 times spike amount. All N flagged data for MS are flagged J as estimated.	Yes.
Is LCS within QC criteria (see Table 5)? If out, and the recovery high with no positive values, then no data qualification is required.	Yes.
Is Laboratory calibration frequency at least one CCB, CCV per 10 samples?	Unable to be assessed. Category A report provided.
Were any samples reanalyzed or diluted (see Table 6)? For any sample reanalysis or dilutions, is only one reportable result flagged?	No.
Do field duplicate results show good precision for all compounds (see Table 7)?	Yes.

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Summary of Findings

- Sample containers for method E624.1 were preserved with HCl. 2-Chlorethyl vinyl ether is an acid-labile compound. Sample results were non-detect for the analyte and UJ qualified as estimated non-detects; however, the analyte is not project specific compound of concern.
- Due to a FedEx shipping error, samples MW-9S-08082018, MW-2R-08092018 and MW-2R-08092018-Q were received outside the holding time for method RSK-175. The samples were collected 8/9/18 and shipped from Buffalo, NY on 8/10/18. Upon notification the samples were lost, a second batch of samples were shipped from Buffalo, NY on 8/16/2018 and received in Burlington, VT and analyzed on 8/18/2018. The sample results were J-qualified as estimated.
- Trichloroethylene was recovered below acceptance criteria in the MS and MSD for samples MW-1S-08132018 and MW-10R-08142018. The analyte was J qualified as estimated in the parent samples.
- Sample MW-8R-08072018 was diluted to bring the concentration of analytes within the calibration limits. The MDLs for 1,1,2-trichloroethane, 1,2-dichlorobenzene, 1,2-dichloroethane, 1,2-dichloropropane, 1,4-dichlorobenzene, benzene, bromomethane, carbon tetrachloride, chloroethane, chloromethane, cis-1,3-dichloropropene, m,p-xylene, trans-1,2-dichloroethene and trans-1,3-dichloropropene were elevated above the screening limit. The analytes may be present in the sample greater than screening limits, but less than the method detection limit.
- Sample PW-1-0813208 was diluted to bring the concentration of analytes within the calibration range. The MDLs for 1,2-dichloroethane, 1,2-dichloropropane, benzene, cis-1,3-dichloropropene, and trans-1,3-dichloropropene were elevated above the screening limit. The analytes may be present in the sample greater than screening limits, but less than the method detection limit.
- The MDL for trans-1,3-Dichloropropene exceeded screening criteria. The analytes may be present in the sample greater than screening limits, but less than the method detection limit. However, the analyte is not a project specific compound of concern and should not impact data usability.
- The RPD between the field duplicate pair MW-8R-08092018 and MW-8R-08092018-Q was outside acceptance limits for carbon dioxide and methane. The analytes in both samples were J qualified as estimated.
- Several compounds were detected in the method and rinse blanks for method E537-LL, perfluorinated compounds. Perfluorohexanesulfonic acid (PFHxS) was U qualified in MW-13S-08312018, MW-2R-08312018, and MW-2R-08312018-Q. Perfluoroundecanoic acid (PFUnA) was U qualified in PZ-04-08132018. Perfluorotetradecanoic acid (PFTeA) was U qualified in MW-13S-08312018. Perfluorooctanoic acid (PFOA) was U qualified in MW-1S-08132018. MDLs for each of the analytes U qualified was elevated to the respective sample result.
- Several surrogates were recovered outside acceptance criteria for method E537-LL, perfluorinated compounds. Perfluoropentanoic acid (PFPeA) was J qualified in sample MW-8R-08072018. 1H,1H,2H,2H-perfluorooctanesulfonic acid was J qualified in sample PZ-04-08132018. Perfluorobutanoic acid (PFBA) was J qualified in sample MW-16R-08132018. Perfluorooctanesulfonamide was UJ qualified in sample MW-16R-08132018.
- 1H,1H,2H,2H-perfluorodecanesulfonic acid was recovered outside acceptance criteria in CCVL 200-133262/7. Samples PZ-04-08132018, MW-1S-08132018 and MW-16R-08132018 were J qualified as estimated for the analyte.
- The RPD for the field duplicate pair MW-2R-08312018 was outside acceptance criteria for perfluorobutanesulfonic acid. The analyte was J qualified for the sample pair.
- Manganese was detected in MB-480-429187/1-A and MB 480-429822/1-A. Samples MW-9S-08082018 and MW-1S-08132018 were less than 5X the blank detect for the analyte. Results were U qualified as non-detect. The method detection limits were elevated to the detected sample concentrations.
- The RPD between the MW-2R-08092018 and MW-2R-08092018-Q for total iron and dissolved iron were outside acceptance criteria. Samples results were J qualified as estimated.
- Biochemical oxygen demand was recovered low in LCS 480-429621/2. Associated sample MW-1S-08132018 was non-detect. Result was UJ qualified as estimated non-detect.

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Summary of Findings
<ul style="list-style-type: none"> • TOC was detected in MB 480-430926/4. Samples MW-14R-08102018 and MW-1S-08132018 were less than 5X the blank detection. Results were U qualified as non-detect. Reporting limits were elevated to the detected sample concentrations. • Historical data illustrates no evidence of methylene chloride in these ground water samples. Due to the low level detects for the analyte, it is suspected the results are from laboratory water used to dilute samples for analysis. Methylene chloride results for MW-8R-08072018, MW-2R-08092018, MW-2R-08092018-Q and MW-5R-08102018 were U qualified as non-detects. MDLs were elevated to the sample results.

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Table 2 - List of Positive Results for Blank Samples

Method	Sample ID	Sample Type	Analyte	Result	Lab Qualifier	Units	MDL	PQL
9060A	480-431346/4	MB	TOC	0.508	J	mg/L	0.43	1.0
9060A	480-430926/4	MB	TOC	0.554	J	mg/L	0.43	1.0
E310.2	480-430145/38	MB	Alkalinity, Total	5.47	J	mg/L	4.0	10
E310.2	480-430293/112	MB	Alkalinity, Total	4.47	J	mg/L	4.0	10
E310.2	480-430519/127	MB	Alkalinity, Total	5.25	J	mg/L	4.0	10
E537-LL	320-245408/1-A	MB	Perfluorobutanoic acid (PFBA)	0.400	J	ng/L	0.35	2.0
E537-LL	200-132948/1-A	MB	Perfluorohexanesulfonic acid (PFHxS)	0.374	J	ng/L	0.26	2.0
E537-LL	320-245408/1-A	MB	Perfluorohexanesulfonic acid (PFHxS)	0.325	J	ng/L	0.17	2.0
E537-LL	200-133253/1-A	MB	Perfluoroundecanoic acid (PFUnA)	0.347	J	ng/L	0.25	2.0
E537-LL	RB-08132018	RB	Perfluorooctanoic acid (PFOA)	0.34	J	ng/L	0.26	1.7
E537-LL	RB-08312018	RB	Perfluorotetradecanoic acid (PFTeA)	0.24	J	ng/L	0.24	1.7
E624.1	RB-08142018	RB	Acetone	2.3	J	ug/L	2.0	25
E624.1	TB-08092018	TB	Chloroform	3.7	J	ug/L	0.54	5.0
E624.1	TB-08102018	TB	Chloroform	4.1	J	ug/L	0.54	5.0
E624.1	TB-08312018	TB	Chloroform	4.1	J	ug/L	0.54	5.0
E624.1	TB-08182018	TB	Chloroform	4.4	J	ug/L	0.54	5.0
E624.1	TB-08092018	TB	Methylene Chloride	1.2	J	ug/L	0.81	5.0
RSK-175	200-132734/4	MB	Carbon Dioxide	1920	J	ug/L	1900	5000
SW6010C	480-428652/1-A	MB	Manganese	0.000490	J	mg/L	0.00040	0.0030
SW6010C	480-429772/1-A	MB	Manganese	0.000610	J	mg/L	0.00040	0.0030
SW6010C	480-429187/1-A	MB	Manganese	0.00216	J	mg/L	0.00040	0.0030
SW6010C	480-429575/1-A	MB	Manganese	0.00156	J	mg/L	0.00040	0.0030
SW6010C	480-429822/1-A	MB	Manganese	0.000410	J	mg/L	0.00040	0.0030

Table 2A - List of Samples Qualified for Method Blank Contamination

Method	Method Blank	Matrix	Analyte	Blank Result	Sample Result	Lab Qualifier	PQL	Affected Samples	Sample Flag
E537-LL	200-132948/1-A	WH	Perfluorohexanesulfonic acid (PFHxS)	0.37	0.37	J	1.7	RB-08072018	U Flag
E537-LL	200-133253/1-A	WG	Perfluoroundecanoic acid (PFUnA)	0.347	0.35	J	1.6	PZ-04-08132018	U Flag
E537-LL	200-133253/1-A	WG	Perfluoroundecanoic acid (PFUnA)	0.347	0.26	J	1.7	RB-08132018	U Flag

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Method	Method Blank	Matrix	Analyte	Blank Result	Sample Result	Lab Qualifier	PQL	Affected Samples	Sample Flag
E537-LL	320-245408/1-A	WG	Perfluorohexanesulfonic acid (PFHxS)	0.325	0.95	J	1.8	MW-13S-08312018	U Flag
E537-LL	320-245408/1-A	WG	Perfluorohexanesulfonic acid (PFHxS)	0.325	0.73	J	1.7	MW-2R-08312018	U Flag
E537-LL	320-245408/1-A	WG	Perfluorohexanesulfonic acid (PFHxS)	0.325	0.88	J	1.7	MW-2R-08312018-Q	U Flag
E537-LL	320-245408/1-A	WH	Perfluorohexanesulfonic acid (PFHxS)	0.325	0.31	J	1.7	RB-08312018	U Flag
E537-LL	320-245408/1-A	WH	Perfluorobutanoic acid (PFBA)	0.400	0.30	J	1.7	RB-08312018	U Flag
9060A	480-430926/4	Water	TOC	0.554	2.3		1.0	MW-14R-08102018	U Flag
9060A	480-430926/4	Water	TOC	0.554	1.2		1.0	MW-1S-08132018	U Flag
SW6010C	480-429187/1-A	Water	Manganese	0.00216	0.0081		0.0030	MW-9S-08082018	U Flag
SW6010C	480-429822/1-A	Water	Manganese	0.000410	0.00074	J	0.0030	MW-1S-08132018	U Flag

Table 2B - List of Samples Qualified for Field Blank Contamination

Method	Field Blank	Matrix	Analyte	Blank Result	Sample Result	Lab Qualifier	PQL	Affected Samples	Sample Flag
E537-LL	RB-08312018	Water	Perfluorotetradecanoic acid (PFTeA)	0.24	0.55	J	1.8	MW-13S-08312018	U Flag
E537-LL	RB-08132018	Water	Perfluorooctanoic acid (PFOA)	0.34	1.6	J	1.7	MW-1S-08132018	U Flag

Table 3 - List of Samples with Surrogates outside Control Limits

Method	Sample ID	Sample Type	Analyte	Rec.	Low Limit	High Limit	Dil Fac	Sample Qual.
E537-LL	MW-8R-08072018	N	¹³ C ₄ -Perfluorobutanoic acid (13C4-PFBA)	12	25	150	1	J Flag
E537-LL	MW-8R-08072018	N	¹³ C ₅ -Perfluoropentanoic acid (13C5-PFPeA)	19	25	150	1	J Flag
E537-LL	MW-8R-08072018	N	¹³ C ₂ -1H,1H,2H,2H-perfluorooctane sulfonate (M2-6-2FTS)	216	25	150	1	None: High & ND
E537-LL	MW-8R-08072018	N	¹³ C ₂ -1H,1H,2H,2H-perfluorodecane sulfonate (M2-8-2FTS)	177	25	150	1	None: High & ND

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Method	Sample ID	Sample Type	Analyte	Rec.	Low Limit	High Limit	Dil Fac	Sample Qual.
E537-LL	PZ-04-08132018	N	¹³ C ₂ -1H,1H,2H,2H-perfluorooctane sulfonate (M2-6-2FTS)	245	25	150	1	J Flag
E537-LL	PZ-04-08132018	N	¹³ C ₂ -1H,1H,2H,2H-perfluorodecane sulfonate (M2-8-2FTS)	232	25	150	1	None: High & ND
E537-LL	MW-1S-08132018	N	¹³ C ₂ -1H,1H,2H,2H-perfluorooctane sulfonate (M2-6-2FTS)	170	25	150	1	None: High & ND
E537-LL	MW-16R-08132018	N	¹³ C ₄ -Perfluorobutanoic acid (13C4-PFBA)	21	25	150	1	J Flag
E537-LL	MW-16R-08132018	N	¹³ C ₈ -Perfluorooctanesulfonamide (13C8-PFOA)	15	25	150	1	UJ Flag
E537-LL	MW-16R-08132018	N	¹³ C ₂ -1H,1H,2H,2H-perfluorodecane sulfonate (M2-8-2FTS)	211	25	150	1	None: High & ND
E537-LL	MW-16R-08132018	N	¹³ C ₂ -1H,1H,2H,2H-perfluorooctane sulfonate (M2-6-2FTS)	199	25	150	1	None: High & ND
E537-LL	MW-16R-08132018	MS	¹³ C ₂ -1H,1H,2H,2H-perfluorooctane sulfonate (M2-6-2FTS)	175	25	150	1	None
E537-LL	MW-16R-08132018	MSD	¹³ C ₂ -1H,1H,2H,2H-perfluorooctane sulfonate (M2-6-2FTS)	182	25	150	1	None
E537-LL	MW-1S-08132018	MS	¹³ C ₂ -1H,1H,2H,2H-perfluorooctane sulfonate (M2-6-2FTS)	175	25	150	1	None
E537-LL	MW-1S-08132018	MSD	¹³ C ₂ -1H,1H,2H,2H-perfluorooctane sulfonate (M2-6-2FTS)	182	25	150	1	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	MW-1S-08132018	MS/MSD	Trichloroethylene	19	20.0	30.0	59	71	157	J Flag
E310.2	MW-1S-08132018	MS/MSD	Alkalinity, Total	486	20.0	-96	-94	60	140	None – 4X
E624.1	MW-10R-08142018	MS/MSD	Trichloroethylene	1300	400	7	6	71	157	J Flag

Method	Sample ID	Analyte	RPD	RPD Limit	Sample Qualifier
E624.1	MW-1S-08132018	Trichlorofluoromethane	26	15	None – ND
E624.1	MW-1S-08132018	Vinyl chloride	21	15	None – ND

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Table 5 - List LCS Recoveries outside Control Limits

Method	Sample ID	Sample Type	Analyte	Rec.	Low Limit	High Limit	Sample Qualifier
SM5210B	480-429621/2	LCS	BOD	84	85	115	UJ Flag

Table 5A - List ICV and CCV Recoveries outside Control Limits

Method	Sample ID	Sample Type	Analyte	%D	%D Limit	Sample Qualifier
E537-LL	200-133262/7	CCVL	1H,1H,2H,2H-Perfluorodecanesulfonic acid	-77	50	J Flag
E537-LL	200-133229/15	CCV	¹³ C ₈ -Perfluorooctanesulfonic acid (13C8FOSA)	51	50	None

Table 6 –Samples that were Re-analyzed

Sample ID	Lab ID	Method	Sample Type	Action
MW-8R-08072018	480-140048-2	E624.1	N	10X: Diluted due to foaming during purging of the sample. Elevated reporting limits provided.
MW-8R-08072018	480-140048-2	E624.1	N	80X: Sample was diluted to bring the concentration of cis-1,2-dichloroethylene within calibration range.
MW-8R-08072018	480-140048-2	SW8270D	N	40X: Sample was diluted to bring the concentration of 1,4-dioxane within calibration range.
MW-8R-08072018	480-140048-2	SW9056A	N	5X: Sample was diluted to bring the concentration of sulfate within calibration range.
MW-8R-08072018	480-140048-2	RSK-175	N	22X: Sample was diluted to bring the concentration of methane within calibration range.
MW-8R-08072018	480-140048-2	E310.2	N	4X: Sample was diluted to bring alkalinity within calibration range.
MW-2R-08092018	480-140175-3	E310.2	N	3X: Sample was diluted to bring alkalinity within calibration range.
MW-2R-08092018	480-140175-3	E624.1	N	10X: Sample was diluted to bring the concentration of 1,1-dichloroethane, methylene chloride, cis-1,2-dichloroethene, and vinyl chloride within calibration range. Elevated reporting limits provided for all other analytes.
MW-2R-08092018	480-140175-3	RSK-175	N	22X: Sample was diluted to bring the concentration methane within calibration range.
MW-2R-08092018	480-140175-3	SW8270D	N	10X: Sample was diluted to bring the concentration of 1,4-dioxane within calibration range.
MW-2R-08092018	480-140175-3	SW9056A	N	5X: Sample was diluted to bring the concentration of sulfate within calibration range.
MW-2R-08092018-Q	480-140175-4	E310.2	FD	3X: Sample was diluted to bring the alkalinity within calibration range.

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Sample ID	Lab ID	Method	Sample Type	Action
MW-2R-08092018-Q	480-140175-4	E624.1	FD	10X: Sample was diluted to bring the concentration of 1,1-dichloroethane, methylene chloride, cis-1,2-dichloroethene, and vinyl chloride within calibration range. Elevated reporting limits provided for all other analytes.
MW-2R-08092018-Q	480-140175-4	RSK-175	FD	22X: Sample was diluted to bring the concentration methane within calibration range.
MW-2R-08092018-Q	480-140175-4	SW8270D	FD	10X: Sample was diluted to bring the concentration of 1,4-dioxane within calibration range.
MW-2R-08092018-Q	480-140175-4	SW9056A	FD	5X: Sample was diluted to bring the concentration of sulfate within calibration range.
MS-9S-08102018	480-140175-2	E310.2	N	4X: Sample was diluted to bring the alkalinity within calibration range.
MS-9S-08102018	480-140175-2	SW9056A	N	2X: Sample was diluted to bring the concentration of sulfate within calibration range.
MW-14R-08102018	480-140249-3	E310.2	N	4X: Sample was diluted to bring the alkalinity within calibration range.
MW-14R-08102018	480-140249-3	SW9056A	N	2X: Sample was diluted to bring the concentration of sulfate within calibration range.
MW-2S-08102018	480-140249-4	E310.2	N	4X: Sample was diluted to bring the alkalinity within calibration range.
MW-2S-08102018	480-140249-4	SW9056A	N	2X: Sample was diluted to bring the concentration of sulfate within calibration range.
MW-2S-08102018	480-140249-4	E624.1	N	10X: Diluted due to foaming during purging of the sample. Elevated reporting limits provided for all analytes.
MW-5R-08102018	480-140249-5	E624.1	N	10X: Sample was diluted to bring the concentration of 1,1-dichloroethane, methylene chloride, cis-1,2-dichloroethene, trichloroethene, and vinyl chloride within calibration range. Elevated reporting limits provided for all other analytes.
MW-16R-08132018	480-140310-4	E624.1	N	10X: Sample was diluted to bring the concentration of 1,1-dichloroethane, cis-1,2-dichloroethene, and vinyl chloride within calibration range. Elevated reporting limits provided for all other analytes.
MW-16R-08132018	480-140310-4	SW8270D	N	10X: Sample was diluted to bring the concentration of 1,4-dioxane within calibration range.
MS-1S-08132018	480-140310-3	E310.2	N	5X: Sample was diluted to bring the alkalinity within calibration range.
MS-1S-08132018	480-140310-3	SW9056A	N	5X: Sample was diluted to bring the concentration of 1,1,1-trichloroethane, 1,1-dichloroethane, cis-1,2-dichloroethene, tetrachloroethene, and trichloroethene within calibration range. Elevated reporting limits provided for all other analytes.
PW-1-08132018	480-140310-5	E624.1	N	2X: Sample was diluted to bring the concentration of 1,1-dichloroethene, 1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, trichloroethene,

Data Usability Summary Report	Project: Davis Howland Oil Company
Date Completed: November 16, 2018	Completed by: Shawn Kowal

Sample ID	Lab ID	Method	Sample Type	Action
				and vinyl chloride within calibration range. Elevated reporting limits provided for all other analytes.
PZ-04-08132018	480-140310-2	E624.1	N	10X: Sample was diluted to bring the concentration of 1,1-dichloroethane, cis-1,2-dichloroethene, trichloroethene, and tetrachloroethene within calibration range. Elevated reporting limits provided for all other analytes.
MW-10R-08142018	480-140356-1	E624.1	N	10X: Sample was diluted to bring the concentration of 1,1,1-trichloroethane, 1,1-dichloroethane, tetrachloroethene, trans-1,2-dichloroethene within calibration range. Elevated reporting limits provided for all other analytes. 20X: The sample was diluted further to bring the concentration of trichloroethene within the calibration range.

Table 7 – Summary of Field Duplicate Results

Method	Analyte	Unit	Matrix	PQL	MW-2R-08092018	MW-2R-08092018-Q	RPD	RPD Rating	Sample Qual
E310.2	Alkalinity, Total (As CaCO ₃)	mg/l	WG	30.0	210	225	6.9%	Good	None
E353.2	Nitrogen, Nitrate (As N)	mg/l	WG	0.050	0.18	0.14	25.0%	Good	None
E410.4	COD – Chemical Oxygen Demand	mg/l	WG	10.0	12.6	13.5	6.9%	Good	None
E624.1	1,1-Dichloroethane	ug/l	WG	50	20	16	22.2%	Good	None
E624.1	cis-1,2-Dichloroethylene	ug/l	WG	50	500	420	17.4%	Good	None
E624.1	Methylene Chloride	ug/l	WG	50	14	15	6.9%	Good	None
E624.1	Vinyl Chloride	ug/l	WG	50	250	230	8.3%	Good	None
RSK175	Methane	ug/l	WG	88	440	260	51.4%	Poor	J Flag
RSK175	Carbon Dioxide	ug/l	WG	5000	30000	19000	44.9%	Poor	J Flag
SW6010C	Iron (Dissolved)	mg/l	WG	0.050	0.40	0.44	9.5%	Good	None
SW6010C	Manganese (Dissolved)	mg/l	WG	0.0030	0.076	0.078	2.6%	Good	None
SW6010C	Iron (Total)	mg/l	WG	0.050	0.52	1.1	71.6%	Poor	J Flag
SW6010C	Manganese (Total)	mg/l	WG	0.0030	0.073	0.058	22.9%	Good	None
SW8270DSIM	1,4-Dioxane (P-Dioxane)	ug/l	WG	2.0	37	39	5.3%	Good	None
SW9056	Sulfate (As SO ₄)	mg/l	WG	10.0	108	122	12.2%	Good	None
SW9060	Total Organic Carbon	mg/l	WG	1.0	3.7	3.9	5.3%	Good	None

Data Usability Summary Report	Project: Davis Howland Oil Company
Date Completed: November 16, 2018	Completed by: Shawn Kowal

Method	Analyte	Unit	Matrix	PQL	Anal Type	MW-2R-08312018	MW-2R-08312018-Q	RPD	RPD Rating	Sample Qual
E537-LL	Perfluorobutanesulfonic Acid	ng/l	WG	1.7	A	1.6	3.1	63.8%	Poor	J Flag
E537-LL	Perfluorobutyric Acid	ng/l	WG	1.7	A	8.0	7.8	2.5%	Good	None
E537-LL	Perfluorodecanonoic Acid (PFDA)	ng/l	WG	1.7	A	1.7	1.6	6.1%	Good	None
E537-LL	Perfluoroheptanoic Acid (PFHpA)	ng/l	WG	1.7	A	2.5	2.3	8.3%	Good	None
E537-LL	Perfluorohexanesulfonic Acid	ng/l	WG	1.7	A	0.73	0.88	18.6%	Good	None
E537-LL	Perfluorohexanoic Acid (PFHxA)	ng/l	WG	1.7	A	18	16	11.8%	Good	None
E537-LL	Perfluorononanoic Acid	ng/l	WG	1.7	A	1.1	0.98	11.5%	Good	None
E537-LL	Perfluorooctanesulfonic Acid	ng/l	WG	1.7	A	2.0	2.2	9.5%	Good	None
E537-LL	Perfluorooctanoic acid (PFOA)	ng/l	WG	1.7	A	4.4	4.1	7.1%	Good	None
E537-LL	Perfluoropentanoic Acid (PFPeA)	ng/l	WG	1.7	A	12	12	0.0%	Good	None

Data Usability Summary Report	Project: Davis Howland Oil Company
Date Completed: November 16, 2018	Completed by: Shawn Kowal

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)

E

August 2018 Groundwater Monitoring Event Analytical Data

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-140048-1

Client Project/Site: Davis Howland

For:

Ecology and Environment, Inc.

386 Pleasant View Drive

Lancaster, New York 14086

Attn: Ashlee Patnode



Authorized for release by:

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
E	Result exceeded calibration range.
U	Indicates the analyte was analyzed for but not detected.

GC VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
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.

LCMS

Qualifier	Qualifier Description
*	Isotope Dilution analyte is outside acceptance limits.
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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)

TestAmerica Buffalo

Definitions/Glossary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
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)

Case Narrative

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

Job ID: 480-140048-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-140048-1

Comments

No additional comments.

Receipt

The samples were received on 8/7/2018 7:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.1° C.

GC/MS VOA

Method(s) 624.1: The following volatiles sample was diluted due to foaming at the time of purging during the original sample analysis: MW8R-872018 (480-140048-2). Elevated reporting limits (RLs) are provided.

Method(s) 624.1: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW8R-872018 (480-140048-2). Elevated reporting limits (RLs) are provided.

Method(s) 624.1: The preservative used in the sample containers provided is not compatible with the Method 624.1 analytes requested. The following samples were received preserved with hydrochloric acid: TB08072018 (480-140048-1) and MW8R-872018 (480-140048-2). The requested target analyte list contains 2-Chloroethyl vinyl ether, which is an acid-labile compounds that degrade in an acidic medium.

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

GC/MS Semi VOA

Method(s) 8270D SIM ID: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW8R-872018 (480-140048-2). Elevated reporting limits (RLs) are provided.

Method(s) 8270D SIM ID: The 1,4-Dioxane result reported for sample MW8R-872018 (480-140048-2) have an E flag qualifier indicating the results are over the calibration range on the raw data. The actual amounts are within the calibration range; however, the E flag is generated based upon the bias corrected concentration. The LIMS system calculates a bias correction based on the recovery of the 1,4-Dioxane-d8 isotope.

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

HPLC/IC

Method(s) 9056A: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW8R-872018 (480-140048-2). 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.

GC VOA

Method(s) RSK-175: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW8R-872018 (480-140048-2). Elevated reporting limits (RLs) are provided.

Method(s) RSK-175: The method blank for analytical batch 200-132734 contained CO2 above the client's requested detection limit but still below the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

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

Metals

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

LCMS

Method(s) 537 (modified): The method blank for preparation batch 200-132948 and analytical batch 200-133229 contained

Case Narrative

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

Job ID: 480-140048-1 (Continued)

Laboratory: TestAmerica Buffalo (Continued)

Perfluorohexanesulfonic acid (PFHxS) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following sample: MW8R-872018 (480-140048-2). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method(s) 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: MW8R-872018 (480-140048-2). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s). All detection limits are below the lower calibration.

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

General Chemistry

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

Organic Prep

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

Detection Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

Client Sample ID: TB08072018

Lab Sample ID: 480-140048-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	3.8	J	5.0	0.54	ug/L	1		624.1	Total/NA

Client Sample ID: MW8R-872018

Lab Sample ID: 480-140048-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	110		50	5.9	ug/L	10		624.1	Total/NA
1,1-Dichloroethene	38	J	50	8.5	ug/L	10		624.1	Total/NA
Methylene Chloride	13	J	50	8.1	ug/L	10		624.1	Total/NA
Vinyl chloride	470		50	7.5	ug/L	10		624.1	Total/NA
cis-1,2-Dichloroethene - DL	3000		400	46	ug/L	80		624.1	Total/NA
1,4-Dioxane	97	E	7.6	3.8	ug/L	40		8270D SIM ID	Total/NA
Carbon dioxide	46000	B	5000	1900	ug/L	1		RSK-175	Total/NA
Methane	410		88	22	ug/L	22		RSK-175	Total/NA
Perfluorobutanoic acid (PFBA)	240		1.6	0.33	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	33		1.6	0.60	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	3.7		1.6	0.19	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.49	J	1.6	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	2.6		1.6	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.43	J	1.6	0.31	ng/L	1		537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	0.23	J	1.6	0.20	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	7.6		1.6	0.35	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.2	B	1.6	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.2		1.6	0.61	ng/L	1		537 (modified)	Total/NA
Iron	2.1		0.050	0.019	mg/L	1		6010C	Total/NA
Manganese	0.20	B	0.0030	0.00040	mg/L	1		6010C	Total/NA
Iron	1.9		0.050	0.019	mg/L	1		6010C	Dissolved
Manganese	0.19		0.0030	0.00040	mg/L	1		6010C	Dissolved
Alkalinity, Total	327	B	40.0	16.0	mg/L	4		310.2	Total/NA
Chemical Oxygen Demand	13.2		10.0	5.0	mg/L	1		410.4	Total/NA
Sulfate	275		10.0	1.7	mg/L	5		9056A	Total/NA
Total Organic Carbon	4.6		1.0	0.43	mg/L	1		9060A	Total/NA

Client Sample ID: RB08072018

Lab Sample ID: 480-140048-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.37	J B	1.7	0.22	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Client Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

Client Sample ID: TB08072018

Date Collected: 08/07/18 09:30

Date Received: 08/07/18 19:00

Lab Sample ID: 480-140048-1

Matrix: Water

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			08/08/18 15:49	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/08/18 15:49	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/08/18 15:49	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			08/08/18 15:49	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/08/18 15:49	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/08/18 15:49	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			08/08/18 15:49	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/08/18 15:49	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/08/18 15:49	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/08/18 15:49	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/08/18 15:49	1
Acetone	25	U	25	2.0	ug/L			08/08/18 15:49	1
Benzene	5.0	U	5.0	0.60	ug/L			08/08/18 15:49	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/08/18 15:49	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/08/18 15:49	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/08/18 15:49	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/08/18 15:49	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/08/18 15:49	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/08/18 15:49	1
Chloroform	3.8	J	5.0	0.54	ug/L			08/08/18 15:49	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/08/18 15:49	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			08/08/18 15:49	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/08/18 15:49	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/08/18 15:49	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/08/18 15:49	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/08/18 15:49	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/08/18 15:49	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/08/18 15:49	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			08/08/18 15:49	1
Toluene	5.0	U	5.0	0.45	ug/L			08/08/18 15:49	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			08/08/18 15:49	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/08/18 15:49	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			08/08/18 15:49	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/08/18 15:49	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			08/08/18 15:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		68 - 130		08/08/18 15:49	1
4-Bromofluorobenzene (Surr)	103		76 - 123		08/08/18 15:49	1
Toluene-d8 (Surr)	102		77 - 120		08/08/18 15:49	1
Dibromofluoromethane (Surr)	103		75 - 123		08/08/18 15:49	1

Client Sample ID: MW8R-872018

Date Collected: 08/07/18 13:55

Date Received: 08/07/18 19:00

Lab Sample ID: 480-140048-2

Matrix: Water

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			08/08/18 16:12	10
1,1,2,2-Tetrachloroethane	50	U	50	2.6	ug/L			08/08/18 16:12	10

TestAmerica Buffalo

Client Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

Client Sample ID: MW8R-872018

Lab Sample ID: 480-140048-2

Date Collected: 08/07/18 13:55

Matrix: Water

Date Received: 08/07/18 19:00

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			08/08/18 16:12	10
1,1-Dichloroethane	110		50	5.9	ug/L			08/08/18 16:12	10
1,1-Dichloroethene	38	J	50	8.5	ug/L			08/08/18 16:12	10
1,2-Dichlorobenzene	50	U	50	4.4	ug/L			08/08/18 16:12	10
1,2-Dichloroethane	50	U	50	6.0	ug/L			08/08/18 16:12	10
1,2-Dichloropropane	50	U	50	6.1	ug/L			08/08/18 16:12	10
1,3-Dichlorobenzene	50	U	50	5.4	ug/L			08/08/18 16:12	10
1,4-Dichlorobenzene	50	U	50	5.1	ug/L			08/08/18 16:12	10
2-Chloroethyl vinyl ether	250	U	250	19	ug/L			08/08/18 16:12	10
Acetone	250	U	250	20	ug/L			08/08/18 16:12	10
Benzene	50	U	50	6.0	ug/L			08/08/18 16:12	10
Bromoform	50	U	50	4.7	ug/L			08/08/18 16:12	10
Bromomethane	50	U	50	12	ug/L			08/08/18 16:12	10
Carbon tetrachloride	50	U	50	5.1	ug/L			08/08/18 16:12	10
Chlorobenzene	50	U	50	4.8	ug/L			08/08/18 16:12	10
Dibromochloromethane	50	U	50	4.1	ug/L			08/08/18 16:12	10
Chloroethane	50	U	50	8.7	ug/L			08/08/18 16:12	10
Chloroform	50	U	50	5.4	ug/L			08/08/18 16:12	10
Chloromethane	50	U	50	6.4	ug/L			08/08/18 16:12	10
cis-1,3-Dichloropropene	50	U	50	3.3	ug/L			08/08/18 16:12	10
Bromodichloromethane	50	U	50	5.4	ug/L			08/08/18 16:12	10
Ethylbenzene	50	U	50	4.6	ug/L			08/08/18 16:12	10
m-Xylene & p-Xylene	100	U	100	11	ug/L			08/08/18 16:12	10
Methylene Chloride	13	J	50	8.1	ug/L			08/08/18 16:12	10
o-Xylene	50	U	50	4.3	ug/L			08/08/18 16:12	10
Tetrachloroethylene	50	U	50	3.4	ug/L			08/08/18 16:12	10
Toluene	50	U	50	4.5	ug/L			08/08/18 16:12	10
trans-1,2-Dichloroethene	50	U	50	5.9	ug/L			08/08/18 16:12	10
trans-1,3-Dichloropropene	50	U	50	4.4	ug/L			08/08/18 16:12	10
Trichloroethylene	50	U	50	6.0	ug/L			08/08/18 16:12	10
Trichlorofluoromethane	50	U	50	4.5	ug/L			08/08/18 16:12	10
Vinyl chloride	470		50	7.5	ug/L			08/08/18 16:12	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		68 - 130		08/08/18 16:12	10
4-Bromofluorobenzene (Surr)	102		76 - 123		08/08/18 16:12	10
Toluene-d8 (Surr)	102		77 - 120		08/08/18 16:12	10
Dibromofluoromethane (Surr)	105		75 - 123		08/08/18 16:12	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	3000		400	46	ug/L			08/09/18 11:58	80

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	128		68 - 130		08/09/18 11:58	80
4-Bromofluorobenzene (Surr)	120		76 - 123		08/09/18 11:58	80
Toluene-d8 (Surr)	117		77 - 120		08/09/18 11:58	80
Dibromofluoromethane (Surr)	122		75 - 123		08/09/18 11:58	80

TestAmerica Buffalo

Client Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

Client Sample ID: MW8R-872018

Lab Sample ID: 480-140048-2

Date Collected: 08/07/18 13:55

Matrix: Water

Date Received: 08/07/18 19:00

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	97	E	7.6	3.8	ug/L	-	08/10/18 07:36	08/17/18 12:31	40
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	24		15 - 110				08/10/18 07:36	08/17/18 12:31	40

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	46000	B	5000	1900	ug/L	-		08/09/18 17:06	1
Methane	410		88	22	ug/L			08/13/18 18:31	22

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	240		1.6	0.33	ng/L	-	08/16/18 08:45	08/23/18 23:01	1
Perfluoropentanoic acid (PFPeA)	33		1.6	0.60	ng/L		08/16/18 08:45	08/23/18 23:01	1
Perfluorohexanoic acid (PFHxA)	3.7		1.6	0.19	ng/L		08/16/18 08:45	08/23/18 23:01	1
Perfluoroheptanoic acid (PFHpA)	0.49	J	1.6	0.26	ng/L		08/16/18 08:45	08/23/18 23:01	1
Perfluorooctanoic acid (PFOA)	2.6		1.6	0.26	ng/L		08/16/18 08:45	08/23/18 23:01	1
Perfluorononanoic acid (PFNA)	0.43	J	1.6	0.31	ng/L		08/16/18 08:45	08/23/18 23:01	1
Perfluorodecanoic acid (PFDA)	1.6	U	1.6	0.31	ng/L		08/16/18 08:45	08/23/18 23:01	1
Perfluoroundecanoic acid (PFUnA)	0.23	J	1.6	0.20	ng/L		08/16/18 08:45	08/23/18 23:01	1
Perfluorododecanoic acid (PFDoA)	1.6	U	1.6	0.28	ng/L		08/16/18 08:45	08/23/18 23:01	1
Perfluorotridecanoic Acid (PFTriA)	1.6	U	1.6	0.19	ng/L		08/16/18 08:45	08/23/18 23:01	1
Perfluorotetradecanoic acid (PFTeA)	1.6	U	1.6	0.36	ng/L		08/16/18 08:45	08/23/18 23:01	1
Perfluorobutanesulfonic acid (PFBS)	7.6		1.6	0.35	ng/L		08/16/18 08:45	08/23/18 23:01	1
Perfluorohexanesulfonic acid (PFHxS)	3.2	B	1.6	0.21	ng/L		08/16/18 08:45	08/23/18 23:01	1
Perfluoroheptanesulfonic Acid (PFHpS)	1.6	U	1.6	0.66	ng/L		08/16/18 08:45	08/23/18 23:01	1
Perfluorooctanesulfonic acid (PFOS)	4.2		1.6	0.61	ng/L		08/16/18 08:45	08/23/18 23:01	1
Perfluorodecanesulfonic acid (PFDS)	1.6	U	1.6	0.43	ng/L		08/16/18 08:45	08/23/18 23:01	1
Perfluorooctane Sulfonamide (PFOSA)	1.6	U	1.6	0.45	ng/L		08/16/18 08:45	08/23/18 23:01	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	16	U	16	0.36	ng/L		08/16/18 08:45	08/23/18 23:01	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	16	U	16	0.56	ng/L		08/16/18 08:45	08/23/18 23:01	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	16	U	16	0.81	ng/L		08/16/18 08:45	08/23/18 23:01	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	16	U	16	0.45	ng/L		08/16/18 08:45	08/23/18 23:01	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	88		25 - 150				08/16/18 08:45	08/23/18 23:01	1
13C4-PFHxP	48		25 - 150				08/16/18 08:45	08/23/18 23:01	1
13C4 PFOA	70		25 - 150				08/16/18 08:45	08/23/18 23:01	1
13C4 PFOS	104		25 - 150				08/16/18 08:45	08/23/18 23:01	1
13C5 PFNA	105		25 - 150				08/16/18 08:45	08/23/18 23:01	1
13C4 PFBA	12	*	25 - 150				08/16/18 08:45	08/23/18 23:01	1
13C2 PFHxA	35		25 - 150				08/16/18 08:45	08/23/18 23:01	1
13C2 PFDA	102		25 - 150				08/16/18 08:45	08/23/18 23:01	1
13C2 PFUnA	109		25 - 150				08/16/18 08:45	08/23/18 23:01	1

TestAmerica Buffalo

Client Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

Client Sample ID: MW8R-872018

Lab Sample ID: 480-140048-2

Date Collected: 08/07/18 13:55

Matrix: Water

Date Received: 08/07/18 19:00

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDoA	104		25 - 150	08/16/18 08:45	08/23/18 23:01	1
13C8 FOA	107		25 - 150	08/16/18 08:45	08/23/18 23:01	1
13C5-PFPeA	19	*	25 - 150	08/16/18 08:45	08/23/18 23:01	1
13C2-PFTeDA	99		25 - 150	08/16/18 08:45	08/23/18 23:01	1
d3-NMeFOSAA	108		25 - 150	08/16/18 08:45	08/23/18 23:01	1
d5-NEtFOSAA	105		25 - 150	08/16/18 08:45	08/23/18 23:01	1
M2-6:2FTS	216	*	25 - 150	08/16/18 08:45	08/23/18 23:01	1
M2-8:2FTS	177	*	25 - 150	08/16/18 08:45	08/23/18 23:01	1
13C3-PFBS	67		25 - 150	08/16/18 08:45	08/23/18 23:01	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	2.1		0.050	0.019	mg/L		08/09/18 08:51	08/11/18 03:13	1
Manganese	0.20	B	0.0030	0.00040	mg/L		08/09/18 08:51	08/11/18 03:13	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	1.9		0.050	0.019	mg/L		08/11/18 08:51	08/15/18 04:08	1
Manganese	0.19		0.0030	0.00040	mg/L		08/11/18 08:51	08/15/18 04:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	327	B	40.0	16.0	mg/L			08/16/18 15:50	4
Nitrate as N	0.050	U	0.050	0.020	mg/L			08/08/18 15:44	1
Chemical Oxygen Demand	13.2		10.0	5.0	mg/L			08/09/18 16:15	1
Sulfate	275		10.0	1.7	mg/L			08/15/18 16:23	5
Total Organic Carbon	4.6		1.0	0.43	mg/L			08/15/18 09:42	1
Biochemical Oxygen Demand	2.0	U	2.0	2.0	mg/L			08/08/18 15:52	1

Client Sample ID: RB08072018

Lab Sample ID: 480-140048-3

Date Collected: 08/07/18 16:00

Matrix: Water

Date Received: 08/07/18 19:00

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.7	U	1.7	0.35	ng/L		08/16/18 08:45	08/23/18 23:17	1
Perfluoropentanoic acid (PFPeA)	1.7	U	1.7	0.65	ng/L		08/16/18 08:45	08/23/18 23:17	1
Perfluorohexanoic acid (PFHxA)	1.7	U	1.7	0.21	ng/L		08/16/18 08:45	08/23/18 23:17	1
Perfluoroheptanoic acid (PFHpA)	1.7	U	1.7	0.28	ng/L		08/16/18 08:45	08/23/18 23:17	1
Perfluorooctanoic acid (PFOA)	1.7	U	1.7	0.28	ng/L		08/16/18 08:45	08/23/18 23:17	1
Perfluorononanoic acid (PFNA)	1.7	U	1.7	0.33	ng/L		08/16/18 08:45	08/23/18 23:17	1
Perfluorodecanoic acid (PFDA)	1.7	U	1.7	0.33	ng/L		08/16/18 08:45	08/23/18 23:17	1
Perfluoroundecanoic acid (PFUnA)	1.7	U	1.7	0.22	ng/L		08/16/18 08:45	08/23/18 23:17	1
Perfluorododecanoic acid (PFDoA)	1.7	U	1.7	0.30	ng/L		08/16/18 08:45	08/23/18 23:17	1
Perfluorotridecanoic Acid (PFTriA)	1.7	U	1.7	0.21	ng/L		08/16/18 08:45	08/23/18 23:17	1
Perfluorotetradecanoic acid (PFTeA)	1.7	U	1.7	0.39	ng/L		08/16/18 08:45	08/23/18 23:17	1
Perfluorobutanesulfonic acid (PFBS)	1.7	U	1.7	0.38	ng/L		08/16/18 08:45	08/23/18 23:17	1
Perfluorohexanesulfonic acid (PFHxS)	0.37	J B	1.7	0.22	ng/L		08/16/18 08:45	08/23/18 23:17	1
Perfluoroheptanesulfonic Acid (PFHpS)	1.7	U	1.7	0.71	ng/L		08/16/18 08:45	08/23/18 23:17	1

TestAmerica Buffalo

Client Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

Client Sample ID: RB08072018

Lab Sample ID: 480-140048-3

Date Collected: 08/07/18 16:00

Matrix: Water

Date Received: 08/07/18 19:00

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	1.7	U	1.7	0.66	ng/L		08/16/18 08:45	08/23/18 23:17	1
Perfluorodecanesulfonic acid (PFDS)	1.7	U	1.7	0.46	ng/L		08/16/18 08:45	08/23/18 23:17	1
Perfluorooctane Sulfonamide (PFOSA)	1.7	U	1.7	0.48	ng/L		08/16/18 08:45	08/23/18 23:17	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	17	U	17	0.39	ng/L		08/16/18 08:45	08/23/18 23:17	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	17	U	17	0.61	ng/L		08/16/18 08:45	08/23/18 23:17	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	17	U	17	0.87	ng/L		08/16/18 08:45	08/23/18 23:17	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	17	U	17	0.48	ng/L		08/16/18 08:45	08/23/18 23:17	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	82		25 - 150				08/16/18 08:45	08/23/18 23:17	1
13C4-PFHpA	77		25 - 150				08/16/18 08:45	08/23/18 23:17	1
13C4 PFOA	79		25 - 150				08/16/18 08:45	08/23/18 23:17	1
13C4 PFOS	90		25 - 150				08/16/18 08:45	08/23/18 23:17	1
13C5 PFNA	84		25 - 150				08/16/18 08:45	08/23/18 23:17	1
13C4 PFBA	51		25 - 150				08/16/18 08:45	08/23/18 23:17	1
13C2 PFHxA	95		25 - 150				08/16/18 08:45	08/23/18 23:17	1
13C2 PFDA	82		25 - 150				08/16/18 08:45	08/23/18 23:17	1
13C2 PFUnA	87		25 - 150				08/16/18 08:45	08/23/18 23:17	1
13C2 PFDaA	67		25 - 150				08/16/18 08:45	08/23/18 23:17	1
13C8 FOSA	65		25 - 150				08/16/18 08:45	08/23/18 23:17	1
13C5-PFPeA	86		25 - 150				08/16/18 08:45	08/23/18 23:17	1
13C2-PFTeDA	62		25 - 150				08/16/18 08:45	08/23/18 23:17	1
d3-NMeFOSAA	70		25 - 150				08/16/18 08:45	08/23/18 23:17	1
d5-NEtFOSAA	66		25 - 150				08/16/18 08:45	08/23/18 23:17	1
M2-6:2FTS	91		25 - 150				08/16/18 08:45	08/23/18 23:17	1
M2-8:2FTS	98		25 - 150				08/16/18 08:45	08/23/18 23:17	1
13C3-PFBS	73		25 - 150				08/16/18 08:45	08/23/18 23:17	1

Surrogate Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (68-130)	BFB (76-123)	TOL (77-120)	DBFM (75-123)
480-140048-1	TB08072018	108	103	102	103
480-140048-2	MW8R-872018	112	102	102	105
480-140048-2 - DL	MW8R-872018	128	120	117	122
LCS 480-428531/5	Lab Control Sample	106	103	102	104
LCS 480-428733/5	Lab Control Sample	107	102	103	105
MB 480-428531/7	Method Blank	112	102	101	106
MB 480-428733/7	Method Blank	109	102	101	107

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Isotope Dilution Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DXE (15-110)
480-140048-2	MW8R-872018	24
LCS 480-428967/2-A	Lab Control Sample	30
MB 480-428967/1-A	Method Blank	29

Surrogate Legend

DXE = 1,4-Dioxane-d8

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFHxS (25-150)	PFHpA (25-150)	PFOA (25-150)	PFOS (25-150)	PFNA (25-150)	PFBA (25-150)	PFHxA (25-150)	PFDA (25-150)
480-140048-2	MW8R-872018	88	48	70	104	105	12 *	35	102
480-140048-3	RB08072018	82	77	79	90	84	51	95	82
LCS 200-132948/2-A	Lab Control Sample	77	69	77	94	85	63	95	78
LCSD 200-132948/3-A	Lab Control Sample Dup	79	66	78	94	87	61	93	79
MB 200-132948/1-A	Method Blank	76	70	77	97	84	61	99	83

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFUnA (25-150)	PFDoA (25-150)	PFOSA (25-150)	PFPeA (25-150)	PFTDA (25-150)	-NMeFOS/ (25-150)	-NEtFOS/ (25-150)	M262FTS (25-150)
480-140048-2	MW8R-872018	109	104	107	19 *	99	108	105	216 *
480-140048-3	RB08072018	87	67	65	86	62	70	66	91
LCS 200-132948/2-A	Lab Control Sample	82	63	64	95	58	80	65	110
LCSD 200-132948/3-A	Lab Control Sample Dup	80	62	62	92	53	82	64	103
MB 200-132948/1-A	Method Blank	89	63	64	101	52	78	68	103

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M282FTS (25-150)	3C3-PFB: (25-150)
480-140048-2	MW8R-872018	177 *	67
480-140048-3	RB08072018	98	73
LCS 200-132948/2-A	Lab Control Sample	106	73
LCSD 200-132948/3-A	Lab Control Sample Dup	90	63
MB 200-132948/1-A	Method Blank	107	70

Surrogate Legend

PFHxS = 18O2 PFHxS
PFHpA = 13C4-PFHpA
PFOA = 13C4 PFOA
PFOS = 13C4 PFOS
PFNA = 13C5 PFNA
PFBA = 13C4 PFBA
PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFOSA = 13C8 FOSA
PFPeA = 13C5-PFPeA
PFTDA = 13C2-PFTeDA

TestAmerica Buffalo

Isotope Dilution Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

d3-NMeFOSAA = d3-NMeFOSAA
d5-NEtFOSAA = d5-NEtFOSAA
M262FTS = M2-6:2FTS
M282FTS = M2-8:2FTS
13C3-PFBS = 13C3-PFBS

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

QC Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

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

Lab Sample ID: MB 480-428531/7

Matrix: Water

Analysis Batch: 428531

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			08/08/18 10:40	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/08/18 10:40	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/08/18 10:40	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			08/08/18 10:40	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/08/18 10:40	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/08/18 10:40	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			08/08/18 10:40	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/08/18 10:40	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/08/18 10:40	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/08/18 10:40	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/08/18 10:40	1
Acetone	25	U	25	2.0	ug/L			08/08/18 10:40	1
Benzene	5.0	U	5.0	0.60	ug/L			08/08/18 10:40	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/08/18 10:40	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/08/18 10:40	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/08/18 10:40	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/08/18 10:40	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/08/18 10:40	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/08/18 10:40	1
Chloroform	5.0	U	5.0	0.54	ug/L			08/08/18 10:40	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/08/18 10:40	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			08/08/18 10:40	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/08/18 10:40	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/08/18 10:40	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/08/18 10:40	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/08/18 10:40	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/08/18 10:40	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/08/18 10:40	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			08/08/18 10:40	1
Toluene	5.0	U	5.0	0.45	ug/L			08/08/18 10:40	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			08/08/18 10:40	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/08/18 10:40	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			08/08/18 10:40	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/08/18 10:40	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			08/08/18 10:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		68 - 130		08/08/18 10:40	1
4-Bromofluorobenzene (Surr)	102		76 - 123		08/08/18 10:40	1
Toluene-d8 (Surr)	101		77 - 120		08/08/18 10:40	1
Dibromofluoromethane (Surr)	106		75 - 123		08/08/18 10:40	1

Lab Sample ID: LCS 480-428531/5

Matrix: Water

Analysis Batch: 428531

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	17.5		ug/L		88	52 - 162

TestAmerica Buffalo

QC Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

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

Lab Sample ID: LCS 480-428531/5

Matrix: Water

Analysis Batch: 428531

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	19.6		ug/L		98	46 - 157
1,1,2-Trichloroethane	20.0	19.5		ug/L		98	52 - 150
1,1-Dichloroethane	20.0	17.7		ug/L		89	59 - 155
1,1-Dichloroethene	20.0	16.7		ug/L		84	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	18.5		ug/L		93	1 - 210
1,3-Dichlorobenzene	20.0	18.3		ug/L		91	59 - 156
1,4-Dichlorobenzene	20.0	18.2		ug/L		91	18 - 190
2-Chloroethyl vinyl ether	20.0	19.2	J	ug/L		96	1 - 305
Benzene	20.0	18.2		ug/L		91	37 - 151
Bromoform	20.0	18.6		ug/L		93	45 - 169
Bromomethane	20.0	18.3		ug/L		92	1 - 242
Carbon tetrachloride	20.0	17.5		ug/L		87	70 - 140
Chlorobenzene	20.0	18.2		ug/L		91	37 - 160
Dibromochloromethane	20.0	19.1		ug/L		96	53 - 149
Chloroethane	20.0	18.7		ug/L		93	14 - 230
Chloroform	20.0	18.1		ug/L		90	51 - 138
Chloromethane	20.0	18.4		ug/L		92	1 - 273
cis-1,3-Dichloropropene	20.0	18.7		ug/L		93	1 - 227
Bromodichloromethane	20.0	18.8		ug/L		94	35 - 155
Ethylbenzene	20.0	17.9		ug/L		89	37 - 162
Methylene Chloride	20.0	18.2		ug/L		91	1 - 221
Tetrachloroethylene	20.0	17.2		ug/L		86	64 - 148
Toluene	20.0	17.7		ug/L		89	47 - 150
trans-1,2-Dichloroethene	20.0	18.0		ug/L		90	54 - 156
trans-1,3-Dichloropropene	20.0	19.1		ug/L		96	17 - 183
Trichloroethylene	20.0	17.8		ug/L		89	71 - 157
Trichlorofluoromethane	20.0	19.1		ug/L		96	17 - 181
Vinyl chloride	20.0	18.6		ug/L		93	1 - 251

