PERIODIC REVIEW REPORT
MARCH 2015 – MAY 2020

HAIGHT FARM SITE
CLARENDON, NEW YORK 14429

NYSDEC Site No. 837006
Work Assignment No. D007620-45

Prepared for:

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233

Prepared by:

TRC Engineers, Inc.
10 Maxwell Drive
Clifton Park, New York 12065

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TRC Project No. 320919

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LIST OF ACRONYMS AND ABBREVIATIONS

AMSL	above mean sea level
COCs	Contaminants of Concern
DER	Department of Environmental Remediation
DTW	Depth to Water
DUSRs	Data Usability Summary Reports
DVE	Dual Vapor Extraction
ECs	Engineering Controls
EDD	Electronic Data Deliverable
EE	Environmental Easement
EPA	Environmental Protection Agency
FS	Feasibility Study
ft. bgs	feet below ground surface
ICs	Institutional Controls
IHWDS	Inactive Hazardous Waste Disposal Site
ND	Not detected
ng/L	nanograms per liter
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OM&M	Operations and Maintenance Manual
PDB	Passive Diffusion Bag
PFAS	Per- and Polyfluoroalkyl Substances
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic acid
PRR	Periodic Review Report
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RA	Remedial Action
RI	Remedial Investigation
ROD	Record of Decision
SCG	Standard, Criteria, and Guidance
SIM	Selective Ion Monitoring
SMP	Site Management Plan
SMR	Site Management Report
SVOCs	Semi-volatile Organic Compounds
TAL	Target Analyte List
TCL	Target Compound List
TOGS	NYSDEC Division of Water Technical and Operational Guidance Series
TRC	TRC Engineers, Inc.
VOCs	Volatile Organic Compounds
WA	Work Assignment
µg/L	micrograms per liter

Executive Summary

Category	Summary/Results	
Engineering Controls	• Site access restriction via fencing and gates • Monitoring Wells	
Institutional Controls	• Environmental Notice • Groundwater Use Restriction	• Land-Use Restriction • Monitoring Plan
Site Classification	Class 4 IHWDS.	
Site Management Plan	Not Available	
Certification/Reporting Period	The 2015 PRR indicates that the site is sampled every two years. Annual reports from 2011 and 2012 indicate the Site is sampled annually. A Certification Period is not specified. Prior to 2019, the most recent sampling event occurred in 2014.	
Inspection	**Frequency**	
Site Inspection	Site inspection frequency not specified.	
Monitoring	**Frequency**	
Groundwater	Groundwater sampling frequency not specified.	
Prior PRR/SMR Recommendations	There are no prior PRR/SMR recommendations for the Site.	
Site Management Activities	One Site inspection, one round of groundwater level measurements, and one groundwater sampling event was conducted during this reporting period (2015 - 2020). • 05/02/2019: Groundwater level measurements and PDB deployment. • 05/02/2019: Site Inspection. • 05/02/2019: Groundwater sampling for PFAS and 1,4-dioxane from three monitoring wells. • 05/23/2019: PDBs were collected and sampled from 14 monitoring wells in the monitoring well network. Groundwater samples were not collected from the Hanson Aggregate quarry wells during this event. Samples were submitted for laboratory analysis for VOCs and emerging contaminants.	
Significant Findings or Concerns	Of the 16 wells selected for sampling, two wells, MW-8 and MW-10, were not sampled. MW-8 was not located during the Site visit, and MW-10 was not sampled due to insufficient groundwater in the monitoring well for PDB deployment.	
Recommendations	1. Five-year PRR Certification Period. At the discretion of the NYSDEC, a SMR would not be required when a PRR is due the same year. 2. Annual site inspection (concurrent with groundwater sampling events, when possible), including water level measurements and additional inspections, as necessary, following severe weather events. 3. The monitoring well network should include the sampling of 21 of the 24 existing monitoring wells	

	4. The Hanson Aggregate Clarendon Quarry wells should be sampled once every three years to monitor for potential changes in site related COCs beginning in the Fall of 2020. 5. Contaminant trends should be evaluated once sufficient data is available. If acceptable to the NYSDEC, the OM&M manual should be updated to an SMP and should be updated to reflect the above recommendations, sampling/inspection/reporting frequency and PRR Certification Period.
Cost Evaluation	The total cost of the site management activities during this reporting period was $34,407.00. This cost includes engineering and subcontractor costs (e.g., laboratory, equipment, rentals, etc.). It should be noted that this total does not include any costs incurred by the NYSDEC in support of the project.

1.0 Introduction

This PRR has been prepared for the Haight Farm Site (referred to as "the Site") and covers the period, March 2015 through May 2020. This PRR was prepared in accordance with NYSDEC WA No. D007620-45 Notice to Proceed dated October 11, 2018, the NYSDEC-approved Scope of Work dated February 19, 2019 and NYSDEC DER-10, Technical Guidance for Site Investigation and Remediation. A Site summary and applicable remedial program information are presented below.

Site Information			
Site Name:	Haight Farm Site	**NYSDEC Site No:**	837006
Site Location:	4879 Upper Holley Road, Clarendon, Orleans County, New York	**Remedial Program:**	State Superfund Program
Site Type:	Dump	**Classification:**	04
Parcel Identification(s):	109.-1-41, Orleans County Tax Mapping	**Parcel Acreage / EE Acreage:**	1 / NA
Selected Remedy:	Excavation, DVE System, Long-term Monitoring	**Site COC(s):**	• VOCs
Current Remedial Program Phase:	Site Management	**Institutional Controls:**	• ROD (1998) • OM&M (2000, 2006) • Environmental Notice
Post-Remediation Monitoring and Sampling Frequency:	Groundwater monitoring and Site Inspection as determined by NYSDEC	**Engineering Controls:**	Restricted Site Access (e.g., locked access gates and fencing), and Monitoring Wells
Monitoring Locations:	Overburden/Shallow Bedrock monitoring wells (15) Deep Bedrock monitoring wells (9)	**Required Reporting:**	At a frequency determined by NYSDEC

1.1 Site Location, Ownership, and Description

The Haight Farm site is located on Upper Holly Road in the Town of Clarendon in Orleans County, New York. The property is identified as Section 108 Block 1 Lot 41 on the Orleans County Tax Map and is not presently owned. The Site parcel has an overall property area of approximately 1 acre, is bounded by residential properties to the north and south, to the east by wooded private property, and to the west by Upper Holley Road. Site location and Site layout maps are provided on **Figure 1** and **Figure 2**, respectively. The site was previously owned by the Earl Haight family. The lot is currently vacant; however, prior to 1995, a single-story private residence with a detached garage previously stood on the property. The garage burned down in 1994 and the house was demolished in 1995.

1.2 Investigation/Remedial History

The site was purchased by the Earl Haight family in 1953 and was used as a primary residence. Approximately 40 drums containing a mixture of spent cutting oil and TCE from Erdle Perforating Company was stored on the property from about 1969 through 1984. In 1984 the property owner attempted to remove the drums. During the drum removal operations, and estimated quantity of approximately 200 gallons of the waste oil and TCE mixture were spilled. The NYSDEC was contacted by the New York State Police regarding the spill. NYSDEC responded to the spill and conducted an emergency drum removal under the New York State Superfund Emergency Drum Removal Program. Thirty barrels of the liquid waste (approximately 1000 gallons) were repacked and removed, along with an additional 13 empty drums. Additionally, staining on the ground indicated that some drums had leaked to the ground surface and many of the drums also showed signs of corrosion.

Subsequent to the Emergency Drum Removal in 1984, several investigations concluded that the soil at the site in the drum storage area was impacted by CVOCs and petroleum compounds from the waste oil mixture. Groundwater results indicated TCE in groundwater beneath the Site and had migrated off-site to the north and impacted one adjacent residential drinking water well. As a result, carbon filter systems were installed at multiple residences on Upper Holley Road adjacent to the Site. These systems were later removed when the residences on Upper Holley Road were connected to the public water system between 2001 and 2003 due to the dewatering of the bedrock groundwater system by the nearby quarrying operation at Hanson Aggregate on Upper Holley Road.

In 1996 the RI/FS report concluded that soil removal of impacted Site soil and a DVE system would be the most effective remedial strategy. In 1998, NYSDEC issued a ROD which determined excavation and Off-Site Disposal for CVOC impacted soil and DVE as the alternative for groundwater. In 1999, a RA was conducted to complete the removal of CVOC impacted soil down to bedrock in the former drum storage area, and a DVE system was installed to mitigate the residual contamination in the shallow bedrock beneath the site.

In May 2001 the DVE system was taken offline. In 2005, an indoor air evaluation was conducted, and the results of that investigation indicated that the surrounding homes were not impacted. The OM&M plan for the DVE system, which was used to evaluate the effectiveness of the RA at the Site, was modified in 2006 to include long term monitoring of the groundwater plume using a series of existing and newly installed monitoring wells. In 2006 six additional monitoring wells and a quarry sump were added to the network as part of the permit renewal process for the Hanson Aggregates quarry in Clarendon, NY, which is hydraulically downgradient of the Site. In 2008, groundwater monitoring was reduced from semi-annul to annual sampling. In 2010, the DVE system was removed from the property and the Site was reclassified to a Class 4 site. Presently, the network monitors two groundwater zones. The shallow wells (monitoring wells denoted with “S” or number only) monitor the upper, highly fractured bedrock and weathered bedrock and gravel/overburden. The deep monitoring well network (monitoring wells denoted with “D”) monitor the groundwater in the deeper, highly fossilized and vuggy bedrock. The shallow and deep bedrock zones are separated by a zone of massive, competent dolostone which acts as a semi-confining layer between the two water bearing zones.

Currently, the OM&M manual, which includes the expanded monitoring well network of 24 monitoring wells and the Hanson Aggregate sampling locations (6 quarry wells and 1 quarry sump), the ROD and the Environmental Notice serve as the SMP. A detailed Site history, including the dates and descriptions of significant events and a Custodial Record detailing known and available Site reports are included in **Attachment 1.**

1.3 Remaining Contamination

Remaining Contamination at the Site includes low-level VOC concentrations in the shallow overburden groundwater, the shallow weathered and fractured upper bedrock zone, and the deeper highly fractured dolomite bedrock.

1.4 Regulatory Requirements/Cleanup Goals

The overall remedial requirements for the Site include the following:

- Eliminate, to the extent practicable, ingestion of groundwater impacted by the Site that does not attain New York State Department of Health (NYSDOH) drinking water standards.
- Eliminate, to the extent practicable, further off-Site migration of groundwater that does not attain NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 Class GA Standards and Guidance Values (Class GA Values).

2.0 Institutional and Engineering Control Plan Compliance

2.1 Institutional Controls

The Haight Farm Site is managed under the New York State Superfund Program. The Site's inclusion on the IHWDS Registry, ROD, Environmental Notice and OM&M plan act as the ICs for the Site. These documents define the following for the Site:

- Requires compliance with a SMP.
- Limits the use and development of the property to commercial or industrial activities.
- Restricts the use of groundwater as a source of potable or process water without necessary water quality treatment as determined by the NYSDOH.

2.2 Engineering Controls

The ECs for the Site include a site access restriction via fencing and gated access points and monitoring wells for periodic groundwater monitoring.

3.0 Monitoring and Sampling Plan Compliance

The OM&M Manual and ROD were prepared to manage the remaining contamination on the Site and ensure that the remedy remains effective by restricting site use, site development and soil management. The remedy includes continued groundwater monitoring of the leading edge of the groundwater plume. Since the completion of the RA in 2000, residual CVOC contamination in groundwater had continued to migrate downgradient and the leading edge of the plume moved northward towards the Hanson Aggregate quarry. As a result, the monitoring well network has varied. However, the 2006 OM&M update specifies the following monitoring and sampling activities for the Site:

Summary of SMP Site Monitoring and Sampling Plan December 2006			
Site Management Activity	**Frequency**	**Location**	**Laboratory Analysis**
Site Inspection	Annual	Site property and off-site monitoring network	Not Applicable
Groundwater Sampling	Annual (Fall)	<u>Site property and off-site monitoring locations</u> • MW-2S • MW-3S • MW-3D • MW-4S • MW-4D • MW-5S • MW-6S • MW-6D • MW-7S • MW-8S • MW-10 • MW-10S • MW-10D • MW-11 • MW-11S • MW-15S • MW15D • MW-16S • MW-17D • MW-18S • MW-18D • MW-19S • MW-19D • MW-20D	TCL VOCs by EPA Method 8260 via PDBs for Site wells
		<u>Hanson Quarry monitoring locations</u> • MW-25-04S • MW-25-04D • MW-10-00S • MW-10-00D • MW-26-04S • MW-26-04D • Quarry Sump	TCL VOCs by EPA Method 8260 via grab samples with bailer
SMR	Following Sampling event.	Not Applicable	Not Applicable
Site Inspection Report	Not required	Not Applicable	Not Applicable
PRR	Not specified	Not Applicable	Not Applicable

Additionally, three monitoring wells were selected for a one-time sampling event for emerging contaminants. MW-3D, MW-4S, and MW-7S were selected for sampling and analysis of per- and polyfluoroalkyl substances (PFAS) by EPA Method 537 (modified) and 1,4-dioxane by EPA Method 8270 and Selected Ion Monitoring (SIM).

3.1 Site Inspection

In May 2019, TRC performed a Site visit to conduct groundwater monitoring, groundwater sampling and Site inspection activities in accordance with the SMP. The Site Inspection included an evaluation of the current site use, condition of limited soil cover, Site vegetation condition, and condition of ECs such as monitoring wells, access gates and roads.

A summary of the Site visit is as follows:

Summary of Site Activities and Site Monitoring and Sampling January through December 31 2019		
Site Management Activity	**Summary of Results**	**Maintenance/Corrective Measure**
Monitoring Well Network	The wells casings and covers were good shape. All well locks were inoperable. Monitoring well MW-8S was not located.	Well locks were cut from the casings and replaced with new Master Lock® with code #2537.
Groundwater gauging and sampling	Sixteen of the thirty Site monitoring wells were gauged for water levels. PDBs were installed in fourteen of the sixteen monitoring wells that were gauged. The remaining monitoring wells at the Site were not located or gauged, because they have not been sampled in the most recent sampling events.	No routine maintenance or corrective measures needed at this time. A defined monitoring well network should be established in a SMP for the Site.
Site Access Roads and Gates	Site access gates were operable and locked. The entrance gate was not a NYSDEC coded lock.	The gate lock was cut and replaced with new Master Lock® with code #2537.

A field activity report and photographic log from the May 2019 inspection activities can be found in **Appendix B**.

3.2 Groundwater Monitoring Summary

The SOW for the May 2019 groundwater monitoring and sampling event originally included six VOC samples collected from six monitoring well, of these six wells, three wells were selected as a one-time sampling event for emerging contaminants. However, based on previous reporting from historic sampling events in 2012 and 2015, the monitoring well list for the 2019 sampling effort was expanded to include 18 wells located on the Site and hydraulically downgradient in order to evaluate the most recently reported historical limits of the groundwater plume, after consultation and concurrence from NYSDEC. The Hanson Quarry wells were not included because

the difficulties associated with sampling coordination with Hanson Aggregates (i.e., locating current site contact, safety training requirements for quarry access, current status of monitoring wells, etc.)

3.2.1 Groundwater Gauging

On May 2, 2019 prior to groundwater sample collection, 15 of the 18 wells gauged for depth to groundwater to evaluate potential groundwater flow direction. Three monitoring wells not located during the gauging event. The groundwater gauging and elevation measurements can be found on **Table 1**. Groundwater elevations for the shallow bedrock and deep bedrock monitoring wells and the groundwater surface elevation contours with an interpretation of groundwater flow direction are presented on **Figure 3** and **Figure 4**, respectively. A summary of the Site hydrogeologic information is presented below:

Site Hydrogeologic Summary May 2019			
Number of Wells Gauged	**Hydrogeologic Units**	**Hydrogeologic Strata**	**Monitoring Wells per Unit**
16	2	Shallow Bedrock Deep Bedrock	10 6
Overburden Groundwater Elevation Range		**Bedrock Groundwater Elevation Range**	
Lowest groundwater elevation: 636.97 feet AMSL (MW-2S) Highest groundwater elevation: 650.64 feet AMSL (MW-7S)		Lowest groundwater elevation: 631.94 feet AMSL (MW-15D) Highest groundwater elevation: 644.64 feet AMSL (MW-6D)	
Inferred Shallow Bedrock Groundwater Flow Direction		**Inferred Deep Bedrock Groundwater Flow Direction**	
West		West	

3.2.2 Groundwater Sampling

PBDs were deployed in 14 of the 15 monitoring wells located during the gauging event on May 2, 2019. These include eight shallow bedrock monitoring wells (MW-2S, MW-3S, MW-4S, MW-5S, MW-6S, MW-7S, MW-10S, and MW-15S) and six deep bedrock monitoring wells (MW-3D, MW-4D, MW-6D, MW-10D, MW-15D and MW-17D). One monitoring well, MW-10, did not have sufficient water in the water column to fully saturate the PDB for accurate sampling. The 14 PDBs were collected on May 23, 2019 and sampled for TCL VOCs by EPA Method 8260. All 14 samples, in addition to one PDB blank sample and the QA/QC samples collected at the frequencies specified in TRC's April 2011 Generic QAPP, were submitted to Eurofins/TestAmerica Laboratories for analysis.

Additionally, three monitoring wells (MW-3D, MW-4S, and MW-7S) selected for analysis of emerging contaminants. These three wells were sampled using low flow groundwater procedures on May 2, 2019 prior to deploying PDBs. Samples were collected in general accordance with the NYSDEC's August 2018 Collection of Groundwater Samples for PFAS from Monitoring Wells Sample Protocol (Rev 1.2). As described previously, the groundwater samples collected from these wells were submitted to Eurofins/TestAmerica Laboratories for analyses of PFAS and 1,4-dioxane.

A summary of the groundwater sampling information and pertinent well details for each well is presented below:

Summary of Groundwater Monitoring Well Details and Sampling Activities
May 2019

Well ID	Monitoring Well Details				2019 Groundwater Sampling Event		
	Northing	Easting	Screen Zone (ft. bgs)	Material Screened	DTW (ft. bgs)	SMP Analytes	Notes
MW-2S	4784734	737842	17.0 – 27.0	Dolostone	13.52	VOCs via PDBs	
MW-3S	4784774	737855	16.5 – 26.5	Dolostone	12.61	VOCs via PDBs	
MW-3D	4784775	737864	28.8 – 58.8	Dolostone	15.06	VOCs via PDBs	ECs collected
MW-4S	4784759	737848	16.0 – 26.0	Dolostone	12.50	VOCs via PDBs	ECs collected
MW-4D	4784759	737855	28.0 – 56.5	Dolostone	13.29	VOCs via PDBs	
MW-5S	4784728	737870	13.5 – 23.5	Dolostone	13.14	VOCs via PDBs	
MW-6S	4784776	737895	15.5 – 26.0	Dolostone	15.81	VOCs via PDBs	
MW-6D	4784779	737897	27.0 – 42.0	Dolostone	11.70	VOCs via PDBs	
MW-7S	4784734	737951	12.75 – 30.0	Dolostone	11.73	VOCs via PDBs	
MW-8S	4784692	737801	13.2 – 33.2	Dolostone	NG	VOCs via PDBs	NS/Well not located
MW-10	4784844	737723	4.7 – 9.7	Gravel/Bedrock	6.55	VOCs via PDBs	NS/Insufficient water
MW-10S	4784847	737723	12.0 – 22.0	Dolostone	6.74	VOCs via PDBs	ECs collected
MW-10D	4784850	737725	40.0 – 59.2	Dolostone	6.87	VOCs via PDBs	
MW-11	4784789	737741	5.0 – 10.0	Gravel/Bedrock	NG	VOCs via PDBs	NS/Well not located
MW-11S	4784786	737741	11.0 – 22.0	Dolostone	NG	VOCs via PDBs	NS/Well not located
MW-15S	4784956	737767	12.3 – 22.3	Dolostone	8.09	VOCs via PDBs	
MW-15D	4784956	737769	24.8 – 54.0	Dolostone	8.18	VOCs via PDBs	ECs collected
MW-16S	4785120	737766	15.6 – 25.6	Dolostone	NG	VOCs via PDBs	NS
MW-17D	4784945	737873	39.0 – 59.0	Dolostone	4.58	VOCs via PDBs	
MW-18S	4785117	737603	17.5 – 27.5	Dolostone	NG	VOCs via PDBs	NS
MW-18D	4785127	737607	43.5 – 58.5	Dolostone	NG	VOCs via PDBs	NS
MW-19S	4785293	737687	18.8 – 28.8	Dolostone	NG	VOCs via PDBs	NS

Summary of Groundwater Monitoring Well Details and Sampling Activities May 2019							
Well ID	Monitoring Well Details				2019 Groundwater Sampling Event		
	Northing	Easting	Screen Zone (ft. bgs)	Material Screened	DTW (ft. bgs)	SMP Analytes	Notes
MW-19D	4785294	737694	44.0 – 59.0	Dolostone	NG	VOCs via PDBs	NS
MW-20D	4785317	737917	45.5 – 59.5	Dolostone	NG	VOCs via PDBs	NS
Hanson Aggregate Quarry							
MW-10-00S	4785584	737772	NA – 20.05	Dolostone	NG	VOCs	NS
MW-10-00D	4785590	737790	NA – 56.85	Dolostone	NG	VOCs	NS
MW-25-04S	4785594	737622	NA – 39.73	Dolostone	NG	VOCs	NS
MW-25-04D	4785594	737636	NA – 71.16	Dolostone	NG	VOCs	NS
MW-26-04S	4785549	737409	NA – 40.83	Dolostone	NG	VOCs	NS
MW-26-04D	4785550	737425	NA – 70.20	Dolostone	NG	VOCs	NS
Quarry Sump	4785897	737817	NA	Gravel	NG	VOCs	NS

Notes:
ECs – Emerging Contaminates including PFAS compounds and the SVOC compound 1,4-dioxane
NA – Not Available
NG – Not Gauged
NS – Not Sampled

Additional monitoring well construction details are in included on **Table 1**.

3.2.3 Groundwater Analytical Results

Groundwater analytical data for VOCs and emerging contaminants can be found in **Table 2** and **Table 3**, respectively. The DUSRs can be found in **Appendix D**. Detected compounds exceeding their respective NYSDEC Class GA Values for each well are illustrated on **Figure 5**. A summary of the May 2019 groundwater analytical results is provided below:

Summary of Groundwater Analytical Results - TCL Organics and TAL Inorganics May 2019				
Constituent	**SCG**	**Concentration Range (µg/L)**	**Location with Highest Concentration**	**Frequency Exceeding SCG**
VOCs				
Trichloroethene	5	ND – 33	MW-03S	4/14
cis-1,2-Dichloroethene	5	ND – 58	MW-03D	1/14

Additionally, a summary of the results for the groundwater samples from monitoring wells MW-3D, MW-4S, and MW-7S that were analyzed for emerging contaminants are presented below:

Summary of Groundwater Analytical Results - Emerging Contaminants May 2019				
Constituent	**SCG***	**Concentration Range (ηg/L)**	**Location with Highest Detection**	**Frequency Exceeding SCG**
PFAS				
No Results above NYSDEC Recommended Guidance Values				
1,4-Dioxane				
No Results above NYSDEC Recommended Guidance Values				

Notes:
* - Recommended Guidance Values from the Guidelines for Sampling and Analysis of PFAS Under NYSDEC's Part 375 Remedial Programs, January 2020.

Groundwater contaminant concentration trend graphs were not prepared for the Site since a sufficient number of post-remedial action groundwater sampling events has not been completed. However, a plume map showing the concentrations of total site related CVOCs in shallow and deep bedrock are plotted on **Figure 6** and **Figure 7,** respectively**.**

4.0 Cost Summary

The total estimated cost of the site management activities for 2019 (January 1, 2019 through January 31, 2019) is approximately $34,407. Site management activities included project management/administration, site inspection, sampling of 14 monitoring wells, analysis of 14 samples for TCL VOCs, analysis of 3 samples for 1,4-dioxane and PFAS and preparation of a PRR. The total includes engineering and subcontractor costs, as well as expenses associated with the project. It should be noted that the total does not include direct costs incurred by NYSDEC in support of the project. A summary of the 2019 site management costs is presented below:

Summary of Site Management Costs January 1, 2019 through December 31, 2019		
Cost Item	**Amount Expended (January 1, 2019 through December 31, 2019)**	**Percent of Total Cost**
Engineering Support		
TRC	$31,253.00	91%
Subcontractors		
Eurofins/TestAmerica	$2,086.00	6%
Expenses		
TRC	$1,068.00	3%
Total Cost	**$34,407.00**	----

The following provides a review of each cost item:

- Engineering support includes labor costs associated with project management (e.g., WA Package preparation, monthly invoicing, project scheduling and coordination, etc.), site inspections, groundwater sampling, and reporting (i.e., Site Inspection Report, DUSR, and PRR).
- Subcontractors include analytical laboratory costs associated with the groundwater sampling event.
- Expense costs include travel, equipment, and supplies in support of the site inspection, groundwater sampling event, and routine site maintenance activities.
- Reporting costs include data validation, DUSRs preparation, EDD preparation, and PRR preparation.

5.0 Conclusions and Recommendations

5.1 Conclusions

- Based on groundwater elevations measured during the May 2019 site visit, groundwater flow in upper water bearing shallow zone of fractured and weathered bedrock is to the west from the Site, under Upper Holley Road and towards the stream/irrigation ditch to the northwest of the residences. Groundwater flow in the deeper water bearing zone of highly fossilized and fractured dolostone is also to the west under Upper Holley Road and towards the stream/irrigation ditch. This flow pattern is similar to historical reporting for the Site. Historical groundwater date has shown that the groundwater flow changes directions and flows northward towards the Hanson Aggregate Clarendon Quarry after reaching the stream/irrigation ditch on the northwestern side of the residential properties on Upper Holley Road. Since the downgradient monitoring wells MW-16S, MW-18S, MW-18D, MW-19S, MW-19D, MW-20D were not gauged for water elevations, it is unclear if this flow pattern is still present.
- Site COCs, including the CVOCs TCE and DCE, were detected at concentrations exceeding their respective Class GA Values in groundwater samples collected from monitoring wells at the Site. These exceedances are located in monitoring well MW-3S, MW-2S, MW-3D, MW-4S, and MW-15S which have historically reported exceedances of Site related CVOCs. The highest exceedances are located in monitoring wells closest to the former spill area (MW-3S, MW-4S, and MW-4D). These detections are also located within the historical boundary of the CVOC plume; however, the concentrations are one to two orders of magnitude lower than CVOC concentrations reported in 2015. This may indicate that the extent of Site-related groundwater contamination is decreasing in the area immediately downgradient of the former spill area. Additional data is needed to create a current trend to support this conclusion.
- The extent of the CVOC plume in groundwater, as shown on **Figure 6** and **Figure 7**, appears to be decreasing in both size and magnitude compared to historical reporting. However, groundwater samples should be collected from downgradient monitoring wells to confirm this conclusion and to evaluate whether the CVOC plume has migrated to the north of the former spill area, towards the Hanson Aggregate Clarendon Quarry.
- TCE exceedances are primarily detected in the shallow bedrock zone and DCE exceedances are primarily detected in the deep bedrock zone. This indicates that CVOC degradation might be inhibited in the shallow bedrock zone. However, with the detection of primarily DCE and the lack of TCE in the deep bedrock, CVOC degradation of TCE to the daughter product DCE has likely occurred in the deep zone.
- Site and groundwater use were consistent with the restrictions set forth in the ROD, Environmental Notice and revised 2006 OM&M plan. Groundwater monitoring activities were completed in May 2019 for the 2015-2020 certification period. A site inspection and an inspection report were also completed. The ICs operated as intended during this reporting period.
- PFAS compounds were not detected in three monitoring wells MW-3D, MW-4D and MW-7S.
- The remedy continued to be protective of human health and the environment during this reporting period.

5.2 Recommendations

- Annual site inspections and groundwater monitoring should be continued at the Site. Site inspections and groundwater sampling should be conducted in the Fall when CVOC concentrations are historically highest per the SMP.
- Water level measurements should be collected at the 24 monitoring wells included in the monitoring well network during the annual inspection and groundwater monitoring events to evaluate the groundwater flow direction.
- The monitoring well network should include the sampling of 21 of the 24 existing monitoring wells including: MW-2S, MW-3S, MW-3D, MW-4S, MW-4D MW-5S, MW-6S, MW-6D, MW-7S, MW-8S, MW-10, MW-10S, MW-10D, MW-11, MW-11S, MW-15S, MW-15D, MW-16S, MW-17D, MW-19S, and MW-19D. Monitoring wells MW-18S, MW-18D, and MW-20 should continue to be excluded from the annual groundwater sampling because they have historically been non-detect for site COCs.
- The Hanson Aggregate Clarendon Quarry wells should be sampled once every three years to monitor for site related COCs. The next sampling event should be conducted during the Fall of 2020.
- The 2006 OM&M plan should be updated to a SMP. The SMP should specify the recommendations described previously in this PRR and summarized as follows:
    - Annual site inspections.
    - Establish the monitoring network of 24 monitoring wells.
    - Annual groundwater level gauging of 24 monitoring wells in the Fall.
    - Annual groundwater sampling of 21 of 24 monitoring wells for TCL VOCs by EPA Method 8260 via PDBs in the Fall.
    - The six Hanson Aggregate Clarendon Quarry wells and sump should be sampled every three years beginning in the Fall of 2020.
    - SMR to be completed annually following the groundwater monitoring and sampling event.
    - A Certification period of five years should be established with one PRR to be completed following the groundwater monitoring and sampling event in 2023.

6.0 Certification of Engineering and Institutional Controls

For each institutional or engineering control identified for the Site, I certify that all of the following statements are true:

- The institutional and/or engineering control employed at this Site is unchanged from the date the control was put in place, or last approved by DER;
- Nothing has occurred that would impair the ability of such control to protect public health and the environment; and,
- Nothing has occurred that would constitute a violation or failure to comply with any Site Management Plan for this control.

TRC Engineers, Inc.

Prepared By: 

Nathan T. Kranes, P.G

Project Manager

Reviewed By: 

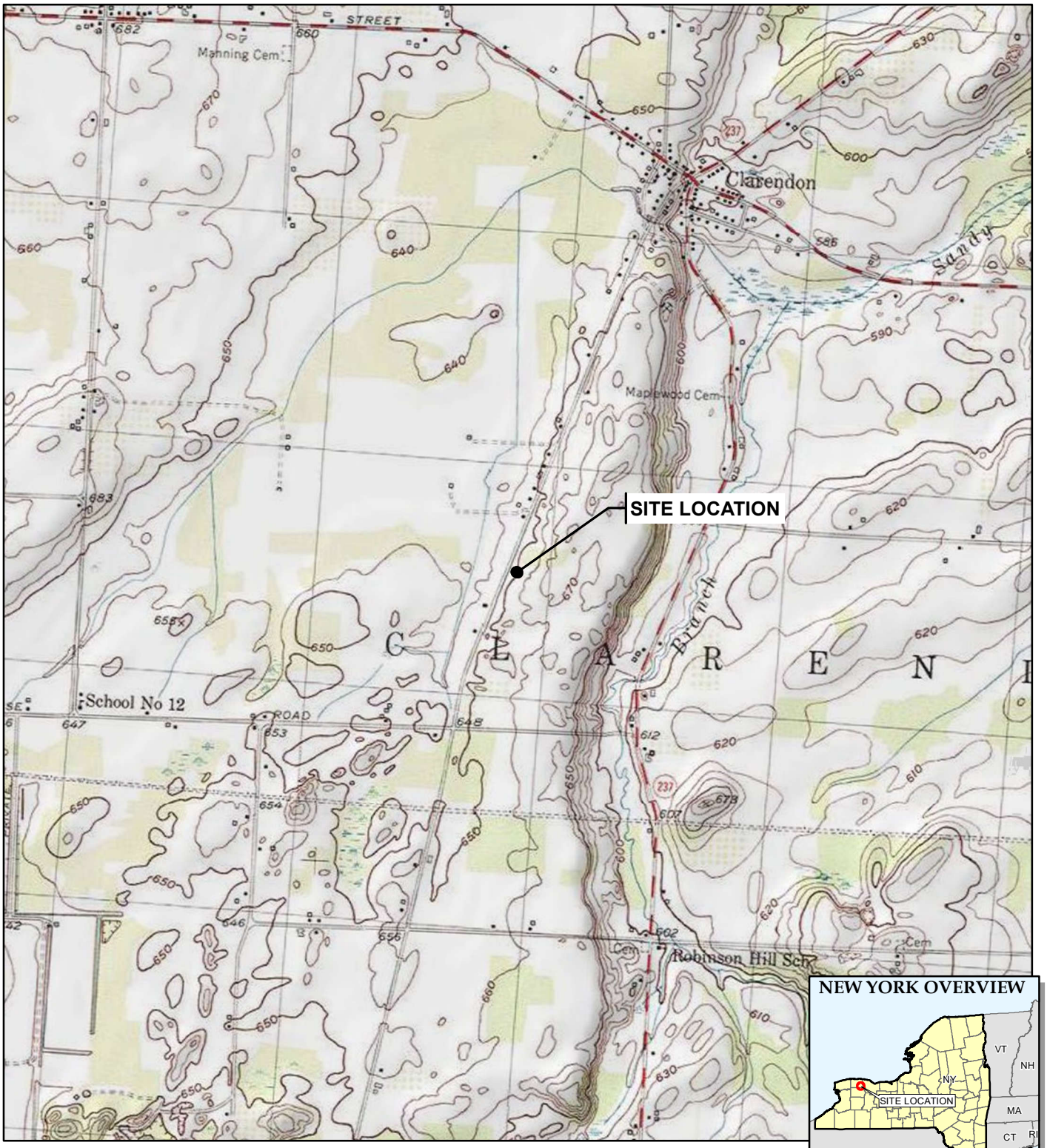
Jeffery W. LaRock, P.G.

Senior Technical Reviewer

7.0 Future Site Activities

Based on the recommendations in **Section 5.0,** the next sampling event should be conducted at the end of Q3 or beginning of Q4 (September/October) 2020 and the next site inspection should be conducted at the end of Q3 or beginning of Q4 2020.

FIGURES



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES (2009). HOLLEY QUAD

1 " = 2,000 '
1:24,000

0 2,000 4,000
FEET

TRC
10 Maxwell Drive, Suite 200
Clifton Park, NY 12065
Phone: 518.348.1190
www.trccompanies.com

PROJECT:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
HAIGHT FARM SITE - SITE NO. 837006
CLARENDON, NEW YORK

TITLE:

SITE LOCATION MAP

DRAWN BY:	M. OPEL
CHECKED BY:	J. KING
APPROVED BY:	N. KRANES
DATE:	MAY 2020
PROJ. NO.:	320919.0000
FILE:	Fig01_SiteLoc.mxd

FIGURE 1

S:\1-PROJECTS\NYSDEC\320919_HaightFarm\Fig01_SiteLoc.mxd -- Saved By: MOPEL on 3/26/2020, 11:42:22 AM

Tax Parcel Boundary (342600 109.-1-41)

Deep Bedrock Monitoring Well Location

Shallow Bedrock Monitoring Well Location

Overburden Monitoring Well Location

Note: All wells are approximate

0 200 400 Feet

1 " = 300 '

1:3,600

BASE MAP FROM ESRI

PROJECT:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
HAIGHT FARM SITE - SITE NO. 837006
CLARENDON, NEW YORK

TITLE:

SITE LAYOUT MAP

DRAWN BY:	M. OPEL	PROJ NO.:	320919.0000
CHECKED BY:	J. KING		
APPROVED BY:	N. KRANES		**FIGURE 2**
DATE:	MAY 2020		

10 MAXWELL DRIVE, SUITE 200
CLIFTON PARK, NY 12065
PHONE: 518.348.1190
WWW.TRCCOMPANIES.COM

FILE NO.: Fig02_SiteLayout.mxd

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TRC - GIS

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Tax Parcel Boundary (342600 109.-1-41)

Deep Bedrock Monitoring Well Location

Shallow Bedrock Monitoring Well Location

Overburden Monitoring Well Location

Monitoring Well Not Located

Monitoring Well Not Sampled

Groundwater Elevation Contour (2' Intervals)

Inferred Groundwater Flow Direction

Note: All wells are approximate

0 200 400 Feet

1 " = 300 '
1:3,600

BASE MAP FROM ESRI

PROJECT:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
HAIGHT FARM SITE - SITE NO. 837006
CLARENDON, NEW YORK

TITLE:

SHALLOW GROUNDWATER SURFACE ELEVATIONS AND FLOW MAP - MAY 2, 2019

DRAWN BY:	M. OPEL	PROJ NO.:	320919.0000
CHECKED BY:	J. KING		
APPROVED BY:	N. KRANES		**FIGURE 3**
DATE:	MAY 2020		

TRC
10 MAXWELL DRIVE, SUITE 200
CLIFTON PARK, NY 12065
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FILE NO.: Fig03_ShallowGW.mxd

Plot Date: 3/26/2020, 11:49:46 AM by MOPEL -- LAYOUT: ANSI B (11"x17")
Path: S:\11-PROJECTS\NYSDEC\320919_HaightFarm\Fig03_ShallowGW.mxd

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Tax Parcel Boundary (342600 109.-1-41)

Deep Bedrock Monitoring Well Location

Shallow Bedrock Monitoring Well Location

Overburden Monitoring Well Location

Monitoring Well Not Located

Monitoring Well Not Sampled

Groundwater Elevation Contour (2' Intervals)

Inferred Groundwater Flow Direction

Note: All wells are approximate

0 200 400 Feet

1 " = 300 '
1:3,600

BASE MAP FROM ESRI

PROJECT:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
HAIGHT FARM SITE - SITE NO. 837006
CLARENDON, NEW YORK

TITLE:

DEEP GROUNDWATER SURFACE ELEVATIONS AND FLOW MAP - MAY 2, 2019

DRAWN BY:	M. OPEL	PROJ NO.:	320919.0000
CHECKED BY:	J. KING		
APPROVED BY:	N. KRANES		**FIGURE 4**
DATE:	MAY 2020		

TRC
10 MAXWELL DRIVE, SUITE 200
CLIFTON PARK, NY 12065
PHONE: 518.348.1190
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FILE NO.: Fig04_DeepGW.mxd

Plot Date: 3/26/2020, 11:53:15 AM by MOPEL -- LAYOUT: ANSI B (11"x17")
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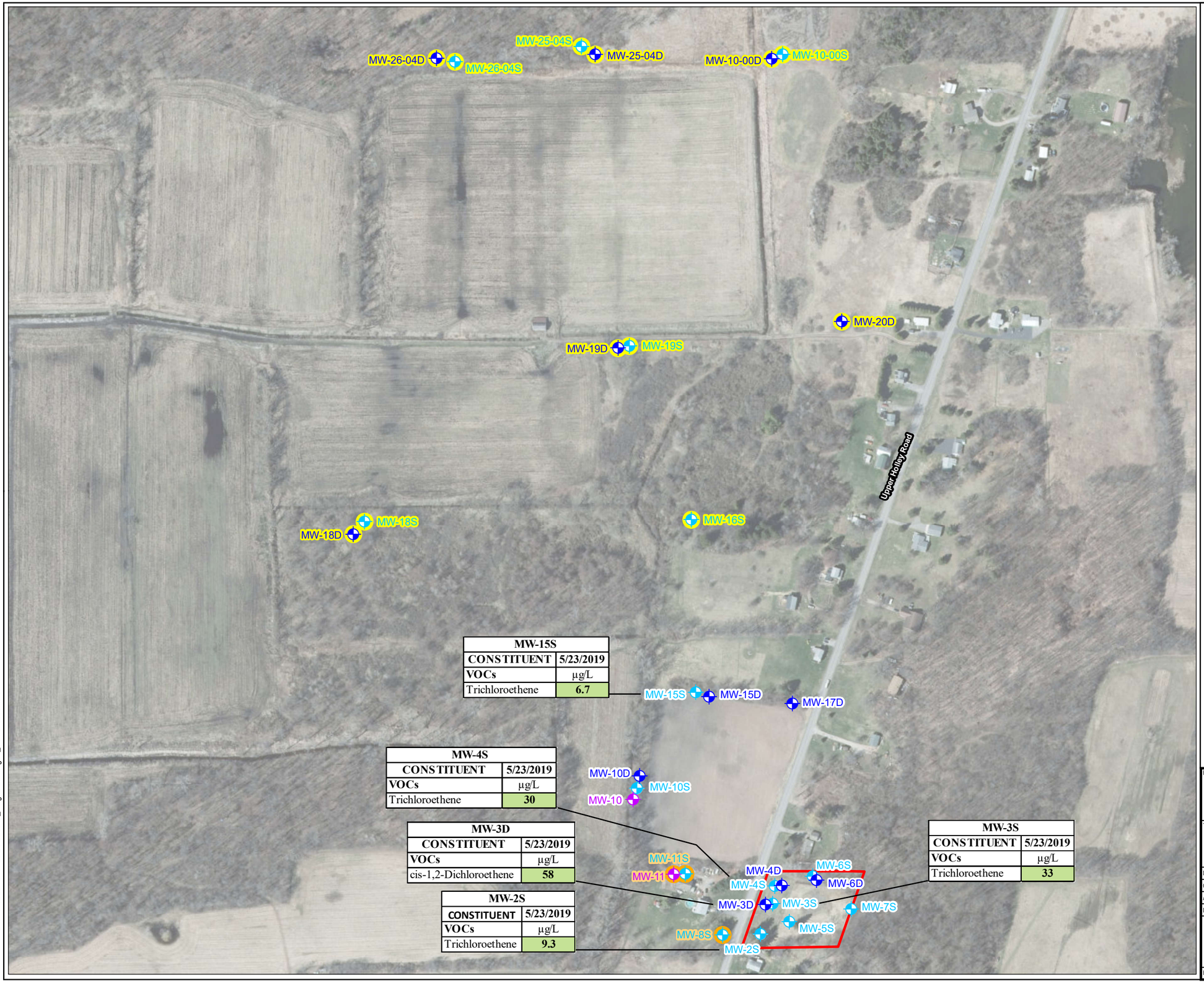
TRC - GIS



MW-15S	
CONSTITUENT	5/23/2019
VOCs	µg/L
Trichloroethene	6.7

MW-4S	
CONSTITUENT	5/23/2019
VOCs	µg/L
Trichloroethene	30

MW-3D	
CONSTITUENT	5/23/2019
VOCs	µg/L
cis-1,2-Dichloroethene	58

MW-2S	
CONSTITUENT	5/23/2019
VOCs	µg/L
Trichloroethene	9.3

MW-3S	
CONSTITUENT	5/23/2019
VOCs	µg/L
Trichloroethene	33

Tax Parcel Boundary (342600 109.-1-41)

Deep Bedrock Monitoring Well Location

Shallow Bedrock Monitoring Well Location

Overburden Monitoring Well Location

Monitoring Well Not Located

Monitoring Well Not Sampled

CONSTITUENT	Class GA Value
VOCs	µg/L
cis-1,2-Dichloroethene	5
Trichloroethene	5

NOTES

µg/L - micrograms per liter
J - Estimated value
VOCs - Volatile Organic Compounds
Values in **bold** indicate the compound was detected.
Shading indicates result above Class GA Value.
NYSDEC Ambient Water Quality Standards and Guidance Values for Class GA water.
All samples were submitted for TCL VOCs.
Only MW-03D, MW-04S, and MW-07S were selected for 1,4-dioxane and PFAS analysis.
All compounds shown on this figure exceed NYSDEC Class GA Values.
All locations and boundaries are approximate.

0 200 400 Feet

1 " = 300 '
1:3,600

BASE MAP FROM ESRI

PROJECT:
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
HAIGHT FARM SITE - SITE NO. 837006
CLARENDON, NEW YORK

TITLE:
SUMMARY OF DETECTED COMPOUNDS EXCEEDING NYSDEC GROUNDWATER QUALITY STANDARDS/GUIDANCE - MAY 23, 2019

DRAWN BY:	M. OPEL	PROJ NO.:	320919.0000
CHECKED BY:	J. KING		
APPROVED BY:	N. KRANES		**FIGURE 5**
DATE:	MAY 2020		

TRC
10 MAXWELL DRIVE, SUITE 200
CLIFTON PARK, NY 12065
PHONE: 518.348.1190
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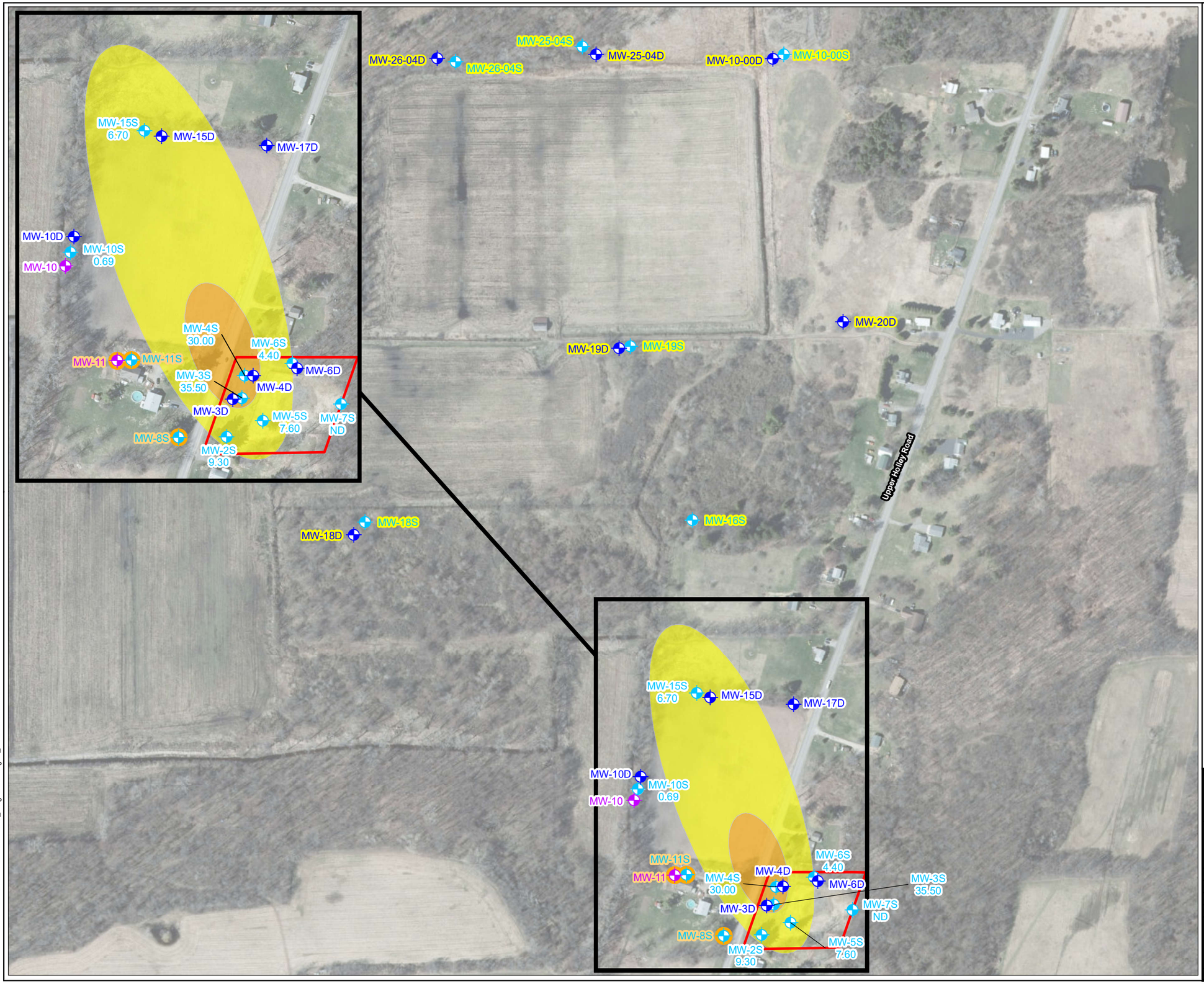
FILE NO.: Fig05_SumExceed.mxd

Plot Date: 3/26/2020, 11:57:25 AM by MOPEL -- LAYOUT: ANSI B(11"x17")
Path: S:\1-PROJECTS\NYSDEC\320919_HaightFarm\Fig05_SumExceed.mxd

TRC - GIS



Tax Parcel Boundary (342600 109.-1-41)

Deep Bedrock Monitoring Well Location

Shallow Bedrock Monitoring Well Location

Overburden Monitoring Well Location

Monitoring Well Not Located

Monitoring Well Not Sampled

>5 ug/L Total CVOCs

>30 ug/L Total CVOCs

Notes:
All wells are approximate.
ND - No CVOCs detected above specified quantitation limits.