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	106		68 - 130
4-Bromofluorobenzene (Surr)	103		76 - 123
Toluene-d8 (Surr)	102		77 - 120
Dibromofluoromethane (Surr)	104		75 - 123

Lab Sample ID: MB 480-428733/7

Matrix: Water

Analysis Batch: 428733

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			08/09/18 10:41	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/09/18 10:41	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/09/18 10:41	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			08/09/18 10:41	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/09/18 10:41	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/09/18 10:41	1

TestAmerica Buffalo

QC Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

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

Lab Sample ID: MB 480-428733/7

Matrix: Water

Analysis Batch: 428733

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			08/09/18 10:41	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/09/18 10:41	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/09/18 10:41	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/09/18 10:41	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/09/18 10:41	1
Acetone	25	U	25	2.0	ug/L			08/09/18 10:41	1
Benzene	5.0	U	5.0	0.60	ug/L			08/09/18 10:41	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/09/18 10:41	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/09/18 10:41	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/09/18 10:41	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/09/18 10:41	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/09/18 10:41	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/09/18 10:41	1
Chloroform	5.0	U	5.0	0.54	ug/L			08/09/18 10:41	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/09/18 10:41	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			08/09/18 10:41	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/09/18 10:41	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/09/18 10:41	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/09/18 10:41	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/09/18 10:41	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/09/18 10:41	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/09/18 10:41	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			08/09/18 10:41	1
Toluene	5.0	U	5.0	0.45	ug/L			08/09/18 10:41	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			08/09/18 10:41	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/09/18 10:41	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			08/09/18 10:41	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/09/18 10:41	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			08/09/18 10:41	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		68 - 130		08/09/18 10:41	1
4-Bromofluorobenzene (Surr)	102		76 - 123		08/09/18 10:41	1
Toluene-d8 (Surr)	101		77 - 120		08/09/18 10:41	1
Dibromofluoromethane (Surr)	107		75 - 123		08/09/18 10:41	1

Lab Sample ID: LCS 480-428733/5

Matrix: Water

Analysis Batch: 428733

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	19.3		ug/L		97	52 - 162
1,1,1,2-Tetrachloroethane	20.0	20.2		ug/L		101	46 - 157
1,1,2-Trichloroethane	20.0	19.8		ug/L		99	52 - 150
1,1-Dichloroethane	20.0	19.3		ug/L		96	59 - 155
1,1-Dichloroethene	20.0	19.6		ug/L		98	1 - 234
1,2-Dichlorobenzene	20.0	19.5		ug/L		98	18 - 190
1,2-Dichloroethane	20.0	20.7		ug/L		104	49 - 155

TestAmerica Buffalo

QC Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

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

Lab Sample ID: LCS 480-428733/5

Matrix: Water

Analysis Batch: 428733

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	19.7		ug/L		98	1 - 210
1,3-Dichlorobenzene	20.0	19.2		ug/L		96	59 - 156
1,4-Dichlorobenzene	20.0	19.1		ug/L		96	18 - 190
2-Chloroethyl vinyl ether	20.0	19.9	J	ug/L		100	1 - 305
Benzene	20.0	19.4		ug/L		97	37 - 151
Bromoform	20.0	19.4		ug/L		97	45 - 169
Bromomethane	20.0	19.9		ug/L		100	1 - 242
Carbon tetrachloride	20.0	20.1		ug/L		100	70 - 140
Chlorobenzene	20.0	19.2		ug/L		96	37 - 160
Dibromochloromethane	20.0	19.9		ug/L		100	53 - 149
Chloroethane	20.0	21.0		ug/L		105	14 - 230
Chloroform	20.0	19.6		ug/L		98	51 - 138
Chloromethane	20.0	20.5		ug/L		102	1 - 273
cis-1,3-Dichloropropene	20.0	19.9		ug/L		99	1 - 227
Bromodichloromethane	20.0	20.0		ug/L		100	35 - 155
Ethylbenzene	20.0	19.4		ug/L		97	37 - 162
Methylene Chloride	20.0	19.4		ug/L		97	1 - 221
Tetrachloroethylene	20.0	19.3		ug/L		97	64 - 148
Toluene	20.0	19.1		ug/L		96	47 - 150
trans-1,2-Dichloroethene	20.0	19.8		ug/L		99	54 - 156
trans-1,3-Dichloropropene	20.0	19.9		ug/L		100	17 - 183
Trichloroethylene	20.0	19.3		ug/L		96	71 - 157
Trichlorofluoromethane	20.0	22.1		ug/L		111	17 - 181
Vinyl chloride	20.0	20.5		ug/L		103	1 - 251

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	107		68 - 130
4-Bromofluorobenzene (Surr)	102		76 - 123
Toluene-d8 (Surr)	103		77 - 120
Dibromofluoromethane (Surr)	105		75 - 123

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Lab Sample ID: MB 480-428967/1-A

Matrix: Water

Analysis Batch: 429969

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 428967

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.10	ug/L		08/10/18 07:36	08/16/18 20:57	1
Isotope Dilution	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	29		15 - 110				08/10/18 07:36	08/16/18 20:57	1

TestAmerica Buffalo

QC Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution) (Continued)

Lab Sample ID: LCS 480-428967/2-A

Matrix: Water

Analysis Batch: 429969

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 428967

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	1.00	1.12		ug/L		112	40 - 140
Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits				
1,4-Dioxane-d8	30		15 - 110				

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 200-132734/4

Matrix: Water

Analysis Batch: 132734

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	1920	J	5000	1900	ug/L			08/09/18 16:22	1

Lab Sample ID: LCS 200-132734/3

Matrix: Water

Analysis Batch: 132734

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon dioxide	40000	38000		ug/L		95	70 - 130

Lab Sample ID: MB 480-429358/4

Matrix: Water

Analysis Batch: 429358

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	4.0	U	4.0	1.0	ug/L			08/13/18 13:32	1

Lab Sample ID: LCS 480-429358/5

Matrix: Water

Analysis Batch: 429358

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	7.77	7.55		ug/L		97	85 - 120

Lab Sample ID: LCSD 480-429358/6

Matrix: Water

Analysis Batch: 429358

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	7.77	7.30		ug/L		94	85 - 120	3	50

TestAmerica Buffalo

QC Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 200-132948/1-A

Matrix: Water

Analysis Batch: 133229

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 132948

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.0	U	2.0	0.41	ng/L		08/16/18 08:45	08/23/18 17:27	1
Perfluoropentanoic acid (PFPeA)	2.0	U	2.0	0.75	ng/L		08/16/18 08:45	08/23/18 17:27	1
Perfluorohexanoic acid (PFHxA)	2.0	U	2.0	0.24	ng/L		08/16/18 08:45	08/23/18 17:27	1
Perfluoroheptanoic acid (PFHpA)	2.0	U	2.0	0.32	ng/L		08/16/18 08:45	08/23/18 17:27	1
Perfluorooctanoic acid (PFOA)	2.0	U	2.0	0.32	ng/L		08/16/18 08:45	08/23/18 17:27	1
Perfluorononanoic acid (PFNA)	2.0	U	2.0	0.38	ng/L		08/16/18 08:45	08/23/18 17:27	1
Perfluorodecanoic acid (PFDA)	2.0	U	2.0	0.38	ng/L		08/16/18 08:45	08/23/18 17:27	1
Perfluoroundecanoic acid (PFUnA)	2.0	U	2.0	0.25	ng/L		08/16/18 08:45	08/23/18 17:27	1
Perfluorododecanoic acid (PFDoA)	2.0	U	2.0	0.35	ng/L		08/16/18 08:45	08/23/18 17:27	1
Perfluorotridecanoic Acid (PFTriA)	2.0	U	2.0	0.24	ng/L		08/16/18 08:45	08/23/18 17:27	1
Perfluorotetradecanoic acid (PFTeA)	2.0	U	2.0	0.45	ng/L		08/16/18 08:45	08/23/18 17:27	1
Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.0	0.44	ng/L		08/16/18 08:45	08/23/18 17:27	1
Perfluorohexanesulfonic acid (PFHxS)	0.374	J	2.0	0.26	ng/L		08/16/18 08:45	08/23/18 17:27	1
Perfluoroheptanesulfonic Acid (PFHpS)	2.0	U	2.0	0.82	ng/L		08/16/18 08:45	08/23/18 17:27	1
Perfluorooctanesulfonic acid (PFOS)	2.0	U	2.0	0.76	ng/L		08/16/18 08:45	08/23/18 17:27	1
Perfluorodecanesulfonic acid (PFDS)	2.0	U	2.0	0.53	ng/L		08/16/18 08:45	08/23/18 17:27	1
Perfluorooctane Sulfonamide (PFOSA)	2.0	U	2.0	0.56	ng/L		08/16/18 08:45	08/23/18 17:27	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	20	U	20	0.45	ng/L		08/16/18 08:45	08/23/18 17:27	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	20	U	20	0.70	ng/L		08/16/18 08:45	08/23/18 17:27	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	20	U	20	1.0	ng/L		08/16/18 08:45	08/23/18 17:27	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	20	U	20	0.56	ng/L		08/16/18 08:45	08/23/18 17:27	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	76		25 - 150	08/16/18 08:45	08/23/18 17:27	1
13C4-PFHpA	70		25 - 150	08/16/18 08:45	08/23/18 17:27	1
13C4 PFOA	77		25 - 150	08/16/18 08:45	08/23/18 17:27	1
13C4 PFOS	97		25 - 150	08/16/18 08:45	08/23/18 17:27	1
13C5 PFNA	84		25 - 150	08/16/18 08:45	08/23/18 17:27	1
13C4 PFBA	61		25 - 150	08/16/18 08:45	08/23/18 17:27	1
13C2 PFHxA	99		25 - 150	08/16/18 08:45	08/23/18 17:27	1
13C2 PFDA	83		25 - 150	08/16/18 08:45	08/23/18 17:27	1
13C2 PFUnA	89		25 - 150	08/16/18 08:45	08/23/18 17:27	1
13C2 PFDoA	63		25 - 150	08/16/18 08:45	08/23/18 17:27	1
13C8 FOSA	64		25 - 150	08/16/18 08:45	08/23/18 17:27	1
13C5-PFPeA	101		25 - 150	08/16/18 08:45	08/23/18 17:27	1
13C2-PFTeDA	52		25 - 150	08/16/18 08:45	08/23/18 17:27	1
d3-NMeFOSAA	78		25 - 150	08/16/18 08:45	08/23/18 17:27	1
d5-NEtFOSAA	68		25 - 150	08/16/18 08:45	08/23/18 17:27	1
M2-6:2FTS	103		25 - 150	08/16/18 08:45	08/23/18 17:27	1
M2-8:2FTS	107		25 - 150	08/16/18 08:45	08/23/18 17:27	1
13C3-PFBS	70		25 - 150	08/16/18 08:45	08/23/18 17:27	1

TestAmerica Buffalo

QC Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 200-132948/2-A

Matrix: Water

Analysis Batch: 133229

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 132948

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanoic acid (PFBA)	40.0	36.1		ng/L		90	50 - 150
Perfluoropentanoic acid (PFPeA)	40.0	30.4		ng/L		76	50 - 150
Perfluorohexanoic acid (PFHxA)	40.0	37.4		ng/L		94	50 - 150
Perfluoroheptanoic acid (PFHpA)	40.0	37.9		ng/L		95	50 - 150
Perfluorooctanoic acid (PFOA)	40.0	36.6		ng/L		91	50 - 150
Perfluorononanoic acid (PFNA)	40.0	36.4		ng/L		91	50 - 150
Perfluorodecanoic acid (PFDA)	40.0	38.5		ng/L		96	50 - 150
Perfluoroundecanoic acid (PFUnA)	40.0	39.3		ng/L		98	50 - 150
Perfluorododecanoic acid (PFDoA)	40.0	33.3		ng/L		83	50 - 150
Perfluorotridecanoic Acid (PFTriA)	40.0	26.3		ng/L		66	50 - 150
Perfluorotetradecanoic acid (PFTeA)	40.0	30.4		ng/L		76	50 - 150
Perfluorobutanesulfonic acid (PFBS)	40.0	38.8		ng/L		97	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	40.0	33.6		ng/L		84	50 - 150
Perfluoroheptanesulfonic Acid (PFHpS)	40.0	33.0		ng/L		82	50 - 150
Perfluorooctanesulfonic acid (PFOS)	40.0	36.8		ng/L		92	50 - 150
Perfluorodecanesulfonic acid (PFDS)	40.0	26.3		ng/L		66	50 - 150
Perfluorooctane Sulfonamide (PFOSA)	40.0	29.6		ng/L		74	50 - 150
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	40.0	42.5		ng/L		106	50 - 150
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	40.0	32.4		ng/L		81	50 - 150
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	40.0	48.0		ng/L		120	50 - 150
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	40.0	42.5		ng/L		106	50 - 150

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
18O2 PFHxS	77		25 - 150
13C4-PFHpa	69		25 - 150
13C4 PFOA	77		25 - 150
13C4 PFOS	94		25 - 150
13C5 PFNA	85		25 - 150
13C4 PFBA	63		25 - 150
13C2 PFHxA	95		25 - 150
13C2 PFDA	78		25 - 150
13C2 PFUnA	82		25 - 150
13C2 PFDoA	63		25 - 150
13C8 FOSA	64		25 - 150
13C5-PFPeA	95		25 - 150
13C2-PFTeDA	58		25 - 150

TestAmerica Buffalo

QC Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 200-132948/2-A

Matrix: Water

Analysis Batch: 133229

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 132948

<i>Isotope Dilution</i>	<i>LCS %Recovery</i>	<i>LCS Qualifier</i>	<i>Limits</i>
d3-NMeFOSAA	80		25 - 150
d5-NEtFOSAA	65		25 - 150
M2-6:2FTS	110		25 - 150
M2-8:2FTS	106		25 - 150
13C3-PFBS	73		25 - 150

Lab Sample ID: LCSD 200-132948/3-A

Matrix: Water

Analysis Batch: 133229

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 132948

<i>Analyte</i>	<i>Spike Added</i>	<i>LCSD Result</i>	<i>LCSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
Perfluorobutanoic acid (PFBA)	40.0	35.7		ng/L		89	50 - 150	1	30
Perfluoropentanoic acid (PFPeA)	40.0	29.9		ng/L		75	50 - 150	2	30
Perfluorohexanoic acid (PFHxA)	40.0	37.1		ng/L		93	50 - 150	1	30
Perfluoroheptanoic acid (PFHpA)	40.0	37.1		ng/L		93	50 - 150	2	30
Perfluorooctanoic acid (PFOA)	40.0	34.0		ng/L		85	50 - 150	7	30
Perfluorononanoic acid (PFNA)	40.0	34.5		ng/L		86	50 - 150	5	30
Perfluorodecanoic acid (PFDA)	40.0	35.6		ng/L		89	50 - 150	8	30
Perfluoroundecanoic acid (PFUnA)	40.0	38.7		ng/L		97	50 - 150	2	30
Perfluorododecanoic acid (PFDoA)	40.0	33.2		ng/L		83	50 - 150	0	30
Perfluorotridecanoic Acid (PFTriA)	40.0	25.2		ng/L		63	50 - 150	4	30
Perfluorotetradecanoic acid (PFTeA)	40.0	28.8		ng/L		72	50 - 150	6	30
Perfluorobutanesulfonic acid (PFBS)	40.0	41.3		ng/L		103	50 - 150	6	30
Perfluorohexanesulfonic acid (PFHxS)	40.0	32.4		ng/L		81	50 - 150	4	30
Perfluoroheptanesulfonic Acid (PFHpS)	40.0	34.6		ng/L		87	50 - 150	5	30
Perfluorooctanesulfonic acid (PFOS)	40.0	36.0		ng/L		90	50 - 150	2	30
Perfluorodecanesulfonic acid (PFDS)	40.0	27.7		ng/L		69	50 - 150	5	30
Perfluorooctane Sulfonamide (PFOSA)	40.0	27.3		ng/L		68	50 - 150	8	30
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	40.0	40.8		ng/L		102	50 - 150	4	30
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	40.0	33.8		ng/L		84	50 - 150	4	30
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	40.0	45.2		ng/L		113	50 - 150	6	30
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	40.0	41.4		ng/L		104	50 - 150	3	30

<i>Isotope Dilution</i>	<i>LCSD %Recovery</i>	<i>LCSD Qualifier</i>	<i>Limits</i>
18O2 PFHxS	79		25 - 150
13C4-PFHpA	66		25 - 150

TestAmerica Buffalo

QC Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 200-132948/3-A

Matrix: Water

Analysis Batch: 133229

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 132948

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C4 PFOA	78		25 - 150
13C4 PFOS	94		25 - 150
13C5 PFNA	87		25 - 150
13C4 PFBA	61		25 - 150
13C2 PFHxA	93		25 - 150
13C2 PFDA	79		25 - 150
13C2 PFUnA	80		25 - 150
13C2 PFDoA	62		25 - 150
13C8 FOSA	62		25 - 150
13C5-PFPeA	92		25 - 150
13C2-PFTeDA	53		25 - 150
d3-NMeFOSAA	82		25 - 150
d5-NEtFOSAA	64		25 - 150
M2-6:2FTS	103		25 - 150
M2-8:2FTS	90		25 - 150
13C3-PFBS	63		25 - 150

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-428652/1-A

Matrix: Water

Analysis Batch: 429274

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 428652

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050	0.019	mg/L		08/09/18 08:51	08/11/18 02:16	1
Manganese	0.000490	J	0.0030	0.00040	mg/L		08/09/18 08:51	08/11/18 02:16	1

Lab Sample ID: LCS 480-428652/2-A

Matrix: Water

Analysis Batch: 429274

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 428652

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	10.32		mg/L		103	80 - 120
Manganese	0.200	0.210		mg/L		105	80 - 120

Lab Sample ID: MB 480-428878/1-A

Matrix: Water

Analysis Batch: 429688

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 428878

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050	0.019	mg/L		08/11/18 08:51	08/15/18 02:57	1
Manganese	0.0030	U	0.0030	0.00040	mg/L		08/11/18 08:51	08/15/18 02:57	1

Lab Sample ID: LCS 480-428878/2-A

Matrix: Water

Analysis Batch: 429688

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 428878

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	9.70		mg/L		97	80 - 120

TestAmerica Buffalo

QC Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 480-428878/2-A
Matrix: Water
Analysis Batch: 429688

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 428878

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Manganese	0.200	0.201		mg/L		100	80 - 120

Lab Sample ID: LCSD 480-428878/17-A
Matrix: Water
Analysis Batch: 429688

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 428878

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Iron	10.0	9.40		mg/L		94	80 - 120	3	20
Manganese	0.200	0.196		mg/L		98	80 - 120	3	20

Method: 310.2 - Alkalinity

Lab Sample ID: MB 480-430145/26
Matrix: Water
Analysis Batch: 430145

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	10.0	U	10.0	4.0	mg/L			08/16/18 14:58	1

Lab Sample ID: MB 480-430145/38
Matrix: Water
Analysis Batch: 430145

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	5.47	J	10.0	4.0	mg/L			08/16/18 15:49	1

Lab Sample ID: LCS 480-430145/27
Matrix: Water
Analysis Batch: 430145

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	50.0	49.30		mg/L		99	90 - 110

Lab Sample ID: LCS 480-430145/39
Matrix: Water
Analysis Batch: 430145

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	50.0	46.72		mg/L		93	90 - 110

Method: 410.4 - COD

Lab Sample ID: MB 480-428923/27
Matrix: Water
Analysis Batch: 428923

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	10.0	U	10.0	5.0	mg/L			08/09/18 16:15	1

TestAmerica Buffalo

QC Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

Method: 410.4 - COD (Continued)

Lab Sample ID: MB 480-428923/3

Matrix: Water

Analysis Batch: 428923

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	10.0	U	10.0	5.0	mg/L	-		08/09/18 16:15	1

Lab Sample ID: LCS 480-428923/28

Matrix: Water

Analysis Batch: 428923

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	25.0	25.02		mg/L	-	100	90 - 110

Lab Sample ID: LCS 480-428923/4

Matrix: Water

Analysis Batch: 428923

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	25.0	25.32		mg/L	-	101	90 - 110

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 480-429763/4

Matrix: Water

Analysis Batch: 429763

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.0	U	2.0	0.35	mg/L	-		08/15/18 15:34	1

Lab Sample ID: LCS 480-429763/3

Matrix: Water

Analysis Batch: 429763

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.0	48.12		mg/L	-	96	90 - 110

Lab Sample ID: 480-140048-2 MS

Matrix: Water

Analysis Batch: 429763

Client Sample ID: MW8R-872018

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	275		250	489.9		mg/L	-	86	80 - 120

Lab Sample ID: 480-140048-2 MSD

Matrix: Water

Analysis Batch: 429763

Client Sample ID: MW8R-872018

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	275		250	489.2		mg/L	-	86	80 - 120	0	20

TestAmerica Buffalo

QC Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 480-430051/4

Matrix: Water

Analysis Batch: 430051

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.0	U	1.0	0.43	mg/L	-		08/14/18 23:16	1

Lab Sample ID: LCS 480-430051/5

Matrix: Water

Analysis Batch: 430051

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	59.72		mg/L	-	100	90 - 110

Method: SM 5210B - BOD, 5-Day

Lab Sample ID: USB 480-428696/1

Matrix: Water

Analysis Batch: 428696

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	2.0	U	2.0	2.0	mg/L	-		08/08/18 15:52	1

Lab Sample ID: LCS 480-428696/2

Matrix: Water

Analysis Batch: 428696

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	198	210.5		mg/L	-	106	85 - 115

QC Association Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

GC/MS VOA

Analysis Batch: 428531

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140048-1	TB08072018	Total/NA	Water	624.1	
480-140048-2	MW8R-872018	Total/NA	Water	624.1	
MB 480-428531/7	Method Blank	Total/NA	Water	624.1	
LCS 480-428531/5	Lab Control Sample	Total/NA	Water	624.1	

Analysis Batch: 428733

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140048-2 - DL	MW8R-872018	Total/NA	Water	624.1	
MB 480-428733/7	Method Blank	Total/NA	Water	624.1	
LCS 480-428733/5	Lab Control Sample	Total/NA	Water	624.1	

GC/MS Semi VOA

Prep Batch: 428967

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140048-2	MW8R-872018	Total/NA	Water	3510C	
MB 480-428967/1-A	Method Blank	Total/NA	Water	3510C	
LCS 480-428967/2-A	Lab Control Sample	Total/NA	Water	3510C	

Analysis Batch: 429969

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-428967/1-A	Method Blank	Total/NA	Water	8270D SIM ID	428967
LCS 480-428967/2-A	Lab Control Sample	Total/NA	Water	8270D SIM ID	428967

Analysis Batch: 430190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140048-2	MW8R-872018	Total/NA	Water	8270D SIM ID	428967

GC VOA

Analysis Batch: 132734

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140048-2	MW8R-872018	Total/NA	Water	RSK-175	
MB 200-132734/4	Method Blank	Total/NA	Water	RSK-175	
LCS 200-132734/3	Lab Control Sample	Total/NA	Water	RSK-175	

Analysis Batch: 429358

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140048-2	MW8R-872018	Total/NA	Water	RSK-175	
MB 480-429358/4	Method Blank	Total/NA	Water	RSK-175	
LCS 480-429358/5	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 480-429358/6	Lab Control Sample Dup	Total/NA	Water	RSK-175	

LCMS

Prep Batch: 132948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140048-2	MW8R-872018	Total/NA	Water	3535	
480-140048-3	RB08072018	Total/NA	Water	3535	
MB 200-132948/1-A	Method Blank	Total/NA	Water	3535	

TestAmerica Buffalo

QC Association Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

LCMS (Continued)

Prep Batch: 132948 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 200-132948/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 200-132948/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 133229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140048-2	MW8R-872018	Total/NA	Water	537 (modified)	132948
480-140048-3	RB08072018	Total/NA	Water	537 (modified)	132948
MB 200-132948/1-A	Method Blank	Total/NA	Water	537 (modified)	132948
LCS 200-132948/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	132948
LCSD 200-132948/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	132948

Metals

Prep Batch: 428652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140048-2	MW8R-872018	Total/NA	Water	3005A	
MB 480-428652/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-428652/2-A	Lab Control Sample	Total/NA	Water	3005A	

Prep Batch: 428878

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140048-2	MW8R-872018	Dissolved	Water	3005A	
MB 480-428878/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 480-428878/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 480-428878/17-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	

Analysis Batch: 429274

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140048-2	MW8R-872018	Total/NA	Water	6010C	428652
MB 480-428652/1-A	Method Blank	Total/NA	Water	6010C	428652
LCS 480-428652/2-A	Lab Control Sample	Total/NA	Water	6010C	428652

Analysis Batch: 429688

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140048-2	MW8R-872018	Dissolved	Water	6010C	428878
MB 480-428878/1-A	Method Blank	Total Recoverable	Water	6010C	428878
LCS 480-428878/2-A	Lab Control Sample	Total Recoverable	Water	6010C	428878
LCSD 480-428878/17-A	Lab Control Sample Dup	Total Recoverable	Water	6010C	428878

General Chemistry

Analysis Batch: 428696

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140048-2	MW8R-872018	Total/NA	Water	SM 5210B	
USB 480-428696/1	Method Blank	Total/NA	Water	SM 5210B	
LCS 480-428696/2	Lab Control Sample	Total/NA	Water	SM 5210B	

Analysis Batch: 428709

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140048-2	MW8R-872018	Total/NA	Water	353.2	

TestAmerica Buffalo

QC Association Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

General Chemistry (Continued)

Analysis Batch: 428923

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140048-2	MW8R-872018	Total/NA	Water	410.4	
MB 480-428923/27	Method Blank	Total/NA	Water	410.4	
MB 480-428923/3	Method Blank	Total/NA	Water	410.4	
LCS 480-428923/28	Lab Control Sample	Total/NA	Water	410.4	
LCS 480-428923/4	Lab Control Sample	Total/NA	Water	410.4	

Analysis Batch: 429763

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140048-2	MW8R-872018	Total/NA	Water	9056A	
MB 480-429763/4	Method Blank	Total/NA	Water	9056A	
LCS 480-429763/3	Lab Control Sample	Total/NA	Water	9056A	
480-140048-2 MS	MW8R-872018	Total/NA	Water	9056A	
480-140048-2 MSD	MW8R-872018	Total/NA	Water	9056A	

Analysis Batch: 430051

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140048-2	MW8R-872018	Total/NA	Water	9060A	
MB 480-430051/4	Method Blank	Total/NA	Water	9060A	
LCS 480-430051/5	Lab Control Sample	Total/NA	Water	9060A	

Analysis Batch: 430145

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140048-2	MW8R-872018	Total/NA	Water	310.2	
MB 480-430145/26	Method Blank	Total/NA	Water	310.2	
MB 480-430145/38	Method Blank	Total/NA	Water	310.2	
LCS 480-430145/27	Lab Control Sample	Total/NA	Water	310.2	
LCS 480-430145/39	Lab Control Sample	Total/NA	Water	310.2	

Lab Chronicle

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

Client Sample ID: TB08072018

Date Collected: 08/07/18 09:30

Date Received: 08/07/18 19:00

Lab Sample ID: 480-140048-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	428531	08/08/18 15:49	S1V	TAL BUF

Client Sample ID: MW8R-872018

Date Collected: 08/07/18 13:55

Date Received: 08/07/18 19:00

Lab Sample ID: 480-140048-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		10	428531	08/08/18 16:12	S1V	TAL BUF
Total/NA	Analysis	624.1	DL	80	428733	08/09/18 11:58	S1V	TAL BUF
Total/NA	Prep	3510C			428967	08/10/18 07:36	JMP	TAL BUF
Total/NA	Analysis	8270D SIM ID		40	430190	08/17/18 12:31	DMR	TAL BUF
Total/NA	Analysis	RSK-175		1	132734	08/09/18 17:06	MLT	TAL BUR
Total/NA	Analysis	RSK-175		22	429358	08/13/18 18:31	DSC	TAL BUF
Total/NA	Prep	3535			132948	08/16/18 08:45	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	133229	08/23/18 23:01	BWC	TAL BUR
Dissolved	Prep	3005A			428878	08/11/18 08:51	KMP	TAL BUF
Dissolved	Analysis	6010C		1	429688	08/15/18 04:08	EMB	TAL BUF
Total/NA	Prep	3005A			428652	08/09/18 08:51	KMP	TAL BUF
Total/NA	Analysis	6010C		1	429274	08/11/18 03:13	EMB	TAL BUF
Total/NA	Analysis	310.2		4	430145	08/16/18 15:50	SAH	TAL BUF
Total/NA	Analysis	353.2		1	428709	08/08/18 15:44	DCB	TAL BUF
Total/NA	Analysis	410.4		1	428923	08/09/18 16:15	CDC	TAL BUF
Total/NA	Analysis	9056A		5	429763	08/15/18 16:23	DMR	TAL BUF
Total/NA	Analysis	9060A		1	430051	08/15/18 09:42	SMH	TAL BUF
Total/NA	Analysis	SM 5210B		1	428696	08/08/18 15:52	CDC	TAL BUF

Client Sample ID: RB08072018

Date Collected: 08/07/18 16:00

Date Received: 08/07/18 19:00

Lab Sample ID: 480-140048-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			132948	08/16/18 08:45	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	133229	08/23/18 23:17	BWC	TAL BUR

Laboratory References:

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

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

TestAmerica Buffalo

Accreditation/Certification Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

Laboratory: TestAmerica Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10026	03-31-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
9056A		Water	Sulfate

Laboratory: TestAmerica Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
ANAB	DoD ELAP		L2336	02-25-20
Connecticut	State Program	1	PH-0751	09-30-19
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-01-19
Maine	State Program	1	VT00008	04-17-19
Minnesota	NELAP	5	050-999-436	12-31-18
New Hampshire	NELAP	1	2006	12-18-18
New Jersey	NELAP	2	VT972	06-30-19
New York	NELAP	2	10391	04-01-19
Pennsylvania	NELAP	3	68-00489	04-30-19
Rhode Island	State Program	1	LAO00298	12-30-18
US Fish & Wildlife	Federal		LE-058448-0	07-31-19
USDA	Federal		P330-11-00093	07-24-20
Vermont	State Program	1	VT-4000	12-31-18
Virginia	NELAP	3	460209	12-14-18

Method Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	40CFR136A	TAL BUF
8270D SIM ID	Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)	SW846	TAL BUF
RSK-175	Dissolved Gases (GC)	RSK	TAL BUF
RSK-175	Dissolved Gases (GC)	RSK	TAL BUR
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL BUR
6010C	Metals (ICP)	SW846	TAL BUF
310.2	Alkalinity	MCAWW	TAL BUF
353.2	Nitrate	EPA	TAL BUF
410.4	COD	MCAWW	TAL BUF
9056A	Anions, Ion Chromatography	SW846	TAL BUF
9060A	Organic Carbon, Total (TOC)	SW846	TAL BUF
SM 5210B	BOD, 5-Day	SM	TAL BUF
3005A	Preparation, Total Metals	SW846	TAL BUF
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL BUF
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL BUF
3535	Solid-Phase Extraction (SPE)	SW846	TAL BUR

Protocol References:

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

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

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

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140048-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-140048-1	TB08072018	Water	08/07/18 09:30	08/07/18 19:00
480-140048-2	MW8R-872018	Water	08/07/18 13:55	08/07/18 19:00
480-140048-3	RB08072018	Water	08/07/18 16:00	08/07/18 19:00

Amherst, NY 14228

Phone: 716.691.2600 Fax: 716.691.7997

THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact Company Name: Ecology Environmental Inc Address: Pleasantview Drive City/State/Zip: Lancaster NY Phone: 716.684-8060 Fax: Project Name: Davisbrookland Site: Rochester PO #		Project Manager: Ashley P. Pineda Tel/Fax: <input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS Analysis Turnaround Time TAT if different from Below <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day As per Contract		Site Contact: L. Roedl Lab Contact: Perform MS / MSD (Y / N) Filtered Sample (Y / N)		Date: August 2018 Carrier: By Road Date/Time: 8/21/18 19:00 Company: TMS	
Sample Identification TB08072018 MWBR-872018 RB08072018		Sample Type (C-Corp, G-Grab) G G G		Sample Time 9:50 13:55 16:00		Matrix GW GW GW	
# of Cont. 1 3 2		Sample Specific Notes: 480-140047 COC		Sample Specific Notes:		Sample Specific Notes:	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other

Possible Hazard Identification:
 Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☒ Yes ☐ No

Relinquished by: *[Signature]* Date/Time: 8/21/18 19:00
 Relinquished by: *[Signature]* Date/Time: 8/21/18 19:00
 Relinquished by: *[Signature]* Date/Time: 8/21/18 19:00

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

Chain of Custody Record



TestAmerica
Environmental Testing

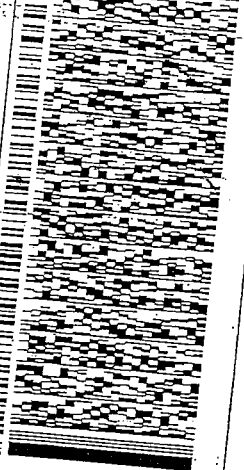
Client Information (Sub Contract Lab)		Lab PM: Schove, John R	
Client Contact: Shipping/Receiving		E-Mail: john.schove@testamerica.com	
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - New York	
Address: 30 Community Drive, Suite 11, South Burlington, VT, 05403		Job #: 480-140048-1	
Phone: 802-660-1990(Tel) 802-660-1919(Fax)		Page 1 of 1	
Email:		4.1	
Project Name: Davis Howland Oil Company - NYSDEC		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
Site:		Other:	
Sample Identification - Client ID (Lab ID)		Analysis Requested	
MWBR-872018 (480-140048-2)		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA	
RB08072018 (480-140048-3)		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
Sample Date		Total Number of Containers	
Sample Time		Special Instructions/Note:	
Sample Type (C=Comp, G=grab)		5	
Matrix (W=Water, S=Solid, O=Other)			
Preservation Code			
Field Filtered Sample (Yes or No)			
PFC, IDA/358, MWTF, PFAS, Standard List (21)			
RSK, 175, CO2, Carbon Dioxide			
Due Date Requested: 8/21/2018			
TAT Requested (days):			
PO #:			
WO #:			
Project #:			
48017485			
SSOW#:			
Primary Deliverable Rank: 2			
Deliverable Requested: I, II, III, IV, Other (specify)			
Empty Kit Relinquished by:		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months	
Date: 8/18/18		Special Instructions/QC Requirements:	
Relinquished by: [Signature]		Date/Time: 8/18/18 1030	
Relinquished by:		Company: TA Burl	
Relinquished by:		Company:	
Relinquished by:		Company:	
Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:	
Δ Yes Δ No			



ORIGIN ID:DKKA (716) 691-2600
CHAR BRONSON
TEST AMERICA
10 HAZELWOOD
AMHERST, NY 14228
UNITED STATES US
SHIP DATE: 08AUG18
ACTWGT: 56.20 LB
CAD: 846654/CAFE3210
DIMS: 26x15x14 IN
BILL RECIPIENT

TO SAMPLE MGT
TA BURLINGTON
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 660-1890
REF: BURLINGTON
DEPT: SC

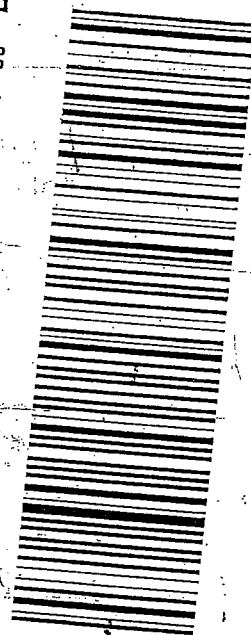
FedEx
Express



THU - 09 AUG 10:30A
PRIORITY OVERNIGHT

05403
VT-US BTV

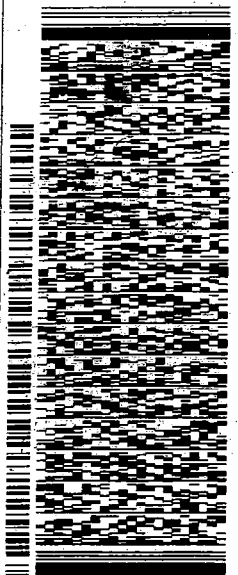
NC BTVA



ORIGIN ID:DKKA (716) 691-2600
CHAR BRONSON
TEST AMERICA
10 HAZELWOOD
AMHERST, NY 14228
UNITED STATES US
SHIP DATE: 08AUG18
ACTWGT: 55.10 LB
CAD: 846654/CAFE3210
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BILL RECIPIENT

TO SAMPLE MGT
TA BURLINGTON
30 COMMUNITY DRIVE
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(802) 660-1890
REF: BURLINGTON
DEPT: SC

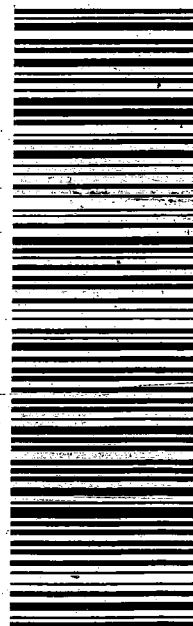
FedEx
Express



THU - 09 AUG 10:30A
PRIORITY OVERNIGHT

05403
VT-US BTV

NC BTVA



Login Sample Receipt Checklist

Client: Ecology and Environment, Inc.

Job Number: 480-140048-1

Login Number: 140048

List Source: TestAmerica Buffalo

List Number: 1

Creator: Kolb, Chris M

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	ecology & env
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	True	

Login Sample Receipt Checklist

Client: Ecology and Environment, Inc.

Job Number: 480-140048-1

Login Number: 140048

List Number: 2

Creator: Mohn, Taylor J

List Source: TestAmerica Burlington

List Creation: 08/09/18 01:39 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are 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	3.4°C, 0.7°C
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?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received 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.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Ecology and Environment, Inc.

Job Number: 480-140048-1

Login Number: 140048

List Number: 3

Creator: Mohn, Taylor J

List Source: TestAmerica Burlington

List Creation: 08/09/18 01:45 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are 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	3.4°C, 0.7°C
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?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received 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.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-140175-1

Client Project/Site: Davis Howland

For:

Ecology and Environment, Inc.

386 Pleasant View Drive

Lancaster, New York 14086

Attn: Ashlee Patnode



Authorized for release by:

9/14/2018 11:44:45 AM

Rebecca Jones, Project Management Assistant I

rebecca.jones@testamericainc.com

Designee for

John Schove, Project Manager II

(716)504-9838

john.schove@testamericainc.com

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
E	Result exceeded calibration range.
U	Indicates the analyte was analyzed for but not detected.

GC VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
U	Indicates the analyte was analyzed for but not detected.

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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)

TestAmerica Buffalo

Case Narrative

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

Job ID: 480-140175-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-140175-1

Comments

No additional comments.

Receipt

The samples were received on 8/9/2018 5:35 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.5° C.

Receipt Exceptions

Method(s) RSK-175 CO2: Due to Fed-Ex shipping error, samples were received at the laboratory outside of analytical holding time: MW9S-08082018 (480-140175-2), MW2R-08092018 (480-140175-3) and MW2R-08092018Q (480-140175-4).

GC/MS VOA

Method(s) 624.1: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW2R-08092018 (480-140175-3) and MW2R-08092018Q (480-140175-4). 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.

GC/MS Semi VOA

Method(s) 8270D SIM ID: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW2R-08092018 (480-140175-3). Elevated reporting limits (RLs) are provided.

Method(s) 8270D SIM ID: The 1,4-Dioxane result reported for sample MW2R-08092018 (480-140175-3) have an E flag qualifier indicating the results are over the calibration range on the raw data. The actual amounts are within the calibration range; however, the E flag is generated based upon the bias corrected concentration. The LIMS system calculates a bias correction based on the recovery of the 1,4-Dioxane-d8 isotope.

Method(s) 8270D SIM ID: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW2R-08092018Q (480-140175-4). Elevated reporting limits (RLs) are provided.

Method(s) 8270D SIM ID: The 1,4-Dioxane result reported for sample MW2R-08092018Q (480-140175-4) have an E flag qualifier indicating the results are over the calibration range on the raw data. The actual amounts are within the calibration range; however, the E flag is generated based upon the bias corrected concentration. The LIMS system calculates a bias correction based on the recovery of the 1,4-Dioxane-d8 isotope.

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

HPLC/IC

Method(s) 9056A: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW9S-08082018 (480-140175-2), MW2R-08092018 (480-140175-3) and MW2R-08092018Q (480-140175-4). 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.

GC VOA

Method(s) RSK-175: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW2R-08092018 (480-140175-3) and MW2R-08092018Q (480-140175-4). Elevated reporting limits (RLs) are provided.

Method(s) RSK-175: The following samples were analyzed outside of analytical holding time due to being received out of hold time: MW9S-08082018 (480-140175-2), MW2R-08092018 (480-140175-3) and MW2R-08092018Q (480-140175-4).

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

Case Narrative

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

Job ID: 480-140175-1 (Continued)

Laboratory: TestAmerica Buffalo (Continued)

Metals

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

General Chemistry

Method(s) 353.2: The following sample was analyzed with an expired laboratory control sample (LCS) and continuing calibration verification (CCV) reagent for Nitrite: MW9S-08082018 (480-140175-2), MW2R-08092018 (480-140175-3) and MW2R-08092018Q (480-140175-4). Both of these quality control samples are prepared using a second source standard. A new second source standard was requested but was on backorder from the vendor. The expired standard was verified against the primary source and found to still be within limits. All other quality control samples and indicators were within laboratory limits, therefore, the data have been qualified and reported.

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

Organic Prep

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

Detection Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

Client Sample ID: TB-08082018

Lab Sample ID: 480-140175-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	3.7	J	5.0	0.54	ug/L	1		624.1	Total/NA
Methylene Chloride	1.2	J	5.0	0.81	ug/L	1		624.1	Total/NA

Client Sample ID: MW9S-08082018

Lab Sample ID: 480-140175-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	0.94	J	5.0	0.39	ug/L	1		624.1	Total/NA
1,1-Dichloroethane	7.9		5.0	0.59	ug/L	1		624.1	Total/NA
1,2-Dichlorobenzene	0.54	J	5.0	0.44	ug/L	1		624.1	Total/NA
cis-1,2-Dichloroethene	29		5.0	0.57	ug/L	1		624.1	Total/NA
Tetrachloroethylene	39		5.0	0.34	ug/L	1		624.1	Total/NA
trans-1,2-Dichloroethene	2.8	J	5.0	0.59	ug/L	1		624.1	Total/NA
Trichloroethylene	31		5.0	0.60	ug/L	1		624.1	Total/NA
1,4-Dioxane	0.93		0.20	0.10	ug/L	1		8270D SIM ID	Total/NA
Carbon dioxide	22000	H	5000	1900	ug/L	1		RSK-175	Total/NA
Iron	0.088		0.050	0.019	mg/L	1		6010C	Total/NA
Manganese	0.011	B	0.0030	0.00040	mg/L	1		6010C	Total/NA
Manganese	0.0081	B	0.0030	0.00040	mg/L	1		6010C	Dissolved
Alkalinity, Total	286		40.0	16.0	mg/L	4		310.2	Total/NA
Nitrate as N	0.45		0.050	0.020	mg/L	1		353.2	Total/NA
Chemical Oxygen Demand	7.0	J	10.0	5.0	mg/L	1		410.4	Total/NA
Sulfate	98.3		4.0	0.70	mg/L	2		9056A	Total/NA
Total Organic Carbon	2.9	B	1.0	0.43	mg/L	1		9060A	Total/NA

Client Sample ID: MW2R-08092018

Lab Sample ID: 480-140175-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	20	J	50	5.9	ug/L	10		624.1	Total/NA
cis-1,2-Dichloroethene	500		50	5.7	ug/L	10		624.1	Total/NA
Methylene Chloride	14	J	50	8.1	ug/L	10		624.1	Total/NA
Vinyl chloride	250		50	7.5	ug/L	10		624.1	Total/NA
1,4-Dioxane	37	E	2.0	1.0	ug/L	10		8270D SIM ID	Total/NA
Carbon dioxide	30000	H	5000	1900	ug/L	1		RSK-175	Total/NA
Methane	440		88	22	ug/L	22		RSK-175	Total/NA
Iron	0.52		0.050	0.019	mg/L	1		6010C	Total/NA
Manganese	0.073	B	0.0030	0.00040	mg/L	1		6010C	Total/NA
Iron	0.40		0.050	0.019	mg/L	1		6010C	Dissolved
Manganese	0.076	B	0.0030	0.00040	mg/L	1		6010C	Dissolved
Alkalinity, Total	210		30.0	12.0	mg/L	3		310.2	Total/NA
Nitrate as N	0.18		0.050	0.020	mg/L	1		353.2	Total/NA
Chemical Oxygen Demand	12.6		10.0	5.0	mg/L	1		410.4	Total/NA
Sulfate	108		10.0	1.7	mg/L	5		9056A	Total/NA
Total Organic Carbon	3.7	B	1.0	0.43	mg/L	1		9060A	Total/NA

Client Sample ID: MW2R-08092018Q

Lab Sample ID: 480-140175-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	16	J	50	5.9	ug/L	10		624.1	Total/NA
cis-1,2-Dichloroethene	420		50	5.7	ug/L	10		624.1	Total/NA
Methylene Chloride	15	J	50	8.1	ug/L	10		624.1	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Detection Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

Client Sample ID: MW2R-08092018Q (Continued)

Lab Sample ID: 480-140175-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	230		50	7.5	ug/L	10		624.1	Total/NA
1,4-Dioxane	39	E	2.0	1.0	ug/L	10		8270D SIM ID	Total/NA
Carbon dioxide	19000	H	5000	1900	ug/L	1		RSK-175	Total/NA
Methane	260		88	22	ug/L	22		RSK-175	Total/NA
Iron	1.1		0.050	0.019	mg/L	1		6010C	Total/NA
Manganese	0.058	B	0.0030	0.00040	mg/L	1		6010C	Total/NA
Iron	0.44		0.050	0.019	mg/L	1		6010C	Dissolved
Manganese	0.078	B	0.0030	0.00040	mg/L	1		6010C	Dissolved
Alkalinity, Total	225		30.0	12.0	mg/L	3		310.2	Total/NA
Nitrate as N	0.14		0.050	0.020	mg/L	1		353.2	Total/NA
Chemical Oxygen Demand	13.5		10.0	5.0	mg/L	1		410.4	Total/NA
Sulfate	122		10.0	1.7	mg/L	5		9056A	Total/NA
Total Organic Carbon	3.9	B	1.0	0.43	mg/L	1		9060A	Total/NA

Client Sample ID: MW13S-08082018

Lab Sample ID: 480-140175-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	0.48	J	5.0	0.39	ug/L	1		624.1	Total/NA
1,1-Dichloroethane	0.72	J	5.0	0.59	ug/L	1		624.1	Total/NA
cis-1,2-Dichloroethene	6.8		5.0	0.57	ug/L	1		624.1	Total/NA
Tetrachloroethylene	0.54	J	5.0	0.34	ug/L	1		624.1	Total/NA
Trichloroethylene	1.7	J	5.0	0.60	ug/L	1		624.1	Total/NA
1,4-Dioxane	0.40		0.20	0.10	ug/L	1		8270D SIM ID	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Client Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

Client Sample ID: TB-08082018

Date Collected: 08/09/18 08:10

Date Received: 08/09/18 17:35

Lab Sample ID: 480-140175-1

Matrix: Water

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			08/10/18 14:33	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/10/18 14:33	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/10/18 14:33	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			08/10/18 14:33	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/10/18 14:33	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/10/18 14:33	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			08/10/18 14:33	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/10/18 14:33	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/10/18 14:33	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/10/18 14:33	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/10/18 14:33	1
Acetone	25	U	25	2.0	ug/L			08/10/18 14:33	1
Benzene	5.0	U	5.0	0.60	ug/L			08/10/18 14:33	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/10/18 14:33	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/10/18 14:33	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/10/18 14:33	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/10/18 14:33	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/10/18 14:33	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/10/18 14:33	1
Chloroform	3.7	J	5.0	0.54	ug/L			08/10/18 14:33	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/10/18 14:33	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			08/10/18 14:33	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/10/18 14:33	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/10/18 14:33	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/10/18 14:33	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/10/18 14:33	1
Methylene Chloride	1.2	J	5.0	0.81	ug/L			08/10/18 14:33	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/10/18 14:33	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			08/10/18 14:33	1
Toluene	5.0	U	5.0	0.45	ug/L			08/10/18 14:33	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			08/10/18 14:33	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/10/18 14:33	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			08/10/18 14:33	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/10/18 14:33	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			08/10/18 14:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		68 - 130		08/10/18 14:33	1
4-Bromofluorobenzene (Surr)	102		76 - 123		08/10/18 14:33	1
Toluene-d8 (Surr)	98		77 - 120		08/10/18 14:33	1
Dibromofluoromethane (Surr)	103		75 - 123		08/10/18 14:33	1

Client Sample ID: MW9S-08082018

Date Collected: 08/09/18 11:05

Date Received: 08/09/18 17:35

Lab Sample ID: 480-140175-2

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.94	J	5.0	0.39	ug/L			08/13/18 13:23	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/13/18 13:23	1

TestAmerica Buffalo

Client Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

Client Sample ID: MW9S-08082018

Lab Sample ID: 480-140175-2

Date Collected: 08/09/18 11:05

Matrix: Water

Date Received: 08/09/18 17:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/13/18 13:23	1
1,1-Dichloroethane	7.9		5.0	0.59	ug/L			08/13/18 13:23	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/13/18 13:23	1
1,2-Dichlorobenzene	0.54	J	5.0	0.44	ug/L			08/13/18 13:23	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			08/13/18 13:23	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/13/18 13:23	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/13/18 13:23	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/13/18 13:23	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/13/18 13:23	1
Acetone	25	U	25	2.0	ug/L			08/13/18 13:23	1
Benzene	5.0	U	5.0	0.60	ug/L			08/13/18 13:23	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/13/18 13:23	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/13/18 13:23	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/13/18 13:23	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/13/18 13:23	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/13/18 13:23	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/13/18 13:23	1
Chloroform	5.0	U	5.0	0.54	ug/L			08/13/18 13:23	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/13/18 13:23	1
cis-1,2-Dichloroethene	29		5.0	0.57	ug/L			08/13/18 13:23	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/13/18 13:23	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/13/18 13:23	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/13/18 13:23	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/13/18 13:23	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/13/18 13:23	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/13/18 13:23	1
Tetrachloroethylene	39		5.0	0.34	ug/L			08/13/18 13:23	1
Toluene	5.0	U	5.0	0.45	ug/L			08/13/18 13:23	1
trans-1,2-Dichloroethene	2.8	J	5.0	0.59	ug/L			08/13/18 13:23	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/13/18 13:23	1
Trichloroethylene	31		5.0	0.60	ug/L			08/13/18 13:23	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/13/18 13:23	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			08/13/18 13:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		68 - 130		08/13/18 13:23	1
4-Bromofluorobenzene (Surr)	103		76 - 123		08/13/18 13:23	1
Toluene-d8 (Surr)	100		77 - 120		08/13/18 13:23	1
Dibromofluoromethane (Surr)	103		75 - 123		08/13/18 13:23	1

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.93		0.20	0.10	ug/L		08/10/18 14:31	08/16/18 17:45	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	30		15 - 110				08/10/18 14:31	08/16/18 17:45	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	22000	H	5000	1900	ug/L			08/18/18 15:27	1
Methane	4.0	U	4.0	1.0	ug/L			08/13/18 16:41	1

TestAmerica Buffalo

Client Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.088		0.050	0.019	mg/L		08/16/18 08:33	08/21/18 17:03	1
Manganese	0.011	B	0.0030	0.00040	mg/L		08/16/18 08:33	08/21/18 17:03	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050	0.019	mg/L		08/13/18 08:52	08/20/18 12:18	1
Manganese	0.0081	B	0.0030	0.00040	mg/L		08/13/18 08:52	08/20/18 12:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	286		40.0	16.0	mg/L			08/17/18 12:43	4
Nitrate as N	0.45		0.050	0.020	mg/L			08/10/18 19:39	1
Chemical Oxygen Demand	7.0	J	10.0	5.0	mg/L			08/15/18 15:35	1
Sulfate	98.3		4.0	0.70	mg/L			08/24/18 19:11	2
Total Organic Carbon	2.9	B	1.0	0.43	mg/L			08/23/18 06:06	1
Biochemical Oxygen Demand	2.0	U	2.0	2.0	mg/L			08/10/18 09:00	1