0 200 400 Feet

1 " = 300 '
1:3,600

BASE MAP FROM ESRI

PROJECT:
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
HAIGHT FARM SITE - SITE NO. 837006
CLARENDON, NEW YORK

TITLE:
TOTAL CHLORINATED VOLATILE ORGANIC COMPOUNDS (CVOCS) IN SHALLOW BEDROCK GROUNDWATER - MAY 23, 2019

DRAWN BY:	M. OPEL	PROJ NO.:	320919.0000
CHECKED BY:	J. KING		
APPROVED BY:	N. KRANES		**FIGURE 6**
DATE:	MAY 2020		

TRC
10 MAXWELL DRIVE, SUITE 200
CLIFTON PARK, NY 12065
PHONE: 518.348.1190
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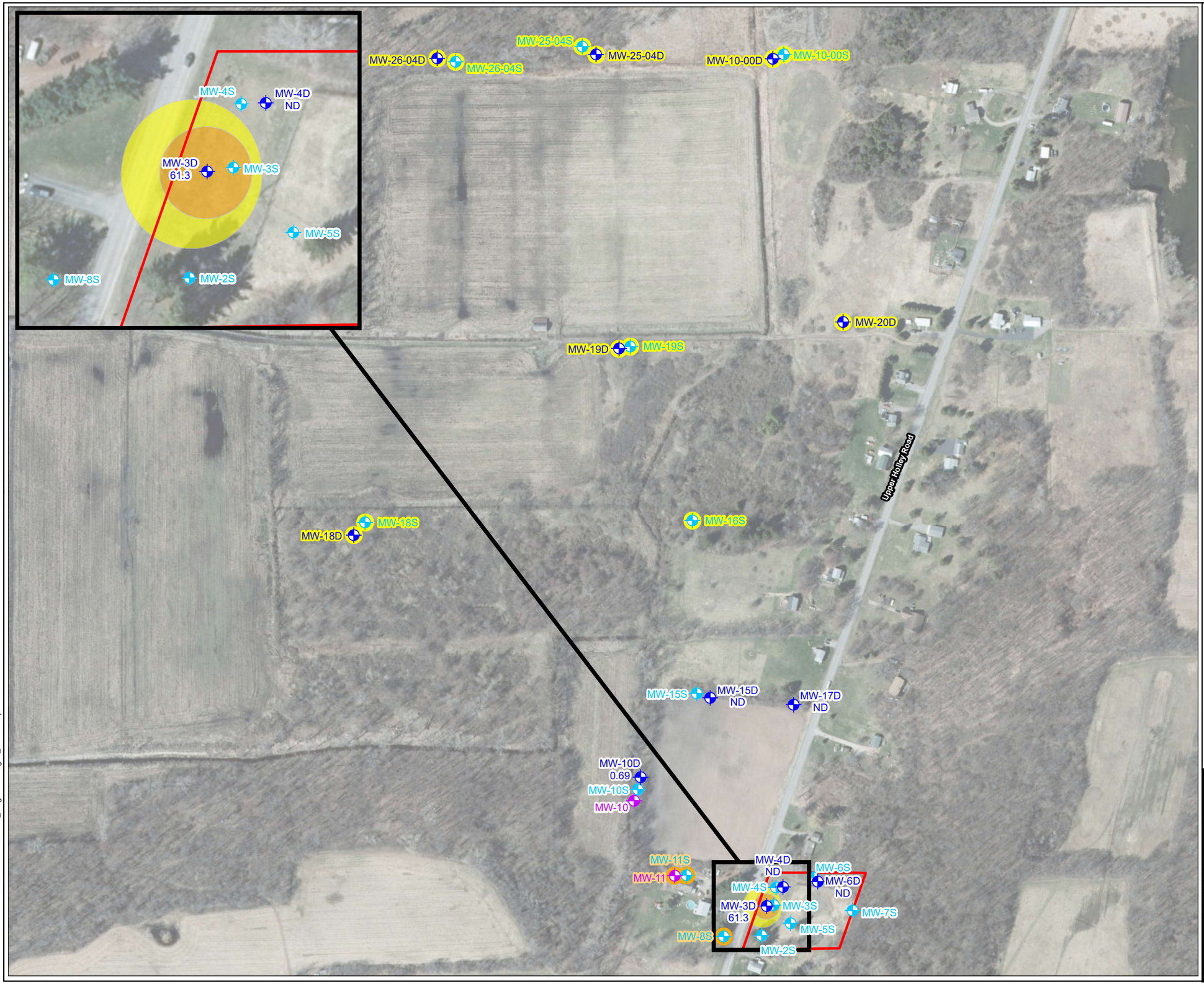
FILE NO.: Fig06_CVOCshallow.mxd

Plot Date: 3/26/2020, 12:07:22 PM by MOPEL -- LAYOUT: ANSI B(11"x17")
Path: S:\11-PROJECTS\NYSDEC\320919_HaightFarm\Fig06_CVOCshallow.mxd

TRC - GIS



Tax Parcel Boundary (342600 109.-1-41)

Deep Bedrock Monitoring Well Location

Shallow Bedrock Monitoring Well Location

Overburden Monitoring Well Location

Monitoring Well Not Located

Monitoring Well Not Sampled

>5 ug/L Total CVOCs

>30 ug/L Total CVOCs

Notes:
All wells are approximate.
ND - No CVOCs detected above specified quantitation limits.

0 200 400 Feet

1 " = 300 '
1:6,600

BASE MAP FROM ESRI

PROJECT:
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
HAIGHT FARM SITE - SITE NO. 837006
CLARENDON, NEW YORK

TITLE:
TOTAL CHLORINATED VOLATILE ORGANIC COMPOUNDS (CVOCS) IN DEEP BEDROCK GROUNDWATER - MAY 23, 2019

DRAWN BY:	M. OPEL	PROJ NO.:	320919.0000
CHECKED BY:	J. KING		
APPROVED BY:	N. KRANES		**FIGURE 7**
DATE:	MAY 2020		

TRC
10 MAXWELL DRIVE, SUITE 200
CLIFTON PARK, NY 12065
PHONE: 518.348.1190
WWW.TRCCOMPANIES.COM

FILE NO.: Fig07_CVOCdeep.mxd

Plot Date: 3/26/2020, 12:04:48 PM by MOPEL -- LAYOUT: ANSI B(11"x17")
Path: S:\11-PROJECT\SYNYSDEC\320919_HaightFarm\Fig07_CVOCdeep.mxd

TABLES

Table 1
New York State Department Of Environmental Conservation
Haight Farm Site - Site No. 837006
Clarendon, New York
Summary of Depth to Water Measurements and Groundwater Elevations - May 2019

Well ID	Screened Formation	TOC Elevation (feet AMSL)	Gauge Date	Depth to Water (feet below TOC)	Depth to Bottom (feet below TOC)	Groundwater Elev. (feet AMSL)
MW-2S	dolostone	650.49	5/2/2019	13.52	26.89	636.97
MW-3S	dolostone	649.67	5/2/2019	12.61	29.12	637.06
MW-3D	dolostone	649.83	5/2/2019	15.06	32.92	634.77
MW-4S	dolostone	649.72	5/2/2019	12.50	25.06	637.22
MW-4D	dolostone	649.39	5/2/2019	13.29	50.76	636.10
MW-5S	dolostone	652.23	5/2/2019	13.14	26.13	639.09
MW-6S	dolostone	656.12	5/2/2019	15.81	22.91	640.31
MW-6D	dolostone	656.36	5/2/2019	11.70	33.29	644.66
MW-7S	dolostone	662.37	5/2/2019	11.73	31.88	650.64
MW-8S	dolostone	648.68	Not located	NG	NG	NA
MW-10	gravel/bedrock	639.15	5/2/2019	6.55	12.67	632.6
MW-10S	dolostone	639.32	5/2/2019	6.74	22.60	632.58
MW-10D	dolostone	639.27	5/2/2019	6.87	62.76	632.4
MW-11	gravel/bedrock	639.9	Not located	NG	NG	NA
MW-11S	dolostone	640.26	Not located	NG	NG	NA
MW-15S	dolostone	640.44	5/2/2019	8.09	25.22	632.35
MW-15D	dolostone	640.12	5/2/2019	8.18	56.63	631.94
MW-16S	dolostone	640.98	NG	NG	NG	NA
MW-17D	dolostone	644.44	5/2/2019	4.58	59.00	639.86
MW-18S	dolostone	638.96	NG	NG	NG	NA
MW-18D	dolostone	639.07	NG	NG	NG	NA
MW-19S	dolostone	637.95	NG	NG	NG	NA
MW-19D	dolostone	637.89	NG	NG	NG	NA
MW-20D	dolostone	645.14	NG	NG	NG	NA
MW-10-00S	dolostone	641.58	NG	NG	NG	NA
MW-10-00D	dolostone	640.87	NG	NG	NG	NA
MW-25-04S	dolostone	645.81	NG	NG	NG	NA
MW-25-04D	dolostone	645.12	NG	NG	NG	NA
MW-26-04S	dolostone	644.75	NG	NG	NG	NA
MW-26-04D	dolostone	644.98	NG	NG	NG	NA

Notes

Elev. : Elevation
AMSL : Above Mean Sea Level
ID : Identification
NA : Not Available
NG : Not Gauged
Shading indicates monitoring well not included in gauging event
TOC : Top of Casing

Table 2
New York State Department of Environmental Conservation
Haight Farm Site - Site No. 837006
Clarendon, New York
Summary of VOC Results in Groundwater Samples - May 2019

			Sample Location:	HF-MW-02S		HF-MW-03D		HF-MW-03S		HF-MW-04D		HF-MW-04S		HF-MW-05S		HF-MW-06D		HF-MW-06S		HF-MW-07S		HF-MW-10D		HF-MW-10S		HF-MW-15D		HF-MW-15S		HF-MW-17D	
			Sample Name:	HF-MW-2S		HF-MW-3D		HF-MW-3S		HF-MW-4D		HF-MW-4S		HF-MW-5S		HF-MW-6D		HF-MW-6S		HF-MW-7S		HF-MW-10D		HF-MW-10S		HF-MW-15D		HF-MW-15S		HF-MW-17D	
			Laboratory Sample Identification	480-154020-3		480-154020-7		480-154020-6		480-154020-5		480-154020-4		480-154020-2		480-154020-9		480-154020-8		480-154020-1		480-154020-11		480-154020-10		480-154020-13		480-154020-12		480-154020-14	
			Sample Date:	05/23/2019		05/23/2019		05/23/2019		05/23/2019		05/23/2019		05/23/2019		05/23/2019		05/23/2019		05/23/2019		05/23/2019		05/23/2019		05/23/2019		05/23/2019		05/23/2019	
Volatile Organic Compounds (VOCs)	Unit	Class GA Values*		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results	
1,1,1-Trichloroethane	ug/L	5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	ug/L	5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	ug/L	1		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloro- 1,2,2-trifluoroethane	ug/L	5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	ug/L	5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	ug/L	5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,4-Trichlorobenzene	ug/L	5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromo-3-chloropropane	ug/L	0.04		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichlorobenzene	ug/L	3		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	ug/L	0.6		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloropropane	ug/L	1		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	ug/L	3		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	ug/L	3		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-Butanone (MEK)	ug/L	50		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone	ug/L	50		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Methyl-2-pentanone	ug/L	NC		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Acetone	ug/L	50		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Benzene	ug/L	1		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromodichloromethane	ug/L	50		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromoform	ug/L	50		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromomethane	ug/L	5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon disulfide	ug/L	60		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon tetrachloride	ug/L	5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobenzene	ug/L	5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dibromochloromethane	ug/L	50		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroethane	ug/L	5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	ug/L	7		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloromethane	ug/L	5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dioxane	ug/L	NC			R		R		R		R		R		R		R		R		R		R		R		R		R
cis-1,2-Dichloroethene	ug/L	5		1.0	U	**58**		**2.5**		1.0	U	1.0	U	**4.6**		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	ug/L	0.4		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cyclohexane	ug/L	NC		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dichlorodifluoromethane	ug/L	5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	ug/L	5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	0.0006		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Isopropylbenzene	ug/L	5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl acetate	ug/L	NC		2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Methyl tert-butyl ether	ug/L	10		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylcyclohexane	ug/L	NC		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylene chloride	ug/L	5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Styrene	ug/L	5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethene	ug/L	5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	ug/L	5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,2-Dichloroethene	ug/L	5		1.0	U	**2.0**		1.0	U	1.0	U	1.0	U	**1.4**		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,3-Dichloropropene	ug/L	0.4		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	ug/L	5		**9.3**		**1.3**		**33**		1.0	U	**30**		**1.6**		1.0	U	**4.4**		1.0	U	1.0	U	**0.69**	**J**	1.0	U	**6.7**		1.0	U
Trichlorofluoromethane	ug/L	5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl chloride	ug/L	2		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Xylenes, total	ug/L	5		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U

Notes:

ug/L - micrograms per liter.

NC - No NYSDEC standards exist for this analyte.

J - Estimated value.

R - Rejected data point.

U - Compound was not detected at specified quantitation limit.

Values in **bold** indicate the compound was detected.

Shading indicates result above Class GA Value.

* - NYSDEC Ambient Water Quality Standards and Guidance Values for Class GA water, June 1998 with the April 2000 Addendum.

Table 3
New York State Department of Environmental Conservation
Haight Farm Site - Site No. 837006
Clarendon, New York
Summary of Emerging Contaminant Results in Groundwater Samples - May 2019

		Sample Location:	HF-MW-03D		HF-MW-04S		HF-MW-07S	
		Sample Name:	HF-MW-3D		HF-MW-4S		HF-MW-7S	
		Laboratory Sample Identification:	480-152984-3		480-152984-2		480-152984-1	
		Sample Date:	05/02/2019		05/02/2019		05/02/2019	
Semi Volatile Organic Compounds (SVOCs)	Unit	Class GA Value*	Results		Results		Results	
1,4-Dioxane	ug/L	1	0.19	U	0.19	U	0.19	U
Per- and poly-fluorinated alkyl substances (PFAS)	Unit	Class GA Value**	Results		Results		Results	
Perfluorobutanoic acid (PFBA)	ng/L	100	8.2	U	8.4	U	8.3	U
Perfluoropentanoic acid (PFPeA)	ng/L	100	8.2	U	8.4	U	8.3	U
Perfluorohexanoic acid (PFHxA)	ng/L	100	8.2	U	8.4	U	8.3	U
Perfluoroheptanoic acid (PFHpA)	ng/L	100	8.2	U	8.4	U	8.3	U
Perfluorooctanoic acid (PFOA)	ng/L	10	8.2	U	8.4	U	8.3	U
Perfluorononanoic acid (PFNA)	ng/L	100	8.2	U	8.4	U	8.3	U
Perfluorodecanoic acid (PFDA)	ng/L	100	8.2	U	8.4	U	8.3	U
Perfluoroundecanoic acid (PFUnA)	ng/L	100	8.2	U	8.4	U	8.3	U
Perfluorododecanoic acid (PFDoA)	ng/L	100	8.2	U	8.4	U	8.3	U
Perfluorotridecanoic acid (PFTriA)	ng/L	100	8.2	U	8.4	U	8.3	U
Perfluorotetradecanoic acid (PFTeA)	ng/L	100	8.2	U	8.4	U	8.3	U
Perfluorobutanesulfonic acid (PFBS)	ng/L	100	8.2	U	8.4	U	8.3	U
Perfluorohexanesulfonic acid (PFHxS)	ng/L	100	8.2	UJ	8.4	U	8.3	UJ
Perfluoroheptanesulfonic acid (PFHpS)	ng/L	100	8.2	UJ	8.4	U	8.3	UJ
Perfluorooctanesulfonic acid (PFOS)	ng/L	10	8.2	U	8.4	U	8.3	U
Perfluorodecanesulfonic acid (PFDS)	ng/L	100	8.2	U	8.4	U	8.3	U
Perfluorooctane Sulfonamide (PFOSA)	ng/L	100	8.2	U	8.4	U	8.3	U
2-(N-methyl perfluorooctanesulfonamido) acetic acid (N-MeFOSAA)	ng/L	100	82	UJ	84	U	83	U
N-Ethyl-N-((heptadecafluorooctyl)sulphonyl) glycine (N-EtFOSAA)	ng/L	100	82	U	84	U	83	U
6:2 Perfluorooctane Sulfonate (6:2 FTS)	ng/L	100	82	U	84	U	83	U
8:2 Perfluorodecane Sulfonate (8:2 FTS)	ng/L	100	82	U	84	U	83	U
Total PFAS	ng/L	*500*	82	U	84	U	83	U

Notes:

ng/L - Nanograms per liter.

ug/L - micrograms per liter.

U - Analyte was not detected at specified quantitation limit.

UJ - Estimated non-detect.

* - New York State Drinking Water Quality Council recommended maximum contaminant levels to the New York State Health Commissioner, December 2018.

** - Recommended Guidance Values from the Guidelines for Sampling and Analysis of PFAS Under NYSDEC's Part 375 Remedial Programs, January 2020.

APPENDIX A

SITE HISTORY

HAIGHT FARM SITE (NYSDEC SITE NO. 837006)

Date	Description
1969 - 1984	Approximately 40 barrels of a waste mixture containing spent cutting oil and trichloroethylene (TCE) from Erdle Perforating Company, in Holley, NY were stored on the residential property and primary residence owned by the Earl Haight family.
December 1984	An estimated 200 gallons of the spent cutting oil and TCE waste mixture were spilled on the Site when the drums were removed from the property. The New York State Department of Environmental Conservation (NYSDEC) was informed about the spill during removal operations and removed 30 of the remaining damaged and degraded drums under the NYS Superfund Emergency Drum Removal Action Program.
December 1984 – July 1989	The Orleans County Department of Health (OCDOH) conducted a drinking water sampling event of 6 residential drinking water wells on or adjacent to the Haight property. TCE and various chlorinated solvent breakdown products were detected in 3 wells and carbon filters were installed each of the affected residences.
January 1989	NYSDEC completed Phase 1 of an Engineering Investigation at Inactive Hazardous Waste Site (Site Characterization). The investigation concluded that the Site scored high enough on the Hazardous Ranking System (HRS) to require additional investigation to fully characterize the spill and the impacts to the environment.
March 1989	A Consent Order (Index No. B8-0067-8412) was signed requiring the Potential Responsible Parties (PRPs) Erdle Perforating Company and Earl M. Haight to conduct a remedial investigation/feasibility study (RI/FS) at the Site.
November 1991	A RI was conducted at the Site by the PRPs to determine the nature and extent of contamination and evaluate remedial alternatives. TCE and 1,2-dichloroethene (DCE) were discovered in groundwater and soil at the Site. Following legal negotiations, the PRPs and NYSDEC agreed that they were financially unable to continue the remedial program.
1995 – 1996	NYSDEC continued the RI/FS investigation to determine the extent of the on-site contamination and the extent of the off-site groundwater TCE plume through the NYS Superfund Program and to evaluate potential remedial alternatives.
1996	An IRM was completed at the Site which included a a pilot study for both soil vapor extraction (SVE) and dual phase vapor extraction (DVE).
January 1998	The FS Report was finalized and the NYSDEC issued a Record of Decision (ROD) which selected a remedial alternative that included on-site excavation with off-Site disposal of impacted soil and DVE as the alternative for groundwater.
1999 – 2001	NYSDEC completed RAs at the Site. Impacted soils were excavated and disposed off-site. A DVE system was constructed and operated until May 2001. A groundwater monitoring plan, including additional monitoring wells installed downgradient of the Site, was implemented as part of the long-term Site Management.

2001	New York Department of Health (NYSDOH) collected water samples from the nearby residential groundwater supply wells. No site related contaminants (TCE and DCE) were detected at concentrations above NYS Class GA Values.
2001 – 2003	Hanson Aggregates, operator of the limestone quarry (Clarendon Quarry) to the north of the Site, connected the private residences in the area to the public water supply system. This action was the result of the impacts from groundwater drawdown due to the quarry dewatering system.
2003	Three sets of pumping wells used for dewatering the quarry and a sump within the quarry were included in the monitoring well network to monitor for potential impact from Site relates COCs and plume migration associated with groundwater pumping. These include the MW-00-10S/D wells, MW-25-04S/D wells and MW-26-04S/D wells and the Quarry Sump.
April 2006	Six bedrock monitoring wells MW-17S, MW-18S, MW-18D, MW-19S, MW-19D, and MW-20D were installed north of the Site and south of the Hanson Aggregate Quarry to evaluate the extent of the groundwater plume, and to determine the leading edge of the plume. These wells were included in the Site's monitoring network.
2005	NYSDEC conducted indoor air sampling at two or three proposed residences near the Site. Results indicated that the indoor air was not impacted by Site contamination and no mitigation of soil vapor was necessary.
2009	Site sampling was reduced from semi-annual to annual sampling with sample collection targeting September/October during historically high CVOC results.
2010	The NYSDEC reclassifies the Site from Class 02 to Class 04.
2012	An annual site inspection and groundwater sampling and monitoring was completed for 2011 in accordance with the 2006 OM&M plan.
2013	An annual site inspection and groundwater sampling and monitoring was completed in for 2012accordance with the 2006 OM&M plan.
2015	An annual site inspection, groundwater sampling and monitoring was completed in for 2014 and a Periodic Review Report for the reporting period of 2013-2015was completed in accordance with the 2006 OM&M plan.