Client Sample ID: MW2R-08092018

Lab Sample ID: 480-140175-3

Date Collected: 08/09/18 11:50

Matrix: Water

Date Received: 08/09/18 17:35

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			08/10/18 15:20	10
1,1,2,2-Tetrachloroethane	50	U	50	2.6	ug/L			08/10/18 15:20	10
1,1,2-Trichloroethane	50	U	50	4.8	ug/L			08/10/18 15:20	10
1,1-Dichloroethane	20	J	50	5.9	ug/L			08/10/18 15:20	10
1,1-Dichloroethene	50	U	50	8.5	ug/L			08/10/18 15:20	10
1,2-Dichlorobenzene	50	U	50	4.4	ug/L			08/10/18 15:20	10
1,2-Dichloroethane	50	U	50	6.0	ug/L			08/10/18 15:20	10
1,2-Dichloropropane	50	U	50	6.1	ug/L			08/10/18 15:20	10
1,3-Dichlorobenzene	50	U	50	5.4	ug/L			08/10/18 15:20	10
1,4-Dichlorobenzene	50	U	50	5.1	ug/L			08/10/18 15:20	10
2-Chloroethyl vinyl ether	250	U	250	19	ug/L			08/10/18 15:20	10
Acetone	250	U	250	20	ug/L			08/10/18 15:20	10
Benzene	50	U	50	6.0	ug/L			08/10/18 15:20	10
Bromoform	50	U	50	4.7	ug/L			08/10/18 15:20	10
Bromomethane	50	U	50	12	ug/L			08/10/18 15:20	10
Carbon tetrachloride	50	U	50	5.1	ug/L			08/10/18 15:20	10
Chlorobenzene	50	U	50	4.8	ug/L			08/10/18 15:20	10
Dibromochloromethane	50	U	50	4.1	ug/L			08/10/18 15:20	10
Chloroethane	50	U	50	8.7	ug/L			08/10/18 15:20	10
Chloroform	50	U	50	5.4	ug/L			08/10/18 15:20	10
Chloromethane	50	U	50	6.4	ug/L			08/10/18 15:20	10
cis-1,2-Dichloroethene	500		50	5.7	ug/L			08/10/18 15:20	10
cis-1,3-Dichloropropene	50	U	50	3.3	ug/L			08/10/18 15:20	10
Bromodichloromethane	50	U	50	5.4	ug/L			08/10/18 15:20	10
Ethylbenzene	50	U	50	4.6	ug/L			08/10/18 15:20	10
m-Xylene & p-Xylene	100	U	100	11	ug/L			08/10/18 15:20	10
Methylene Chloride	14	J	50	8.1	ug/L			08/10/18 15:20	10
o-Xylene	50	U	50	4.3	ug/L			08/10/18 15:20	10
Tetrachloroethylene	50	U	50	3.4	ug/L			08/10/18 15:20	10
Toluene	50	U	50	4.5	ug/L			08/10/18 15:20	10
trans-1,2-Dichloroethene	50	U	50	5.9	ug/L			08/10/18 15:20	10

TestAmerica Buffalo

Client Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

Client Sample ID: MW2R-08092018

Lab Sample ID: 480-140175-3

Date Collected: 08/09/18 11:50

Matrix: Water

Date Received: 08/09/18 17:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,3-Dichloropropene	50	U	50	4.4	ug/L			08/10/18 15:20	10
Trichloroethylene	50	U	50	6.0	ug/L			08/10/18 15:20	10
Trichlorofluoromethane	50	U	50	4.5	ug/L			08/10/18 15:20	10
Vinyl chloride	250		50	7.5	ug/L			08/10/18 15:20	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		68 - 130		08/10/18 15:20	10
4-Bromofluorobenzene (Surr)	102		76 - 123		08/10/18 15:20	10
Toluene-d8 (Surr)	101		77 - 120		08/10/18 15:20	10
Dibromofluoromethane (Surr)	103		75 - 123		08/10/18 15:20	10

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	37	E	2.0	1.0	ug/L		08/10/18 14:31	08/16/18 18:09	10
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	26		15 - 110				08/10/18 14:31	08/16/18 18:09	10

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	30000	H	5000	1900	ug/L			08/18/18 15:35	1
Methane	440		88	22	ug/L			08/13/18 18:50	22

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.52		0.050	0.019	mg/L		08/16/18 08:33	08/21/18 17:06	1
Manganese	0.073	B	0.0030	0.00040	mg/L		08/16/18 08:33	08/21/18 17:06	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.40		0.050	0.019	mg/L		08/13/18 08:52	08/20/18 12:22	1
Manganese	0.076	B	0.0030	0.00040	mg/L		08/13/18 08:52	08/20/18 12:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	210		30.0	12.0	mg/L			08/17/18 12:43	3
Nitrate as N	0.18		0.050	0.020	mg/L			08/10/18 19:41	1
Chemical Oxygen Demand	12.6		10.0	5.0	mg/L			08/15/18 15:35	1
Sulfate	108		10.0	1.7	mg/L			08/24/18 19:26	5
Total Organic Carbon	3.7	B	1.0	0.43	mg/L			08/23/18 06:35	1
Biochemical Oxygen Demand	2.0	U	2.0	2.0	mg/L			08/10/18 13:45	1

Client Sample ID: MW2R-08092018Q

Lab Sample ID: 480-140175-4

Date Collected: 08/09/18 11:50

Matrix: Water

Date Received: 08/09/18 17:35

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			08/10/18 15:44	10
1,1,2,2-Tetrachloroethane	50	U	50	2.6	ug/L			08/10/18 15:44	10
1,1,2-Trichloroethane	50	U	50	4.8	ug/L			08/10/18 15:44	10
1,1-Dichloroethane	16	J	50	5.9	ug/L			08/10/18 15:44	10

TestAmerica Buffalo

Client Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

Client Sample ID: MW2R-08092018Q

Lab Sample ID: 480-140175-4

Date Collected: 08/09/18 11:50

Matrix: Water

Date Received: 08/09/18 17:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	50	U	50	8.5	ug/L			08/10/18 15:44	10
1,2-Dichlorobenzene	50	U	50	4.4	ug/L			08/10/18 15:44	10
1,2-Dichloroethane	50	U	50	6.0	ug/L			08/10/18 15:44	10
1,2-Dichloropropane	50	U	50	6.1	ug/L			08/10/18 15:44	10
1,3-Dichlorobenzene	50	U	50	5.4	ug/L			08/10/18 15:44	10
1,4-Dichlorobenzene	50	U	50	5.1	ug/L			08/10/18 15:44	10
2-Chloroethyl vinyl ether	250	U	250	19	ug/L			08/10/18 15:44	10
Acetone	250	U	250	20	ug/L			08/10/18 15:44	10
Benzene	50	U	50	6.0	ug/L			08/10/18 15:44	10
Bromoform	50	U	50	4.7	ug/L			08/10/18 15:44	10
Bromomethane	50	U	50	12	ug/L			08/10/18 15:44	10
Carbon tetrachloride	50	U	50	5.1	ug/L			08/10/18 15:44	10
Chlorobenzene	50	U	50	4.8	ug/L			08/10/18 15:44	10
Dibromochloromethane	50	U	50	4.1	ug/L			08/10/18 15:44	10
Chloroethane	50	U	50	8.7	ug/L			08/10/18 15:44	10
Chloroform	50	U	50	5.4	ug/L			08/10/18 15:44	10
Chloromethane	50	U	50	6.4	ug/L			08/10/18 15:44	10
cis-1,2-Dichloroethene	420		50	5.7	ug/L			08/10/18 15:44	10
cis-1,3-Dichloropropene	50	U	50	3.3	ug/L			08/10/18 15:44	10
Bromodichloromethane	50	U	50	5.4	ug/L			08/10/18 15:44	10
Ethylbenzene	50	U	50	4.6	ug/L			08/10/18 15:44	10
m-Xylene & p-Xylene	100	U	100	11	ug/L			08/10/18 15:44	10
Methylene Chloride	15	J	50	8.1	ug/L			08/10/18 15:44	10
o-Xylene	50	U	50	4.3	ug/L			08/10/18 15:44	10
Tetrachloroethylene	50	U	50	3.4	ug/L			08/10/18 15:44	10
Toluene	50	U	50	4.5	ug/L			08/10/18 15:44	10
trans-1,2-Dichloroethene	50	U	50	5.9	ug/L			08/10/18 15:44	10
trans-1,3-Dichloropropene	50	U	50	4.4	ug/L			08/10/18 15:44	10
Trichloroethylene	50	U	50	6.0	ug/L			08/10/18 15:44	10
Trichlorofluoromethane	50	U	50	4.5	ug/L			08/10/18 15:44	10
Vinyl chloride	230		50	7.5	ug/L			08/10/18 15:44	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		68 - 130		08/10/18 15:44	10
4-Bromofluorobenzene (Surr)	101		76 - 123		08/10/18 15:44	10
Toluene-d8 (Surr)	100		77 - 120		08/10/18 15:44	10
Dibromofluoromethane (Surr)	105		75 - 123		08/10/18 15:44	10

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	39	E	2.0	1.0	ug/L		08/10/18 14:31	08/17/18 11:44	10
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	25		15 - 110				08/10/18 14:31	08/17/18 11:44	10

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	19000	H	5000	1900	ug/L			08/18/18 15:44	1
Methane	260		88	22	ug/L			08/13/18 19:09	22

TestAmerica Buffalo

Client Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

Client Sample ID: MW2R-08092018Q

Lab Sample ID: 480-140175-4

Date Collected: 08/09/18 11:50

Matrix: Water

Date Received: 08/09/18 17:35

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	1.1		0.050	0.019	mg/L		08/16/18 08:33	08/21/18 17:10	1
Manganese	0.058	B	0.0030	0.00040	mg/L		08/16/18 08:33	08/21/18 17:10	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.44		0.050	0.019	mg/L		08/13/18 08:52	08/20/18 12:26	1
Manganese	0.078	B	0.0030	0.00040	mg/L		08/13/18 08:52	08/20/18 12:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	225		30.0	12.0	mg/L			08/17/18 12:43	3
Nitrate as N	0.14		0.050	0.020	mg/L			08/10/18 19:42	1
Chemical Oxygen Demand	13.5		10.0	5.0	mg/L			08/15/18 15:35	1
Sulfate	122		10.0	1.7	mg/L			08/24/18 19:40	5
Total Organic Carbon	3.9	B	1.0	0.43	mg/L			08/23/18 07:02	1
Biochemical Oxygen Demand	2.0	U	2.0	2.0	mg/L			08/10/18 13:45	1

Client Sample ID: MW13S-08082018

Lab Sample ID: 480-140175-5

Date Collected: 08/09/18 14:35

Matrix: Water

Date Received: 08/09/18 17:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.48	J	5.0	0.39	ug/L			08/13/18 13:46	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/13/18 13:46	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/13/18 13:46	1
1,1-Dichloroethane	0.72	J	5.0	0.59	ug/L			08/13/18 13:46	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/13/18 13:46	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/13/18 13:46	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			08/13/18 13:46	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/13/18 13:46	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/13/18 13:46	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/13/18 13:46	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/13/18 13:46	1
Acetone	25	U	25	2.0	ug/L			08/13/18 13:46	1
Benzene	5.0	U	5.0	0.60	ug/L			08/13/18 13:46	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/13/18 13:46	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/13/18 13:46	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/13/18 13:46	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/13/18 13:46	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/13/18 13:46	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/13/18 13:46	1
Chloroform	5.0	U	5.0	0.54	ug/L			08/13/18 13:46	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/13/18 13:46	1
cis-1,2-Dichloroethene	6.8		5.0	0.57	ug/L			08/13/18 13:46	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/13/18 13:46	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/13/18 13:46	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/13/18 13:46	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/13/18 13:46	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/13/18 13:46	1

TestAmerica Buffalo

Client Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

Client Sample ID: MW13S-08082018

Lab Sample ID: 480-140175-5

Date Collected: 08/09/18 14:35

Matrix: Water

Date Received: 08/09/18 17:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	5.0	U	5.0	0.43	ug/L			08/13/18 13:46	1
Tetrachloroethylene	0.54	J	5.0	0.34	ug/L			08/13/18 13:46	1
Toluene	5.0	U	5.0	0.45	ug/L			08/13/18 13:46	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			08/13/18 13:46	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/13/18 13:46	1
Trichloroethylene	1.7	J	5.0	0.60	ug/L			08/13/18 13:46	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/13/18 13:46	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			08/13/18 13:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		68 - 130					08/13/18 13:46	1
4-Bromofluorobenzene (Surr)	106		76 - 123					08/13/18 13:46	1
Toluene-d8 (Surr)	102		77 - 120					08/13/18 13:46	1
Dibromofluoromethane (Surr)	105		75 - 123					08/13/18 13:46	1

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.40		0.20	0.10	ug/L		08/10/18 14:31	08/17/18 12:08	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	26		15 - 110				08/10/18 14:31	08/17/18 12:08	1

Surrogate Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (68-130)	BFB (76-123)	TOL (77-120)	DBFM (75-123)
480-140175-1	TB-08082018	109	102	98	103
480-140175-2	MW9S-08082018	109	103	100	103
480-140175-3	MW2R-08092018	110	102	101	103
480-140175-4	MW2R-08092018Q	111	101	100	105
480-140175-5	MW13S-08082018	109	106	102	105
LCS 480-428982/5	Lab Control Sample	104	103	102	105
LCS 480-429237/5	Lab Control Sample	106	103	100	103
MB 480-428982/7	Method Blank	106	102	101	102
MB 480-429237/7	Method Blank	108	103	100	106

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Isotope Dilution Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DXE (15-110)
480-140175-2	MW9S-08082018	30
480-140175-3	MW2R-08092018	26
480-140175-4	MW2R-08092018Q	25
480-140175-5	MW13S-08082018	26
LCS 480-429107/2-A	Lab Control Sample	33
MB 480-429107/1-A	Method Blank	31

Surrogate Legend

DXE = 1,4-Dioxane-d8

QC Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

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

Lab Sample ID: MB 480-428982/7

Matrix: Water

Analysis Batch: 428982

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			08/10/18 12:27	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/10/18 12:27	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/10/18 12:27	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			08/10/18 12:27	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/10/18 12:27	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/10/18 12:27	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			08/10/18 12:27	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/10/18 12:27	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/10/18 12:27	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/10/18 12:27	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/10/18 12:27	1
Acetone	25	U	25	2.0	ug/L			08/10/18 12:27	1
Benzene	5.0	U	5.0	0.60	ug/L			08/10/18 12:27	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/10/18 12:27	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/10/18 12:27	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/10/18 12:27	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/10/18 12:27	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/10/18 12:27	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/10/18 12:27	1
Chloroform	5.0	U	5.0	0.54	ug/L			08/10/18 12:27	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/10/18 12:27	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			08/10/18 12:27	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/10/18 12:27	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/10/18 12:27	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/10/18 12:27	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/10/18 12:27	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/10/18 12:27	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/10/18 12:27	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			08/10/18 12:27	1
Toluene	5.0	U	5.0	0.45	ug/L			08/10/18 12:27	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			08/10/18 12:27	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/10/18 12:27	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			08/10/18 12:27	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/10/18 12:27	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			08/10/18 12:27	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		68 - 130		08/10/18 12:27	1
4-Bromofluorobenzene (Surr)	102		76 - 123		08/10/18 12:27	1
Toluene-d8 (Surr)	101		77 - 120		08/10/18 12:27	1
Dibromofluoromethane (Surr)	102		75 - 123		08/10/18 12:27	1

Lab Sample ID: LCS 480-428982/5

Matrix: Water

Analysis Batch: 428982

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	19.2		ug/L		96	52 - 162

TestAmerica Buffalo

QC Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

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

Lab Sample ID: LCS 480-428982/5

Matrix: Water

Analysis Batch: 428982

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	19.6		ug/L		98	46 - 157
1,1,2-Trichloroethane	20.0	19.3		ug/L		96	52 - 150
1,1-Dichloroethane	20.0	19.0		ug/L		95	59 - 155
1,1-Dichloroethene	20.0	18.5		ug/L		93	1 - 234
1,2-Dichlorobenzene	20.0	18.7		ug/L		94	18 - 190
1,2-Dichloroethane	20.0	20.4		ug/L		102	49 - 155
1,2-Dichloropropane	20.0	19.4		ug/L		97	1 - 210
1,3-Dichlorobenzene	20.0	18.6		ug/L		93	59 - 156
1,4-Dichlorobenzene	20.0	18.7		ug/L		93	18 - 190
2-Chloroethyl vinyl ether	20.0	19.9	J	ug/L		99	1 - 305
Benzene	20.0	19.0		ug/L		95	37 - 151
Bromoform	20.0	18.5		ug/L		93	45 - 169
Bromomethane	20.0	19.0		ug/L		95	1 - 242
Carbon tetrachloride	20.0	19.1		ug/L		95	70 - 140
Chlorobenzene	20.0	18.8		ug/L		94	37 - 160
Dibromochloromethane	20.0	18.8		ug/L		94	53 - 149
Chloroethane	20.0	19.4		ug/L		97	14 - 230
Chloroform	20.0	19.5		ug/L		97	51 - 138
Chloromethane	20.0	19.2		ug/L		96	1 - 273
cis-1,3-Dichloropropene	20.0	19.4		ug/L		97	1 - 227
Bromodichloromethane	20.0	19.4		ug/L		97	35 - 155
Ethylbenzene	20.0	18.7		ug/L		94	37 - 162
Methylene Chloride	20.0	18.8		ug/L		94	1 - 221
Tetrachloroethylene	20.0	18.5		ug/L		93	64 - 148
Toluene	20.0	18.4		ug/L		92	47 - 150
trans-1,2-Dichloroethene	20.0	18.7		ug/L		94	54 - 156
trans-1,3-Dichloropropene	20.0	19.4		ug/L		97	17 - 183
Trichloroethylene	20.0	19.1		ug/L		96	71 - 157
Trichlorofluoromethane	20.0	20.6		ug/L		103	17 - 181
Vinyl chloride	20.0	19.6		ug/L		98	1 - 251

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	104		68 - 130
4-Bromofluorobenzene (Surr)	103		76 - 123
Toluene-d8 (Surr)	102		77 - 120
Dibromofluoromethane (Surr)	105		75 - 123

Lab Sample ID: MB 480-429237/7

Matrix: Water

Analysis Batch: 429237

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			08/13/18 12:37	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/13/18 12:37	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/13/18 12:37	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			08/13/18 12:37	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/13/18 12:37	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/13/18 12:37	1

TestAmerica Buffalo

QC Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

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

Lab Sample ID: MB 480-429237/7

Matrix: Water

Analysis Batch: 429237

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			08/13/18 12:37	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/13/18 12:37	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/13/18 12:37	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/13/18 12:37	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/13/18 12:37	1
Acetone	25	U	25	2.0	ug/L			08/13/18 12:37	1
Benzene	5.0	U	5.0	0.60	ug/L			08/13/18 12:37	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/13/18 12:37	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/13/18 12:37	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/13/18 12:37	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/13/18 12:37	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/13/18 12:37	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/13/18 12:37	1
Chloroform	5.0	U	5.0	0.54	ug/L			08/13/18 12:37	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/13/18 12:37	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			08/13/18 12:37	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/13/18 12:37	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/13/18 12:37	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/13/18 12:37	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/13/18 12:37	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/13/18 12:37	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/13/18 12:37	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			08/13/18 12:37	1
Toluene	5.0	U	5.0	0.45	ug/L			08/13/18 12:37	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			08/13/18 12:37	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/13/18 12:37	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			08/13/18 12:37	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/13/18 12:37	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			08/13/18 12:37	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		68 - 130		08/13/18 12:37	1
4-Bromofluorobenzene (Surr)	103		76 - 123		08/13/18 12:37	1
Toluene-d8 (Surr)	100		77 - 120		08/13/18 12:37	1
Dibromofluoromethane (Surr)	106		75 - 123		08/13/18 12:37	1

Lab Sample ID: LCS 480-429237/5

Matrix: Water

Analysis Batch: 429237

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	18.7		ug/L		94	52 - 162
1,1,1,2-Tetrachloroethane	20.0	19.9		ug/L		100	46 - 157
1,1,2-Trichloroethane	20.0	19.0		ug/L		95	52 - 150
1,1-Dichloroethane	20.0	18.6		ug/L		93	59 - 155
1,1-Dichloroethene	20.0	17.2		ug/L		86	1 - 234
1,2-Dichlorobenzene	20.0	18.2		ug/L		91	18 - 190
1,2-Dichloroethane	20.0	20.1		ug/L		101	49 - 155

TestAmerica Buffalo

QC Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

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

Lab Sample ID: LCS 480-429237/5

Matrix: Water

Analysis Batch: 429237

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	18.6		ug/L		93	1 - 210
1,3-Dichlorobenzene	20.0	18.2		ug/L		91	59 - 156
1,4-Dichlorobenzene	20.0	18.4		ug/L		92	18 - 190
2-Chloroethyl vinyl ether	20.0	19.8	J	ug/L		99	1 - 305
Benzene	20.0	18.4		ug/L		92	37 - 151
Bromoform	20.0	18.5		ug/L		92	45 - 169
Bromomethane	20.0	18.4		ug/L		92	1 - 242
Carbon tetrachloride	20.0	18.5		ug/L		92	70 - 140
Chlorobenzene	20.0	17.9		ug/L		90	37 - 160
Dibromochloromethane	20.0	18.9		ug/L		94	53 - 149
Chloroethane	20.0	18.7		ug/L		93	14 - 230
Chloroform	20.0	19.0		ug/L		95	51 - 138
Chloromethane	20.0	18.0		ug/L		90	1 - 273
cis-1,3-Dichloropropene	20.0	19.3		ug/L		97	1 - 227
Bromodichloromethane	20.0	19.2		ug/L		96	35 - 155
Ethylbenzene	20.0	17.7		ug/L		88	37 - 162
Methylene Chloride	20.0	18.4		ug/L		92	1 - 221
Tetrachloroethylene	20.0	17.3		ug/L		87	64 - 148
Toluene	20.0	17.8		ug/L		89	47 - 150
trans-1,2-Dichloroethene	20.0	18.0		ug/L		90	54 - 156
trans-1,3-Dichloropropene	20.0	18.8		ug/L		94	17 - 183
Trichloroethylene	20.0	18.4		ug/L		92	71 - 157
Trichlorofluoromethane	20.0	19.7		ug/L		99	17 - 181
Vinyl chloride	20.0	18.1		ug/L		91	1 - 251

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	106		68 - 130
4-Bromofluorobenzene (Surr)	103		76 - 123
Toluene-d8 (Surr)	100		77 - 120
Dibromofluoromethane (Surr)	103		75 - 123

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Lab Sample ID: MB 480-429107/1-A

Matrix: Water

Analysis Batch: 429969

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 429107

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.10	ug/L		08/10/18 14:31	08/16/18 12:59	1
Isotope Dilution	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	31		15 - 110				08/10/18 14:31	08/16/18 12:59	1

TestAmerica Buffalo

QC Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution) (Continued)

Lab Sample ID: LCS 480-429107/2-A

Matrix: Water

Analysis Batch: 429969

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 429107

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	1.00	1.09		ug/L		109	40 - 140
Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits				
1,4-Dioxane-d8	33		15 - 110				

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 200-133029/5

Matrix: Water

Analysis Batch: 133029

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	5000	U	5000	1900	ug/L			08/18/18 15:18	1

Lab Sample ID: LCS 200-133029/3

Matrix: Water

Analysis Batch: 133029

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon dioxide	40000	33800		ug/L		84	70 - 130

Lab Sample ID: LCSD 200-133029/4

Matrix: Water

Analysis Batch: 133029

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon dioxide	40000	34700		ug/L		87	70 - 130	3	30

Lab Sample ID: MB 480-429358/4

Matrix: Water

Analysis Batch: 429358

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	4.0	U	4.0	1.0	ug/L			08/13/18 13:32	1

Lab Sample ID: LCS 480-429358/5

Matrix: Water

Analysis Batch: 429358

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	7.77	7.55		ug/L		97	85 - 120

Lab Sample ID: LCSD 480-429358/6

Matrix: Water

Analysis Batch: 429358

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	7.77	7.30		ug/L		94	85 - 120	3	50

TestAmerica Buffalo

QC Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-429772/1-A

Matrix: Water

Analysis Batch: 430839

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 429772

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050	0.019	mg/L		08/16/18 08:33	08/21/18 15:47	1
Manganese	0.000610	J	0.0030	0.00040	mg/L		08/16/18 08:33	08/21/18 15:47	1

Lab Sample ID: LCS 480-429772/2-A

Matrix: Water

Analysis Batch: 430839

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 429772

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	9.74		mg/L		97	80 - 120
Manganese	0.200	0.194		mg/L		97	80 - 120

Lab Sample ID: MB 480-429187/1-A

Matrix: Water

Analysis Batch: 430608

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 429187

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050	0.019	mg/L		08/13/18 08:52	08/20/18 10:51	1
Manganese	0.00216	J	0.0030	0.00040	mg/L		08/13/18 08:52	08/20/18 10:51	1

Lab Sample ID: LCS 480-429187/2-A

Matrix: Water

Analysis Batch: 430608

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 429187

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	10.52		mg/L		105	80 - 120
Manganese	0.200	0.220		mg/L		110	80 - 120

Method: 310.2 - Alkalinity

Lab Sample ID: MB 480-430293/12

Matrix: Water

Analysis Batch: 430293

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	10.0	U	10.0	4.0	mg/L			08/17/18 11:55	1

Lab Sample ID: MB 480-430293/24

Matrix: Water

Analysis Batch: 430293

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	10.0	U	10.0	4.0	mg/L			08/17/18 11:58	1

Lab Sample ID: MB 480-430293/44

Matrix: Water

Analysis Batch: 430293

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	10.0	U	10.0	4.0	mg/L			08/17/18 12:41	1

TestAmerica Buffalo

QC Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

Method: 310.2 - Alkalinity (Continued)

Lab Sample ID: LCS 480-430293/13

Matrix: Water

Analysis Batch: 430293

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	50.0	48.90		mg/L		98	90 - 110

Lab Sample ID: LCS 480-430293/25

Matrix: Water

Analysis Batch: 430293

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	50.0	49.56		mg/L		99	90 - 110

Lab Sample ID: LCS 480-430293/45

Matrix: Water

Analysis Batch: 430293

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	50.0	51.33		mg/L		103	90 - 110

Method: 410.4 - COD

Lab Sample ID: MB 480-429842/27

Matrix: Water

Analysis Batch: 429842

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	10.0	U	10.0	5.0	mg/L			08/15/18 15:35	1

Lab Sample ID: MB 480-429842/3

Matrix: Water

Analysis Batch: 429842

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	10.0	U	10.0	5.0	mg/L			08/15/18 15:35	1

Lab Sample ID: LCS 480-429842/28

Matrix: Water

Analysis Batch: 429842

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	25.0	24.14		mg/L		97	90 - 110

Lab Sample ID: LCS 480-429842/4

Matrix: Water

Analysis Batch: 429842

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	25.0	22.95		mg/L		92	90 - 110

TestAmerica Buffalo

QC Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 480-431373/4

Matrix: Water

Analysis Batch: 431373

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.0	U	2.0	0.35	mg/L			08/24/18 16:31	1

Lab Sample ID: LCS 480-431373/3

Matrix: Water

Analysis Batch: 431373

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.0	51.80		mg/L		104	90 - 110

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 480-431346/4

Matrix: Water

Analysis Batch: 431346

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	0.568	J	1.0	0.43	mg/L			08/22/18 22:06	1

Lab Sample ID: LCS 480-431346/5

Matrix: Water

Analysis Batch: 431346

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	59.19		mg/L		99	90 - 110

Method: SM 5210B - BOD, 5-Day

Lab Sample ID: USB 480-429086/1

Matrix: Water

Analysis Batch: 429086

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	2.0	U	2.0	2.0	mg/L			08/10/18 09:00	1

Lab Sample ID: LCS 480-429086/2

Matrix: Water

Analysis Batch: 429086

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	198	174.2		mg/L		88	85 - 115

Lab Sample ID: USB 480-429132/1

Matrix: Water

Analysis Batch: 429132

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	2.0	U	2.0	2.0	mg/L			08/10/18 13:45	1

TestAmerica Buffalo

QC Sample Results

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

Method: SM 5210B - BOD, 5-Day (Continued)

Lab Sample ID: LCS 480-429132/2

Matrix: Water

Analysis Batch: 429132

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	198	178.2		mg/L		90	85 - 115

QC Association Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

GC/MS VOA

Analysis Batch: 428982

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140175-1	TB-08082018	Total/NA	Water	624.1	
480-140175-3	MW2R-08092018	Total/NA	Water	624.1	
480-140175-4	MW2R-08092018Q	Total/NA	Water	624.1	
MB 480-428982/7	Method Blank	Total/NA	Water	624.1	
LCS 480-428982/5	Lab Control Sample	Total/NA	Water	624.1	

Analysis Batch: 429237

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140175-2	MW9S-08082018	Total/NA	Water	624.1	
480-140175-5	MW13S-08082018	Total/NA	Water	624.1	
MB 480-429237/7	Method Blank	Total/NA	Water	624.1	
LCS 480-429237/5	Lab Control Sample	Total/NA	Water	624.1	

GC/MS Semi VOA

Prep Batch: 429107

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140175-2	MW9S-08082018	Total/NA	Water	3510C	
480-140175-3	MW2R-08092018	Total/NA	Water	3510C	
480-140175-4	MW2R-08092018Q	Total/NA	Water	3510C	
480-140175-5	MW13S-08082018	Total/NA	Water	3510C	
MB 480-429107/1-A	Method Blank	Total/NA	Water	3510C	
LCS 480-429107/2-A	Lab Control Sample	Total/NA	Water	3510C	

Analysis Batch: 429969

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140175-2	MW9S-08082018	Total/NA	Water	8270D SIM ID	429107
480-140175-3	MW2R-08092018	Total/NA	Water	8270D SIM ID	429107
MB 480-429107/1-A	Method Blank	Total/NA	Water	8270D SIM ID	429107
LCS 480-429107/2-A	Lab Control Sample	Total/NA	Water	8270D SIM ID	429107

Analysis Batch: 430190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140175-4	MW2R-08092018Q	Total/NA	Water	8270D SIM ID	429107
480-140175-5	MW13S-08082018	Total/NA	Water	8270D SIM ID	429107

GC VOA

Analysis Batch: 133029

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140175-2	MW9S-08082018	Total/NA	Water	RSK-175	
480-140175-3	MW2R-08092018	Total/NA	Water	RSK-175	
480-140175-4	MW2R-08092018Q	Total/NA	Water	RSK-175	
MB 200-133029/5	Method Blank	Total/NA	Water	RSK-175	
LCS 200-133029/3	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 200-133029/4	Lab Control Sample Dup	Total/NA	Water	RSK-175	

Analysis Batch: 429358

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140175-2	MW9S-08082018	Total/NA	Water	RSK-175	

TestAmerica Buffalo

QC Association Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

GC VOA (Continued)

Analysis Batch: 429358 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140175-3	MW2R-08092018	Total/NA	Water	RSK-175	
480-140175-4	MW2R-08092018Q	Total/NA	Water	RSK-175	
MB 480-429358/4	Method Blank	Total/NA	Water	RSK-175	
LCS 480-429358/5	Lab Control Sample	Total/NA	Water	RSK-175	
LCS 480-429358/6	Lab Control Sample Dup	Total/NA	Water	RSK-175	

Metals

Prep Batch: 429187

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140175-2	MW9S-08082018	Dissolved	Water	3005A	
480-140175-3	MW2R-08092018	Dissolved	Water	3005A	
480-140175-4	MW2R-08092018Q	Dissolved	Water	3005A	
MB 480-429187/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 480-429187/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 429772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140175-2	MW9S-08082018	Total/NA	Water	3005A	
480-140175-3	MW2R-08092018	Total/NA	Water	3005A	
480-140175-4	MW2R-08092018Q	Total/NA	Water	3005A	
MB 480-429772/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-429772/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 430608

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140175-2	MW9S-08082018	Dissolved	Water	6010C	429187
480-140175-3	MW2R-08092018	Dissolved	Water	6010C	429187
480-140175-4	MW2R-08092018Q	Dissolved	Water	6010C	429187
MB 480-429187/1-A	Method Blank	Total Recoverable	Water	6010C	429187
LCS 480-429187/2-A	Lab Control Sample	Total Recoverable	Water	6010C	429187

Analysis Batch: 430839

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140175-2	MW9S-08082018	Total/NA	Water	6010C	429772
480-140175-3	MW2R-08092018	Total/NA	Water	6010C	429772
480-140175-4	MW2R-08092018Q	Total/NA	Water	6010C	429772
MB 480-429772/1-A	Method Blank	Total/NA	Water	6010C	429772
LCS 480-429772/2-A	Lab Control Sample	Total/NA	Water	6010C	429772

General Chemistry

Analysis Batch: 429086

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140175-2	MW9S-08082018	Total/NA	Water	SM 5210B	
USB 480-429086/1	Method Blank	Total/NA	Water	SM 5210B	
LCS 480-429086/2	Lab Control Sample	Total/NA	Water	SM 5210B	

TestAmerica Buffalo

QC Association Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

General Chemistry (Continued)

Analysis Batch: 429132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140175-3	MW2R-08092018	Total/NA	Water	SM 5210B	
480-140175-4	MW2R-08092018Q	Total/NA	Water	SM 5210B	
USB 480-429132/1	Method Blank	Total/NA	Water	SM 5210B	
LCS 480-429132/2	Lab Control Sample	Total/NA	Water	SM 5210B	

Analysis Batch: 429152

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140175-2	MW9S-08082018	Total/NA	Water	353.2	
480-140175-3	MW2R-08092018	Total/NA	Water	353.2	
480-140175-4	MW2R-08092018Q	Total/NA	Water	353.2	

Analysis Batch: 429842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140175-2	MW9S-08082018	Total/NA	Water	410.4	
480-140175-3	MW2R-08092018	Total/NA	Water	410.4	
480-140175-4	MW2R-08092018Q	Total/NA	Water	410.4	
MB 480-429842/27	Method Blank	Total/NA	Water	410.4	
MB 480-429842/3	Method Blank	Total/NA	Water	410.4	
LCS 480-429842/28	Lab Control Sample	Total/NA	Water	410.4	
LCS 480-429842/4	Lab Control Sample	Total/NA	Water	410.4	

Analysis Batch: 430293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140175-2	MW9S-08082018	Total/NA	Water	310.2	
480-140175-3	MW2R-08092018	Total/NA	Water	310.2	
480-140175-4	MW2R-08092018Q	Total/NA	Water	310.2	
MB 480-430293/12	Method Blank	Total/NA	Water	310.2	
MB 480-430293/24	Method Blank	Total/NA	Water	310.2	
MB 480-430293/44	Method Blank	Total/NA	Water	310.2	
LCS 480-430293/13	Lab Control Sample	Total/NA	Water	310.2	
LCS 480-430293/25	Lab Control Sample	Total/NA	Water	310.2	
LCS 480-430293/45	Lab Control Sample	Total/NA	Water	310.2	

Analysis Batch: 431346

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140175-2	MW9S-08082018	Total/NA	Water	9060A	
480-140175-3	MW2R-08092018	Total/NA	Water	9060A	
480-140175-4	MW2R-08092018Q	Total/NA	Water	9060A	
MB 480-431346/4	Method Blank	Total/NA	Water	9060A	
LCS 480-431346/5	Lab Control Sample	Total/NA	Water	9060A	

Analysis Batch: 431373

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140175-2	MW9S-08082018	Total/NA	Water	9056A	
480-140175-3	MW2R-08092018	Total/NA	Water	9056A	
480-140175-4	MW2R-08092018Q	Total/NA	Water	9056A	
MB 480-431373/4	Method Blank	Total/NA	Water	9056A	
LCS 480-431373/3	Lab Control Sample	Total/NA	Water	9056A	

TestAmerica Buffalo

Lab Chronicle

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

Client Sample ID: TB-08082018

Date Collected: 08/09/18 08:10

Date Received: 08/09/18 17:35

Lab Sample ID: 480-140175-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	428982	08/10/18 14:33	S1V	TAL BUF

Client Sample ID: MW9S-08082018

Date Collected: 08/09/18 11:05

Date Received: 08/09/18 17:35

Lab Sample ID: 480-140175-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	429237	08/13/18 13:23	S1V	TAL BUF
Total/NA	Prep	3510C			429107	08/10/18 14:31	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	429969	08/16/18 17:45	DMR	TAL BUF
Total/NA	Analysis	RSK-175		1	133029	08/18/18 15:27	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	429358	08/13/18 16:41	DSC	TAL BUF
Dissolved	Prep	3005A			429187	08/13/18 08:52	VEG	TAL BUF
Dissolved	Analysis	6010C		1	430608	08/20/18 12:18	EMB	TAL BUF
Total/NA	Prep	3005A			429772	08/16/18 08:33	KMP	TAL BUF
Total/NA	Analysis	6010C		1	430839	08/21/18 17:03	J1B	TAL BUF
Total/NA	Analysis	310.2		4	430293	08/17/18 12:43	SAH	TAL BUF
Total/NA	Analysis	353.2		1	429152	08/10/18 19:39	LMC	TAL BUF
Total/NA	Analysis	410.4		1	429842	08/15/18 15:35	MAB	TAL BUF
Total/NA	Analysis	9056A		2	431373	08/24/18 19:11	DMR	TAL BUF
Total/NA	Analysis	9060A		1	431346	08/23/18 06:06	SMH	TAL BUF
Total/NA	Analysis	SM 5210B		1	429086	08/10/18 09:00	CLT	TAL BUF

Client Sample ID: MW2R-08092018

Date Collected: 08/09/18 11:50

Date Received: 08/09/18 17:35

Lab Sample ID: 480-140175-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		10	428982	08/10/18 15:20	S1V	TAL BUF
Total/NA	Prep	3510C			429107	08/10/18 14:31	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		10	429969	08/16/18 18:09	DMR	TAL BUF
Total/NA	Analysis	RSK-175		1	133029	08/18/18 15:35	MLT	TAL BUR
Total/NA	Analysis	RSK-175		22	429358	08/13/18 18:50	DSC	TAL BUF
Dissolved	Prep	3005A			429187	08/13/18 08:52	VEG	TAL BUF
Dissolved	Analysis	6010C		1	430608	08/20/18 12:22	EMB	TAL BUF
Total/NA	Prep	3005A			429772	08/16/18 08:33	KMP	TAL BUF
Total/NA	Analysis	6010C		1	430839	08/21/18 17:06	J1B	TAL BUF
Total/NA	Analysis	310.2		3	430293	08/17/18 12:43	SAH	TAL BUF
Total/NA	Analysis	353.2		1	429152	08/10/18 19:41	LMC	TAL BUF
Total/NA	Analysis	410.4		1	429842	08/15/18 15:35	MAB	TAL BUF
Total/NA	Analysis	9056A		5	431373	08/24/18 19:26	DMR	TAL BUF

TestAmerica Buffalo

Lab Chronicle

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

Client Sample ID: MW2R-08092018

Lab Sample ID: 480-140175-3

Date Collected: 08/09/18 11:50

Matrix: Water

Date Received: 08/09/18 17:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		1	431346	08/23/18 06:35	SMH	TAL BUF
Total/NA	Analysis	SM 5210B		1	429132	08/10/18 13:45	MAB	TAL BUF

Client Sample ID: MW2R-08092018Q

Lab Sample ID: 480-140175-4

Date Collected: 08/09/18 11:50

Matrix: Water

Date Received: 08/09/18 17:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		10	428982	08/10/18 15:44	S1V	TAL BUF
Total/NA	Prep	3510C			429107	08/10/18 14:31	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		10	430190	08/17/18 11:44	DMR	TAL BUF
Total/NA	Analysis	RSK-175		1	133029	08/18/18 15:44	MLT	TAL BUR
Total/NA	Analysis	RSK-175		22	429358	08/13/18 19:09	DSC	TAL BUF
Dissolved	Prep	3005A			429187	08/13/18 08:52	VEG	TAL BUF
Dissolved	Analysis	6010C		1	430608	08/20/18 12:26	EMB	TAL BUF
Total/NA	Prep	3005A			429772	08/16/18 08:33	KMP	TAL BUF
Total/NA	Analysis	6010C		1	430839	08/21/18 17:10	J1B	TAL BUF
Total/NA	Analysis	310.2		3	430293	08/17/18 12:43	SAH	TAL BUF
Total/NA	Analysis	353.2		1	429152	08/10/18 19:42	LMC	TAL BUF
Total/NA	Analysis	410.4		1	429842	08/15/18 15:35	MAB	TAL BUF
Total/NA	Analysis	9056A		5	431373	08/24/18 19:40	DMR	TAL BUF
Total/NA	Analysis	9060A		1	431346	08/23/18 07:02	SMH	TAL BUF
Total/NA	Analysis	SM 5210B		1	429132	08/10/18 13:45	MAB	TAL BUF

Client Sample ID: MW13S-08082018

Lab Sample ID: 480-140175-5

Date Collected: 08/09/18 14:35

Matrix: Water

Date Received: 08/09/18 17:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	429237	08/13/18 13:46	S1V	TAL BUF
Total/NA	Prep	3510C			429107	08/10/18 14:31	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	430190	08/17/18 12:08	DMR	TAL BUF

Laboratory References:

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

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

Laboratory: TestAmerica Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10026	03-31-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
9056A		Water	Sulfate

Laboratory: TestAmerica Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
ANAB	DoD ELAP		L2336	02-25-20
Connecticut	State Program	1	PH-0751	09-30-19
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-01-19
Maine	State Program	1	VT00008	04-17-19
Minnesota	NELAP	5	050-999-436	12-31-18
New Hampshire	NELAP	1	2006	12-18-18
New Jersey	NELAP	2	VT972	06-30-19
New York	NELAP	2	10391	04-01-19
Pennsylvania	NELAP	3	68-00489	04-30-19
Rhode Island	State Program	1	LAO00298	12-30-18
US Fish & Wildlife	Federal		LE-058448-0	07-31-19
USDA	Federal		P330-11-00093	07-24-20
Vermont	State Program	1	VT-4000	12-31-18
Virginia	NELAP	3	460209	12-14-18

Method Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	40CFR136A	TAL BUF
8270D SIM ID	Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)	SW846	TAL BUF
RSK-175	Dissolved Gases (GC)	RSK	TAL BUF
RSK-175	Dissolved Gases (GC)	RSK	TAL BUR
6010C	Metals (ICP)	SW846	TAL BUF
310.2	Alkalinity	MCAWW	TAL BUF
353.2	Nitrate	EPA	TAL BUF
410.4	COD	MCAWW	TAL BUF
9056A	Anions, Ion Chromatography	SW846	TAL BUF
9060A	Organic Carbon, Total (TOC)	SW846	TAL BUF
SM 5210B	BOD, 5-Day	SM	TAL BUF
3005A	Preparation, Total Metals	SW846	TAL BUF
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL BUF
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	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.

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

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

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: Ecology and Environment, Inc.
Project/Site: Davis Howland

TestAmerica Job ID: 480-140175-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-140175-1	TB-08082018	Water	08/09/18 08:10	08/09/18 17:35
480-140175-2	MW9S-08082018	Water	08/09/18 11:05	08/09/18 17:35
480-140175-3	MW2R-08092018	Water	08/09/18 11:50	08/09/18 17:35
480-140175-4	MW2R-08092018Q	Water	08/09/18 11:50	08/09/18 17:35
480-140175-5	MW13S-08082018	Water	08/09/18 14:35	08/09/18 17:35

[illegible]

[illegible]

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Part # 159469-434 RIT2 EXP 03/19

ORIGIN ID:DKKA (716) 691-2600
CHAR BRONSON
TEST AMERICA
10 HAZELWOOD

AMHERST, NY 14228
UNITED STATES US

SHIP DATE: 16AUG18
ACTWGT: 16.30 LB
CAD: 846854/CAFE3210
DIMS: 19x15x10 IN
BILL RECIPIENT

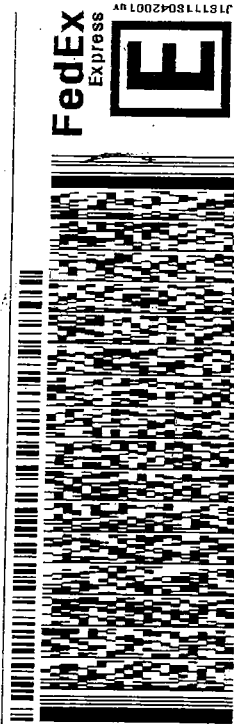
TO SAMPLE MGT.

TA BURLINGTON

30 COMMUNITY DRIVE
SUITE 11

SOUTH BURLINGTON VT 05403

(802) 680-1800
REF: BURLINGTON
DEPT. SC



FRI - 17 AUG 10:30A
PRIORITY OVERNIGHT

TRK# 1276 0717 4919

FedEx

TRK# 4276 0717 4919

SATURDAY 12:00P
PRIORITY OVERNIGHT

X0 BTVA

05403
VT-US
BTVA



TestAmerica Buffalo

10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

Client Information (Sub Contract Lab)

Client Contact:
Shipping/Receiving:
Company:
Address:
City:
State, Zip:
Phone:
Email:
Project Name:
Site:

480-140175 Chain of Custody

CC No: 80-43995.1

Page: Page 1 of 1
Job #: 480-140175-1

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

Analysis Requested

Accreditations Required (See note): NELAP - New York

Due Date Requested: 8/27/2018

TAT Requested (days):

PO #:

WO #:

Project #:

48017485

SSOW#:

Sample Date

Sample Time

Sample Type (C=Comp, G=grab)

Matrix (W=water, S=solid, O=soil, G=grab)

Field Filtered Sample (Yes or No)

Perform MS/MSD (Yes or No)

PFC (ID/MS/MSD, IWT PFA, Standard List (21 analytes))

RSK, 175 CO2 Carbon Dioxide

Total Number of Containers

Special Instructions/Note:

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Unconfirmed

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

Primary Deliverable Rank: 2

Empty Kit Relinquished by:

Relinquished by:

Relinquished by:

Relinquished by:

Custody Seals Intact: Δ Yes Δ No

Custody Seal No.:

Company: TAB

Date/Time: 8/16/18 1730

Date/Time:

Date/Time:

Date/Time:

Method of Shipment:

Received by:

Received by:

Received by:

Received by:

Company: TA

Date/Time: 8/18/18 1030

Date/Time:

Date/Time:

Date/Time:

Company:

Company:

Company:

Company:

Company:

Company:

Company:

Company:

Company:

Company:

Part # 156297-435 RADW EXP 06/19

ORIGIN ID: EHTA (860) 111-1111
FEDEX EHTA
FEDEX EHTA STATION
100 OLD COUNTRY RD
WINDSOR LOCKS, CT 06096
UNITED STATES US

SHIP DATE: 23AUG18
ACTWT: 30.00 LB MAN
CAD: 69C584/CAFE3206

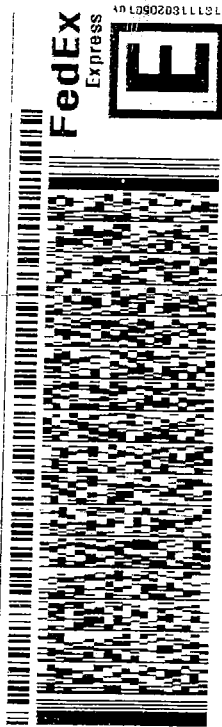
BILL RECIPIENT

TO TEST AMERICA

30 COMMUNITY DR STR 11 R

BURLINGTON VT 05403

REF: NO BILL ON PKG

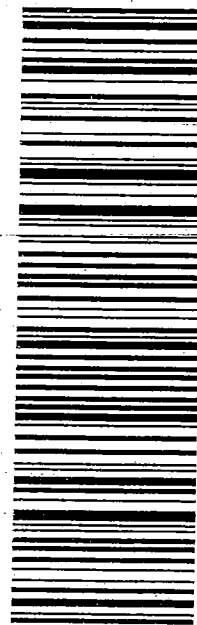


TUE - 28 AUG 4:30P
EXPRESS SAVER

TRK# 4092 9464 7470
0201

K9 BTVA

05403
VT-US BTV



Login Sample Receipt Checklist

Client: Ecology and Environment, Inc.

Job Number: 480-140175-1

Login Number: 140175

List Number: 1

Creator: Stopa, Erik S

List Source: 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	ECOLOGY
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: Ecology and Environment, Inc.

Job Number: 480-140175-1

Login Number: 140175

List Number: 2

Creator: Hall, Samuel C

List Source: TestAmerica Burlington

List Creation: 08/18/18 01:44 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	526117
Sample custody seals, if present, are 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	4.9°C
COC is present.	True	Refer to Job Narrative for details.
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	COC not relinquished.
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received 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	False	Refer to Job Narrative for details.
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

Login Sample Receipt Checklist

Client: Ecology and Environment, Inc.

Job Number: 480-140175-1

Login Number: 140175

List Number: 3

Creator: Johnson, Eleanor E

List Source: TestAmerica Burlington

List Creation: 08/28/18 12:06 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	Water present in cooler; indicates evidence of melted ice.
Cooler Temperature is acceptable.	False	Cooler temperature outside required temperature criteria.
Cooler Temperature is recorded.	True	25.3 from 480-140175-L-5 (250 mL Poly)
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?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received 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	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	False	V-3 has 6mm of headspace
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-140249-1

Client Project/Site: Davis Howland Oil Company - NYSDEC

For:

Ecology and Environment, Inc.

386 Pleasant View Drive

Lancaster, New York 14086

Attn: Ashlee Patnode



Authorized for release by:

8/30/2018 7:02:21 PM

Rebecca Jones, Project Management Assistant I

rebecca.jones@testamericainc.com

Designee for

John Schove, Project Manager II

(716)504-9838

john.schove@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

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

TestAmerica Job ID: 480-140249-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC VOA

Qualifier	Qualifier Description
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.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.
E	Result exceeded calibration range.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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)

Case Narrative

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

TestAmerica Job ID: 480-140249-1

Job ID: 480-140249-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-140249-1

Comments

No additional comments.

Receipt

The samples were received on 8/10/2018 6:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.1° C and 1.0° C.

GC/MS VOA

Method(s) 624.1: The following volatiles sample was diluted due to foaming at the time of purging during the original sample analysis: MW2S-08102018 (480-140249-4). Elevated reporting limits (RLs) are provided.

Method(s) 624.1: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW5R-08102018 (480-140249-5). 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.

HPLC/IC

Method(s) 9056A: The following sample(s) was diluted to bring the concentration of target analytes within the calibration range: MW14R-08102018 (480-140249-3) and MW2S-08102018 (480-140249-4). 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.