CUSTODIAL RECORD

PERTINENT SITE DOCUMENTS

HAIGHT FARM SITE (NYSDEC SITE NO. 837006)

NYSDEC, *Engineering Investigations at Inactive Hazardous Waste Sites in the State of New York, Phase I Investigations,* Haight Farm Site, January 1989

NYSDEC, *Remedial Investigation Report,* Haight Farm Site, November 1991

NYSDEC, *Phase II Remedial Investigation Report,* Haight Farm Site, July 1996

NYSDEC, *Decision Document, Interim Remedial Measure,* Haight Farm Site, July 1996

NYSDEC, *Responsiveness Summary for the IRM Decision Document,* Haight Farm Site, October 1996

NYSDEC, *Feasibility Study,* Haight Farm Site, January 1998

NYSDEC, *Proposed Remedial Action Plan,* Haight Farm Site, January 1998

NYSDEC, *Summary of analytical results of residential well sampling for 4878 Upper Holley Road and 4885 Upper Holley Road, December1984 through October 1997,* Haight Farm Site, March 1998

NYSDEC, *Record of Decision,* Haight Farm Site, March 1998

BISCO Environmental, *Dual Phase Extraction Remediation System Operation/Maintenance Manual,* Haight Farm Site, December 1999

Iyer Environmental Group, PLLC, *Final Status Report,* Haight Farm Site, August 2000

Ecology and Environment, Inc., *Work Plan for Operation and Maintenance for the Haight Farm Site,* Haight Farm Site, September 2000

Empire Geo-Services, Inc., *Subsurface Investigation and Monitoring Well Installations,* Haight Farm Site, November 2006

NYSDEC, *Site Classification Report,* Haight Farm Site, October 2010

Hanson Aggregates New York LLC, *Annual Groundwater Report April 2010 through October 2010,* Haight Farm Site, January 2011

NYSDEC, *2011 Annual Operation, Monitoring and Maintenance Report,* Haight Farm Site, January 2012

Hanson Aggregates New York LLC, *Annual Groundwater Report April 2012 through October 2012,* Haight Farm Site, December 2012

NYSDEC, *2012 Annual Operation, Monitoring and Maintenance Report,* Haight Farm Site, January 2013

NYSDEC, *Memo – Periodic Review Report for Haight Farm (837006),* Haight Farm Site, April 2015

New York State Department of Environmental Conservation
Mayer Landfill Site - Site No. 336027
Town of Blooming Grove, New York
Monitoring Well Construction Summary

Well ID	Installation Date	Well Dia. (inches)	Well Material	Total Depth (feet bgs)	Screened Formation	*Screen*			*Elevation (feet AMSL)*				*Location*	
						Top (feet bgs)	Bottom (feet bgs)	Length (feet)	Casing Top	Ground Surface	Screen Top	Screen Bottom	Northing (feet)	Easting (feet)
MW-2S	Nov-90	2	PVC	29.2	Dolostone	15.00	25.00	10	650.49	648.72	633.72	623.72	4784734	737842
MW-3S	Nov-90	2	PVC	28.1	Dolostone	16.50	26.50	10	649.67	647.48	630.98	620.98	4784774	737855
MW-3D	Nov-90	4	Steel	58.0	Dolostone	27.80	58.00	30.2*	649.83	647.82	620.02	589.82	4784775	737864
MW-4S	Nov-90	2	PVC	28.0	Dolostone	16.00	26.00	10	649.72	647.31	631.31	621.31	4784759	737848
MW-4D	Nov-90	4	Steel	56.5	Dolostone	28.00	56.50	28.5*	649.39	647.54	619.54	591.04	4784759	737855
MW-5S	Nov-90	2	PVC	26.2	Dolostone	13.50	23.50	10	652.23	649.87	636.37	626.37	4784728	737870
MW-6S	Nov-90	2	PVC	27.0	Dolostone	16.00	26.00	10	656.12	653.62	637.62	627.62	4784776	737895
MW-6D	Nov-90	4	Steel	42.0	Dolostone	27.00	42.00	15*	656.36	654.53	627.53	612.53	4784779	737897
MW-7S	Dec-95	4	Steel	30.0	Dolostone	12.70	30.00	17.3*	662.37	660.80	648.10	630.80	4784734	737951
MW-8S	Dec-95	2	PVC	33.4	Dolostone	13.20	33.20	10	648.68	646.80	633.60	613.60	4784692	737801
MW-10	Dec-95	2	PVC	10.0	Gravel/Fractured bedrock	4.70	9.70	5	639.15	637.22	632.52	627.52	4784844	737723
MW-10S	Dec-95	4	Steel	22.0	Dolostone	12.00	22.00	10*	639.32	637.35	625.35	615.35	4784847	737723
MW-10D	Dec-95	4	Steel	59.2	Dolostone	40.00	59.20	19.2*	639.27	637.04	597.04	577.84	4784850	737725
MW-11	Dec-95	2	PVC	10.1	Gravel/Fractured bedrock	5.00	10.00	5	639.9	638.44	633.44	628.44	4784789	737741
MW-11S	Dec-95	4	Steel	22.0	Dolostone	11.00	22.00	11	640.26	638.14	627.14	616.14	4784786	737741
MW-15S	Nov-00	2	PVC	23.0	Dolostone	12.30	22.30	10	640.44	638.33	626.03	616.03	4784956	737767
MW-15D	Nov-00	4	Steel	56.0	Dolostone	24.80	54.00	29.2*	640.12	638.31	613.51	584.31	4784956	737769
MW-16S	Nov-00	2	PVC	28.5	Dolostone	15.60	25.60	10	640.98	637.95	622.35	612.35	4785120	737766
MW-17D	Oct-04	2	PVC	60.7	Dolostone	39.00	59.00	20	644.44	642.5	603.50	583.50	4784945	737873
MW-18S	Oct-04	2	PVC	28.5	Dolostone	17.50	27.50	10	638.96	636.9	619.4	609.4	4785117	737603
MW-18D	Oct-04	2	PVC	61.0	Dolostone	43.50	58.50	15	639.07	637	593.5	578.5	4785127	737607
MW-19S	Oct-04	2	PVC	30.0	Dolostone	18.80	28.80	10	637.95	635.3	616.5	606.5	4785293	737687
MW-19D	Oct-04	2	PVC	60.0	Dolostone	44.00	59.00	15	637.89	635.2	591.2	576.2	478594	737694
MW-20D	Oct-04	2	PVC	60.0	Dolostone	44.50	59.50	10	645.14	642.7	598.2	583.2	4785317	737917
MW-10-00S	NA	NA	NA	20.5	Dolostone	NA	20.05	NA	641.58	641.58	NA	621.53	4785584	737772
MW-10-00D	NA	NA	NA	56.9	Dolostone	NA	56.85	NA	640.87	640.87	NA	584.02	4785590	737790
MW-25-04S	NA	NA	NA	37.7	Dolostone	NA	39.73	NA	646.2	643.78	NA	604.05	4785594	737622
MW-25-04D	NA	NA	NA	71.2	Dolostone	NA	71.16	NA	645.74	643.47	NA	572.31	4785594	737636
MW-26-04S	NA	NA	NA	40.8	Dolostone	NA	40.83	NA	644.16	641.76	NA	600.93	4785549	737409
MW-26-04D	NA	NA	NA	70.2	Dolostone	NA	70.20	NA	644.20	642.20	NA	572	4785550	737425

Notes

AMSL : above mean sea level
feet bgs : feet below ground surface
NA : Not available
PVC : polyvinyl chloride
* : open bedrock corehole without well screen

APPENDIX B

TRC		**DATE: Thursday, May 2, 2019**
		REPORT NO. 20190502
		PAGE NO. 1 OF 2
		PROJECT NO. 320919.0000.0000
		LOGBOOK NO. -- PAGES -- to --

DAILY FIELD ACTIVITY REPORT

PROJECT	Haight Farm
LOCATION	Holly, New York
ATTACHMENTS	Photo Log

WEATHER	TIME	TEMP.	PRECIP.	WIND (MPH)	WIND (DIR)
Overcast	0900	45°F	None	7	ENE
Overcast	1400	50°F	None	8	ENE

SITE CONDITIONS: Clear, ground surface was damp.

WORK GOAL FOR DAY: Site inspection and groundwater sampling

PERSONNEL ON SITE:

NAME	AFFILIATION	ARRIVAL TIME	DEPART TIME
Steve Johansson	TRC Engineers, Inc.	09:00	16:30
Nick Gier	TRC Engineers, Inc.	09:00	16:30
Josh Yaeger	TRC Engineers, Inc.	09:00	16:30

EQUIPMENT ON SITE:

	MODEL	TYPE	MODEL
PID	MiniRAE 3000	Not Applicable	Not Applicable
Peristaltic Pump	Geotech		
Oil/Water Interface Probe	Heron		
YSI	YSI Pro DSS		

HEALTH & SAFETY:

PPE REQUIRED: ☒ LEVEL D ☐ LEVEL C ☐ LEVEL B ☐ LEVEL A **HASP?** YES

SITE SAFETY OFFICER: Ryan Jorrey

H & S NOTES: Site work performed in Level D PPE

TRC		**DATE: Thursday, May 2, 2019**
		REPORT NO. 20190502
		PAGE NO. 2 OF 2
		PROJECT NO. 320919.0000.0000

DAILY FIELD ACTIVITY REPORT

DESCRIPTION OF WORK PERFORMED AND OBSERVED

TRC Engineers, Inc. (TRC) mobilized to conduct an annual site inspection and groundwater sampling event of the Haight Farm Site (Site) located on Upper Holly Road, in the Town of Holly, NY on May 2, 2019. The objective of the site inspection was to document the general site conditions, and to evaluate the condition of the groundwater monitoring wells.

During the site inspection and groundwater monitoring well gauging and sampling event, TRC was able to locate all nine on-site wells (MW-2S, MW-3S, MW-3D, MW-4S, MW-4D, MW-5S, MW-6S, MW-6D, and MW-7S). TRC was also able to locate five off-site wells located in the field across the street (MW-10S, MW-10D, MW-15S, MW-15D and MW-17D). All wells located appear to be in good condition. Well locks for all 15 located monitoring wells were cut and replaced with Master Locks® with key code #2537.

TRC conducted a groundwater level gauging event of the 16 wells located on-site and off-site. While conducting the gauging event, TRC deployed passive diffusion bags (PDBs) in order to sample the groundwater for volatile organic compounds (VOCs). The PDBs were deployed in 14 of the 16 wells located at request of the NYSDEC (MW-2S, MW-3S, MW-3D, MW-4S, MW-4D, MW-5S, MW-6S, MW-6D, MW-7S, MW-10S, MW-10D, MW-15S, MW-15D, and MW-17D).

Emerging Contaminants sampling was completed in three wells (MW-3D, MW-4S, and MW-7S) prior to deploying the PDBs. This sampling was conducted utilizing low-flow sampling methods. After completing the groundwater sampling for Emerging Contaminants, TRC demobilized from the Site and submitted the three samples to TestAmerica Laboratories, Inc. for analysis using EPA method 8270 SIM for 1,4-dioxane, and full Target Analyte List (TAL) PFAS using USEPA method 537 modified.

TRC will return to the Site on May 23, 2019 to collect the VOC samples from the PDBs from monitoring wells MW-2S, MW-3S, MW-3D, MW-4S, MW-4D, MW-5S, MW-6S, MW-6D, MW-7S, MW-10S, MW-10D, MW-15S, MW-15D, and MW-17D. The samples will be submitted to TestAmerica Laboratories, Inc. for analysis using EPA method 8260C for Target Compound List (TCL) volatile organic compounds (VOCs) plus 10 Ternately Identified Compounds (TICs).

PREPARED BY (OBSERVER): Steve Johansson	**REVIEWED BY:** Nate Kranes

NYSDEC Haight Farm
Photograph Log
Date: May 2, 2019

Photo 1: Looking east at Haight Farm Site from Upper Holley Road.

Photo 2: Looking east at the entrance gate to the Haight Farm Site from Upper Holley Road. The gate lock was cut, and replaced with a Master Lock® with key code #2537.

Photo 3: Looking west. View of the project Site.

Photo 4: Looking west. Setting up low-flow sampling equipment on MW-7S.

NYSDEC Haight Farm
Photograph Log
Date: May 2, 2019

Photo 1: Looking Northwest towards off-site wells MW-15S and MW-15D.

Photo 2: Looking southeast from off-site wells MW-15S and MW-15D. View of the Haight Farm Site.

Photo 3: Offsite monitoring well MW-15D. Locks for all site wells sampled as part of this visit were cut and replaced with Master Lock® with key code #2537.

Photo 4: Offsite monitoring well MW-15S.

TRC Job No.	Photographs Taken By:	Page No.	Client:	Site Name & Address:	
320919.0000 .0000	Steve Johansson	2 of 2	NYSDEC	Haight Farm Holly, NY	TRC

APPENDIX C

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	NYSDEC Haight Farm	**LOCATION ID**	**DATE** 5/2/2019
PROJECT NUMBER	320919.0000.0000	**START TIME** 10:35	**END TIME** 12:10
SAMPLE ID HF-MW-7S	**SAMPLE TIME** 12:00	**SITE NAME/NUMBER**	**PAGE** OF

WELL DIAMETER (INCHES) [ ] 1 [ ] 2 [X] 4 [ ] 6 [ ] 8 [ ] OTHER _____

TUBING ID (INCHES) [ ] 1/8 [ ] 1/4 [X] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER _____

MEASUREMENT POINT (MP) [X] TOP OF RISER (TOR) [ ] TOP OF CASING (TOC) [ ] OTHER _____

WELL INTEGRITY

	YES	NO	N/A
CAP	X		
CASING	X		
LOCKED	X		
COLLAR	X		

INITIAL DTW (BMP)	11.81 FT	**FINAL DTW (BMP)**	17.56 FT	**PROT. CASING STICKUP (AGS)**	FT	**TOC/TOR DIFFERENCE**	FT
WELL DEPTH (BMP)	31.88 FT	**SCREEN LENGTH**	FT	**PID AMBIENT AIR**	0 PPM	**REFILL TIMER SETTING**	SEC
WATER COLUMN	20.07 FT	**DRAWDOWN VOLUME** (final DTW - initial DTW X well diam. squared X 0.041)	3.772 GAL	**PID WELL MOUTH**	0 PPM	**DISCHARGE TIMER SETTING**	SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	13.16592 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	4.784 GAL	**DRAWDOWN/ TOTAL PURGED**	0.788461538	**PRESSURE TO PUMP**	PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1035	**BEGIN PURGING**									
1045	13	230	9.58	0.53	8.26	3.83	18.5	89	30	
1055	13.89	230	9.28	0.53	8	3.7	14.1	86	30	
1100	14.25	230	9.17	0.531	7.92	3.73	14.4	77	30	
1105	14.77	230	9.01	0.531	7.85	3.97	10.7	66	30	
1110	15.25	230	8.97	0.532	7.8	3.76	8.3	58	30	
1115	15.55	230	8.95	0.533	7.78	3.51	8.8	54	30	
1120	15.9	230	8.91	0.534	7.74	3.46	8.8	46	30	
1125	16.22	230	8.87	0.535	7.71	3.22	8.6	40	30	
1130	16.5	230	8.83	0.536	7.69	3.09	8.3	36	30	
1135	16.77	230	8.82	0.536	7.65	3.48	8.1	34	30	
1140	17.03	230	8.79	0.537	7.63	3.35	7.2	29	30	
1145	17.25	230	8.78	0.538	7.62	3.13	6.8	26	30	
1150	17.4	230	8.77	0.539	7.6	3.08	6.9	23	30	
1155	17.56	230	8.74	0.539	7.59	2.86	6.1	22	30	
	FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])		**9**	**0.539**	**7.6**	**2.9**	**6.1**	**22**		

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	DECON FLUIDS USED	TUBING/PUMP/BLADDER MATERIALS		EQUIPMENT USED
[X] PERISTALTIC	[X] LIQUINOX	[ ] SILICON TUBING	[ ] S. STEEL PUMP MATERIAL	[X] WL METER Heron
[ ] SUBMERSIBLE	[ ] DEIONIZED WATER	[ ] TEFLON TUBING	[ ] PVC PUMP MATERIAL	[X] PID MiniRAE
[ ] BLADDER	[ ] POTABLE WATER	[ ] TEFLON LINED TUBING	[ ] GEOPROBE SCREEN	[X] WQ METER YSI
	[ ] NITRIC ACID	[X] HDPE TUBING	[ ] TEFLON BLADDER	[ ] TURB. METER
[ ] WATTERA	[ ] HEXANE	[ ] LDPE TUBING	[ ] OTHER	[X] PUMP Geotech
[ ] OTHER	[ ] METHANOL	[ ] OTHER	[ ] OTHER	[ ] OTHER
[ ] OTHER	[ ] OTHER	[ ] OTHER	[ ] OTHER	[ ] FILTERS NO. TYPE

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
X	See Chain of Custody							

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED YES [ ] NO [X]

NO-PURGE METHOD UTILIZED YES [ ] NO [X]

NUMBER OF GALLONS GENERATED: 4.784

If yes, purged approximately 1 standing volume prior to sampling or _____mL for this sample location.

SKETCH/NOTES

Sampler Signature: Print Name: Nick Gier

Checked By: Steve Johansson Date: 5/2/2019

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	NYSDEC Haight Farm	**LOCATION ID**	**DATE** 5/2/2019
PROJECT NUMBER	320919.0000.0000	**START TIME** 12:45	**END TIME** 13:40
SAMPLE ID HF-MW-4S	**SAMPLE TIME** 13:30	**SITE NAME/NUMBER**	**PAGE** OF

WELL DIAMETER (INCHES) [ ] 1 [X] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES) [ ] 1/8 [ ] 1/4 [X] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP) [X] TOP OF RISER (TOR) [ ] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP	X		
CASING	X		
LOCKED	X		
COLLAR	X		

INITIAL DTW (BMP)	12.49 FT	**FINAL DTW (BMP)**	12.84 FT	**PROT. CASING STICKUP (AGS)**	FT	**TOC/TOR DIFFERENCE**	FT
WELL DEPTH (BMP)	25.06 FT	**SCREEN LENGTH**	FT	**PID AMBIENT AIR**	0 PPM	**REFILL TIMER SETTING**	SEC
WATER COLUMN	12.57 FT	**DRAWDOWN VOLUME** (final DTW - initial DTW X well diam. squared X 0.041)	0.0574 GAL	**PID WELL MOUTH**	0 PPM	**DISCHARGE TIMER SETTING**	SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	2.06148 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	2.548 GAL	**DRAWDOWN/ TOTAL PURGED**	0.022527473	**PRESSURE TO PUMP**	PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1245	**BEGIN PURGING**									
1255	12.94	230	9.47	0.608	7.2	5.25	7.1	112	23	
1305	12.88	230	9.49	0.61	7.1	7.69	5.5	18	23	
1315	12.88	250	9.52	0.614	7.05	7.35	4.8	124	23	
1320	12.86	240	9.49	0.615	7.04	7.09	4.9	125	23	
1325	12.84	240	9.55	0.616	7.03	7.06	4.5	126	23	

FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])

10	**0.616**	**7**	**7.1**	**4.5**	**130**	

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] WATTERA
- [ ] OTHER
- [ ] OTHER

DECON FLUIDS USED
- [X] LIQUINOX
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER

TUBING/PUMP/BLADDER MATERIALS
- [ ] SILICON TUBING
- [ ] TEFLON TUBING
- [ ] TEFLON LINED TUBING
- [X] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER
- [ ] OTHER

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] TEFLON BLADDER
- [ ] OTHER
- [ ] OTHER
- [ ] OTHER

EQUIPMENT USED
- [X] WL METER Heron
- [X] PID MiniRAE
- [X] WQ METER YSI
- [ ] TURB. METER
- [X] PUMP Geotech
- [ ] OTHER
- [ ] FILTERS NO. TYPE

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
X	See Chain of Custody							

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED — YES [ ] NO [X]

NO-PURGE METHOD UTILIZED — YES [ ] NO [X]

NUMBER OF GALLONS GENERATED: 2.548

If yes, purged approximately 1 standing volume prior to sampling or _____mL for this sample location.

SKETCH/NOTES

Sampler Signature: Print Name: Nick Gier

Checked By: Steve Johansson Date: 5/2/2019

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	NYSDEC Haight Farm	LOCATION ID		DATE	5/2/2019
PROJECT NUMBER	320919.0000.0000	START TIME	15:15	END TIME	16:10
SAMPLE ID	HF-MW-3D	SAMPLE TIME	16:00	SITE NAME/NUMBER		PAGE	OF

WELL DIAMETER (INCHES): [ ] 1 [ ] 2 [X] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES): [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP): [X] TOP OF RISER (TOR) [ ] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP	X		
CASING	X		
LOCKED	X		
COLLAR	X		

INITIAL DTW (BMP)	14.68 FT	FINAL DTW (BMP)	16.38 FT	PROT. CASING STICKUP (AGS)	FT	TOC/TOR DIFFERENCE	FT
WELL DEPTH (BMP)	32.92 FT	SCREEN LENGTH	FT	PID AMBIENT AIR	0 PPM	REFILL TIMER SETTING	10 SEC
WATER COLUMN	18.24 FT	DRAWDOWN VOLUME (final DTW - initial DTW X well diam. squared X 0.041)	0.2788 GAL	PID WELL MOUTH	0 PPM	DISCHARGE TIMER SETTING	5 SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	11.96544 GAL	TOTAL VOL. PURGED (mL per minute X total minutes X 0.00026 gal/mL)	2.496 GAL	DRAWDOWN/ TOTAL PURGED	0.111698718	PRESSURE TO PUMP	40 PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1515	**BEGIN PURGING**									
1525	15.24	240	10.63	0.813	7.27	0.7	19.5	-117	30	
1535	15.76	240	10.64	0.846	7.29	0	16.4	-130	30	
1545	16.12	240	10.65	0.857	7.27	0	14.5	-136	30	
1550	16.26	240	10.72	0.864	7.26	0	14.1	-137	30	
1555	16.38	240	10.7	0.876	7.26	0	15.3	-137	30	

FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])

11	**0.876**	**7.3**	**0**	**15.3**	**-140**	

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [ ] PERISTALTIC
- [ ] SUBMERSIBLE
- [X] BLADDER
- [ ] WATTERA
- [ ] OTHER
- [ ] OTHER

DECON FLUIDS USED
- [X] LIQUINOX
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER

TUBING/PUMP/BLADDER MATERIALS
- [ ] SILICON TUBING
- [ ] TEFLON TUBING
- [ ] TEFLON LINED TUBING
- [X] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER
- [ ] OTHER

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] TEFLON BLADDER
- [ ] OTHER
- [ ] OTHER
- [ ] OTHER

EQUIPMENT USED
- [X] WL METER Heron
- [X] PID MiniRAE
- [X] WQ METER YSI
- [ ] TURB. METER
- [X] PUMP QED Sample Pro
- [ ] OTHER
- [ ] FILTERS NO. TYPE

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
X	See Chain of Custody							

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [ ] NO [X]

NO-PURGE METHOD UTILIZED: YES [ ] NO [X]

NUMBER OF GALLONS GENERATED: 2.496

If yes, purged approximately 1 standing volume prior to sampling or _____mL for this sample location.

SKETCH/NOTES

Sampler Signature: Print Name: Nick Gier

Checked By: Steve Johansson Date: 5/2/2019

APPENDIX D

Data Usability Summary Report

Site: Haight Farms
Laboratory: Eurofins TestAmerica Buffalo – Amherst, NY
SDG No.: 480-154020-1
Parameters: Volatile Organic Compounds (VOCs)
Data Reviewer: Kristen Morin/TRC
Peer Reviewer: Elizabeth Denly/TRC
Date: July 15, 2019

Samples Reviewed and Evaluation Summary

14 Groundwater Samples:	HF-MW-2S,HF-MW-3D, HF-MW-3S, HF-MW-4D, HF-MW-4S, HF-MW-5S, HF-MW-6D, HF-MW-6S, HF-MW-7S, HF-MW-10D, HF-MW-10S, HF-MW-15D, HF-MW-15S, HF-MW-17D
1 Equipment Blank Sample:	HF-EB-2
1 Trip Blank Sample:	Trip Blank

The above-listed groundwater, equipment blank, and trip blank samples were collected on May 23, 2019 and were analyzed for VOCs by SW-846 Method 8260C. The data validation was performed in accordance with *USEPA National Functional Guidelines for Organic Superfund Methods Data Review (EPA-540-R-017-002),* January 2017, modified for the SW-846 methodology utilized.

The data were evaluated based on the following parameters:

	• Overall Evaluation of Data and Potential Usability Issues
	• Data Completeness
*	• Holding Times and Sample Preservation
*	• Gas Chromatography/Mass Spectrometry (GC/MS) Tunes
	• Initial and Continuing Calibrations
	• Blanks
*	• Surrogate Recoveries
*	• Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
*	• Internal Standards
*	• Laboratory Control Sample (LCS) Results
NA	• Field Duplicate Results
	• Sample Results and Reported Quantitation Limits (QLs)
*	• Target Compound Identification
	• Tentatively Identified Compounds (TICs)

*	-	All criteria were met.
NA	-	A field duplicate pair was not associated with this sample set.

Overall Evaluation of Data and Potential Usability Issues

All results are usable for project objectives with the exception of 1,4-dioxane in all samples due to low calibration response factors. Qualifications applied to the data as a result of sampling error are discussed below.

- The positive results for acetone in samples HF-MW-4S and HF-MW-3D were qualified as nondetect (U) at the QL due to equipment and/or trip blank contamination. These results can be used for project objectives as nondetects, which should not have an adverse impact on the data usability.