GC VOA

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

Metals

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

General Chemistry

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

Detection Summary

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

TestAmerica Job ID: 480-140249-1

Client Sample ID: TB-08102018

Lab Sample ID: 480-140249-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	4.1	J	5.0	0.54	ug/L	1		624.1	Total/NA

Client Sample ID: PZ-1-08102018

Lab Sample ID: 480-140249-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	6.7		5.0	0.57	ug/L	1		624.1	Total/NA
Trichloroethylene	5.1		5.0	0.60	ug/L	1		624.1	Total/NA

Client Sample ID: MW14R-08102018

Lab Sample ID: 480-140249-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	7.1		5.0	0.57	ug/L	1		624.1	Total/NA
trans-1,2-Dichloroethene	3.9	J	5.0	0.59	ug/L	1		624.1	Total/NA
Trichloroethylene	24		5.0	0.60	ug/L	1		624.1	Total/NA
Carbon dioxide	19000		5000	1900	ug/L	1		RSK-175	Total/NA
Methane	65		4.0	1.0	ug/L	1		RSK-175	Total/NA
Iron	0.19		0.050	0.019	mg/L	1		6010C	Total/NA
Manganese	0.14	B	0.0030	0.00040	mg/L	1		6010C	Total/NA
Iron	0.12		0.050	0.019	mg/L	1		6010C	Dissolved
Manganese	0.14	B	0.0030	0.00040	mg/L	1		6010C	Dissolved
Alkalinity, Total	306	B	40.0	16.0	mg/L	4		310.2	Total/NA
Nitrate as N	0.032	J	0.050	0.020	mg/L	1		353.2	Total/NA
Chemical Oxygen Demand	5.2	J	10.0	5.0	mg/L	1		410.4	Total/NA
Sulfate	91.2		10.0	1.7	mg/L	5		9056A	Total/NA
Total Organic Carbon	2.3	B	1.0	0.43	mg/L	1		9060A	Total/NA

Client Sample ID: MW2S-08102018

Lab Sample ID: 480-140249-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	140000		5000	1900	ug/L	1		RSK-175	Total/NA
Methane	2.9	J	4.0	1.0	ug/L	1		RSK-175	Total/NA
Iron	2.1		0.050	0.019	mg/L	1		6010C	Total/NA
Manganese	3.1	B	0.0030	0.00040	mg/L	1		6010C	Total/NA
Iron	2.2		0.050	0.019	mg/L	1		6010C	Dissolved
Manganese	3.3	B	0.0030	0.00040	mg/L	1		6010C	Dissolved
Alkalinity, Total	395	B	40.0	16.0	mg/L	4		310.2	Total/NA
Nitrate as N	0.041	J	0.050	0.020	mg/L	1		353.2	Total/NA
Chemical Oxygen Demand	18.8		10.0	5.0	mg/L	1		410.4	Total/NA
Sulfate	443		10.0	1.7	mg/L	5		9056A	Total/NA
Total Organic Carbon	9.2	B	1.0	0.43	mg/L	1		9060A	Total/NA

Client Sample ID: MW5R-08102018

Lab Sample ID: 480-140249-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	9.6	J	50	5.9	ug/L	10		624.1	Total/NA
cis-1,2-Dichloroethene	330		50	5.7	ug/L	10		624.1	Total/NA
Methylene Chloride	8.7	J	50	8.1	ug/L	10		624.1	Total/NA
Trichloroethylene	15	J	50	6.0	ug/L	10		624.1	Total/NA
Vinyl chloride	55		50	7.5	ug/L	10		624.1	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Detection Summary

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

TestAmerica Job ID: 480-140249-1

Client Sample ID: PZ3-08102018

Lab Sample ID: 480-140249-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
1,1,1-Trichloroethane	5.3		5.0	0.39	ug/L		1		624.1	Total/NA
1,1-Dichloroethane	16		5.0	0.59	ug/L		1		624.1	Total/NA
cis-1,2-Dichloroethene	11		5.0	0.57	ug/L		1		624.1	Total/NA
Trichloroethylene	2.6	J	5.0	0.60	ug/L		1		624.1	Total/NA
Vinyl chloride	1.1	J	5.0	0.75	ug/L		1		624.1	Total/NA

Client Sample ID: MW14S-08102018

Lab Sample ID: 480-140249-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Acetone	3.5	J	25	2.0	ug/L		1		624.1	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-140249-1

Client Sample ID: TB-08102018

Date Collected: 08/10/18 07:30

Date Received: 08/10/18 18:30

Lab Sample ID: 480-140249-1

Matrix: Water

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			08/13/18 14:35	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/13/18 14:35	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/13/18 14:35	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			08/13/18 14:35	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/13/18 14:35	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/13/18 14:35	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			08/13/18 14:35	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/13/18 14:35	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/13/18 14:35	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/13/18 14:35	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/13/18 14:35	1
Acetone	25	U	25	2.0	ug/L			08/13/18 14:35	1
Benzene	5.0	U	5.0	0.60	ug/L			08/13/18 14:35	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/13/18 14:35	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/13/18 14:35	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/13/18 14:35	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/13/18 14:35	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/13/18 14:35	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/13/18 14:35	1
Chloroform	4.1	J	5.0	0.54	ug/L			08/13/18 14:35	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/13/18 14:35	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			08/13/18 14:35	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/13/18 14:35	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/13/18 14:35	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/13/18 14:35	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/13/18 14:35	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/13/18 14:35	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/13/18 14:35	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			08/13/18 14:35	1
Toluene	5.0	U	5.0	0.45	ug/L			08/13/18 14:35	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			08/13/18 14:35	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/13/18 14:35	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			08/13/18 14:35	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/13/18 14:35	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			08/13/18 14:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		68 - 130		08/13/18 14:35	1
4-Bromofluorobenzene (Surr)	104		76 - 123		08/13/18 14:35	1
Toluene-d8 (Surr)	100		77 - 120		08/13/18 14:35	1
Dibromofluoromethane (Surr)	104		75 - 123		08/13/18 14:35	1

Client Sample ID: PZ-1-08102018

Date Collected: 08/10/18 10:25

Date Received: 08/10/18 18:30

Lab Sample ID: 480-140249-2

Matrix: Water

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			08/14/18 13:14	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/14/18 13:14	1

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-140249-1

Client Sample ID: PZ-1-08102018

Lab Sample ID: 480-140249-2

Date Collected: 08/10/18 10:25

Matrix: Water

Date Received: 08/10/18 18:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/14/18 13:14	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			08/14/18 13:14	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/14/18 13:14	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/14/18 13:14	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			08/14/18 13:14	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/14/18 13:14	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/14/18 13:14	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/14/18 13:14	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/14/18 13:14	1
Acetone	25	U	25	2.0	ug/L			08/14/18 13:14	1
Benzene	5.0	U	5.0	0.60	ug/L			08/14/18 13:14	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/14/18 13:14	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/14/18 13:14	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/14/18 13:14	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/14/18 13:14	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/14/18 13:14	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/14/18 13:14	1
Chloroform	5.0	U	5.0	0.54	ug/L			08/14/18 13:14	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/14/18 13:14	1
cis-1,2-Dichloroethene	6.7		5.0	0.57	ug/L			08/14/18 13:14	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/14/18 13:14	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/14/18 13:14	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/14/18 13:14	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/14/18 13:14	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/14/18 13:14	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/14/18 13:14	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			08/14/18 13:14	1
Toluene	5.0	U	5.0	0.45	ug/L			08/14/18 13:14	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			08/14/18 13:14	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/14/18 13:14	1
Trichloroethylene	5.1		5.0	0.60	ug/L			08/14/18 13:14	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/14/18 13:14	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			08/14/18 13:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		68 - 130		08/14/18 13:14	1
4-Bromofluorobenzene (Surr)	103		76 - 123		08/14/18 13:14	1
Toluene-d8 (Surr)	100		77 - 120		08/14/18 13:14	1
Dibromofluoromethane (Surr)	104		75 - 123		08/14/18 13:14	1

Client Sample ID: MW14R-08102018

Lab Sample ID: 480-140249-3

Date Collected: 08/10/18 11:40

Matrix: Water

Date Received: 08/10/18 18:30

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			08/15/18 12:07	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/15/18 12:07	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/15/18 12:07	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			08/15/18 12:07	1

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-140249-1

Client Sample ID: MW14R-08102018

Lab Sample ID: 480-140249-3

Date Collected: 08/10/18 11:40

Matrix: Water

Date Received: 08/10/18 18:30

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			08/15/18 12:07	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/15/18 12:07	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			08/15/18 12:07	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/15/18 12:07	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/15/18 12:07	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/15/18 12:07	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/15/18 12:07	1
Acetone	25	U	25	2.0	ug/L			08/15/18 12:07	1
Benzene	5.0	U	5.0	0.60	ug/L			08/15/18 12:07	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/15/18 12:07	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/15/18 12:07	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/15/18 12:07	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/15/18 12:07	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/15/18 12:07	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/15/18 12:07	1
Chloroform	5.0	U	5.0	0.54	ug/L			08/15/18 12:07	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/15/18 12:07	1
cis-1,2-Dichloroethene	7.1		5.0	0.57	ug/L			08/15/18 12:07	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/15/18 12:07	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/15/18 12:07	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/15/18 12:07	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/15/18 12:07	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/15/18 12:07	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/15/18 12:07	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			08/15/18 12:07	1
Toluene	5.0	U	5.0	0.45	ug/L			08/15/18 12:07	1
trans-1,2-Dichloroethene	3.9	J	5.0	0.59	ug/L			08/15/18 12:07	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/15/18 12:07	1
Trichloroethylene	24		5.0	0.60	ug/L			08/15/18 12:07	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/15/18 12:07	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			08/15/18 12:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		68 - 130		08/15/18 12:07	1
4-Bromofluorobenzene (Surr)	102		76 - 123		08/15/18 12:07	1
Toluene-d8 (Surr)	99		77 - 120		08/15/18 12:07	1
Dibromofluoromethane (Surr)	106		75 - 123		08/15/18 12:07	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	19000		5000	1900	ug/L			08/14/18 16:31	1
Methane	65		4.0	1.0	ug/L			08/13/18 15:49	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.19		0.050	0.019	mg/L		08/15/18 08:22	08/15/18 22:36	1
Manganese	0.14	B	0.0030	0.00040	mg/L		08/15/18 08:22	08/15/18 22:36	1

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-140249-1

Client Sample ID: MW14R-08102018

Lab Sample ID: 480-140249-3

Date Collected: 08/10/18 11:40

Matrix: Water

Date Received: 08/10/18 18:30

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.12		0.050	0.019	mg/L		08/13/18 08:52	08/20/18 12:53	1
Manganese	0.14	B	0.0030	0.00040	mg/L		08/13/18 08:52	08/20/18 12:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	306	B	40.0	16.0	mg/L			08/17/18 15:08	4
Nitrate as N	0.032	J	0.050	0.020	mg/L			08/11/18 11:04	1
Chemical Oxygen Demand	5.2	J	10.0	5.0	mg/L			08/15/18 15:35	1
Sulfate	91.2		10.0	1.7	mg/L			08/21/18 19:43	5
Total Organic Carbon	2.3	B	1.0	0.43	mg/L			08/21/18 22:18	1
Biochemical Oxygen Demand	2.0	U	2.0	2.0	mg/L			08/11/18 09:22	1

Client Sample ID: MW2S-08102018

Lab Sample ID: 480-140249-4

Date Collected: 08/10/18 13:30

Matrix: Water

Date Received: 08/10/18 18:30

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			08/14/18 14:03	10
1,1,2,2-Tetrachloroethane	50	U	50	2.6	ug/L			08/14/18 14:03	10
1,1,2-Trichloroethane	50	U	50	4.8	ug/L			08/14/18 14:03	10
1,1-Dichloroethane	50	U	50	5.9	ug/L			08/14/18 14:03	10
1,1-Dichloroethene	50	U	50	8.5	ug/L			08/14/18 14:03	10
1,2-Dichlorobenzene	50	U	50	4.4	ug/L			08/14/18 14:03	10
1,2-Dichloroethane	50	U	50	6.0	ug/L			08/14/18 14:03	10
1,2-Dichloropropane	50	U	50	6.1	ug/L			08/14/18 14:03	10
1,3-Dichlorobenzene	50	U	50	5.4	ug/L			08/14/18 14:03	10
1,4-Dichlorobenzene	50	U	50	5.1	ug/L			08/14/18 14:03	10
2-Chloroethyl vinyl ether	250	U	250	19	ug/L			08/14/18 14:03	10
Acetone	250	U	250	20	ug/L			08/14/18 14:03	10
Benzene	50	U	50	6.0	ug/L			08/14/18 14:03	10
Bromoform	50	U	50	4.7	ug/L			08/14/18 14:03	10
Bromomethane	50	U	50	12	ug/L			08/14/18 14:03	10
Carbon tetrachloride	50	U	50	5.1	ug/L			08/14/18 14:03	10
Chlorobenzene	50	U	50	4.8	ug/L			08/14/18 14:03	10
Dibromochloromethane	50	U	50	4.1	ug/L			08/14/18 14:03	10
Chloroethane	50	U	50	8.7	ug/L			08/14/18 14:03	10
Chloroform	50	U	50	5.4	ug/L			08/14/18 14:03	10
Chloromethane	50	U	50	6.4	ug/L			08/14/18 14:03	10
cis-1,2-Dichloroethene	50	U	50	5.7	ug/L			08/14/18 14:03	10
cis-1,3-Dichloropropene	50	U	50	3.3	ug/L			08/14/18 14:03	10
Bromodichloromethane	50	U	50	5.4	ug/L			08/14/18 14:03	10
Ethylbenzene	50	U	50	4.6	ug/L			08/14/18 14:03	10
m-Xylene & p-Xylene	100	U	100	11	ug/L			08/14/18 14:03	10
Methylene Chloride	50	U	50	8.1	ug/L			08/14/18 14:03	10
o-Xylene	50	U	50	4.3	ug/L			08/14/18 14:03	10
Tetrachloroethylene	50	U	50	3.4	ug/L			08/14/18 14:03	10
Toluene	50	U	50	4.5	ug/L			08/14/18 14:03	10
trans-1,2-Dichloroethene	50	U	50	5.9	ug/L			08/14/18 14:03	10
trans-1,3-Dichloropropene	50	U	50	4.4	ug/L			08/14/18 14:03	10

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-140249-1

Client Sample ID: MW2S-08102018

Lab Sample ID: 480-140249-4

Date Collected: 08/10/18 13:30

Matrix: Water

Date Received: 08/10/18 18:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethylene	50	U	50	6.0	ug/L			08/14/18 14:03	10
Trichlorofluoromethane	50	U	50	4.5	ug/L			08/14/18 14:03	10
Vinyl chloride	50	U	50	7.5	ug/L			08/14/18 14:03	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		68 - 130		08/14/18 14:03	10
4-Bromofluorobenzene (Surr)	104		76 - 123		08/14/18 14:03	10
Toluene-d8 (Surr)	98		77 - 120		08/14/18 14:03	10
Dibromofluoromethane (Surr)	103		75 - 123		08/14/18 14:03	10

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	140000		5000	1900	ug/L			08/14/18 16:40	1
Methane	2.9	J	4.0	1.0	ug/L			08/13/18 16:06	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	2.1		0.050	0.019	mg/L		08/15/18 08:22	08/15/18 22:40	1
Manganese	3.1	B	0.0030	0.00040	mg/L		08/15/18 08:22	08/15/18 22:40	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	2.2		0.050	0.019	mg/L		08/13/18 08:52	08/20/18 12:57	1
Manganese	3.3	B	0.0030	0.00040	mg/L		08/13/18 08:52	08/20/18 12:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	395	B	40.0	16.0	mg/L			08/17/18 15:08	4
Nitrate as N	0.041	J	0.050	0.020	mg/L			08/11/18 11:20	1
Chemical Oxygen Demand	18.8		10.0	5.0	mg/L			08/15/18 15:35	1
Sulfate	443		10.0	1.7	mg/L			08/21/18 21:29	5
Total Organic Carbon	9.2	B	1.0	0.43	mg/L			08/22/18 01:06	1
Biochemical Oxygen Demand	2.0	U	2.0	2.0	mg/L			08/11/18 09:22	1

Client Sample ID: MW5R-08102018

Lab Sample ID: 480-140249-5

Date Collected: 08/10/18 16:30

Matrix: Water

Date Received: 08/10/18 18:30

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			08/16/18 13:26	10
1,1,1,2-Tetrachloroethane	50	U	50	2.6	ug/L			08/16/18 13:26	10
1,1,2-Trichloroethane	50	U	50	4.8	ug/L			08/16/18 13:26	10
1,1-Dichloroethane	9.6	J	50	5.9	ug/L			08/16/18 13:26	10
1,1-Dichloroethene	50	U	50	8.5	ug/L			08/16/18 13:26	10
1,2-Dichlorobenzene	50	U	50	4.4	ug/L			08/16/18 13:26	10
1,2-Dichloroethane	50	U	50	6.0	ug/L			08/16/18 13:26	10
1,2-Dichloropropane	50	U	50	6.1	ug/L			08/16/18 13:26	10
1,3-Dichlorobenzene	50	U	50	5.4	ug/L			08/16/18 13:26	10
1,4-Dichlorobenzene	50	U	50	5.1	ug/L			08/16/18 13:26	10
2-Chloroethyl vinyl ether	250	U	250	19	ug/L			08/16/18 13:26	10

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-140249-1

Client Sample ID: MW5R-08102018

Lab Sample ID: 480-140249-5

Date Collected: 08/10/18 16:30

Matrix: Water

Date Received: 08/10/18 18:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	250	U	250	20	ug/L			08/16/18 13:26	10
Benzene	50	U	50	6.0	ug/L			08/16/18 13:26	10
Bromoform	50	U	50	4.7	ug/L			08/16/18 13:26	10
Bromomethane	50	U	50	12	ug/L			08/16/18 13:26	10
Carbon tetrachloride	50	U	50	5.1	ug/L			08/16/18 13:26	10
Chlorobenzene	50	U	50	4.8	ug/L			08/16/18 13:26	10
Dibromochloromethane	50	U	50	4.1	ug/L			08/16/18 13:26	10
Chloroethane	50	U	50	8.7	ug/L			08/16/18 13:26	10
Chloroform	50	U	50	5.4	ug/L			08/16/18 13:26	10
Chloromethane	50	U	50	6.4	ug/L			08/16/18 13:26	10
cis-1,2-Dichloroethene	330		50	5.7	ug/L			08/16/18 13:26	10
cis-1,3-Dichloropropene	50	U	50	3.3	ug/L			08/16/18 13:26	10
Bromodichloromethane	50	U	50	5.4	ug/L			08/16/18 13:26	10
Ethylbenzene	50	U	50	4.6	ug/L			08/16/18 13:26	10
m-Xylene & p-Xylene	100	U	100	11	ug/L			08/16/18 13:26	10
Methylene Chloride	8.7 J		50	8.1	ug/L			08/16/18 13:26	10
o-Xylene	50	U	50	4.3	ug/L			08/16/18 13:26	10
Tetrachloroethylene	50	U	50	3.4	ug/L			08/16/18 13:26	10
Toluene	50	U	50	4.5	ug/L			08/16/18 13:26	10
trans-1,2-Dichloroethene	50	U	50	5.9	ug/L			08/16/18 13:26	10
trans-1,3-Dichloropropene	50	U	50	4.4	ug/L			08/16/18 13:26	10
Trichloroethylene	15 J		50	6.0	ug/L			08/16/18 13:26	10
Trichlorofluoromethane	50	U	50	4.5	ug/L			08/16/18 13:26	10
Vinyl chloride	55		50	7.5	ug/L			08/16/18 13:26	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		68 - 130		08/16/18 13:26	10
4-Bromofluorobenzene (Surr)	101		76 - 123		08/16/18 13:26	10
Toluene-d8 (Surr)	99		77 - 120		08/16/18 13:26	10
Dibromofluoromethane (Surr)	107		75 - 123		08/16/18 13:26	10

Client Sample ID: PZ3-08102018

Lab Sample ID: 480-140249-6

Date Collected: 08/10/18 16:10

Matrix: Water

Date Received: 08/10/18 18:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	5.3		5.0	0.39	ug/L			08/17/18 13:44	1
1,1,1,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/17/18 13:44	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/17/18 13:44	1
1,1-Dichloroethane	16		5.0	0.59	ug/L			08/17/18 13:44	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/17/18 13:44	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/17/18 13:44	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			08/17/18 13:44	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/17/18 13:44	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/17/18 13:44	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/17/18 13:44	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/17/18 13:44	1
Acetone	25	U	25	2.0	ug/L			08/17/18 13:44	1
Benzene	5.0	U	5.0	0.60	ug/L			08/17/18 13:44	1

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-140249-1

Client Sample ID: PZ3-08102018

Lab Sample ID: 480-140249-6

Date Collected: 08/10/18 16:10

Matrix: Water

Date Received: 08/10/18 18:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	5.0	U	5.0	0.47	ug/L			08/17/18 13:44	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/17/18 13:44	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/17/18 13:44	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/17/18 13:44	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/17/18 13:44	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/17/18 13:44	1
Chloroform	5.0	U	5.0	0.54	ug/L			08/17/18 13:44	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/17/18 13:44	1
cis-1,2-Dichloroethene	11		5.0	0.57	ug/L			08/17/18 13:44	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/17/18 13:44	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/17/18 13:44	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/17/18 13:44	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/17/18 13:44	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/17/18 13:44	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/17/18 13:44	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			08/17/18 13:44	1
Toluene	5.0	U	5.0	0.45	ug/L			08/17/18 13:44	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			08/17/18 13:44	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/17/18 13:44	1
Trichloroethylene	2.6	J	5.0	0.60	ug/L			08/17/18 13:44	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/17/18 13:44	1
Vinyl chloride	1.1	J	5.0	0.75	ug/L			08/17/18 13:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		68 - 130		08/17/18 13:44	1
4-Bromofluorobenzene (Surr)	103		76 - 123		08/17/18 13:44	1
Toluene-d8 (Surr)	98		77 - 120		08/17/18 13:44	1
Dibromofluoromethane (Surr)	108		75 - 123		08/17/18 13:44	1

Client Sample ID: MW14S-08102018

Lab Sample ID: 480-140249-7

Date Collected: 08/10/18 14:15

Matrix: Water

Date Received: 08/10/18 18:30

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			08/17/18 14:08	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/17/18 14:08	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/17/18 14:08	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			08/17/18 14:08	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/17/18 14:08	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/17/18 14:08	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			08/17/18 14:08	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/17/18 14:08	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/17/18 14:08	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/17/18 14:08	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/17/18 14:08	1
Acetone	3.5	J	25	2.0	ug/L			08/17/18 14:08	1
Benzene	5.0	U	5.0	0.60	ug/L			08/17/18 14:08	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/17/18 14:08	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/17/18 14:08	1

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-140249-1

Client Sample ID: MW14S-08102018

Lab Sample ID: 480-140249-7

Date Collected: 08/10/18 14:15

Matrix: Water

Date Received: 08/10/18 18:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/17/18 14:08	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/17/18 14:08	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/17/18 14:08	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/17/18 14:08	1
Chloroform	5.0	U	5.0	0.54	ug/L			08/17/18 14:08	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/17/18 14:08	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			08/17/18 14:08	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/17/18 14:08	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/17/18 14:08	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/17/18 14:08	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/17/18 14:08	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/17/18 14:08	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/17/18 14:08	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			08/17/18 14:08	1
Toluene	5.0	U	5.0	0.45	ug/L			08/17/18 14:08	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			08/17/18 14:08	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/17/18 14:08	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			08/17/18 14:08	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/17/18 14:08	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			08/17/18 14:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		68 - 130		08/17/18 14:08	1
4-Bromofluorobenzene (Surr)	103		76 - 123		08/17/18 14:08	1
Toluene-d8 (Surr)	99		77 - 120		08/17/18 14:08	1
Dibromofluoromethane (Surr)	107		75 - 123		08/17/18 14:08	1

Surrogate Summary

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

TestAmerica Job ID: 480-140249-1

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

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	DCA (68-130)	BFB (76-123)	TOL (77-120)	DBFM (75-123)
480-140249-1	TB-08102018	112	104	100	104
480-140249-2	PZ-1-08102018	109	103	100	104
480-140249-3	MW14R-08102018	115	102	99	106
480-140249-4	MW2S-08102018	111	104	98	103
480-140249-5	MW5R-08102018	115	101	99	107
480-140249-6	PZ3-08102018	115	103	98	108
480-140249-7	MW14S-08102018	115	103	99	107
LCS 480-429237/5	Lab Control Sample	106	103	100	103
LCS 480-429443/14	Lab Control Sample	105	105	101	105
LCS 480-429710/5	Lab Control Sample	109	106	100	106
LCS 480-429906/5	Lab Control Sample	110	105	101	106
LCS 480-430189/5	Lab Control Sample	107	104	99	108
MB 480-429237/7	Method Blank	108	103	100	106
MB 480-429443/7	Method Blank	111	102	99	103
MB 480-429710/7	Method Blank	110	102	99	106
MB 480-429906/7	Method Blank	114	105	100	107
MB 480-430189/7	Method Blank	114	104	99	110

Surrogate Legend

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

QC Sample Results

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

TestAmerica Job ID: 480-140249-1

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

Lab Sample ID: MB 480-429237/7

Matrix: Water

Analysis Batch: 429237

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			08/13/18 12:37	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/13/18 12:37	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/13/18 12:37	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			08/13/18 12:37	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/13/18 12:37	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/13/18 12:37	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			08/13/18 12:37	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/13/18 12:37	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/13/18 12:37	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/13/18 12:37	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/13/18 12:37	1
Acetone	25	U	25	2.0	ug/L			08/13/18 12:37	1
Benzene	5.0	U	5.0	0.60	ug/L			08/13/18 12:37	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/13/18 12:37	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/13/18 12:37	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/13/18 12:37	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/13/18 12:37	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/13/18 12:37	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/13/18 12:37	1
Chloroform	5.0	U	5.0	0.54	ug/L			08/13/18 12:37	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/13/18 12:37	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			08/13/18 12:37	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/13/18 12:37	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/13/18 12:37	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/13/18 12:37	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/13/18 12:37	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/13/18 12:37	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/13/18 12:37	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			08/13/18 12:37	1
Toluene	5.0	U	5.0	0.45	ug/L			08/13/18 12:37	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			08/13/18 12:37	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/13/18 12:37	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			08/13/18 12:37	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/13/18 12:37	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			08/13/18 12:37	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		68 - 130		08/13/18 12:37	1
4-Bromofluorobenzene (Surr)	103		76 - 123		08/13/18 12:37	1
Toluene-d8 (Surr)	100		77 - 120		08/13/18 12:37	1
Dibromofluoromethane (Surr)	106		75 - 123		08/13/18 12:37	1

Lab Sample ID: LCS 480-429237/5

Matrix: Water

Analysis Batch: 429237

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	18.7		ug/L		94	52 - 162

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140249-1

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

Lab Sample ID: LCS 480-429237/5

Matrix: Water

Analysis Batch: 429237

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	19.9		ug/L		100	46 - 157
1,1,2-Trichloroethane	20.0	19.0		ug/L		95	52 - 150
1,1-Dichloroethane	20.0	18.6		ug/L		93	59 - 155
1,1-Dichloroethene	20.0	17.2		ug/L		86	1 - 234
1,2-Dichlorobenzene	20.0	18.2		ug/L		91	18 - 190
1,2-Dichloroethane	20.0	20.1		ug/L		101	49 - 155
1,2-Dichloropropane	20.0	18.6		ug/L		93	1 - 210
1,3-Dichlorobenzene	20.0	18.2		ug/L		91	59 - 156
1,4-Dichlorobenzene	20.0	18.4		ug/L		92	18 - 190
2-Chloroethyl vinyl ether	20.0	19.8	J	ug/L		99	1 - 305
Benzene	20.0	18.4		ug/L		92	37 - 151
Bromoform	20.0	18.5		ug/L		92	45 - 169
Bromomethane	20.0	18.4		ug/L		92	1 - 242
Carbon tetrachloride	20.0	18.5		ug/L		92	70 - 140
Chlorobenzene	20.0	17.9		ug/L		90	37 - 160
Dibromochloromethane	20.0	18.9		ug/L		94	53 - 149
Chloroethane	20.0	18.7		ug/L		93	14 - 230
Chloroform	20.0	19.0		ug/L		95	51 - 138
Chloromethane	20.0	18.0		ug/L		90	1 - 273
cis-1,3-Dichloropropene	20.0	19.3		ug/L		97	1 - 227
Bromodichloromethane	20.0	19.2		ug/L		96	35 - 155
Ethylbenzene	20.0	17.7		ug/L		88	37 - 162
Methylene Chloride	20.0	18.4		ug/L		92	1 - 221
Tetrachloroethylene	20.0	17.3		ug/L		87	64 - 148
Toluene	20.0	17.8		ug/L		89	47 - 150
trans-1,2-Dichloroethene	20.0	18.0		ug/L		90	54 - 156
trans-1,3-Dichloropropene	20.0	18.8		ug/L		94	17 - 183
Trichloroethylene	20.0	18.4		ug/L		92	71 - 157
Trichlorofluoromethane	20.0	19.7		ug/L		99	17 - 181
Vinyl chloride	20.0	18.1		ug/L		91	1 - 251

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	106		68 - 130
4-Bromofluorobenzene (Surr)	103		76 - 123
Toluene-d8 (Surr)	100		77 - 120
Dibromofluoromethane (Surr)	103		75 - 123

Lab Sample ID: MB 480-429443/7

Matrix: Water

Analysis Batch: 429443

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			08/14/18 12:11	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/14/18 12:11	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/14/18 12:11	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			08/14/18 12:11	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/14/18 12:11	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/14/18 12:11	1

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140249-1

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

Lab Sample ID: MB 480-429443/7

Matrix: Water

Analysis Batch: 429443

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			08/14/18 12:11	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/14/18 12:11	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/14/18 12:11	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/14/18 12:11	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/14/18 12:11	1
Acetone	25	U	25	2.0	ug/L			08/14/18 12:11	1
Benzene	5.0	U	5.0	0.60	ug/L			08/14/18 12:11	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/14/18 12:11	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/14/18 12:11	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/14/18 12:11	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/14/18 12:11	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/14/18 12:11	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/14/18 12:11	1
Chloroform	5.0	U	5.0	0.54	ug/L			08/14/18 12:11	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/14/18 12:11	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			08/14/18 12:11	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/14/18 12:11	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/14/18 12:11	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/14/18 12:11	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/14/18 12:11	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/14/18 12:11	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/14/18 12:11	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			08/14/18 12:11	1
Toluene	5.0	U	5.0	0.45	ug/L			08/14/18 12:11	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			08/14/18 12:11	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/14/18 12:11	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			08/14/18 12:11	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/14/18 12:11	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			08/14/18 12:11	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		68 - 130		08/14/18 12:11	1
4-Bromofluorobenzene (Surr)	102		76 - 123		08/14/18 12:11	1
Toluene-d8 (Surr)	99		77 - 120		08/14/18 12:11	1
Dibromofluoromethane (Surr)	103		75 - 123		08/14/18 12:11	1

Lab Sample ID: LCS 480-429443/14

Matrix: Water

Analysis Batch: 429443

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	21.0		ug/L		105	52 - 162
1,1,1,2-Tetrachloroethane	20.0	20.3		ug/L		102	46 - 157
1,1,2-Trichloroethane	20.0	20.4		ug/L		102	52 - 150
1,1-Dichloroethane	20.0	20.9		ug/L		105	59 - 155
1,1-Dichloroethene	20.0	21.1		ug/L		106	1 - 234
1,2-Dichlorobenzene	20.0	20.5		ug/L		102	18 - 190
1,2-Dichloroethane	20.0	22.2		ug/L		111	49 - 155

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140249-1

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

Lab Sample ID: LCS 480-429443/14

Matrix: Water

Analysis Batch: 429443

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		103	1 - 210
1,3-Dichlorobenzene	20.0	20.5		ug/L		103	59 - 156
1,4-Dichlorobenzene	20.0	20.7		ug/L		103	18 - 190
2-Chloroethyl vinyl ether	20.0	20.5	J	ug/L		102	1 - 305
Benzene	20.0	20.9		ug/L		105	37 - 151
Bromoform	20.0	19.5		ug/L		98	45 - 169
Bromomethane	20.0	20.7		ug/L		104	1 - 242
Carbon tetrachloride	20.0	21.1		ug/L		105	70 - 140
Chlorobenzene	20.0	20.2		ug/L		101	37 - 160
Dibromochloromethane	20.0	20.3		ug/L		102	53 - 149
Chloroethane	20.0	20.5		ug/L		103	14 - 230
Chloroform	20.0	21.3		ug/L		107	51 - 138
Chloromethane	20.0	20.9		ug/L		104	1 - 273
cis-1,3-Dichloropropene	20.0	21.1		ug/L		106	1 - 227
Bromodichloromethane	20.0	21.4		ug/L		107	35 - 155
Ethylbenzene	20.0	20.4		ug/L		102	37 - 162
Methylene Chloride	20.0	21.0		ug/L		105	1 - 221
Tetrachloroethylene	20.0	20.4		ug/L		102	64 - 148
Toluene	20.0	20.1		ug/L		100	47 - 150
trans-1,2-Dichloroethene	20.0	21.0		ug/L		105	54 - 156
trans-1,3-Dichloropropene	20.0	20.3		ug/L		102	17 - 183
Trichloroethylene	20.0	21.0		ug/L		105	71 - 157
Trichlorofluoromethane	20.0	21.6		ug/L		108	17 - 181
Vinyl chloride	20.0	21.3		ug/L		106	1 - 251

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	105		68 - 130
4-Bromofluorobenzene (Surr)	105		76 - 123
Toluene-d8 (Surr)	101		77 - 120
Dibromofluoromethane (Surr)	105		75 - 123

Lab Sample ID: MB 480-429710/7

Matrix: Water

Analysis Batch: 429710

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			08/15/18 11:29	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/15/18 11:29	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/15/18 11:29	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			08/15/18 11:29	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/15/18 11:29	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/15/18 11:29	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			08/15/18 11:29	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/15/18 11:29	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/15/18 11:29	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/15/18 11:29	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/15/18 11:29	1
Acetone	25	U	25	2.0	ug/L			08/15/18 11:29	1

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140249-1

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

Lab Sample ID: MB 480-429710/7

Matrix: Water

Analysis Batch: 429710

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	5.0	U	5.0	0.60	ug/L			08/15/18 11:29	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/15/18 11:29	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/15/18 11:29	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/15/18 11:29	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/15/18 11:29	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/15/18 11:29	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/15/18 11:29	1
Chloroform	5.0	U	5.0	0.54	ug/L			08/15/18 11:29	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/15/18 11:29	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			08/15/18 11:29	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/15/18 11:29	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/15/18 11:29	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/15/18 11:29	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/15/18 11:29	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/15/18 11:29	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/15/18 11:29	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			08/15/18 11:29	1
Toluene	5.0	U	5.0	0.45	ug/L			08/15/18 11:29	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			08/15/18 11:29	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/15/18 11:29	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			08/15/18 11:29	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/15/18 11:29	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			08/15/18 11:29	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		68 - 130		08/15/18 11:29	1
4-Bromofluorobenzene (Surr)	102		76 - 123		08/15/18 11:29	1
Toluene-d8 (Surr)	99		77 - 120		08/15/18 11:29	1
Dibromofluoromethane (Surr)	106		75 - 123		08/15/18 11:29	1

Lab Sample ID: LCS 480-429710/5

Matrix: Water

Analysis Batch: 429710

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	19.1		ug/L		96	52 - 162
1,1,2,2-Tetrachloroethane	20.0	20.0		ug/L		100	46 - 157
1,1,2-Trichloroethane	20.0	20.0		ug/L		100	52 - 150
1,1-Dichloroethane	20.0	19.1		ug/L		95	59 - 155
1,1-Dichloroethene	20.0	18.1		ug/L		90	1 - 234
1,2-Dichlorobenzene	20.0	19.1		ug/L		96	18 - 190
1,2-Dichloroethane	20.0	19.9		ug/L		100	49 - 155
1,2-Dichloropropane	20.0	19.7		ug/L		98	1 - 210
1,3-Dichlorobenzene	20.0	18.9		ug/L		95	59 - 156
1,4-Dichlorobenzene	20.0	18.9		ug/L		95	18 - 190
2-Chloroethyl vinyl ether	20.0	21.2	J	ug/L		106	1 - 305
Benzene	20.0	19.2		ug/L		96	37 - 151
Bromoform	20.0	19.5		ug/L		97	45 - 169

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140249-1

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

Lab Sample ID: LCS 480-429710/5

Matrix: Water

Analysis Batch: 429710

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromomethane	20.0	19.4		ug/L		97	1 - 242
Carbon tetrachloride	20.0	18.5		ug/L		92	70 - 140
Chlorobenzene	20.0	18.6		ug/L		93	37 - 160
Dibromochloromethane	20.0	19.4		ug/L		97	53 - 149
Chloroethane	20.0	19.8		ug/L		99	14 - 230
Chloroform	20.0	20.2		ug/L		101	51 - 138
Chloromethane	20.0	17.7		ug/L		88	1 - 273
cis-1,3-Dichloropropene	20.0	20.1		ug/L		101	1 - 227
Bromodichloromethane	20.0	20.0		ug/L		100	35 - 155
Ethylbenzene	20.0	18.4		ug/L		92	37 - 162
Methylene Chloride	20.0	19.8		ug/L		99	1 - 221
Tetrachloroethylene	20.0	17.7		ug/L		88	64 - 148
Toluene	20.0	18.3		ug/L		91	47 - 150
trans-1,2-Dichloroethene	20.0	19.0		ug/L		95	54 - 156
trans-1,3-Dichloropropene	20.0	19.7		ug/L		99	17 - 183
Trichloroethylene	20.0	18.9		ug/L		94	71 - 157
Trichlorofluoromethane	20.0	19.1		ug/L		96	17 - 181
Vinyl chloride	20.0	18.5		ug/L		93	1 - 251

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	109		68 - 130
4-Bromofluorobenzene (Surr)	106		76 - 123
Toluene-d8 (Surr)	100		77 - 120
Dibromofluoromethane (Surr)	106		75 - 123

Lab Sample ID: MB 480-429906/7

Matrix: Water

Analysis Batch: 429906

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			08/16/18 12:07	1
1,1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/16/18 12:07	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/16/18 12:07	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			08/16/18 12:07	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/16/18 12:07	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/16/18 12:07	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			08/16/18 12:07	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/16/18 12:07	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/16/18 12:07	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/16/18 12:07	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/16/18 12:07	1
Acetone	25	U	25	2.0	ug/L			08/16/18 12:07	1
Benzene	5.0	U	5.0	0.60	ug/L			08/16/18 12:07	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/16/18 12:07	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/16/18 12:07	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/16/18 12:07	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/16/18 12:07	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/16/18 12:07	1

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140249-1

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

Lab Sample ID: MB 480-429906/7

Matrix: Water

Analysis Batch: 429906

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroethane	5.0	U	5.0	0.87	ug/L			08/16/18 12:07	1
Chloroform	5.0	U	5.0	0.54	ug/L			08/16/18 12:07	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/16/18 12:07	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			08/16/18 12:07	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/16/18 12:07	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/16/18 12:07	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/16/18 12:07	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/16/18 12:07	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/16/18 12:07	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/16/18 12:07	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			08/16/18 12:07	1
Toluene	5.0	U	5.0	0.45	ug/L			08/16/18 12:07	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			08/16/18 12:07	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/16/18 12:07	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			08/16/18 12:07	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/16/18 12:07	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			08/16/18 12:07	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		68 - 130		08/16/18 12:07	1
4-Bromofluorobenzene (Surr)	105		76 - 123		08/16/18 12:07	1
Toluene-d8 (Surr)	100		77 - 120		08/16/18 12:07	1
Dibromofluoromethane (Surr)	107		75 - 123		08/16/18 12:07	1

Lab Sample ID: LCS 480-429906/5

Matrix: Water

Analysis Batch: 429906

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
1,1,2,2-Tetrachloroethane	20.0	20.8		ug/L		104	46 - 157
1,1,2-Trichloroethane	20.0	20.7		ug/L		103	52 - 150
1,1-Dichloroethane	20.0	20.9		ug/L		104	59 - 155
1,1-Dichloroethene	20.0	20.7		ug/L		104	1 - 234
1,2-Dichlorobenzene	20.0	19.8		ug/L		99	18 - 190
1,2-Dichloroethane	20.0	22.6		ug/L		113	49 - 155
1,2-Dichloropropane	20.0	20.7		ug/L		104	1 - 210
1,3-Dichlorobenzene	20.0	19.5		ug/L		97	59 - 156
1,4-Dichlorobenzene	20.0	19.7		ug/L		99	18 - 190
2-Chloroethyl vinyl ether	20.0	21.5	J	ug/L		108	1 - 305
Benzene	20.0	20.7		ug/L		104	37 - 151
Bromoform	20.0	19.7		ug/L		98	45 - 169
Bromomethane	20.0	19.1		ug/L		96	1 - 242
Carbon tetrachloride	20.0	21.3		ug/L		107	70 - 140
Chlorobenzene	20.0	19.7		ug/L		99	37 - 160
Dibromochloromethane	20.0	20.3		ug/L		101	53 - 149
Chloroethane	20.0	19.3		ug/L		96	14 - 230
Chloroform	20.0	21.0		ug/L		105	51 - 138

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140249-1

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

Lab Sample ID: LCS 480-429906/5

Matrix: Water

Analysis Batch: 429906

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloromethane	20.0	19.5		ug/L		98	1 - 273
cis-1,3-Dichloropropene	20.0	21.3		ug/L		106	1 - 227
Bromodichloromethane	20.0	21.3		ug/L		106	35 - 155
Ethylbenzene	20.0	19.8		ug/L		99	37 - 162
Methylene Chloride	20.0	20.2		ug/L		101	1 - 221
Tetrachloroethylene	20.0	20.1		ug/L		100	64 - 148
Toluene	20.0	19.5		ug/L		97	47 - 150
trans-1,2-Dichloroethene	20.0	21.0		ug/L		105	54 - 156
trans-1,3-Dichloropropene	20.0	20.5		ug/L		102	17 - 183
Trichloroethylene	20.0	20.9		ug/L		104	71 - 157
Trichlorofluoromethane	20.0	20.9		ug/L		105	17 - 181
Vinyl chloride	20.0	18.8		ug/L		94	1 - 251

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	110		68 - 130
4-Bromofluorobenzene (Surr)	105		76 - 123
Toluene-d8 (Surr)	101		77 - 120
Dibromofluoromethane (Surr)	106		75 - 123

Lab Sample ID: MB 480-430189/7

Matrix: Water

Analysis Batch: 430189

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			08/17/18 13:20	1
1,1,1,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/17/18 13:20	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/17/18 13:20	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			08/17/18 13:20	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/17/18 13:20	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/17/18 13:20	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			08/17/18 13:20	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/17/18 13:20	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/17/18 13:20	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/17/18 13:20	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/17/18 13:20	1
Acetone	25	U	25	2.0	ug/L			08/17/18 13:20	1
Benzene	5.0	U	5.0	0.60	ug/L			08/17/18 13:20	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/17/18 13:20	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/17/18 13:20	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/17/18 13:20	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/17/18 13:20	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/17/18 13:20	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/17/18 13:20	1
Chloroform	5.0	U	5.0	0.54	ug/L			08/17/18 13:20	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/17/18 13:20	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			08/17/18 13:20	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/17/18 13:20	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/17/18 13:20	1

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140249-1

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

Lab Sample ID: MB 480-430189/7

Matrix: Water

Analysis Batch: 430189

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/17/18 13:20	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/17/18 13:20	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/17/18 13:20	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/17/18 13:20	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			08/17/18 13:20	1
Toluene	5.0	U	5.0	0.45	ug/L			08/17/18 13:20	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			08/17/18 13:20	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/17/18 13:20	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			08/17/18 13:20	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/17/18 13:20	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			08/17/18 13:20	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		68 - 130		08/17/18 13:20	1
4-Bromofluorobenzene (Surr)	104		76 - 123		08/17/18 13:20	1
Toluene-d8 (Surr)	99		77 - 120		08/17/18 13:20	1
Dibromofluoromethane (Surr)	110		75 - 123		08/17/18 13:20	1

Lab Sample ID: LCS 480-430189/5

Matrix: Water

Analysis Batch: 430189

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	21.7		ug/L		108	52 - 162
1,1,2,2-Tetrachloroethane	20.0	19.5		ug/L		98	46 - 157
1,1,2-Trichloroethane	20.0	19.8		ug/L		99	52 - 150
1,1-Dichloroethane	20.0	21.1		ug/L		106	59 - 155
1,1-Dichloroethene	20.0	20.3		ug/L		102	1 - 234
1,2-Dichlorobenzene	20.0	19.3		ug/L		96	18 - 190
1,2-Dichloroethane	20.0	21.9		ug/L		109	49 - 155
1,2-Dichloropropane	20.0	20.9		ug/L		105	1 - 210
1,3-Dichlorobenzene	20.0	19.4		ug/L		97	59 - 156
1,4-Dichlorobenzene	20.0	19.2		ug/L		96	18 - 190
2-Chloroethyl vinyl ether	20.0	20.9	J	ug/L		104	1 - 305
Benzene	20.0	21.1		ug/L		105	37 - 151
Bromoform	20.0	18.4		ug/L		92	45 - 169
Bromomethane	20.0	20.2		ug/L		101	1 - 242
Carbon tetrachloride	20.0	21.0		ug/L		105	70 - 140
Chlorobenzene	20.0	19.4		ug/L		97	37 - 160
Dibromochloromethane	20.0	19.5		ug/L		98	53 - 149
Chloroethane	20.0	20.0		ug/L		100	14 - 230
Chloroform	20.0	21.0		ug/L		105	51 - 138
Chloromethane	20.0	20.3		ug/L		101	1 - 273
cis-1,3-Dichloropropene	20.0	20.8		ug/L		104	1 - 227
Bromodichloromethane	20.0	21.4		ug/L		107	35 - 155
Ethylbenzene	20.0	19.2		ug/L		96	37 - 162
Methylene Chloride	20.0	20.9		ug/L		104	1 - 221
Tetrachloroethylene	20.0	19.3		ug/L		96	64 - 148

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140249-1

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

Lab Sample ID: LCS 480-430189/5

Matrix: Water

Analysis Batch: 430189

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Toluene	20.0	19.1		ug/L		96	47 - 150
trans-1,2-Dichloroethene	20.0	20.6		ug/L		103	54 - 156
trans-1,3-Dichloropropene	20.0	19.6		ug/L		98	17 - 183
Trichloroethylene	20.0	21.0		ug/L		105	71 - 157
Trichlorofluoromethane	20.0	20.8		ug/L		104	17 - 181
Vinyl chloride	20.0	20.5		ug/L		103	1 - 251

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	107		68 - 130
4-Bromofluorobenzene (Surr)	104		76 - 123
Toluene-d8 (Surr)	99		77 - 120
Dibromofluoromethane (Surr)	108		75 - 123

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 200-132885/5

Matrix: Water

Analysis Batch: 132885

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	5000	U	5000	1900	ug/L			08/14/18 16:22	1

Lab Sample ID: LCS 200-132885/3

Matrix: Water

Analysis Batch: 132885

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon dioxide	40000	42100		ug/L		105	70 - 130

Lab Sample ID: LCSD 200-132885/4

Matrix: Water

Analysis Batch: 132885

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon dioxide	40000	43700		ug/L		109	70 - 130	4	30

Lab Sample ID: MB 480-429359/4

Matrix: Water

Analysis Batch: 429359

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	4.0	U	4.0	1.0	ug/L			08/13/18 13:40	1

Lab Sample ID: LCS 480-429359/5

Matrix: Water

Analysis Batch: 429359

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	7.77	7.79		ug/L		100	85 - 120

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140249-1

Lab Sample ID: LCSD 480-429359/6

Matrix: Water

Analysis Batch: 429359

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	7.77	7.98		ug/L		103	85 - 120	2	50

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-429575/1-A

Matrix: Water

Analysis Batch: 429914

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 429575

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050	0.019	mg/L		08/15/18 08:22	08/15/18 21:58	1
Manganese	0.00156	J	0.0030	0.00040	mg/L		08/15/18 08:22	08/15/18 21:58	1

Lab Sample ID: LCS 480-429575/2-A

Matrix: Water

Analysis Batch: 429914

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 429575

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	10.03		mg/L		100	80 - 120
Manganese	0.200	0.210		mg/L		105	80 - 120

Lab Sample ID: MB 480-429187/1-A

Matrix: Water

Analysis Batch: 430608

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 429187

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050	0.019	mg/L		08/13/18 08:52	08/20/18 10:51	1
Manganese	0.00216	J	0.0030	0.00040	mg/L		08/13/18 08:52	08/20/18 10:51	1

Lab Sample ID: LCS 480-429187/2-A

Matrix: Water

Analysis Batch: 430608

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 429187

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	10.52		mg/L		105	80 - 120
Manganese	0.200	0.220		mg/L		110	80 - 120

Method: 310.2 - Alkalinity

Lab Sample ID: MB 480-430293/112

Matrix: Water

Analysis Batch: 430293

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	4.47	J	10.0	4.0	mg/L			08/17/18 15:08	1

Lab Sample ID: MB 480-430293/24

Matrix: Water

Analysis Batch: 430293

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	10.0	U	10.0	4.0	mg/L			08/17/18 11:58	1

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140249-1

Method: 310.2 - Alkalinity (Continued)

Lab Sample ID: MB 480-430293/98

Matrix: Water

Analysis Batch: 430293

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	10.0	U	10.0	4.0	mg/L	-		08/17/18 14:47	1

Lab Sample ID: LCS 480-430293/113

Matrix: Water

Analysis Batch: 430293

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	50.0	51.22		mg/L	-	102	90 - 110

Lab Sample ID: LCS 480-430293/25

Matrix: Water

Analysis Batch: 430293

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	50.0	49.56		mg/L	-	99	90 - 110

Lab Sample ID: LCS 480-430293/99

Matrix: Water

Analysis Batch: 430293

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	50.0	50.15		mg/L	-	100	90 - 110

Method: 410.4 - COD

Lab Sample ID: MB 480-429842/27

Matrix: Water

Analysis Batch: 429842

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	10.0	U	10.0	5.0	mg/L	-		08/15/18 15:35	1

Lab Sample ID: MB 480-429842/3

Matrix: Water

Analysis Batch: 429842

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	10.0	U	10.0	5.0	mg/L	-		08/15/18 15:35	1

Lab Sample ID: LCS 480-429842/28

Matrix: Water

Analysis Batch: 429842

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	25.0	24.14		mg/L	-	97	90 - 110

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140249-1

Method: 410.4 - COD (Continued)

Lab Sample ID: LCS 480-429842/4

Matrix: Water

Analysis Batch: 429842

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	25.0	22.95		mg/L		92	90 - 110

Lab Sample ID: 480-140249-4 MS

Matrix: Water

Analysis Batch: 429842

Client Sample ID: MW2S-08102018

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	18.8		50.0	63.10		mg/L		89	75 - 125

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 480-430708/28

Matrix: Water

Analysis Batch: 430708

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.0	U	2.0	0.35	mg/L			08/21/18 18:51	1

Lab Sample ID: LCS 480-430708/27

Matrix: Water

Analysis Batch: 430708

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.0	49.01		mg/L		98	90 - 110

Lab Sample ID: 480-140249-3 MS

Matrix: Water

Analysis Batch: 430708

Client Sample ID: MW14R-08102018

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	91.2		250	331.8		mg/L		96	80 - 120

Lab Sample ID: 480-140249-3 MSD

Matrix: Water

Analysis Batch: 430708

Client Sample ID: MW14R-08102018

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	91.2		250	327.1		mg/L		94	80 - 120	1	20

Lab Sample ID: 480-140249-4 MS

Matrix: Water

Analysis Batch: 430708

Client Sample ID: MW2S-08102018

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	443		250	656.3	E	mg/L		85	80 - 120

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140249-1

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 480-430926/4

Matrix: Water

Analysis Batch: 430926

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	0.554	J	1.0	0.43	mg/L	-		08/21/18 18:08	1

Lab Sample ID: LCS 480-430926/5

Matrix: Water

Analysis Batch: 430926

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	58.44		mg/L	-	97	90 - 110

Method: SM 5210B - BOD, 5-Day

Lab Sample ID: USB 480-429180/1

Matrix: Water

Analysis Batch: 429180

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	2.0	U	2.0	2.0	mg/L	-		08/11/18 09:22	1

Lab Sample ID: LCS 480-429180/2

Matrix: Water

Analysis Batch: 429180

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	198	174.4		mg/L	-	88	85 - 115

Lab Sample ID: 480-140249-4 DU

Matrix: Water

Analysis Batch: 429180

Client Sample ID: MW2S-08102018

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Biochemical Oxygen Demand	2.0	U	6.0	U	mg/L	-		20

QC Association Summary

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

TestAmerica Job ID: 480-140249-1

GC/MS VOA

Analysis Batch: 429237

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140249-1	TB-08102018	Total/NA	Water	624.1	
MB 480-429237/7	Method Blank	Total/NA	Water	624.1	
LCS 480-429237/5	Lab Control Sample	Total/NA	Water	624.1	

Analysis Batch: 429443

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140249-2	PZ-1-08102018	Total/NA	Water	624.1	
480-140249-4	MW2S-08102018	Total/NA	Water	624.1	
MB 480-429443/7	Method Blank	Total/NA	Water	624.1	
LCS 480-429443/14	Lab Control Sample	Total/NA	Water	624.1	

Analysis Batch: 429710

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140249-3	MW14R-08102018	Total/NA	Water	624.1	
MB 480-429710/7	Method Blank	Total/NA	Water	624.1	
LCS 480-429710/5	Lab Control Sample	Total/NA	Water	624.1	

Analysis Batch: 429906

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140249-5	MW5R-08102018	Total/NA	Water	624.1	
MB 480-429906/7	Method Blank	Total/NA	Water	624.1	
LCS 480-429906/5	Lab Control Sample	Total/NA	Water	624.1	