Qualifications applied to the data as a result of analytical error are discussed below.

- The nondetect results for 1,4-dioxane were rejected (R) in all samples due to low relative response factors (RRFs) in initial and continuing calibrations. These results cannot be used for project objectives which has a major impact on the data usability.

- Potential uncertainty exists for select VOC results that were below the lowest calibration standard and QL. These results were qualified as estimated (J) in the associated samples. These results can be used for project objectives as estimated values, which may have a minor impact on the data usability.

- One of the unknown TICs in sample HF-MW-15D should be considered not detected due to the presence of the same TIC in the associated trip blank. This should not have an adverse impact on the data usability.

Data Completeness

The data package was a complete Level IV data deliverable package with one exception. The laboratory did not report LCS and MS/MSD percent recoveries (%Rs) and relative percent differences (RPDs) for total xylenes on the summary forms. This information was calculated during validation; no actions were taken on this basis.

Holding Times and Sample Preservation

All holding time and sample preservation method criteria were met for the VOC analyses.

GC/MS Tunes

All method acceptance criteria were met in the VOC analysis.

Initial and Continuing Calibrations

All correlation coefficients and percent relative standard deviations were within the method acceptance criteria in the initial calibration (IC) associated with the samples in this data set.

The following table summarizes the RRF that did not meet the acceptance criteria in the IC associated with the samples in this data set, the associated samples, and the validation actions.

IC	Compound	RRF	Validation Actions
5/13/19 HP5973N	1,4-Dioxane	0.0058	The nondetect results for 1,4-dioxane were rejected (R) in the associated samples.
Associated samples: All samples in this data set			

The following table summarizes the RRF that did not meet the acceptance criteria in the continuing calibration (CC) standard associated with the samples in this data set, the associated samples, and

the validation actions. All percent differences were within the acceptance criteria.

CC	Compound	RRF	Validation Actions
CCVIS 480-475202/3 5/29/19 @19:58 HP5973N	1,4-Dioxane	0.0062	The nondetect results for 1,4-dioxane were rejected (R) in the associated samples.
Associated samples: All samples in this data set			

Blanks

Target analytes were not detected in the laboratory method blank. The table below summarizes the compound detected in the equipment blank and trip blank, and the validation actions.

Blank ID	Compound	Blank Concentration	2x Blank Concentration	Validation Actions
HF-EB-02	Acetone	4.2 J µg/L*	8.4 J µg/L	The positive results for acetone in samples HF-MW-4S and HF-MW-3D were qualified as nondetect (U) at the QL since the results for acetone were less than 2x the blank concentration. Qualification was not required in the remaining samples since acetone was not detected.
Trip Blank		3.4 J µg/L	6.8 J µg/L	
Associated samples: All groundwater samples in this data set *The concentration in equipment blank was used to qualify sample results since it was higher than the trip blank.				

Surrogate Recoveries

The surrogate recoveries met the laboratory acceptance criteria in the VOC analyses.

MS/MSD Results

MS/MSD analyses were performed on sample HF-MW-3D for VOCs. The %Rs and RPDs met the laboratory acceptance criteria.

Note that the laboratory did not report MS/MSD %Rs and RPDs for total xylenes. The %Rs and RPDs were calculated during validation and were within the acceptance criteria.

Internal Standards

All internal standards met the method acceptance criteria in the VOC analyses.

LCS Results

An LCS was analyzed with each daily VOC batch. All criteria were met.

Note that the laboratory did not report LCS %Rs for total xylenes. The %Rs were calculated during validation and were within the acceptance criteria.

Field Duplicate Results

No field duplicate pairs were submitted with this sample set.

Sample Results and Reported Quantitation Limits

Sample calculations were spot-checked; there were no dilutions performed on any samples in this data set.

Select VOC results were reported below the lowest calibration standard level and QL. These results were qualified as estimated (J) in the associated samples by the laboratory.

Target Compound Identification

All criteria were met.

Tentatively Identified Compounds

The were no TICs in the VOC method blank or equipment blank. There were two TICs identified in the trip blank, one of which was also found in one of the samples. The unknown TIC identified at a concentration of 2.7 J µg/L, at a retention time of 2.99 minutes, in sample HF-MW-15D should be considered not detected due to the presence of the same TIC in the associated trip blank. The remaining samples in this SDG were not affected because there were either no TICs identified in the samples or the TICs reported in the samples were not present in the associated blanks.

There were no issues noted regarding TIC identifications in the VOC analyses.

QUALIFIED FORM 1s

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-7S Lab Sample ID: 480-154020-1

Matrix: Water Lab File ID: N2271.D

Analysis Method: 8260C Date Collected: 05/23/2019 09:50

Sample wt/vol: 5(mL) Date Analyzed: 05/29/2019 22:34

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	ND		1.0	0.82
79-34-5	1,1,2,2-Tetrachloroethane	ND		1.0	0.21
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.23
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31
75-34-3	1,1-Dichloroethane	ND		1.0	0.38
75-35-4	1,1-Dichloroethene	ND		1.0	0.29
120-82-1	1,2,4-Trichlorobenzene	ND		1.0	0.41
96-12-8	1,2-Dibromo-3-Chloropropane	ND		1.0	0.39
95-50-1	1,2-Dichlorobenzene	ND		1.0	0.79
107-06-2	1,2-Dichloroethane	ND		1.0	0.21
78-87-5	1,2-Dichloropropane	ND		1.0	0.72
541-73-1	1,3-Dichlorobenzene	ND		1.0	0.78
106-46-7	1,4-Dichlorobenzene	ND		1.0	0.84
78-93-3	2-Butanone (MEK)	ND		10	1.3
591-78-6	2-Hexanone	ND		5.0	1.2
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1
67-64-1	Acetone	ND		10	3.0
71-43-2	Benzene	ND		1.0	0.41
75-27-4	Bromodichloromethane	ND		1.0	0.39
75-25-2	Bromoform	ND		1.0	0.26
74-83-9	Bromomethane	ND		1.0	0.69
75-15-0	Carbon disulfide	ND		1.0	0.19
56-23-5	Carbon tetrachloride	ND		1.0	0.27
108-90-7	Chlorobenzene	ND		1.0	0.75
124-48-1	Dibromochloromethane	ND		1.0	0.32
75-00-3	Chloroethane	ND		1.0	0.32
67-66-3	Chloroform	ND		1.0	0.34
74-87-3	Chloromethane	ND		1.0	0.35
123-91-1	1,4-Dioxane	ND		40	9.3
156-59-2	cis-1,2-Dichloroethene	ND		1.0	0.81
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.36
110-82-7	Cyclohexane	ND		1.0	0.18
75-71-8	Dichlorodifluoromethane	ND		1.0	0.68
100-41-4	Ethylbenzene	ND		1.0	0.74
106-93-4	1,2-Dibromoethane	ND		1.0	0.73

FORM I 8260C

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-7S Lab Sample ID: 480-154020-1

Matrix: Water Lab File ID: N2271.D

Analysis Method: 8260C Date Collected: 05/23/2019 09:50

Sample wt/vol: 5 (mL) Date Analyzed: 05/29/2019 22:34

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18 (mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-82-8	Isopropylbenzene	ND		1.0	0.79
79-20-9	Methyl acetate	ND		2.5	1.3
1634-04-4	Methyl tert-butyl ether	ND		1.0	0.16
108-87-2	Methylcyclohexane	ND		1.0	0.16
75-09-2	Methylene Chloride	ND		1.0	0.44
100-42-5	Styrene	ND		1.0	0.73
127-18-4	Tetrachloroethene	ND		1.0	0.36
108-88-3	Toluene	ND		1.0	0.51
156-60-5	trans-1,2-Dichloroethene	ND		1.0	0.90
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.37
79-01-6	Trichloroethene	ND		1.0	0.46
75-69-4	Trichlorofluoromethane	ND		1.0	0.88
75-01-4	Vinyl chloride	ND		1.0	0.90
1330-20-7	Xylenes, Total	ND		2.0	0.66

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	98		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	105		77-120
460-00-4	4-Bromofluorobenzene (Surr)	96		73-120
1868-53-7	Dibromofluoromethane (Surr)	105		75-123

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1
SDG No.:
Client Sample ID: HF-MW-7S Lab Sample ID: 480-154020-1
Matrix: Water Lab File ID: N2271.D
Analysis Method: 8260C Date Collected: 05/23/2019 09:50
Sample wt/vol: 5 (mL) Date Analyzed: 05/29/2019 22:34
Soil Aliquot Vol: Dilution Factor: 1
Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18 (mm)
% Moisture: Level: (low/med) Low
Analysis Batch No.: 475202 Units: ug/L
Number TICs Found: 0 TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-5S Lab Sample ID: 480-154020-2

Matrix: Water Lab File ID: N2272.D

Analysis Method: 8260C Date Collected: 05/23/2019 09:55

Sample wt/vol: 5(mL) Date Analyzed: 05/29/2019 22:59

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	ND		1.0	0.82
79-34-5	1,1,2,2-Tetrachloroethane	ND		1.0	0.21
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.23
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31
75-34-3	1,1-Dichloroethane	ND		1.0	0.38
75-35-4	1,1-Dichloroethene	ND		1.0	0.29
120-82-1	1,2,4-Trichlorobenzene	ND		1.0	0.41
96-12-8	1,2-Dibromo-3-Chloropropane	ND		1.0	0.39
95-50-1	1,2-Dichlorobenzene	ND		1.0	0.79
107-06-2	1,2-Dichloroethane	ND		1.0	0.21
78-87-5	1,2-Dichloropropane	ND		1.0	0.72
541-73-1	1,3-Dichlorobenzene	ND		1.0	0.78
106-46-7	1,4-Dichlorobenzene	ND		1.0	0.84
78-93-3	2-Butanone (MEK)	ND		10	1.3
591-78-6	2-Hexanone	ND		5.0	1.2
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1
67-64-1	Acetone	ND		10	3.0
71-43-2	Benzene	ND		1.0	0.41
75-27-4	Bromodichloromethane	ND		1.0	0.39
75-25-2	Bromoform	ND		1.0	0.26
74-83-9	Bromomethane	ND		1.0	0.69
75-15-0	Carbon disulfide	ND		1.0	0.19
56-23-5	Carbon tetrachloride	ND		1.0	0.27
108-90-7	Chlorobenzene	ND		1.0	0.75
124-48-1	Dibromochloromethane	ND		1.0	0.32
75-00-3	Chloroethane	ND		1.0	0.32
67-66-3	Chloroform	ND		1.0	0.34
74-87-3	Chloromethane	ND		1.0	0.35
123-91-1	1,4-Dioxane	R ND		40	9.3 ✓
156-59-2	cis-1,2-Dichloroethene	4.6		1.0	0.81
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.36
110-82-7	Cyclohexane	ND		1.0	0.18
75-71-8	Dichlorodifluoromethane	ND		1.0	0.68
100-41-4	Ethylbenzene	ND		1.0	0.74
106-93-4	1,2-Dibromoethane	ND		1.0	0.73

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-5S Lab Sample ID: 480-154020-2

Matrix: Water Lab File ID: N2272.D

Analysis Method: 8260C Date Collected: 05/23/2019 09:55

Sample wt/vol: 5(mL) Date Analyzed: 05/29/2019 22:59

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-82-8	Isopropylbenzene	ND		1.0	0.79
79-20-9	Methyl acetate	ND		2.5	1.3
1634-04-4	Methyl tert-butyl ether	ND		1.0	0.16
108-87-2	Methylcyclohexane	ND		1.0	0.16
75-09-2	Methylene Chloride	ND		1.0	0.44
100-42-5	Styrene	ND		1.0	0.73
127-18-4	Tetrachloroethene	ND		1.0	0.36
108-88-3	Toluene	ND		1.0	0.51
156-60-5	trans-1,2-Dichloroethene	1.4		1.0	0.90
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.37
79-01-6	Trichloroethene	1.6		1.0	0.46
75-69-4	Trichlorofluoromethane	ND		1.0	0.88
75-01-4	Vinyl chloride	ND		1.0	0.90
1330-20-7	Xylenes, Total	ND		2.0	0.66

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	98		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	101		77-120
460-00-4	4-Bromofluorobenzene (Surr)	99		73-120
1868-53-7	Dibromofluoromethane (Surr)	101		75-123

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-5S Lab Sample ID: 480-154020-2

Matrix: Water Lab File ID: N2272.D

Analysis Method: 8260C Date Collected: 05/23/2019 09:55

Sample wt/vol: 5 (mL) Date Analyzed: 05/29/2019 22:59

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18 (mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

Number TICs Found: 0 TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-2S Lab Sample ID: 480-154020-3

Matrix: Water Lab File ID: N2273.D

Analysis Method: 8260C Date Collected: 05/23/2019 10:00

Sample wt/vol: 5(mL) Date Analyzed: 05/29/2019 23:22

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	ND		1.0	0.82
79-34-5	1,1,2,2-Tetrachloroethane	ND		1.0	0.21
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.23
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31
75-34-3	1,1-Dichloroethane	ND		1.0	0.38
75-35-4	1,1-Dichloroethene	ND		1.0	0.29
120-82-1	1,2,4-Trichlorobenzene	ND		1.0	0.41
96-12-8	1,2-Dibromo-3-Chloropropane	ND		1.0	0.39
95-50-1	1,2-Dichlorobenzene	ND		1.0	0.79
107-06-2	1,2-Dichloroethane	ND		1.0	0.21
78-87-5	1,2-Dichloropropane	ND		1.0	0.72
541-73-1	1,3-Dichlorobenzene	ND		1.0	0.78
106-46-7	1,4-Dichlorobenzene	ND		1.0	0.84
78-93-3	2-Butanone (MEK)	ND		10	1.3
591-78-6	2-Hexanone	ND		5.0	1.2
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1
67-64-1	Acetone	ND		10	3.0
71-43-2	Benzene	ND		1.0	0.41
75-27-4	Bromodichloromethane	ND		1.0	0.39
75-25-2	Bromoform	ND		1.0	0.26
74-83-9	Bromomethane	ND		1.0	0.69
75-15-0	Carbon disulfide	ND		1.0	0.19
56-23-5	Carbon tetrachloride	ND		1.0	0.27
108-90-7	Chlorobenzene	ND		1.0	0.75
124-48-1	Dibromochloromethane	ND		1.0	0.32
75-00-3	Chloroethane	ND		1.0	0.32
67-66-3	Chloroform	ND		1.0	0.34
74-87-3	Chloromethane	ND		1.0	0.35
123-91-1	1,4-Dioxane	R ND		40	9.3 ✓
156-59-2	cis-1,2-Dichloroethene	ND		1.0	0.81
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.36
110-82-7	Cyclohexane	ND		1.0	0.18
75-71-8	Dichlorodifluoromethane	ND		1.0	0.68
100-41-4	Ethylbenzene	ND		1.0	0.74
106-93-4	1,2-Dibromoethane	ND		1.0	0.73

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-2S Lab Sample ID: 480-154020-3

Matrix: Water Lab File ID: N2273.D

Analysis Method: 8260C Date Collected: 05/23/2019 10:00

Sample wt/vol: 5(mL) Date Analyzed: 05/29/2019 23:22

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-82-8	Isopropylbenzene	ND		1.0	0.79
79-20-9	Methyl acetate	ND		2.5	1.3
1634-04-4	Methyl tert-butyl ether	ND		1.0	0.16
108-87-2	Methylcyclohexane	ND		1.0	0.16
75-09-2	Methylene Chloride	ND		1.0	0.44
100-42-5	Styrene	ND		1.0	0.73
127-18-4	Tetrachloroethene	ND		1.0	0.36
108-88-3	Toluene	ND		1.0	0.51
156-60-5	trans-1,2-Dichloroethene	ND		1.0	0.90
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.37
79-01-6	Trichloroethene	9.3		1.0	0.46
75-69-4	Trichlorofluoromethane	ND		1.0	0.88
75-01-4	Vinyl chloride	ND		1.0	0.90
1330-20-7	Xylenes, Total	ND		2.0	0.66

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	94		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	107		77-120
460-00-4	4-Bromofluorobenzene (Surr)	96		73-120
1868-53-7	Dibromofluoromethane (Surr)	102		75-123

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-2S Lab Sample ID: 480-154020-3

Matrix: Water Lab File ID: N2273.D

Analysis Method: 8260C Date Collected: 05/23/2019 10:00

Sample wt/vol: 5(mL) Date Analyzed: 05/29/2019 23:22

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

Number TICs Found: 0 TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-4S Lab Sample ID: 480-154020-4

Matrix: Water Lab File ID: N2274.D

Analysis Method: 8260C Date Collected: 05/23/2019 10:10

Sample wt/vol: 5(mL) Date Analyzed: 05/29/2019 23:47

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	ND		1.0	0.82
79-34-5	1,1,2,2-Tetrachloroethane	ND		1.0	0.21
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.23
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31
75-34-3	1,1-Dichloroethane	ND		1.0	0.38
75-35-4	1,1-Dichloroethene	ND		1.0	0.29
120-82-1	1,2,4-Trichlorobenzene	ND		1.0	0.41
96-12-8	1,2-Dibromo-3-Chloropropane	ND		1.0	0.39
95-50-1	1,2-Dichlorobenzene	ND		1.0	0.79
107-06-2	1,2-Dichloroethane	ND		1.0	0.21
78-87-5	1,2-Dichloropropane	ND		1.0	0.72
541-73-1	1,3-Dichlorobenzene	ND		1.0	0.78
106-46-7	1,4-Dichlorobenzene	ND		1.0	0.84
78-93-3	2-Butanone (MEK)	ND		10	1.3
591-78-6	2-Hexanone	ND		5.0	1.2
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1
67-64-1	Acetone	10U ~~3.8~~	✓	10	3.0
71-43-2	Benzene	ND		1.0	0.41
75-27-4	Bromodichloromethane	ND		1.0	0.39
75-25-2	Bromoform	ND		1.0	0.26
74-83-9	Bromomethane	ND		1.0	0.69
75-15-0	Carbon disulfide	ND		1.0	0.19
56-23-5	Carbon tetrachloride	ND		1.0	0.27
108-90-7	Chlorobenzene	ND		1.0	0.75
124-48-1	Dibromochloromethane	ND		1.0	0.32
75-00-3	Chloroethane	ND		1.0	0.32
67-66-3	Chloroform	ND		1.0	0.34
74-87-3	Chloromethane	ND		1.0	0.35
123-91-1	1,4-Dioxane	R ~~ND~~	✓	~~40~~	~~9.3~~
156-59-2	cis-1,2-Dichloroethene	ND		1.0	0.91
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.36
110-82-7	Cyclohexane	ND		1.0	0.18
75-71-8	Dichlorodifluoromethane	ND		1.0	0.68
100-41-4	Ethylbenzene	ND		1.0	0.74
106-93-4	1,2-Dibromoethane	ND		1.0	0.73

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-4S Lab Sample ID: 480-154020-4

Matrix: Water Lab File ID: N2274.D

Analysis Method: 8260C Date Collected: 05/23/2019 10:10

Sample wt/vol: 5(mL) Date Analyzed: 05/29/2019 23:47

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-82-8	Isopropylbenzene	ND		1.0	0.79
79-20-9	Methyl acetate	ND		2.5	1.3
1634-04-4	Methyl tert-butyl ether	ND		1.0	0.16
108-87-2	Methylcyclohexane	ND		1.0	0.16
75-09-2	Methylene Chloride	ND		1.0	0.44
100-42-5	Styrene	ND		1.0	0.73
127-18-4	Tetrachloroethene	ND		1.0	0.36
108-88-3	Toluene	ND		1.0	0.51
156-60-5	trans-1,2-Dichloroethene	ND		1.0	0.90
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.37
79-01-6	Trichloroethene	30		1.0	0.46
75-69-4	Trichlorofluoromethane	ND		1.0	0.88
75-01-4	Vinyl chloride	ND		1.0	0.90
1330-20-7	Xylenes, Total	ND		2.0	0.66

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	100		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	103		77-120
460-00-4	4-Bromofluorobenzene (Surr)	105		73-120
1868-53-7	Dibromofluoromethane (Surr)	102		75-123

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-4S Lab Sample ID: 480-154020-4

Matrix: Water Lab File ID: N2274.D

Analysis Method: 8260C Date Collected: 05/23/2019 10:10

Sample wt/vol: 5(mL) Date Analyzed: 05/29/2019 23:47

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

Number TICs Found: 0 TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-4D Lab Sample ID: 480-154020-5

Matrix: Water Lab File ID: N2275.D

Analysis Method: 8260C Date Collected: 05/23/2019 10:15

Sample wt/vol: 5 (mL) Date Analyzed: 05/30/2019 00:11

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18 (mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	ND		1.0	0.82
79-34-5	1,1,2,2-Tetrachloroethane	ND		1.0	0.21
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.23
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31
75-34-3	1,1-Dichloroethane	ND		1.0	0.38
75-35-4	1,1-Dichloroethene	ND		1.0	0.29
120-82-1	1,2,4-Trichlorobenzene	ND		1.0	0.41
96-12-8	1,2-Dibromo-3-Chloropropane	ND		1.0	0.39
95-50-1	1,2-Dichlorobenzene	ND		1.0	0.79
107-06-2	1,2-Dichloroethane	ND		1.0	0.21
78-87-5	1,2-Dichloropropane	ND		1.0	0.72
541-73-1	1,3-Dichlorobenzene	ND		1.0	0.78
106-46-7	1,4-Dichlorobenzene	ND		1.0	0.84
78-93-3	2-Butanone (MEK)	ND		10	1.3
591-78-6	2-Hexanone	ND		5.0	1.2
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1
67-64-1	Acetone	ND		10	3.0
71-43-2	Benzene	ND		1.0	0.41
75-27-4	Bromodichloromethane	ND		1.0	0.39
75-25-2	Bromoform	ND		1.0	0.26
74-83-9	Bromomethane	ND		1.0	0.69
75-15-0	Carbon disulfide	ND		1.0	0.19
56-23-5	Carbon tetrachloride	ND		1.0	0.27
108-90-7	Chlorobenzene	ND		1.0	0.75
124-48-1	Dibromochloromethane	ND		1.0	0.32
75-00-3	Chloroethane	ND		1.0	0.32
67-66-3	Chloroform	ND		1.0	0.34
74-87-3	Chloromethane	ND		1.0	0.35
123-91-1	1,4-Dioxane	R ND		40	9.3 ✓
156-59-2	cis-1,2-Dichloroethene	ND		1.0	0.81
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.36
110-82-7	Cyclohexane	ND		1.0	0.18
75-71-8	Dichlorodifluoromethane	ND		1.0	0.68
100-41-4	Ethylbenzene	ND		1.0	0.74
106-93-4	1,2-Dibromoethane	ND		1.0	0.73

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-4D Lab Sample ID: 480-154020-5

Matrix: Water Lab File ID: N2275.D

Analysis Method: 8260C Date Collected: 05/23/2019 10:15

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 00:11

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-82-8	Isopropylbenzene	ND		1.0	0.79
79-20-9	Methyl acetate	ND		2.5	1.3
1634-04-4	Methyl tert-butyl ether	ND		1.0	0.16
108-87-2	Methylcyclohexane	ND		1.0	0.16
75-09-2	Methylene Chloride	ND		1.0	0.44
100-42-5	Styrene	ND		1.0	0.73
127-18-4	Tetrachloroethene	ND		1.0	0.36
108-88-3	Toluene	ND		1.0	0.51
156-60-5	trans-1,2-Dichloroethene	ND		1.0	0.90
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.37
79-01-6	Trichloroethene	ND		1.0	0.46
75-69-4	Trichlorofluoromethane	ND		1.0	0.88
75-01-4	Vinyl chloride	ND		1.0	0.90
1330-20-7	Xylenes, Total	ND		2.0	0.66

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	96		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	103		77-120
460-00-4	4-Bromofluorobenzene (Surr)	101		73-120
1868-53-7	Dibromofluoromethane (Surr)	98		75-123

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-4D Lab Sample ID: 480-154020-5