Analysis Batch: 430189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140249-6	PZ3-08102018	Total/NA	Water	624.1	
480-140249-7	MW14S-08102018	Total/NA	Water	624.1	
MB 480-430189/7	Method Blank	Total/NA	Water	624.1	
LCS 480-430189/5	Lab Control Sample	Total/NA	Water	624.1	

GC VOA

Analysis Batch: 132885

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140249-3	MW14R-08102018	Total/NA	Water	RSK-175	
480-140249-4	MW2S-08102018	Total/NA	Water	RSK-175	
MB 200-132885/5	Method Blank	Total/NA	Water	RSK-175	
LCS 200-132885/3	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 200-132885/4	Lab Control Sample Dup	Total/NA	Water	RSK-175	

Analysis Batch: 429359

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140249-3	MW14R-08102018	Total/NA	Water	RSK-175	
480-140249-4	MW2S-08102018	Total/NA	Water	RSK-175	
MB 480-429359/4	Method Blank	Total/NA	Water	RSK-175	
LCS 480-429359/5	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 480-429359/6	Lab Control Sample Dup	Total/NA	Water	RSK-175	

TestAmerica Buffalo

QC Association Summary

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

TestAmerica Job ID: 480-140249-1

Metals

Prep Batch: 429187

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140249-3	MW14R-08102018	Dissolved	Water	3005A	
480-140249-4	MW2S-08102018	Dissolved	Water	3005A	
MB 480-429187/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 480-429187/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 429575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140249-3	MW14R-08102018	Total/NA	Water	3005A	
480-140249-4	MW2S-08102018	Total/NA	Water	3005A	
MB 480-429575/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-429575/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 429914

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140249-3	MW14R-08102018	Total/NA	Water	6010C	429575
480-140249-4	MW2S-08102018	Total/NA	Water	6010C	429575
MB 480-429575/1-A	Method Blank	Total/NA	Water	6010C	429575
LCS 480-429575/2-A	Lab Control Sample	Total/NA	Water	6010C	429575

Analysis Batch: 430608

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140249-3	MW14R-08102018	Dissolved	Water	6010C	429187
480-140249-4	MW2S-08102018	Dissolved	Water	6010C	429187
MB 480-429187/1-A	Method Blank	Total Recoverable	Water	6010C	429187
LCS 480-429187/2-A	Lab Control Sample	Total Recoverable	Water	6010C	429187

General Chemistry

Analysis Batch: 429180

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140249-3	MW14R-08102018	Total/NA	Water	SM 5210B	
480-140249-4	MW2S-08102018	Total/NA	Water	SM 5210B	
USB 480-429180/1	Method Blank	Total/NA	Water	SM 5210B	
LCS 480-429180/2	Lab Control Sample	Total/NA	Water	SM 5210B	
480-140249-4 DU	MW2S-08102018	Total/NA	Water	SM 5210B	

Analysis Batch: 429842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140249-3	MW14R-08102018	Total/NA	Water	410.4	
480-140249-4	MW2S-08102018	Total/NA	Water	410.4	
MB 480-429842/27	Method Blank	Total/NA	Water	410.4	
MB 480-429842/3	Method Blank	Total/NA	Water	410.4	
LCS 480-429842/28	Lab Control Sample	Total/NA	Water	410.4	
LCS 480-429842/4	Lab Control Sample	Total/NA	Water	410.4	
480-140249-4 MS	MW2S-08102018	Total/NA	Water	410.4	

Analysis Batch: 430293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140249-3	MW14R-08102018	Total/NA	Water	310.2	
480-140249-4	MW2S-08102018	Total/NA	Water	310.2	

TestAmerica Buffalo

QC Association Summary

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

TestAmerica Job ID: 480-140249-1

General Chemistry (Continued)

Analysis Batch: 430293 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-430293/112	Method Blank	Total/NA	Water	310.2	
MB 480-430293/24	Method Blank	Total/NA	Water	310.2	
MB 480-430293/98	Method Blank	Total/NA	Water	310.2	
LCS 480-430293/113	Lab Control Sample	Total/NA	Water	310.2	
LCS 480-430293/25	Lab Control Sample	Total/NA	Water	310.2	
LCS 480-430293/99	Lab Control Sample	Total/NA	Water	310.2	

Analysis Batch: 430708

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140249-3	MW14R-08102018	Total/NA	Water	9056A	
480-140249-4	MW2S-08102018	Total/NA	Water	9056A	
MB 480-430708/28	Method Blank	Total/NA	Water	9056A	
LCS 480-430708/27	Lab Control Sample	Total/NA	Water	9056A	
480-140249-3 MS	MW14R-08102018	Total/NA	Water	9056A	
480-140249-3 MSD	MW14R-08102018	Total/NA	Water	9056A	
480-140249-4 MS	MW2S-08102018	Total/NA	Water	9056A	

Analysis Batch: 430926

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140249-3	MW14R-08102018	Total/NA	Water	9060A	
480-140249-4	MW2S-08102018	Total/NA	Water	9060A	
MB 480-430926/4	Method Blank	Total/NA	Water	9060A	
LCS 480-430926/5	Lab Control Sample	Total/NA	Water	9060A	

Analysis Batch: 431409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140249-3	MW14R-08102018	Total/NA	Water	353.2	
480-140249-4	MW2S-08102018	Total/NA	Water	353.2	

Lab Chronicle

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

TestAmerica Job ID: 480-140249-1

Client Sample ID: TB-08102018

Date Collected: 08/10/18 07:30

Date Received: 08/10/18 18:30

Lab Sample ID: 480-140249-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	429237	08/13/18 14:35	S1V	TAL BUF

Client Sample ID: PZ-1-08102018

Date Collected: 08/10/18 10:25

Date Received: 08/10/18 18:30

Lab Sample ID: 480-140249-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	429443	08/14/18 13:14	S1V	TAL BUF

Client Sample ID: MW14R-08102018

Date Collected: 08/10/18 11:40

Date Received: 08/10/18 18:30

Lab Sample ID: 480-140249-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	429710	08/15/18 12:07	S1V	TAL BUF
Total/NA	Analysis	RSK-175		1	132885	08/14/18 16:31	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	429359	08/13/18 15:49	DSC	TAL BUF
Dissolved	Prep	3005A			429187	08/13/18 08:52	VEG	TAL BUF
Dissolved	Analysis	6010C		1	430608	08/20/18 12:53	EMB	TAL BUF
Total/NA	Prep	3005A			429575	08/15/18 08:22	JAK	TAL BUF
Total/NA	Analysis	6010C		1	429914	08/15/18 22:36	LMH	TAL BUF
Total/NA	Analysis	310.2		4	430293	08/17/18 15:08	SAH	TAL BUF
Total/NA	Analysis	353.2		1	431409	08/11/18 11:04	SMH	TAL BUF
Total/NA	Analysis	410.4		1	429842	08/15/18 15:35	MAB	TAL BUF
Total/NA	Analysis	9056A		5	430708	08/21/18 19:43	DMR	TAL BUF
Total/NA	Analysis	9060A		1	430926	08/21/18 22:18	SMH	TAL BUF
Total/NA	Analysis	SM 5210B		1	429180	08/11/18 09:22	AED	TAL BUF

Client Sample ID: MW2S-08102018

Date Collected: 08/10/18 13:30

Date Received: 08/10/18 18:30

Lab Sample ID: 480-140249-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		10	429443	08/14/18 14:03	S1V	TAL BUF
Total/NA	Analysis	RSK-175		1	132885	08/14/18 16:40	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	429359	08/13/18 16:06	DSC	TAL BUF
Dissolved	Prep	3005A			429187	08/13/18 08:52	VEG	TAL BUF
Dissolved	Analysis	6010C		1	430608	08/20/18 12:57	EMB	TAL BUF
Total/NA	Prep	3005A			429575	08/15/18 08:22	JAK	TAL BUF
Total/NA	Analysis	6010C		1	429914	08/15/18 22:40	LMH	TAL BUF
Total/NA	Analysis	310.2		4	430293	08/17/18 15:08	SAH	TAL BUF

TestAmerica Buffalo

Lab Chronicle

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

TestAmerica Job ID: 480-140249-1

Client Sample ID: MW2S-08102018

Lab Sample ID: 480-140249-4

Date Collected: 08/10/18 13:30

Matrix: Water

Date Received: 08/10/18 18:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	353.2		1	431409	08/11/18 11:20	SMH	TAL BUF
Total/NA	Analysis	410.4		1	429842	08/15/18 15:35	MAB	TAL BUF
Total/NA	Analysis	9056A		5	430708	08/21/18 21:29	DMR	TAL BUF
Total/NA	Analysis	9060A		1	430926	08/22/18 01:06	SMH	TAL BUF
Total/NA	Analysis	SM 5210B		1	429180	08/11/18 09:22	AED	TAL BUF

Client Sample ID: MW5R-08102018

Lab Sample ID: 480-140249-5

Date Collected: 08/10/18 16:30

Matrix: Water

Date Received: 08/10/18 18:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		10	429906	08/16/18 13:26	LCH	TAL BUF

Client Sample ID: PZ3-08102018

Lab Sample ID: 480-140249-6

Date Collected: 08/10/18 16:10

Matrix: Water

Date Received: 08/10/18 18:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	430189	08/17/18 13:44	S1V	TAL BUF

Client Sample ID: MW14S-08102018

Lab Sample ID: 480-140249-7

Date Collected: 08/10/18 14:15

Matrix: Water

Date Received: 08/10/18 18:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	430189	08/17/18 14:08	S1V	TAL BUF

Laboratory References:

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

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

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

TestAmerica Job ID: 480-140249-1

Laboratory: TestAmerica Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10026	03-31-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
9056A		Water	Sulfate

Laboratory: TestAmerica Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
ANAB	DoD ELAP		L2336	02-25-20
Connecticut	State Program	1	PH-0751	09-30-19
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-01-19
Maine	State Program	1	VT00008	04-17-19
Minnesota	NELAP	5	050-999-436	12-31-18
New Hampshire	NELAP	1	2006	12-18-18
New Jersey	NELAP	2	VT972	06-30-19
New York	NELAP	2	10391	04-01-19
Pennsylvania	NELAP	3	68-00489	04-30-19
Rhode Island	State Program	1	LAO00298	12-30-18
US Fish & Wildlife	Federal		LE-058448-0	07-31-19
USDA	Federal		P330-11-00093	07-24-20
Vermont	State Program	1	VT-4000	12-31-18
Virginia	NELAP	3	460209	12-14-18

Method Summary

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

TestAmerica Job ID: 480-140249-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	40CFR136A	TAL BUF
RSK-175	Dissolved Gases (GC)	RSK	TAL BUF
RSK-175	Dissolved Gases (GC)	RSK	TAL BUR
6010C	Metals (ICP)	SW846	TAL BUF
310.2	Alkalinity	MCAWW	TAL BUF
353.2	Nitrate	EPA	TAL BUF
410.4	COD	MCAWW	TAL BUF
9056A	Anions, Ion Chromatography	SW846	TAL BUF
9060A	Organic Carbon, Total (TOC)	SW846	TAL BUF
SM 5210B	BOD, 5-Day	SM	TAL BUF
3005A	Preparation, Total Metals	SW846	TAL BUF
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	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.

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

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

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

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

TestAmerica Job ID: 480-140249-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-140249-1	TB-08102018	Water	08/10/18 07:30	08/10/18 18:30
480-140249-2	PZ-1-08102018	Water	08/10/18 10:25	08/10/18 18:30
480-140249-3	MW14R-08102018	Water	08/10/18 11:40	08/10/18 18:30
480-140249-4	MW2S-08102018	Water	08/10/18 13:30	08/10/18 18:30
480-140249-5	MW5R-08102018	Water	08/10/18 16:30	08/10/18 18:30
480-140249-6	PZ3-08102018	Water	08/10/18 16:10	08/10/18 18:30
480-140249-7	MW14S-08102018	Water	08/10/18 14:15	08/10/18 18:30

Client Contact Company Name: Ecology & Environment, Inc. Address: 368 Pleasantview Dr City/State/Zip: Lancaster NY 14086 Phone: 716 684-8060 Fax: 716 684-8060 Project Name: Davis Island Site: Rochester NY PO #		Regulatory Program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other:		Project Manager: Ashlee Rattode Tel/Fax: 716 684 8060		Site Contact: John Shen Lab Contact: John Shen		Date: 8/10/18 Carrier: BY Hand		COC No: 1 of 1 COCs	
Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS TAT if different from Below <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day AG per contract		Sample Type (C=Comp, G=Grab)		Sample Time		Sample Date		Matrix		# of Cont.	
TB-08102018		G		7:30		9/10/18		GW		1	
PZ-1-08102018		G		10:25		8/10/18		GW		3	
MW14R-08102018		G		11:40		8/10/18		GW		19	
MW2S-08102018		G		13:30		8/10/18		GW		19	
MW5R-08102018		G		16:30		8/10/18		GW		3	
PZ3-08102018		G		16:10		8/10/18		GW		3	
MW14S-08102018		G		14:15		8/10/18		GW		3	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other											
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.											
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown											
Special Instructions/QC Requirements & Comments:											
Relinquished by: <i>[Signature]</i> Date/Time: 8/10/18 10:30		Relinquished by: <i>[Signature]</i> Date/Time: 8/10/18 10:30		Relinquished by: <i>[Signature]</i> Date/Time: 8/10/18 10:30		Relinquished by: <i>[Signature]</i> Date/Time: 8/10/18 10:30		Relinquished by: <i>[Signature]</i> Date/Time: 8/10/18 10:30		Relinquished by: <i>[Signature]</i> Date/Time: 8/10/18 10:30	

Login Sample Receipt Checklist

Client: Ecology and Environment, Inc.

Job Number: 480-140249-1

Login Number: 140249

List Source: TestAmerica Buffalo

List Number: 1

Creator: Williams, Christopher S

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	e and e
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	False	LAB TO CHECK RC

Login Sample Receipt Checklist

Client: Ecology and Environment, Inc.

Job Number: 480-140249-1

Login Number: 140249

List Number: 2

Creator: Johnson, Eleanor E

List Source: TestAmerica Burlington

List Creation: 08/14/18 01:25 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	Not present
Sample custody seals, if present, are 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	4.2°C
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?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received 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	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-140310-1

Client Project/Site: Davis Howland Oil Company - NYSDEC

For:

Ecology and Environment, Inc.

386 Pleasant View Drive

Lancaster, New York 14086

Attn: Ashlee Patnode



Authorized for release by:

8/31/2018 4:03:21 PM

Rebecca Jones, Project Management Assistant I

rebecca.jones@testamericainc.com

Designee for

John Schove, Project Manager II

(716)504-9838

john.schove@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

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

TestAmerica Job ID: 480-140310-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits

GC/MS Semi VOA

Qualifier	Qualifier Description
E	Result exceeded calibration range.
U	Indicates the analyte was analyzed for but not detected.

GC VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

LCMS

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
*	Isotope Dilution analyte is outside acceptance limits.
B	Compound was found in the blank and sample.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
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.

General Chemistry

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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

TestAmerica Buffalo

Definitions/Glossary

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

TestAmerica Job ID: 480-140310-1

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
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)

Case Narrative

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

TestAmerica Job ID: 480-140310-1

Job ID: 480-140310-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-140310-1

Comments

No additional comments.

Receipt

The samples were received on 8/14/2018 12:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 1.1° C, 1.6° C and 2.0° C.

GC/MS VOA

Method(s) 624.1: The following samples were diluted to bring the concentration of target analytes within the calibration range: PZ4-08132018 (480-140310-2) and MW16R-08132018 (480-140310-4). Elevated reporting limits (RLs) are provided.

Method(s) 624.1: The preservative used in the sample containers provided is not compatible with the Method 624.1 analytes requested. The following sample was received preserved with hydrochloric acid: TB-08132018 (480-140310-1). The requested target analyte list contains 2-Chloroethyl vinyl ether, which is an acid-labile compounds that degrade in an acidic medium.

Method(s) 624.1: The following sample was diluted to bring the concentration of target analytes within the calibration range: PW1-08132018 (480-140310-5). 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.

GC/MS Semi VOA

Method(s) 8270D SIM ID: The 1,4-Dioxane result reported for samples MW1S-08132018MS (480-140310-3[MS]) and MW1S-08132018MSD (480-140310-3[MSD]) have an E flag qualifier indicating the results are over the calibration range on the raw data. The actual amounts are within the calibration range; however, the E flag is generated based upon the bias corrected concentration. The LIMS system calculates a bias correction based on the recovery of the 1,4-Dioxane-d8 isotope.

Method(s) 8270D SIM ID: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW16R-08132018 (480-140310-4). Elevated reporting limits (RLs) are provided.

Method(s) 8270D SIM ID: The 1,4-Dioxane result reported for sample MW16R-08132018 (480-140310-4) have an E flag qualifier indicating the results are over the calibration range on the raw data. The actual amounts are within the calibration range; however, the E flag is generated based upon the bias corrected concentration. The LIMS system calculates a bias correction based on the recovery of the 1,4-Dioxane-d8 isotope.

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

HPLC/IC

Method(s) 9056A: The following sample was reported with elevated reporting limits for all analytes: MW1S-08132018 (480-140310-3). The sample was analyzed at a dilution based on screening results.

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

GC VOA

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

Metals

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

LCMS

Method(s) 537 (modified): Due to sample matrix effect on the retention times of the IDAs, a dilution was required for the following sample: MW16R-08132018 (480-140310-4). The internal standard (ISTD) is not fortified for these dilutions and is therefore below acceptance limits.

Case Narrative

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

TestAmerica Job ID: 480-140310-1

Job ID: 480-140310-1 (Continued)

Laboratory: TestAmerica Buffalo (Continued)

Method(s) 537 (modified): The Isotope Dilution Analyte (IDA) recovery of ¹³C8 FOSA and ¹³C2 PFDoA associated with the following sample is below the method recommended limit: MW16R-08132018 (480-140310-4). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s). All detection limits are below the lower calibration.

Method(s) 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following samples: PZ4-08132018 (480-140310-2), MW1S-08132018 (480-140310-3), MW1S-08132018MS (480-140310-3[MS]), MW1S-08132018MSD (480-140310-3[MSD]) and MW16R-08132018 (480-140310-4). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method(s) 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following sample: MW16R-08132018 (480-140310-4). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method(s) 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: MW16R-08132018 (480-140310-4). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s). All detection limits are below the lower calibration.

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

General Chemistry

Method(s) SM 5210B: The glucose-glutamic acid standard recovered (84% rec) was outside the recovery limits (85-115% rec) specified in the method in batch 480-429621: MW1S-08132018 (480-140310-3).

Method(s) 353.2: The following sample was analyzed with an expired laboratory control sample (LCS) and continuing calibration verification (CCV) reagent for Nitrite: MW1S-08132018 (480-140310-3). Both of these quality control samples are prepared using a second source standard. A new second source standard was requested but was on backorder from the vendor. The expired standard was verified against the primary source and found to still be within limits. All other quality control samples and indicators were within laboratory limits, therefore, the data have been qualified and reported.

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

Organic Prep

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

Detection Summary

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

TestAmerica Job ID: 480-140310-1

Client Sample ID: TB-08132018

Lab Sample ID: 480-140310-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	4.1	J	5.0	0.54	ug/L	1		624.1	Total/NA

Client Sample ID: PZ4-08132018

Lab Sample ID: 480-140310-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	16	J	50	3.9	ug/L	10		624.1	Total/NA
1,1-Dichloroethane	7.8	J	50	5.9	ug/L	10		624.1	Total/NA
cis-1,2-Dichloroethene	200		50	5.7	ug/L	10		624.1	Total/NA
Tetrachloroethylene	11	J	50	3.4	ug/L	10		624.1	Total/NA
Trichloroethylene	270		50	6.0	ug/L	10		624.1	Total/NA
1,4-Dioxane	0.52		0.19	0.097	ug/L	1		8270D SIM ID	Total/NA
Perfluorobutanoic acid (PFBA)	14		1.6	0.34	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	3.1		1.6	0.62	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	5.6		1.6	0.20	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.1		1.6	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	3.6		1.6	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	1.2	J	1.6	0.31	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	1.2	J	1.6	0.31	ng/L	1		537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	0.35	J B	1.6	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.9		1.6	0.36	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.51	J	1.6	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.3		1.6	0.62	ng/L	1		537 (modified)	Total/NA
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	0.91	J	16	0.82	ng/L	1		537 (modified)	Total/NA
Iron	0.93		0.050	0.019	mg/L	1		6010C	Total/NA
Manganese	0.49		0.0030	0.00040	mg/L	1		6010C	Total/NA
Iron	0.15		0.050	0.019	mg/L	1		6010C	Dissolved
Manganese	0.40	B	0.0030	0.00040	mg/L	1		6010C	Dissolved

Client Sample ID: MW1S-08132018

Lab Sample ID: 480-140310-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	1.7	J	5.0	0.39	ug/L	1		624.1	Total/NA
1,1-Dichloroethane	0.79	J	5.0	0.59	ug/L	1		624.1	Total/NA
cis-1,2-Dichloroethene	20		5.0	0.57	ug/L	1		624.1	Total/NA
Tetrachloroethylene	3.0	J	5.0	0.34	ug/L	1		624.1	Total/NA
Trichloroethylene	19	F1	5.0	0.60	ug/L	1		624.1	Total/NA
1,4-Dioxane	0.68		0.20	0.10	ug/L	1		8270D SIM ID	Total/NA
Carbon dioxide	87000		5000	1900	ug/L	1		RSK-175	Total/NA
Perfluorobutanoic acid (PFBA)	17		1.7	0.34	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	1.8		1.7	0.62	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	1.3	J	1.7	0.20	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.84	J	1.7	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.6	J	1.7	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.91	J	1.7	0.37	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.69	J	1.7	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.0		1.7	0.63	ng/L	1		537 (modified)	Total/NA
Iron	0.038	J	0.050	0.019	mg/L	1		6010C	Total/NA
Manganese	0.0049		0.0030	0.00040	mg/L	1		6010C	Total/NA
Manganese	0.00074	J B	0.0030	0.00040	mg/L	1		6010C	Dissolved
Alkalinity, Total	486		50.0	20.0	mg/L	5		310.2	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Detection Summary

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

TestAmerica Job ID: 480-140310-1

Client Sample ID: MW1S-08132018 (Continued)

Lab Sample ID: 480-140310-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrate as N	0.28		0.050	0.020	mg/L	1		353.2	Total/NA
Chemical Oxygen Demand	9.1	J	10.0	5.0	mg/L	1		410.4	Total/NA
Sulfate	50.8		10.0	1.7	mg/L	5		9056A	Total/NA
Total Organic Carbon	1.2	B	1.0	0.43	mg/L	1		9060A	Total/NA

Client Sample ID: MW16R-08132018

Lab Sample ID: 480-140310-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	14	J	50	5.9	ug/L	10		624.1	Total/NA
cis-1,2-Dichloroethene	310		50	5.7	ug/L	10		624.1	Total/NA
Vinyl chloride	96		50	7.5	ug/L	10		624.1	Total/NA
1,4-Dioxane	41	E	2.0	1.0	ug/L	10		8270D SIM ID	Total/NA
Perfluorobutanoic acid (PFBA)	46		1.7	0.35	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	2.8		1.7	0.65	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	3.4		1.7	0.21	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.6	J	1.7	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	2.4		1.7	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.48	J	1.7	0.33	ng/L	1		537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	0.48	J	1.7	0.30	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.8		1.7	0.38	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.98	J	1.7	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.0		1.7	0.66	ng/L	1		537 (modified)	Total/NA

Client Sample ID: PW1-08132018

Lab Sample ID: 480-140310-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	22		10	1.2	ug/L	2		624.1	Total/NA
1,1-Dichloroethene	3.3	J	10	1.7	ug/L	2		624.1	Total/NA
trans-1,2-Dichloroethene	3.3	J	10	1.2	ug/L	2		624.1	Total/NA
Trichloroethylene	16		10	1.2	ug/L	2		624.1	Total/NA
Vinyl chloride	72		10	1.5	ug/L	2		624.1	Total/NA
cis-1,2-Dichloroethene - DL	210		20	2.3	ug/L	4		624.1	Total/NA

Client Sample ID: RB-08132018

Lab Sample ID: 480-140310-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.34	J	1.7	0.26	ng/L	1		537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	0.26	J B	1.7	0.21	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-140310-1

Client Sample ID: TB-08132018

Date Collected: 08/13/18 08:30

Date Received: 08/14/18 00:10

Lab Sample ID: 480-140310-1

Matrix: Water

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			08/14/18 15:38	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/14/18 15:38	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/14/18 15:38	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			08/14/18 15:38	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/14/18 15:38	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/14/18 15:38	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			08/14/18 15:38	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/14/18 15:38	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/14/18 15:38	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/14/18 15:38	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/14/18 15:38	1
Acetone	25	U	25	2.0	ug/L			08/14/18 15:38	1
Benzene	5.0	U	5.0	0.60	ug/L			08/14/18 15:38	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/14/18 15:38	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/14/18 15:38	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/14/18 15:38	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/14/18 15:38	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/14/18 15:38	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/14/18 15:38	1
Chloroform	4.1	J	5.0	0.54	ug/L			08/14/18 15:38	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/14/18 15:38	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			08/14/18 15:38	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/14/18 15:38	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/14/18 15:38	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/14/18 15:38	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/14/18 15:38	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/14/18 15:38	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/14/18 15:38	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			08/14/18 15:38	1
Toluene	5.0	U	5.0	0.45	ug/L			08/14/18 15:38	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			08/14/18 15:38	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/14/18 15:38	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			08/14/18 15:38	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/14/18 15:38	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			08/14/18 15:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		68 - 130		08/14/18 15:38	1
4-Bromofluorobenzene (Surr)	102		76 - 123		08/14/18 15:38	1
Toluene-d8 (Surr)	98		77 - 120		08/14/18 15:38	1
Dibromofluoromethane (Surr)	104		75 - 123		08/14/18 15:38	1

Client Sample ID: PZ4-08132018

Date Collected: 08/13/18 11:40

Date Received: 08/14/18 00:10

Lab Sample ID: 480-140310-2

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	16	J	50	3.9	ug/L			08/14/18 16:02	10
1,1,2,2-Tetrachloroethane	50	U	50	2.6	ug/L			08/14/18 16:02	10

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-140310-1

Client Sample ID: PZ4-08132018

Lab Sample ID: 480-140310-2

Date Collected: 08/13/18 11:40

Matrix: Water

Date Received: 08/14/18 00:10

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			08/14/18 16:02	10
1,1-Dichloroethane	7.8	J	50	5.9	ug/L			08/14/18 16:02	10
1,1-Dichloroethene	50	U	50	8.5	ug/L			08/14/18 16:02	10
1,2-Dichlorobenzene	50	U	50	4.4	ug/L			08/14/18 16:02	10
1,2-Dichloroethane	50	U	50	6.0	ug/L			08/14/18 16:02	10
1,2-Dichloropropane	50	U	50	6.1	ug/L			08/14/18 16:02	10
1,3-Dichlorobenzene	50	U	50	5.4	ug/L			08/14/18 16:02	10
1,4-Dichlorobenzene	50	U	50	5.1	ug/L			08/14/18 16:02	10
2-Chloroethyl vinyl ether	250	U	250	19	ug/L			08/14/18 16:02	10
Acetone	250	U	250	20	ug/L			08/14/18 16:02	10
Benzene	50	U	50	6.0	ug/L			08/14/18 16:02	10
Bromoform	50	U	50	4.7	ug/L			08/14/18 16:02	10
Bromomethane	50	U	50	12	ug/L			08/14/18 16:02	10
Carbon tetrachloride	50	U	50	5.1	ug/L			08/14/18 16:02	10
Chlorobenzene	50	U	50	4.8	ug/L			08/14/18 16:02	10
Dibromochloromethane	50	U	50	4.1	ug/L			08/14/18 16:02	10
Chloroethane	50	U	50	8.7	ug/L			08/14/18 16:02	10
Chloroform	50	U	50	5.4	ug/L			08/14/18 16:02	10
Chloromethane	50	U	50	6.4	ug/L			08/14/18 16:02	10
cis-1,2-Dichloroethene	200		50	5.7	ug/L			08/14/18 16:02	10
cis-1,3-Dichloropropene	50	U	50	3.3	ug/L			08/14/18 16:02	10
Bromodichloromethane	50	U	50	5.4	ug/L			08/14/18 16:02	10
Ethylbenzene	50	U	50	4.6	ug/L			08/14/18 16:02	10
m-Xylene & p-Xylene	100	U	100	11	ug/L			08/14/18 16:02	10
Methylene Chloride	50	U	50	8.1	ug/L			08/14/18 16:02	10
o-Xylene	50	U	50	4.3	ug/L			08/14/18 16:02	10
Tetrachloroethylene	11	J	50	3.4	ug/L			08/14/18 16:02	10
Toluene	50	U	50	4.5	ug/L			08/14/18 16:02	10
trans-1,2-Dichloroethene	50	U	50	5.9	ug/L			08/14/18 16:02	10
trans-1,3-Dichloropropene	50	U	50	4.4	ug/L			08/14/18 16:02	10
Trichloroethylene	270		50	6.0	ug/L			08/14/18 16:02	10
Trichlorofluoromethane	50	U	50	4.5	ug/L			08/14/18 16:02	10
Vinyl chloride	50	U	50	7.5	ug/L			08/14/18 16:02	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		68 - 130		08/14/18 16:02	10
4-Bromofluorobenzene (Surr)	103		76 - 123		08/14/18 16:02	10
Toluene-d8 (Surr)	99		77 - 120		08/14/18 16:02	10
Dibromofluoromethane (Surr)	105		75 - 123		08/14/18 16:02	10

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.52		0.19	0.097	ug/L		08/14/18 10:19	08/22/18 19:22	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	19		15 - 110				08/14/18 10:19	08/22/18 19:22	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	14		1.6	0.34	ng/L		08/24/18 09:30	08/25/18 08:12	1
Perfluoropentanoic acid (PFPeA)	3.1		1.6	0.62	ng/L		08/24/18 09:30	08/25/18 08:12	1

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-140310-1

Client Sample ID: PZ4-08132018

Lab Sample ID: 480-140310-2

Date Collected: 08/13/18 11:40

Matrix: Water

Date Received: 08/14/18 00:10

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	5.6		1.6	0.20	ng/L		08/24/18 09:30	08/25/18 08:12	1
Perfluoroheptanoic acid (PFHpA)	3.1		1.6	0.26	ng/L		08/24/18 09:30	08/25/18 08:12	1
Perfluorooctanoic acid (PFOA)	3.6		1.6	0.26	ng/L		08/24/18 09:30	08/25/18 08:12	1
Perfluorononanoic acid (PFNA)	1.2	J	1.6	0.31	ng/L		08/24/18 09:30	08/25/18 08:12	1
Perfluorodecanoic acid (PFDA)	1.2	J	1.6	0.31	ng/L		08/24/18 09:30	08/25/18 08:12	1
Perfluoroundecanoic acid (PFUnA)	0.35	J B	1.6	0.21	ng/L		08/24/18 09:30	08/25/18 08:12	1
Perfluorododecanoic acid (PFDoA)	1.6	U	1.6	0.29	ng/L		08/24/18 09:30	08/25/18 08:12	1
Perfluorotridecanoic Acid (PFTrIA)	1.6	U	1.6	0.20	ng/L		08/24/18 09:30	08/25/18 08:12	1
Perfluorotetradecanoic acid (PFTeA)	1.6	U	1.6	0.37	ng/L		08/24/18 09:30	08/25/18 08:12	1
Perfluorobutanesulfonic acid (PFBS)	1.9		1.6	0.36	ng/L		08/24/18 09:30	08/25/18 08:12	1
Perfluorohexanesulfonic acid (PFHxS)	0.51	J	1.6	0.21	ng/L		08/24/18 09:30	08/25/18 08:12	1
Perfluoroheptanesulfonic Acid (PFHpS)	1.6	U	1.6	0.67	ng/L		08/24/18 09:30	08/25/18 08:12	1
Perfluorooctanesulfonic acid (PFOS)	3.3		1.6	0.62	ng/L		08/24/18 09:30	08/25/18 08:12	1
Perfluorodecanesulfonic acid (PFDS)	1.6	U	1.6	0.44	ng/L		08/24/18 09:30	08/25/18 08:12	1
Perfluorooctane Sulfonamide (PFOSA)	1.6	U	1.6	0.46	ng/L		08/24/18 09:30	08/25/18 08:12	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	16	U	16	0.37	ng/L		08/24/18 09:30	08/25/18 08:12	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	16	U	16	0.58	ng/L		08/24/18 09:30	08/25/18 08:12	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	0.91	J	16	0.82	ng/L		08/24/18 09:30	08/25/18 08:12	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	16	U	16	0.46	ng/L		08/24/18 09:30	08/25/18 08:12	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	111		25 - 150	08/24/18 09:30	08/25/18 08:12	1
13C4-PFHxA	84		25 - 150	08/24/18 09:30	08/25/18 08:12	1
13C4 PFOA	98		25 - 150	08/24/18 09:30	08/25/18 08:12	1
13C4 PFOS	113		25 - 150	08/24/18 09:30	08/25/18 08:12	1
13C5 PFNA	114		25 - 150	08/24/18 09:30	08/25/18 08:12	1
13C4 PFBA	36		25 - 150	08/24/18 09:30	08/25/18 08:12	1
13C2 PFHxA	65		25 - 150	08/24/18 09:30	08/25/18 08:12	1
13C2 PFDA	126		25 - 150	08/24/18 09:30	08/25/18 08:12	1
13C2 PFUnA	124		25 - 150	08/24/18 09:30	08/25/18 08:12	1
13C2 PFDoA	99		25 - 150	08/24/18 09:30	08/25/18 08:12	1
13C8 FOSA	95		25 - 150	08/24/18 09:30	08/25/18 08:12	1
13C5-PFPeA	47		25 - 150	08/24/18 09:30	08/25/18 08:12	1
13C2-PFTeDA	103		25 - 150	08/24/18 09:30	08/25/18 08:12	1
d3-NMeFOSAA	114		25 - 150	08/24/18 09:30	08/25/18 08:12	1
d5-NEtFOSAA	117		25 - 150	08/24/18 09:30	08/25/18 08:12	1
M2-6:2FTS	245	*	25 - 150	08/24/18 09:30	08/25/18 08:12	1
M2-8:2FTS	232	*	25 - 150	08/24/18 09:30	08/25/18 08:12	1
13C3-PFBS	86		25 - 150	08/24/18 09:30	08/25/18 08:12	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.93		0.050	0.019	mg/L		08/16/18 08:52	08/17/18 16:36	1

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-140310-1

Client Sample ID: PZ4-08132018

Date Collected: 08/13/18 11:40

Date Received: 08/14/18 00:10

Lab Sample ID: 480-140310-2

Matrix: Water

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	0.49		0.0030	0.00040	mg/L		08/16/18 08:52	08/17/18 16:36	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.15		0.050	0.019	mg/L		08/16/18 08:49	08/21/18 14:39	1
Manganese	0.40	B	0.0030	0.00040	mg/L		08/16/18 08:49	08/21/18 14:39	1

Client Sample ID: MW1S-08132018

Date Collected: 08/13/18 11:05

Date Received: 08/14/18 00:10

Lab Sample ID: 480-140310-3

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.7	J	5.0	0.39	ug/L			08/15/18 12:39	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/15/18 12:39	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/15/18 12:39	1
1,1-Dichloroethane	0.79	J	5.0	0.59	ug/L			08/15/18 12:39	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/15/18 12:39	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/15/18 12:39	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			08/15/18 12:39	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/15/18 12:39	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/15/18 12:39	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/15/18 12:39	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/15/18 12:39	1
Acetone	25	U	25	2.0	ug/L			08/15/18 12:39	1
Benzene	5.0	U	5.0	0.60	ug/L			08/15/18 12:39	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/15/18 12:39	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/15/18 12:39	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/15/18 12:39	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/15/18 12:39	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/15/18 12:39	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/15/18 12:39	1
Chloroform	5.0	U	5.0	0.54	ug/L			08/15/18 12:39	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/15/18 12:39	1
cis-1,2-Dichloroethene	20		5.0	0.57	ug/L			08/15/18 12:39	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/15/18 12:39	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/15/18 12:39	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/15/18 12:39	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/15/18 12:39	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/15/18 12:39	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/15/18 12:39	1
Tetrachloroethylene	3.0	J	5.0	0.34	ug/L			08/15/18 12:39	1
Toluene	5.0	U	5.0	0.45	ug/L			08/15/18 12:39	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			08/15/18 12:39	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/15/18 12:39	1
Trichloroethylene	19	F1	5.0	0.60	ug/L			08/15/18 12:39	1
Trichlorofluoromethane	5.0	U F2	5.0	0.45	ug/L			08/15/18 12:39	1
Vinyl chloride	5.0	U F2	5.0	0.75	ug/L			08/15/18 12:39	1

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-140310-1

Client Sample ID: MW1S-08132018

Lab Sample ID: 480-140310-3

Date Collected: 08/13/18 11:05

Matrix: Water

Date Received: 08/14/18 00:10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		68 - 130		08/15/18 12:39	1
4-Bromofluorobenzene (Surr)	103		76 - 123		08/15/18 12:39	1
Toluene-d8 (Surr)	99		77 - 120		08/15/18 12:39	1
Dibromofluoromethane (Surr)	109		75 - 123		08/15/18 12:39	1

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.68		0.20	0.10	ug/L		08/14/18 10:19	08/22/18 17:25	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	32		15 - 110				08/14/18 10:19	08/22/18 17:25	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	87000		5000	1900	ug/L			08/15/18 18:07	1
Methane	4.0	U	4.0	1.0	ug/L			08/14/18 14:12	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	17		1.7	0.34	ng/L		08/24/18 09:30	08/25/18 08:28	1
Perfluoropentanoic acid (PFPeA)	1.8		1.7	0.62	ng/L		08/24/18 09:30	08/25/18 08:28	1
Perfluorohexanoic acid (PFHxA)	1.3	J	1.7	0.20	ng/L		08/24/18 09:30	08/25/18 08:28	1
Perfluoroheptanoic acid (PFHpA)	0.84	J	1.7	0.27	ng/L		08/24/18 09:30	08/25/18 08:28	1
Perfluorooctanoic acid (PFOA)	1.6	J	1.7	0.27	ng/L		08/24/18 09:30	08/25/18 08:28	1
Perfluorononanoic acid (PFNA)	1.7	U	1.7	0.32	ng/L		08/24/18 09:30	08/25/18 08:28	1
Perfluorodecanoic acid (PFDA)	1.7	U	1.7	0.32	ng/L		08/24/18 09:30	08/25/18 08:28	1
Perfluoroundecanoic acid (PFUnA)	1.7	U	1.7	0.21	ng/L		08/24/18 09:30	08/25/18 08:28	1
Perfluorododecanoic acid (PFDoA)	1.7	U	1.7	0.29	ng/L		08/24/18 09:30	08/25/18 08:28	1
Perfluorotridecanoic Acid (PFTriA)	1.7	U	1.7	0.20	ng/L		08/24/18 09:30	08/25/18 08:28	1
Perfluorotetradecanoic acid (PFTeA)	1.7	U	1.7	0.37	ng/L		08/24/18 09:30	08/25/18 08:28	1
Perfluorobutanesulfonic acid (PFBS)	0.91	J	1.7	0.37	ng/L		08/24/18 09:30	08/25/18 08:28	1
Perfluorohexanesulfonic acid (PFHxS)	0.69	J	1.7	0.22	ng/L		08/24/18 09:30	08/25/18 08:28	1
Perfluoroheptanesulfonic Acid (PFHpS)	1.7	U	1.7	0.68	ng/L		08/24/18 09:30	08/25/18 08:28	1
Perfluorooctanesulfonic acid (PFOS)	2.0		1.7	0.63	ng/L		08/24/18 09:30	08/25/18 08:28	1
Perfluorodecanesulfonic acid (PFDS)	1.7	U	1.7	0.44	ng/L		08/24/18 09:30	08/25/18 08:28	1
Perfluorooctane Sulfonamide (PFOSA)	1.7	U	1.7	0.46	ng/L		08/24/18 09:30	08/25/18 08:28	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	17	U	17	0.37	ng/L		08/24/18 09:30	08/25/18 08:28	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	17	U	17	0.58	ng/L		08/24/18 09:30	08/25/18 08:28	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	17	U	17	0.83	ng/L		08/24/18 09:30	08/25/18 08:28	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	17	U	17	0.46	ng/L		08/24/18 09:30	08/25/18 08:28	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	107		25 - 150				08/24/18 09:30	08/25/18 08:28	1
13C4-PFHpa	84		25 - 150				08/24/18 09:30	08/25/18 08:28	1
13C4 PFOA	100		25 - 150				08/24/18 09:30	08/25/18 08:28	1

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-140310-1

Client Sample ID: MW1S-08132018

Lab Sample ID: 480-140310-3

Date Collected: 08/13/18 11:05

Matrix: Water

Date Received: 08/14/18 00:10

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	98		25 - 150	08/24/18 09:30	08/25/18 08:28	1
13C5 PFNA	107		25 - 150	08/24/18 09:30	08/25/18 08:28	1
13C4 PFBA	34		25 - 150	08/24/18 09:30	08/25/18 08:28	1
13C2 PFHxA	67		25 - 150	08/24/18 09:30	08/25/18 08:28	1
13C2 PFDA	112		25 - 150	08/24/18 09:30	08/25/18 08:28	1
13C2 PFUnA	87		25 - 150	08/24/18 09:30	08/25/18 08:28	1
13C2 PFDoA	77		25 - 150	08/24/18 09:30	08/25/18 08:28	1
13C8 FOSA	82		25 - 150	08/24/18 09:30	08/25/18 08:28	1
13C5-PFPeA	63		25 - 150	08/24/18 09:30	08/25/18 08:28	1
13C2-PFTeDA	74		25 - 150	08/24/18 09:30	08/25/18 08:28	1
d3-NMeFOSAA	77		25 - 150	08/24/18 09:30	08/25/18 08:28	1
d5-NEtFOSAA	85		25 - 150	08/24/18 09:30	08/25/18 08:28	1
M2-6:2FTS	170	*	25 - 150	08/24/18 09:30	08/25/18 08:28	1
M2-8:2FTS	126		25 - 150	08/24/18 09:30	08/25/18 08:28	1
13C3-PFBS	75		25 - 150	08/24/18 09:30	08/25/18 08:28	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.038	J	0.050	0.019	mg/L		08/16/18 08:52	08/17/18 16:39	1
Manganese	0.0049		0.0030	0.00040	mg/L		08/16/18 08:52	08/17/18 16:39	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050	0.019	mg/L		08/16/18 08:49	08/21/18 14:43	1
Manganese	0.00074	J B	0.0030	0.00040	mg/L		08/16/18 08:49	08/21/18 14:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	486		50.0	20.0	mg/L			08/20/18 14:37	5
Nitrate as N	0.28		0.050	0.020	mg/L			08/14/18 19:50	1
Chemical Oxygen Demand	9.1	J	10.0	5.0	mg/L			08/16/18 17:30	1
Sulfate	50.8		10.0	1.7	mg/L			08/23/18 17:35	5
Total Organic Carbon	1.2	B	1.0	0.43	mg/L			08/21/18 23:41	1
Biochemical Oxygen Demand	2.0	U *	2.0	2.0	mg/L			08/14/18 15:57	1

Client Sample ID: MW16R-08132018

Lab Sample ID: 480-140310-4

Date Collected: 08/13/18 16:40

Matrix: Water

Date Received: 08/14/18 00:10

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			08/14/18 16:50	10
1,1,1,2-Tetrachloroethane	50	U	50	2.6	ug/L			08/14/18 16:50	10
1,1,2-Trichloroethane	50	U	50	4.8	ug/L			08/14/18 16:50	10
1,1-Dichloroethane	14	J	50	5.9	ug/L			08/14/18 16:50	10
1,1-Dichloroethene	50	U	50	8.5	ug/L			08/14/18 16:50	10
1,2-Dichlorobenzene	50	U	50	4.4	ug/L			08/14/18 16:50	10
1,2-Dichloroethane	50	U	50	6.0	ug/L			08/14/18 16:50	10
1,2-Dichloropropane	50	U	50	6.1	ug/L			08/14/18 16:50	10
1,3-Dichlorobenzene	50	U	50	5.4	ug/L			08/14/18 16:50	10

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-140310-1

Client Sample ID: MW16R-08132018

Lab Sample ID: 480-140310-4

Date Collected: 08/13/18 16:40

Matrix: Water

Date Received: 08/14/18 00:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	50	U	50	5.1	ug/L			08/14/18 16:50	10
2-Chloroethyl vinyl ether	250	U	250	19	ug/L			08/14/18 16:50	10
Acetone	250	U	250	20	ug/L			08/14/18 16:50	10
Benzene	50	U	50	6.0	ug/L			08/14/18 16:50	10
Bromoform	50	U	50	4.7	ug/L			08/14/18 16:50	10
Bromomethane	50	U	50	12	ug/L			08/14/18 16:50	10
Carbon tetrachloride	50	U	50	5.1	ug/L			08/14/18 16:50	10
Chlorobenzene	50	U	50	4.8	ug/L			08/14/18 16:50	10
Dibromochloromethane	50	U	50	4.1	ug/L			08/14/18 16:50	10
Chloroethane	50	U	50	8.7	ug/L			08/14/18 16:50	10
Chloroform	50	U	50	5.4	ug/L			08/14/18 16:50	10
Chloromethane	50	U	50	6.4	ug/L			08/14/18 16:50	10
cis-1,2-Dichloroethene	310		50	5.7	ug/L			08/14/18 16:50	10
cis-1,3-Dichloropropene	50	U	50	3.3	ug/L			08/14/18 16:50	10
Bromodichloromethane	50	U	50	5.4	ug/L			08/14/18 16:50	10
Ethylbenzene	50	U	50	4.6	ug/L			08/14/18 16:50	10
m-Xylene & p-Xylene	100	U	100	11	ug/L			08/14/18 16:50	10
Methylene Chloride	50	U	50	8.1	ug/L			08/14/18 16:50	10
o-Xylene	50	U	50	4.3	ug/L			08/14/18 16:50	10
Tetrachloroethylene	50	U	50	3.4	ug/L			08/14/18 16:50	10
Toluene	50	U	50	4.5	ug/L			08/14/18 16:50	10
trans-1,2-Dichloroethene	50	U	50	5.9	ug/L			08/14/18 16:50	10
trans-1,3-Dichloropropene	50	U	50	4.4	ug/L			08/14/18 16:50	10
Trichloroethylene	50	U	50	6.0	ug/L			08/14/18 16:50	10
Trichlorofluoromethane	50	U	50	4.5	ug/L			08/14/18 16:50	10
Vinyl chloride	96		50	7.5	ug/L			08/14/18 16:50	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		68 - 130		08/14/18 16:50	10
4-Bromofluorobenzene (Surr)	103		76 - 123		08/14/18 16:50	10
Toluene-d8 (Surr)	99		77 - 120		08/14/18 16:50	10
Dibromofluoromethane (Surr)	105		75 - 123		08/14/18 16:50	10

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	41	E	2.0	1.0	ug/L	—	08/14/18 10:19	08/24/18 15:52	10
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	28		15 - 110				08/14/18 10:19	08/24/18 15:52	10

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	46		1.7	0.35	ng/L		08/24/18 09:30	08/28/18 11:16	1
Perfluoropentanoic acid (PFPeA)	2.8		1.7	0.65	ng/L		08/24/18 09:30	08/28/18 11:16	1
Perfluorohexanoic acid (PFHxA)	3.4		1.7	0.21	ng/L		08/24/18 09:30	08/28/18 11:16	1
Perfluoroheptanoic acid (PFHpA)	1.6	J	1.7	0.28	ng/L		08/24/18 09:30	08/28/18 11:16	1
Perfluorooctanoic acid (PFOA)	2.4		1.7	0.28	ng/L		08/24/18 09:30	08/28/18 11:16	1
Perfluorononanoic acid (PFNA)	0.48	J	1.7	0.33	ng/L		08/24/18 09:30	08/28/18 11:16	1
Perfluorodecanoic acid (PFDA)	1.7	U	1.7	0.33	ng/L		08/24/18 09:30	08/28/18 11:16	1
Perfluoroundecanoic acid (PFUnA)	1.7	U	1.7	0.22	ng/L		08/24/18 09:30	08/28/18 11:16	1

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-140310-1

Client Sample ID: MW16R-08132018

Lab Sample ID: 480-140310-4

Date Collected: 08/13/18 16:40

Matrix: Water

Date Received: 08/14/18 00:10

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	0.48	J	1.7	0.30	ng/L		08/24/18 09:30	08/28/18 11:16	1
Perfluorotridecanoic Acid (PFTriA)	1.7	U	1.7	0.21	ng/L		08/24/18 09:30	08/28/18 11:16	1
Perfluorotetradecanoic acid (PFTeA)	1.7	U	1.7	0.39	ng/L		08/24/18 09:30	08/28/18 11:16	1
Perfluorobutanesulfonic acid (PFBS)	1.8		1.7	0.38	ng/L		08/24/18 09:30	08/28/18 11:16	1
Perfluorohexanesulfonic acid (PFHxS)	0.98	J	1.7	0.22	ng/L		08/24/18 09:30	08/28/18 11:16	1
Perfluoroheptanesulfonic Acid (PFHpS)	1.7	U	1.7	0.71	ng/L		08/24/18 09:30	08/28/18 11:16	1
Perfluorooctanesulfonic acid (PFOS)	2.0		1.7	0.66	ng/L		08/24/18 09:30	08/28/18 11:16	1
Perfluorodecanesulfonic acid (PFDS)	1.7	U	1.7	0.46	ng/L		08/24/18 09:30	08/28/18 11:16	1
Perfluorooctane Sulfonamide (PFOSA)	1.7	U	1.7	0.48	ng/L		08/24/18 09:30	08/28/18 11:16	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	17	U	17	0.39	ng/L		08/24/18 09:30	08/28/18 11:16	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	17	U	17	0.61	ng/L		08/24/18 09:30	08/28/18 11:16	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	17	U	17	0.87	ng/L		08/24/18 09:30	08/28/18 11:16	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	17	U	17	0.48	ng/L		08/24/18 09:30	08/28/18 11:16	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	109		25 - 150				08/24/18 09:30	08/28/18 11:16	1
13C4-PFHxP	63		25 - 150				08/24/18 09:30	08/28/18 11:16	1
13C4 PFOA	102		25 - 150				08/24/18 09:30	08/28/18 11:16	1
13C4 PFOS	108		25 - 150				08/24/18 09:30	08/28/18 11:16	1
13C5 PFNA	111		25 - 150				08/24/18 09:30	08/28/18 11:16	1
13C4 PFBA	21 *		25 - 150				08/24/18 09:30	08/28/18 11:16	1
13C2 PFHxA	54		25 - 150				08/24/18 09:30	08/28/18 11:16	1
13C2 PFDA	137		25 - 150				08/24/18 09:30	08/28/18 11:16	1
13C2 PFUnA	84		25 - 150				08/24/18 09:30	08/28/18 11:16	1
13C2 PFDoA	35		25 - 150				08/24/18 09:30	08/28/18 11:16	1
13C8 FOSA	15 *		25 - 150				08/24/18 09:30	08/28/18 11:16	1
13C5-PFPeA	44		25 - 150				08/24/18 09:30	08/28/18 11:16	1
13C2-PFTeDA	32		25 - 150				08/24/18 09:30	08/28/18 11:16	1
d3-NMeFOSAA	90		25 - 150				08/24/18 09:30	08/28/18 11:16	1
d5-NEtFOSAA	76		25 - 150				08/24/18 09:30	08/28/18 11:16	1
M2-6:2FTS	211 *		25 - 150				08/24/18 09:30	08/28/18 11:16	1
M2-8:2FTS	199 *		25 - 150				08/24/18 09:30	08/28/18 11:16	1
13C3-PFBS	88		25 - 150				08/24/18 09:30	08/28/18 11:16	1

Client Sample ID: PW1-08132018

Lab Sample ID: 480-140310-5

Date Collected: 08/13/18 17:40

Matrix: Water

Date Received: 08/14/18 00:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	10	U	10	0.77	ug/L			08/14/18 17:14	2
1,1,2,2-Tetrachloroethane	10	U	10	0.52	ug/L			08/14/18 17:14	2
1,1,2-Trichloroethane	10	U	10	0.96	ug/L			08/14/18 17:14	2

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-140310-1

Client Sample ID: PW1-08132018

Lab Sample ID: 480-140310-5

Date Collected: 08/13/18 17:40

Matrix: Water

Date Received: 08/14/18 00:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethane	22		10	1.2	ug/L			08/14/18 17:14	2
1,1-Dichloroethene	3.3	J	10	1.7	ug/L			08/14/18 17:14	2
1,2-Dichlorobenzene	10	U	10	0.89	ug/L			08/14/18 17:14	2
1,2-Dichloroethane	10	U	10	1.2	ug/L			08/14/18 17:14	2
1,2-Dichloropropane	10	U	10	1.2	ug/L			08/14/18 17:14	2
1,3-Dichlorobenzene	10	U	10	1.1	ug/L			08/14/18 17:14	2
1,4-Dichlorobenzene	10	U	10	1.0	ug/L			08/14/18 17:14	2
2-Chloroethyl vinyl ether	50	U	50	3.7	ug/L			08/14/18 17:14	2
Acetone	50	U	50	4.0	ug/L			08/14/18 17:14	2
Benzene	10	U	10	1.2	ug/L			08/14/18 17:14	2
Bromoform	10	U	10	0.94	ug/L			08/14/18 17:14	2
Bromomethane	10	U	10	2.4	ug/L			08/14/18 17:14	2
Carbon tetrachloride	10	U	10	1.0	ug/L			08/14/18 17:14	2
Chlorobenzene	10	U	10	0.95	ug/L			08/14/18 17:14	2
Dibromochloromethane	10	U	10	0.83	ug/L			08/14/18 17:14	2
Chloroethane	10	U	10	1.7	ug/L			08/14/18 17:14	2
Chloroform	10	U	10	1.1	ug/L			08/14/18 17:14	2
Chloromethane	10	U	10	1.3	ug/L			08/14/18 17:14	2
cis-1,3-Dichloropropene	10	U	10	0.66	ug/L			08/14/18 17:14	2
Bromodichloromethane	10	U	10	1.1	ug/L			08/14/18 17:14	2
Ethylbenzene	10	U	10	0.93	ug/L			08/14/18 17:14	2
m-Xylene & p-Xylene	20	U	20	2.2	ug/L			08/14/18 17:14	2
Methylene Chloride	10	U	10	1.6	ug/L			08/14/18 17:14	2
o-Xylene	10	U	10	0.86	ug/L			08/14/18 17:14	2
Tetrachloroethylene	10	U	10	0.68	ug/L			08/14/18 17:14	2
Toluene	10	U	10	0.91	ug/L			08/14/18 17:14	2
trans-1,2-Dichloroethene	3.3	J	10	1.2	ug/L			08/14/18 17:14	2
trans-1,3-Dichloropropene	10	U	10	0.88	ug/L			08/14/18 17:14	2
Trichloroethylene	16		10	1.2	ug/L			08/14/18 17:14	2
Trichlorofluoromethane	10	U	10	0.90	ug/L			08/14/18 17:14	2
Vinyl chloride	72		10	1.5	ug/L			08/14/18 17:14	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		68 - 130		08/14/18 17:14	2
4-Bromofluorobenzene (Surr)	103		76 - 123		08/14/18 17:14	2
Toluene-d8 (Surr)	99		77 - 120		08/14/18 17:14	2
Dibromofluoromethane (Surr)	105		75 - 123		08/14/18 17:14	2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	210		20	2.3	ug/L			08/15/18 15:31	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		68 - 130		08/15/18 15:31	4
4-Bromofluorobenzene (Surr)	101		76 - 123		08/15/18 15:31	4
Toluene-d8 (Surr)	98		77 - 120		08/15/18 15:31	4
Dibromofluoromethane (Surr)	103		75 - 123		08/15/18 15:31	4

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-140310-1

Client Sample ID: RB-08132018

Lab Sample ID: 480-140310-6

Date Collected: 08/13/18 18:20

Matrix: Water

Date Received: 08/14/18 00:10

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.7	U	1.7	0.34	ng/L		08/24/18 09:30	08/25/18 09:31	1
Perfluoropentanoic acid (PFPeA)	1.7	U	1.7	0.62	ng/L		08/24/18 09:30	08/25/18 09:31	1
Perfluorohexanoic acid (PFHxA)	1.7	U	1.7	0.20	ng/L		08/24/18 09:30	08/25/18 09:31	1
Perfluoroheptanoic acid (PFHpA)	1.7	U	1.7	0.26	ng/L		08/24/18 09:30	08/25/18 09:31	1
Perfluorooctanoic acid (PFOA)	0.34	J	1.7	0.26	ng/L		08/24/18 09:30	08/25/18 09:31	1
Perfluorononanoic acid (PFNA)	1.7	U	1.7	0.31	ng/L		08/24/18 09:30	08/25/18 09:31	1
Perfluorodecanoic acid (PFDA)	1.7	U	1.7	0.31	ng/L		08/24/18 09:30	08/25/18 09:31	1
Perfluoroundecanoic acid (PFUnA)	0.26	J B	1.7	0.21	ng/L		08/24/18 09:30	08/25/18 09:31	1
Perfluorododecanoic acid (PFDoA)	1.7	U	1.7	0.29	ng/L		08/24/18 09:30	08/25/18 09:31	1
Perfluorotridecanoic Acid (PFTriA)	1.7	U	1.7	0.20	ng/L		08/24/18 09:30	08/25/18 09:31	1
Perfluorotetradecanoic acid (PFTeA)	1.7	U	1.7	0.37	ng/L		08/24/18 09:30	08/25/18 09:31	1
Perfluorobutanesulfonic acid (PFBS)	1.7	U	1.7	0.36	ng/L		08/24/18 09:30	08/25/18 09:31	1
Perfluorohexanesulfonic acid (PFHxS)	1.7	U	1.7	0.22	ng/L		08/24/18 09:30	08/25/18 09:31	1
Perfluoroheptanesulfonic Acid (PFHpS)	1.7	U	1.7	0.68	ng/L		08/24/18 09:30	08/25/18 09:31	1
Perfluorooctanesulfonic acid (PFOS)	1.7	U	1.7	0.63	ng/L		08/24/18 09:30	08/25/18 09:31	1
Perfluorodecanesulfonic acid (PFDS)	1.7	U	1.7	0.44	ng/L		08/24/18 09:30	08/25/18 09:31	1
Perfluorooctane Sulfonamide (PFOSA)	1.7	U	1.7	0.46	ng/L		08/24/18 09:30	08/25/18 09:31	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	17	U	17	0.37	ng/L		08/24/18 09:30	08/25/18 09:31	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	17	U	17	0.58	ng/L		08/24/18 09:30	08/25/18 09:31	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	17	U	17	0.83	ng/L		08/24/18 09:30	08/25/18 09:31	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	17	U	17	0.46	ng/L		08/24/18 09:30	08/25/18 09:31	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	122		25 - 150	08/24/18 09:30	08/25/18 09:31	1
13C4-PFHxA	107		25 - 150	08/24/18 09:30	08/25/18 09:31	1
13C4 PFOA	110		25 - 150	08/24/18 09:30	08/25/18 09:31	1
13C4 PFOS	118		25 - 150	08/24/18 09:30	08/25/18 09:31	1
13C5 PFNA	111		25 - 150	08/24/18 09:30	08/25/18 09:31	1
13C4 PFBA	101		25 - 150	08/24/18 09:30	08/25/18 09:31	1
13C2 PFHxA	118		25 - 150	08/24/18 09:30	08/25/18 09:31	1
13C2 PFDA	125		25 - 150	08/24/18 09:30	08/25/18 09:31	1
13C2 PFUnA	122		25 - 150	08/24/18 09:30	08/25/18 09:31	1
13C2 PFDoA	55		25 - 150	08/24/18 09:30	08/25/18 09:31	1
13C8 FOSA	62		25 - 150	08/24/18 09:30	08/25/18 09:31	1
13C5-PFPeA	101		25 - 150	08/24/18 09:30	08/25/18 09:31	1
13C2-PFTeA	66		25 - 150	08/24/18 09:30	08/25/18 09:31	1
d3-NMeFOSAA	103		25 - 150	08/24/18 09:30	08/25/18 09:31	1
d5-NEtFOSAA	95		25 - 150	08/24/18 09:30	08/25/18 09:31	1
M2-6:2FTS	110		25 - 150	08/24/18 09:30	08/25/18 09:31	1
M2-8:2FTS	127		25 - 150	08/24/18 09:30	08/25/18 09:31	1
13C3-PFBS	107		25 - 150	08/24/18 09:30	08/25/18 09:31	1

TestAmerica Buffalo

Surrogate Summary

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

TestAmerica Job ID: 480-140310-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (68-130)	BFB (76-123)	TOL (77-120)	DBFM (75-123)
480-140310-1	TB-08132018	112	102	98	104
480-140310-2	PZ4-08132018	111	103	99	105
480-140310-3	MW1S-08132018	113	103	99	109
480-140310-3 MS	MW1S-08132018MS	110	102	100	106
480-140310-3 MSD	MW1S-08132018MSD	110	103	100	104
480-140310-4	MW16R-08132018	112	103	99	105
480-140310-5	PW1-08132018	113	103	99	105
480-140310-5 - DL	PW1-08132018	113	101	98	103
LCS 480-429443/14	Lab Control Sample	105	105	101	105
LCS 480-429710/5	Lab Control Sample	109	106	100	106
MB 480-429443/7	Method Blank	111	102	99	103
MB 480-429710/7	Method Blank	110	102	99	106

Surrogate Legend

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

Isotope Dilution Summary

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

TestAmerica Job ID: 480-140310-1

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DXE (15-110)
480-140310-2	PZ4-08132018	19
480-140310-3	MW1S-08132018	32
480-140310-3 MS	MW1S-08132018MS	32
480-140310-3 MSD	MW1S-08132018MSD	32
480-140310-4	MW16R-08132018	28
LCS 480-429502/2-A	Lab Control Sample	34
MB 480-429502/1-A	Method Blank	35

Surrogate Legend

DXE = 1,4-Dioxane-d8

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFHxS (25-150)	PFHpA (25-150)	PFOA (25-150)	PFOS (25-150)	PFNA (25-150)	PFBA (25-150)	PFHxA (25-150)	PFDA (25-150)
480-140310-2	PZ4-08132018	111	84	98	113	114	36	65	126
480-140310-3	MW1S-08132018	107	84	100	98	107	34	67	112
480-140310-3 MS	MW1S-08132018MS	109	89	109	108	113	38	69	109
480-140310-3 MSD	MW1S-08132018MSD	97	88	102	107	111	38	74	112
480-140310-4	MW16R-08132018	109	63	102	108	111	21 *	54	137
480-140310-6	RB-08132018	122	107	110	118	111	101	118	125
LCS 200-133253/2-A	Lab Control Sample	116	93	103	130	101	95	110	111
MB 200-133253/1-A	Method Blank	107	95	105	115	101	89	111	117

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFUnA (25-150)	PFDoA (25-150)	PFOSA (25-150)	PFPeA (25-150)	PFTDA (25-150)	-NMeFOS/ (25-150)	-NEtFOS/ (25-150)	M262FTS (25-150)
480-140310-2	PZ4-08132018	124	99	95	47	103	114	117	245 *
480-140310-3	MW1S-08132018	87	77	82	63	74	77	85	170 *
480-140310-3 MS	MW1S-08132018MS	89	79	85	53	95	74	83	175 *
480-140310-3 MSD	MW1S-08132018MSD	91	85	89	55	87	86	85	182 *
480-140310-4	MW16R-08132018	84	35	15 *	44	32	90	76	211 *
480-140310-6	RB-08132018	122	55	62	101	66	103	95	110
LCS 200-133253/2-A	Lab Control Sample	108	87	83	113	75	102	94	118
MB 200-133253/1-A	Method Blank	107	87	77	109	71	119	91	93

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M282FTS (25-150)	3C3-PFB: (25-150)
480-140310-2	PZ4-08132018	232 *	86
480-140310-3	MW1S-08132018	126	75
480-140310-3 MS	MW1S-08132018MS	118	84
480-140310-3 MSD	MW1S-08132018MSD	132	81
480-140310-4	MW16R-08132018	199 *	88
480-140310-6	RB-08132018	127	107
LCS 200-133253/2-A	Lab Control Sample	119	104
MB 200-133253/1-A	Method Blank	126	110

Surrogate Legend

TestAmerica Buffalo

Isotope Dilution Summary

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

TestAmerica Job ID: 480-140310-1

PFHxS = 18O2 PFHxS
PFHpA = 13C4-PFHpA
PFOA = 13C4 PFOA
PFOS = 13C4 PFOS
PFNA = 13C5 PFNA
PFBA = 13C4 PFBA
PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFOSA = 13C8 FOSA
PFPeA = 13C5-PFPeA
PFTDA = 13C2-PFTeDA
d3-NMeFOSAA = d3-NMeFOSAA
d5-NEtFOSAA = d5-NEtFOSAA
M262FTS = M2-6:2FTS
M282FTS = M2-8:2FTS
13C3-PFBS = 13C3-PFBS

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QC Sample Results

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

TestAmerica Job ID: 480-140310-1

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

Lab Sample ID: MB 480-429443/7

Matrix: Water

Analysis Batch: 429443

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			08/14/18 12:11	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/14/18 12:11	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/14/18 12:11	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			08/14/18 12:11	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/14/18 12:11	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/14/18 12:11	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			08/14/18 12:11	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/14/18 12:11	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/14/18 12:11	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/14/18 12:11	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/14/18 12:11	1
Acetone	25	U	25	2.0	ug/L			08/14/18 12:11	1
Benzene	5.0	U	5.0	0.60	ug/L			08/14/18 12:11	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/14/18 12:11	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/14/18 12:11	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/14/18 12:11	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/14/18 12:11	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/14/18 12:11	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/14/18 12:11	1
Chloroform	5.0	U	5.0	0.54	ug/L			08/14/18 12:11	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/14/18 12:11	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			08/14/18 12:11	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/14/18 12:11	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/14/18 12:11	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/14/18 12:11	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/14/18 12:11	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/14/18 12:11	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/14/18 12:11	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			08/14/18 12:11	1
Toluene	5.0	U	5.0	0.45	ug/L			08/14/18 12:11	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			08/14/18 12:11	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/14/18 12:11	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			08/14/18 12:11	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/14/18 12:11	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			08/14/18 12:11	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		68 - 130		08/14/18 12:11	1
4-Bromofluorobenzene (Surr)	102		76 - 123		08/14/18 12:11	1
Toluene-d8 (Surr)	99		77 - 120		08/14/18 12:11	1
Dibromofluoromethane (Surr)	103		75 - 123		08/14/18 12:11	1

Lab Sample ID: LCS 480-429443/14

Matrix: Water

Analysis Batch: 429443

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	21.0		ug/L		105	52 - 162

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140310-1

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

Lab Sample ID: LCS 480-429443/14

Matrix: Water

Analysis Batch: 429443

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	20.3		ug/L		102	46 - 157
1,1,2-Trichloroethane	20.0	20.4		ug/L		102	52 - 150
1,1-Dichloroethane	20.0	20.9		ug/L		105	59 - 155
1,1-Dichloroethene	20.0	21.1		ug/L		106	1 - 234
1,2-Dichlorobenzene	20.0	20.5		ug/L		102	18 - 190
1,2-Dichloroethane	20.0	22.2		ug/L		111	49 - 155
1,2-Dichloropropane	20.0	20.7		ug/L		103	1 - 210
1,3-Dichlorobenzene	20.0	20.5		ug/L		103	59 - 156
1,4-Dichlorobenzene	20.0	20.7		ug/L		103	18 - 190
2-Chloroethyl vinyl ether	20.0	20.5	J	ug/L		102	1 - 305
Benzene	20.0	20.9		ug/L		105	37 - 151
Bromoform	20.0	19.5		ug/L		98	45 - 169
Bromomethane	20.0	20.7		ug/L		104	1 - 242
Carbon tetrachloride	20.0	21.1		ug/L		105	70 - 140
Chlorobenzene	20.0	20.2		ug/L		101	37 - 160
Dibromochloromethane	20.0	20.3		ug/L		102	53 - 149
Chloroethane	20.0	20.5		ug/L		103	14 - 230
Chloroform	20.0	21.3		ug/L		107	51 - 138
Chloromethane	20.0	20.9		ug/L		104	1 - 273
cis-1,3-Dichloropropene	20.0	21.1		ug/L		106	1 - 227
Bromodichloromethane	20.0	21.4		ug/L		107	35 - 155
Ethylbenzene	20.0	20.4		ug/L		102	37 - 162
Methylene Chloride	20.0	21.0		ug/L		105	1 - 221
Tetrachloroethylene	20.0	20.4		ug/L		102	64 - 148
Toluene	20.0	20.1		ug/L		100	47 - 150
trans-1,2-Dichloroethene	20.0	21.0		ug/L		105	54 - 156
trans-1,3-Dichloropropene	20.0	20.3		ug/L		102	17 - 183
Trichloroethylene	20.0	21.0		ug/L		105	71 - 157
Trichlorofluoromethane	20.0	21.6		ug/L		108	17 - 181
Vinyl chloride	20.0	21.3		ug/L		106	1 - 251

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	105		68 - 130
4-Bromofluorobenzene (Surr)	105		76 - 123
Toluene-d8 (Surr)	101		77 - 120
Dibromofluoromethane (Surr)	105		75 - 123

Lab Sample ID: MB 480-429710/7

Matrix: Water

Analysis Batch: 429710

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			08/15/18 11:29	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/15/18 11:29	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/15/18 11:29	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			08/15/18 11:29	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/15/18 11:29	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/15/18 11:29	1

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140310-1

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

Lab Sample ID: MB 480-429710/7

Matrix: Water

Analysis Batch: 429710

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			08/15/18 11:29	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/15/18 11:29	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/15/18 11:29	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/15/18 11:29	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/15/18 11:29	1
Acetone	25	U	25	2.0	ug/L			08/15/18 11:29	1
Benzene	5.0	U	5.0	0.60	ug/L			08/15/18 11:29	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/15/18 11:29	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/15/18 11:29	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/15/18 11:29	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/15/18 11:29	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/15/18 11:29	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/15/18 11:29	1
Chloroform	5.0	U	5.0	0.54	ug/L			08/15/18 11:29	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/15/18 11:29	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			08/15/18 11:29	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/15/18 11:29	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/15/18 11:29	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/15/18 11:29	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/15/18 11:29	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/15/18 11:29	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/15/18 11:29	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			08/15/18 11:29	1
Toluene	5.0	U	5.0	0.45	ug/L			08/15/18 11:29	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			08/15/18 11:29	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/15/18 11:29	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			08/15/18 11:29	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/15/18 11:29	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			08/15/18 11:29	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		68 - 130		08/15/18 11:29	1
4-Bromofluorobenzene (Surr)	102		76 - 123		08/15/18 11:29	1
Toluene-d8 (Surr)	99		77 - 120		08/15/18 11:29	1
Dibromofluoromethane (Surr)	106		75 - 123		08/15/18 11:29	1

Lab Sample ID: LCS 480-429710/5

Matrix: Water

Analysis Batch: 429710

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	19.1		ug/L		96	52 - 162
1,1,1,2-Tetrachloroethane	20.0	20.0		ug/L		100	46 - 157
1,1,2-Trichloroethane	20.0	20.0		ug/L		100	52 - 150
1,1-Dichloroethane	20.0	19.1		ug/L		95	59 - 155
1,1-Dichloroethene	20.0	18.1		ug/L		90	1 - 234
1,2-Dichlorobenzene	20.0	19.1		ug/L		96	18 - 190
1,2-Dichloroethane	20.0	19.9		ug/L		100	49 - 155

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140310-1

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

Lab Sample ID: LCS 480-429710/5

Matrix: Water

Analysis Batch: 429710

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	19.7		ug/L		98	1 - 210
1,3-Dichlorobenzene	20.0	18.9		ug/L		95	59 - 156
1,4-Dichlorobenzene	20.0	18.9		ug/L		95	18 - 190
2-Chloroethyl vinyl ether	20.0	21.2	J	ug/L		106	1 - 305
Benzene	20.0	19.2		ug/L		96	37 - 151
Bromoform	20.0	19.5		ug/L		97	45 - 169
Bromomethane	20.0	19.4		ug/L		97	1 - 242
Carbon tetrachloride	20.0	18.5		ug/L		92	70 - 140
Chlorobenzene	20.0	18.6		ug/L		93	37 - 160
Dibromochloromethane	20.0	19.4		ug/L		97	53 - 149
Chloroethane	20.0	19.8		ug/L		99	14 - 230
Chloroform	20.0	20.2		ug/L		101	51 - 138
Chloromethane	20.0	17.7		ug/L		88	1 - 273
cis-1,3-Dichloropropene	20.0	20.1		ug/L		101	1 - 227
Bromodichloromethane	20.0	20.0		ug/L		100	35 - 155
Ethylbenzene	20.0	18.4		ug/L		92	37 - 162
Methylene Chloride	20.0	19.8		ug/L		99	1 - 221
Tetrachloroethylene	20.0	17.7		ug/L		88	64 - 148
Toluene	20.0	18.3		ug/L		91	47 - 150
trans-1,2-Dichloroethene	20.0	19.0		ug/L		95	54 - 156
trans-1,3-Dichloropropene	20.0	19.7		ug/L		99	17 - 183
Trichloroethylene	20.0	18.9		ug/L		94	71 - 157
Trichlorofluoromethane	20.0	19.1		ug/L		96	17 - 181
Vinyl chloride	20.0	18.5		ug/L		93	1 - 251

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	109		68 - 130
4-Bromofluorobenzene (Surr)	106		76 - 123
Toluene-d8 (Surr)	100		77 - 120
Dibromofluoromethane (Surr)	106		75 - 123

Lab Sample ID: 480-140310-3 MS

Matrix: Water

Analysis Batch: 429710

Client Sample ID: MW1S-08132018MS

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	1.7	J	20.0	18.4		ug/L		84	52 - 162
1,1,1,2-Tetrachloroethane	5.0	U	20.0	22.3		ug/L		111	46 - 157
1,1,2-Trichloroethane	5.0	U	20.0	21.8		ug/L		109	52 - 150
1,1-Dichloroethane	0.79	J	20.0	19.4		ug/L		93	59 - 155
1,1-Dichloroethene	5.0	U	20.0	15.9		ug/L		79	1 - 234
1,2-Dichlorobenzene	5.0	U	20.0	19.8		ug/L		99	18 - 190
1,2-Dichloroethane	5.0	U	20.0	22.8		ug/L		114	49 - 155
1,2-Dichloropropane	5.0	U	20.0	20.2		ug/L		101	1 - 210
1,3-Dichlorobenzene	5.0	U	20.0	18.9		ug/L		95	59 - 156
1,4-Dichlorobenzene	5.0	U	20.0	19.2		ug/L		96	18 - 190
2-Chloroethyl vinyl ether	25	U	20.0	22.8	J	ug/L		114	1 - 305
Benzene	5.0	U	20.0	19.3		ug/L		97	37 - 151

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140310-1

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

Lab Sample ID: 480-140310-3 MS

Matrix: Water

Analysis Batch: 429710

Client Sample ID: MW1S-08132018MS

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromoform	5.0	U	20.0	20.5		ug/L		103	45 - 169
Bromomethane	5.0	U	20.0	16.1		ug/L		81	1 - 242
Carbon tetrachloride	5.0	U	20.0	16.0		ug/L		80	70 - 140
Chlorobenzene	5.0	U	20.0	19.2		ug/L		96	37 - 160
Dibromochloromethane	5.0	U	20.0	20.6		ug/L		103	53 - 149
Chloroethane	5.0	U	20.0	15.5		ug/L		78	14 - 230
Chloroform	5.0	U	20.0	20.5		ug/L		102	51 - 138
Chloromethane	5.0	U	20.0	15.1		ug/L		76	1 - 273
cis-1,3-Dichloropropene	5.0	U	20.0	20.6		ug/L		103	1 - 227
Bromodichloromethane	5.0	U	20.0	21.4		ug/L		107	35 - 155
Ethylbenzene	5.0	U	20.0	18.0		ug/L		90	37 - 162
Methylene Chloride	5.0	U	20.0	20.2		ug/L		101	1 - 221
Tetrachloroethylene	3.0	J	20.0	17.8		ug/L		74	64 - 148
Toluene	5.0	U	20.0	18.2		ug/L		91	47 - 150
trans-1,2-Dichloroethene	5.0	U	20.0	18.1		ug/L		91	54 - 156
trans-1,3-Dichloropropene	5.0	U	20.0	20.9		ug/L		104	17 - 183
Trichloroethylene	19	F1	20.0	30.0	F1	ug/L		54	71 - 157
Trichlorofluoromethane	5.0	U F2	20.0	13.3		ug/L		66	17 - 181
Vinyl chloride	5.0	U F2	20.0	13.7		ug/L		69	1 - 251

Surrogate	MS %Recovery	MS Qualifier	MS Limits
1,2-Dichloroethane-d4 (Surr)	110		68 - 130
4-Bromofluorobenzene (Surr)	102		76 - 123
Toluene-d8 (Surr)	100		77 - 120
Dibromofluoromethane (Surr)	106		75 - 123

Lab Sample ID: 480-140310-3 MSD

Matrix: Water

Analysis Batch: 429710

Client Sample ID: MW1S-08132018MSD

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	1.7	J	20.0	18.5		ug/L		84	52 - 162	1	15
1,1,1,2-Tetrachloroethane	5.0	U	20.0	21.4		ug/L		107	46 - 157	4	15
1,1,2-Trichloroethane	5.0	U	20.0	19.9		ug/L		100	52 - 150	9	15
1,1-Dichloroethane	0.79	J	20.0	19.7		ug/L		94	59 - 155	2	15
1,1-Dichloroethene	5.0	U	20.0	17.2		ug/L		86	1 - 234	8	15
1,2-Dichlorobenzene	5.0	U	20.0	19.1		ug/L		96	18 - 190	4	15
1,2-Dichloroethane	5.0	U	20.0	22.0		ug/L		110	49 - 155	3	15
1,2-Dichloropropane	5.0	U	20.0	19.5		ug/L		98	1 - 210	4	15
1,3-Dichlorobenzene	5.0	U	20.0	18.5		ug/L		93	59 - 156	2	15
1,4-Dichlorobenzene	5.0	U	20.0	18.7		ug/L		94	18 - 190	2	15
2-Chloroethyl vinyl ether	25	U	20.0	21.8	J	ug/L		109	1 - 305	4	15
Benzene	5.0	U	20.0	19.2		ug/L		96	37 - 151	1	15
Bromoform	5.0	U	20.0	19.4		ug/L		97	45 - 169	6	15
Bromomethane	5.0	U	20.0	18.5		ug/L		93	1 - 242	14	15
Carbon tetrachloride	5.0	U	20.0	17.6		ug/L		88	70 - 140	10	15
Chlorobenzene	5.0	U	20.0	18.4		ug/L		92	37 - 160	4	15
Dibromochloromethane	5.0	U	20.0	19.8		ug/L		99	53 - 149	4	15

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140310-1

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

Lab Sample ID: 480-140310-3 MSD

Matrix: Water

Analysis Batch: 429710

Client Sample ID: MW1S-08132018MSD

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloroethane	5.0	U	20.0	17.4		ug/L		87	14 - 230	11	15
Chloroform	5.0	U	20.0	19.9		ug/L		99	51 - 138	3	15
Chloromethane	5.0	U	20.0	17.2		ug/L		86	1 - 273	13	15
cis-1,3-Dichloropropene	5.0	U	20.0	19.7		ug/L		98	1 - 227	4	15
Bromodichloromethane	5.0	U	20.0	20.6		ug/L		103	35 - 155	4	15
Ethylbenzene	5.0	U	20.0	17.7		ug/L		88	37 - 162	2	15
Methylene Chloride	5.0	U	20.0	20.2		ug/L		101	1 - 221	0	15
Tetrachloroethylene	3.0	J	20.0	18.8		ug/L		79	64 - 148	5	15
Toluene	5.0	U	20.0	17.9		ug/L		90	47 - 150	1	15
trans-1,2-Dichloroethene	5.0	U	20.0	18.5		ug/L		92	54 - 156	2	15
trans-1,3-Dichloropropene	5.0	U	20.0	19.6		ug/L		98	17 - 183	6	15
Trichloroethylene	19	F1	20.0	31.1	F1	ug/L		59	71 - 157	4	15
Trichlorofluoromethane	5.0	U F2	20.0	17.3	F2	ug/L		86	17 - 181	26	15
Vinyl chloride	5.0	U F2	20.0	17.0	F2	ug/L		85	1 - 251	21	15

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	110		68 - 130
4-Bromofluorobenzene (Surr)	103		76 - 123
Toluene-d8 (Surr)	100		77 - 120
Dibromofluoromethane (Surr)	104		75 - 123

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Lab Sample ID: MB 480-429502/1-A

Matrix: Water

Analysis Batch: 430934

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 429502

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	0.20	U	0.20	0.10	ug/L		08/14/18 10:19	08/22/18 14:39	1
Isotope Dilution	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	35		15 - 110				08/14/18 10:19	08/22/18 14:39	1

Lab Sample ID: LCS 480-429502/2-A

Matrix: Water

Analysis Batch: 430934

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 429502

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	1.00	1.10		ug/L		110	40 - 140
Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits				
1,4-Dioxane-d8	34		15 - 110				

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140310-1

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution) (Continued)

Lab Sample ID: 480-140310-3 MS

Matrix: Water

Analysis Batch: 430934

Client Sample ID: MW1S-08132018MS

Prep Type: Total/NA

Prep Batch: 429502

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	0.68		1.00	1.73	E	ug/L		105	40 - 140
MS MS									
Isotope Dilution	%Recovery	Qualifier	Limits						
1,4-Dioxane-d8	32		15 - 110						

Lab Sample ID: 480-140310-3 MSD

Matrix: Water

Analysis Batch: 430934

Client Sample ID: MW1S-08132018MSD

Prep Type: Total/NA

Prep Batch: 429502

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
1,4-Dioxane	0.68		1.00	1.71	E	ug/L		103	40 - 140	1	20
MSD MSD											
Isotope Dilution	%Recovery	Qualifier	Limits								
1,4-Dioxane-d8	32		15 - 110								

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 200-132943/5

Matrix: Water

Analysis Batch: 132943

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	5000	U	5000	1900	ug/L			08/15/18 17:58	1

Lab Sample ID: LCS 200-132943/3

Matrix: Water

Analysis Batch: 132943

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon dioxide	40000	40100		ug/L		100	70 - 130

Lab Sample ID: LCSD 200-132943/4

Matrix: Water

Analysis Batch: 132943

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Carbon dioxide	40000	41400		ug/L		104	70 - 130	3	30

Lab Sample ID: 480-140310-3 MS

Matrix: Water

Analysis Batch: 132943

Client Sample ID: MW1S-08132018MS

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon dioxide	87000		40000	125000		ug/L		96	70 - 130

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140310-1

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: 480-140310-3 MSD

Matrix: Water

Analysis Batch: 132943

Client Sample ID: MW1S-08132018MSD

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon dioxide	87000		40000	128000		ug/L		101	70 - 130	2	30

Lab Sample ID: MB 480-429516/4

Matrix: Water

Analysis Batch: 429516

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	4.0	U	4.0	1.0	ug/L			08/14/18 12:30	1

Lab Sample ID: LCS 480-429516/5

Matrix: Water

Analysis Batch: 429516

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	7.77	7.97		ug/L		103	85 - 120

Lab Sample ID: 480-140310-3 MS

Matrix: Water

Analysis Batch: 429516

Client Sample ID: MW1S-08132018MS

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	4.0	U	7.77	7.58		ug/L		98	38 - 150

Lab Sample ID: 480-140310-3 MSD

Matrix: Water

Analysis Batch: 429516

Client Sample ID: MW1S-08132018MSD

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	4.0	U	7.77	6.87		ug/L		88	38 - 150	10	50

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 200-133253/1-A

Matrix: Water

Analysis Batch: 133262

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 133253

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.0	U	2.0	0.41	ng/L		08/24/18 09:30	08/24/18 19:45	1
Perfluoropentanoic acid (PFPeA)	2.0	U	2.0	0.75	ng/L		08/24/18 09:30	08/24/18 19:45	1
Perfluorohexanoic acid (PFHxA)	2.0	U	2.0	0.24	ng/L		08/24/18 09:30	08/24/18 19:45	1
Perfluoroheptanoic acid (PFHpA)	2.0	U	2.0	0.32	ng/L		08/24/18 09:30	08/24/18 19:45	1
Perfluorooctanoic acid (PFOA)	2.0	U	2.0	0.32	ng/L		08/24/18 09:30	08/24/18 19:45	1
Perfluorononanoic acid (PFNA)	2.0	U	2.0	0.38	ng/L		08/24/18 09:30	08/24/18 19:45	1
Perfluorodecanoic acid (PFDA)	2.0	U	2.0	0.38	ng/L		08/24/18 09:30	08/24/18 19:45	1
Perfluoroundecanoic acid (PFUnA)	0.347	J	2.0	0.25	ng/L		08/24/18 09:30	08/24/18 19:45	1
Perfluorododecanoic acid (PFDoA)	2.0	U	2.0	0.35	ng/L		08/24/18 09:30	08/24/18 19:45	1
Perfluorotridecanoic Acid (PFTriA)	2.0	U	2.0	0.24	ng/L		08/24/18 09:30	08/24/18 19:45	1
Perfluorotetradecanoic acid (PFTeA)	2.0	U	2.0	0.45	ng/L		08/24/18 09:30	08/24/18 19:45	1
Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.0	0.44	ng/L		08/24/18 09:30	08/24/18 19:45	1

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140310-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 200-133253/1-A

Matrix: Water

Analysis Batch: 133262

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 133253

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	2.0	U	2.0	0.26	ng/L		08/24/18 09:30	08/24/18 19:45	1
Perfluoroheptanesulfonic Acid (PFHpS)	2.0	U	2.0	0.82	ng/L		08/24/18 09:30	08/24/18 19:45	1
Perfluorooctanesulfonic acid (PFOS)	2.0	U	2.0	0.76	ng/L		08/24/18 09:30	08/24/18 19:45	1
Perfluorodecanesulfonic acid (PFDS)	2.0	U	2.0	0.53	ng/L		08/24/18 09:30	08/24/18 19:45	1
Perfluorooctane Sulfonamide (PFOSA)	2.0	U	2.0	0.56	ng/L		08/24/18 09:30	08/24/18 19:45	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	20	U	20	0.45	ng/L		08/24/18 09:30	08/24/18 19:45	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	20	U	20	0.70	ng/L		08/24/18 09:30	08/24/18 19:45	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	20	U	20	1.0	ng/L		08/24/18 09:30	08/24/18 19:45	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	20	U	20	0.56	ng/L		08/24/18 09:30	08/24/18 19:45	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	107		25 - 150	08/24/18 09:30	08/24/18 19:45	1
13C4-PFHpa	95		25 - 150	08/24/18 09:30	08/24/18 19:45	1
13C4 PFOA	105		25 - 150	08/24/18 09:30	08/24/18 19:45	1
13C4 PFOS	115		25 - 150	08/24/18 09:30	08/24/18 19:45	1
13C5 PFNA	101		25 - 150	08/24/18 09:30	08/24/18 19:45	1
13C4 PFBA	89		25 - 150	08/24/18 09:30	08/24/18 19:45	1
13C2 PFHxA	111		25 - 150	08/24/18 09:30	08/24/18 19:45	1
13C2 PFDA	117		25 - 150	08/24/18 09:30	08/24/18 19:45	1
13C2 PFUnA	107		25 - 150	08/24/18 09:30	08/24/18 19:45	1
13C2 PFDaA	87		25 - 150	08/24/18 09:30	08/24/18 19:45	1
13C8 FOSA	77		25 - 150	08/24/18 09:30	08/24/18 19:45	1
13C5-PFPeA	109		25 - 150	08/24/18 09:30	08/24/18 19:45	1
13C2-PFTeDA	71		25 - 150	08/24/18 09:30	08/24/18 19:45	1
d3-NMeFOSAA	119		25 - 150	08/24/18 09:30	08/24/18 19:45	1
d5-NEtFOSAA	91		25 - 150	08/24/18 09:30	08/24/18 19:45	1
M2-6:2FTS	93		25 - 150	08/24/18 09:30	08/24/18 19:45	1
M2-8:2FTS	126		25 - 150	08/24/18 09:30	08/24/18 19:45	1
13C3-PFBS	110		25 - 150	08/24/18 09:30	08/24/18 19:45	1

Lab Sample ID: LCS 200-133253/2-A

Matrix: Water

Analysis Batch: 133262

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 133253

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanoic acid (PFBA)	40.0	38.5		ng/L		96	50 - 150
Perfluoropentanoic acid (PFPeA)	40.0	37.2		ng/L		93	50 - 150
Perfluorohexanoic acid (PFHxA)	40.0	39.8		ng/L		100	50 - 150
Perfluoroheptanoic acid (PFHpA)	40.0	41.2		ng/L		103	50 - 150
Perfluorooctanoic acid (PFOA)	40.0	39.6		ng/L		99	50 - 150
Perfluorononanoic acid (PFNA)	40.0	39.7		ng/L		99	50 - 150
Perfluorodecanoic acid (PFDA)	40.0	38.9		ng/L		97	50 - 150
Perfluoroundecanoic acid (PFUnA)	40.0	41.6		ng/L		104	50 - 150

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140310-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 200-133253/2-A

Matrix: Water

Analysis Batch: 133262

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 133253

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorododecanoic acid (PFDoA)	40.0	36.6		ng/L		91	50 - 150
Perfluorotridecanoic Acid (PFTriA)	40.0	29.0		ng/L		73	50 - 150
Perfluorotetradecanoic acid (PFTeA)	40.0	37.8		ng/L		94	50 - 150
Perfluorobutanesulfonic acid (PFBS)	40.0	41.5		ng/L		104	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	40.0	33.7		ng/L		84	50 - 150
Perfluoroheptanesulfonic Acid (PFHpS)	40.0	34.0		ng/L		85	50 - 150
Perfluorooctanesulfonic acid (PFOS)	40.0	33.9		ng/L		85	50 - 150
Perfluorodecanesulfonic acid (PFDS)	40.0	26.6		ng/L		67	50 - 150
Perfluorooctane Sulfonamide (PFOSA)	40.0	33.7		ng/L		84	50 - 150
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	40.0	42.6		ng/L		106	50 - 150
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	40.0	37.9		ng/L		95	50 - 150
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	40.0	38.7		ng/L		97	50 - 150
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	40.0	41.8		ng/L		104	50 - 150

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
18O2 PFHxS	116		25 - 150
13C4-PFHpA	93		25 - 150
13C4 PFOA	103		25 - 150
13C4 PFOS	130		25 - 150
13C5 PFNA	101		25 - 150
13C4 PFBA	95		25 - 150
13C2 PFHxA	110		25 - 150
13C2 PFDA	111		25 - 150
13C2 PFUnA	108		25 - 150
13C2 PFDoA	87		25 - 150
13C8 FOSA	83		25 - 150
13C5-PFPeA	113		25 - 150
13C2-PFTeDA	75		25 - 150
d3-NMeFOSAA	102		25 - 150
d5-NEtFOSAA	94		25 - 150
M2-6:2FTS	118		25 - 150
M2-8:2FTS	119		25 - 150
13C3-PFBS	104		25 - 150

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140310-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 480-140310-3 MS

Matrix: Water

Analysis Batch: 133262

Client Sample ID: MW1S-08132018MS

Prep Type: Total/NA

Prep Batch: 133253

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanoic acid (PFBA)	17		33.7	49.1		ng/L		96	40 - 160
Perfluoropentanoic acid (PFPeA)	1.8		33.7	37.7		ng/L		106	40 - 160
Perfluorohexanoic acid (PFHxA)	1.3	J	33.7	36.9		ng/L		105	40 - 160
Perfluoroheptanoic acid (PFHpA)	0.84	J	33.7	33.6		ng/L		97	40 - 160
Perfluorooctanoic acid (PFOA)	1.6	J	33.7	33.6		ng/L		95	40 - 160
Perfluorononanoic acid (PFNA)	1.7	U	33.7	31.2		ng/L		93	40 - 160
Perfluorodecanoic acid (PFDA)	1.7	U	33.7	32.1		ng/L		95	40 - 160
Perfluoroundecanoic acid (PFUnA)	1.7	U	33.7	30.7		ng/L		91	40 - 160
Perfluorododecanoic acid (PFDoA)	1.7	U	33.7	34.6		ng/L		103	40 - 160
Perfluorotridecanoic Acid (PFTriA)	1.7	U	33.7	32.2		ng/L		95	40 - 160
Perfluorotetradecanoic acid (PFTeA)	1.7	U	33.7	30.2		ng/L		90	40 - 160
Perfluorobutanesulfonic acid (PFBS)	0.91	J	33.7	31.9		ng/L		92	40 - 160
Perfluorohexanesulfonic acid (PFHxS)	0.69	J	33.7	31.0		ng/L		90	40 - 160
Perfluoroheptanesulfonic Acid (PFHpS)	1.7	U	33.7	31.9		ng/L		94	40 - 160
Perfluorooctanesulfonic acid (PFOS)	2.0		33.7	34.4		ng/L		96	40 - 160
Perfluorodecanesulfonic acid (PFDS)	1.7	U	33.7	21.6		ng/L		64	40 - 160
Perfluorooctane Sulfonamide (PFOSA)	1.7	U	33.7	34.0		ng/L		101	40 - 160
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	17	U	33.7	35.8		ng/L		106	40 - 160
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	17	U	33.7	34.3		ng/L		102	40 - 160
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	17	U	33.7	31.7		ng/L		94	40 - 160
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	17	U	33.7	32.6		ng/L		97	40 - 160

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
18O2 PFHxS	109		25 - 150
13C4-PFHpA	89		25 - 150
13C4 PFOA	109		25 - 150
13C4 PFOS	108		25 - 150
13C5 PFNA	113		25 - 150
13C4 PFBA	38		25 - 150
13C2 PFHxA	69		25 - 150
13C2 PFDA	109		25 - 150
13C2 PFUnA	89		25 - 150
13C2 PFDoA	79		25 - 150
13C8 FOSA	85		25 - 150
13C5-PFPeA	53		25 - 150
13C2-PFTeDA	95		25 - 150

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140310-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 480-140310-3 MS

Matrix: Water

Analysis Batch: 133262

Client Sample ID: MW1S-08132018MS

Prep Type: Total/NA

Prep Batch: 133253

<i>Isotope Dilution</i>	<i>MS %Recovery</i>	<i>MS Qualifier</i>	<i>Limits</i>
d3-NMeFOSAA	74		25 - 150
d5-NEtFOSAA	83		25 - 150
M2-6:2FTS	175	*	25 - 150
M2-8:2FTS	118		25 - 150
13C3-PFBS	84		25 - 150

Lab Sample ID: 480-140310-3 MSD

Matrix: Water

Analysis Batch: 133262

Client Sample ID: MW1S-08132018MSD

Prep Type: Total/NA

Prep Batch: 133253

Top Data: 100101											
Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits	Limits	
Perfluorobutanoic acid (PFBA)	17		33.1	47.7		ng/L		94	40 - 160	3	30
Perfluoropentanoic acid (PFPeA)	1.8		33.1	33.0		ng/L		94	40 - 160	13	30
Perfluorohexanoic acid (PFHxA)	1.3	J	33.1	31.1		ng/L		90	40 - 160	17	30
Perfluoroheptanoic acid (PFHpA)	0.84	J	33.1	33.5		ng/L		99	40 - 160	0	30
Perfluorooctanoic acid (PFOA)	1.6	J	33.1	34.6		ng/L		99	40 - 160	3	30
Perfluorononanoic acid (PFNA)	1.7	U	33.1	31.8		ng/L		96	40 - 160	2	30
Perfluorodecanoic acid (PFDA)	1.7	U	33.1	29.4		ng/L		89	40 - 160	9	30
Perfluoroundecanoic acid (PFUnA)	1.7	U	33.1	29.0		ng/L		87	40 - 160	6	30
Perfluorododecanoic acid (PFDoA)	1.7	U	33.1	27.3		ng/L		82	40 - 160	24	30
Perfluorotridecanoic Acid (PFTriA)	1.7	U	33.1	26.4		ng/L		80	40 - 160	20	30
Perfluorotetradecanoic acid (PFTeA)	1.7	U	33.1	28.0		ng/L		85	40 - 160	8	30
Perfluorobutanesulfonic acid (PFBS)	0.91	J	33.1	32.5		ng/L		95	40 - 160	2	30
Perfluorohexanesulfonic acid (PFHxS)	0.69	J	33.1	32.6		ng/L		96	40 - 160	5	30
Perfluoroheptanesulfonic Acid (PFHpS)	1.7	U	33.1	28.5		ng/L		86	40 - 160	11	30
Perfluorooctanesulfonic acid (PFOS)	2.0		33.1	32.7		ng/L		93	40 - 160	5	30
Perfluorodecanesulfonic acid (PFDS)	1.7	U	33.1	18.5		ng/L		56	40 - 160	16	30
Perfluorooctane Sulfonamide (PFOSA)	1.7	U	33.1	31.5		ng/L		95	40 - 160	8	30
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	17	U	33.1	31.6		ng/L		95	40 - 160	13	30
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	17	U	33.1	28.6		ng/L		86	40 - 160	18	30
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	17	U	33.1	31.1		ng/L		94	40 - 160	2	30
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	17	U	33.1	29.1		ng/L		88	40 - 160	11	30
	MSD	MSD									
Isotope Dilution	%Recovery	Qualifier	Limits								
18O2 PFHxS	97		25 - 150								
13C4-PFHpA	88		25 - 150								

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140310-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 480-140310-3 MSD

Matrix: Water

Analysis Batch: 133262

Client Sample ID: MW1S-08132018MSD

Prep Type: Total/NA

Prep Batch: 133253

Isotope Dilution	MSD %Recovery	MSD Qualifier	Limits
13C4 PFOA	102		25 - 150
13C4 PFOS	107		25 - 150
13C5 PFNA	111		25 - 150
13C4 PFBA	38		25 - 150
13C2 PFHxA	74		25 - 150
13C2 PFDA	112		25 - 150
13C2 PFUnA	91		25 - 150
13C2 PFDoA	85		25 - 150
13C8 FOSA	89		25 - 150
13C5-PFPeA	55		25 - 150
13C2-PFTeDA	87		25 - 150
d3-NMeFOSAA	86		25 - 150
d5-NEtFOSAA	85		25 - 150
M2-6:2FTS	182	*	25 - 150
M2-8:2FTS	132		25 - 150
13C3-PFBS	81		25 - 150

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-429821/1-A

Matrix: Water

Analysis Batch: 430430

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 429821

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050	0.019	mg/L		08/16/18 08:52	08/17/18 16:18	1
Manganese	0.0030	U	0.0030	0.00040	mg/L		08/16/18 08:52	08/17/18 16:18	1

Lab Sample ID: LCS 480-429821/2-A

Matrix: Water

Analysis Batch: 430430

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 429821

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	9.59		mg/L		96	80 - 120
Manganese	0.200	0.191		mg/L		95	80 - 120

Lab Sample ID: 480-140310-3 MS

Matrix: Water

Analysis Batch: 430430

Client Sample ID: MW1S-08132018MS

Prep Type: Total/NA

Prep Batch: 429821

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	0.038	J	10.0	9.46		mg/L		94	75 - 125
Manganese	0.0049		0.200	0.190		mg/L		93	75 - 125

Lab Sample ID: 480-140310-3 MSD

Matrix: Water

Analysis Batch: 430430

Client Sample ID: MW1S-08132018MSD

Prep Type: Total/NA

Prep Batch: 429821

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD Limit
Iron	0.038	J	10.0	9.36		mg/L		93	75 - 125	1 20

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140310-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 480-140310-3 MSD

Matrix: Water

Analysis Batch: 430430

Client Sample ID: MW1S-08132018MSD

Prep Type: Total/NA

Prep Batch: 429821

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Manganese	0.0049		0.200	0.190		mg/L		92	75 - 125	0	20

Lab Sample ID: MB 480-429822/1-A

Matrix: Water

Analysis Batch: 430838

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 429822

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050	0.019	mg/L		08/16/18 08:49	08/21/18 13:51	1
Manganese	0.000410	J	0.0030	0.00040	mg/L		08/16/18 08:49	08/21/18 13:51	1

Lab Sample ID: LCS 480-429822/2-A

Matrix: Water

Analysis Batch: 430838

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 429822

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	9.60		mg/L		96	80 - 120
Manganese	0.200	0.190		mg/L		95	80 - 120

Lab Sample ID: 480-140310-3 MS

Matrix: Water

Analysis Batch: 430838

Client Sample ID: MW1S-08132018MS

Prep Type: Dissolved

Prep Batch: 429822

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	0.050	U	10.0	9.55		mg/L		96	75 - 125
Manganese	0.00074	J B	0.200	0.189		mg/L		94	75 - 125

Lab Sample ID: 480-140310-3 MSD

Matrix: Water

Analysis Batch: 430838

Client Sample ID: MW1S-08132018MSD

Prep Type: Dissolved

Prep Batch: 429822

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	0.050	U	10.0	9.58		mg/L		96	75 - 125	0	20
Manganese	0.00074	J B	0.200	0.188		mg/L		94	75 - 125	0	20

Method: 310.2 - Alkalinity

Lab Sample ID: MB 480-430516/115

Matrix: Water

Analysis Batch: 430516

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	10.0	U	10.0	4.0	mg/L			08/20/18 13:37	1

Lab Sample ID: MB 480-430516/127

Matrix: Water

Analysis Batch: 430516

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	5.25	J	10.0	4.0	mg/L			08/20/18 14:00	1

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140310-1

Method: 310.2 - Alkalinity (Continued)

Lab Sample ID: MB 480-430516/146

Matrix: Water

Analysis Batch: 430516

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	10.0	U	10.0	4.0	mg/L			08/20/18 14:25	1

Lab Sample ID: LCS 480-430516/116

Matrix: Water

Analysis Batch: 430516

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	50.0	50.64		mg/L		101	90 - 110

Lab Sample ID: LCS 480-430516/128

Matrix: Water

Analysis Batch: 430516

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	50.0	48.06		mg/L		96	90 - 110

Lab Sample ID: LCS 480-430516/147

Matrix: Water

Analysis Batch: 430516

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	50.0	50.17		mg/L		100	90 - 110

Lab Sample ID: 480-140310-3 MS

Matrix: Water

Analysis Batch: 430516

Client Sample ID: MW1S-08132018MS

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	486		20.0	466.4	4	mg/L		-96	60 - 140

Lab Sample ID: 480-140310-3 MSD

Matrix: Water

Analysis Batch: 430516

Client Sample ID: MW1S-08132018MSD

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity, Total	486		20.0	466.8	4	mg/L		-94	60 - 140	0	20

Method: 410.4 - COD

Lab Sample ID: MB 480-430094/27

Matrix: Water

Analysis Batch: 430094

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	10.0	U	10.0	5.0	mg/L			08/16/18 17:30	1

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140310-1

Method: 410.4 - COD (Continued)

Lab Sample ID: MB 480-430094/3

Matrix: Water

Analysis Batch: 430094

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	10.0	U	10.0	5.0	mg/L			08/16/18 17:30	1

Lab Sample ID: LCS 480-430094/28

Matrix: Water

Analysis Batch: 430094

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	25.0	25.02		mg/L		100	90 - 110

Lab Sample ID: LCS 480-430094/4

Matrix: Water

Analysis Batch: 430094

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	25.0	24.73		mg/L		99	90 - 110

Lab Sample ID: 480-140310-3 MS

Matrix: Water

Analysis Batch: 430094

Client Sample ID: MW1S-08132018MS

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	9.1	J	50.0	57.20		mg/L		96	75 - 125

Lab Sample ID: 480-140310-3 MSD

Matrix: Water

Analysis Batch: 430094

Client Sample ID: MW1S-08132018MSD

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chemical Oxygen Demand	9.1	J	50.0	56.31		mg/L		94	75 - 125	2	20

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 480-431198/4

Matrix: Water

Analysis Batch: 431198

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.0	U	2.0	0.35	mg/L			08/23/18 16:46	1

Lab Sample ID: LCS 480-431198/3

Matrix: Water

Analysis Batch: 431198

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.0	50.20		mg/L		100	90 - 110

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140310-1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: 480-140310-3 MS

Matrix: Water

Analysis Batch: 431198

Client Sample ID: MW1S-08132018MS

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.8		250	294.7		mg/L		98	80 - 120