Matrix: Water Lab File ID: N2275.D

Analysis Method: 8260C Date Collected: 05/23/2019 10:15

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 00:11

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

Number TICs Found: 0 TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-3S Lab Sample ID: 480-154020-6

Matrix: Water Lab File ID: N2276.D

Analysis Method: 8260C Date Collected: 05/23/2019 10:20

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 00:34

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	ND		1.0	0.82
79-34-5	1,1,2,2-Tetrachloroethane	ND		1.0	0.21
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.23
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31
75-34-3	1,1-Dichloroethane	ND		1.0	0.38
75-35-4	1,1-Dichloroethene	ND		1.0	0.29
120-82-1	1,2,4-Trichlorobenzene	ND		1.0	0.41
96-12-8	1,2-Dibromo-3-Chloropropane	ND		1.0	0.39
95-50-1	1,2-Dichlorobenzene	ND		1.0	0.79
107-06-2	1,2-Dichloroethane	ND		1.0	0.21
78-87-5	1,2-Dichloropropane	ND		1.0	0.72
541-73-1	1,3-Dichlorobenzene	ND		1.0	0.78
106-46-7	1,4-Dichlorobenzene	ND		1.0	0.84
78-93-3	2-Butanone (MEK)	ND		10	1.3
591-78-6	2-Hexanone	ND		5.0	1.2
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1
67-64-1	Acetone	ND		10	3.0
71-43-2	Benzene	ND		1.0	0.41
75-27-4	Bromodichloromethane	ND		1.0	0.39
75-25-2	Bromoform	ND		1.0	0.26
74-83-9	Bromomethane	ND		1.0	0.69
75-15-0	Carbon disulfide	ND		1.0	0.19
56-23-5	Carbon tetrachloride	ND		1.0	0.27
108-90-7	Chlorobenzene	ND		1.0	0.75
124-48-1	Dibromochloromethane	ND		1.0	0.32
75-00-3	Chloroethane	ND		1.0	0.32
67-66-3	Chloroform	ND		1.0	0.34
74-87-3	Chloromethane	ND		1.0	0.35
123-91-1	1,4-Dioxane	R ND		40	9.3 ✓
156-59-2	cis-1,2-Dichloroethene	2.5		1.0	0.81
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.36
110-82-7	Cyclohexane	ND		1.0	0.18
75-71-8	Dichlorodifluoromethane	ND		1.0	0.68
100-41-4	Ethylbenzene	ND		1.0	0.74
106-93-4	1,2-Dibromoethane	ND		1.0	0.73

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-3S Lab Sample ID: 480-154020-6

Matrix: Water Lab File ID: N2276.D

Analysis Method: 8260C Date Collected: 05/23/2019 10:20

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 00:34

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-82-8	Isopropylbenzene	ND		1.0	0.79
79-20-9	Methyl acetate	ND		2.5	1.3
1634-04-4	Methyl tert-butyl ether	ND		1.0	0.16
108-87-2	Methylcyclohexane	ND		1.0	0.16
75-09-2	Methylene Chloride	ND		1.0	0.44
100-42-5	Styrene	ND		1.0	0.73
127-18-4	Tetrachloroethene	ND		1.0	0.36
108-88-3	Toluene	ND		1.0	0.51
156-60-5	trans-1,2-Dichloroethene	ND		1.0	0.90
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.37
79-01-6	Trichloroethene	33		1.0	0.46
75-69-4	Trichlorofluoromethane	ND		1.0	0.88
75-01-4	Vinyl chloride	ND		1.0	0.90
1330-20-7	Xylenes, Total	ND		2.0	0.66

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	99		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	111		77-120
460-00-4	4-Bromofluorobenzene (Surr)	97		73-120
1868-53-7	Dibromofluoromethane (Surr)	108		75-123

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-3S Lab Sample ID: 480-154020-6

Matrix: Water Lab File ID: N2276.D

Analysis Method: 8260C Date Collected: 05/23/2019 10:20

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 00:34

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

Number TICs Found: 0 TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-3D Lab Sample ID: 480-154020-7

Matrix: Water Lab File ID: N2277.D

Analysis Method: 8260C Date Collected: 05/23/2019 10:25

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 00:59

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	ND		1.0	0.82
79-34-5	1,1,2,2-Tetrachloroethane	ND		1.0	0.21
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.23
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31
75-34-3	1,1-Dichloroethane	ND		1.0	0.38
75-35-4	1,1-Dichloroethene	ND		1.0	0.29
120-82-1	1,2,4-Trichlorobenzene	ND		1.0	0.41
96-12-8	1,2-Dibromo-3-Chloropropane	ND		1.0	0.39
95-50-1	1,2-Dichlorobenzene	ND		1.0	0.79
107-06-2	1,2-Dichloroethane	ND		1.0	0.21
78-87-5	1,2-Dichloropropane	ND		1.0	0.72
541-73-1	1,3-Dichlorobenzene	ND		1.0	0.78
106-46-7	1,4-Dichlorobenzene	ND		1.0	0.84
78-93-3	2-Butanone (MEK)	ND		10	1.3
591-78-6	2-Hexanone	ND		5.0	1.2
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1
67-64-1	Acetone	104		10	3.0
71-43-2	Benzene	ND		1.0	0.41
75-27-4	Bromodichloromethane	ND		1.0	0.39
75-25-2	Bromoform	ND		1.0	0.26
74-83-9	Bromomethane	ND		1.0	0.69
75-15-0	Carbon disulfide	ND		1.0	0.19
56-23-5	Carbon tetrachloride	ND		1.0	0.27
108-90-7	Chlorobenzene	ND		1.0	0.75
124-48-1	Dibromochloromethane	ND		1.0	0.32
75-00-3	Chloroethane	ND		1.0	0.32
67-66-3	Chloroform	ND		1.0	0.34
74-87-3	Chloromethane	ND		1.0	0.35
123-91-1	1,4-Dioxane	R ND		40	9.3
156-59-2	cis-1,2-Dichloroethene	58		1.0	0.81
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.36
110-82-7	Cyclohexane	ND		1.0	0.18
75-71-8	Dichlorodifluoromethane	ND		1.0	0.68
100-41-4	Ethylbenzene	ND		1.0	0.74
106-93-4	1,2-Dibromoethane	ND		1.0	0.73

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-3D Lab Sample ID: 480-154020-7

Matrix: Water Lab File ID: N2277.D

Analysis Method: 8260C Date Collected: 05/23/2019 10:25

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 00:59

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-82-8	Isopropylbenzene	ND		1.0	0.79
79-20-9	Methyl acetate	ND		2.5	1.3
1634-04-4	Methyl tert-butyl ether	ND		1.0	0.16
108-87-2	Methylcyclohexane	ND		1.0	0.16
75-09-2	Methylene Chloride	ND		1.0	0.44
100-42-5	Styrene	ND		1.0	0.73
127-18-4	Tetrachloroethene	ND		1.0	0.36
108-88-3	Toluene	ND		1.0	0.51
156-60-5	trans-1,2-Dichloroethene	2.0		1.0	0.90
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.37
79-01-6	Trichloroethene	1.3		1.0	0.46
75-69-4	Trichlorofluoromethane	ND		1.0	0.88
75-01-4	Vinyl chloride	ND		1.0	0.90
1330-20-7	Xylenes, Total	ND		2.0	0.66

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	98		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	110		77-120
460-00-4	4-Bromofluorobenzene (Surr)	108		73-120
1868-53-7	Dibromofluoromethane (Surr)	104		75-123

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-3D Lab Sample ID: 480-154020-7

Matrix: Water Lab File ID: N2277.D

Analysis Method: 8260C Date Collected: 05/23/2019 10:25

Sample wt/vol: 5 (mL) Date Analyzed: 05/30/2019 00:59

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18 (mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

Number TICs Found: 0 TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-6S Lab Sample ID: 480-154020-8

Matrix: Water Lab File ID: N2278.D

Analysis Method: 8260C Date Collected: 05/23/2019 10:40

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 01:23

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	ND		1.0	0.82
79-34-5	1,1,2,2-Tetrachloroethane	ND		1.0	0.21
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.23
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31
75-34-3	1,1-Dichloroethane	ND		1.0	0.38
75-35-4	1,1-Dichloroethene	ND		1.0	0.29
120-82-1	1,2,4-Trichlorobenzene	ND		1.0	0.41
96-12-8	1,2-Dibromo-3-Chloropropane	ND		1.0	0.39
95-50-1	1,2-Dichlorobenzene	ND		1.0	0.79
107-06-2	1,2-Dichloroethane	ND		1.0	0.21
78-87-5	1,2-Dichloropropane	ND		1.0	0.72
541-73-1	1,3-Dichlorobenzene	ND		1.0	0.78
106-46-7	1,4-Dichlorobenzene	ND		1.0	0.84
78-93-3	2-Butanone (MEK)	ND		10	1.3
591-78-6	2-Hexanone	ND		5.0	1.2
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1
67-64-1	Acetone	ND		10	3.0
71-43-2	Benzene	ND		1.0	0.41
75-27-4	Bromodichloromethane	ND		1.0	0.39
75-25-2	Bromoform	ND		1.0	0.26
74-83-9	Bromomethane	ND		1.0	0.69
75-15-0	Carbon disulfide	ND		1.0	0.19
56-23-5	Carbon tetrachloride	ND		1.0	0.27
108-90-7	Chlorobenzene	ND		1.0	0.75
124-48-1	Dibromochloromethane	ND		1.0	0.32
75-00-3	Chloroethane	ND		1.0	0.32
67-66-3	Chloroform	ND		1.0	0.34
74-87-3	Chloromethane	ND		1.0	0.35
123-91-1	1,4-Dioxane	R ND		40	9.3 J
156-59-2	cis-1,2-Dichloroethene	ND		1.0	0.81
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.36
110-82-7	Cyclohexane	ND		1.0	0.18
75-71-8	Dichlorodifluoromethane	ND		1.0	0.68
100-41-4	Ethylbenzene	ND		1.0	0.74
106-93-4	1,2-Dibromoethane	ND		1.0	0.73

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-6S Lab Sample ID: 480-154020-8

Matrix: Water Lab File ID: N2278.D

Analysis Method: 8260C Date Collected: 05/23/2019 10:40

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 01:23

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-82-8	Isopropylbenzene	ND		1.0	0.79
79-20-9	Methyl acetate	ND		2.5	1.3
1634-04-4	Methyl tert-butyl ether	ND		1.0	0.16
108-87-2	Methylcyclohexane	ND		1.0	0.16
75-09-2	Methylene Chloride	ND		1.0	0.44
100-42-5	Styrene	ND		1.0	0.73
127-18-4	Tetrachloroethene	ND		1.0	0.36
108-88-3	Toluene	ND		1.0	0.51
156-60-5	trans-1,2-Dichloroethene	ND		1.0	0.90
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.37
79-01-6	Trichloroethene	4.4		1.0	0.46
75-69-4	Trichlorofluoromethane	ND		1.0	0.88
75-01-4	Vinyl chloride	ND		1.0	0.90
1330-20-7	Xylenes, Total	ND		2.0	0.66

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	98		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	105		77-120
460-00-4	4-Bromofluorobenzene (Surr)	101		73-120
1868-53-7	Dibromofluoromethane (Surr)	105		75-123

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1
SDG No.:
Client Sample ID: HF-MW-6S Lab Sample ID: 480-154020-8
Matrix: Water Lab File ID: N2278.D
Analysis Method: 8260C Date Collected: 05/23/2019 10:40
Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 01:23
Soil Aliquot Vol: Dilution Factor: 1
Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)
% Moisture: Level: (low/med) Low
Analysis Batch No.: 475202 Units: ug/L
Number TICs Found: 0 TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-6D Lab Sample ID: 480-154020-9

Matrix: Water Lab File ID: N2279.D

Analysis Method: 8260C Date Collected: 05/23/2019 10:45

Sample wt/vol: 5 (mL) Date Analyzed: 05/30/2019 01:47

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18 (mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	ND		1.0	0.82
79-34-5	1,1,2,2-Tetrachloroethane	ND		1.0	0.21
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.23
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31
75-34-3	1,1-Dichloroethane	ND		1.0	0.38
75-35-4	1,1-Dichloroethene	ND		1.0	0.29
120-82-1	1,2,4-Trichlorobenzene	ND		1.0	0.41
96-12-8	1,2-Dibromo-3-Chloropropane	ND		1.0	0.39
95-50-1	1,2-Dichlorobenzene	ND		1.0	0.79
107-06-2	1,2-Dichloroethane	ND		1.0	0.21
78-87-5	1,2-Dichloropropane	ND		1.0	0.72
541-73-1	1,3-Dichlorobenzene	ND		1.0	0.78
106-46-7	1,4-Dichlorobenzene	ND		1.0	0.84
78-93-3	2-Butanone (MEK)	ND		10	1.3
591-78-6	2-Hexanone	ND		5.0	1.2
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1
67-64-1	Acetone	ND		10	3.0
71-43-2	Benzene	ND		1.0	0.41
75-27-4	Bromodichloromethane	ND		1.0	0.39
75-25-2	Bromoform	ND		1.0	0.26
74-83-9	Bromomethane	ND		1.0	0.69
75-15-0	Carbon disulfide	ND		1.0	0.19
56-23-5	Carbon tetrachloride	ND		1.0	0.27
108-90-7	Chlorobenzene	ND		1.0	0.75
124-48-1	Dibromochloromethane	ND		1.0	0.32
75-00-3	Chloroethane	ND		1.0	0.32
67-66-3	Chloroform	ND		1.0	0.34
74-87-3	Chloromethane	ND		1.0	0.35
123-91-1	1,4-Dioxane	R ~~ND~~		~~40~~	~~9.3~~ ✓
156-59-2	cis-1,2-Dichloroethene	ND		1.0	0.81
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.36
110-82-7	Cyclohexane	ND		1.0	0.18
75-71-8	Dichlorodifluoromethane	ND		1.0	0.68
100-41-4	Ethylbenzene	ND		1.0	0.74
106-93-4	1,2-Dibromoethane	ND		1.0	0.73

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-6D Lab Sample ID: 480-154020-9

Matrix: Water Lab File ID: N2279.D

Analysis Method: 8260C Date Collected: 05/23/2019 10:45

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 01:47

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-82-8	Isopropylbenzene	ND		1.0	0.79
79-20-9	Methyl acetate	ND		2.5	1.3
1634-04-4	Methyl tert-butyl ether	ND		1.0	0.16
108-87-2	Methylcyclohexane	ND		1.0	0.16
75-09-2	Methylene Chloride	ND		1.0	0.44
100-42-5	Styrene	ND		1.0	0.73
127-18-4	Tetrachloroethene	ND		1.0	0.36
108-88-3	Toluene	ND		1.0	0.51
156-60-5	trans-1,2-Dichloroethene	ND		1.0	0.90
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.37
79-01-6	Trichloroethene	ND		1.0	0.46
75-69-4	Trichlorofluoromethane	ND		1.0	0.88
75-01-4	Vinyl chloride	ND		1.0	0.90
1330-20-7	Xylenes, Total	ND		2.0	0.66

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	95		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	101		77-120
460-00-4	4-Bromofluorobenzene (Surr)	103		73-120
1868-53-7	Dibromofluoromethane (Surr)	102		75-123

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-6D Lab Sample ID: 480-154020-9

Matrix: Water Lab File ID: N2279.D

Analysis Method: 8260C Date Collected: 05/23/2019 10:45

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 01:47

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

Number TICs Found: 0 TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-10S Lab Sample ID: 480-154020-10

Matrix: Water Lab File ID: N2280.D

Analysis Method: 8260C Date Collected: 05/23/2019 10:55

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 02:11

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	ND		1.0	0.82
79-34-5	1,1,2,2-Tetrachloroethane	ND		1.0	0.21
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.23
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31
75-34-3	1,1-Dichloroethane	ND		1.0	0.38
75-35-4	1,1-Dichloroethene	ND		1.0	0.29
120-82-1	1,2,4-Trichlorobenzene	ND		1.0	0.41
96-12-8	1,2-Dibromo-3-Chloropropane	ND		1.0	0.39
95-50-1	1,2-Dichlorobenzene	ND		1.0	0.79
107-06-2	1,2-Dichloroethane	ND		1.0	0.21
78-87-5	1,2-Dichloropropane	ND		1.0	0.72
541-73-1	1,3-Dichlorobenzene	ND		1.0	0.78
106-46-7	1,4-Dichlorobenzene	ND		1.0	0.84
78-93-3	2-Butanone (MEK)	ND		10	1.3
591-78-6	2-Hexanone	ND		5.0	1.2
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1
67-64-1	Acetone	ND		10	3.0
71-43-2	Benzene	ND		1.0	0.41
75-27-4	Bromodichloromethane	ND		1.0	0.39
75-25-2	Bromoform	ND		1.0	0.26
74-83-9	Bromomethane	ND		1.0	0.69
75-15-0	Carbon disulfide	ND		1.0	0.19
56-23-5	Carbon tetrachloride	ND		1.0	0.27
108-90-7	Chlorobenzene	ND		1.0	0.75
124-48-1	Dibromochloromethane	ND		1.0	0.32
75-00-3	Chloroethane	ND		1.0	0.32
67-66-3	Chloroform	ND		1.0	0.34
74-87-3	Chloromethane	ND		1.0	0.35
123-91-1	1,4-Dioxane	R ND		40	9.3 ✓
156-59-2	cis-1,2-Dichloroethene	ND		1.0	0.81
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.36
110-82-7	Cyclohexane	ND		1.0	0.18
75-71-8	Dichlorodifluoromethane	ND		1.0	0.68
100-41-4	Ethylbenzene	ND		1.0	0.74
106-93-4	1,2-Dibromoethane	ND		1.0	0.73

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-10S Lab Sample ID: 480-154020-10

Matrix: Water Lab File ID: N2280.D

Analysis Method: 8260C Date Collected: 05/23/2019 10:55

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 02:11

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-82-8	Isopropylbenzene	ND		1.0	0.79
79-20-9	Methyl acetate	ND		2.5	1.3
1634-04-4	Methyl tert-butyl ether	ND		1.0	0.16
108-87-2	Methylcyclohexane	ND		1.0	0.16
75-09-2	Methylene Chloride	ND		1.0	0.44
100-42-5	Styrene	ND		1.0	0.73
127-18-4	Tetrachloroethene	ND		1.0	0.36
108-88-3	Toluene	ND		1.0	0.51
156-60-5	trans-1,2-Dichloroethene	ND		1.0	0.90
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.37
79-01-6	Trichloroethene	0.69	J	1.0	0.46
75-69-4	Trichlorofluoromethane	ND		1.0	0.88
75-01-4	Vinyl chloride	ND		1.0	0.90
1330-20-7	Xylenes, Total	ND		2.0	0.66

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	95		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	108		77-120
460-00-4	4-Bromofluorobenzene (Surr)	96		73-120
1868-53-7	Dibromofluoromethane (Surr)	102		75-123

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-10S Lab Sample ID: 480-154020-10

Matrix: Water Lab File ID: N2280.D

Analysis Method: 8260C Date Collected: 05/23/2019 10:55

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 02:11

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

Number TICs Found: 0 TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-10D Lab Sample ID: 480-154020-11

Matrix: Water Lab File ID: N2281.D

Analysis Method: 8260C Date Collected: 05/23/2019 11:00

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 02:35

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	ND		1.0	0.82
79-34-5	1,1,2,2-Tetrachloroethane	ND		1.0	0.21
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.23
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31
75-34-3	1,1-Dichloroethane	ND		1.0	0.38
75-35-4	1,1-Dichloroethene	ND		1.0	0.29
120-82-1	1,2,4-Trichlorobenzene	ND		1.0	0.41
96-12-8	1,2-Dibromo-3-Chloropropane	ND		1.0	0.39
95-50-1	1,2-Dichlorobenzene	ND		1.0	0.79
107-06-2	1,2-Dichloroethane	ND		1.0	0.21
78-87-5	1,2-Dichloropropane	ND		1.0	0.72
541-73-1	1,3-Dichlorobenzene	ND		1.0	0.78
106-46-7	1,4-Dichlorobenzene	ND		1.0	0.84
78-93-3	2-Butanone (MEK)	ND		10	1.3
591-78-6	2-Hexanone	ND		5.0	1.2
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1
67-64-1	Acetone	ND		10	3.0
71-43-2	Benzene	ND		1.0	0.41
75-27-4	Bromodichloromethane	ND		1.0	0.39
75-25-2	Bromoform	ND		1.0	0.26
74-83-9	Bromomethane	ND		1.0	0.69
75-15-0	Carbon disulfide	ND		1.0	0.19
56-23-5	Carbon tetrachloride	ND		1.0	0.27
108-90-7	Chlorobenzene	ND		1.0	0.75
124-48-1	Dibromochloromethane	ND		1.0	0.32
75-00-3	Chloroethane	ND		1.0	0.32
67-66-3	Chloroform	ND		1.0	0.34
74-87-3	Chloromethane	ND		1.0	0.35
123-91-1	1,4-Dioxane	R ND		40	9.3 ✓
156-59-2	cis-1,2-Dichloroethene	ND		1.0	0.81
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.36
110-82-7	Cyclohexane	ND		1.0	0.18
75-71-8	Dichlorodifluoromethane	ND		1.0	0.68
100-41-4	Ethylbenzene	ND		1.0	0.74
106-93-4	1,2-Dibromoethane	ND		1.0	0.73

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-10D Lab Sample ID: 480-154020-11

Matrix: Water Lab File ID: N2281.D

Analysis Method: 8260C Date Collected: 05/23/2019 11:00

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 02:35

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-82-8	Isopropylbenzene	ND		1.0	0.79
79-20-9	Methyl acetate	ND		2.5	1.3
1634-04-4	Methyl tert-butyl ether	ND		1.0	0.16
108-87-2	Methylcyclohexane	ND		1.0	0.16
75-09-2	Methylene Chloride	ND		1.0	0.44
100-42-5	Styrene	ND		1.0	0.73
127-18-4	Tetrachloroethene	ND		1.0	0.36
108-88-3	Toluene	ND		1.0	0.51
156-60-5	trans-1,2-Dichloroethene	ND		1.0	0.90
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.37
79-01-6	Trichloroethene	ND		1.0	0.46
75-69-4	Trichlorofluoromethane	ND		1.0	0.88
75-01-4	Vinyl chloride	ND		1.0	0.90
1330-20-7	Xylenes, Total	ND		2.0	0.66

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	97		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	104		77-120
460-00-4	4-Bromofluorobenzene (Surr)	95		73-120
1868-53-7	Dibromofluoromethane (Surr)	99		75-123

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-10D Lab Sample ID: 480-154020-11

Matrix: Water Lab File ID: N2281.D

Analysis Method: 8260C Date Collected: 05/23/2019 11:00

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 02:35

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

Number TICs Found: 0 TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-15S Lab Sample ID: 480-154020-12

Matrix: Water Lab File ID: N2282.D

Analysis Method: 8260C Date Collected: 05/23/2019 11:10

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 02:59

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	ND		1.0	0.82
79-34-5	1,1,2,2-Tetrachloroethane	ND		1.0	0.21
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.23
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31
75-34-3	1,1-Dichloroethane	ND		1.0	0.38
75-35-4	1,1-Dichloroethene	ND		1.0	0.29
120-82-1	1,2,4-Trichlorobenzene	ND		1.0	0.41
96-12-8	1,2-Dibromo-3-Chloropropane	ND		1.0	0.39
95-50-1	1,2-Dichlorobenzene	ND		1.0	0.79
107-06-2	1,2-Dichloroethane	ND		1.0	0.21
78-87-5	1,2-Dichloropropane	ND		1.0	0.72
541-73-1	1,3-Dichlorobenzene	ND		1.0	0.78
106-46-7	1,4-Dichlorobenzene	ND		1.0	0.84
78-93-3	2-Butanone (MEK)	ND		10	1.3
591-78-6	2-Hexanone	ND		5.0	1.2
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1
67-64-1	Acetone	ND		10	3.0
71-43-2	Benzene	ND		1.0	0.41
75-27-4	Bromodichloromethane	ND		1.0	0.39
75-25-2	Bromoform	ND		1.0	0.26
74-83-9	Bromomethane	ND		1.0	0.69
75-15-0	Carbon disulfide	ND		1.0	0.19
56-23-5	Carbon tetrachloride	ND		1.0	0.27
108-90-7	Chlorobenzene	ND		1.0	0.75
124-48-1	Dibromochloromethane	ND		1.0	0.32
75-00-3	Chloroethane	ND		1.0	0.32
67-66-3	Chloroform	ND		1.0	0.34
74-87-3	Chloromethane	ND		1.0	0.35
123-91-1	1,4-Dioxane	R ND		40	9.3 ✓
156-59-2	cis-1,2-Dichloroethene	ND		1.0	0.81
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.36
110-82-7	Cyclohexane	ND		1.0	0.18
75-71-8	Dichlorodifluoromethane	ND		1.0	0.68
100-41-4	Ethylbenzene	ND		1.0	0.74
106-93-4	1,2-Dibromoethane	ND		1.0	0.73