Lab Sample ID: 480-140310-3 MSD

Matrix: Water

Analysis Batch: 431198

Client Sample ID: MW1S-08132018MSD

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	50.8		250	293.7		mg/L		97	80 - 120	0	20

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 480-430926/4

Matrix: Water

Analysis Batch: 430926

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	0.554	J	1.0	0.43	mg/L			08/21/18 18:08	1

Lab Sample ID: LCS 480-430926/5

Matrix: Water

Analysis Batch: 430926

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	58.44		mg/L		97	90 - 110

Lab Sample ID: 480-140310-3 MS

Matrix: Water

Analysis Batch: 430926

Client Sample ID: MW1S-08132018MS

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	1.2	B	20.0	21.01		mg/L		99	54 - 131

Lab Sample ID: 480-140310-3 MSD

Matrix: Water

Analysis Batch: 430926

Client Sample ID: MW1S-08132018MSD

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	1.2	B	20.0	20.45		mg/L		97	54 - 131	3	20

Method: SM 5210B - BOD, 5-Day

Lab Sample ID: USB 480-429621/1

Matrix: Water

Analysis Batch: 429621

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	2.0	U	2.0	2.0	mg/L			08/14/18 15:57	1

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140310-1

Method: SM 5210B - BOD, 5-Day (Continued)

Lab Sample ID: LCS 480-429621/2

Matrix: Water

Analysis Batch: 429621

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	198	165.8	*	mg/L	—	84	85 - 115

QC Association Summary

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

TestAmerica Job ID: 480-140310-1

GC/MS VOA

Analysis Batch: 429443

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140310-1	TB-08132018	Total/NA	Water	624.1	
480-140310-2	PZ4-08132018	Total/NA	Water	624.1	
480-140310-4	MW16R-08132018	Total/NA	Water	624.1	
480-140310-5	PW1-08132018	Total/NA	Water	624.1	
MB 480-429443/7	Method Blank	Total/NA	Water	624.1	
LCS 480-429443/14	Lab Control Sample	Total/NA	Water	624.1	

Analysis Batch: 429710

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140310-3	MW1S-08132018	Total/NA	Water	624.1	
480-140310-5 - DL	PW1-08132018	Total/NA	Water	624.1	
MB 480-429710/7	Method Blank	Total/NA	Water	624.1	
LCS 480-429710/5	Lab Control Sample	Total/NA	Water	624.1	
480-140310-3 MS	MW1S-08132018MS	Total/NA	Water	624.1	
480-140310-3 MSD	MW1S-08132018MSD	Total/NA	Water	624.1	

GC/MS Semi VOA

Prep Batch: 429502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140310-2	PZ4-08132018	Total/NA	Water	3510C	
480-140310-3	MW1S-08132018	Total/NA	Water	3510C	
480-140310-4	MW16R-08132018	Total/NA	Water	3510C	
MB 480-429502/1-A	Method Blank	Total/NA	Water	3510C	
LCS 480-429502/2-A	Lab Control Sample	Total/NA	Water	3510C	
480-140310-3 MS	MW1S-08132018MS	Total/NA	Water	3510C	
480-140310-3 MSD	MW1S-08132018MSD	Total/NA	Water	3510C	

Analysis Batch: 430934

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140310-2	PZ4-08132018	Total/NA	Water	8270D SIM ID	429502
480-140310-3	MW1S-08132018	Total/NA	Water	8270D SIM ID	429502
MB 480-429502/1-A	Method Blank	Total/NA	Water	8270D SIM ID	429502
LCS 480-429502/2-A	Lab Control Sample	Total/NA	Water	8270D SIM ID	429502
480-140310-3 MS	MW1S-08132018MS	Total/NA	Water	8270D SIM ID	429502
480-140310-3 MSD	MW1S-08132018MSD	Total/NA	Water	8270D SIM ID	429502

Analysis Batch: 431347

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140310-4	MW16R-08132018	Total/NA	Water	8270D SIM ID	429502

GC VOA

Analysis Batch: 132943

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140310-3	MW1S-08132018	Total/NA	Water	RSK-175	
MB 200-132943/5	Method Blank	Total/NA	Water	RSK-175	
LCS 200-132943/3	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 200-132943/4	Lab Control Sample Dup	Total/NA	Water	RSK-175	
480-140310-3 MS	MW1S-08132018MS	Total/NA	Water	RSK-175	

TestAmerica Buffalo

QC Association Summary

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

TestAmerica Job ID: 480-140310-1

GC VOA (Continued)

Analysis Batch: 132943 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140310-3 MSD	MW1S-08132018MSD	Total/NA	Water	RSK-175	

Analysis Batch: 429516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140310-3	MW1S-08132018	Total/NA	Water	RSK-175	
MB 480-429516/4	Method Blank	Total/NA	Water	RSK-175	
LCS 480-429516/5	Lab Control Sample	Total/NA	Water	RSK-175	
480-140310-3 MS	MW1S-08132018MS	Total/NA	Water	RSK-175	
480-140310-3 MSD	MW1S-08132018MSD	Total/NA	Water	RSK-175	

LCMS

Prep Batch: 133253

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140310-2	PZ4-08132018	Total/NA	Water	3535	
480-140310-3	MW1S-08132018	Total/NA	Water	3535	
480-140310-4	MW16R-08132018	Total/NA	Water	3535	
480-140310-6	RB-08132018	Total/NA	Water	3535	
MB 200-133253/1-A	Method Blank	Total/NA	Water	3535	
LCS 200-133253/2-A	Lab Control Sample	Total/NA	Water	3535	
480-140310-3 MS	MW1S-08132018MS	Total/NA	Water	3535	
480-140310-3 MSD	MW1S-08132018MSD	Total/NA	Water	3535	

Analysis Batch: 133262

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140310-2	PZ4-08132018	Total/NA	Water	537 (modified)	133253
480-140310-3	MW1S-08132018	Total/NA	Water	537 (modified)	133253
480-140310-6	RB-08132018	Total/NA	Water	537 (modified)	133253
MB 200-133253/1-A	Method Blank	Total/NA	Water	537 (modified)	133253
LCS 200-133253/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	133253
480-140310-3 MS	MW1S-08132018MS	Total/NA	Water	537 (modified)	133253
480-140310-3 MSD	MW1S-08132018MSD	Total/NA	Water	537 (modified)	133253

Analysis Batch: 133366

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140310-4	MW16R-08132018	Total/NA	Water	537 (modified)	133253

Metals

Prep Batch: 429821

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140310-2	PZ4-08132018	Total/NA	Water	3005A	
480-140310-3	MW1S-08132018	Total/NA	Water	3005A	
MB 480-429821/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-429821/2-A	Lab Control Sample	Total/NA	Water	3005A	
480-140310-3 MS	MW1S-08132018MS	Total/NA	Water	3005A	
480-140310-3 MSD	MW1S-08132018MSD	Total/NA	Water	3005A	

TestAmerica Buffalo

QC Association Summary

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

TestAmerica Job ID: 480-140310-1

Metals (Continued)

Prep Batch: 429822

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140310-2	PZ4-08132018	Dissolved	Water	3005A	
480-140310-3	MW1S-08132018	Dissolved	Water	3005A	
MB 480-429822/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 480-429822/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
480-140310-3 MS	MW1S-08132018MS	Dissolved	Water	3005A	
480-140310-3 MSD	MW1S-08132018MSD	Dissolved	Water	3005A	

Analysis Batch: 430430

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140310-2	PZ4-08132018	Total/NA	Water	6010C	429821
480-140310-3	MW1S-08132018	Total/NA	Water	6010C	429821
MB 480-429821/1-A	Method Blank	Total/NA	Water	6010C	429821
LCS 480-429821/2-A	Lab Control Sample	Total/NA	Water	6010C	429821
480-140310-3 MS	MW1S-08132018MS	Total/NA	Water	6010C	429821
480-140310-3 MSD	MW1S-08132018MSD	Total/NA	Water	6010C	429821

Analysis Batch: 430838

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140310-2	PZ4-08132018	Dissolved	Water	6010C	429822
480-140310-3	MW1S-08132018	Dissolved	Water	6010C	429822
MB 480-429822/1-A	Method Blank	Total Recoverable	Water	6010C	429822
LCS 480-429822/2-A	Lab Control Sample	Total Recoverable	Water	6010C	429822
480-140310-3 MS	MW1S-08132018MS	Dissolved	Water	6010C	429822
480-140310-3 MSD	MW1S-08132018MSD	Dissolved	Water	6010C	429822

General Chemistry

Analysis Batch: 429621

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140310-3	MW1S-08132018	Total/NA	Water	SM 5210B	
USB 480-429621/1	Method Blank	Total/NA	Water	SM 5210B	
LCS 480-429621/2	Lab Control Sample	Total/NA	Water	SM 5210B	

Analysis Batch: 429670

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140310-3	MW1S-08132018	Total/NA	Water	353.2	

Analysis Batch: 430094

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140310-3	MW1S-08132018	Total/NA	Water	410.4	
MB 480-430094/27	Method Blank	Total/NA	Water	410.4	
MB 480-430094/3	Method Blank	Total/NA	Water	410.4	
LCS 480-430094/28	Lab Control Sample	Total/NA	Water	410.4	
LCS 480-430094/4	Lab Control Sample	Total/NA	Water	410.4	
480-140310-3 MS	MW1S-08132018MS	Total/NA	Water	410.4	
480-140310-3 MSD	MW1S-08132018MSD	Total/NA	Water	410.4	

Analysis Batch: 430516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140310-3	MW1S-08132018	Total/NA	Water	310.2	

TestAmerica Buffalo

QC Association Summary

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

TestAmerica Job ID: 480-140310-1

General Chemistry (Continued)

Analysis Batch: 430516 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-430516/115	Method Blank	Total/NA	Water	310.2	
MB 480-430516/127	Method Blank	Total/NA	Water	310.2	
MB 480-430516/146	Method Blank	Total/NA	Water	310.2	
LCS 480-430516/116	Lab Control Sample	Total/NA	Water	310.2	
LCS 480-430516/128	Lab Control Sample	Total/NA	Water	310.2	
LCS 480-430516/147	Lab Control Sample	Total/NA	Water	310.2	
480-140310-3 MS	MW1S-08132018MS	Total/NA	Water	310.2	
480-140310-3 MSD	MW1S-08132018MSD	Total/NA	Water	310.2	

Analysis Batch: 430926

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140310-3	MW1S-08132018	Total/NA	Water	9060A	
MB 480-430926/4	Method Blank	Total/NA	Water	9060A	
LCS 480-430926/5	Lab Control Sample	Total/NA	Water	9060A	
480-140310-3 MS	MW1S-08132018MS	Total/NA	Water	9060A	
480-140310-3 MSD	MW1S-08132018MSD	Total/NA	Water	9060A	

Analysis Batch: 431198

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140310-3	MW1S-08132018	Total/NA	Water	9056A	
MB 480-431198/4	Method Blank	Total/NA	Water	9056A	
LCS 480-431198/3	Lab Control Sample	Total/NA	Water	9056A	
480-140310-3 MS	MW1S-08132018MS	Total/NA	Water	9056A	
480-140310-3 MSD	MW1S-08132018MSD	Total/NA	Water	9056A	

Lab Chronicle

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

TestAmerica Job ID: 480-140310-1

Client Sample ID: TB-08132018

Date Collected: 08/13/18 08:30

Date Received: 08/14/18 00:10

Lab Sample ID: 480-140310-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	429443	08/14/18 15:38	S1V	TAL BUF

Client Sample ID: PZ4-08132018

Date Collected: 08/13/18 11:40

Date Received: 08/14/18 00:10

Lab Sample ID: 480-140310-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		10	429443	08/14/18 16:02	S1V	TAL BUF
Total/NA	Prep	3510C			429502	08/14/18 10:19	JMP	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	430934	08/22/18 19:22	MKP	TAL BUF
Total/NA	Prep	3535			133253	08/24/18 09:30	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	133262	08/25/18 08:12	BWC	TAL BUR
Dissolved	Prep	3005A			429822	08/16/18 08:49	JAK	TAL BUF
Dissolved	Analysis	6010C		1	430838	08/21/18 14:39	EMB	TAL BUF
Total/NA	Prep	3005A			429821	08/16/18 08:52	KMP	TAL BUF
Total/NA	Analysis	6010C		1	430430	08/17/18 16:36	S1P	TAL BUF

Client Sample ID: MW1S-08132018

Date Collected: 08/13/18 11:05

Date Received: 08/14/18 00:10

Lab Sample ID: 480-140310-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	429710	08/15/18 12:39	S1V	TAL BUF
Total/NA	Prep	3510C			429502	08/14/18 10:19	JMP	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	430934	08/22/18 17:25	MKP	TAL BUF
Total/NA	Analysis	RSK-175		1	132943	08/15/18 18:07	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	429516	08/14/18 14:12	DSC	TAL BUF
Total/NA	Prep	3535			133253	08/24/18 09:30	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	133262	08/25/18 08:28	BWC	TAL BUR
Dissolved	Prep	3005A			429822	08/16/18 08:49	JAK	TAL BUF
Dissolved	Analysis	6010C		1	430838	08/21/18 14:43	EMB	TAL BUF
Total/NA	Prep	3005A			429821	08/16/18 08:52	KMP	TAL BUF
Total/NA	Analysis	6010C		1	430430	08/17/18 16:39	S1P	TAL BUF
Total/NA	Analysis	310.2		5	430516	08/20/18 14:37	SAH	TAL BUF
Total/NA	Analysis	353.2		1	429670	08/14/18 19:50	LMC	TAL BUF
Total/NA	Analysis	410.4		1	430094	08/16/18 17:30	CDC	TAL BUF
Total/NA	Analysis	9056A		5	431198	08/23/18 17:35	DMR	TAL BUF
Total/NA	Analysis	9060A		1	430926	08/21/18 23:41	SMH	TAL BUF
Total/NA	Analysis	SM 5210B		1	429621	08/14/18 15:57	MAB	TAL BUF

TestAmerica Buffalo

Lab Chronicle

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

TestAmerica Job ID: 480-140310-1

Client Sample ID: MW16R-08132018

Lab Sample ID: 480-140310-4

Date Collected: 08/13/18 16:40

Matrix: Water

Date Received: 08/14/18 00:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		10	429443	08/14/18 16:50	S1V	TAL BUF
Total/NA	Prep	3510C			429502	08/14/18 10:19	JMP	TAL BUF
Total/NA	Analysis	8270D SIM ID		10	431347	08/24/18 15:52	DMR	TAL BUF
Total/NA	Prep	3535			133253	08/24/18 09:30	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	133366	08/28/18 11:16	BWC	TAL BUR

Client Sample ID: PW1-08132018

Lab Sample ID: 480-140310-5

Date Collected: 08/13/18 17:40

Matrix: Water

Date Received: 08/14/18 00:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		2	429443	08/14/18 17:14	S1V	TAL BUF
Total/NA	Analysis	624.1	DL	4	429710	08/15/18 15:31	S1V	TAL BUF

Client Sample ID: RB-08132018

Lab Sample ID: 480-140310-6

Date Collected: 08/13/18 18:20

Matrix: Water

Date Received: 08/14/18 00:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			133253	08/24/18 09:30	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	133262	08/25/18 09:31	BWC	TAL BUR

Laboratory References:

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

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

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

TestAmerica Job ID: 480-140310-1

Laboratory: TestAmerica Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10026	03-31-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
9056A		Water	Sulfate

Laboratory: TestAmerica Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
ANAB	DoD ELAP		L2336	02-25-20
Connecticut	State Program	1	PH-0751	09-30-19
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-01-19
Maine	State Program	1	VT00008	04-17-19
Minnesota	NELAP	5	050-999-436	12-31-18
New Hampshire	NELAP	1	2006	12-18-18
New Jersey	NELAP	2	VT972	06-30-19
New York	NELAP	2	10391	04-01-19
Pennsylvania	NELAP	3	68-00489	04-30-19
Rhode Island	State Program	1	LAO00298	12-30-18
US Fish & Wildlife	Federal		LE-058448-0	07-31-19
USDA	Federal		P330-11-00093	07-24-20
Vermont	State Program	1	VT-4000	12-31-18
Virginia	NELAP	3	460209	12-14-18

Method Summary

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

TestAmerica Job ID: 480-140310-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	40CFR136A	TAL BUF
8270D SIM ID	Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)	SW846	TAL BUF
RSK-175	Dissolved Gases (GC)	RSK	TAL BUF
RSK-175	Dissolved Gases (GC)	RSK	TAL BUR
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL BUR
6010C	Metals (ICP)	SW846	TAL BUF
310.2	Alkalinity	MCAWW	TAL BUF
353.2	Nitrate	EPA	TAL BUF
410.4	COD	MCAWW	TAL BUF
9056A	Anions, Ion Chromatography	SW846	TAL BUF
9060A	Organic Carbon, Total (TOC)	SW846	TAL BUF
SM 5210B	BOD, 5-Day	SM	TAL BUF
3005A	Preparation, Total Metals	SW846	TAL BUF
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL BUF
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL BUF
3535	Solid-Phase Extraction (SPE)	SW846	TAL BUR

Protocol References:

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

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

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

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

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

TestAmerica Job ID: 480-140310-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-140310-1	TB-08132018	Water	08/13/18 08:30	08/14/18 00:10
480-140310-2	PZ4-08132018	Water	08/13/18 11:40	08/14/18 00:10
480-140310-3	MW1S-08132018	Water	08/13/18 11:05	08/14/18 00:10
480-140310-4	MW16R-08132018	Water	08/13/18 16:40	08/14/18 00:10
480-140310-5	PW1-08132018	Water	08/13/18 17:40	08/14/18 00:10
480-140310-6	RB-08132018	Water	08/13/18 18:20	08/14/18 00:10

TestAmerica Buffalo

10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record



TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)		Sampler: Lab PM: Schove, John R		COC No: 480-44052.1						
Shipping/Receiving		Phone: E-Mail: john.schove@testamericainc.com		Page: Page 1 of 1						
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - New York		Job #: 480-140310-1						
Address: 30 Community Drive, Suite 11,		Due Date Requested: 8/24/2018		Preservation Codes:						
City: South Burlington		TAT Requested (days):		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Anchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:						
State, Zip: VT, 05403		PO #:		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)						
Phone: 802-660-1990(Tel) 802-660-1919(Fax)		WO #:								
Email:		Project #:								
Project Name: Davis Howland Oil Company - NYSDEC		48017485								
Site:		SSOW#:								
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=other, A=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PC IDA/3335, IWT PFA, Standard List (21)	RSK, 176, CO2 Carbon Dioxide	Total Number of Containers	Special Instructions/Note:
PZ4-08132018 (480-140310-2)	8/13/18	11:40 Eastern	Water	Water		X			2	
MW1S-08132018 (480-140310-3)	8/13/18	11:05 Eastern	Water	Water		X			2	
MW1S-08132018MS (480-140310-3MS)	8/13/18	11:05 Eastern	MS	Water		X			2	
MW1S-08132018MSD (480-140310-3MSD)	8/13/18	11:05 Eastern	MSD	Water		X			2	
MW16R-08132018 (480-140310-4)	8/13/18	16:40 Eastern	Water	Water		X			2	
RB-08132018 (480-140310-6)	8/13/18	18:20 Eastern	Water	Water		X			2	
<p>Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.</p>										
<p>Possible Hazard Identification</p> <p>Unconfirmed</p> <p>Deliverable Requested: I, II, III, IV, Other (specify)</p> <p>Primary Deliverable Rank: 2</p>										
<p>Empty Kit Relinquished by: Date: 8/14/18 17:50</p> <p>Relinquished by: Date/Time: 8/15/18 10:30</p> <p>Relinquished by: Date/Time:</p> <p>Relinquished by: Date/Time:</p> <p>Custody Seal Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Custody Seal No.: 142953</p> <p>Cooler Temperature(s) °C and Other Remarks: 0.9</p>										
<p>Company: TestAmerica</p> <p>Company: TestAmerica</p> <p>Company: TestAmerica</p> <p>Ver: 09/20/2016</p>										

SHIP DATE: 14AUG18
ACTWGT: 27.30 LB
CAD: 846654/CAFE3210
DIMS: 22x14x11 IN

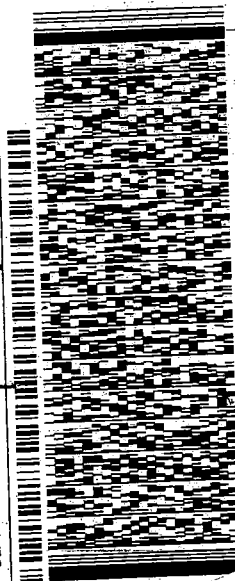
BILL RECIPIENT

ORIGIN ID:DKKA (716) 691-2600
CHAR BRONSON
TEST AMERICA
10 HAZELWOOD
AMHERST, NY 14228
UNITED STATES US

TO SAMPLE MGT.
TA BURLINGTON
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
REF: BURLINGTON

(802) 660-1880
DEPT: SC

FedEx
Express

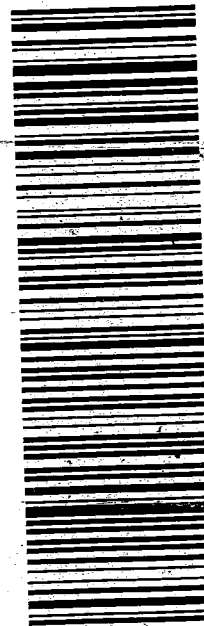


WED - 15 AUG 10:30A
PRIORITY OVERNIGHT

TRK# 4276 0717 4713
201

05403
VT-US BTV

NC BTVA



Login Sample Receipt Checklist

Client: Ecology and Environment, Inc.

Job Number: 480-140310-1

Login Number: 140310

List Source: TestAmerica Buffalo

List Number: 1

Creator: Williams, Christopher S

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	e and e
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	False	LAB TO CHECK RC

Login Sample Receipt Checklist

Client: Ecology and Environment, Inc.

Job Number: 480-140310-1

Login Number: 140310

List Number: 2

Creator: Johnson, Eleanor E

List Source: TestAmerica Burlington

List Creation: 08/15/18 03:53 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	142453
Sample custody seals, if present, are 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	0.9°C
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?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received 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	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-140356-1

Client Project/Site: Davis Howland Oil Company - NYSDEC

For:

Ecology and Environment, Inc.

386 Pleasant View Drive

Lancaster, New York 14086

Attn: Ashlee Patnode



Authorized for release by:

8/20/2018 6:27:21 PM

Rebecca Jones, Project Management Assistant I

rebecca.jones@testamericainc.com

Designee for

John Schove, Project Manager II

(716)504-9838

john.schove@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

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

TestAmerica Job ID: 480-140356-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
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.
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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)

Case Narrative

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

TestAmerica Job ID: 480-140356-1

Job ID: 480-140356-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-140356-1

Comments

No additional comments.

Receipt

The samples were received on 8/14/2018 3:25 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.3° C.

GC/MS VOA

Method(s) 624.1: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW10R-08182018 (480-140356-1). Elevated reporting limits (RLs) are provided.

Method(s) 624.1: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW10R-08182018 (480-140356-1), (480-140356-B-1 MS) and (480-140356-B-1 MSD). Elevated reporting limits (RLs) are provided.

Method(s) 624.1: Due to the high concentration of Trichloroethene, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 480-429906 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

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

TestAmerica Job ID: 480-140356-1

Client Sample ID: MW10R-08182018

Lab Sample ID: 480-140356-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	5.7	J	50	3.9	ug/L	10		624.1	Total/NA
1,1-Dichloroethene	10	J	50	8.5	ug/L	10		624.1	Total/NA
cis-1,2-Dichloroethene	33	J	50	5.7	ug/L	10		624.1	Total/NA
Tetrachloroethylene	4.6	J	50	3.4	ug/L	10		624.1	Total/NA
trans-1,2-Dichloroethene	11	J	50	5.9	ug/L	10		624.1	Total/NA
Trichloroethylene - DL	1300	F1	100	12	ug/L	20		624.1	Total/NA

Client Sample ID: MW15R-08182018

Lab Sample ID: 480-140356-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	8.0		5.0	0.57	ug/L	1		624.1	Total/NA
trans-1,2-Dichloroethene	0.72	J	5.0	0.59	ug/L	1		624.1	Total/NA
Trichloroethylene	2.1	J	5.0	0.60	ug/L	1		624.1	Total/NA
Vinyl chloride	0.99	J	5.0	0.75	ug/L	1		624.1	Total/NA

Client Sample ID: ERB-08182018

Lab Sample ID: 480-140356-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	2.3	J	25	2.0	ug/L	1		624.1	Total/NA

Client Sample ID: TB-08182018

Lab Sample ID: 480-140356-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	4.4	J	5.0	0.54	ug/L	1		624.1	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-140356-1

Client Sample ID: MW10R-08182018

Lab Sample ID: 480-140356-1

Date Collected: 08/14/18 11:40

Matrix: Water

Date Received: 08/14/18 15:25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	5.7	J	50	3.9	ug/L			08/15/18 13:08	10
1,1,1,2-Tetrachloroethane	50	U	50	2.6	ug/L			08/15/18 13:08	10
1,1,2-Trichloroethane	50	U	50	4.8	ug/L			08/15/18 13:08	10
1,1-Dichloroethane	50	U	50	5.9	ug/L			08/15/18 13:08	10
1,1-Dichloroethene	10	J	50	8.5	ug/L			08/15/18 13:08	10
1,2-Dichlorobenzene	50	U	50	4.4	ug/L			08/15/18 13:08	10
1,2-Dichloroethane	50	U	50	6.0	ug/L			08/15/18 13:08	10
1,2-Dichloropropane	50	U	50	6.1	ug/L			08/15/18 13:08	10
1,3-Dichlorobenzene	50	U	50	5.4	ug/L			08/15/18 13:08	10
1,4-Dichlorobenzene	50	U	50	5.1	ug/L			08/15/18 13:08	10
2-Chloroethyl vinyl ether	250	U	250	19	ug/L			08/15/18 13:08	10
Acetone	250	U	250	20	ug/L			08/15/18 13:08	10
Benzene	50	U	50	6.0	ug/L			08/15/18 13:08	10
Bromoform	50	U	50	4.7	ug/L			08/15/18 13:08	10
Bromomethane	50	U	50	12	ug/L			08/15/18 13:08	10
Carbon tetrachloride	50	U	50	5.1	ug/L			08/15/18 13:08	10
Chlorobenzene	50	U	50	4.8	ug/L			08/15/18 13:08	10
Dibromochloromethane	50	U	50	4.1	ug/L			08/15/18 13:08	10
Chloroethane	50	U	50	8.7	ug/L			08/15/18 13:08	10
Chloroform	50	U	50	5.4	ug/L			08/15/18 13:08	10
Chloromethane	50	U	50	6.4	ug/L			08/15/18 13:08	10
cis-1,2-Dichloroethene	33	J	50	5.7	ug/L			08/15/18 13:08	10
cis-1,3-Dichloropropene	50	U	50	3.3	ug/L			08/15/18 13:08	10
Bromodichloromethane	50	U	50	5.4	ug/L			08/15/18 13:08	10
Ethylbenzene	50	U	50	4.6	ug/L			08/15/18 13:08	10
m-Xylene & p-Xylene	100	U	100	11	ug/L			08/15/18 13:08	10
Methylene Chloride	50	U	50	8.1	ug/L			08/15/18 13:08	10
o-Xylene	50	U	50	4.3	ug/L			08/15/18 13:08	10
Tetrachloroethylene	4.6	J	50	3.4	ug/L			08/15/18 13:08	10
Toluene	50	U	50	4.5	ug/L			08/15/18 13:08	10
trans-1,2-Dichloroethene	11	J	50	5.9	ug/L			08/15/18 13:08	10
trans-1,3-Dichloropropene	50	U	50	4.4	ug/L			08/15/18 13:08	10
Trichlorofluoromethane	50	U	50	4.5	ug/L			08/15/18 13:08	10
Vinyl chloride	50	U	50	7.5	ug/L			08/15/18 13:08	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		68 - 130		08/15/18 13:08	10
4-Bromofluorobenzene (Surr)	102		76 - 123		08/15/18 13:08	10
Toluene-d8 (Surr)	99		77 - 120		08/15/18 13:08	10
Dibromofluoromethane (Surr)	105		75 - 123		08/15/18 13:08	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethylene	1300	F1	100	12	ug/L			08/16/18 13:50	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		68 - 130		08/16/18 13:50	20
4-Bromofluorobenzene (Surr)	102		76 - 123		08/16/18 13:50	20
Toluene-d8 (Surr)	99		77 - 120		08/16/18 13:50	20
Dibromofluoromethane (Surr)	107		75 - 123		08/16/18 13:50	20

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-140356-1

Client Sample ID: MW15R-08182018

Lab Sample ID: 480-140356-2

Date Collected: 08/14/18 12:20

Matrix: Water

Date Received: 08/14/18 15:25

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			08/16/18 14:14	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/16/18 14:14	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/16/18 14:14	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			08/16/18 14:14	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/16/18 14:14	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/16/18 14:14	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			08/16/18 14:14	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/16/18 14:14	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/16/18 14:14	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/16/18 14:14	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/16/18 14:14	1
Acetone	25	U	25	2.0	ug/L			08/16/18 14:14	1
Benzene	5.0	U	5.0	0.60	ug/L			08/16/18 14:14	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/16/18 14:14	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/16/18 14:14	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/16/18 14:14	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/16/18 14:14	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/16/18 14:14	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/16/18 14:14	1
Chloroform	5.0	U	5.0	0.54	ug/L			08/16/18 14:14	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/16/18 14:14	1
cis-1,2-Dichloroethene	8.0		5.0	0.57	ug/L			08/16/18 14:14	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/16/18 14:14	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/16/18 14:14	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/16/18 14:14	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/16/18 14:14	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/16/18 14:14	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/16/18 14:14	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			08/16/18 14:14	1
Toluene	5.0	U	5.0	0.45	ug/L			08/16/18 14:14	1
trans-1,2-Dichloroethene	0.72	J	5.0	0.59	ug/L			08/16/18 14:14	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/16/18 14:14	1
Trichloroethylene	2.1	J	5.0	0.60	ug/L			08/16/18 14:14	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/16/18 14:14	1
Vinyl chloride	0.99	J	5.0	0.75	ug/L			08/16/18 14:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		68 - 130		08/16/18 14:14	1
4-Bromofluorobenzene (Surr)	103		76 - 123		08/16/18 14:14	1
Toluene-d8 (Surr)	99		77 - 120		08/16/18 14:14	1
Dibromofluoromethane (Surr)	106		75 - 123		08/16/18 14:14	1

Client Sample ID: ERB-08182018

Lab Sample ID: 480-140356-3

Date Collected: 08/14/18 14:00

Matrix: Water

Date Received: 08/14/18 15:25

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			08/16/18 14:38	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/16/18 14:38	1

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-140356-1

Client Sample ID: ERB-08182018

Lab Sample ID: 480-140356-3

Date Collected: 08/14/18 14:00

Matrix: Water

Date Received: 08/14/18 15:25

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/16/18 14:38	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			08/16/18 14:38	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/16/18 14:38	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/16/18 14:38	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			08/16/18 14:38	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/16/18 14:38	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/16/18 14:38	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/16/18 14:38	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/16/18 14:38	1
Acetone	2.3	J	25	2.0	ug/L			08/16/18 14:38	1
Benzene	5.0	U	5.0	0.60	ug/L			08/16/18 14:38	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/16/18 14:38	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/16/18 14:38	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/16/18 14:38	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/16/18 14:38	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/16/18 14:38	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/16/18 14:38	1
Chloroform	5.0	U	5.0	0.54	ug/L			08/16/18 14:38	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/16/18 14:38	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			08/16/18 14:38	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/16/18 14:38	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/16/18 14:38	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/16/18 14:38	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/16/18 14:38	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/16/18 14:38	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/16/18 14:38	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			08/16/18 14:38	1
Toluene	5.0	U	5.0	0.45	ug/L			08/16/18 14:38	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			08/16/18 14:38	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/16/18 14:38	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			08/16/18 14:38	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/16/18 14:38	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			08/16/18 14:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		68 - 130		08/16/18 14:38	1
4-Bromofluorobenzene (Surr)	102		76 - 123		08/16/18 14:38	1
Toluene-d8 (Surr)	99		77 - 120		08/16/18 14:38	1
Dibromofluoromethane (Surr)	106		75 - 123		08/16/18 14:38	1

Client Sample ID: TB-08182018

Lab Sample ID: 480-140356-4

Date Collected: 08/14/18 08:05

Matrix: Water

Date Received: 08/14/18 15:25

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			08/15/18 14:19	1
1,1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/15/18 14:19	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/15/18 14:19	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			08/15/18 14:19	1

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-140356-1

Client Sample ID: TB-08182018

Lab Sample ID: 480-140356-4

Date Collected: 08/14/18 08:05

Matrix: Water

Date Received: 08/14/18 15:25

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			08/15/18 14:19	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/15/18 14:19	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			08/15/18 14:19	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/15/18 14:19	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/15/18 14:19	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/15/18 14:19	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/15/18 14:19	1
Acetone	25	U	25	2.0	ug/L			08/15/18 14:19	1
Benzene	5.0	U	5.0	0.60	ug/L			08/15/18 14:19	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/15/18 14:19	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/15/18 14:19	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/15/18 14:19	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/15/18 14:19	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/15/18 14:19	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/15/18 14:19	1
Chloroform	4.4	J	5.0	0.54	ug/L			08/15/18 14:19	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/15/18 14:19	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			08/15/18 14:19	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/15/18 14:19	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/15/18 14:19	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/15/18 14:19	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/15/18 14:19	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/15/18 14:19	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/15/18 14:19	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			08/15/18 14:19	1
Toluene	5.0	U	5.0	0.45	ug/L			08/15/18 14:19	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			08/15/18 14:19	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/15/18 14:19	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			08/15/18 14:19	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/15/18 14:19	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			08/15/18 14:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	116		68 - 130		08/15/18 14:19	1
4-Bromofluorobenzene (Surr)	102		76 - 123		08/15/18 14:19	1
Toluene-d8 (Surr)	98		77 - 120		08/15/18 14:19	1
Dibromofluoromethane (Surr)	107		75 - 123		08/15/18 14:19	1

TestAmerica Buffalo

Surrogate Summary

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

TestAmerica Job ID: 480-140356-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (68-130)	BFB (76-123)	TOL (77-120)	DBFM (75-123)
480-140356-1	MW10R-08182018	113	102	99	105
480-140356-1 - DL	MW10R-08182018	115	102	99	107
480-140356-1 MS	MW10R-08182018	106	102	98	105
480-140356-1 MSD	MW10R-08182018	109	102	99	106
480-140356-2	MW15R-08182018	114	103	99	106
480-140356-3	ERB-08182018	113	102	99	106
480-140356-4	TB-08182018	116	102	98	107
LCS 480-429710/5	Lab Control Sample	109	106	100	106
LCS 480-429906/5	Lab Control Sample	110	105	101	106
MB 480-429710/7	Method Blank	110	102	99	106
MB 480-429906/7	Method Blank	114	105	100	107

Surrogate Legend

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

QC Sample Results

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

TestAmerica Job ID: 480-140356-1

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

Lab Sample ID: MB 480-429710/7

Matrix: Water

Analysis Batch: 429710

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			08/15/18 11:29	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/15/18 11:29	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/15/18 11:29	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			08/15/18 11:29	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/15/18 11:29	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/15/18 11:29	1
1,2-Dichloroethane	5.0	U	5.0	0.60	ug/L			08/15/18 11:29	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/15/18 11:29	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/15/18 11:29	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/15/18 11:29	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/15/18 11:29	1
Acetone	25	U	25	2.0	ug/L			08/15/18 11:29	1
Benzene	5.0	U	5.0	0.60	ug/L			08/15/18 11:29	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/15/18 11:29	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/15/18 11:29	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/15/18 11:29	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/15/18 11:29	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/15/18 11:29	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/15/18 11:29	1
Chloroform	5.0	U	5.0	0.54	ug/L			08/15/18 11:29	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/15/18 11:29	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			08/15/18 11:29	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/15/18 11:29	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/15/18 11:29	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/15/18 11:29	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/15/18 11:29	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/15/18 11:29	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/15/18 11:29	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			08/15/18 11:29	1
Toluene	5.0	U	5.0	0.45	ug/L			08/15/18 11:29	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			08/15/18 11:29	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/15/18 11:29	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			08/15/18 11:29	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/15/18 11:29	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			08/15/18 11:29	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		68 - 130		08/15/18 11:29	1
4-Bromofluorobenzene (Surr)	102		76 - 123		08/15/18 11:29	1
Toluene-d8 (Surr)	99		77 - 120		08/15/18 11:29	1
Dibromofluoromethane (Surr)	106		75 - 123		08/15/18 11:29	1

Lab Sample ID: LCS 480-429710/5

Matrix: Water

Analysis Batch: 429710

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	19.1		ug/L		96	52 - 162

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140356-1

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

Lab Sample ID: LCS 480-429710/5

Matrix: Water

Analysis Batch: 429710

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	20.0		ug/L		100	46 - 157
1,1,2-Trichloroethane	20.0	20.0		ug/L		100	52 - 150
1,1-Dichloroethane	20.0	19.1		ug/L		95	59 - 155
1,1-Dichloroethene	20.0	18.1		ug/L		90	1 - 234
1,2-Dichlorobenzene	20.0	19.1		ug/L		96	18 - 190
1,2-Dichloroethane	20.0	19.9		ug/L		100	49 - 155
1,2-Dichloropropane	20.0	19.7		ug/L		98	1 - 210
1,3-Dichlorobenzene	20.0	18.9		ug/L		95	59 - 156
1,4-Dichlorobenzene	20.0	18.9		ug/L		95	18 - 190
2-Chloroethyl vinyl ether	20.0	21.2	J	ug/L		106	1 - 305
Benzene	20.0	19.2		ug/L		96	37 - 151
Bromoform	20.0	19.5		ug/L		97	45 - 169
Bromomethane	20.0	19.4		ug/L		97	1 - 242
Carbon tetrachloride	20.0	18.5		ug/L		92	70 - 140
Chlorobenzene	20.0	18.6		ug/L		93	37 - 160
Dibromochloromethane	20.0	19.4		ug/L		97	53 - 149
Chloroethane	20.0	19.8		ug/L		99	14 - 230
Chloroform	20.0	20.2		ug/L		101	51 - 138
Chloromethane	20.0	17.7		ug/L		88	1 - 273
cis-1,3-Dichloropropene	20.0	20.1		ug/L		101	1 - 227
Bromodichloromethane	20.0	20.0		ug/L		100	35 - 155
Ethylbenzene	20.0	18.4		ug/L		92	37 - 162
Methylene Chloride	20.0	19.8		ug/L		99	1 - 221
Tetrachloroethylene	20.0	17.7		ug/L		88	64 - 148
Toluene	20.0	18.3		ug/L		91	47 - 150
trans-1,2-Dichloroethene	20.0	19.0		ug/L		95	54 - 156
trans-1,3-Dichloropropene	20.0	19.7		ug/L		99	17 - 183
Trichloroethylene	20.0	18.9		ug/L		94	71 - 157
Trichlorofluoromethane	20.0	19.1		ug/L		96	17 - 181
Vinyl chloride	20.0	18.5		ug/L		93	1 - 251

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	109		68 - 130
4-Bromofluorobenzene (Surr)	106		76 - 123
Toluene-d8 (Surr)	100		77 - 120
Dibromofluoromethane (Surr)	106		75 - 123

Lab Sample ID: MB 480-429906/7

Matrix: Water

Analysis Batch: 429906

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			08/16/18 12:07	1
1,1,2,2-Tetrachloroethane	5.0	U	5.0	0.26	ug/L			08/16/18 12:07	1
1,1,2-Trichloroethane	5.0	U	5.0	0.48	ug/L			08/16/18 12:07	1
1,1-Dichloroethane	5.0	U	5.0	0.59	ug/L			08/16/18 12:07	1
1,1-Dichloroethene	5.0	U	5.0	0.85	ug/L			08/16/18 12:07	1
1,2-Dichlorobenzene	5.0	U	5.0	0.44	ug/L			08/16/18 12:07	1

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140356-1

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

Lab Sample ID: MB 480-429906/7

Matrix: Water

Analysis Batch: 429906

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			08/16/18 12:07	1
1,2-Dichloropropane	5.0	U	5.0	0.61	ug/L			08/16/18 12:07	1
1,3-Dichlorobenzene	5.0	U	5.0	0.54	ug/L			08/16/18 12:07	1
1,4-Dichlorobenzene	5.0	U	5.0	0.51	ug/L			08/16/18 12:07	1
2-Chloroethyl vinyl ether	25	U	25	1.9	ug/L			08/16/18 12:07	1
Acetone	25	U	25	2.0	ug/L			08/16/18 12:07	1
Benzene	5.0	U	5.0	0.60	ug/L			08/16/18 12:07	1
Bromoform	5.0	U	5.0	0.47	ug/L			08/16/18 12:07	1
Bromomethane	5.0	U	5.0	1.2	ug/L			08/16/18 12:07	1
Carbon tetrachloride	5.0	U	5.0	0.51	ug/L			08/16/18 12:07	1
Chlorobenzene	5.0	U	5.0	0.48	ug/L			08/16/18 12:07	1
Dibromochloromethane	5.0	U	5.0	0.41	ug/L			08/16/18 12:07	1
Chloroethane	5.0	U	5.0	0.87	ug/L			08/16/18 12:07	1
Chloroform	5.0	U	5.0	0.54	ug/L			08/16/18 12:07	1
Chloromethane	5.0	U	5.0	0.64	ug/L			08/16/18 12:07	1
cis-1,2-Dichloroethene	5.0	U	5.0	0.57	ug/L			08/16/18 12:07	1
cis-1,3-Dichloropropene	5.0	U	5.0	0.33	ug/L			08/16/18 12:07	1
Bromodichloromethane	5.0	U	5.0	0.54	ug/L			08/16/18 12:07	1
Ethylbenzene	5.0	U	5.0	0.46	ug/L			08/16/18 12:07	1
m-Xylene & p-Xylene	10	U	10	1.1	ug/L			08/16/18 12:07	1
Methylene Chloride	5.0	U	5.0	0.81	ug/L			08/16/18 12:07	1
o-Xylene	5.0	U	5.0	0.43	ug/L			08/16/18 12:07	1
Tetrachloroethylene	5.0	U	5.0	0.34	ug/L			08/16/18 12:07	1
Toluene	5.0	U	5.0	0.45	ug/L			08/16/18 12:07	1
trans-1,2-Dichloroethene	5.0	U	5.0	0.59	ug/L			08/16/18 12:07	1
trans-1,3-Dichloropropene	5.0	U	5.0	0.44	ug/L			08/16/18 12:07	1
Trichloroethylene	5.0	U	5.0	0.60	ug/L			08/16/18 12:07	1
Trichlorofluoromethane	5.0	U	5.0	0.45	ug/L			08/16/18 12:07	1
Vinyl chloride	5.0	U	5.0	0.75	ug/L			08/16/18 12:07	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	114		68 - 130		08/16/18 12:07	1
4-Bromofluorobenzene (Surr)	105		76 - 123		08/16/18 12:07	1
Toluene-d8 (Surr)	100		77 - 120		08/16/18 12:07	1
Dibromofluoromethane (Surr)	107		75 - 123		08/16/18 12:07	1

Lab Sample ID: LCS 480-429906/5

Matrix: Water

Analysis Batch: 429906

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
1,1,2,2-Tetrachloroethane	20.0	20.8		ug/L		104	46 - 157
1,1,2-Trichloroethane	20.0	20.7		ug/L		103	52 - 150
1,1-Dichloroethane	20.0	20.9		ug/L		104	59 - 155
1,1-Dichloroethene	20.0	20.7		ug/L		104	1 - 234
1,2-Dichlorobenzene	20.0	19.8		ug/L		99	18 - 190
1,2-Dichloroethane	20.0	22.6		ug/L		113	49 - 155

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140356-1

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

Lab Sample ID: LCS 480-429906/5

Matrix: Water

Analysis Batch: 429906

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	19.5		ug/L		97	59 - 156
1,4-Dichlorobenzene	20.0	19.7		ug/L		99	18 - 190
2-Chloroethyl vinyl ether	20.0	21.5	J	ug/L		108	1 - 305
Benzene	20.0	20.7		ug/L		104	37 - 151
Bromoform	20.0	19.7		ug/L		98	45 - 169
Bromomethane	20.0	19.1		ug/L		96	1 - 242
Carbon tetrachloride	20.0	21.3		ug/L		107	70 - 140
Chlorobenzene	20.0	19.7		ug/L		99	37 - 160
Dibromochloromethane	20.0	20.3		ug/L		101	53 - 149
Chloroethane	20.0	19.3		ug/L		96	14 - 230
Chloroform	20.0	21.0		ug/L		105	51 - 138
Chloromethane	20.0	19.5		ug/L		98	1 - 273
cis-1,3-Dichloropropene	20.0	21.3		ug/L		106	1 - 227
Bromodichloromethane	20.0	21.3		ug/L		106	35 - 155
Ethylbenzene	20.0	19.8		ug/L		99	37 - 162
Methylene Chloride	20.0	20.2		ug/L		101	1 - 221
Tetrachloroethylene	20.0	20.1		ug/L		100	64 - 148
Toluene	20.0	19.5		ug/L		97	47 - 150
trans-1,2-Dichloroethene	20.0	21.0		ug/L		105	54 - 156
trans-1,3-Dichloropropene	20.0	20.5		ug/L		102	17 - 183
Trichloroethylene	20.0	20.9		ug/L		104	71 - 157
Trichlorofluoromethane	20.0	20.9		ug/L		105	17 - 181
Vinyl chloride	20.0	18.8		ug/L		94	1 - 251

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	110		68 - 130
4-Bromofluorobenzene (Surr)	105		76 - 123
Toluene-d8 (Surr)	101		77 - 120
Dibromofluoromethane (Surr)	106		75 - 123

Lab Sample ID: 480-140356-1 MS

Matrix: Water

Analysis Batch: 429906

Client Sample ID: MW10R-08182018

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	100	U	400	407		ug/L		102	52 - 162
1,1,1,2,2-Tetrachloroethane	100	U	400	418		ug/L		105	46 - 157
1,1,1,2-Trichloroethane	100	U	400	425		ug/L		106	52 - 150
1,1-Dichloroethane	100	U	400	412		ug/L		103	59 - 155
1,1-Dichloroethene	100	U	400	390		ug/L		97	1 - 234
1,2-Dichlorobenzene	100	U	400	379		ug/L		95	18 - 190
1,2-Dichloroethane	100	U	400	447		ug/L		112	49 - 155
1,2-Dichloropropane	100	U	400	417		ug/L		104	1 - 210
1,3-Dichlorobenzene	100	U	400	371		ug/L		93	59 - 156
1,4-Dichlorobenzene	100	U	400	373		ug/L		93	18 - 190
2-Chloroethyl vinyl ether	500	U	400	456	J	ug/L		114	1 - 305
Benzene	100	U	400	404		ug/L		101	37 - 151

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140356-1

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

Lab Sample ID: 480-140356-1 MS

Matrix: Water

Analysis Batch: 429906

Client Sample ID: MW10R-08182018

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromoform	100	U	400	385		ug/L		96	45 - 169
Bromomethane	100	U	400	367		ug/L		92	1 - 242
Carbon tetrachloride	100	U	400	381		ug/L		95	70 - 140
Chlorobenzene	100	U	400	384		ug/L		96	37 - 160
Dibromochloromethane	100	U	400	403		ug/L		101	53 - 149
Chloroethane	100	U	400	367		ug/L		92	14 - 230
Chloroform	100	U	400	420		ug/L		105	51 - 138
Chloromethane	100	U	400	332		ug/L		83	1 - 273
cis-1,3-Dichloropropene	100	U	400	407		ug/L		102	1 - 227
Bromodichloromethane	100	U	400	424		ug/L		106	35 - 155
Ethylbenzene	100	U	400	374		ug/L		93	37 - 162
Methylene Chloride	100	U	400	414		ug/L		104	1 - 221
Tetrachloroethylene	100	U	400	365		ug/L		91	64 - 148
Toluene	100	U	400	373		ug/L		93	47 - 150
trans-1,2-Dichloroethene	100	U	400	408		ug/L		102	54 - 156
trans-1,3-Dichloropropene	100	U	400	392		ug/L		98	17 - 183
Trichloroethylene	1300	F1	400	1290	F1	ug/L		7	71 - 157
Trichlorofluoromethane	100	U	400	362		ug/L		90	17 - 181
Vinyl chloride	100	U	400	340		ug/L		85	1 - 251

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	106		68 - 130
4-Bromofluorobenzene (Surr)	102		76 - 123
Toluene-d8 (Surr)	98		77 - 120
Dibromofluoromethane (Surr)	105		75 - 123

Lab Sample ID: 480-140356-1 MSD

Matrix: Water

Analysis Batch: 429906

Client Sample ID: MW10R-08182018

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	100	U	400	407		ug/L		102	52 - 162	0	15
1,1,1,2,2-Tetrachloroethane	100	U	400	427		ug/L		107	46 - 157	2	15
1,1,1,2-Trichloroethane	100	U	400	418		ug/L		104	52 - 150	2	15
1,1-Dichloroethane	100	U	400	406		ug/L		102	59 - 155	1	15
1,1-Dichloroethene	100	U	400	396		ug/L		99	1 - 234	2	15
1,2-Dichlorobenzene	100	U	400	392		ug/L		98	18 - 190	3	15
1,2-Dichloroethane	100	U	400	447		ug/L		112	49 - 155	0	15
1,2-Dichloropropane	100	U	400	408		ug/L		102	1 - 210	2	15
1,3-Dichlorobenzene	100	U	400	378		ug/L		95	59 - 156	2	15
1,4-Dichlorobenzene	100	U	400	382		ug/L		96	18 - 190	3	15
2-Chloroethyl vinyl ether	500	U	400	440	J	ug/L		110	1 - 305	4	15
Benzene	100	U	400	403		ug/L		101	37 - 151	0	15
Bromoform	100	U	400	403		ug/L		101	45 - 169	4	15
Bromomethane	100	U	400	356		ug/L		89	1 - 242	3	15
Carbon tetrachloride	100	U	400	393		ug/L		98	70 - 140	3	15
Chlorobenzene	100	U	400	379		ug/L		95	37 - 160	1	15
Dibromochloromethane	100	U	400	404		ug/L		101	53 - 149	0	15

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-140356-1

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

Lab Sample ID: 480-140356-1 MSD

Matrix: Water

Analysis Batch: 429906

Client Sample ID: MW10R-08182018

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloroethane	100	U	400	364		ug/L		91	14 - 230	1	15
Chloroform	100	U	400	411		ug/L		103	51 - 138	2	15
Chloromethane	100	U	400	358		ug/L		90	1 - 273	8	15
cis-1,3-Dichloropropene	100	U	400	397		ug/L		99	1 - 227	3	15
Bromodichloromethane	100	U	400	426		ug/L		106	35 - 155	1	15
Ethylbenzene	100	U	400	375		ug/L		94	37 - 162	0	15
Methylene Chloride	100	U	400	416		ug/L		104	1 - 221	0	15
Tetrachloroethylene	100	U	400	363		ug/L		91	64 - 148	1	15
Toluene	100	U	400	371		ug/L		93	47 - 150	1	15
trans-1,2-Dichloroethene	100	U	400	407		ug/L		102	54 - 156	0	15
trans-1,3-Dichloropropene	100	U	400	389		ug/L		97	17 - 183	1	15
Trichloroethylene	1300	F1	400	1280	F1	ug/L		6	71 - 157	0	15
Trichlorofluoromethane	100	U	400	357		ug/L		89	17 - 181	1	15
Vinyl chloride	100	U	400	336		ug/L		84	1 - 251	1	15

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	109		68 - 130
4-Bromofluorobenzene (Surr)	102		76 - 123
Toluene-d8 (Surr)	99		77 - 120
Dibromofluoromethane (Surr)	106		75 - 123

QC Association Summary

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

TestAmerica Job ID: 480-140356-1

GC/MS VOA

Analysis Batch: 429710

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140356-1	MW10R-08182018	Total/NA	Water	624.1	
480-140356-4	TB-08182018	Total/NA	Water	624.1	
MB 480-429710/7	Method Blank	Total/NA	Water	624.1	
LCS 480-429710/5	Lab Control Sample	Total/NA	Water	624.1	

Analysis Batch: 429906

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-140356-1 - DL	MW10R-08182018	Total/NA	Water	624.1	
480-140356-2	MW15R-08182018	Total/NA	Water	624.1	
480-140356-3	ERB-08182018	Total/NA	Water	624.1	
MB 480-429906/7	Method Blank	Total/NA	Water	624.1	
LCS 480-429906/5	Lab Control Sample	Total/NA	Water	624.1	
480-140356-1 MS	MW10R-08182018	Total/NA	Water	624.1	
480-140356-1 MSD	MW10R-08182018	Total/NA	Water	624.1	

Lab Chronicle

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

TestAmerica Job ID: 480-140356-1

Client Sample ID: MW10R-08182018

Date Collected: 08/14/18 11:40

Date Received: 08/14/18 15:25

Lab Sample ID: 480-140356-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		10	429710	08/15/18 13:08	S1V	TAL BUF
Total/NA	Analysis	624.1	DL	20	429906	08/16/18 13:50	LCH	TAL BUF

Client Sample ID: MW15R-08182018

Date Collected: 08/14/18 12:20

Date Received: 08/14/18 15:25

Lab Sample ID: 480-140356-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	429906	08/16/18 14:14	LCH	TAL BUF

Client Sample ID: ERB-08182018

Date Collected: 08/14/18 14:00

Date Received: 08/14/18 15:25

Lab Sample ID: 480-140356-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	429906	08/16/18 14:38	LCH	TAL BUF

Client Sample ID: TB-08182018

Date Collected: 08/14/18 08:05

Date Received: 08/14/18 15:25

Lab Sample ID: 480-140356-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	429710	08/15/18 14:19	S1V	TAL BUF

Laboratory References:

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

Accreditation/Certification Summary

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

TestAmerica Job ID: 480-140356-1

Laboratory: TestAmerica Buffalo

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

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10026	03-31-19

Method Summary

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

TestAmerica Job ID: 480-140356-1

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 = 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

TestAmerica Job ID: 480-140356-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-140356-1	MW10R-08182018	Water	08/14/18 11:40	08/14/18 15:25
480-140356-2	MW15R-08182018	Water	08/14/18 12:20	08/14/18 15:25
480-140356-3	ERB-08182018	Water	08/14/18 14:00	08/14/18 15:25
480-140356-4	TB-08182018	Water	08/14/18 08:05	08/14/18 15:25

Login Sample Receipt Checklist

Client: Ecology and Environment, Inc.