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-15S Lab Sample ID: 480-154020-12

Matrix: Water Lab File ID: N2282.D

Analysis Method: 8260C Date Collected: 05/23/2019 11:10

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 02:59

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-82-8	Isopropylbenzene	ND		1.0	0.79
79-20-9	Methyl acetate	ND		2.5	1.3
1634-04-4	Methyl tert-butyl ether	ND		1.0	0.16
108-87-2	Methylcyclohexane	ND		1.0	0.16
75-09-2	Methylene Chloride	ND		1.0	0.44
100-42-5	Styrene	ND		1.0	0.73
127-18-4	Tetrachloroethene	ND		1.0	0.36
108-88-3	Toluene	ND		1.0	0.51
156-60-5	trans-1,2-Dichloroethene	ND		1.0	0.90
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.37
79-01-6	Trichloroethene	6.7		1.0	0.46
75-69-4	Trichlorofluoromethane	ND		1.0	0.88
75-01-4	Vinyl chloride	ND		1.0	0.90
1330-20-7	Xylenes, Total	ND		2.0	0.66

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	99		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	114		77-120
460-00-4	4-Bromofluorobenzene (Surr)	103		73-120
1868-53-7	Dibromofluoromethane (Surr)	109		75-123

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1
SDG No.:
Client Sample ID: HF-MW-15S Lab Sample ID: 480-154020-12
Matrix: Water Lab File ID: N2282.D
Analysis Method: 8260C Date Collected: 05/23/2019 11:10
Sample wt/vol: 5 (mL) Date Analyzed: 05/30/2019 02:59
Soil Aliquot Vol: Dilution Factor: 1
Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18 (mm)
% Moisture: Level: (low/med) Low
Analysis Batch No.: 475202 Units: ug/L
Number TICs Found: 0 TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-15D Lab Sample ID: 480-154020-13

Matrix: Water Lab File ID: N2283.D

Analysis Method: 8260C Date Collected: 05/23/2019 11:15

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 03:24

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	ND		1.0	0.82
79-34-5	1,1,2,2-Tetrachloroethane	ND		1.0	0.21
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.23
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31
75-34-3	1,1-Dichloroethane	ND		1.0	0.38
75-35-4	1,1-Dichloroethene	ND		1.0	0.29
120-82-1	1,2,4-Trichlorobenzene	ND		1.0	0.41
96-12-8	1,2-Dibromo-3-Chloropropane	ND		1.0	0.39
95-50-1	1,2-Dichlorobenzene	ND		1.0	0.79
107-06-2	1,2-Dichloroethane	ND		1.0	0.21
78-87-5	1,2-Dichloropropane	ND		1.0	0.72
541-73-1	1,3-Dichlorobenzene	ND		1.0	0.78
106-46-7	1,4-Dichlorobenzene	ND		1.0	0.84
78-93-3	2-Butanone (MEK)	ND		10	1.3
591-78-6	2-Hexanone	ND		5.0	1.2
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1
67-64-1	Acetone	ND		10	3.0
71-43-2	Benzene	ND		1.0	0.41
75-27-4	Bromodichloromethane	ND		1.0	0.39
75-25-2	Bromoform	ND		1.0	0.26
74-83-9	Bromomethane	ND		1.0	0.69
75-15-0	Carbon disulfide	ND		1.0	0.19
56-23-5	Carbon tetrachloride	ND		1.0	0.27
108-90-7	Chlorobenzene	ND		1.0	0.75
124-48-1	Dibromochloromethane	ND		1.0	0.32
75-00-3	Chloroethane	ND		1.0	0.32
67-66-3	Chloroform	ND		1.0	0.34
74-87-3	Chloromethane	ND		1.0	0.35
123-91-1	1,4-Dioxane	ND		40	9.3
156-59-2	cis-1,2-Dichloroethene	ND		1.0	0.81
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.36
110-82-7	Cyclohexane	ND		1.0	0.18
75-71-8	Dichlorodifluoromethane	ND		1.0	0.68
100-41-4	Ethylbenzene	ND		1.0	0.74
106-93-4	1,2-Dibromoethane	ND		1.0	0.73

R ✓

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-15D Lab Sample ID: 480-154020-13

Matrix: Water Lab File ID: N2283.D

Analysis Method: 8260C Date Collected: 05/23/2019 11:15

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 03:24

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-82-8	Isopropylbenzene	ND		1.0	0.79
79-20-9	Methyl acetate	ND		2.5	1.3
1634-04-4	Methyl tert-butyl ether	ND		1.0	0.16
108-87-2	Methylcyclohexane	ND		1.0	0.16
75-09-2	Methylene Chloride	ND		1.0	0.44
100-42-5	Styrene	ND		1.0	0.73
127-18-4	Tetrachloroethene	ND		1.0	0.36
108-88-3	Toluene	ND		1.0	0.51
156-60-5	trans-1,2-Dichloroethene	ND		1.0	0.90
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.37
79-01-6	Trichloroethene	ND		1.0	0.46
75-69-4	Trichlorofluoromethane	ND		1.0	0.88
75-01-4	Vinyl chloride	ND		1.0	0.90
1330-20-7	Xylenes, Total	ND		2.0	0.66

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	99		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	105		77-120
460-00-4	4-Bromofluorobenzene (Surr)	101		73-120
1868-53-7	Dibromofluoromethane (Surr)	104		75-123

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-15D Lab Sample ID: 480-154020-13

Matrix: Water Lab File ID: N2283.D

Analysis Method: 8260C Date Collected: 05/23/2019 11:15

Sample wt/vol: 5 (mL) Date Analyzed: 05/30/2019 03:24

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18 (mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

Number TICs Found: 1 TIC Result Total: 2.7

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Unknown	2.99	2.7	J	

Do not report ✓

FORM I-TIC 8260C

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-17D Lab Sample ID: 480-154020-14

Matrix: Water Lab File ID: N2284.D

Analysis Method: 8260C Date Collected: 05/23/2019 11:20

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 03:48

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	ND		1.0	0.82
79-34-5	1,1,2,2-Tetrachloroethane	ND		1.0	0.21
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.23
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31
75-34-3	1,1-Dichloroethane	ND		1.0	0.38
75-35-4	1,1-Dichloroethene	ND		1.0	0.29
120-82-1	1,2,4-Trichlorobenzene	ND		1.0	0.41
96-12-8	1,2-Dibromo-3-Chloropropane	ND		1.0	0.39
95-50-1	1,2-Dichlorobenzene	ND		1.0	0.79
107-06-2	1,2-Dichloroethane	ND		1.0	0.21
78-87-5	1,2-Dichloropropane	ND		1.0	0.72
541-73-1	1,3-Dichlorobenzene	ND		1.0	0.78
106-46-7	1,4-Dichlorobenzene	ND		1.0	0.84
78-93-3	2-Butanone (MEK)	ND		10	1.3
591-78-6	2-Hexanone	ND		5.0	1.2
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1
67-64-1	Acetone	ND		10	3.0
71-43-2	Benzene	ND		1.0	0.41
75-27-4	Bromodichloromethane	ND		1.0	0.39
75-25-2	Bromoform	ND		1.0	0.26
74-83-9	Bromomethane	ND		1.0	0.69
75-15-0	Carbon disulfide	ND		1.0	0.19
56-23-5	Carbon tetrachloride	ND		1.0	0.27
108-90-7	Chlorobenzene	ND		1.0	0.75
124-48-1	Dibromochloromethane	ND		1.0	0.32
75-00-3	Chloroethane	ND		1.0	0.32
67-66-3	Chloroform	ND		1.0	0.34
74-87-3	Chloromethane	ND		1.0	0.35
123-91-1	1,4-Dioxane	ND		40	9.3
156-59-2	cis-1,2-Dichloroethene	ND		1.0	0.81
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.36
110-82-7	Cyclohexane	ND		1.0	0.18
75-71-8	Dichlorodifluoromethane	ND		1.0	0.68
100-41-4	Ethylbenzene	ND		1.0	0.74
106-93-4	1,2-Dibromoethane	ND		1.0	0.73

R ✓

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-17D Lab Sample ID: 480-154020-14

Matrix: Water Lab File ID: N2284.D

Analysis Method: 8260C Date Collected: 05/23/2019 11:20

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 03:48

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-82-8	Isopropylbenzene	ND		1.0	0.79
79-20-9	Methyl acetate	ND		2.5	1.3
1634-04-4	Methyl tert-butyl ether	ND		1.0	0.16
108-87-2	Methylcyclohexane	ND		1.0	0.16
75-09-2	Methylene Chloride	ND		1.0	0.44
100-42-5	Styrene	ND		1.0	0.73
127-18-4	Tetrachloroethene	ND		1.0	0.36
108-88-3	Toluene	ND		1.0	0.51
156-60-5	trans-1,2-Dichloroethene	ND		1.0	0.90
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.37
79-01-6	Trichloroethene	ND		1.0	0.46
75-69-4	Trichlorofluoromethane	ND		1.0	0.88
75-01-4	Vinyl chloride	ND		1.0	0.90
1330-20-7	Xylenes, Total	ND		2.0	0.66

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	102		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	108		77-120
460-00-4	4-Bromofluorobenzene (Surr)	100		73-120
1868-53-7	Dibromofluoromethane (Surr)	102		75-123

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-MW-17D Lab Sample ID: 480-154020-14

Matrix: Water Lab File ID: N2284.D

Analysis Method: 8260C Date Collected: 05/23/2019 11:20

Sample wt/vol: 5 (mL) Date Analyzed: 05/30/2019 03:48

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18 (mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

Number TICs Found: 0 TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-EB-02 Lab Sample ID: 480-154020-15

Matrix: Water Lab File ID: N2285.D

Analysis Method: 8260C Date Collected: 05/23/2019 11:30

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 04:11

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	ND		1.0	0.82
79-34-5	1,1,2,2-Tetrachloroethane	ND		1.0	0.21
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.23
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31
75-34-3	1,1-Dichloroethane	ND		1.0	0.38
75-35-4	1,1-Dichloroethene	ND		1.0	0.29
120-82-1	1,2,4-Trichlorobenzene	ND		1.0	0.41
96-12-8	1,2-Dibromo-3-Chloropropane	ND		1.0	0.39
95-50-1	1,2-Dichlorobenzene	ND		1.0	0.79
107-06-2	1,2-Dichloroethane	ND		1.0	0.21
78-87-5	1,2-Dichloropropane	ND		1.0	0.72
541-73-1	1,3-Dichlorobenzene	ND		1.0	0.78
106-46-7	1,4-Dichlorobenzene	ND		1.0	0.84
78-93-3	2-Butanone (MEK)	ND		10	1.3
591-78-6	2-Hexanone	ND		5.0	1.2
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1
67-64-1	Acetone	4.2	J	10	3.0
71-43-2	Benzene	ND		1.0	0.41
75-27-4	Bromodichloromethane	ND		1.0	0.39
75-25-2	Bromoform	ND		1.0	0.26
74-83-9	Bromomethane	ND		1.0	0.69
75-15-0	Carbon disulfide	ND		1.0	0.19
56-23-5	Carbon tetrachloride	ND		1.0	0.27
108-90-7	Chlorobenzene	ND		1.0	0.75
124-48-1	Dibromochloromethane	ND		1.0	0.32
75-00-3	Chloroethane	ND		1.0	0.32
67-66-3	Chloroform	ND		1.0	0.34
74-87-3	Chloromethane	ND		1.0	0.35
123-91-1	1,4-Dioxane	ND		40	3.8
156-59-2	cis-1,2-Dichloroethene	ND		1.0	0.81
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.36
110-82-7	Cyclohexane	ND		1.0	0.18
75-71-8	Dichlorodifluoromethane	ND		1.0	0.68
100-41-4	Ethylbenzene	ND		1.0	0.74
106-93-4	1,2-Dibromoethane	ND		1.0	0.73

R ✓

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1
SDG No.:
Client Sample ID: HF-EB-02 Lab Sample ID: 480-154020-15
Matrix: Water Lab File ID: N2285.D
Analysis Method: 8260C Date Collected: 05/23/2019 11:30
Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 04:11
Soil Aliquot Vol: Dilution Factor: 1
Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)
% Moisture: Level: (low/med) Low
Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-82-8	Isopropylbenzene	ND		1.0	0.79
79-20-9	Methyl acetate	ND		2.5	1.3
1634-04-4	Methyl tert-butyl ether	ND		1.0	0.16
108-87-2	Methylcyclohexane	ND		1.0	0.16
75-09-2	Methylene Chloride	ND		1.0	0.44
100-42-5	Styrene	ND		1.0	0.73
127-18-4	Tetrachloroethene	ND		1.0	0.36
108-88-3	Toluene	ND		1.0	0.51
156-60-5	trans-1,2-Dichloroethene	ND		1.0	0.90
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.37
79-01-6	Trichloroethene	ND		1.0	0.46
75-69-4	Trichlorofluoromethane	ND		1.0	0.88
75-01-4	Vinyl chloride	ND		1.0	0.90
1330-20-7	Xylenes, Total	ND		2.0	0.66

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	99		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	110		77-120
460-00-4	4-Bromofluorobenzene (Surr)	100		73-120
1868-53-7	Dibromofluoromethane (Surr)	104		75-123

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: HF-EB-02 Lab Sample ID: 480-154020-15

Matrix: Water Lab File ID: N2285.D

Analysis Method: 8260C Date Collected: 05/23/2019 11:30

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 04:11

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

Number TICs Found: 0 TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: TRIP BLANK Lab Sample ID: 480-154020-16

Matrix: Water Lab File ID: N2286.D

Analysis Method: 8260C Date Collected: 05/23/2019 00:00

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 04:35

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	ND		1.0	0.82
79-34-5	1,1,2,2-Tetrachloroethane	ND		1.0	0.21
79-00-5	1,1,2-Trichloroethane	ND		1.0	0.23
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31
75-34-3	1,1-Dichloroethane	ND		1.0	0.38
75-35-4	1,1-Dichloroethene	ND		1.0	0.29
120-82-1	1,2,4-Trichlorobenzene	ND		1.0	0.41
96-12-8	1,2-Dibromo-3-Chloropropane	ND		1.0	0.39
95-50-1	1,2-Dichlorobenzene	ND		1.0	0.79
107-06-2	1,2-Dichloroethane	ND		1.0	0.21
78-87-5	1,2-Dichloropropane	ND		1.0	0.72
541-73-1	1,3-Dichlorobenzene	ND		1.0	0.78
106-46-7	1,4-Dichlorobenzene	ND		1.0	0.84
78-93-3	2-Butanone (MEK)	ND		10	1.3
591-78-6	2-Hexanone	ND		5.0	1.2
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		5.0	2.1
67-64-1	Acetone	3.4	J	10	3.0
71-43-2	Benzene	ND		1.0	0.41
75-27-4	Bromodichloromethane	ND		1.0	0.39
75-25-2	Bromoform	ND		1.0	0.26
74-83-9	Bromomethane	ND		1.0	0.69
75-15-0	Carbon disulfide	ND		1.0	0.19
56-23-5	Carbon tetrachloride	ND		1.0	0.27
108-90-7	Chlorobenzene	ND		1.0	0.75
124-48-1	Dibromochloromethane	ND		1.0	0.32
75-00-3	Chloroethane	ND		1.0	0.32
67-66-3	Chloroform	ND		1.0	0.34
74-87-3	Chloromethane	ND		1.0	0.35
123-91-1	1,4-Dioxane	ND		40	9.3
156-59-2	cis-1,2-Dichloroethene	ND		1.0	0.81
10061-01-5	cis-1,3-Dichloropropene	ND		1.0	0.36
110-82-7	Cyclohexane	ND		1.0	0.18
75-71-8	Dichlorodifluoromethane	ND		1.0	0.68
100-41-4	Ethylbenzene	ND		1.0	0.74
106-93-4	1,2-Dibromoethane	ND		1.0	0.73

R ✓

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: TRIP BLANK Lab Sample ID: 480-154020-16

Matrix: Water Lab File ID: N2286.D

Analysis Method: 8260C Date Collected: 05/23/2019 00:00

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 04:35

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
98-82-8	Isopropylbenzene	ND		1.0	0.79
79-20-9	Methyl acetate	ND		2.5	1.3
1634-04-4	Methyl tert-butyl ether	ND		1.0	0.16
108-87-2	Methylcyclohexane	ND		1.0	0.16
75-09-2	Methylene Chloride	ND		1.0	0.44
100-42-5	Styrene	ND		1.0	0.73
127-18-4	Tetrachloroethene	ND		1.0	0.36
108-88-3	Toluene	ND		1.0	0.51
156-60-5	trans-1,2-Dichloroethene	ND		1.0	0.90
10061-02-6	trans-1,3-Dichloropropene	ND		1.0	0.37
79-01-6	Trichloroethene	ND		1.0	0.46
75-69-4	Trichlorofluoromethane	ND		1.0	0.88
75-01-4	Vinyl chloride	ND		1.0	0.90
1330-20-7	Xylenes, Total	ND		2.0	0.66

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	94		80-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	112		77-120
460-00-4	4-Bromofluorobenzene (Surr)	96		73-120
1868-53-7	Dibromofluoromethane (Surr)	109		75-123

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Client Sample ID: TRIP BLANK Lab Sample ID: 480-154020-16

Matrix: Water Lab File ID: N2286.D

Analysis Method: 8260C Date Collected: 05/23/2019 00:00

Sample wt/vol: 5(mL) Date Analyzed: 05/30/2019 04:35

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: ZB-624 (20) ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 475202 Units: ug/L

Number TICs Found: 2 TIC Result Total: 5.2

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Unknown	3.00	2.6	T J	
	Unknown	4.43	2.6	T J	

QC NONCONFORMANCE DOCUMENTATION

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1 Analy Batch No.: 472505

SDG No.:

Instrument ID: HP5973N GC Column: ZB-624 (20) ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/13/2019 16:35 Calibration End Date: 05/13/2019 19:23 Calibration ID: 36974

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5		B	M1	M2								
1,1-Dichloropropene	1.4431 2.0482	1.3045 1.9710	1.9420 2.0406	1.8628	1.9993	Ave		1.8264				15.8		20.0			
Benzene	4.1954 5.5895	4.7218 5.2841	5.1338 5.4768	5.4870	5.4576	Ave		5.1683			0.5000	9.3		20.0			
Isobutyl alcohol	0.1126 0.1593	0.1275 0.1612	0.1314 0.1585	0.1524	0.1479	Ave		0.1438				12.4		20.0			
1,2-Dichloroethane	2.1945 2.7392	2.5081 2.5636	2.8977 2.6258	2.6621	2.8023	Ave		2.6242			0.1000	8.2		20.0			
n-Heptane	+++++ 3.3190	2.1526 2.9831	2.9807 2.9837	2.9368	2.6006	Ave		2.8509				13.0		20.0			
Trichloroethene	+++++ 1.4016	1.2171 1.3814	1.4219 1.4042	1.4435	1.3877	Ave		1.3796			0.2000	5.4		20.0			
Methylcyclohexane	+++++ 2.3893	1.6016 2.2520	2.2856 2.3741	2.2302	2.2764	Ave		2.2013			0.1000	12.3		20.0			
1,2-Dichloropropane	1.2410 1.5965	1.5036 1.5495	1.6128 1.5810	1.5923	1.5524	Ave		1.5286			0.1000	7.9		20.0			
Dibromomethane	+++++ 0.8907	0.6675 0.8865	0.8328 0.8915	0.9236	0.8679	Ave		0.8515			0.1000	10.1		20.0			
1,4-Dioxane	+++++ 0.0061	0.0061 0.0058	0.0051 0.0058	0.0060	0.0057	Ave		0.0058				6.1		20.0			
Bromodichloromethane	1.4205 1.9784	1.7380 1.8658	1.9758 1.9940	1.7534	1.8600	Ave		1.8232			0.2000	10.4		20.0			
2-Chloroethyl vinyl ether	+++++ 1.2542	0.8222 1.1541	0.9704 1.1522	1.0034	1.0307	Ave		1.0553				13.6		20.0			
cis-1,3-Dichloropropene	1.5016 2.3345	1.8205 2.1940	2.0740 2.2836	1.9972	2.0998	Ave		2.0381			0.2000	13.3		20.0			
4-Methyl-2-pentanone (MIBK)	0.2284 0.2921	0.2594 0.2725	0.2724 0.2686	0.2708	0.2742	Ave		0.2673			0.1000	6.8		20.0			
Toluene	0.6893 0.9739	0.8640 0.9418	0.9967 0.9366	0.9507	1.0003	Ave		0.9192			0.4000	11.1		20.0			
trans-1,3-Dichloropropene	0.5185 0.6546	0.5147 0.6519	0.6240 0.6373	0.5699	0.5927	Ave		0.5954			0.1000	9.5		20.0			
Ethyl methacrylate	+++++ 0.5481	0.4437 0.5277	0.4517 0.5043	0.5607	0.5030	Ave		0.5056				8.9		20.0			
1,1,2-Trichloroethane	0.2665 0.2987	0.2460 0.2832	0.2898 0.2866	0.3025	0.2962	Ave		0.2837			0.1000	6.7		20.0			
Tetrachloroethene	0.3004 0.4265	0.3664 0.4182	0.4024 0.4116	0.4052	0.4562	Ave		0.3984			0.2000	11.8		20.0			
1,3-Dichloropropane	0.5290 0.6463	0.5951 0.6319	0.5907 0.6025	0.6089	0.5989	Ave		0.6004				5.8		20.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-154020-1

SDG No.:

Lab Sample ID: CCVIS 480-475202/3 Calibration Date: 05/29/2019 19:58

Instrument ID: HP5973N Calib Start Date: 05/13/2019 16:35

GC Column: ZB-624 (20) ID: 0.18(mm) Calib End Date: 05/13/2019 19:23

Lab File ID: N2265.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methylcyclohexane	Ave	2.201	1.981	0.1000	22.5	25.0	-10.0	20.0
1,2-Dichloropropane	Ave	1.529	1.351	0.1000	22.1	25.0	-11.6	20.0
Dibromomethane	Ave	0.8515	0.8057	0.1000	23.7	25.0	-5.4	20.0
1,4-Dioxane	Ave	0.0058	0.0062		535	500	7.0	50.0
Bromodichloromethane	Ave	1.823	1.793	0.2000	24.6	25.0	-1.7	20.0
2-Chloroethyl vinyl ether	Ave	1.055	0.9691		23.0	25.0	-8.2	20.0
cis-1,3-Dichloropropene	Ave	2.038	2.068	0.2000	25.4	25.0	1.5	20.0
4-Methyl-2-pentanone (MIBK)	Ave	0.2673	0.2452	0.1000	115	125	-8.3	20.0
Toluene	Ave	0.9192	0.8618	0.4000	23.4	25.0	-6.2	20.0
trans-1,3-Dichloropropene	Ave	0.5954	0.6253	0.1000	26.3	25.0	5.0	20.0
Ethyl methacrylate	Ave	0.5056	0.4903		24.2	25.0	-3.0	20.0
1,1,2-Trichloroethane	Ave	0.2837	0.2787	0.1000	24.6	25.0	-1.7	20.0
Tetrachloroethene	Ave	0.3984	0.4130	0.2000	25.9	25.0	3.7	20.0
1,3-Dichloropropane	Ave	0.6004	0.5938		24.7	25.0	-1.1	20.0
2-Hexanone	Ave	0.5318	0.4967	0.1000	117	125	-6.6	20.0
Dibromochloromethane	Ave	0.3462	0.3689	0.1000	26.6	25.0	6.5	20.0
1,2-Dibromoethane	Ave	0.3700	0.3758		25.4	25.0	1.6	20.0
Chlorobenzene	Ave	0.9788	0.9286	0.5000	23.7	25.0	-5.1	20.0
Ethylbenzene	Ave	1.705	1.654	0.1000	24.3	25.0	-3.0	20.0
1,1,1,2-Tetrachloroethane	Ave	0.3608	0.3802		26.3	25.0	5.4	20.0
m,p-Xylene	Ave	0.6541	0.6372	0.1000	24.4	25.0	-2.6	20.0
o-Xylene	Ave	0.6398	0.6174	0.3000	24.1	25.0	-3.5	20.0
Styrene	Ave	1.039	1.041	0.3000	25.1	25.0	0.2	20.0
Bromoform	Ave	0.2495	0.2521	0.1000	25.3	25.0	1.1	50.0
Isopropylbenzene	Ave	3.146	3.120	0.1000	24.8	25.0	-0.8	20.0
Bromobenzene	Ave	0.8630	0.7816		22.6	25.0	-9.4	20.0
1,1,2,2-Tetrachloroethane	Ave	0.8978	0.8170	0.3000	22.7	25.0	-9.0	20.0
N-Propylbenzene	Ave	3.695	3.444		23.3	25.0	-6.8	20.0
1,2,3-Trichloropropane	Ave	0.3295	0.3039		23.1	25.0	-7.8	20.0
trans-1,4-Dichloro-2-butene	Ave	0.3463	0.3734		27.0	25.0	7.8	50.0
2-Chlorotoluene	Ave	0.7578	0.6844		22.6	25.0	-9.7	20.0
1,3,5-Trimethylbenzene	Ave	2.763	2.619		23.7	25.0	-5.2	20.0
4-Chlorotoluene	Ave	2.376	2.166		22.8	25.0	-8.9	20.0
tert-Butylbenzene	Ave	0.5426	0.5021		23.1	25.0	-7.5	20.0
1,2,4-Trimethylbenzene	Ave	2.757	2.595		23.5	25.0	-5.9	20.0
sec-Butylbenzene	Ave	3.248	3.262		25.1	25.0	0.4	20.0
1,3-Dichlorobenzene	Ave	1.421	1.351	0.6000	23.8	25.0	-4.9	20.0
4-Isopropyltoluene	Ave	2.725	2.725		25.0	25.0	0.0	20.0
1,4-Dichlorobenzene	Ave	1.478	1.357	0.5000	23.0	25.0	-8.2	20.0
n-Butylbenzene	Ave	2.556	2.453		24.0	25.0	-4.1	20.0
1,2-Dichlorobenzene	Ave	1.458	1.296	0.4000	22.2	25.0	-11.1	20.0

Data Usability Summary Report

Site: Haight Farm
Laboratory: Eurofins TestAmerica Buffalo – Amherst, NY and Burlington, VT
SDG No.: 480-152984-1
Parameters: Per- and Poly-fluoroalkyl Substances, 1,4-Dioxane
Data Reviewer: Lisa Krowitz/TRC
Peer Reviewer: Elizabeth Denly/TRC
Date: August 8, 2019

Samples Reviewed and Evaluation Summary

3 Groundwater Samples : HF-MW-7S, HF-MW-4S, HF-MW-3D
1 Equipment Blank Sample : HF-EB1

The above-listed groundwater and equipment blank samples were collected on May 2, 2019 and were analyzed for one or more of the following parameters:

- 1,4-Dioxane by SW-846 8270D with Selective Ion Monitoring (SIM)
- Per- and Poly-fluoroalkyl substances (PFAS) (21 target analytes) based on EPA Method 537.1 (modified) using Test America – Burlington, VT standard operating procedure (SOP) BR-LC-009, revision 4.0, effective date 04/12/19.

The samples were analyzed for 1,4-dioxane by TestAmerica – Buffalo, NY and for PFAS by TestAmerica – Burlington, VT. The data validation was performed in accordance with the following USEPA guidance, modified for the methodologies utilized:

- USEPA National Functional Guidelines for Organic Superfund Methods Data Review (EPA-540-R-2017-002), January 2017
- USEPA National Functional Guidelines for High Resolution Superfund Methods Data Review (EPA-542-B-16-001), April 2016

The data were evaluated based on the following parameters:

	• Overall Evaluation of Data and Potential Usability Issues
*	• Data Completeness
*	• Holding Times and Sample Preservation
*	• GC/MS Tunes (1,4-Dioxane only)
*	• Initial and Continuing Calibrations
*	• Blanks
*	• Surrogate Recoveries (1,4-Dioxane only)
	• Isotopically Labeled Surrogate Results (PFAS only)
	• Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
*	• Laboratory Control Sample (LCS) Results
*	• Internal Standards
NA	• Field Duplicate Results
	• Sample Results and Reported Quantitation Limits (QLs)
	• Target Compound Identification

* - All criteria were met.
NA - Field duplicates were not associated with this sample set.

Overall Evaluation of Data and Potential Usability Issues

All results are usable for project objectives. There were no qualifications applied to the data because of sampling error. Qualifications applied to the data because of analytical error are discussed below.

- The nondetect results for PFHxS and PFHpS in samples HF-MW-7S and HF-MW-3D; and for NMeFOSAA in sample HMW-3D were qualified as estimated (UJ) due to low isotopically labeled surrogate recoveries.

Data Completeness

The data package was a complete Level IV data deliverable.

Holding Times and Sample Preservation

All holding time and sample preservation criteria were met for the 1,4-dioxane and PFAS analyses.

GC/MS Tunes (1,4-Dioxane only)

All criteria were met in the 1,4-dioxane analyses.

Initial and Continuing Calibrations

1,4-Dioxane

The percent relative standard deviation (%RSD) was within the method acceptance criteria in the initial calibration (IC). The percent difference (%Ds) met the method acceptance criteria in the continuing calibration (CC) standard associated with the samples in this data set.

PFAS

All %RSDs in the ICs were within the method acceptance criteria. All %Ds met the laboratory acceptance criteria in the CC standards associated with the samples in this data set.

Blanks

1,4-Dioxane

There were no detections of 1,4-dioxane in the method blank.

PFAS

There were no PFAS detected in the equipment blank (HF-EB1) or the associated method blank.

Surrogate Recoveries (1,4-Dioxane only)

The surrogate percent recoveries (%Rs) met the laboratory acceptance criteria in the 1,4-dioxane analyses.

Isotopically Labeled Surrogate Results (PFAS only)

Eighteen isotopically labeled surrogates were spiked into the samples prior to extraction for isotope dilution quantitation. The following table summarizes the %Rs that did not meet the laboratory acceptance limits and the resulting validation actions.

Sample ID	Surrogate	%R	QC Limits	Validation Actions
HF-MW-7S	18O2-PFHxS	48	50-150	The nondetect results for PFHxS and PFHpS in samples HF-MW-7S and HF-MW-3D were qualified as estimated (UJ).
HF-MW-3D	18O2-PFHxS	42	50-150	
HF-MW-3D	d3-NMeFOSAA	42	50-150	The nondetect result for NMeFOSAA in sample HF-MW-3D was qualified as estimated (UJ).

MS/MSD Results

MS/MSD analyses were performed on sample HF-MW-4S for 1,4-dioxane and PFAS analyses. The %Rs were within the laboratory acceptance criteria for 1,4-dioxane and PFAS analyses. The relative percent differences (RPDs) were met for the 1,4-dioxane analyses. The following table summarizes the RPDs that did not meet the laboratory acceptance criteria in the PFAS analyses.

Compound	RPD	QC Limit	Validation Actions
PFPeA	43	30	No qualification was required since these compounds were nondetect in sample HF-MW-4S
PFHxA	50	20	
PFOS	30	20	
NMeFOSAA	54	20	
NEtFOSAA	27	20	

LCS Results

The LCS %Rs were within the laboratory acceptance criteria for the 1,4-dioxane and PFAS analyses.

Internal Standards

1,4-Dioxane

The %Rs for internal standard 1,4-dichlorobenzene-d_4 which was added to each sample met the laboratory limits of 50-150% in the 1,4-dioxane analyses.

PFAS

The isotopically labeled internal standard 13C2-PFOA was added to each sample prior to injection to monitor for ion suppression/enhancement at the instrument level. The %Rs met the laboratory acceptance limits in the PFAS analyses.

Field Duplicate Results

There were no field duplicates associated with this data set.

Sample Results and Reported Quantitation Limits

1,4-Dioxane

Sample calculations were spot-checked; there were no errors noted.

There were no dilutions performed for 1,4-dioxane analyses.

PFAS

Sample calculations were spot-checked; there were no errors noted.

Samples HF-MW-7S, HF-MW-4S, and HF-MW-3D were analyzed at 5-fold dilutions based on the yellow color of the extracts. The laboratory analyzed these samples at 5-fold dilutions rather than as undiluted since the laboratory has observed a correlation between color and interference resulting in shifting retention times and/or suppression of the isotopically labeled surrogates. The QLs were adjusted accordingly. Since there were no PFAS detected in these samples, the laboratory should have re-analyzed the samples undiluted; no validation action was taken on this basis.

Target Compound Identification

1,4-Dioxane

All criteria were met for 1,4-dioxane.

PFAS

Extracted ion chromatograms were reviewed to verify the target compound identifications. The standards for PFOA, PFOS, NEtFOSAA, NMeFOSAA, and PFHxS include branched and linear isomers; the branched and linear isomers are integrated and used for quantitation.

Two precursor/product ion transitions were used for identification for all compounds except for PFBA, PFPeA, FOSA, NMeFOSAA, NEtFOSAA, 6:2 FTS, and 8:2 FTS which only used one precursor/product ion transition for identification.

There were no compounds detected in the samples; thus, the ratios between the two precursor/product ion transitions were not reviewed.

The analyst indicated on the LCMS Batch Worksheet that the extract for sample HF-EB1 was blown down to dryness; the laboratory's standard procedure is to not bring the extract to dryness. No validation action was taken since the isotopically labeled surrogates were within the laboratory's acceptance limits.

QUALIFIED FORM 1s

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-152984-1

SDG No.:

Client Sample ID: HF-MW-7S Lab Sample ID: 480-152984-1

Matrix: Water Lab File ID: U33150396.D

Analysis Method: 8270D SIM ID Date Collected: 05/02/2019 12:00

Extract. Method: 3510C Date Extracted: 05/07/2019 08:04

Sample wt/vol: 1050(mL) Date Analyzed: 05/10/2019 23:49

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 1(uL) Level: (low/med) Low

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 472338 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	ND		0.19	0.095

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	23		15-110

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-152984-1

SDG No.:

Client Sample ID: HF-MW-4S Lab Sample ID: 480-152984-2

Matrix: Water Lab File ID: U33150395.D

Analysis Method: 8270D SIM ID Date Collected: 05/02/2019 13:30

Extract. Method: 3510C Date Extracted: 05/07/2019 08:04

Sample wt/vol: 1050(mL) Date Analyzed: 05/10/2019 23:25

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 1(uL) Level: (low/med) Low

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 472338 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	ND		0.19	0.095

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	27		15-110

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-152984-1

SDG No.:

Client Sample ID: HF-MW-3D Lab Sample ID: 480-152984-3

Matrix: Water Lab File ID: U33150397.D

Analysis Method: 8270D SIM ID Date Collected: 05/02/2019 16:00

Extract. Method: 3510C Date Extracted: 05/07/2019 08:04

Sample wt/vol: 1050(mL) Date Analyzed: 05/11/2019 00:13

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 1(uL) Level: (low/med) Low

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 472338 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	ND		0.19	0.095

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	28		15-110

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Burlington Job No.: 480-152984-1

SDG No.:

Client Sample ID: HF-MW-7S Lab Sample ID: 480-152984-1

Matrix: Water Lab File ID: PF051019A45.d

Analysis Method: 537 (modified) Date Collected: 05/02/2019 12:00

Extraction Method: 3535 Date Extracted: 05/06/2019 11:47

Sample wt/vol: 302.7(mL) Date Analyzed: 05/11/2019 04:19

Con. Extract Vol.: 0.5(mL) Dilution Factor: 5

Injection Volume: 20(uL) GC Column: C-18 ID: 4.6(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 142911 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	ND		8.3	4.1
2706-90-3	Perfluoropentanoic acid (PFPeA)	ND		8.3	2.6
307-24-4	Perfluorohexanoic acid (PFHxA)	ND		8.3	3.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	ND		8.3	3.8
335-67-1	Perfluorooctanoic acid (PFOA)	ND		8.3	2.6
375-95-1	Perfluorononanoic acid (PFNA)	ND		8.3	1.1
335-76-2	Perfluorodecanoic acid (PFDA)	ND		8.3	3.2
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		8.3	2.2
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		8.3	2.4
72629-94-8	Perfluorotridecanoic acid (PFTriA)	ND		8.3	2.5
376-06-7	Perfluorotetradecanoic acid (PFTeA)	ND		8.3	3.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	ND		8.3	2.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	ND		8.3	UJ 3.3
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND		8.3	UJ 3.9
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	ND		8.3	2.5
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		8.3	3.7
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND		8.3	2.6
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		83	7.0
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		83	6.2
27619-97-2	1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		83	19
39108-34-4	1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		83	12

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Burlington Job No.: 480-152984-1

SDG No.:

Client Sample ID: HF-MW-4S Lab Sample ID: 480-152984-2

Matrix: Water Lab File ID: PF051019A46.d

Analysis Method: 537 (modified) Date Collected: 05/02/2019 13:30

Extraction Method: 3535 Date Extracted: 05/06/2019 11:47

Sample wt/vol: 299.4(mL) Date Analyzed: 05/11/2019 04:35

Con. Extract Vol.: 0.5(mL) Dilution Factor: 5

Injection Volume: 20(uL) GC Column: C-18 ID: 4.6(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 142911 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	ND		8.4	4.2
2706-90-3	Perfluoropentanoic acid (PFPeA)	ND	F2	8.4	2.6
307-24-4	Perfluorohexanoic acid (PFHxA)	ND	F2	8.4	3.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	ND		8.4	3.8
335-67-1	Perfluorooctanoic acid (PFOA)	ND		8.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	ND		8.4	1.1
335-76-2	Perfluorodecanoic acid (PFDA)	ND		8.4	3.2
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		8.4	2.2
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		8.4	2.5
72629-94-8	Perfluorotridecanoic acid (PFTriA)	ND		8.4	2.5
376-06-7	Perfluorotetradecanoic acid (PFTeA)	ND		8.4	3.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	ND		8.4	2.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	ND		8.4	3.3
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND		8.4	4.0
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	ND	F2	8.4	2.5
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		8.4	3.8
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND		8.4	2.7
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	F2	84	7.1
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	F2	84	6.3
27619-97-2	1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		84	19
39108-34-4	1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		84	12

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Burlington Job No.: 480-152984-1

SDG No.:

Client Sample ID: HF-MW-3D Lab Sample ID: 480-152984-3

Matrix: Water Lab File ID: PF051019A49.d

Analysis Method: 537 (modified) Date Collected: 05/02/2019 16:00

Extraction Method: 3535 Date Extracted: 05/06/2019 11:47

Sample wt/vol: 303.5(mL) Date Analyzed: 05/11/2019 05:23

Con. Extract Vol.: 0.5(mL) Dilution Factor: 5

Injection Volume: 20(uL) GC Column: C-18 ID: 4.6(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 142911 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	ND		8.2	4.1
2706-90-3	Perfluoropentanoic acid (PFPeA)	ND		8.2	2.6
307-24-4	Perfluorohexanoic acid (PFHxA)	ND		8.2	3.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	ND		8.2	3.7
335-67-1	Perfluorooctanoic acid (PFOA)	ND		8.2	2.6
375-95-1	Perfluorononanoic acid (PFNA)	ND		8.2	1.1
335-76-2	Perfluorodecanoic acid (PFDA)	ND		8.2	3.2
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		8.2	2.2
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		8.2	2.4
72629-94-8	Perfluorotridecanoic acid (PFTriA)	ND		8.2	2.5
376-06-7	Perfluorotetradecanoic acid (PFTeA)	ND		8.2	3.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	ND		8.2	2.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	ND		8.2	UJ 3.3
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND		8.2	UJ 3.9
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	ND		8.2	2.5
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		8.2	3.7
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND		8.2	2.6
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		82	UJ 7.0
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		82	6.2
27619-97-2	1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		82	19
39108-34-4	1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		82	12

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins TestAmerica, Burlington Job No.: 480-152984-1

SDG No.:

Client Sample ID: HF-EB1 Lab Sample ID: 480-152984-4

Matrix: Water Lab File ID: PF051019A50.d

Analysis Method: 537 (modified) Date Collected: 05/02/2019 15:50

Extraction Method: 3535 Date Extracted: 05/06/2019 11:47

Sample wt/vol: 278.4(mL) Date Analyzed: 05/11/2019 05:38

Con. Extract Vol.: 0.5(mL) Dilution Factor: 1

Injection Volume: 20(uL) GC Column: C-18 ID: 4.6(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 142911 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	ND		1.8	0.90
2706-90-3	Perfluoropentanoic acid (PFPeA)	ND		1.8	0.57
307-24-4	Perfluorohexanoic acid (PFHxA)	ND		1.8	0.68
375-85-9	Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.82
335-67-1	Perfluorooctanoic acid (PFOA)	ND		1.8	0.57
375-95-1	Perfluorononanoic acid (PFNA)	ND		1.8	0.24
335-76-2	Perfluorodecanoic acid (PFDA)	ND		1.8	0.69
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.48
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		1.8	0.53
72629-94-8	Perfluorotridecanoic acid (PFTriA)	ND		1.8	0.54
376-06-7	Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.83
375-73-5	Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.44
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.72
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8	0.85
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.55
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.81
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND		1.8	0.57
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		18	1.5
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		18	1.3
27619-97-2	1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		18	4.1
39108-34-4	1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		18	2.6

QC NONCONFORMANCE DOCUMENTATION

FORM II
LCMS SURROGATE RECOVERY

Lab Name: Eurofins TestAmerica, Burlington Job No.: 480-152984-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): C-18 ID: 4.6 (mm)

Client Sample ID	Lab Sample ID	PFBA #	PFPeA #	PFBS #	PFHxA #	PFHpA #	PFHxS #	M262FTS #	PFOA #
HF-MW-7S	480-152984-1	60	77	62	82	86	48 *	60	83
HF-MW-4S	480-152984-2	71	78	50	75	93	59	93	87
HF-MW-3D	480-152984-3	82	64	57	69	83	42 *	77	72
HF-EB1	480-152984-4	80	90	103	95	91	88	89	88
	MB 200-142714/1-A	70	83	92	85	92	76	83	91
	LCS 200-142714/2-A	73	89	92	87	95	82	76	90
HF-MW-4S MS	480-152984-2 MS	96	90	82	87	84	93	89	80
HF-MW-4S MSD	480-152984-2 MSD	79	50	135	50	68	63	62	64

	QC LIMITS
PFBA = 13C4 PFBA	25-150
PFPeA = 13C5 PFPeA	25-150
PFBS = 13C3 PFBS	50-150
PFHxA = 13C2 PFHxA	50-150
PFHpA = 13C4 PFHpA	50-150
PFHxS = 18O2 PFHxS	50-150
M262FTS = M2-6:2 FTS	25-150
PFOA = 13C4 PFOA	50-150

Column to be used to flag recovery values

FORM II 537 (modified)

FORM II
LCMS SURROGATE RECOVERY

Lab Name: Eurofins TestAmerica, Burlington Job No.: 480-152984-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): C-18 ID: 4.6 (mm)

Client Sample ID	Lab Sample ID	PFNA #	PFOS #	M282FTS #	PFDA #	d3NMFOS #	d5NEFOS #	PFUnA #	PFOSA #
HF-MW-7S	480-152984-1	67	56	70	71	56	54	76	45
HF-MW-4S	480-152984-2	75	89	113	90	64	68	83	54
HF-MW-3D	480-152984-3	62	59	60	70	42 *	53	68	32
HF-EB1	480-152984-4	79	78	93	87	54	62	82	36
	MB 200-142714/1-A	80	79	103	93	59	67	90	47
	LCS 200-142714/2-A	78	80	94	91	61	68	91	58
HF-MW-4S MS	480-152984-2 MS	69	66	63	73	56	58	71	53
HF-MW-4S MSD	480-152984-2 MSD	56	69	64	58	40 *	41 *	49 *	38

	QC LIMITS
PFNA = 13C5 PFNA	50-150
PFOS = 13C4 PFOS	50-150
M282FTS = M2-8:2 FTS	25-150
PFDA = 13C2 PFDA	50-150
d3NMFOS = d3-NMeFOSAA	50-150
d5NEFOS = d5-NEtFOSAA	50-150
PFUnA = 13C2 PFUnA	50-150
PFOSA = 13C8 FOSA	25-150

Column to be used to flag recovery values

FORM II 537 (modified)

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Eurofins TestAmerica, Burlington Job No.: 480-152984-1

SDG No.:

Matrix: Water Level: Low Lab File ID: PF051019A48.d

Lab ID: 480-152984-2 MSD Client ID: HF-MW-4S MSD

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorobutanoic acid (PFBA)	34.3	38.6	113	22	30	40-160	
Perfluoropentanoic acid (PFPeA)	34.3	49.4	144	43	30	40-160	F2
Perfluorohexanoic acid (PFHxA)	34.3	49.8	145	50	20	40-160	F2
Perfluoroheptanoic acid (PFHpA)	34.3	35.0	102	2	20	40-160	
Perfluorooctanoic acid (PFOA)	34.3	36.0	105	6	20	40-160	
Perfluorononanoic acid (PFNA)	34.3	33.2	97	4	20	40-160	
Perfluorodecanoic acid (PFDA)	34.3	38.6	113	14	20	40-160	
Perfluoroundecanoic acid (PFUnA)	34.3	38.6	113	8	20	40-160	
Perfluorododecanoic acid (PFDoA)	34.3	35.6	104	6	20	40-160	
Perfluorotridecanoic acid (PFTriA)	34.3	25.6	75	17	20	40-160	
Perfluorotetradecanoic acid (PFTeA)	34.3	37.6	110	3	20	40-160	
Perfluorobutanesulfonic acid (PFBS)	30.3	26.2	86	1	20	40-160	
Perfluorohexanesulfonic acid (PFHxS)	31.2	22.7	73	12	20	40-160	
Perfluoroheptanesulfonic Acid (PFHpS)	32.6	25.3	78	5	30	40-160	
Perfluorooctanesulfonic acid (PFOS)	31.8	36.2	114	30	20	40-160	F2
Perfluorodecanesulfonic acid (PFDS)	33.0	22.1	67	25	30	40-160	
Perfluorooctanesulfonamide (PFOSA)	34.3	35.7	104	2	30	40-160	
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	34.3	45.3 J	132	54	20	40-160	F2
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	34.3	47.5 J	139	27	20	40-160	F2
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	32.5	22.0 J	68	2	30	40-160	
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	32.8	31.3 J	95	12	30	40-160	
18O2 PFHxS	81.1	51.1	63			50-150	
13C4 PFHpA	85.7	58.6	68			50-150	
13C4 PFOA	85.7	54.5	64			50-150	
13C4 PFOS	81.9	56.6	69			50-150	
13C5 PFNA	85.7	48.0	56			50-150	
13C4 PFBA	85.7	68.1	79			25-150	
13C2 PFHxA	85.7	42.8	50			50-150	
13C2 PFDA	85.7	50.0	58			50-150	
13C2 PFUnA	85.7	41.7	49			50-150	*

Column to be used to flag recovery and RPD values

FORM III 537 (modified)