Job Number: 480-140356-1

Login Number: 140356

List Source: TestAmerica Buffalo

List Number: 1

Creator: Stopa, Erik S

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	ECOLOGY ENVIORMENTAL
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-141135-1

Client Project/Site: Davis Howland Oil Company - NYSDEC

For:

Ecology and Environment, Inc.

368 Pleasant View Drive

Lancaster, New York 14086

Attn: Ashlee Patnode



Authorized for release by:

9/25/2018 5:34:01 PM

Rebecca Jones, Project Management Assistant I

rebecca.jones@testamericainc.com

Designee for

John Schove, Project Manager II

(716)504-9838

john.schove@testamericainc.com

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

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

TestAmerica Job ID: 480-141135-1

Qualifiers

LCMS

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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)

Case Narrative

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

TestAmerica Job ID: 480-141135-1

Job ID: 480-141135-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-141135-1

Comments

No additional comments.

Receipt

The samples were received on 8/31/2018 12:40 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.0° C.

Receipt Exceptions

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): MW-9S-08302018 (480-141135-3). Sample label does not match COC. Sample says "MS-9S..." when COC says "MW-9S...".

LCMS

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

Organic Prep

Method(s) 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-245408.

Method(s) 3535: The TestAmerica Sample ID does not match the Client ID. The TestAmerica Sample ID is: MW-9S-08302018 and the Client Label is: MS-9S-083018: MW-9S-08302018 (480-141135-3).

Method(s) 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with 320-245396

Method(s) 3535: The following samples had non-settleable particulate matter which plugged the SPE extraction disk. The amount of sample remaining plus the weight of the bottle are recorded in the "notes" field of the prep batch. The "tare weight" recorded is the weight of the emptied bottle.: MW-9S-08302018 (480-141135-3) and MW-13S-08312018 (480-141135-4). The reporting limits (RLs) have been adjusted proportionately.

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

TestAmerica Job ID: 480-141135-1

Client Sample ID: MW-2R-08312018

Lab Sample ID: 480-141135-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	1.6	J	1.7	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorobutanoic acid (PFBA)	8.0	B	1.7	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	1.7		1.7	0.26	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.5		1.7	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.73	J B	1.7	0.14	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	18		1.7	0.48	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	1.1	J	1.7	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorooctane Sulfonamide (FOSA)	0.29	J	1.7	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.0		1.7	0.45	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	4.4		1.7	0.71	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	12		1.7	0.41	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-2R-08312018-Q

Lab Sample ID: 480-141135-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	3.1		1.7	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorobutanoic acid (PFBA)	7.8	B	1.7	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	1.6	J	1.7	0.26	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.3		1.7	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.88	J B	1.7	0.14	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	16		1.7	0.49	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.98	J	1.7	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.2		1.7	0.45	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	4.1		1.7	0.71	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	12		1.7	0.41	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-9S-08302018

Lab Sample ID: 480-141135-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	2.8		1.7	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorobutanoic acid (PFBA)	13	B	1.7	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.57	J	1.7	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	0.50	J	1.7	0.46	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	17		1.7	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.7	B	1.7	0.14	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	24		1.7	0.48	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	3.6		1.7	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.5		1.7	0.45	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	36		1.7	0.71	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	25		1.7	0.41	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-13S-08312018

Lab Sample ID: 480-141135-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	1.9		1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluorobutanoic acid (PFBA)	13	B	1.8	0.32	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	2.4		1.8	0.29	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.1		1.8	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.95	J B	1.8	0.16	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	7.6		1.8	0.53	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Detection Summary

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

TestAmerica Job ID: 480-141135-1

Client Sample ID: MW-13S-08312018 (Continued)

Lab Sample ID: 480-141135-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorononanoic acid (PFNA)	2.5		1.8	0.25	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.4		1.8	0.50	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	6.9		1.8	0.78	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	8.4		1.8	0.45	ng/L	1		537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.55	J	1.8	0.27	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RB-08312018

Lab Sample ID: 480-141135-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.30	J B	1.7	0.29	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.31	J B	1.7	0.14	ng/L	1		537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.24	J	1.7	0.24	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-141135-1

Client Sample ID: MW-2R-08312018

Lab Sample ID: 480-141135-1

Date Collected: 08/31/18 09:33

Matrix: Water

Date Received: 08/31/18 12:40

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	17	U	17	1.7	ng/L		09/13/18 08:27	09/14/18 19:24	1
8:2 FTS	17	U	17	1.7	ng/L		09/13/18 08:27	09/14/18 19:24	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	17	U	17	1.6	ng/L		09/13/18 08:27	09/14/18 19:24	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	17	U	17	2.6	ng/L		09/13/18 08:27	09/14/18 19:24	1
Perfluorobutanesulfonic acid (PFBS)	1.6	J	1.7	0.17	ng/L		09/13/18 08:27	09/14/18 19:24	1
Perfluorobutanoic acid (PFBA)	8.0	B	1.7	0.29	ng/L		09/13/18 08:27	09/14/18 19:24	1
Perfluorodecanesulfonic acid (PFDS)	1.7	U	1.7	0.27	ng/L		09/13/18 08:27	09/14/18 19:24	1
Perfluorodecanoic acid (PFDA)	1.7		1.7	0.26	ng/L		09/13/18 08:27	09/14/18 19:24	1
Perfluorododecanoic acid (PFDoA)	1.7	U	1.7	0.46	ng/L		09/13/18 08:27	09/14/18 19:24	1
Perfluoroheptanesulfonic Acid (PFHpS)	1.7	U	1.7	0.16	ng/L		09/13/18 08:27	09/14/18 19:24	1
Perfluoroheptanoic acid (PFHpA)	2.5		1.7	0.21	ng/L		09/13/18 08:27	09/14/18 19:24	1
Perfluorohexanesulfonic acid (PFHxS)	0.73	J B	1.7	0.14	ng/L		09/13/18 08:27	09/14/18 19:24	1
Perfluorohexanoic acid (PFHxA)	18		1.7	0.48	ng/L		09/13/18 08:27	09/14/18 19:24	1
Perfluorononanoic acid (PFNA)	1.1	J	1.7	0.22	ng/L		09/13/18 08:27	09/14/18 19:24	1
Perfluorooctane Sulfonamide (FOSA)	0.29	J	1.7	0.29	ng/L		09/13/18 08:27	09/14/18 19:24	1
Perfluorooctanesulfonic acid (PFOS)	2.0		1.7	0.45	ng/L		09/13/18 08:27	09/14/18 19:24	1
Perfluorooctanoic acid (PFOA)	4.4		1.7	0.71	ng/L		09/13/18 08:27	09/14/18 19:24	1
Perfluoropentanoic acid (PFPeA)	12		1.7	0.41	ng/L		09/13/18 08:27	09/14/18 19:24	1
Perfluorotetradecanoic acid (PFTeA)	1.7	U	1.7	0.24	ng/L		09/13/18 08:27	09/14/18 19:24	1
Perfluorotridecanoic Acid (PFTriA)	1.7	U	1.7	1.1	ng/L		09/13/18 08:27	09/14/18 19:24	1
Perfluoroundecanoic acid (PFUnA)	1.7	U	1.7	0.91	ng/L		09/13/18 08:27	09/14/18 19:24	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDA	87		25 - 150	09/13/18 08:27	09/14/18 19:24	1
13C2 PFDoA	93		25 - 150	09/13/18 08:27	09/14/18 19:24	1
13C2 PFHxA	71		25 - 150	09/13/18 08:27	09/14/18 19:24	1
13C2 PFUnA	94		25 - 150	09/13/18 08:27	09/14/18 19:24	1
13C2-PFTeDA	84		25 - 150	09/13/18 08:27	09/14/18 19:24	1
13C3-PFBS	80		25 - 150	09/13/18 08:27	09/14/18 19:24	1
13C4 PFBA	43		25 - 150	09/13/18 08:27	09/14/18 19:24	1
13C4 PFOA	89		25 - 150	09/13/18 08:27	09/14/18 19:24	1
13C4 PFOS	85		25 - 150	09/13/18 08:27	09/14/18 19:24	1
13C4-PFHpA	81		25 - 150	09/13/18 08:27	09/14/18 19:24	1
13C5 PFNA	77		25 - 150	09/13/18 08:27	09/14/18 19:24	1
13C5 PFPeA	71		25 - 150	09/13/18 08:27	09/14/18 19:24	1
13C8 FOSA	78		25 - 150	09/13/18 08:27	09/14/18 19:24	1
18O2 PFHxS	80		25 - 150	09/13/18 08:27	09/14/18 19:24	1
d3-NMeFOSAA	81		25 - 150	09/13/18 08:27	09/14/18 19:24	1
d5-NEtFOSAA	107		25 - 150	09/13/18 08:27	09/14/18 19:24	1
M2-6:2FTS	144		25 - 150	09/13/18 08:27	09/14/18 19:24	1
M2-8:2FTS	108		25 - 150	09/13/18 08:27	09/14/18 19:24	1

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-141135-1

Client Sample ID: MW-2R-08312018-Q

Lab Sample ID: 480-141135-2

Date Collected: 08/31/18 09:33

Matrix: Water

Date Received: 08/31/18 12:40

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	17	U	17	1.7	ng/L		09/13/18 08:27	09/19/18 06:24	1
8:2 FTS	17	U	17	1.7	ng/L		09/13/18 08:27	09/19/18 06:24	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	17	U	17	1.6	ng/L		09/13/18 08:27	09/19/18 06:24	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	17	U	17	2.6	ng/L		09/13/18 08:27	09/19/18 06:24	1
Perfluorobutanesulfonic acid (PFBS)	3.1		1.7	0.17	ng/L		09/13/18 08:27	09/19/18 06:24	1
Perfluorobutanoic acid (PFBA)	7.8 B		1.7	0.29	ng/L		09/13/18 08:27	09/19/18 06:24	1
Perfluorodecanesulfonic acid (PFDS)	1.7	U	1.7	0.27	ng/L		09/13/18 08:27	09/19/18 06:24	1
Perfluorodecanoic acid (PFDA)	1.6 J		1.7	0.26	ng/L		09/13/18 08:27	09/19/18 06:24	1
Perfluorododecanoic acid (PFDoA)	1.7	U	1.7	0.46	ng/L		09/13/18 08:27	09/19/18 06:24	1
Perfluoroheptanesulfonic Acid (PFHpS)	1.7	U	1.7	0.16	ng/L		09/13/18 08:27	09/19/18 06:24	1
Perfluoroheptanoic acid (PFHpA)	2.3		1.7	0.21	ng/L		09/13/18 08:27	09/19/18 06:24	1
Perfluorohexanesulfonic acid (PFHxS)	0.88 J B		1.7	0.14	ng/L		09/13/18 08:27	09/19/18 06:24	1
Perfluorohexanoic acid (PFHxA)	16		1.7	0.49	ng/L		09/13/18 08:27	09/19/18 06:24	1
Perfluorononanoic acid (PFNA)	0.98 J		1.7	0.23	ng/L		09/13/18 08:27	09/19/18 06:24	1
Perfluorooctane Sulfonamide (FOSA)	1.7	U	1.7	0.29	ng/L		09/13/18 08:27	09/19/18 06:24	1
Perfluorooctanesulfonic acid (PFOS)	2.2		1.7	0.45	ng/L		09/13/18 08:27	09/19/18 06:24	1
Perfluorooctanoic acid (PFOA)	4.1		1.7	0.71	ng/L		09/13/18 08:27	09/19/18 06:24	1
Perfluoropentanoic acid (PFPeA)	12		1.7	0.41	ng/L		09/13/18 08:27	09/19/18 06:24	1
Perfluorotetradecanoic acid (PFTeA)	1.7	U	1.7	0.24	ng/L		09/13/18 08:27	09/19/18 06:24	1
Perfluorotridecanoic Acid (PFTriA)	1.7	U	1.7	1.1	ng/L		09/13/18 08:27	09/19/18 06:24	1
Perfluoroundecanoic acid (PFUnA)	1.7	U	1.7	0.92	ng/L		09/13/18 08:27	09/19/18 06:24	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDA	97		25 - 150	09/13/18 08:27	09/19/18 06:24	1
13C2 PFDoA	88		25 - 150	09/13/18 08:27	09/19/18 06:24	1
13C2 PFHxA	77		25 - 150	09/13/18 08:27	09/19/18 06:24	1
13C2 PFUnA	94		25 - 150	09/13/18 08:27	09/19/18 06:24	1
13C2-PFTeDA	71		25 - 150	09/13/18 08:27	09/19/18 06:24	1
13C3-PFBS	82		25 - 150	09/13/18 08:27	09/19/18 06:24	1
13C4 PFBA	50		25 - 150	09/13/18 08:27	09/19/18 06:24	1
13C4 PFOA	93		25 - 150	09/13/18 08:27	09/19/18 06:24	1
13C4 PFOS	82		25 - 150	09/13/18 08:27	09/19/18 06:24	1
13C4-PFHxA	90		25 - 150	09/13/18 08:27	09/19/18 06:24	1
13C5 PFNA	90		25 - 150	09/13/18 08:27	09/19/18 06:24	1
13C5 PFPeA	77		25 - 150	09/13/18 08:27	09/19/18 06:24	1
13C8 FOSA	79		25 - 150	09/13/18 08:27	09/19/18 06:24	1
18O2 PFHxS	81		25 - 150	09/13/18 08:27	09/19/18 06:24	1
d3-NMeFOSAA	92		25 - 150	09/13/18 08:27	09/19/18 06:24	1
d5-NEtFOSAA	107		25 - 150	09/13/18 08:27	09/19/18 06:24	1
M2-6:2FTS	145		25 - 150	09/13/18 08:27	09/19/18 06:24	1
M2-8:2FTS	103		25 - 150	09/13/18 08:27	09/19/18 06:24	1

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-141135-1

Client Sample ID: MW-9S-08302018

Lab Sample ID: 480-141135-3

Date Collected: 08/30/18 14:20

Matrix: Water

Date Received: 08/31/18 12:40

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	17	U	17	1.7	ng/L		09/13/18 08:27	09/14/18 19:37	1
8:2 FTS	17	U	17	1.7	ng/L		09/13/18 08:27	09/14/18 19:37	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	17	U	17	1.6	ng/L		09/13/18 08:27	09/14/18 19:37	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	17	U	17	2.6	ng/L		09/13/18 08:27	09/14/18 19:37	1
Perfluorobutanesulfonic acid (PFBS)	2.8		1.7	0.17	ng/L		09/13/18 08:27	09/14/18 19:37	1
Perfluorobutanoic acid (PFBA)	13 B		1.7	0.29	ng/L		09/13/18 08:27	09/14/18 19:37	1
Perfluorodecanesulfonic acid (PFDS)	1.7	U	1.7	0.27	ng/L		09/13/18 08:27	09/14/18 19:37	1
Perfluorodecanoic acid (PFDA)	0.57 J		1.7	0.26	ng/L		09/13/18 08:27	09/14/18 19:37	1
Perfluorododecanoic acid (PFDoA)	0.50 J		1.7	0.46	ng/L		09/13/18 08:27	09/14/18 19:37	1
Perfluoroheptanesulfonic Acid (PFHpS)	1.7	U	1.7	0.16	ng/L		09/13/18 08:27	09/14/18 19:37	1
Perfluoroheptanoic acid (PFHpA)	17		1.7	0.21	ng/L		09/13/18 08:27	09/14/18 19:37	1
Perfluorohexanesulfonic acid (PFHxS)	1.7 B		1.7	0.14	ng/L		09/13/18 08:27	09/14/18 19:37	1
Perfluorohexanoic acid (PFHxA)	24		1.7	0.48	ng/L		09/13/18 08:27	09/14/18 19:37	1
Perfluorononanoic acid (PFNA)	3.6		1.7	0.23	ng/L		09/13/18 08:27	09/14/18 19:37	1
Perfluorooctane Sulfonamide (FOSA)	1.7	U	1.7	0.29	ng/L		09/13/18 08:27	09/14/18 19:37	1
Perfluorooctanesulfonic acid (PFOS)	5.5		1.7	0.45	ng/L		09/13/18 08:27	09/14/18 19:37	1
Perfluorooctanoic acid (PFOA)	36		1.7	0.71	ng/L		09/13/18 08:27	09/14/18 19:37	1
Perfluoropentanoic acid (PFPeA)	25		1.7	0.41	ng/L		09/13/18 08:27	09/14/18 19:37	1
Perfluorotetradecanoic acid (PFTeA)	1.7	U	1.7	0.24	ng/L		09/13/18 08:27	09/14/18 19:37	1
Perfluorotridecanoic Acid (PFTriA)	1.7	U	1.7	1.1	ng/L		09/13/18 08:27	09/14/18 19:37	1
Perfluoroundecanoic acid (PFUnA)	1.7	U	1.7	0.92	ng/L		09/13/18 08:27	09/14/18 19:37	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDA	66		25 - 150	09/13/18 08:27	09/14/18 19:37	1
13C2 PFDoA	46		25 - 150	09/13/18 08:27	09/14/18 19:37	1
13C2 PFHxA	69		25 - 150	09/13/18 08:27	09/14/18 19:37	1
13C2 PFUnA	54		25 - 150	09/13/18 08:27	09/14/18 19:37	1
13C2-PFTeDA	34		25 - 150	09/13/18 08:27	09/14/18 19:37	1
13C3-PFBS	72		25 - 150	09/13/18 08:27	09/14/18 19:37	1
13C4 PFBA	43		25 - 150	09/13/18 08:27	09/14/18 19:37	1
13C4 PFOA	74		25 - 150	09/13/18 08:27	09/14/18 19:37	1
13C4 PFOS	69		25 - 150	09/13/18 08:27	09/14/18 19:37	1
13C4-PFHxA	73		25 - 150	09/13/18 08:27	09/14/18 19:37	1
13C5 PFNA	72		25 - 150	09/13/18 08:27	09/14/18 19:37	1
13C5 PFPeA	64		25 - 150	09/13/18 08:27	09/14/18 19:37	1
13C8 FOSA	70		25 - 150	09/13/18 08:27	09/14/18 19:37	1
18O2 PFHxS	69		25 - 150	09/13/18 08:27	09/14/18 19:37	1
d3-NMeFOSAA	58		25 - 150	09/13/18 08:27	09/14/18 19:37	1
d5-NEtFOSAA	57		25 - 150	09/13/18 08:27	09/14/18 19:37	1
M2-6:2FTS	84		25 - 150	09/13/18 08:27	09/14/18 19:37	1
M2-8:2FTS	67		25 - 150	09/13/18 08:27	09/14/18 19:37	1

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-141135-1

Client Sample ID: MW-13S-08312018

Lab Sample ID: 480-141135-4

Date Collected: 08/31/18 10:27

Matrix: Water

Date Received: 08/31/18 12:40

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	18	U	18	1.8	ng/L		09/13/18 08:27	09/14/18 19:44	1
8:2 FTS	18	U	18	1.8	ng/L		09/13/18 08:27	09/14/18 19:44	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	18	U	18	1.7	ng/L		09/13/18 08:27	09/14/18 19:44	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	18	U	18	2.9	ng/L		09/13/18 08:27	09/14/18 19:44	1
Perfluorobutanesulfonic acid (PFBS)	1.9		1.8	0.18	ng/L		09/13/18 08:27	09/14/18 19:44	1
Perfluorobutanoic acid (PFBA)	13 B		1.8	0.32	ng/L		09/13/18 08:27	09/14/18 19:44	1
Perfluorodecanesulfonic acid (PFDS)	1.8	U	1.8	0.29	ng/L		09/13/18 08:27	09/14/18 19:44	1
Perfluorodecanoic acid (PFDA)	2.4		1.8	0.29	ng/L		09/13/18 08:27	09/14/18 19:44	1
Perfluorododecanoic acid (PFDoA)	1.8	U	1.8	0.51	ng/L		09/13/18 08:27	09/14/18 19:44	1
Perfluoroheptanesulfonic Acid (PFHpS)	1.8	U	1.8	0.17	ng/L		09/13/18 08:27	09/14/18 19:44	1
Perfluoroheptanoic acid (PFHpA)	4.1		1.8	0.23	ng/L		09/13/18 08:27	09/14/18 19:44	1
Perfluorohexanesulfonic acid (PFHxS)	0.95 J B		1.8	0.16	ng/L		09/13/18 08:27	09/14/18 19:44	1
Perfluorohexanoic acid (PFHxA)	7.6		1.8	0.53	ng/L		09/13/18 08:27	09/14/18 19:44	1
Perfluorononanoic acid (PFNA)	2.5		1.8	0.25	ng/L		09/13/18 08:27	09/14/18 19:44	1
Perfluorooctane Sulfonamide (FOSA)	1.8	U	1.8	0.32	ng/L		09/13/18 08:27	09/14/18 19:44	1
Perfluorooctanesulfonic acid (PFOS)	4.4		1.8	0.50	ng/L		09/13/18 08:27	09/14/18 19:44	1
Perfluorooctanoic acid (PFOA)	6.9		1.8	0.78	ng/L		09/13/18 08:27	09/14/18 19:44	1
Perfluoropentanoic acid (PFPeA)	8.4		1.8	0.45	ng/L		09/13/18 08:27	09/14/18 19:44	1
Perfluorotetradecanoic acid (PFTeA)	0.55 J		1.8	0.27	ng/L		09/13/18 08:27	09/14/18 19:44	1
Perfluorotridecanoic Acid (PFTriA)	1.8	U	1.8	1.2	ng/L		09/13/18 08:27	09/14/18 19:44	1
Perfluoroundecanoic acid (PFUnA)	1.8	U	1.8	1.0	ng/L		09/13/18 08:27	09/14/18 19:44	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDA	66		25 - 150	09/13/18 08:27	09/14/18 19:44	1
13C2 PFDoA	48		25 - 150	09/13/18 08:27	09/14/18 19:44	1
13C2 PFHxA	70		25 - 150	09/13/18 08:27	09/14/18 19:44	1
13C2 PFUnA	55		25 - 150	09/13/18 08:27	09/14/18 19:44	1
13C2-PFTeDA	38		25 - 150	09/13/18 08:27	09/14/18 19:44	1
13C3-PFBS	65		25 - 150	09/13/18 08:27	09/14/18 19:44	1
13C4 PFBA	38		25 - 150	09/13/18 08:27	09/14/18 19:44	1
13C4 PFOA	72		25 - 150	09/13/18 08:27	09/14/18 19:44	1
13C4 PFOS	64		25 - 150	09/13/18 08:27	09/14/18 19:44	1
13C4-PFHpA	70		25 - 150	09/13/18 08:27	09/14/18 19:44	1
13C5 PFNA	71		25 - 150	09/13/18 08:27	09/14/18 19:44	1
13C5 PFPeA	60		25 - 150	09/13/18 08:27	09/14/18 19:44	1
13C8 FOSA	65		25 - 150	09/13/18 08:27	09/14/18 19:44	1
18O2 PFHxS	68		25 - 150	09/13/18 08:27	09/14/18 19:44	1
d3-NMeFOSAA	54		25 - 150	09/13/18 08:27	09/14/18 19:44	1
d5-NEtFOSAA	52		25 - 150	09/13/18 08:27	09/14/18 19:44	1
M2-6:2FTS	86		25 - 150	09/13/18 08:27	09/14/18 19:44	1
M2-8:2FTS	70		25 - 150	09/13/18 08:27	09/14/18 19:44	1

TestAmerica Buffalo

Client Sample Results

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

TestAmerica Job ID: 480-141135-1

Client Sample ID: RB-08312018

Lab Sample ID: 480-141135-5

Date Collected: 08/31/18 10:40

Matrix: Water

Date Received: 08/31/18 12:40

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	17	U	17	1.7	ng/L		09/13/18 08:27	09/14/18 19:50	1
8:2 FTS	17	U	17	1.7	ng/L		09/13/18 08:27	09/14/18 19:50	1
N-ethyl perfluorooctane	17	U	17	1.6	ng/L		09/13/18 08:27	09/14/18 19:50	1
sulfonamidoacetic acid (NEtFOSAA)									
N-methyl perfluorooctane	17	U	17	2.6	ng/L		09/13/18 08:27	09/14/18 19:50	1
sulfonamidoacetic acid (NMeFOSAA)									
Perfluorobutanesulfonic acid (PFBS)	1.7	U	1.7	0.17	ng/L		09/13/18 08:27	09/14/18 19:50	1
Perfluorobutanoic acid (PFBA)	0.30	J B	1.7	0.29	ng/L		09/13/18 08:27	09/14/18 19:50	1
Perfluorodecanesulfonic acid (PFDS)	1.7	U	1.7	0.26	ng/L		09/13/18 08:27	09/14/18 19:50	1
Perfluorodecanoic acid (PFDA)	1.7	U	1.7	0.26	ng/L		09/13/18 08:27	09/14/18 19:50	1
Perfluorododecanoic acid (PFDoA)	1.7	U	1.7	0.45	ng/L		09/13/18 08:27	09/14/18 19:50	1
Perfluoroheptanesulfonic Acid (PFHpS)	1.7	U	1.7	0.16	ng/L		09/13/18 08:27	09/14/18 19:50	1
Perfluoroheptanoic acid (PFHpA)	1.7	U	1.7	0.21	ng/L		09/13/18 08:27	09/14/18 19:50	1
Perfluorohexanesulfonic acid (PFHxS)	0.31	J B	1.7	0.14	ng/L		09/13/18 08:27	09/14/18 19:50	1
Perfluorohexanoic acid (PFHxA)	1.7	U	1.7	0.48	ng/L		09/13/18 08:27	09/14/18 19:50	1
Perfluorononanoic acid (PFNA)	1.7	U	1.7	0.22	ng/L		09/13/18 08:27	09/14/18 19:50	1
Perfluorooctane Sulfonamide (FOSA)	1.7	U	1.7	0.29	ng/L		09/13/18 08:27	09/14/18 19:50	1
Perfluorooctanesulfonic acid (PFOS)	1.7	U	1.7	0.45	ng/L		09/13/18 08:27	09/14/18 19:50	1
Perfluorooctanoic acid (PFOA)	1.7	U	1.7	0.70	ng/L		09/13/18 08:27	09/14/18 19:50	1
Perfluoropentanoic acid (PFPeA)	1.7	U	1.7	0.40	ng/L		09/13/18 08:27	09/14/18 19:50	1
Perfluorotetradecanoic acid (PFTeA)	0.24	J	1.7	0.24	ng/L		09/13/18 08:27	09/14/18 19:50	1
Perfluorotridecanoic Acid (PFTriA)	1.7	U	1.7	1.1	ng/L		09/13/18 08:27	09/14/18 19:50	1
Perfluoroundecanoic acid (PFUnA)	1.7	U	1.7	0.91	ng/L		09/13/18 08:27	09/14/18 19:50	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDA	92		25 - 150	09/13/18 08:27	09/14/18 19:50	1
13C2 PFDoA	87		25 - 150	09/13/18 08:27	09/14/18 19:50	1
13C2 PFHxA	87		25 - 150	09/13/18 08:27	09/14/18 19:50	1
13C2 PFUnA	92		25 - 150	09/13/18 08:27	09/14/18 19:50	1
13C2-PFTeDA	81		25 - 150	09/13/18 08:27	09/14/18 19:50	1
13C3-PFBS	84		25 - 150	09/13/18 08:27	09/14/18 19:50	1
13C4 PFBA	93		25 - 150	09/13/18 08:27	09/14/18 19:50	1
13C4 PFOA	89		25 - 150	09/13/18 08:27	09/14/18 19:50	1
13C4 PFOS	87		25 - 150	09/13/18 08:27	09/14/18 19:50	1
13C4-PFHpA	90		25 - 150	09/13/18 08:27	09/14/18 19:50	1
13C5 PFNA	94		25 - 150	09/13/18 08:27	09/14/18 19:50	1
13C5 PFPeA	93		25 - 150	09/13/18 08:27	09/14/18 19:50	1
13C8 FOSA	85		25 - 150	09/13/18 08:27	09/14/18 19:50	1
18O2 PFHxS	86		25 - 150	09/13/18 08:27	09/14/18 19:50	1
d3-NMeFOSAA	87		25 - 150	09/13/18 08:27	09/14/18 19:50	1
d5-NEtFOSAA	93		25 - 150	09/13/18 08:27	09/14/18 19:50	1
M2-6:2FTS	93		25 - 150	09/13/18 08:27	09/14/18 19:50	1
M2-8:2FTS	96		25 - 150	09/13/18 08:27	09/14/18 19:50	1

TestAmerica Buffalo

Isotope Dilution Summary

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

TestAmerica Job ID: 480-141135-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDA (25-150)	PFDoA (25-150)	PFHxA (25-150)	PFUnA (25-150)	PFTDA (25-150)	3C3-PFBs (25-150)	PFBA (25-150)	PFOA (25-150)
480-141135-1	MW-2R-08312018	87	93	71	94	84	80	43	89
480-141135-2	MW-2R-08312018-Q	97	88	77	94	71	82	50	93
480-141135-3	MW-9S-08302018	66	46	69	54	34	72	43	74
480-141135-4	MW-13S-08312018	66	48	70	55	38	65	38	72
480-141135-5	RB-08312018	92	87	87	92	81	84	93	89
LCS 320-245408/2-A	Lab Control Sample	89	87	89	91	84	90	89	90
LCSD 320-245408/3-A	Lab Control Sample Dup	88	83	81	86	76	81	86	90
MB 320-245408/1-A	Method Blank	89	81	80	84	76	80	85	86

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFOS (25-150)	PFHpA (25-150)	PFNA (25-150)	PFPeA (25-150)	PFOSA (25-150)	PFHxS (25-150)	d3-NMeFOSAA (25-150)	d5-NEtFOSAA (25-150)
480-141135-1	MW-2R-08312018	85	81	77	71	78	80	81	107
480-141135-2	MW-2R-08312018-Q	82	90	90	77	79	81	92	107
480-141135-3	MW-9S-08302018	69	73	72	64	70	69	58	57
480-141135-4	MW-13S-08312018	64	70	71	60	65	68	54	52
480-141135-5	RB-08312018	87	90	94	93	85	86	87	93
LCS 320-245408/2-A	Lab Control Sample	86	93	95	91	85	87	90	89
LCSD 320-245408/3-A	Lab Control Sample Dup	85	88	89	85	83	86	82	87
MB 320-245408/1-A	Method Blank	82	90	90	86	77	80	78	83

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M262FTS (25-150)	M282FTS (25-150)
480-141135-1	MW-2R-08312018	144	108
480-141135-2	MW-2R-08312018-Q	145	103
480-141135-3	MW-9S-08302018	84	67
480-141135-4	MW-13S-08312018	86	70
480-141135-5	RB-08312018	93	96
LCS 320-245408/2-A	Lab Control Sample	86	91
LCSD 320-245408/3-A	Lab Control Sample Dup	86	87
MB 320-245408/1-A	Method Blank	84	94

Surrogate Legend


PFDA = 13C2 PFDA
PFDoA = 13C2 PFDoA
PFHxA = 13C2 PFHxA
PFUnA = 13C2 PFUnA
PFTDA = 13C2-PFTeDA
13C3-PFBs = 13C3-PFBs
PFBA = 13C4 PFBA
PFOA = 13C4 PFOA
PFOS = 13C4 PFOS
PFHpA = 13C4-PFHpA
PFNA = 13C5 PFNA
PFPeA = 13C5 PFPeA
PFOSA = 13C8 FOSA
PFHxS = 18O2 PFHxS
d3-NMeFOSAA = d3-NMeFOSAA
d5-NEtFOSAA = d5-NEtFOSAA
M262FTS = M2-6:2FTS

TestAmerica Buffalo

Isotope Dilution Summary

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

TestAmerica Job ID: 480-141135-1

 M282FTS = M2-8:2FTS

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

QC Sample Results

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

TestAmerica Job ID: 480-141135-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-245408/1-A

Matrix: Water

Analysis Batch: 245800

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 245408

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	20	U	20	2.0	ng/L		09/13/18 08:27	09/14/18 19:04	1
8:2 FTS	20	U	20	2.0	ng/L		09/13/18 08:27	09/14/18 19:04	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	20	U	20	1.9	ng/L		09/13/18 08:27	09/14/18 19:04	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	20	U	20	3.1	ng/L		09/13/18 08:27	09/14/18 19:04	1
Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.0	0.20	ng/L		09/13/18 08:27	09/14/18 19:04	1
Perfluorobutanoic acid (PFBA)	0.400	J	2.0	0.35	ng/L		09/13/18 08:27	09/14/18 19:04	1
Perfluorodecanesulfonic acid (PFDS)	2.0	U	2.0	0.32	ng/L		09/13/18 08:27	09/14/18 19:04	1
Perfluorodecanoic acid (PFDA)	2.0	U	2.0	0.31	ng/L		09/13/18 08:27	09/14/18 19:04	1
Perfluorododecanoic acid (PFDoA)	2.0	U	2.0	0.55	ng/L		09/13/18 08:27	09/14/18 19:04	1
Perfluoroheptanesulfonic Acid (PFHpS)	2.0	U	2.0	0.19	ng/L		09/13/18 08:27	09/14/18 19:04	1
Perfluoroheptanoic acid (PFHpA)	2.0	U	2.0	0.25	ng/L		09/13/18 08:27	09/14/18 19:04	1
Perfluorohexanesulfonic acid (PFHxS)	0.325	J	2.0	0.17	ng/L		09/13/18 08:27	09/14/18 19:04	1
Perfluorohexanoic acid (PFHxA)	2.0	U	2.0	0.58	ng/L		09/13/18 08:27	09/14/18 19:04	1
Perfluorononanoic acid (PFNA)	2.0	U	2.0	0.27	ng/L		09/13/18 08:27	09/14/18 19:04	1
Perfluorooctane Sulfonamide (FOSA)	2.0	U	2.0	0.35	ng/L		09/13/18 08:27	09/14/18 19:04	1
Perfluorooctanesulfonic acid (PFOS)	2.0	U	2.0	0.54	ng/L		09/13/18 08:27	09/14/18 19:04	1
Perfluorooctanoic acid (PFOA)	2.0	U	2.0	0.85	ng/L		09/13/18 08:27	09/14/18 19:04	1
Perfluoropentanoic acid (PFPeA)	2.0	U	2.0	0.49	ng/L		09/13/18 08:27	09/14/18 19:04	1
Perfluorotetradecanoic acid (PFTeA)	2.0	U	2.0	0.29	ng/L		09/13/18 08:27	09/14/18 19:04	1
Perfluorotridecanoic Acid (PFTriA)	2.0	U	2.0	1.3	ng/L		09/13/18 08:27	09/14/18 19:04	1
Perfluoroundecanoic acid (PFUnA)	2.0	U	2.0	1.1	ng/L		09/13/18 08:27	09/14/18 19:04	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDA	89		25 - 150	09/13/18 08:27	09/14/18 19:04	1
13C2 PFDoA	81		25 - 150	09/13/18 08:27	09/14/18 19:04	1
13C2 PFHxA	80		25 - 150	09/13/18 08:27	09/14/18 19:04	1
13C2 PFUnA	84		25 - 150	09/13/18 08:27	09/14/18 19:04	1
13C2-PFTeDA	76		25 - 150	09/13/18 08:27	09/14/18 19:04	1
13C3-PFBS	80		25 - 150	09/13/18 08:27	09/14/18 19:04	1
13C4 PFBA	85		25 - 150	09/13/18 08:27	09/14/18 19:04	1
13C4 PFOA	86		25 - 150	09/13/18 08:27	09/14/18 19:04	1
13C4 PFOS	82		25 - 150	09/13/18 08:27	09/14/18 19:04	1
13C4-PFHpA	90		25 - 150	09/13/18 08:27	09/14/18 19:04	1
13C5 PFNA	90		25 - 150	09/13/18 08:27	09/14/18 19:04	1
13C5 PFPeA	86		25 - 150	09/13/18 08:27	09/14/18 19:04	1
13C8 FOSA	77		25 - 150	09/13/18 08:27	09/14/18 19:04	1
18O2 PFHxS	80		25 - 150	09/13/18 08:27	09/14/18 19:04	1
d3-NMeFOSAA	78		25 - 150	09/13/18 08:27	09/14/18 19:04	1
d5-NEtFOSAA	83		25 - 150	09/13/18 08:27	09/14/18 19:04	1
M2-6:2FTS	84		25 - 150	09/13/18 08:27	09/14/18 19:04	1
M2-8:2FTS	94		25 - 150	09/13/18 08:27	09/14/18 19:04	1

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-141135-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-245408/2-A

Matrix: Water

Analysis Batch: 245800

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 245408

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
6:2 FTS	37.9	44.5		ng/L		117	66 - 126
8:2 FTS	38.3	39.3		ng/L		102	67 - 127
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	40.0	38.9		ng/L		97	65 - 125
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	40.0	39.8		ng/L		100	67 - 127
Perfluorobutanesulfonic acid (PFBS)	35.4	33.8		ng/L		95	73 - 133
Perfluorobutanoic acid (PFBA)	40.0	40.8		ng/L		102	70 - 130
Perfluorodecanesulfonic acid (PFDS)	38.6	38.1		ng/L		99	68 - 128
Perfluorodecanoic acid (PFDA)	40.0	40.6		ng/L		101	69 - 129
Perfluorododecanoic acid (PFDoA)	40.0	37.8		ng/L		94	71 - 131
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	39.3		ng/L		103	68 - 128
Perfluoroheptanoic acid (PFHpA)	40.0	38.7		ng/L		97	66 - 126
Perfluorohexanesulfonic acid (PFHxS)	36.4	34.4		ng/L		95	63 - 123
Perfluorohexanoic acid (PFHxA)	40.0	40.0		ng/L		100	66 - 126
Perfluorononanoic acid (PFNA)	40.0	38.6		ng/L		97	68 - 128
Perfluorooctane Sulfonamide (FOSA)	40.0	38.0		ng/L		95	70 - 130
Perfluorooctanesulfonic acid (PFOS)	37.1	37.4		ng/L		101	67 - 127
Perfluorooctanoic acid (PFOA)	40.0	39.2		ng/L		98	64 - 124
Perfluoropentanoic acid (PFPeA)	40.0	37.5		ng/L		94	66 - 126
Perfluorotetradecanoic acid (PFTeA)	40.0	39.4		ng/L		98	68 - 128
Perfluorotridecanoic Acid (PFTriA)	40.0	39.0		ng/L		97	72 - 132
Perfluoroundecanoic acid (PFUnA)	40.0	39.9		ng/L		100	60 - 120

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C2 PFDA	89		25 - 150
13C2 PFDoA	87		25 - 150
13C2 PFHxA	89		25 - 150
13C2 PFUnA	91		25 - 150
13C2-PFTeDA	84		25 - 150
13C3-PFBS	90		25 - 150
13C4 PFBA	89		25 - 150
13C4 PFOA	90		25 - 150
13C4 PFOS	86		25 - 150
13C4-PFHxA	93		25 - 150
13C5 PFNA	95		25 - 150
13C5 PFPeA	91		25 - 150
13C8 FOSA	85		25 - 150
18O2 PFHxS	87		25 - 150

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-141135-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-245408/2-A

Matrix: Water

Analysis Batch: 245800

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 245408

<i>Isotope Dilution</i>	<i>LCS %Recovery</i>	<i>LCS Qualifier</i>	<i>Limits</i>
d3-NMeFOSAA	90		25 - 150
d5-NEtFOSAA	89		25 - 150
M2-6:2FTS	86		25 - 150
M2-8:2FTS	91		25 - 150

Lab Sample ID: LCSD 320-245408/3-A

Matrix: Water

Analysis Batch: 245800

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 245408

<i>Analyte</i>	<i>Spike Added</i>	<i>LCSD Result</i>	<i>LCSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
6:2 FTS	37.9	37.4		ng/L		99	66 - 126	17	30
8:2 FTS	38.3	39.7		ng/L		103	67 - 127	1	30
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	40.0	38.4		ng/L		96	65 - 125	1	30
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	40.0	39.7		ng/L		99	67 - 127	0	30
Perfluorobutanesulfonic acid (PFBS)	35.4	37.2		ng/L		105	73 - 133	10	30
Perfluorobutanoic acid (PFBA)	40.0	41.3		ng/L		103	70 - 130	1	30
Perfluorodecanesulfonic acid (PFDS)	38.6	37.0		ng/L		96	68 - 128	3	30
Perfluorodecanoic acid (PFDA)	40.0	38.4		ng/L		96	69 - 129	6	30
Perfluorododecanoic acid (PFDoA)	40.0	38.2		ng/L		96	71 - 131	1	30
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	40.4		ng/L		106	68 - 128	3	30
Perfluoroheptanoic acid (PFHpA)	40.0	39.5		ng/L		99	66 - 126	2	30
Perfluorohexanesulfonic acid (PFHxS)	36.4	32.9		ng/L		90	63 - 123	5	30
Perfluorohexanoic acid (PFHxA)	40.0	40.8		ng/L		102	66 - 126	2	30
Perfluorononanoic acid (PFNA)	40.0	41.0		ng/L		103	68 - 128	6	30
Perfluorooctane Sulfonamide (FOSA)	40.0	37.3		ng/L		93	70 - 130	2	30
Perfluorooctanesulfonic acid (PFOS)	37.1	34.7		ng/L		93	67 - 127	8	30
Perfluorooctanoic acid (PFOA)	40.0	37.2		ng/L		93	64 - 124	5	30
Perfluoropentanoic acid (PFPeA)	40.0	38.8		ng/L		97	66 - 126	3	30
Perfluorotetradecanoic acid (PFTeA)	40.0	39.3		ng/L		98	68 - 128	0	30
Perfluorotridecanoic Acid (PFTriA)	40.0	40.2		ng/L		100	72 - 132	3	30
Perfluoroundecanoic acid (PFUnA)	40.0	43.0		ng/L		108	60 - 120	7	30

<i>Isotope Dilution</i>	<i>LCSD %Recovery</i>	<i>LCSD Qualifier</i>	<i>Limits</i>
13C2 PFDA	88		25 - 150
13C2 PFDoA	83		25 - 150
13C2 PFHxA	81		25 - 150
13C2 PFUnA	86		25 - 150
13C2-PFTeDA	76		25 - 150

TestAmerica Buffalo

QC Sample Results

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

TestAmerica Job ID: 480-141135-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-245408/3-A

Matrix: Water

Analysis Batch: 245800

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 245408

Isotope Dilution	LCSD	LCSD	Limits
	%Recovery	Qualifier	
13C3-PFBS	81		25 - 150
13C4 PFBA	86		25 - 150
13C4 PFOA	90		25 - 150
13C4 PFOS	85		25 - 150
13C4-PFHpA	88		25 - 150
13C5 PFNA	89		25 - 150
13C5 PFPeA	85		25 - 150
13C8 FOSA	83		25 - 150
18O2 PFHxS	86		25 - 150
d3-NMeFOSAA	82		25 - 150
d5-NEtFOSAA	87		25 - 150
M2-6:2FTS	86		25 - 150
M2-8:2FTS	87		25 - 150

QC Association Summary

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

TestAmerica Job ID: 480-141135-1

LCMS

Prep Batch: 245408

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-141135-1	MW-2R-08312018	Total/NA	Water	3535	
480-141135-2	MW-2R-08312018-Q	Total/NA	Water	3535	
480-141135-3	MW-9S-08302018	Total/NA	Water	3535	
480-141135-4	MW-13S-08312018	Total/NA	Water	3535	
480-141135-5	RB-08312018	Total/NA	Water	3535	
MB 320-245408/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-245408/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-245408/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 245800

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-141135-1	MW-2R-08312018	Total/NA	Water	537 (modified)	245408
480-141135-3	MW-9S-08302018	Total/NA	Water	537 (modified)	245408
480-141135-4	MW-13S-08312018	Total/NA	Water	537 (modified)	245408
480-141135-5	RB-08312018	Total/NA	Water	537 (modified)	245408
MB 320-245408/1-A	Method Blank	Total/NA	Water	537 (modified)	245408
LCS 320-245408/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	245408
LCSD 320-245408/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	245408

Analysis Batch: 246461

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-141135-2	MW-2R-08312018-Q	Total/NA	Water	537 (modified)	245408

Lab Chronicle

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

TestAmerica Job ID: 480-141135-1

Client Sample ID: MW-2R-08312018

Date Collected: 08/31/18 09:33

Date Received: 08/31/18 12:40

Lab Sample ID: 480-141135-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			245408	09/13/18 08:27	VPM	TAL SAC
Total/NA	Analysis	537 (modified)		1	245800	09/14/18 19:24	S1M	TAL SAC

Client Sample ID: MW-2R-08312018-Q

Date Collected: 08/31/18 09:33

Date Received: 08/31/18 12:40

Lab Sample ID: 480-141135-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			245408	09/13/18 08:27	VPM	TAL SAC
Total/NA	Analysis	537 (modified)		1	246461	09/19/18 06:24	AAR	TAL SAC

Client Sample ID: MW-9S-08302018

Date Collected: 08/30/18 14:20

Date Received: 08/31/18 12:40

Lab Sample ID: 480-141135-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			245408	09/13/18 08:27	VPM	TAL SAC
Total/NA	Analysis	537 (modified)		1	245800	09/14/18 19:37	S1M	TAL SAC

Client Sample ID: MW-13S-08312018

Date Collected: 08/31/18 10:27

Date Received: 08/31/18 12:40

Lab Sample ID: 480-141135-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			245408	09/13/18 08:27	VPM	TAL SAC
Total/NA	Analysis	537 (modified)		1	245800	09/14/18 19:44	S1M	TAL SAC

Client Sample ID: RB-08312018

Date Collected: 08/31/18 10:40

Date Received: 08/31/18 12:40

Lab Sample ID: 480-141135-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			245408	09/13/18 08:27	VPM	TAL SAC
Total/NA	Analysis	537 (modified)		1	245800	09/14/18 19:50	S1M	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

TestAmerica Buffalo

Accreditation/Certification Summary

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

TestAmerica Job ID: 480-141135-1

Laboratory: TestAmerica Buffalo

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

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10026	03-31-19

Laboratory: TestAmerica Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-020	01-20-21
ANAB	DoD ELAP		L2468	01-20-21
Arizona	State Program	9	AZ0708	08-11-19
Arkansas DEQ	State Program	6	88-0691	06-17-19
California	State Program	9	2897	01-31-19
Colorado	State Program	8	CA00044	08-31-19
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-19
Georgia	State Program	4	N/A	01-28-19
Hawaii	State Program	9	N/A	01-29-19
Illinois	NELAP	5	200060	03-17-19
Kansas	NELAP	7	E-10375	10-31-18
Louisiana	NELAP	6	30612	06-30-19
Maine	State Program	1	CA0004	04-14-20
Michigan	State Program	5	9947	01-31-20
Nevada	State Program	9	CA00044	07-31-19
New Hampshire	NELAP	1	2997	04-18-19
New Jersey	NELAP	2	CA005	06-30-19
New York	NELAP	2	11666	03-31-19
Oregon	NELAP	10	4040	01-29-19
Pennsylvania	NELAP	3	68-01272	03-31-19
Texas	NELAP	6	T104704399	05-31-19
US Fish & Wildlife	Federal		LE148388-0	07-31-19
USDA	Federal		P330-18-00239	01-17-21
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-19
Vermont	State Program	1	VT-4040	04-30-19
Virginia	NELAP	3	460278	03-14-19
Washington	State Program	10	C581	05-05-19
West Virginia (DW)	State Program	3	9930C	12-31-18
Wyoming	State Program	8	8TMS-L	01-28-19

Method Summary

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

TestAmerica Job ID: 480-141135-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

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

TestAmerica Job ID: 480-141135-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-141135-1	MW-2R-08312018	Water	08/31/18 09:33	08/31/18 12:40
480-141135-2	MW-2R-08312018-Q	Water	08/31/18 09:33	08/31/18 12:40
480-141135-3	MW-9S-08302018	Water	08/30/18 14:20	08/31/18 12:40
480-141135-4	MW-13S-08312018	Water	08/31/18 10:27	08/31/18 12:40
480-141135-5	RB-08312018	Water	08/31/18 10:40	08/31/18 12:40

Chain of Custody Record

[illegible]

[illegible]

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Sacramento

Sample Receiving Notes



480-141135 Field Sheet

Job

Tracking #

42760776072

SO / PO / FO / 2-Day / SAT / Ground / UPS / Courier /

Drop Off / GSO / OnTrac / Goldstreak / USPS / Other

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes:

Therm. ID: AK-2 / AK-3 / AK-5 / AK-6 / HACCP / Other _____
(+0.7°C)

Ice ☒ Wet ☒ Gel _____ Other _____

Cooler Custody Seal: 046003

Sample Custody Seal: —

Cooler ID: —

Temp: Observed 2.6 Corrected 2.6

From: Temp Blank ☐ Sample ☒

NCM Filed: Yes ☐ No ☐

Yes No NA

Perchlorate has headspace? ☐ ☐ ☒

Alkalinity has no headspace? ☐ ☐ ☒

CoC is complete w/o discrepancies? ☒ ☐ ☐

Samples received within holding time? ☒ ☐ ☐

Sample preservatives verified? ☐ ☐ ☒

Cooler compromised/tampered with? ☐ ☒ ☐

Samples compromised/tampered with? ☐ ☒ ☐

Samples w/o discrepancies? ☒ ☐ ☐

Sample containers have legible labels? ☒ ☐ ☐

Containers are not broken or leaking? ☒ ☐ ☐

Sample date/times are provided. ☒ ☐ ☐

Appropriate containers are used? ☒ ☐ ☐

Sample bottles are completely filled? ☒ ☐ ☐

Zero headspace?* ☐ ☐ ☒

Multiphasic samples are not present? ☐ ☐ ☒

Sample temp OK? ☐ ☐ ☐

Sample out of temp? ☐ ☐ ☐

Initials: AK Date: 9-5-18

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

WBA

Login Sample Receipt Checklist

Client: Ecology and Environment, Inc.

Job Number: 480-141135-1

Login Number: 141135

List Number: 1

Creator: Kolb, Chris M

List Source: 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.	N/A	
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	E&E
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: Ecology and Environment, Inc.

Job Number: 480-141135-1

Login Number: 141135

List Number: 2

Creator: Gooch, Mayce

List Source: TestAmerica Sacramento

List Creation: 09/05/18 01:38 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	646003
Sample custody seals, if present, are intact.	N/A	
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	2.6c
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?	False	Received project as a subcontract.
There are no discrepancies between the containers received 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.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	